

## Using This Bulletin

This bulletin is intended primarily to provide users with Penn State academic information.

To browse the site, use the buttons across the top of the home page. For specific searches, use the search engines on the upper right of the home page or the Site Index (last button in the row across the top of the page).

For course descriptions, click the "University Course Descriptions" button (first on on the left on the home page) or use the Course Description Fast Path search engine on the upper right of the home page.

In the bulletin, the word *Program* refers to an academic program (majors, minors, and special programs). Search for academic program information by program category (associate or baccalaureate: two-year, four or more years), campus, or college with the buttons and links on the home page, or search for specifics with the site search engines.

The University-wide General Education requirements are explained under that heading on the home page.

Links to offices that may be useful to users are under the "Additional Resources" heading on the home page.

At the upper right edge of the home page, you may access searches for Penn State individual and department directories, link to the Penn State home page, or access another Web browser.

The site follows conventional navigation practices, so once in secondary pages, users should be able to click through to find what they want.

## ACADEMIC AUTHORITY

The University Faculty Senate has responsibility for and authority over all academic information contained in the Undergraduate Bulletin.

## REGULATIONS SUBJECT TO CHANGE

Each step of the educational process, from admission through graduation, requires continuing review and appropriate approval by University officials. The University, therefore, reserves the right to change the requirements and regulations contained in this bulletin and to determine whether a student has satisfactorily met its requirements for admission or graduation, and to reject any applicant for any reason the University determines to be material to the applicant's qualifications to pursue higher education.

## **Authority over Academic Information**

The University Faculty Senate has responsibility for and authority over all academic information contained in the Undergraduate Bulletin.

## University Phone Numbers

To telephone the administrative headquarters of the University at the University Park campus, dial (or ask the operator for) area code 814 and the desired number. If you do not know the number, call 814-865-4700, Penn State Call Center information. For telephone numbers of other Penn State locations, see

[Penn State Undergraduate Campuses](#)

. Frequently used University Park campus numbers are:

Undergraduate Admissions: 814-865-5471

Graduate Enrollment Services: 814-865-1795

Registrar's Office: 814-865-6357

Penn State encourages qualified persons with disabilities to participate in its programs and activities. If you anticipate needing any type of accommodation or have questions about the physical access provided, please contact the Office for Disability Services, 814-863-1807, in advance of your participation or visit.

## STATEMENT OF NONDISCRIMINATION

University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. The Pennsylvania State University does not discriminate against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identity, or veteran status. Discrimination or harassment against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 328 Boucke Building, University Park PA 16802-2801; tel. 814-865-4700/V, 814-863-1150/TTY.

## **Board of Trustees**

Control of Penn State is vested in a Board of Trustees of thirty-two members. Members ex officio are the Governor of the Commonwealth; the President of the University; the state Secretary of Education; the state Secretary of Agriculture; and the state Secretary of Conservation and Natural Resources. Terms of the other trustees are three years. Six trustees are appointed by the governor, nine are elected by the alumni, six by delegates from county agricultural societies, and six by the board representing business and industry.

For information, including a trustee membership list, see:

[www.psu.edu/trustees.](http://www.psu.edu/trustees)



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The Vice President and Dean for Undergraduate Education; the Associate Vice President and Senior Associate Dean for Undergraduate Education; the Assistant or Associate Deans for Instruction or Undergraduate Education in the colleges; the Associate Vice President for Outreach; the University Registrar; the Executive Director for the Division of Undergraduate Studies; the Chair-elect of the University Faculty Senate; and two undergraduate student members representing the University Park Undergraduate Association and the Council of Commonwealth Student Governments.

## FINANCE AND BUSINESS STAFF

The Senior Vice President for Finance and Business/Treasurer (Chair); the Corporate Controller; the University Budget Officer; the Associate Treasurer/Director for Financial Management; the Associate Vice President for Finance and Business, Controller, College of Medicine, Penn State Milton S. Hershey Medical Center; the Associate Vice Presidents for Auxiliary Services, Business Services, Finance and Business, Finance and Business Commonwealth Operations, Human Resources, and Physical Plant; the Director of University Police; the Financial Officer; the Administrative Assistants; and the Administrative Fellow.

## EMERITI

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Updated: 02/03/14

## **Mission of the University**

See

[www.psu.edu/ur/about/mission.html/.](http://www.psu.edu/ur/about/mission.html/)

## Options for Undergraduate Study

The undergraduate degree programs of the University provide students with opportunities to increase their knowledge and understanding of the world and to grow in their individual skills and capabilities for learning, analyzing, creating, communicating, and forming good judgments. All undergraduate degree programs and courses offered by the colleges and other degree-granting units of the University are under the academic sponsorship of a faculty committed to scholarship and are implemented under the academic policies and student rules established by the University Faculty Senate. They are intended to be flexible in accommodating students interested in learning, whether through traditional or nontraditional offerings, while enrolled on either a part-time or a full-time basis. The degree programs and courses of the colleges and other degree-granting units are offered through resident or distance education. Credit courses are available to degree candidates on University campuses as well as through off-campus credit-granting activities such as internships, practicums, field trips, and foreign studies, as well as via continuing and distance education mechanisms, such as the World Campus. Students not formally admitted to degree candidacy (including provisional and nondegree students) may participate in resident offerings as time and space permit, as well as in continuing and distance education.

## University Outreach

Penn State extends the intellectual expertise and resources of the University through teaching, research, and service to address the social, civic, economic, and environmental issues and opportunities of the Commonwealth, nation, and world.

Working closely with its colleges, the University delivers outreach programs and services to support the needs of people throughout Pennsylvania and beyond at convenient times and accessible locations.

For information, see  
[www.outreach.psu.edu](http://www.outreach.psu.edu)

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## Research

Research--in addition to teaching and public service--is a primary mission of the University. A strong research program strengthens both undergraduate and graduate education by building the body of knowledge and experience on which both are based.

For undergraduate instruction, research brings to the classroom enthusiasm, practical experience, and up-to-date laboratory equipment, as well as opportunities for honors thesis topics and participation in research programs. For graduate programs, research furnishes thesis topics, stipend and tuition support, and experienced faculty to train students as the next generation of researchers. Penn State's national academic reputation depends greatly on research publications and other scholarly activities of the faculty, whose combined teaching, research, and public service efforts are the hallmarks of a major university.

**INVENTIONS AND PATENTS**---Patentable discoveries made by University faculty, staff, and graduate students that involve the use of University funds or facilities are the property of the University. Both undergraduate and graduate students fall within the University staff category whenever they are employed in connection with institutional research projects. Patents, with the inventors sharing in the royalties, are administered in the public interest by The Penn State Research Foundation, a nonprofit organization made up of faculty, alumni, industry representatives, and members of the University Board of Trustees. Royalty income is shared between inventor, the organizational unit, and The Penn State Research Foundation. The Penn State Research Foundation's share is used to foster the advancement of technology transfer and research at the University.

For information, see  
[www.research.psu.edu/](http://www.research.psu.edu/)

For information specific to inventions and patents, see  
[www.research.psu.edu/ipo](http://www.research.psu.edu/ipo)

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## History

For information, see

[www.psu.edu/ur/about/history.html](http://www.psu.edu/ur/about/history.html)



## **Division of Undergraduate Studies (DUS)**

The Division of Undergraduate Studies is an academic unit of the University that offers advising programs at the University Park campus and all other undergraduate locations.

For information, see  
[www.psu.edu/dus/](http://www.psu.edu/dus/)

## **Schreyer Honors College**

For information, see  
[www.scholars.psu.edu/](http://www.scholars.psu.edu/)

## **University Faculty Senate**

For information, see  
[www.psu.edu/ufs/](http://www.psu.edu/ufs/)

## The University Libraries

The University Libraries constitute a major resource for students and researchers in all fields of study. The Libraries, ranked 13th nationally by the Association of Research Libraries, contain more than 4.9 million volumes, 5.2 million microforms, 58,459 serial subscriptions, plus more than 420 databases and 13,700 e-journals—most with full text.

The University Libraries include a central facility and five other libraries at University Park campus, plus libraries at 23 Penn State locations throughout the state, including the Dickinson School of Law and the Milton S. Hershey Center and the Penn State affiliated Pennsylvania College of Technology. At University Park, the Arts and Humanities, Business, Education and Behavioral Sciences, Social Sciences, Maps, Life Sciences, Special Collections, and News and Microforms libraries are maintained in Pattee Library and Paterno Library. Other Libraries at University Park include the Architecture and Landscape Architecture, Earth and Mineral Sciences, Engineering, Law, and Physical and Mathematical Sciences libraries.

In addition Pattee Library houses Course Reserves Services, the Extended Hours Study Area, and Library Services for Persons with Disabilities. The Special Collections Library in Paterno Library includes Historical Collections and Labor Archives, Rare Books and Manuscripts, and the Penn State University Archives.

Among special collections of national importance are those on Arnold Bennett, Kenneth Burke, Jean Giraudoux, John O'Hara, Vance Packard, Joseph Priestley, Conrad Richter; the Allison-Shelley collection of Anglo-Americana-Germanica; and materials on Utopian literature and on Australia. The Historical Collections and Labor Archives contain a wide variety of documentary sources, including the papers of Pennsylvania leaders and businesses and records of labor unions. The most notable of these documents are those of Richard Schweiker, William Scranton, the United Steelworkers of America, and the United Mine Workers of America. The Penn State University Archives house an extensive collection of materials about the University and the surrounding community.

Faculty members may recommend books and other library material purchases by contacting the Libraries directly at [www.libraries.psu.edu/answers/buybook.htm](http://www.libraries.psu.edu/answers/buybook.htm) or through the faculty member in their department who serves as the library representative. Libraries subject specialists are listed on the Web at

<http://apps.libraries.psu.edu/selectors/links.cfm>

. Faculty at locations other than University Park can also contact their head librarian.

Access to holdings is obtained through The CAT, a computerized catalog, part of the Library Information Access System (LIAS), available on the Web at [www.libraries.psu.edu](http://www.libraries.psu.edu). LIAS is a dynamic, integrated information system that provides electronic access to a great variety of materials in many subject areas.

The Libraries maintain a comprehensive program of general and specialized reference and instructional services. The Libraries' faculty teach credit courses as part of the Library Studies Program and offer a variety of topical seminars. Introductory sessions, offered by the Libraries' Instructional Programs, are scheduled on a regular basis to familiarize faculty, students, and other library users with LIAS. Class sessions designed for specific courses can be arranged in the library to help students learn how to find, use, and evaluate relevant books, articles, Web sites, and other information resources. Assistance is available to help design assignments that use library resources to enhance student research skills and critical thinking. Library instruction rooms (hands-on labs or traditional classrooms) can be reserved for on-site instruction in the use of library resources. For information, go to:

[www.libraries.psu.edu/instruction/](http://www.libraries.psu.edu/instruction/)

Penn State holds membership in the Association of Research Libraries, the Research Libraries Group, the Consortium for Institutional Cooperation, and the Online Computer Library Center (OCLC). Participation in these organizations provides faculty and students with access to the collections of more than 2,500 libraries across the United States and internationally, including major research libraries. It is the largest research library in Pennsylvania and one of four resource libraries that provide service and collections to all other libraries and citizens of the Commonwealth.

The publication, Guide to the University Libraries, offers additional information on services and programs and is available at Libraries service desks and by calling (814) 863-4240. More information is also available at [www.libraries.psu.edu](http://www.libraries.psu.edu). Students and others are encouraged to attend the annual Libraries Open House, held each fall semester.

Media and Technology Support Services (MediaTech),

<http://www.medianet.libraries.psu.edu/htbin/wwform/175/wwk770>

Services include:

- Consultation for purchase of technology or audiovisual equipment: 814-863-0665
- Equipment scheduling: 814-865-5400, 26 Willard Building; e-mail to [mtsseq@psulias.psu.edu](mailto:mtsseq@psulias.psu.edu)
- Preview facilities: Special Services Building, 151 Standing Stone Lane (NOTE: this facility is moving to Wagner Annex, Curtin Rd. Check Web for updates.) and 26 Willard Building
- Program scheduling: University Park, 814-863-3202; other locations, 814-865-6314; e-mail to [mtssmed@psulias.psu.edu](mailto:mtssmed@psulias.psu.edu)
- MediaTech Repair and Installation Services: 814-863-4389

Dial Access On-Line provides audio-streamed lectures of selected classes, 24 hours, 7 days a week, for student and faculty review at

<http://tips.libraries.psu.edu/dialaccess>

. With a Penn State access account, lectures of selected courses can be reviewed from any computer, including computers in the ITS labs via the Web. A Web browser, the latest version of the free RealAudio software, and a sound card are needed. For more information, call 814-863-8144.

Another important service of MediaTech is the MediaTech Info Line. This audio information service includes current weather forecasts as provided by the Campus Weather Service, the University Calendar of Events, information on town and

campus movies, JOBS—Penn State's employment information service, open house schedules for the Department of Astronomy, and construction barriers on or around the University Park campus. This service may be accessed from any touch-tone telephone at 814-863-1234.

For more information about services available from MediaTech, e-mail to [mtssmed@psulias.psu.edu](mailto:mtssmed@psulias.psu.edu) or visit [www.libraries.psu.edu/mtss](http://www.libraries.psu.edu/mtss)

## **Penn State Undergraduate Campuses**

For information, see  
[www.psu.edu/ur/cmpcoll.html](http://www.psu.edu/ur/cmpcoll.html)



## **Pennsylvania College of Technology**

For information, see  
[www.pct.edu](http://www.pct.edu)

## **Graduate School**

For information, see

<http://www.gradsch.psu.edu>

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## **Penn State University, The Dickinson School of Law**

For information, see  
[law.psu.edu](http://law.psu.edu)

## **College of Medicine**

For information, see

<http://www.pennstatehershey.org/web/college/home>



## Minimum Requirements for Admission to Degree Candidacy

To be eligible for admission consideration to the University as a degree candidate, either as a beginning student or as a student with advanced standing, an applicant must meet the following minimum requirements:

1. Graduation from an accredited secondary school. Penn State requires proof of graduation or a GED for admission to four-year degree programs.
2. Completion of the required units of preparatory work as indicated under the heading Minimum Carnegie Units.

A secondary school diploma issued by the Pennsylvania Department of Education, or appropriate authority in another state, may be accepted as equivalent to graduation from an accredited secondary school and as equivalent to the minimum secondary school units required for admission, as indicated under the Minimum Carnegie Units heading, with the exception of math and world language.

The University accepts the definition of a secondary school unit as established by the Carnegie Foundation. A unit represents a year of work in a subject in a preparatory school or secondary school, provided that the work done in that subject is approximately one-fourth of the total amount of work regularly required in a year in the school.

The University reserves the right to deny admission to any applicant for admission for any reason the University determines to be material to the applicant's qualifications to pursue higher education.

Admission to degree candidacy is specified in terms of enrollment in a college or school of the University or in the Division of Undergraduate Studies. Entrance to a baccalaureate major is a subsequent step that normally occurs near the end of the second year of study. Both for admission to a college or school and for entrance to a major, a student must satisfy the requirements of the University, of the particular college or school, and of the major area. In special circumstances, the University may need to further restrict admissions to a college or school and entrance to majors because of space limitations.

### Minimum Carnegie Units

#### Baccalaureate and Associate Degree Programs

See the minimum number of secondary school units required for admission consideration to a **baccalaureate degree program** [here](#).

See the minimum number of secondary school units required for admission consideration to an **associate degree program** can be found [here](#).

## First-Year Admission

An applicant for admission as a beginning student in the first-year class must meet the [minimum requirements for admission](#).

to degree candidacy prior to the time of matriculation. All offers of admission are conditional until these requirements have been met.

Each applicant is evaluated on the basis of the high school record and results of the Scholastic Assessment Test (SAT) or American College Test (ACT). This evaluation produces an evaluation index. Admission decisions are made on the basis of a review of the applicant's evaluation index in relation to the requested area of enrollment (academic program), space availability, the quality of the credentials presented by other applicants, and such other academically relevant information deemed appropriate by the Undergraduate Admissions Office and approved by the Senate Committee on Admission, Records, Scheduling, and Student Aid.

When openings at the requested location or in the requested program of the University are filled, qualified applicants will be offered admission to their alternate choice of program or location or notified of campuses where openings still exist.

**COLLEGE ENTRANCE TESTS**--Applicants for first-year admission to the University are required to submit scores of the Scholastic Assessment Test (SAT) of the College Entrance Examination Board or the American College Test (ACT). SAT or ACT results of the junior-year testing periods are recommended. Exceptions to the requirement for scholastic assessment test scores will be granted to adult learners who have been out of high school for five or more years or are veterans with four or more years of service. Exceptions to the required courses completed also may be granted. Adults may be requested to submit a statement of personal goals or to participate in an interview.

**SELECTION OF THE AREA OF ENROLLMENT**--It is necessary for an applicant to indicate one of the academic units of the University in which he or she wants to study. If an applicant is undecided about the choice of an academic unit, he or she may seek enrollment in the Division of Undergraduate Studies.

**CHANGING THE AREA OF ENROLLMENT**--An applicant who has been admitted to an academic college or unit of the University may not change to another without satisfying entrance requirements of the college or other academic unit of the University to which he or she wants to transfer.

**PREVIOUS ATTENDANCE AT ANOTHER COLLEGE**--An applicant must state on his or her application whether he or she has ever attended any other college or university. Failure to indicate, at the time of application, previous registration at another college or university may result in refusal or cancellation of admission. An applicant who has attempted fewer than 18 semester credits at another regionally accredited college or university will be considered as a first-year applicant. An applicant who has attempted 18 or more semester credits at another regionally accredited college or university subsequent to high school graduation will be evaluated as an advanced standing applicant.

**OBTAINING AN APPLICATION** -- The application for admission [is available on the Web](#). **Web applications are preferred.** A paper application can be obtained as a PDF on the Web site or by writing to the Undergraduate Admissions Office, The Pennsylvania State University, 201 Shields Building, University Park, PA 16802-1294 (telephone: 814 865-5471), or by contacting an admissions officer at any University undergraduate campus.

## Advanced Standing (Transfer) Admission

An applicant who has attended any regionally accredited college or institution on the college level and attempted 18 or more semester credits subsequent to high school graduation may be considered for admission with advanced standing. Attendance at any and all other institutions must be reported at the time of application. Failure to indicate, at the time of application, previous registration at another college or university can result in refusal or cancellation of admission.

An applicant for admission with advanced standing must meet the

[minimum secondary school requirements](#)

for admission to degree candidacy prior to the time of matriculation. Advanced standing applicants are considered for admission on the basis of the applicant's requested academic program, space availability, and the academic quality of their work at the previously attended institution(s). A minimum cumulative grade-point average of at least 2.00 (C) out of 4.00, as computed for Penn State students, is required, although certain areas of study may have additional requirements. In addition, an applicant must be in good academic and nonacademic standing. An applicant whose overall grade-point average is less than 2.00 (on a 4.00 scale) but has a grade-point average of at least 2.00 (on a 4.00 scale) at all institutions attended in the four years prior to the requested enrollment semester may apply for admission as an advanced standing student with forgiveness. An applicant who has not attempted any collegiate level course work four years prior to the requested enrollment semester may also apply for advanced standing with forgiveness. An applicant who does not meet the minimum requirement of a grade-point average of at least 2.00 and does not meet the criteria for advanced standing with forgiveness may enroll in credit courses as a nondegree student in accordance with applicable policies and procedures.

Advanced standing credits may be awarded for college-level work taken at regionally accredited institutions provided Penn State offers a similar class and the course grade earned is equivalent to a grade of A, B, or C at this University. The credits also must be useful to the student's program of study. An academic adviser determines which of the transferable credits are applicable to the program of study at Penn State. Credits are transferred, but grades and grade-point average are not. Advanced standing students enter the University without an average and their average begins with the completion of their first semester of study at Penn State.

Under certain circumstances, the University may need to restrict advanced standing admissions to a particular college or school because of space limitations.

Entrance to a major is an additional step beyond admission to a college or school. It involves additional academic requirements and may be subject to additional restrictions because of space limitations.

APPLICATION PROCEDURE — The application for admission

[is available on the Web.](#)

**Web applications are required for advanced standing applicants.**

In all cases where work has been taken at other institutions, an official transcript from each place of attendance must be submitted directly to the Undergraduate Admissions Office by the registrar of the institution attended. An applicant currently attending another institution also must provide a schedule of courses in progress or to be completed before enrollment at Penn State, including course name, number, description, and number of credits. The applicant's secondary school record must be submitted directly to the Undergraduate Admissions Office by the secondary school. The Undergraduate Admissions Office may require the applicant to send a catalog showing the courses that he or she has taken at the college previously attended. All credentials become part of the permanent records of the University.

ENTRANCE TO A MAJOR — An advanced standing degree candidate may be admitted to a college or school of the University. To be eligible for entrance to a major, a student must meet the entrance-to-major requirements of the University, of the college or school, and of the program area. Under certain circumstances, further restrictions or exceptions on entrance to majors may be required because of space limitations. Students are expected to work with advisers and to utilize current information about entrance requirements and restrictions when exploring academic program alternatives and making program and course selections.

CHANGING THE AREA OF ENROLLMENT — An applicant who has been admitted to an academic college, school, or major of the University may not change to another without satisfying entrance requirements of the college/school and major to which he or she wants to transfer.



## Provisional Students (Degree Seeking)

An applicant seeking to pursue a degree program and holding a high school diploma or its equivalent but without the criteria required for admission as a degree candidate may be accepted as a provisional student and enroll in credit courses, if space is available, to pursue a program leading to either a baccalaureate or associate degree if the following criteria are met:

1. The student is making satisfactory progress toward admission as a degree candidate. Progress is satisfactory if a student has completed 18 credits with a minimum cumulative grade-point average of 2.00 (on a 4.00 scale). If a student has completed 18 credits with less than a 2.00, then he or she is given a warning. A student who has completed 27 credits with a cumulative grade-point average of less than 2.00 will not be permitted to enroll as a provisional student in any subsequent semester, unless the student has earned more than a 2.0 grade-point average in the most recently completed semester. No student, regardless of cumulative grade-point average, who has completed 36 credits will be permitted to enroll as a provisional student in any subsequent semester.
2. There is space available after degree candidates have been accommodated.
3. The student has not been dropped for unsatisfactory scholarship from any college or university previously attended. If a provisional applicant attended another college or university and attempted 18 or more semester credits within the last four calendar years, the applicant must have at least a 2.0 (on a 4.0 scale) cumulative collegiate average. However, if it has been four or more calendar years since the applicant attended the other college or university and the cumulative grade-point average is less than 2.0, the applicant is eligible for provisional admission consideration.
4. The student has not been dismissed or suspended for nonacademic reasons from any college or university. An applicant not in good standing at another accredited college or university for disciplinary reasons must consult with the director of the Office of Judicial Affairs for admissions clearance.

NOTE: An applicant holding a baccalaureate degree or higher is not eligible to enroll as a provisional student. The applicant is referred to the graduate nondegree program.

OBTAINING AN APPLICATION--The application for admission

[is available on the web.](#)

**Web applications are preferred.** A paper application can be obtained by writing to the Undergraduate Admissions Office, The Pennsylvania State University, 201 Shields Building, University Park, PA 16802-1294 (telephone: 814-865-5471), or by contacting an admissions officer at any University campus.

ADMISSION OF PROVISIONAL STUDENT AS A DEGREE CANDIDATE--A provisional student may apply for admission as a baccalaureate degree candidate with advanced standing to a college or school of the University, or to the Division of Undergraduate Studies, upon completion of at least 18 credits with at least a 2.00 cumulative grade-point average. All these credits must be earned at this University. To be eligible for admission, the provisional student must satisfy the academic requirements of the University and the college of enrollment.

## Nondegree Students

A person enrolled in a course who is not a degree candidate or provisional student is classified as a nondegree student. A nondegree student must either hold a high school diploma or its equivalent to take undergraduate courses. Exceptions may be made by the Undergraduate Admissions Office for students currently enrolled in high school (dual-enrollment students).

A nondegree student who has not been dropped from degree or provisional status by this University or any other college or university for unsatisfactory scholarship will be listed as a nondegree regular student and may enroll in any number of credits, not to exceed the typical credit load of a full-time student per semester if criteria 1, 2, and 3 below are met.

Students who have changed from degree candidates to nondegree regular or nondegree students who intend to become degree candidates must also meet criterion 4.

A nondegree student who has been dropped from degree or provisional status by this university or any other college or university because of unsatisfactory scholarship will be listed as a nondegree conditional student and may enroll in a maximum of 12 credits per semester if criteria 1, 2, 3, and 4 (on the following list) are met.

1. The student has completed the prerequisite for the courses to be scheduled or has obtained permission from the instructor to schedule the course.
2. Space is available after degree candidates and provisional students have been accommodated.
3. The student has not been dismissed or suspended for nonacademic reasons from any college or university. An applicant not in good standing at another college or university for disciplinary reasons must consult the director of the Office of Judicial Affairs for admission clearance.
4. The student has obtained academic advising/counseling from an adviser/counselor designated by the academic unit to which admission, or reinstatement and re-enrollment, is desired.

**LIMITATIONS TO ENROLLMENT AS A NONDEGREE STUDENT:** A student in nondegree status (regular or conditional) may remain in that status for a maximum of 30 credits, at which time the student must be accepted into a degree program to continue taking credit courses. Nondegree conditional students must achieve a semester grade point average of 2.01 or higher every semester or will be dismissed from the University and may only re-enter through the academic renewal process. Students in nondegree status who are not eligible for a degree program after completing 30 credits may continue to take credit courses provided a semester grade-point average of more than 2.00 continues to be earned and they have written support from their intended major. Students who do not meet these provisions will be dropped and may only reenter Penn State through the academic renewal process. Nondegree regular students who are in good academic standing and do not intend to earn a degree may continue taking credit courses as long as a cumulative grade point average of 2.00 is maintained.

**NOTE:** A student must be admitted, or reinstated and re-enrolled, as a degree candidate to apply the credits earned as a nondegree student toward fulfilling the requirements for a degree. The dean of the college or school of enrollment shall decide which credits may be used to fulfill the degree requirements.

**OBTAINING AN APPLICATION--**A nondegree application can be obtained by contacting the Office of the University Registrar, The Pennsylvania State University, 112 Shields Building, University Park, PA 16802-1292 (telephone: 814-865-6357), or by contacting the Registrar's office at any University location. The form is also available at [www.registrar.psu.edu](http://www.registrar.psu.edu) on the Web.

**ADMISSION OF NONDEGREE STUDENT AS A DEGREE CANDIDATE--**A nondegree student may apply for admission as a baccalaureate degree candidate with advanced standing to a college or school of the University, or to the Division of Undergraduate Studies, upon completion of at least 18 credits earned at this University with at least a 2.00 cumulative grade-point average. An applicant who has completed at least the equivalent of two years of baccalaureate degree work before applying for admission as a baccalaureate degree candidate must have the approval of either the dean of the college or school in which enrollment is desired or of the director of the Division of Undergraduate Studies if the student wants to enroll in that division. To be eligible for degree admission, the nondegree student must meet the academic requirements of the University and the college or school in effect at the time of application.

## Re-enrollment

A student who was once admitted and enrolled as a degree candidate and wants to resume study is required to apply for re-enrollment consideration under the conditions specified in Faculty Senate Policy 58-00.

To resume degree candidacy, go to the Office of the University Registrar's Web site,

[www.registrar.psu.edu](http://www.registrar.psu.edu)

, print off and fill out the Re-enrollment form, and submit it to the campus to which you want to enroll. An application for re-enrollment can also be obtained by writing to the Office of the University Registrar, The Pennsylvania State University, 112 Shields Building, University Park, PA 16802-1292; 814-865-6357, or by contacting the Registrar's Office at any University location. It is recommended that applications be submitted to the Office of the University Registrar at least one month before registration.

## Reinstatement

A student who has been dropped from the University because of unsatisfactory scholarship or who has been dismissed from the University for nonacademic reasons is required to be reinstated in order to resume degree candidacy. To initiate a reinstatement request, go to the Office of the Registrar's Web site,

[www.registrar.psu.edu](http://www.registrar.psu.edu)

, print and fill out the Reinstatement form and Submit it to the campus to which you plan to enroll, or the Office of the University Registrar, The Pennsylvania State University, 112 Shields Building, University Park, PA 16802-1292.

## Leave of Absence

A student who is a candidate for an associate or baccalaureate degree may typically apply for a leave of absence for a period not to exceed one year. Under special circumstances, a leave of absence may be approved for a maximum of two years. A student who fulfills the conditions of an approved leave of absence may register upon return without applying for re-enrollment. Once submitted, the leave-time periods are not permitted to be altered. A student is permitted to advance register for the semester in which he or she is returning. An application for leave of absence and additional information can be obtained from the student's college of enrollment and is processed at the college dean's office. The form is also available at [www.registrar.psu.edu](http://www.registrar.psu.edu) on the Web.

A student who wants to interrupt study at the University to study at another institution during a semester other than the summer may request a leave of absence for this purpose. It is not necessary to obtain a leave of absence if the period of study at another institution will be limited to the summer and the student returns for the fall semester. A student planning to study elsewhere should consult with his or her academic adviser to determine the applicability of such work to the program of study. In addition, the student should contact the Undergraduate Admissions Office to determine if transfer credit is possible. The student should be cognizant of the University regulations on residence requirements and of any special requirements of the particular major. When courses are completed at another institution and an evaluation for possible transfer credit is desired, an official transcript must be submitted directly to the Undergraduate Admissions Office by the registrar of the other institution. An evaluation fee of \$10 is required.



## **Application of Associate Degree Credits toward a Baccalaureate Degree**

Students can begin most Penn State baccalaureate degree programs at any location. Depending on the final choice of major, degree (associate or baccalaureate), and location preference, students may stay at one campus throughout their entire Penn State experience or they may attend one campus for the first two years and then relocate.

Credits received for Penn State associate degree program courses may be applicable to a particular baccalaureate degree program listed in this bulletin at the discretion of the appropriate college and department. For information about offerings at Penn State campuses, see Penn State Degree Programs Summary on the Registrar's Web site:

<http://www.registrar.psu.edu/>

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## Advanced Placement Program of the College Entrance Examination Board

THE ADVANCED PLACEMENT PROGRAM OF THE COLLEGE BOARD — The University cooperates with the College Board in this program. Credit may be awarded for Advanced Placement Examinations depending upon the grade earned on the examination and other factors as indicated in the following paragraphs.

A student who does advanced work in high school may take Advanced Placement Examinations that are based on college-level studies. For some examinations, the amount of credit awarded varies with an earned grade of three, four, or five. If credit is awarded, a student's University record will carry notation of credit, but no grade will be recorded. Credit acquired in this manner does not affect a student's grade-point average at the University.

Limitations of credit earned through the Advanced Placement (AP) Examinations are as follows:

1. Degree programs determine whether the credits earned may be used to meet degree requirements.
2. A student who has earned credit for a particular course through AP examinations may elect to take the same course at Penn State (unless restricted by placement policies of the unit offering the course), but the duplicate credit cannot be used to meet any additional degree requirements. However, the grade earned in the Penn State course will count towards the student's grade point average.
3. Credit(s) will be posted to the student's record but will not appear on the student's official transcript until the student has completed a credit-bearing course at Penn State.

General credit may be awarded for an AP examination covering material that is not the substantial equivalent of material covered in a specific University course. General credits may be used to fulfill degree requirements in any area; their use is not necessarily limited to general education or elective requirements. General credits are applied to a student's program of study in accordance with the procedures established by the college or other degree-granting unit of enrollment. Information about the use of general credits or specific course credits earned by AP examinations in individual programs of study may be obtained from a student's academic adviser or from the office of the dean of a student's college.

Undergraduate students interested in receiving credit for AP examinations should arrange for their official grade reports to be sent directly from Educational Testing Service (ETS) to the Undergraduate Admissions Office, The Pennsylvania State University, 201 Shields Building, Box 3000, University Park PA 16804-3000; which is responsible for evaluating such reports and awarding credit.

The schedule of credit awarded for AP examinations may be revised as a result of periodic review by the faculty.

Current information about advanced placement credit awarded by Penn State can be obtained from the Undergraduate Admissions Office, The Pennsylvania State University, 201 Shields Building, Box 3000, University Park PA 16804-3000; 814-865-5471; on the Web: [advanced placement opportunities](#)



## The College-Level Examination Program of the College Board

The University cooperates with the College Board in this program, referred to as CLEP. Credit may be awarded for the CLEP examinations depending upon the score earned on the examination and other factors as indicated in the following paragraphs.

An undergraduate student who is a candidate for a degree at the University and who has earned a score equivalent to the fiftieth percentile or higher for performance on a CLEP examination, taken before or after admission to degree candidacy, may receive credit as indicated in the schedule of credits listed below. The student's University record will carry notation of credit, but no grade will be awarded.

Limitations of credit earned through the CLEP examinations are as follows:

1. Degree programs determine whether the credits earned may be used to meet degree requirements.
2. A student who has earned credit for a particular course through CLEP examinations may elect to take the same course at Penn State (unless restricted by placement policies of the unit offering the course), but the duplicate credit cannot be used to meet any additional degree requirements. However, the grade earned in the Penn State course will count towards the student's grade point average.
3. Credit(s) will be posted to the student's record but will not appear on the student's official transcript until the student has completed a credit-bearing course at Penn State.
4. The total number of credits that may be awarded from CLEP examinations is limited to 60 credits

General credit may be awarded for a CLEP examination covering material that is not the substantial equivalent of material covered in a specific University course. General credits may be used to fulfill degree requirements in any area; their use is not necessarily limited to General Education or elective requirements. General credits are applied to a student's program of study in accordance with the procedure established by the college or school of enrollment. Information about the use of general credits or specific course credits earned by CLEP examinations in individual programs of study can be obtained from a student's academic adviser or from the office of the dean of a student's college or school.

Undergraduate students interested in receiving credit for CLEP examinations should arrange for their official score reports to be sent directly from Educational Testing Service (ETS) to the Undergraduate Admissions Office, The Pennsylvania State University, 201 Shields Building, Box 3000, University Park, PA 16804-3000, which is responsible for evaluating such reports and awarding credit.

The schedule of credit awarded for CLEP examinations may be revised as a result of periodic review by the faculty.

Current information about CLEP credit awarded by Penn State can be obtained from the Undergraduate Admissions Office, The Pennsylvania State University, 201 Shields Building, Box 3000, University Park, PA 16804-3000; 814-865-5471. The schedule of credit awarded for CLEP examinations also can be obtained from the Undergraduate Admissions Office on the web:

[College-Level Examination Placement](#)

## International Secondary Schooling and International Baccalaureate

**International Secondary Schooling** — A person who does advanced work in a secondary school in another country may receive consideration for transfer credit when the examinations taken are based on college-level studies.

Credit may be awarded for advanced work in international secondary schools. The World Education Series, published by the American Association of Collegiate Registrars and Admissions Officers, shall be used as a guide in making decisions on the awarding of credit for course work completed at an advanced level in international secondary schools. The number of credits awarded will reflect the introductory sequence in that subject at Penn State.

Limitations of credit earned through review of advanced-level international secondary schooling are as follows:

1. Degree programs determine whether the credits earned may be used to meet degree requirements.
2. A student who has earned credit for a particular course through advanced-level international secondary schooling may elect to take the same course at Penn State (unless restricted by placement policies of the unit offering the course), but the duplicate credit cannot be used to meet any additional degree requirements. However, the grade earned in the Penn State course will count towards the student's grade point average.
3. Credit(s) will be posted to the student's record but will not appear on the student's official transcript until the student has completed a credit-bearing course at Penn State.

A student interested in receiving credit for advanced-level international secondary schooling should arrange for an official grade report to be sent directly from the secondary school or the examining board to the Undergraduate Admissions Office. The Undergraduate Admissions Office is responsible for evaluating such reports and awarding credit.

If credit is awarded, the student's University record carries notation of credits, but no grade is recorded. Credit awarded in this manner does not affect the student's grade-point average at this university.

**International Baccalaureate** — A person who does work based on college-level studies in an International Baccalaureate program in a secondary school may take the Higher Level examinations.

Credit may be awarded for Higher Level examinations of the International Baccalaureate depending upon the grades earned on the examination. Subjects examined at the Higher Level with an earned grade of 5 or higher will be considered for transfer credit. The number of credits awarded will reflect the introductory sequence in that subject at Penn State.

Limitations of credit earned through the Higher Level examinations are as follows:

1. Degree programs determine whether the credits earned may be used to meet degree requirements.
2. A student who has earned credit for a particular course through International Baccalaureate examinations may elect to take the same course at Penn State (unless restricted by placement policies of the unit offering the course), but the duplicate credit cannot be used to meet any additional degree requirements. However, the grade earned in the Penn State course will count towards the student's grade point average.
3. Credit(s) will be posted to the student's record but will not appear on the student's official transcript until the student has completed a credit-bearing course at Penn State.

A student interested in receiving credit for the Higher Level examinations of the International Baccalaureate program should arrange for an official grade report to be sent directly from the secondary school to the Undergraduate Admissions Office. The Undergraduate Admissions Office is responsible for evaluating such reports and awarding credit.

If credit is awarded, the student's University record carries notation of credits, but no grade is recorded. Credit awarded in this manner does not affect the student's grade-point average at this university.

## Credit By Examination

In some circumstances credits may be earned through successful completion of comprehensive examinations made available by the Penn State academic units that offer particular courses. When such an examination serves as a substitute for completing all the usual requirements of a Penn State course, the credits received are described as "Credit by Examination" and are accepted as fulfilling degree requirements. Students may initiate a request for Credit by Examination for a course, although the academic department or program offering the course determines whether it will make Credit by Examination available. A grade of "C" or higher must be earned in the examination for such credit to be awarded and to appear on the student's transcript. Credit by Examination does not result in a quality grade (A, A-, etc.) and is not included in the calculation of the student's grade point average. Any credits earned in this manner will appear on the student transcript with the notation CRX and without a reported grade. A fee may be assessed to cover the costs of the procedure.

## Credit By Portfolio Assessment

A currently enrolled student who can document college-level learning acquired in a non-collegiate setting may be able to petition for undergraduate credit through portfolio assessment. Not all academic units offer portfolio assessment for credit. Students interested in determining whether to pursue credit by portfolio assessment opportunities should contact the academic department responsible for the relevant course.

Criteria for the award of credit via portfolio include:

Credit is granted for the demonstration of college-level learning obtained during work or other experience, but not for the experience itself. Learning must be documented and must represent college-level achievement. Advisers will provide guidance on the steps necessary to construct a portfolio providing evidence of prior learning that meets academic quality expectations.

Credit by portfolio assessment does not carry a grade. It may be awarded to enrolled students at the undergraduate level only.

Credit may not duplicate other course work that the student has already completed. A student may not enroll in and earn credit for a course for which credit already has been granted via portfolio assessment.

Credit may be awarded following an evaluation of the portfolio by an individual faculty member or by a team of faculty members and/or other selected personnel who represent the academic unit in which the subject matter is to be evaluated.

Credit earned via portfolio is designated on the transcript in the same manner as transfer credit. Credit(s) will be posted to the student's record but will not appear on the student's official transcript until the student has completed a credit-bearing course at Penn State.

A fee is assessed to recover portfolio evaluation costs. A maximum of 6 credits may be earned for a single portfolio (course). Associate degree candidates may be awarded a maximum of 16 credits. Baccalaureate degree candidates are limited to a maximum of 30 credits earned by portfolio assessment.



## Placement Policy for Penn State Foreign Language Courses

All students interested in studying a foreign language at Penn State may choose either to continue the language studied previously or to begin a new one. To continue with a language, students must follow the placement policy as outlined below.

**Placement Policy** — Students who have studied a foreign language within four years immediately before admission to Penn State may enroll in that language for credit based on the number of Carnegie units prior to admission. (A Carnegie "unit" refers to one course level of a foreign language — French 1, French 2, French 3, etc. — equivalent to one year of study and accredited as such by the school.) If a period of four or more years has elapsed between a student's graduation from high school and admission to college, he/she may be eligible to enroll in level 1 of the language studied in high school.

<b>Units of Study Prior to Admission to Penn State</b>	<b>Register in Penn State Language Level</b>
Fewer than two	Course Level 001 (4 cr.)
Two or three	Course Level 002 (4 cr.)
Four or more	Course Level 003 (4 cr.)

Students may choose to audit a lower-level course but may not receive credit for it. Students who feel they are qualified for a more advanced course, or students seeking proficiency certification or credit by examination, if available, should contact the appropriate language department for details. For more information, see [College of the Liberal Arts policies](#).

**Non-Course Work Knowledge of Foreign Languages** — Students who have acquired a knowledge of a foreign language by means other than course work (e.g., family background, travel or study in a foreign country, participation in noncredit summer language programs, etc.) may enroll in elementary and intermediate courses in that language only with permission of the course coordinator or department head. Once students have been placed in a skills course, they may not receive credit for a lower-level skills course.

Students whose native language is not English may not receive credit (through course work or examination) for elementary and intermediate courses in their native language. Enrollment in skills courses beyond intermediate level (e.g., conversation, composition) must be approved by the department head.

**Accelerated and Intensive Courses** — Students may choose to enroll in accelerated courses such as French 111 and 112, German 011 and 012, or in Penn State's Summer Intensive Language Institute courses. Because the objectives of these courses are somewhat different, students may schedule them for full credit even if they have studied the language previously.

**Credit by examination** (fee charged), when available, is offered to the extent allowed by the placement policy. For example, a student who has two units of secondary school foreign language and chooses to begin study of that language at the third level instead of the second (Course Level 003, 4 cr.), may receive credits for the second level (Course Level 002, 4 cr.), but not for the first level (Course Level 001, 4 cr.). See the appropriate department for details.

**Questions** — Questions should be addressed to the course coordinator or department head of the particular language department concerned.



## Environmental Emphasis Programs

The University offers a wide range of opportunities in undergraduate programs with environmental emphasis. Programs with an emphasis on the natural world include:

- Agriculture (various fields)
- Biology (various fields)
- Earth Sciences
- Environmental Engineering
- Environmental Systems Engineering
- Geography
- Geosciences
- Meteorology

Programs stressing human use of and impact on the natural world are offered individually or jointly by various colleges. Descriptions of individual programs and related courses emphasizing study in environmental areas can be found under these listings:

### College of Agricultural Sciences

- Agricultural and Extension Education, Environmental Science option
- Agroecosystems Science
- Environmental and Renewable Resource Economics
- Environmental Resource Management
- Environmental Soil Science
- Forest Science
- Landscape Contracting
- Wildlife and Fisheries Science

### Penn State Altoona

- Environmental Studies

### College of Arts and Architecture

School of Architecture and Landscape Architecture:

- Architecture
- Landscape Architecture

### College of Earth and Mineral Sciences

- Climatology
- Earth Sciences
- Earth Systems
- Energy, Environmental, and Mineral Economics
- Environmental Systems Engineering
- Geography
- Geosciences
- Industrial Health and Safety
- Materials Science and Engineering
- Mining Engineering
- Petroleum and Natural Gas Engineering
- Watersheds and Water Resources

### College of Education

- Environmental Education Teacher Certificate (contact 228 Chambers Building, University Park campus)

### College of Engineering

- Aerospace Engineering
- Agricultural and Biological Engineering
- Architectural Engineering–Environmental Option
- Chemical Engineering
- Civil and Environmental Engineering
- Electrical Engineering
- Engineering Science
- Industrial and Manufacturing Engineering
- Mechanical and Nuclear Engineering
- Science, Technology, and Society

### College of Health and Human Development



- Recreation and Park Management

## **Intercollege Undergraduate Programs**

- Environmental Inquiry
- Marine Sciences

## **Intercollege Undergraduate Programs**

Intercollege undergraduate programs draw on the resources of faculty and courses from several colleges and academic units within the University. Descriptions of these programs can be found under Intercollege Programs in this bulletin.

## **International Programs**

For information about the University Office of Global Programs, see  
[www.international.psu.edu](http://www.international.psu.edu)

## **Penn State Learning**

For information, see  
[pennstatelearning.psu.edu](http://pennstatelearning.psu.edu)

## **Reserve Officers' Training Corps**

A student may select Reserve Officers' Training in the Army, Navy, Marine Corps, or Air Force. Subject to the specific requirements of the service chosen, the student selects courses in military, naval, or air science. University credit is given for these courses. In accordance with academic rules, a minimum of 6 credits earned in ROTC courses apply toward graduation requirements in any baccalaureate program. Additional ROTC credits may be applied toward graduation according to the policy of the college or degree-granting unit in which the candidate is enrolled. In many programs, the category to which ROTC credit may be applied is clearly stated. In programs where the category is not predetermined, the student's adviser and the student decide which credits the ROTC credits will replace. There is no military service obligation during the first year of the program regardless of scholarship status. Sophomore students have no obligation unless they are on a military scholarship.

## **Teacher Education Programs**

For current information about teacher certification for teacher education programs, see [teacher certification](#).

## **Washington Program**

For information, see

<http://comm.psu.edu/current/washington-program>

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## **Adult Learner Services, Center for**

For information, see

<http://www.outreach.psu.edu/adult-learners>

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## **Athletics and Recreation**

For information, see

<http://www.psu.edu/ur/athrec.html>

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## **Career Services**

For information, see  
[studentaffairs.psu.edu/career](http://studentaffairs.psu.edu/career)

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## **Counseling and Psychological Services, Center for (CAPS)**

For information, see  
<http://www.sa.psu.edu/caps>

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## **Disability Services, Office for**

For information, see  
<http://www.equity.psu.edu/ods>

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## **Ethics and Religious Affairs, Center for**

For information, see  
[studentaffairs.psu.edu/spiritual](http://studentaffairs.psu.edu/spiritual)

## **Fraternity and Sorority Life**

For information, see

[studentaffairs.psu.edu/hub/greeks](http://studentaffairs.psu.edu/hub/greeks)

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## **Health Services, University**

For information, see

[studentaffairs.psu.edu/health](http://studentaffairs.psu.edu/health)

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## **Honor and Professional Societies**

For a list of academic/professional and honor societies, see  
<http://www.sa.psu.edu/usa/studentactivities/search.asp>

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## Information Technology Services

Information Technology Services (ITS) ensures that faculty, students, and staff have the information technology tools and infrastructure necessary to carry out the University's mission. ITS is working to achieve five broad goals: help faculty improve the way education is delivered; provide students with resources to enrich their educational experience; create and sustain an environment that enables leading-edge research; help to improve productivity; and establish the information technology infrastructure necessary to maintain Penn State's prominence in integrating high-quality programs in teaching, research, and outreach. For additional information, see [its.psu.edu](http://its.psu.edu) on the Web.



## **Multicultural Resource Center**

For information, see  
<http://www.equity.psu.edu/mrc>

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## **Paul Robeson Cultural Center**

For information, see  
[studentaffairs.psu.edu/cultural](http://studentaffairs.psu.edu/cultural)

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## **Residence Life**

For information, see  
<http://www.sa.psu.edu/rl>

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## **Student and Family Services**

For information, see  
<http://www.sa.psu.edu/sd/sfs>

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## **Student Organizations**

For information, see: <http://www.clubs.psu.edu>



## **Unions and Student Activities**

For information, see  
[studentaffairs.psu.edu/hub](http://studentaffairs.psu.edu/hub)

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## **University Registrar, Office of**

For information, see  
<http://www.registrar.psu.edu/>

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## **Veterans Programs, Office of**

For information, see

<http://www.equity.psu.edu/veterans>

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## **Women in the Sciences and Engineering (WISE) Institute**

For information, see

<http://www.equity.psu.edu/wise>

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## **Women Students, Center for**

For information, see

[studentaffairs.psu.edu/womenscenter](http://studentaffairs.psu.edu/womenscenter)

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## Residency Classification for Tuition Purposes

### PENNSYLVANIA CLASSIFICATION

A student shall be classified as a Pennsylvania resident for tuition purposes if that student has a Pennsylvania domicile and that student's presence in Pennsylvania is not primarily for educational purposes. Domicile is a person's existing and intended fixed, permanent, and principal place of residence. A student whose presence in the Commonwealth is primarily for educational purposes shall be presumed to be a non-Pennsylvania resident for tuition purposes. The following are considerations that may be used by the University in determining whether a student is a resident for tuition purposes:

1. A student under the age of 21 is presumed to have the domicile of his/her parent(s) or legal guardian(s), unless the student has maintained continuous residence in the Commonwealth for other than educational purposes for a period of at least 12 months immediately prior to his/her initial enrollment at The Pennsylvania State University, and, the student continues to maintain such separate residence.
2. A student who has resided in the Commonwealth for other than educational purposes for at least a period of 12 months immediately preceding his/her initial enrollment at The Pennsylvania State University is presumed to have a Pennsylvania domicile.
3. A student who has not resided continually in Pennsylvania for a period of 12 months immediately preceding his/her initial enrollment at The Pennsylvania State University is presumed to have a non-Pennsylvania domicile.
4. A student requesting to be classified as a Pennsylvania resident for tuition purposes must be a citizen of the United States or a permanent resident. Permanent residents must have received the I-551 stamp approving their permanent resident status. An individual in a nonimmigrant status with the USCIS is not eligible for classification as a Pennsylvania resident for tuition purposes. Other extraordinary circumstances, which may qualify a student as a Pennsylvania resident for tuition purposes, will be considered on a case-by-case basis.
5. A United States government employee or member of the armed forces who was a resident of Pennsylvania immediately preceding his/her entry into government service and who has continuously maintained Pennsylvania as his/her domicile will be presumed to have a Pennsylvania domicile. Military personnel and their dependents who are assigned to an active duty station in Pennsylvania and who reside in Pennsylvania shall be charged in-state tuition rates.
6. A student receiving a scholarship, guaranteed loan, grant, or other form of financial assistance dependent upon residence in a state other than Pennsylvania is not a Pennsylvania resident for tuition purposes.

### RECLASSIFICATION AS PENNSYLVANIA RESIDENT

A student requesting reclassification as a Pennsylvania resident for tuition purposes must demonstrate by clear and convincing evidence that his/her domicile is in Pennsylvania, and that his/her presence in Pennsylvania is not primarily for educational purposes. Each request shall be decided individually on the basis of all facts submitted by the petitioner. Accordingly, it is not possible to list a specific combination of factors or set of circumstances which, if met, would ensure reclassification for tuition purposes.

### RECLASSIFICATION PROCEDURE

1. A student may challenge his/her residence classification by filing a written petition with the person or committee designated to consider such challenges at the University. Such person or committee shall consider such petition and render a timely decision that shall constitute an exhaustion of administrative remedies.
2. Any reclassification resulting from a student's challenge or appeal shall be effective at the beginning of the semester or session during which the challenge or appeal was filed or at the beginning of the following semester or session. The decision as to which semester or session becomes the effective date shall rest with the person or committee rendering the decision on reclassification.
3. A student who changes his/her place of residence from Pennsylvania to another state is required to give prompt written notice of this change to the University and shall be considered for reclassification as a non-Pennsylvanian for tuition purposes effective with the date of such change.
4. A dependent resident student whose parent(s) or legal guardian(s) move outside of the Commonwealth may remain a Pennsylvania resident for tuition purposes if he/she continues to maintain a separate domicile within the Commonwealth.

### NONRESIDENT STUDENT CLASSIFICATION

1. A student is initially classified as a nonresident based on information provided by the student when applying for admission to the University. The initial classification is made as follows:
  1. Undergraduate Student
    1. Penn State Harrisburg — Penn State Harrisburg Academic Services Officer
    2. All other locations — Undergraduate Admissions Office, The Pennsylvania State University, University Park, PA 16804-3000
  2. Graduate Student
    1. Penn State Harrisburg — Penn State Harrisburg Academic Services Officer
    2. All other locations — Dean of the Graduate School
  3. Medical Student
    1. Office of Student Affairs, The Milton S. Hershey Medical Center
2. A student may challenge his/her residency classification by filing a written petition as follows:
  1. Undergraduate Student
    1. Penn State Harrisburg — Penn State Harrisburg Financial Officer

2. All other locations — Residency Appeal Officer, University Park
2. Graduate Student
  1. Penn State Harrisburg — Penn State Harrisburg Financial Officer
  2. All other locations — Residency Appeal Officer, University Park
3. Medical Student
  1. Controller, The Milton S. Hershey Medical Center
3. The appropriate University official reviews the students petition and makes a decision.
4. The student may appeal that officer's residency decision to the University Appeals Committee on Residence Classification having representation from the Corporate Controller's Office, Undergraduate Admissions Office, and the Graduate School. The committee's decision on appeal shall be final.

PLEASE NOTE: A page of frequently asked questions concerning residency classification for tuition purposes can be found at  
<http://www.bursar.psu.edu/faq.cfm>

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## **Insurance Protection**

For information about student health insurance protection, See:  
[studentaffairs.psu.edu/health/services/insurance](http://studentaffairs.psu.edu/health/services/insurance)

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## Registration

Dates for advising, registration, and classes are given in the University calendar at

[http://registrar.psu.edu/academic\\_calendar/calendar\\_index.cfm](http://registrar.psu.edu/academic_calendar/calendar_index.cfm)

. Registration information for Continuing Education courses is available from the Continuing Education office at each campus or service area. Students with an active University Access Account register through eLion at

<http://elion.psu.edu>

. Schedules at campuses other than University Park may vary. Check the Web site for the campus you're interested in for specific schedules.

## Grading System

CREDITS--Credits are awarded on the semester-hour basis. The distribution of time between class activities and outside preparation varies from course to course; for the average student, however, at least forty hours of work per semester planned and arranged by the University faculty are required to gain 1 credit.

### GRADING SYSTEM

- **A, A-** (EXCELLENT) Indicates exceptional achievement.
- **B+, B, B-, C+** (GOOD) Indicates extensive achievement.
- **C, D** (SATISFACTORY) Indicates acceptable achievement.
- **F** (FAILURE) Indicates inadequate achievement necessitating a repetition of the course to secure credit.

The grades of A, A-, B+, B, B-, C+, C, D, and F indicate a gradation in quality from Excellent to Failure and are assigned the following grade-point equivalents:

### Grade, Grade-Point Equivalent

**A**, 4.00

**A -**, 3.67

**B +**, 3.33

**B**, 3.00

**B -**, 2.67

**C +**, 2.33

**C**, 2.00

**D**, 1.00

**F**, 0

Grade points are determined by multiplying the grade-point equivalent of the grade earned by the number of credits for the subject, for example, ENGL 015 GWS, 3 credits, with a grade of A (grade-point equivalent 4.00) yields 12 grade points.

For further information, see: [http://www.registrar.psu.edu/grades/grading\\_system.cfm](http://www.registrar.psu.edu/grades/grading_system.cfm)

## Policies and Rules

It is the responsibility of students to be familiar with the rules, regulations, and procedures of the University. Policies and Rules includes information on academic procedures, code of conduct, general University policies, privacy rights of students, and responsibilities for community living. Paper copies of Policies and Rules are available from the information desk in the HUB-Robeson Center and from each college dean's office at University Park campus and the Office of Student Affairs at other campuses. University policies are available online at [studentaffairs.psu.edu/judicial](http://studentaffairs.psu.edu/judicial)

For academic policies and rules, see <http://www.senate.psu.edu/policies>

## **Requirements for Graduation**

To graduate, a candidate must complete the course requirements for the candidate's major and:

1. earn at least a C (2.00) cumulative grade-point average for all courses taken at the University;
2. earn at least a C grade in each major course designated by the major as a C-required course.

## **Residence Required for Degree**

Every candidate for a degree shall earn as a degree candidate at least 36 of the last 60 credits for a baccalaureate degree and at least 18 of the last 30 credits for an associate degree in courses offered by the University or in cooperative degree programs established by formal agreement and approved by the University Faculty Senate.

A candidate for a first baccalaureate degree shall earn the last 60 credits required for that degree within five calendar years. An extension of time shall be granted for intervening military service.

A course schedule, including courses offered by resident education or Continuing Education, is made by each student.

A typical credit load for a full-time student is defined to be from 12 to 19 credits per semester. Students are not permitted to advance register or register in the normal registration period for more than 19 credits. Students are permitted to add courses beyond this maximum 19 credits after consultation with the adviser during the first ten calendar days of the semester.



## Planning a Degree Program

Primary responsibility for the successful completion of a degree program lies with the student. The key to meeting this responsibility is personal involvement in academic program planning. To plan a program of study that will best meet individual goals and interests, students must know the requirements and restrictions of the department, college or other degree-granting unit, and the University; know the sources of academic information; work closely with an adviser in examining programs and course requirements and alternatives; and consult the Undergraduate Degree Programs Bulletin.

The University comprises a family of campuses located throughout the Commonwealth (see

<http://www.psu.edu/ur/cmpcoll.htm>

). For most degree programs, a student may begin his or her studies at any one of the campuses. More than 160 baccalaureate majors, more than 25 associate degree majors, and more than 7,000 undergraduate courses are offered by the University. Clearly, each campus cannot offer every academic program or every course. As a result, admission to several academic programs is restricted, and students selecting these programs may be required to begin their studies at a specified campus. In other cases, admission to certain academic programs must be approved when a first-year student enters the University; transfer into these programs at a later point in a student's career is not possible. For these reasons, it is imperative that a student understand both program and course limitations at the campus of enrollment.

The many programs at Penn State allow varying degrees of flexibility. An early decision to pursue a highly structured program enables the student to complete the program in the optimum length of time by taking the required courses in a sequence that allows the smoothest progression from one level to the next. Even the most regulated programs, however, allow choices within given boundaries. Other programs allow a considerable range of choices in the completion of the requirements. Students should be aware of possible difficulties in transferring from a flexible program to a more highly structured program. Whether a program is highly structured or quite flexible, it is extremely important that the student understand program requirements when enrolling in the University.

Information concerning the University, its academic programs, course offerings, campuses, and academic organization is available from the following sources:

**NEW STUDENT ORIENTATION**--Penn State provides all new students the opportunity to attend a comprehensive orientation program, which is organized by the Office for Student Orientation and Transition Programs (SOTP). SOTP partners with the Division of Undergraduate Studies and other units to offer new students a thorough introduction to life on campus, an overview of General Education requirements, and the opportunity to actively discuss individual academic plans with an academic adviser. In addition to registering students for classes, the overall objective of [New Student Orientation](#) is to establish the academic expectations and community standards that shape and inform the learning environment at Penn State.

**INFORMATION FOR NEW STUDENTS**--The Office for Student Orientation and Transition Programs provides first-year students, advanced standing, and change-of-campus students at the University Park campus with comprehensive information regarding the essential academic and student development opportunities of the campus and the University in general beginning with a new student's acceptance to a campus and continuing through completion of his/her first semester.

Through programs offered in cooperation with the colleges' academic units and various student service operations, new students are introduced to the intellectual and scholarly expectations of the University, to the skills needed for advanced study and lifelong learning, and to the student development opportunities with academic merit. In addition, this office helps inform students of the required procedures for matriculation and offers a perspective on college life, including practical information about important dates, times, and locations (e.g., arrival day, first day of classes, course drop/add).

During Welcome Week each semester, new students receive instruction and advice about their courses of study, including help with registration and class schedule adjustments, and they participate in special activities.

**ACADEMIC ADVISERS**--Each student is assigned a primary academic adviser in his or her college, school, or the Division of Undergraduate Studies. Students can find their adviser's name and contacts information using the Adviser Information application on eLion (

<http://www.eLion.psu.edu>

). The adviser is available to help a student plan an academic program, schedule each semester's courses, and provide information about majors. The adviser will also refer a student to other appropriate sources of information.

**ACADEMIC ADVISING CENTERS**--Academic advising centers are located in every college at University Park and at all other Penn State undergraduate locations. Centers provide advising and information about academic programs. Lists of University Park centers and centers at other locations are available online. University Park: <http://handbook.psu.edu>; other locations: [http://dus.psu.edu/advisers/advising\\_centers.html](http://dus.psu.edu/advisers/advising_centers.html).

**WEB SITES**--Penn State's home page,

<http://www.psu.edu>

, provides information on the University and each of its colleges.

**SCHEDULE OF COURSES**--Course offering and registration information is available online at <http://schedule.psu.edu>. The Schedule of Courses information is updated once each day and provides current information about the courses being offered at all Penn State campuses.

## Academic Definitions

The following definitions, referring to degrees, majors, options, minors, concurrent or sequential majors programs, and integrated undergraduate-graduate degree programs, have been adopted by the University Faculty Senate:

**Associate Degree**--Two-year majors that, with a few exceptions, provide concentrated instruction to prepare graduates for specialized occupational assignments.

**Baccalaureate Degree**--An award signifying a rank or level of educational attainment. Particular types of baccalaureate degrees identify educational programs having common objectives and requirements. Degree programs may provide academic, preprofessional, or professional experiences and preparation. Majors lead to a baccalaureate degree. Each student must select a major within a baccalaureate degree type. If options are offered within a major, a student selects one. The student may also elect to enroll in a minor to supplement the major. Alternatively, the student may seek to enroll in multiple majors within the same type of baccalaureate degree or to enroll in a simultaneous degree program. A baccalaureate program of study shall consist of no less than 120 credits. Students may elect to take courses beyond the minimum requirements of a degree program.

**Major**--A plan of study in a field of concentration within a type of baccalaureate degree. Colleges and other degree-granting units may have common requirements for all of their majors. Each major may have requirements identified in Prescribed, Additional, and Supporting Courses and Related Areas categories. Elective credits are not considered part of the major. (Senate Record:1/23/90, Appendix IV)

**Option**--A specialization within a major that should involve at least one-third of the course work credits required for the major, but need not be more than 18 credits. All options within a major must have in common at least one-fourth of the required course work credits in the major. A student can only be enrolled in an option within his/her own major.

**Minor**--A minor is defined as an academic program of at least 18 credits that supplements a major. A minor program may consist of course work in a single area or from several disciplines, with at least 6 but ordinarily not more than half of the credits at the 400 course level. Total requirements are to be specified and generally limited to 18 to 21 credits. Entrance to some minors may require the completion of a number of prerequisites, including courses, portfolios, auditions, or other forms of documentation that are not included in the total requirements for the minor. All courses for a minor require a grade of C or above.

**Concurrent and Sequential Majors Programs**--At the baccalaureate or associate degree level, students may be approved for admission to more than one major under the Concurrent Majors Program. A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Concurrent majors must all be at the baccalaureate or associate degree level. Under the Sequential Majors Program, upon graduation from an associate or baccalaureate degree program, a student may apply for re-enrollment in another undergraduate degree program.

**Integrated Undergraduate-Graduate (IUG) Degree Program**--An integrated undergraduate-graduate (IUG) degree program combines a Penn State baccalaureate degree with a master's degree as a continuous program of study. An IUG program allows qualifying students to:

- Create a cohesive plan for baccalaureate and master's degree studies, with advising informed by requirements for both degree programs
- Complete the combined degree program in less time than it would take to complete each program separately
- Become familiar with the expectations of graduate studies in their programs
- Access the resources of the Graduate School
- Learn from current graduate students who share academic interests

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## Baccalaureate Degrees Granted

Undergraduate majors offered at Penn State lead to one or more of the following baccalaureate degrees: Bachelor of Arts, Bachelor of Science, Bachelor of Architectural Engineering (five-year program), Bachelor of Architecture (five-year program), Bachelor of Design, Bachelor of Fine Arts, Bachelor of Humanities, Bachelor of Landscape Architecture (five-year program), Bachelor of Music, Bachelor of Musical Arts, and Bachelor of Philosophy. Not all degrees are offered at every location. Baccalaureate degrees offered at Penn State include both those that are designed to provide an academic (including preprofessional) experience and those that are specifically designed to provide professional preparation. To ensure excellence, all professionally oriented degree majors provide a strong academic base. The Bachelor of Arts degree (with a given major) is an academic degree; the Bachelor of Science degree (with a given major) and the bachelor's degree in any subject area (e.g., Bachelor of Architecture) are professional degrees. The Bachelor of Philosophy degree, described in the Intercollege Undergraduate Programs section of this bulletin, is planned individually and may be designed to serve either academic or professional purposes.

**BACHELOR OF ARTS--** See  
[Bachelor of Arts Degree Requirements](#).

**BACHELOR OF HUMANITIES--**Bachelor of Humanities degree majors are required to take 18 credits (referenced below). In addition, students are expected to complete credits required by their college and major.

**PRESCRIBED COURSES:** 6 credits  
I HUM 300W(3) and I HUM 400(3)

**SUPPORTING COURSES AND RELATED AREAS:** 12 credits  
Select 1 course each from four different major/program offerings:  
A&A, AMSTD, ART H, C ART, C HIS, C MUS, CAMS, COMM, CMLIT, ENGL, ENLSH, HCOMM, HIST, LIT, MUSIC, PHIL, PHLOS, RL ST, SPCOM, THTRE, or courses from the School of Humanities (Penn State Harrisburg, the Capital College) approved list.

**BACHELOR OF PHILOSOPHY--**The Bachelor of Philosophy degree is the only one not offered through any college or school but rather on a University-wide basis. This degree allows students to plan their own programs, in conjunction with a faculty preceptor, within the framework of the academic program of the University. A description of this degree is found in the Intercollege Undergraduate Programs section of this bulletin.

## B.A. Degree Requirements: Foreign Language

21 Courses

ARAB 003

**Intermediate Modern Standard Arabic** (4) More complex grammatical forms; vocabulary building principles; continued development of skills in conversation, reading, writing; culturally-oriented readings and films.

Effective: Summer 2010

Prerequisite: ARAB 002

CHNS 003

**Level Two Chinese A** (4) Continued audio-lingual practice of Mandarin Chinese, more extensive practice in reading and writing; study of Chinese culture.

Effective: Spring 2011

Prerequisite: CHNS 002

FR 003

**Intermediate French** (4) Grammar, reading, composition, oral and aural exercises.

Effective: Fall 1985

Prerequisite: FR 002

FR 112

**Intermediate French** (6) Reinforcement of basic skills previously acquired in the active use of French in FR 111.

Effective: Fall 1983

GER 003

**Intermediate German** (4) Continued four-skill development with increased emphasis on reading, writing, and grammatical accuracy; culturally-oriented reading selections and videos. Students may receive credit for only one of the following: GER 003 or GER 008.

Effective: Summer 1994

Prerequisite: GER 002

GER 012

**Intensive Intermediate German** (6) Continued skill development of structures and vocabulary; listening, speaking, reading, writing. Taught on an accelerated basis. Students may receive credit for only one of the following: GER 002, 003, 012, or 016.

Effective: Fall 1983

Prerequisite: GER 011

GREEK 003

**Intermediate Classical and New Testament Greek** (4) Selections from representative authors.

Effective: Fall 1983

Prerequisite: GREEK 002

HEBR 003

**Intermediate Modern Hebrew** (4) Grammar, reading, composition, and oral and aural exercises.

Effective: Summer 1977

Prerequisite: HEBR 002

HINDI 003

**Level Two Hindi A** (4) This is an intermediate level course in Hindi that seeks to improve student's skills in oral and written expression.

Effective: Summer 2010

Prerequisite: HINDI 002 or equivalent competency

IT 003

**Intermediate Italian** (4) Advanced grammar; oral and written composition; reading of modern authors; Italian life and culture.

Effective: Winter 1978

Prerequisite: IT 002

IT 010

**Intensive Elementary Italian** (6) Intensive Italian basic reading, writing, listening, and speaking skills stressed. Lab.

Equivalent to IT 001 and half of IT 002.

Effective: Spring 2005

IT 020

**Intensive Intermediate Italian** (6) Continuation of Intensive Elementary Italian, building on grammar and communication skills (reading, writing, listening, and speaking).

Effective: Summer 2004

Prerequisite: IT 010

JAPNS 003

**Level Two Japanese A** (4) Continued study of modern Japanese at elementary level; extensive audio-lingual practice for conversational fluency; reading/writing original scripts.

Effective: Spring 2011

Prerequisite: JAPNS 002

KOR 003

**Level Two Korean A** (4) Further development of listening, speaking, reading, writing skills in Korean; cultural elements.

Effective: Spring 2011

Prerequisite: KOR 002

LATIN 003

**Intermediate Latin** (4) Selected readings from representative authors.

Effective: Winter 1978

Prerequisite: LATIN 002

PORT 003

**Intermediate Portuguese** (4) Grammar, reading, composition, and conversation.

Effective: Winter 1978

Prerequisite: PORT 002

RUS 003

**Intermediate Russian** (4) Emphasis on reading unsimplified texts; composition; grammatical analysis.

Effective: Fall 1985

Prerequisite: RUS 002

SPAN 003

**Intermediate Spanish** (4) Audio-lingual review of structure; writing; reading.

Effective: Fall 1985

Prerequisite: SPAN 002

SPAN 020

**Intensive Spanish** (6) Basic and intermediate Spanish grammar, oral, aural, and writing skills (essentially equivalent to second half of SPAN 002 and all of SPAN 003).

Effective: Fall 1988

Prerequisite: SPAN 010

SWA 003

**Intermediate Swahili** (4) Further development of listening, speaking, reading, and writing skills in Swahili: structures and vocabulary; cultural elements.

Effective: Spring 1995

Prerequisite: SWA 002

UKR 003

**Intermediate Ukrainian** (4) Reading, writing, and speaking Ukrainian.

Effective: Summer 1991

Prerequisite: UKR 002

## B.A. Degree Requirements: Arts

523 Courses

A ED 211 (GA)

**Interpreting Art Experience: Social and Behavioral Perspectives** (3) Examination of psychological, cultural, aesthetic, philosophical and educational perspectives on creation and response to art in children, adolescents and adults.

Effective: Summer 2002

A ED 225 (GA;US)

**Diversity, Pedagogy, and Visual Culture** (3) Issues of diversity in art, education, visual culture, and pedagogy.

Effective: Summer 2005

A&A 100 (GA;IL)

**Introduction to International Arts** (3) An interdisciplinary, multicultural introduction to the arts of the world.

Effective: Summer 2005

A&A 401

**International Arts Minor Final Project** (1-3) The final project required for the International Arts Minor.

Effective: Summer 2004

Prerequisite: A&A 100 and completion of at least 12 credits toward the International Arts Minor

AF AM 208 (THEA 208) (GA;US;IL)

**Theatre Workshop in Diverse Cultures** (3) A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples.

Effective: Spring 2013

AFR 335 (ART H 335) (IL)

**African Art** (3) Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa.

Effective: Fall 2013

AFR 446 (ART H 446) (IL)

**Topics in African Art** (3 per semester/maximum of 9) Topics vary from "Arts of Eastern and Southern Africa" to "Art of West Africa."

Effective: Spring 2014

Prerequisite: 3 credits of Art History

AFR 447 (ART H 447) (IL)

**Topics in the Art of the African Diaspora** (3 per semester/maximum of 6) Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

Effective: Spring 2014

Prerequisite: 3 credits of Art History

AM ST 307 (ART H 307) (GA;US)

**American Art** (3) History of art in the English colonies and the United States from the seventeenth century to the present.

Effective: Spring 2008

AM ST 308 (ART H 308) (GA;US)

**American Architecture** (3) History of the architecture of the United States, as well as its Native American and colonial antecedents.

Effective: Summer 2013

ARAB 401 (IL)

**Advanced Language & Cultures I** (3) Fifth-semester Modern Standard Arabic: reading more complex texts, films, further development of conversation, composition skills, Arab cultures, current issues.

Effective: Spring 2008

Prerequisite: ARAB 110 or approval of program

ARAB 402 (IL)

**Advanced Language & Cultures II** (3) Sixth-semester Modern Standard Arabic: reading more complex texts, films, further development of conversation, composition skills, Arab cultures, current issues.

Effective: Spring 2008

Prerequisite: ARAB 401 or approval of program

ARCH 210 (GA)

**Introduction to Architecture and Planning Theories** (3) The course introduces architectural and urban theory by presenting and exploring key concepts through major texts from the Western tradition.

Effective: Spring 2009

ARCH 211 (GA)

**Contemporary Design and Planning Theories II** (3) Continuation of ARCH 210, with an in-depth analysis and study of significant and current environmental constructs and issues.

Effective: Summer 1995

Prerequisite: ARCH 210

ARCH 316 (GA)

**Analysis of Human Settlements: Cities** (3) Analysis of the interrelated factors which determined and shaped the various

types of early cities through the nineteenth century.  
Effective: Summer 1989

ART 001 (GA)

**Introduction to the Visual Arts** (3) Introduction to the media, elements, function, making, and meaning of visual arts today and in diverse historical and cultural contexts.  
Effective: Spring 2004

ART 002 (GA)

**Interactive Learning and Web-Design** (3) Introduce students to research on-line, preparing verbal, visual and other elements for presentation of outcomes and posting them to the Internet.  
Effective: Fall 2001

ART 003 (GA)

**Visual Images on the Web** (3) Introduce students to using visual images for communication on the World Wide Web.  
Effective: Fall 2001

ART 010 (GA)

**Introduction to Visual Studies** (3) Introduction to visual studies; pictorial space and the principles of visual organization.  
Effective: Fall 2004

ART 017 (GA)

**Introduction to Metal Arts** (3) Introduction for non-art majors to fundamental jewelry making and small-scale metalsmithing processes including fabrication, surface treatment, and finishing of metalwork.  
Effective: Spring 2004

ART 020 (GA)

**Introduction to Drawing** (3) Introductory experience in making of art through drawing media; designed for non-majors seeking general overview of studio practice.  
Effective: Spring 2004

ART 030 (GA)

**Introduction to Sculpture** (3) Introduction to sculpture for non-art majors consisting of lectures/basic studio work coordinated to cover broad range of processes.  
Effective: Fall 2004

ART 040 (GA)

**Introduction to Printmaking** (3) Instruction and practice in elementary printmaking and papermaking processes.  
Effective: Fall 2004

ART 050 (GA)

**Introduction to Painting** (3) Introductory experience in making of art through painting media; designed for non-majors seeking a general overview of studio practice.  
Effective: Fall 2004

ART 080 (GA)

**Introduction to Ceramics** (3) Introduction to the concepts and techniques fundamental to the making of pottery and ceramic sculpture.  
Effective: Spring 2004

ART 098

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1994

ART 100 (GA)

**Concepts and Creation in the Visual Arts** (3) A study of the personal and cultural foundations of artistic creation and practice of creative production in the art studio.  
Effective: Spring 2004

ART 101 (GA)

**Introduction to Web Design** (3) A beginning level course in Web Design, with emphasis on designing with standards to assure accessibility and effective communication.  
Effective: Spring 2008

ART 110S

**Ideas as Visual Images** (3) Introduction to the ideational relationships among subject, form, and content in visual images.

Effective: Fall 2002

Prerequisite: portfolio review

ART 111

**Ideas as Objects** (3) An introduction to the relationship between ideas and the creation of three-dimensional objects.  
Effective: Fall 2002

Prerequisite: portfolio review

ART 122Y (US)

**Commentary on Art** (3) An introduction to verbal commentary, both oral and written, about art. The development of critical and expressive skills given emphasis.  
Effective: Spring 2006

## ART 198

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1994

## ART 199 (IL)

**Foreign Studies--Art** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## ART 201

**Intro to Digital Arts: Computer Graphics** (3) Art 201 is a course introducing digital art, design, and new media concepts using graphic applications on the computer.

Effective: Spring 2008

## ART 203

**The Art of Web Design** (3) This course will focus on utilizing graphic formats ideal for web-based work and designing with web standards.

Effective: Spring 2011

## ART 211 (US)

**Introduction to Digital Art and Design Criticism** (3) An introduction to the language, aesthetics and cultural impacts of digital art and design in contemporary society.

Effective: Fall 2007

## ART 211Y (US)

**Introduction to Digital Art and Design Criticism** (3) An introduction to the language, aesthetics, and cultural impacts of digital art and design in contemporary society.

Effective: Spring 2010

## ART 217

**Metal Art/Technology I** (3) Introduction to current and emerging metal art technologies and processes as medium for conceptual, aesthetic, and functional artworks.

Effective: Spring 2009

Prerequisite: ART 110S ART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

## ART 220

**Figure Drawing** (3) Drawing from life. Emphasis on developing the ability to comprehend and record the human figure.

Effective: Spring 2009

Prerequisite: ART 110S ART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

## ART 223

**Drawing: Techniques, Materials, and Tools** (3) Drawing with an emphasis on organization and the development of drawing skills through a variety of techniques, materials, and tools.

Effective: Spring 2009

Prerequisite: ART 110S ART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

## ART 230

**Beginning Sculpture** (3) An introduction to sculpture consisting of lectures, demonstrations, and basic studio work coordinated to cover a broad range of processes.

Effective: Spring 2009

Prerequisite: ART 110S ART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

## ART 240

**Beginning Printmaking** (3) An introduction to printmaking consisting of lectures, demonstrations, and studio work to cover a broad range of processes.

Effective: Spring 2009

Prerequisite: ART 110S ART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

## ART 250

**Beginning Oil Painting** (3) The materials and techniques of painting in oil and their uses in creative painting on panels and canvas.

Effective: Spring 2009

Prerequisite: ART 110S ART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

## ART 280

**Beginning Ceramics** (3) The fundamentals of ceramics, throwing, hand-building, and glazing; acquainting the student with ceramic materials, techniques, and philosophy.

Effective: Spring 2009

Prerequisite: ART 110S ART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

## ART 290

**Beginning Photography** (3) Fundamental techniques and approaches to the art of photography utilizing digital photographic technologies; digital camera required.



Effective: Spring 2003

ART 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

ART 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

ART 297A

**Introduction to Scripting** (3) Students are introduced to object-oriented programming fundamentals for production of expressive, interactive experiences such as animations, interfaces and games.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ART 297A

**Introduction to Scripting** (3) Students are introduced to object-oriented programming fundamentals for the production of expressive, interactive experiences such as animations, interfaces and games.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

ART 298

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1994

ART 299 (IL)

**Foreign Study--Art** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ART 300

**Studio Apprenticeship** (1-4 per semester/maximum of 8) Direct involvement in the creative process of the artist-teacher in the studio environment.

Effective: Fall 1993

Prerequisite: fifth-semester standing

ART 314

**Computer 3-D: Modeling, Rendering, and Animation** (4 per semester/maximum of 12) A studio course introducing 3-d computer generated artwork and content creation using modeling, rendering, and animation applications on the computer.

Effective: Spring 2008

Prerequisite: ART 201 and enrollment in the ART BA ART BFA Art Education Interdisciplinary Digital Studio (IDS) or Integrative Arts degree program

ART 315

**New Media Art: New Media Studio** (4) A studio course concentrating on digital art and new media authoring practices.

Effective: Spring 2008

Prerequisite: ART 201 and enrollment in the ART BA ART BFA Art Education Interdisciplinary Digital Studio (IDS) or Integrative Arts degree program

ART 316

**Video Art and Time-Based Media** (4 per semester/maximum of 8) A studio course concentrating on video art, new media, and experimental time based work.

Effective: Spring 2008

Prerequisite: ART 315

ART 317

**Metal Art/Technology II** (4 per semester/maximum of 8) Further exploration of current and emerging metal art technologies and processes as medium for conceptual, aesthetic, and functional artworks.

Effective: Fall 2006

Prerequisite: ART 217 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

ART 320

**Advanced Drawing** (4 per semester/maximum of 8) Drawing for art majors; emphasis on sustained individual approaches based on figurative and nonfigurative sources.

Effective: Fall 2006

Prerequisite: ART 220 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

ART 330

**Intermediate Sculpture: Metal Fabrication and Mixed-media** (4 per semester/maximum of 8) Development of technical and conceptual skills through metal fabrication, weld ing, and mixed-media processes.

Effective: Fall 2006

Prerequisite: ART 230 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

ART 331

**Intermediate Sculpture: Metal Casting and Mold-Making** (4 per semester/maximum of 8) Development of technical and

conceptual skills through metal casting and mold- making processes.

Effective: Fall 2006

Prerequisite: ART 230 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

#### ART 338

**The Body: Issues and Objects** (4 per semester/maximum of 8) Creating representations of the human body and related objects as a means of sculptural expression.

Effective: Fall 2006

Prerequisite: ART 230 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

#### ART 340

**Printmaking** (4 per semester/maximum of 8) Development of technical and expressive skills through selected problems in one or more of the print processes.

Effective: Fall 2006

Prerequisite: ART 240 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

#### ART 341

**Intermediate Printmaking: Intaglio/Relief** (4) Instruction and practice in the fundamentals of intaglio and relief printmaking processes in their relation to the fine arts.

Effective: Spring 2008

Prerequisite: ART 240 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

#### ART 342

**Intermediate Printmaking: Lithography/Serigraphy** (4) Instruction and practice in the fundamentals of the lithographic and serigraphic processes and their relationship to the meaning of the print.

Effective: Spring 2008

Prerequisite: ART 240 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

#### ART 343

**New Media Printmaking** (4 per semester/maximum of 8) A studio course concentrating on the integration of new media and traditional printmaking processes.

Effective: Fall 2006

Prerequisite: ART 201 or ART 240 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

#### ART 350

**Intermediate Painting** (4 per semester/maximum of 8) A variable offering in painting; course conditions defined on a rotating basis according to needs of individuals and groups.

Effective: Fall 2006

Prerequisite: ART 250 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

#### ART 380

**Intermediate Throwing** (4 per semester, maximum of 12) Intermediate ceramics course with focus on using wheel and throwing skills leading to personal expression in form, glazing, and firing.

Effective: Fall 2006

Prerequisite: ART 280 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

#### ART 381

**Intermediate Handbuilding** (4 per semester, maximum of 12) An intermediate ceramics course with a focus on handbuilding techniques, leading to personal expression in forming, glazing, and firing.

Effective: Fall 2006

Prerequisite: ART 280 ART H 111 ART H 112 and enrollment in the ART BA ART BFA ART Education or Integrative Arts degree program.

#### ART 390

**Introduction to Photochemical Photography** (4) Introduction to the fundamentals of black and white photochemical photography.

Effective: Fall 2012

Prerequisite: ART 110S ART 111 ART 290 and successful portfolio review

#### ART 397

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

#### ART 397A

**Kiln Construction** (4) Hands-on experience designing, building and firing ceramic kilns. Participants work together to construct a salt kiln and several test kilns. The history and evolution of firing techniques are explored.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

#### ART 399 (IL)

**Foreign Study--Art** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## ART 409 (ART H 409)

**Museum Studies** (3) An introduction to the professional activities that occur in art museums.

Effective: Summer 2004

Prerequisite: 6 credits of ART H ART and/or A ED

## ART 411 (US)

**Seminar in Contemporary Art** (3 per semester/maximum of 6) Trends in contemporary art investigated within the framework of studio visitations, museum tours, and through other related avenues of encounter.

Effective: Fall 2006

Prerequisite: ART 122Y ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

## ART 413

**Performance Art** (3) The development, production, and presentation of performance art works, and the study of performance art theory and history.

Effective: Spring 2000

Prerequisite: 4 credits of 300-level art or graduate level status or permission of instructor

## ART 415

**Integrating Media: Convergence in Practice** (4 per semester/maximum of 12) A studio course concentrating on the integration of new media technologies in contemporary art practice.

Effective: Fall 2006

Prerequisite: ART 315

## ART 416

**Advanced Web and Net Art: Multimedia Publishing** (4 per semester/maximum of 12) A studio course concentrating on multimedia online "net art" practice and Web publishing.

Effective: Spring 2008

Prerequisite: ART 203 ART 315 and 8 credits of 300-level new media

## ART 417

**Metal Art/Technology III** (4 per semester/maximum of 12) Advanced exploration of current and emerging metal art technologies and processes as medium for conceptual, aesthetic, and functional artworks.

Effective: Spring 2005

Prerequisite: ART 317

## ART 421

**Drawing** (4 per semester/maximum of 12) Drawing for advanced students, with total emphasis on sustained individual approaches.

Effective: Summer 1992

Prerequisite: ART 320

## ART 422

**Advanced Figure Drawing** (4 per semester/maximum of 8) Concentrated work in recording and understanding the human figure.

Effective: Fall 1998

Prerequisite: ART 220 8 credits of 300-level art courses

## ART 430

**Advanced Sculpture** (4 per semester/maximum of 12) Advanced work in sculpture, with an emphasis on individual development.

Effective: Summer 1992

Prerequisite: ART 330 ART 331 12 credits of 300-level sculpture

## ART 431

**Installation Art** (4) Study and production of original visual statements through installation work as an art form.

Effective: Spring 1998

Prerequisite: 4 credits of 300-level art or graduate level status

## ART 440

**Advanced Printmaking** (4 per semester/maximum of 12) Individual projects in one or more of the printmaking processes. Emphasis is on developing a portfolio of prints.

Effective: Fall 1998

Prerequisite: 4 credits of 300-level printmaking courses 8 credits total of 300-level art courses

## ART 446

**Artists Books** (4) Study and production of original visual statements through the book as an art form.

Effective: Spring 2009

Prerequisite: ART 110S ART 111 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

## ART 447

**Photo Based Printmaking** (4) Study and production of original visual statements through photographic based printmaking as an art form.

Effective: Spring 2000

Prerequisite: ART 240 4 credits of 300-level Art courses or graduate level status

## ART 450

**Advanced Painting** (4 per semester/maximum of 12) Development of the artist through a series of commitments; each

semester serves as a contractual agreement along professional lines.

Effective: Summer 1992

Prerequisite: ART 350

ART 455

**Advanced Painting Critique** (4 per semester/maximum of 8) The painter in relation to his peers and his profession.

Effective: Fall 1983

Prerequisite: senior or graduate standing

ART 466W

**Individual Approaches II** (6) An advance studio/lecture addressing the preparation for potential employment and/or entrance into graduate studies.

Effective: Summer 2007

Prerequisite: ART 165 ART 166 ART 265 ART 266 ART 365 ART 366 ART 465

ART 475 (ART H 475) (US)

**Contemporary Women Artists** (3) An interdisciplinary course that investigates women artists who were integral to the production of contemporary art primarily in the Americas, Europe, and Asia.

Effective: Spring 2009

Prerequisite: fifth-semester standing ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

ART 476 (ART H 476)

**History and Theory of Digital Art** (3) History and theories of contemporary digital art emphasizing humanistic approaches to technology.

Effective: Spring 2007

Prerequisite: ART H 100 or ART H 112 or ART H 307 or ART H 325 or ART H 326 or ART 211

ART 480

**Advanced Ceramic Arts** (4 per semester/maximum of 12) Individual exploration of ceramic materials and construction leading to graduate study or career development as a professional potter.

Effective: Summer 1992

Prerequisite: ART 380

ART 481

**Ceramic Materials and Glaze Calculation** (3) The study of raw materials and their use in formulating clays and glazes.

Effective: Fall 2006

Prerequisite: ART 280 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

ART 490

**View Camera Photography** (4) Experience with diverse camera formats and applications; particular emphasis on view camera.

Effective: Summer 2002

Prerequisite: ART 390

ART 495

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1995

Prerequisite: prior approval of proposed assignment by instructor

ART 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

ART 496H

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

ART 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

ART 497A

**3D Digital Arts II** (4) This studio course provides advanced students with an environment within which to work on computer animated projects using 3D software.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ART 497B

**Ceramic Sculpture** (4) Explore the inexhaustible expressive potential of clay as a contemporary sculptural medium. The porous boundary between Sculpture and Ceramics is articulated and challenged via discussion and production.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ART 497B

**Compositing in 3D** (4) This course covers intermediate to advanced 3D compositing techniques like color correction, render pass and post effects for 3D video.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

ART 497C

**Functional Pottery** (4) Designed to address the potential for handmade pottery to define culture. Food, readings and pottery making set the stage where theoretical dissection and informed hands-on making of dishes will take place.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ART 497D

**Art & Life: Whwere They Intersect** (3) The connection between life and art will be explored from both a personal and cultural perspective. Taking risks is expected.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ART 497E

**Advanced Metal Casting and Mold Making** (4) Advanced development of technical and conceptual skills through casting and mold making processes.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ART 497F

**D.I.Y. Digital Fabrication** (4) Participants in this course will work collaboratively to build and utilize robust Digital Fabrication tools from open source hardware plans. Laser cutting and 3D printing will be explored in depth.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ART 497G

**Words and Images: Artists and Writers Collaborate** (3) This collaborative course is designed for visual arts and creative writing students. The student will consider the artist's book as a form and locate it within the broader context of contemporary writing and visual art. Students will collaborate with others outside of their home college, through the process of combining text and image to construct an artist's book. A broad range of historical, conceptual and theoretical approaches to the artist's book as a genre will be explored.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ART 499 (IL)

**Foreign Studies--Art** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ART H 001S (GA)

**First-Year Seminar** (3) An introduction to the field of art history, through an examination of a selected issue in a seminar setting.

Effective: Fall 2000

ART H 100 (GA;IL)

**Introduction to Art** (3) An approach to the understanding of art through a critical analysis of selected works of architecture, painting, and sculpture. Students who have passed ART H 110 may not schedule this course.

Effective: Spring 2006

ART H 111 (GA;IL)

**Ancient to Medieval Art** (3) Survey of Ancient Egyptian, Greek, Roman, Byzantine, Early Medieval, Romanesque, and Gothic art, with an emphasis on sculpture and painting.

Effective: Spring 2006

ART H 112 (GA;IL)

**Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

Effective: Spring 2006

ART H 112U (GA;IL)

**Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ART H 112U (GA;IL)

**Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

ART H 120 (GA;IL)

**Asian Art and Architecture** (3) A selective overview of the art and architecture of India, Southeast Asia, China, Korea, and Japan.

Effective: Summer 2005

ART H 130 (GA;US;IL)

**Art of Africa, Oceania, and the Americas** (3) A selective overview of the indigenous art of Africa, Oceania and the Americas.

Effective: Spring 2013

ART H 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ART H 198

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be

topical or of special interest.  
Effective: Fall 1992

ART H 199 (IL)

**Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ART H 201 (GA;IL)

**Ancient to Medieval Architecture** (3) A survey of Prehistoric, Ancient Near Eastern Egyptian, Greek, Roman, Early Christian, Byzantine, Early Medieval, Romanesque, and Gothic architecture.  
Effective: Spring 2006

ART H 202 (GA;US;IL)

**Renaissance to Modern Architecture** (3) A survey of Renaissance, Baroque, Rococo, Romantic, Victorian, Modern, Post-Modern, and Contemporary architecture in Europe and America.  
Effective: Spring 2006

ART H 226 (GA)

**The Comic Book: A History of Sequential Art** (3) An overview and examination of the history of sequential art with a focus on comic books and graphic novels.  
Effective: Summer 2012

ART H 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

ART H 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

ART H 298

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ART H 299 (IL)

**Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ART H 301 (GA;IL)

**Egyptian and Mesopotamian Art** (3) Art of the Ancient Near East, including Egypt, Mesopotamia, and neighboring civilizations.  
Effective: Spring 2006

ART H 302 (GA;IL)

**Art of the Early Middle Ages** (3) A survey of the art of Western Europe from the Early Christian era through the Ottonian Empire, c.300-1050 A.D.  
Effective: Spring 2006

ART H 303 (GA;IL)

**Italian Renaissance Art** (3) The major arts in Italy from the thirteenth century A.D. through the Renaissance; emphasis on sculpture and painting.  
Effective: Spring 2006

ART H 304 (GA;IL)

**Italian, Spanish, and Spanish Colonial Baroque Art and Architecture** (3) A survey of painting, sculpture, and architecture in Italy, Spain, and the Spanish Americas from 1600-1750.  
Effective: Fall 2010

ART H 305 (GA;IL)

**Romanticism and Revolution** (3) A survey of painting and sculpture in Europe 1780-1860, from the origins of Neoclassicism through Romanticism and Realism.  
Effective: Fall 2012

ART H 307 (AM ST 307) (GA;US)

**American Art** (3) History of art in the English colonies and the United States from the seventeenth century to the present.  
Effective: Spring 2008

ART H 308 (AM ST 308) (GA;US)

**American Architecture** (3) History of the architecture of the United States, as well as its Native American and colonial antecedents.  
Effective: Summer 2013

ART H 311 (GA;IL)

**Greek and Roman Art** (3) Greek and Roman art, with emphasis on painting and sculpture.  
Effective: Spring 2006

ART H 312 (GA;IL)

**Romanesque and Gothic Art** (3) Survey of the architecture, sculpture, and painting of the Christian church in western

Europe from 1000 to 1500.

Effective: Spring 2006

ART H 313 (GA;IL)

**Northern Renaissance Art** (3) Art in northern Europe in the fifteenth and sixteenth centuries, emphasizing painters such as Van Eyck, Durer, and Bruegel.

Effective: Spring 2006

ART H 314 (GA;IL)

**Art in the Age of Rembrandt** (3) Dutch and Flemish painting in the seventeenth century.

Effective: Spring 2006

ART H 315 (ASIA 315) (GA;IL)

**Architecture and Art of South and Southeast Asia** (3) Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.

Effective: Summer 2010

ART H 320 (GA;IL)

**Chinese Art** (3) A general survey of the great periods of Chinese art from the Shang dynasty until the modern period.

Effective: Summer 2005

ART H 325 (GA;IL)

**Impressionism to Surrealism** (3) A survey of European painting and sculpture from ca. 1850 to ca. 1940.

Effective: Spring 2006

ART H 326 (GA;US;IL)

**Art Since 1940** (3) An international survey of painting, sculpture, photography and other media since 1940.

Effective: Summer 2012

ART H 330 (GA;IL)

**Islamic Architecture and Art** (3) Survey of the art and architecture of Islamic lands from the late seventh century until the eighteenth century.

Effective: Summer 2005

ART H 335 (AFR 335) (GA;IL)

**African Art** (3) Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa.

Effective: Fall 2013

ART H 350W

**Undergraduate Seminar in the History of Art** (3-6) An introduction to original research, methodology, analysis, and writing on a scholarly level.

Effective: Summer 1992

Prerequisite: fifth-semester standing 6 credits in art history at the 300 level or above

ART H 397

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ART H 398

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ART H 399 (IL)

**Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

Prerequisite: ART H 100 or ART H 110 or ART H 111 or ART H 112

ART H 401 (IL)

**Greek Art and Architecture** (3-9) Developments in Greek art and architecture, tenth century B.C. to first century B.C.; emphasis on the importance of Greek sanctuaries.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 or ART H 311

ART H 402 (IL)

**The Illuminated Manuscript** (3) Specific stylistic periods in manuscript painting from A.D. 500-1500 in Western Europe and Byzantium.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 302 or ART H 312

ART H 405 (US;IL)

**Pioneers of Modern Architecture** (3 per semester/maximum of 6) Selected period or theme in the development of modern architecture during the nineteenth and/or early twentieth centuries.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 ART H 202 or ART H 307

ART H 409 (ART 409)

**Museum Studies** (3) An introduction to the professional activities that occur in art museums.

Effective: Summer 2004

Prerequisite: 6 credits of ART H ART and/or A ED

ART H 410

**Taste and Criticism in Art** (3) History and literature of art criticism demonstrating the varied philosophic, cultural, iconographic, technical, and visual approaches.

Effective: Summer 1999

Prerequisite: 6 credits of art history

ART H 411 (IL)

**Roman Art** (3-9) Roman sculpture and painting from Augustus to Constantine.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 or ART H 311

ART H 412 (IL)

**The Gothic Cathedral** (3) Specific aspects of Romanesque and Gothic church architecture of western Europe, especially France and England, between 1000-1500.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 ART H 302 or ART H 312

ART H 414 (IL)

**Italian Baroque Painting** (3) Survey of Italian Baroque painting from sixteenth-century proto-Baroque masters to painters of the late Baroque and Rococo periods.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 or ART H 304

ART H 415 (US)

**The Skyscraper** (3) Origin and evolution of the skyscraper as seen against the background of cultural conditions and technological factors.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 ART H 202 or ART H 307

ART H 416 (US)

**Studies in American Art** (3 per semester/maximum of 6) Selected time periods and/or issues in the art of the United States.

Effective: Fall 2013

Prerequisite: 3 credits of ART H

ART H 420 (IL)

**Russian Architecture** (3) Russian architecture from the first Orthodox churches of the late tenth century to the end of the Soviet Union.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 112 ART H 201 or ART H 202

ART H 422 (IL)

**Studies in Medieval Sculpture** (3-9) Specific studies of western European sculpture, 300-1500, with attention to sources, styles, type, and iconography.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 ART H 302 or ART H 312

ART H 423 (IL)

**Studies in Italian Renaissance Art** (3-9) Specific studies of Italian Renaissance art, including the work of artists such as Leonardo da Vinci, Michaelangelo, and Raphael.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 ART H 202 or ART H 303

ART H 424 (IL)

**Masters of Northern Baroque Art** (3) Seventeenth-century painters in Flanders and Holland, including the works of artists such as Rubens, Rembrandt, and Vermeer.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 or ART H 314

ART H 426 (US;IL)

**Iconoclasm: Powerful Images and their Destruction** (3) Iconoclasm: exploring the political, religious, and social motivations behind the destruction of powerful imagery throughout history.

Effective: Summer 2009

Prerequisite: 3 credits of Art History in any area

ART H 435 (IL)

**Studies in Modern Art** (3-6) Lectures focusing on a selected movement of nineteenth- or twentieth-century art.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 ART H 305 ART H 307 or ART H 325

ART H 440 (ASIA 440) (IL)

**Monuments of Asia** (3-9 per semester/maximum of 9) An exploration of major Asian sites and monuments through a focus on their historical and cultural significance.

Effective: Summer 2012

Prerequisite: ART H 100 or ART H 120 or ART H 315 or ART H 320 or ART H 330

ART H 442 (IL)

**Late Antique and Early Christian Art** (3) Survey of the architecture, painting, and minor arts of Christian society from the



beginning to the mid-sixth century.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 or ART H 302

ART H 445 (IL)

**Oceanic Art** (3) Survey of the arts of Oceania (Polynesia, Micronesia, Melanesia), including masks, sculpture, textiles, architecture and other art forms.

Effective: Summer 2012

Prerequisite: 3 credits of Art History

ART H 446 (AFR 446) (IL)

**Topics in African Art** (3 per semester/maximum of 9) Topics vary from "Arts of Eastern and Southern Africa" to "Arts of West Africa."

Effective: Spring 2014

Prerequisite: 3 credits of Art History

ART H 447 (AFR 447) (IL)

**Topics in the Art of the African Diaspora** (3 per semester/maximum of 6) Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

Effective: Spring 2014

Prerequisite: 3 credits of Art History

ART H 450 (US;IL)

**The History of Photography** (3) The history of photography from 1839, with particular emphasis on the relationship with the plastic arts.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 ART H 305 ART H 307 or ART H 325

ART H 452 (IL)

**Byzantine Art** (3) Monumental and minor arts of Byzantium and related areas from the reign of Justinian to the Turkish conquest of Constantinople.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 or ART H 302

ART H 456 (IL)

**Renaissance and Baroque Palaces** (3) This course examines palace architecture and decoration in Italy, France, England, and Germany from 1450-1700.

Effective: Spring 2011

Prerequisite: ART H 100 or ART H 112 or ART H 202 or ART H 303 or ART H 304

ART H 458 (IL)

**Baroque Capitals of Europe** (3) This course examines the architecture and urbanism of European capital cities from 1600-1800.

Effective: Spring 2010

Prerequisite: ART H 100 or ART H 112 or ART H 202 or ART H 304 or ART H 314

ART H 460 (IL)

**Art and Empire: Aztec, Inca and Spanish** (3) This course is a comparative study of the artistic production used in Aztec, Inca and Spanish empires.

Effective: Summer 2012

Prerequisite: 3 credits of ART H

ART H 462 (IL)

**Studies in Latin American Art** (3 per semester/maximum of 6) Specific studies of the visual and material culture created in Latin America from the colonial through the modern era.

Effective: Summer 2012

Prerequisite: 3 credits of Art History

ART H 464 (IL)

**French Baroque Painting** (3) Examination of seventeenth-century French painting, including Italian influences; the provincial, Classical, and official styles in France.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 or ART H 304

ART H 470

**Contemporary Art** (3 per semester/maximum of 9) A focused investigation of a special topic relating to art made after 1940.

Effective: Fall 2013

Prerequisite: 3 credits of ART H

ART H 475 (ART 475) (US)

**Contemporary Women Artists** (3) An interdisciplinary course that investigates women artists who are integral to the production of contemporary art primarily in the Americas, Europe, and Asia.

Effective: Spring 2009

Prerequisite: Fifth semester standing ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

ART H 476 (ART 476)

**History and Theory of Digital Art** (3) History and theories of contemporary digital art emphasizing humanistic approaches to technology.

Effective: Spring 2007

Prerequisite: ART H 100 or ART H 112 or ART H 307 or ART H 325 or ART H 326 or ART 211

ART H 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

ART H 496A

**Pop Art and Its Legacies** (1-6) This course examines the origins of pop art, its international reception, and its legacies in contemporary art.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: ART H 326

ART H 496H

**Independent Studies - Honors** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

ART H 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

ART H 497A

**Italian Renaissance Architecture** (3) This course provides a survey of architecture in Italy during the Renaissance (1400-1600). It will examine the work of major figures, such as Brunelleschi, Alberti, Bramante, Michelangelo, and Palladio. The urbanism of Rome, Florence, Venice, and Naples will also be examined.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: ART H 112 or ART H 202

ART H 497B

**History of Prints and Printmaking** (3) This course examines the history of prints and printmaking, focusing primarily, but not exclusively, on the development and significance of various print mediums in Europe and the United States from the fifteenth through the twentieth centuries. Class lectures are supported by numerous visits to the Palmer Museum of Art's print room to view first hand many of the objects discussed in the course.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: ART H 112

ART H 498

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ART H 499 (IL)

**Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ASIA 315 (ART H 315) (GA;IL)

**Architecture and Art of South and Southeast Asia** (3) Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.

Effective: Summer 2010

ASIA 440 (ART H 440) (IL)

**Monuments of Asia** (3-9 per semester/maximum of 9) An exploration of major Asian sites and monuments through a focus on their historical and cultural significance.

Effective: Summer 2012

Prerequisite: ART H 100 or ART H 120 or ART H 315 or ART H 320 or ART H 330

BRASS 100J (GA)

**Trumpet: Secondary** (1 per semester, maximum of 8) Individual instruction in trumpet one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

BRASS 101J (GA)

**French Horn: Secondary** (1 per semester, maximum of 8) Individual instruction in French horn one-half hour per week. For students who qualify.

Effective: Fall 2004

Prerequisite: permission of instructor

BRASS 102J (GA)

**Trombone: Secondary** (1 per semester, maximum of 8) Individual instruction in trombone one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

BRASS 103J (GA)

**Euphonium: Secondary** (1 per semester, maximum of 8) Individual instruction in euphonium/baritone one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

## BRASS 104J (GA)

**Tuba: Secondary** (1 per semester, maximum of 8) Individual instruction in tuba one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

## BRASS 110J (GA)

**Trumpet: Secondary** (2 per semester, maximum of 16) Individual instruction in trumpet one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

## BRASS 111J (GA)

**French Horn: Secondary** (2 per semester, maximum of 16) Individual instruction in French horn one hour per week. For students who qualify.

Effective: Fall 2004

Prerequisite: permission of instructor

## BRASS 112J (GA)

**Trombone: Secondary** (2 per semester, maximum of 16) Individual instruction in trombone one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

## BRASS 113J (GA)

**Euphonium: Secondary** (2 per semester, maximum of 16) Individual instruction in euphonium/baritone one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

## BRASS 114J (GA)

**Tuba: Secondary** (2 per semester, maximum of 16) Individual instruction in tuba one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

## COMM 150 (GA)

**The Art of the Cinema** (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.

Effective: Spring 2007

## COMM 150H (GA)

**The Art of the Cinema** (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.

Effective: Spring 2007

## COMM 150S (GA)

**The Art of the Cinema** (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.

Effective: Fall 2005

## COMM 250 (GA)

**Film History and Theory** (3) Exploration of film theory and criticism in the context of aesthetic, technological, and economic evolution of film history.

Effective: Spring 2004

Prerequisite: COMM 150

## DANCE 100 (GA;US;IL)

**Dance Appreciation** (3) Explore dance as a vital, communicative and performing art, reflecting social values and cultural beliefs.

Effective: Fall 2007

## DANCE 230 (GA)

**Ballet** (1.5 per semester/maximum of 6) An exploration of Ballet technique.

Effective: Summer 2012

## DANCE 240 (GA)

**Jazz Dance** (1.5 per semester/maximum of 6) An exploration of jazz dance technique throughout history.

Effective: Summer 2012

## DANCE 250 (GA)

**Tap Dance** (1.5 per semester/maximum of 6) An exploration of tap dance technique throughout history.

Effective: Summer 2012

## DANCE 261 (GA)

**Beginning Modern Dance I** (1.5 per semester/maximum of 6) Introduction to modern dance as an art form; development of dance technique and composition; teaching methods for improvisational skills.

Effective: Spring 2013

## DANCE 361 (GA)

**Intermediate Modern Dance I** (1.5 per semester/maximum of 6) Development of techniques and principles of modern dance on the intermediate level.

Effective: Spring 2013

Prerequisite: DANCE 262

DANCE 362 (GA)

**Intermediate Modern Dance II** (1.5 per semester/maximum of 6) A continuation of Modern Dance I to augment technical proficiency.

Effective: Spring 2013

Prerequisite: DANCE 361

ENGL 050 (GA)

**Introduction to Creative Writing** (3) Practice and criticism in the reading, analysis and composition of fiction, nonfiction and poetry writing.

Effective: Spring 2001

ENGL 050H (GA)

**Introduction to Creative Writing** (3) Practice and criticism in the reading, analysis and composition of fiction, nonfiction and poetry writing.

Effective: Summer 2012

GD 201

**Typography** (3) A consideration of the word in relation to visual organization and its application to communication.

Effective: Fall 2006

Prerequisite: GD 200

GD 300

**Design Photography** (4) An investigation of graphic photography processes and how print technology affects the final appearance of a photograph.

Effective: Fall 2006

Prerequisite: GD 201 and successful portfolio review

GD 301

**Graphic Design Technology I** (4) Theoretical and practical aspects of computer application to graphic design.

Effective: Fall 2006

Prerequisite: GD 201 and successful portfolio review

GD 302

**Applied Communication** (4) Definition and concentrated involvement in problem/audience analysis, with emphasis on understanding symbol and image in evoking audience response.

Effective: Fall 2006

Prerequisite: GD 300 GD 301

GD 304

**Practical Communications** (3) Practical design experience for students through design/publicity problems from the University and community non-profit organizations.

Effective: Fall 2006

Prerequisite: Prerequisite or concurrent GD 300 GD 301

GD 310

**Studio Apprenticeship** (3 per semester/maximum of 6) Direct involvement in the creative process of the artist-teacher in the studio environment.

Effective: Fall 2006

Prerequisite: Junior or senior standing in Graphic Design. Prior approval of proposed assignment by instructor.

GD 400

**Time and Sequence** (4) Development of visual sequence as replies to graphic design problems.

Effective: Fall 2006

Prerequisite: GD 302

GD 401

**Package Design** (3) Orientation to packaging designs as it relates to the consumer, client, and to societal and environmental concerns.

Effective: Fall 2006

Prerequisite: GD 302

GD 402

**Senior Problems** (4) Development of visual replies to graphic design problems.

Effective: Fall 2006

Prerequisite: GD 400 GD 401

GD 403W

**Graphic Design Seminar** (3) A seminar on subjects which relate to the field of graphic design.

Effective: Fall 2007

Prerequisite: GD 302

GD 404

**Book Design** (3) Writing, designing, illustrating and production (printing) of a book.

Effective: Fall 2006

Prerequisite: GD 302

HIST 470

**Modern Bondage: Slavery in the Americas, 1492-1888** (3) The work, culture, ideology, and political economy of slavery in the Americas between 1500 and 1888.

Effective: Summer 2007

Prerequisite: HIST 011 HIST 020 HIST 152 HIST 178 or HIST 192

INART 001 (GA)

**The Arts** (3) Develop critical perception, knowledge, and judgments through an examination of the basic concepts common among the arts.

Effective: Spring 2006

INART 003 (GA)

**Reception of the Arts** (3) This course considers how art uses time, space, and causality to define culture and the human condition.

Effective: Spring 2004

INART 005 (GA)

**Performing Arts** (3) Introduction to music, dance, and theatre. Orientation to the aesthetics, theory, and practice of professional performance.

Effective: Summer 2012

INART 010 (GA)

**The Popular Arts in America: Mass Media Arts** (3) An introduction to the arts of the mass media with emphasis on how film, radio, television, and the print media influence and reflect society.

Effective: Summer 2012

INART 015 (GA)

**The Popular Arts in America: Performing Arts** (3) The development of the performing arts of American popular culture; emphasis on popular music, dance, theatre, and variety arts.

Effective: Spring 2004

INART 055 (GA)

**History of Electroacoustic Music** (3) A history of electroacoustic music as a consequence of developments in culture and technology from 1880 to present.

Effective: Summer 2012

INART 062 (GA;US;IL)

**West African and African American Arts: from the 1960s to the present** (3) An introduction to West African and African American Arts from the 1960s to the present.

Effective: Summer 2014

INART 062U (GA;US;IL)

**West African and African American Arts: from the 1960s to the present** (3) An introduction to West African and African American Arts from the 1960s to the present.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

INART 100 (GA)

**Seminar in Integrative Arts** (3) A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester.

Effective: Spring 2004

INART 100W (GA)

**Seminar in Integrative Arts** (3) A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester.

Effective: Summer 2012

INART 110 (GA)

**The Dramatic Arts in the Mass Media** (3) The place of television-radio-film drama in our culture; relationship with other art forms; standards of evaluation.

Effective: Summer 2012

INART 115 (GA;US)

**The Popular Arts in America: Popular Music** (3) An examination of the roots, development, and significance of popular music in our culture.

Effective: Summer 2013

INART 116 (GA;US)

**The Popular Arts in America: The History of Rock and Roll-The 1950s** (3) This course examines the roots, development, and significance of rock and roll music in its first decade.

Effective: Summer 2012

INART 125 (GA;US;IL)

**The Popular Arts in America: The History of Rock and Roll - Punk Rock** (3) An examination of the roots, development, and significance of punk rock in our culture.

Effective: Summer 2012

INART 126 (AF AM 126) (GA;US)

**The Popular Arts in America: The History of Rock and Roll - Hip-Hop** (3) An examination of the roots, development, and significance of hip-hop in our culture.

Effective: Spring 2014

INART 200 (GA)

**The Popular Arts in America: Elvis Presley - The King of Rock and Roll** (3) The significance and influence of Elvis Presley as an artist and cultural force focusing on his recordings and major performances.

Effective: Summer 2013

INART 258B (GA)

**Fundamentals of Digital Audio** (1) A general overview of music technologies current to music educators and performers.  
Effective: Spring 2012

INART 410

**Early Pennsylvania Decorative Arts and Furniture** (3) The study of Pennsylvania and related furniture, pottery, paintings, and decorative arts of the seventeenth, eighteenth, and early nineteenth centuries.  
Effective: Summer 2012

INART 415

**Nineteenth Century Pennsylvania Architecture and Restoration** (3) Interior and exterior design of early Pennsylvania architecture; understanding and evaluation of and experience in restoration.  
Effective: Summer 2012  
Prerequisite: INART 410

KEYBD 100J (GA)

**Piano: Secondary** (1 per semester, maximum of 8) Individual instruction in piano one-half hour per week.  
Effective: Fall 2004  
Prerequisite: permission of instructor

KEYBD 101J (GA)

**Organ: Secondary** (1 per semester, maximum of 8) Individual instruction in pipe organ one-half hour per week.  
Effective: Fall 2004  
Prerequisite: permission of instructor

KEYBD 110J (GA)

**Piano: Secondary** (2 per semester, maximum of 16) Individual instruction in piano one hour per week.  
Effective: Fall 2004  
Prerequisite: permission of instructor

KEYBD 111J (GA)

**Organ: Secondary** (2 per semester, maximum of 16) Individual instruction in pipe organ one hour per week.  
Effective: Fall 2004  
Prerequisite: permission of instructor

LARCH 060 (GA;US;IL)

**History of Design on the Land** (3) A survey of the historical development of outdoor space in relationship to allied arts from early beginnings to this century. Students may take only one course for General Education credit from LARCH 003 GA or 060 GA.  
Effective: Fall 2010

LARCH 065 (GA;US;IL)

**Built Environment and Culture** (3) Investigates the relationship between socio-cultural practices and the development and organization of contemporary built environments.  
Effective: Summer 2005

MUSIC 005 (GA)

**An Introduction to Western Music** (3) A general survey of art music in western society, highlighting important composers and stylistic developments.  
Effective: Spring 2004

MUSIC 005S (GA)

**An Introduction to Western Music** (3) A general survey of art music in western society, highlighting important composers and stylistic developments.  
Effective: Summer 2006

MUSIC 007 (GA;US)

**Evolution of Jazz** (3) Study of the origins and development of jazz as an art form.  
Effective: Summer 2005

MUSIC 008 (GA)

**Rudiments of Music** (3) Introduction to the elements of music: notation, scales, meter, rhythm, intervals; basic chord structure.  
Effective: Fall 2004

MUSIC 009 (GA;IL)

**Introduction to World Musics** (3) An overview of the music of India, China, Japan, Indonesia, Africa, and the Middle East.  
Effective: Summer 2005

MUSIC 011 (GA)

**Under the Hood: How Classical Music Works** (3) An introductory examination of classical music, drawing together aspects of theory and repertoire to understand how the music works.  
Effective: Summer 2013

MUSIC 040S

**First-Year Seminar in Music Education** (1) Introduction to the University, the School of Music, the music education degree program, and the music teaching profession.  
Effective: Fall 2006

MUSIC 050 (GA)

**Beginning Piano: Non-Music Major** (1) Introduction to the keyboard, notation, chord progressions, transposition, improvisation, and simple accompanying techniques for the non-music major. An additional fee is required for this course.

Effective: Fall 2004

MUSIC 051 (GA)

**Intermediate Class Piano: Non-Music Major** (1) Instruction in harmonizing melodies, accompanying techniques, improvisation, and repertoire.

Effective: Fall 2004

Prerequisite: MUSIC 050 or placement audition

MUSIC 052 (GA)

**Voice Class: Non-Music Major** (1) Group study emphasizing development of rudimentary skills and their recreational use in a range of popular and art music.

Effective: Fall 2004

MUSIC 053 (GA)

**Class Voice Practicum** (1) Voice study in group and individual formats, supervised by in-class lessons and discussions, enhanced by additional individual instruction with pedagogy students.

Effective: Fall 2004

Prerequisite: audition

MUSIC 054 (GA)

**Beginning Class Guitar: Non-Music Major** (1) Class instruction in guitar for non-music majors.

Effective: Fall 2004

MUSIC 076

**Chamber Orchestra** (1 per semester, maximum of 8) Chamber orchestra rehearsal and performance.

Effective: Spring 2001

Prerequisite: audition

MUSIC 077 (GA)

**Philharmonic Orchestra** (1 per semester/maximum of 8) Orchestra rehearsal and performance.

Effective: Fall 2004

Prerequisite: audition

MUSIC 078 (GA)

**Symphonic Wind Ensemble** (1 per semester/maximum of 8) Rehearsal and performance of wind repertoire and concert band literature.

Effective: Fall 2004

Prerequisite: audition

MUSIC 079

**Pep Band** (1 per semester/maximum of 4) A band to perform at selected athletic events.

Effective: Spring 2001

Prerequisite: audition

MUSIC 080 (GA)

**Symphonic Band** (1 per semester/maximum of 8) Rehearsal and performance of symphonic band literature. A select group using standard instrumentation.

Effective: Fall 2004

Prerequisite: audition

MUSIC 081 (GA)

**Marching Blue Band** (1 per semester/maximum of 4) Rehearsal and performance of appropriate music and maneuvers for football games and related events.

Effective: Fall 2004

Prerequisite: audition

MUSIC 082 (GA)

**Concert Band** (1 per semester/maximum of 8) Rehearsal and performance of concert band literature.

Effective: Fall 2004

Prerequisite: audition

MUSIC 083 (GA)

**Campus Band** (1 per semester/maximum of 8) Rehearsal and performance of concert band literature.

Effective: Spring 2002

Prerequisite: audition

MUSIC 084 (GA)

**Jazz Ensemble** (1 per semester/maximum of 8) Survey and performance of historic and contemporary big band styles.

Effective: Fall 2004

Prerequisite: audition

MUSIC 086 (GA)

**Percussion Ensemble** (1 per semester/maximum of 8) Study and performance of percussion chamber music in various instrumental combinations, focusing on the classical and contemporary repertoire.

Effective: Spring 2004

Prerequisite: audition

MUSIC 087

**Mallet Ensemble** (1) Study and performance of music for keyboard percussion instruments.

Effective: Spring 2001

Prerequisite: audition

MUSIC 088 (GA)

**Campus Choir** (1 per semester/maximum of 8) Building skills needed for successful choral singing including vocal production, sight singing, ear training, and music fundamentals.

Effective: Fall 2001

MUSIC 089 (GA)

**University Choir** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of 100-150 voices.

Effective: Spring 2004

Prerequisite: audition

MUSIC 090 (GA)

**Glee Club** (1 per semester/maximum of 8) Rehearsal and performance of music composed for male voices from the sixteenth to the twentieth centuries, including sacred and secular compositions.

Effective: Spring 2004

Prerequisite: audition

MUSIC 091 (GA)

**Oriana Singers** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire for treble voices from the sixteenth to twentieth centuries, including sacred and secular compositions.

Effective: Spring 2004

Prerequisite: audition

MUSIC 092 (GA)

**Chamber Music for Voices** (1 per semester/maximum of 8) Select groups of singers performing choral chamber music.

Effective: Spring 2004

Prerequisite: audition

MUSIC 093 (GA;US;IL)

**Essence of Joy** (1 per semester, maximum of 8) Rehearsal and performance of choral repertoire from the African/American tradition.

Effective: Spring 2006

Prerequisite: audition

MUSIC 094 (GA)

**Women's Chorale** (1 per semester, maximum of 8) Rehearsal and performance of treble choral literature.

Effective: Spring 2004

Prerequisite: audition

MUSIC 100 (GA)

**Campus Orchestra** (1 per semester/maximum of 10) Rehearsal and performance orchestral literature.

Effective: Fall 2012

Prerequisite: audition

MUSIC 101

**Music Common Hour** (1) Student and faculty recitals, master classes, lectures by faculty and guests, and Common Hour attendance.

Effective: Fall 1985

MUSIC 103 (GA)

**Concert Choir** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of approximately sixty voices.

Effective: Spring 2004

Prerequisite: audition

MUSIC 104 (GA)

**Chamber Singers** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of approximately twenty-four voices.

Effective: Spring 2004

Prerequisite: audition

MUSIC 106 (GA)

**Early Music Ensemble** (1 per semester/maximum of 8) Ensemble for the performance and study of Baroque or early music on instruments of the era.

Effective: Spring 2004

Prerequisite: audition

MUSIC 109 (GA)

**The Music of the Beatles** (3) This course will consider the music of the Beatles by examining how John Lennon, Paul McCartney, and George Harrison developed as songwriters.

Effective: Spring 2013

MUSIC 110

**Keyboard Skills I: Music Major** (1) Introduction to the keyboard, chord progressions, transposition, improvisation, and simple accompanying techniques.

Effective: Fall 1985



## MUSIC 112

**Guitar Techniques I** (0.5) Performance and teaching techniques for guitar.

Effective: Spring 2008

## MUSIC 113

**Music Theatre--Class Voice I** (1) Group study emphasizing development of sound vocal and musicianship skills fundamental for music theatre.

Effective: Spring 2001

Prerequisite: admission into the School of Theatre with intent to major in Music Theatre

## MUSIC 114

**Music Theatre--Class Voice II** (1) Group study emphasizing development of sound vocal and musicianship skills fundamental for music theatre.

Effective: Spring 2001

Prerequisite: MUSIC 113

## MUSIC 115

**Beginning Voice Class** (1) Class voice emphasizing the fundamentals of healthy singing technique. For Music Majors only.

Effective: Fall 2011

## MUSIC 116

**Intermediate Voice Class** (1 per semester/maximum of 4) Class voice, emphasizing pedagogical experiences and techniques for public school music classrooms. For Music Majors only.

Effective: Fall 2011

## MUSIC 119S

**First-Year Music Seminar** (2) Individual applied instruction and group activities; orientation, area recitals, and studio classes as required by instructor.

Effective: Summer 1999

Prerequisite: permission of instructor

## MUSIC 121

**Basic Musicianship I** (1) Elementary sight singing and dictation.

Effective: Fall 1989

Prerequisite: ability to reproduce simple rhythm and tonal patterns

## MUSIC 122

**Basic Musicianship II** (1) Continuation of Music 121.

Effective: Fall 1989

Prerequisite: MUSIC 121

## MUSIC 129S

**First-Year Performance Seminar** (3) Individual applied instruction and group activities; orientation, area recitals, and studio classes as required by instructor.

Effective: Summer 1999

Prerequisite: permission of instructor

## MUSIC 131

**Music Theory I** (2) Review of rudiments; introduction to the fundamental linear and vertical features of tonal music, integration of written and aural skills.

Effective: Fall 1989

Prerequisite: ability to read musical notation; knowledge of musical rudiments.

## MUSIC 132

**Music Theory II** (2) Continuation of Music 131.

Effective: Fall 1989

Prerequisite: MUSIC 131

## MUSIC 151

**Brass Techniques I** (1) Introduction to basic performance techniques on brass instruments; teaching strategies and materials for use in a heterogeneous instrument setting.

Effective: Fall 2007

## MUSIC 152

**Percussion Techniques I** (1) Introduction to basic performance techniques on percussion instruments; teaching strategies and materials for use in a heterogeneous instrument setting.

Effective: Fall 2007

## MUSIC 153

**String Techniques I** (1) Performance techniques on stringed instruments for music education majors.

Effective: Fall 2007

## MUSIC 154

**Woodwind Techniques I** (1) Performance and teaching techniques for woodwind instruments.

Effective: Fall 2007

## MUSIC 162 (IL)

**Introduction to Music History** (2) An introduction to Western music history and world music of selected cultures through the study of representative works.

Effective: Spring 2006

## MUSIC 170

**Keyboard Skills II: Music Major** (1) Instruction in secondary chord progressions, transposition, improvisation, accompanying techniques, simple score reading.

Effective: Fall 1985

Prerequisite: MUSIC 050 MUSIC 110 or placement audition

## MUSIC 173S

**First-Year Composition Seminar** (2) Individual composition instruction for freshman composition majors (Fall semester) and group activities.

Effective: Summer 1999

Prerequisite: admission to the BM degree in Composition

## MUSIC 174J

**Composition II** (2) Composition instruction for first-year composition majors.

Effective: Fall 2012

## MUSIC 181

**Jazz Improvisation I** (2) A study of the fundamentals of jazz theory, harmonic functions, and their applications to jazz improvisation.

Effective: Fall 1991

Prerequisite: MUSIC 132

## MUSIC 182

**Jazz Improvisation II** (2) A study of advanced harmonic concepts and their application to jazz improvisation.

Effective: Summer 1986

Prerequisite: MUSIC 181

## MUSIC 190 (GA)

**Chamber Music for Strings** (1 per semester/maximum of 8) Preparation for performance of advanced chamber music literature involving primarily string instruments--string quartets, piano trios, clarinet quintets.

Effective: Spring 2004

Prerequisite: permission of instructor

## MUSIC 191 (GA)

**Chamber Music for Woodwinds** (1 per semester/maximum of 8) Preparation for performance of advanced chamber music literature involving primarily woodwind instruments--woodwind quintets and quartets.

Effective: Spring 2004

Prerequisite: permission of instructor

## MUSIC 192 (GA)

**Chamber Music for Brass** (1 per semester/maximum of 8) Preparation for performance of advanced chamber music literature involving primarily brass instruments--brass quartets and quintets.

Effective: Spring 2004

Prerequisite: permission of instructor

## MUSIC 193

**Sonata Duos** (1 per semester/maximum of 8) Preparation for performance of advanced sonata literature for various individual instruments with keyboard.

Effective: Fall 1983

Prerequisite: permission of instructor

## MUSIC 194

**Studio and Recital Accompanying** (1 per semester/maximum of 8) Keyboard accompaniment of student soloists in the studio and in public performance under faculty supervision.

Effective: Fall 1983

Prerequisite: KEYBD 120J or KEYBD 130J or consent of supervising faculty member

## MUSIC 210

**Keyboard Skills III: Music Major** (1) Playing accompaniments from chord symbols and full notation, transposition, improvisation, modulation, score-reading, and standard literature.

Effective: Fall 1985

Prerequisite: MUSIC 170 or placement audition

## MUSIC 221

**Basic Musicianship III** (1) Intermediate sight singing and dictation.

Effective: Fall 1991

Prerequisite: MUSIC 122 Prerequisite or concurrent: MUSIC 231

## MUSIC 222

**Basic Musicianship IV** (1) Continuation of Music 221.

Effective: Spring 1997

Prerequisite: MUSIC 221 . Prerequisite or concurrent:

## MUSIC 231

**Music Theory III** (2) Intermediate concepts of tonal theory.

Effective: Fall 1989

Prerequisite: MUSIC 132

## MUSIC 241

**Music for Classroom Teachers** (3) Development of competencies for guiding musical experiences of children in the

elementary classroom.

Effective: Spring 2001

Prerequisite: for students in the K-6 Teacher Certification Program only

MUSIC 261 (GA;IL)

**Survey of Music History I** (3) A survey of music history to 1750, with readings, listening, and lecture.

Effective: Spring 2012

Prerequisite: MUSIC 131 MUSIC 162

MUSIC 262 (GA;IL)

**Survey of Music History II** (3) A survey of music history from 1750 to the present, with readings, listening, and lecture.

Effective: Spring 2012

Prerequisite: MUSIC 132 MUSIC 162

MUSIC 266

**Basic Conducting** (1) Basic instruction and practicum in conducting, both choral and instrumental.

Effective: Fall 1993

Prerequisite: MUSIC 221 MUSIC 231

MUSIC 267

**Techniques of Composition** (2) Basic instruction in the techniques of composition in all idioms.

Effective: Fall 1993

Prerequisite: or concurrent: MUSIC 231

MUSIC 270

**Keyboard Skills IV: Music Major** (1) Instruction in secondary chord progressions, transposition, improvisation, accompanying techniques, score reading.

Effective: Summer 1987

Prerequisite: MUSIC 210 or placement audition

MUSIC 273J

**Composition III** (2) Composition instruction for second-year composition majors.

Effective: Fall 2012

Prerequisite: MUSIC 174J

MUSIC 274J

**Composition IV** (2) Composition instruction for second-year composition majors.

Effective: Fall 2012

Prerequisite: MUSIC 273J

MUSIC 295A

**Early Field Experience in Music Education** (1) Observation of music learning and teaching processes, development of basic teaching skills and reflective behaviors.

Effective: Spring 2008

Prerequisite: fourth semester standing MUSIC 115 MUSIC 210

MUSIC 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

MUSIC 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

MUSIC 297A

**Choral Conducting Practicum** (1) For undergraduates who create their own choirs from the membership of Penn State ensembles.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

MUSIC 297B

**Choral Conducting Project** (1) For students who serve as assistants and interns with non-Penn State ensembles.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

MUSIC 297E (PSYCH 297E)

**Introduction to Music Therapy** (3) Introductory course in music therapy to study the populations served by this form of therapy and its basic techniques.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

MUSIC 298

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

MUSIC 331

**Tonal Analysis** (2) Introduction to standard procedures of tonal analysis, including concepts of form and structure.

Effective: Spring 1997

Prerequisite: MUSIC 221 MUSIC 231

MUSIC 332

**Analysis of Twentieth Century Music** (2) Application of analytical techniques and compositional theories to music of the twentieth century.

Effective: Summer 1996

Prerequisite: MUSIC 331

MUSIC 336

**Orchestration** (2) Scoring for the orchestra.

Effective: Spring 1988

Prerequisite: MUSIC 222 MUSIC 232

MUSIC 366

**Intermediate Conducting** (1) Intermediate instruction in conducting; conducting techniques specific to instrumental or choral music; introduction to rehearsal technique.

Effective: Fall 2008

Prerequisite: MUSIC 266 MUSIC 270 MUSIC 331

MUSIC 373J

**Composition V** (3) Composition instruction for third-year position majors.

Effective: Fall 2012

Prerequisite: MUSIC 274J

MUSIC 374J

**Composition VI** (3) Composition instruction for third-year composition majors.

Effective: Fall 2012

Prerequisite: MUSIC 373J

MUSIC 387

**Language Diction for Singers: Italian and English** (1) Intensive drill in the pronunciation, phonetic transcription, and singing of Italian and English.

Effective: Summer 1991

Prerequisite: VOICE 170J or VOICE 180J or 2 semesters of VOICE 100J or VOICE 110J

MUSIC 388

**Language Diction for Singers: French** (1) Intensive drill in the pronunciation, phonetic transcription, and singing of French.

Effective: Spring 1987

Prerequisite: VOICE 170J or VOICE 180J or two semesters of VOICE 100J or VOICE 110J

MUSIC 389

**Language Diction for Singers: German** (1) Intensive drill in the pronunciation, phonetic transcription, and singing of German.

Effective: Spring 1987

Prerequisite: VOICE 170J or VOICE 180J or two semesters of VOICE 100J or VOICE 110J

MUSIC 395A

**Cohort Practicum I** (1) Observation and pre-service experience in the schools. Limited to Music Education Majors.

Effective: Fall 2008

Prerequisite: Acceptance into Teacher Education Degree Program in Music

MUSIC 395B

**Cohort Practicum II** (1) Observation and teaching experiences in a variety of musical instruction settings.

Effective: Spring 2009

Prerequisite: MUSIC 341 MUSIC 395A piano proficiency passed

MUSIC 395C

**Practicum in Music Teaching** (1 per semester/maximum of 5) Field experiences in music teaching for undergraduate music education majors.

Effective: Spring 2013

Prerequisite: acceptance into the School of Music

MUSIC 400J

**Solo Recital** (1) Required recital for Performer's Certificate.

Effective: Fall 2012

Prerequisite: permission of the director of the school of music

MUSIC 412

**Jazz Pedagogy** (2) The development of advanced skills in pedagogy for teaching jazz bands.

Effective: Summer 1994

Prerequisite: admission to the Music Education program or certification

MUSIC 414

**String Pedagogy** (1-2) The development of skills in pedagogy for teaching strings.

Effective: Spring 1992

Prerequisite: completion of 300-level strings course

MUSIC 415

**Woodwind Pedagogy** (1-2) The development of skills in pedagogy for teaching woodwinds.

Effective: Spring 1992

Prerequisite: completion of 300-level woodwind course

MUSIC 416

**Brass Pedagogy** (1-2) The development of skills in pedagogy for teaching brass.

Effective: Spring 1992

Prerequisite: completion of 300-level brass course

MUSIC 417

**Percussion Pedagogy** (1-2) The development of advanced skills in pedagogy for teaching percussion.

Effective: Summer 1992

Prerequisite: MUSIC 152 ; PERCN 320J or PERCN 330J or permission of instructor

MUSIC 418

**Voice Pedagogy** (2) Analysis of techniques of teaching voice and studies of related music literature and pedagogical writings.

Effective: Spring 2004

Prerequisite: VOICE 270J or VOICE 280J ; or four semesters of VOICE 100J or VOICE 110J

MUSIC 419

**Piano Pedagogy I** (2) Analysis of beginning teaching methods and teaching strategies for children.

Effective: Spring 1997

Prerequisite: KEYBD 270 or KEYBD 280 ; MUSIC 331

MUSIC 421

**Jazz Combo Class** (1 per semester/maximum of 8) Study and performance of small group jazz.

Effective: Fall 2013

Prerequisite: MUSIC 181

MUSIC 422

**Jazz Harmony and Arranging** (3) Analysis and composition of jazz tunes and chord progressions; instrumental and vocal arranging in the jazz idiom.

Effective: Fall 1983

Prerequisite: MUSIC 222 MUSIC 232

MUSIC 424

**Piano Pedagogy II** (2) Analysis of techniques of teaching intermediate-early advanced level piano and studies of music literature and pedagogical writings.

Effective: Spring 1997

Prerequisite: KEYBD 270 or KEYBD 280 ; MUSIC 331

MUSIC 425

**Advanced Voice Pedagogy** (2) Analysis of techniques of teaching voice, supervised teaching, studies of studio materials and related topics.

Effective: Spring 2004

Prerequisite: MUSIC 418

MUSIC 429

**Aural Review for Graduate Students** (1) An intensive review of the aural skills required for a theoretical understanding of 18th- and 19th-century music.

Effective: Summer 1994

Prerequisite: MUSIC 221 or undergraduate core in music theory at an accredited university

MUSIC 431

**ADVANCED TONAL ANALYSIS** (2-3) Advanced techniques of musical analysis.

Effective: Fall 1996

Prerequisite: MUSIC 331

MUSIC 432

**Graduate Review of Twentieth-Century Analysis** (2-3) The theory and analysis of style in music of the twentieth century.

Effective: Fall 1997

Prerequisite: MUSIC 262 MUSIC 331

MUSIC 433

**Advanced Analysis of Twentieth Century Music** (2-3) In-depth studies of selected twentieth-century repertoires and/or analytical models.

Effective: Summer 1996

Prerequisite: MUSIC 262 MUSIC 332

MUSIC 435

**Score Reading** (1) Introduction in score reading at the keyboard.

Effective: Spring 1991

Prerequisite: MUSIC 232 ; piano proficiency passed

MUSIC 442W

**Emphasis in Secondary General Music** (3) Emphasis in teaching in secondary general music settings.

Effective: Fall 2013

Prerequisite: Limited to Music Education Majors. MUSIC 345 MUSIC 395B

MUSIC 450

**Teaching Marching Band** (2) Traditional and contemporary drill design principles, show development strategies, instructional techniques, and organizational procedures involved in teaching marching band.

Effective: Fall 2007

Prerequisite: MUSIC 345 or three years collegiate marching band experience or permission of program

MUSIC 452

**Computer Music Synthesis** (3) Use of sound synthesis software for music creation.

Effective: Spring 2013

Prerequisite: INART 258A and INART 050

MUSIC 455

**Technology in Music** (1-3:1.5:1.5) Survey of how musical information is stored and processed in computer systems.

Effective: Spring 2008

Prerequisite: CMPSC 100 CMPSC 101 CMPSC 121 or MUSIC 231

MUSIC 458

**Electronic Music Composition** (3) An introduction to the art of composition in the electronic audio medium.

Effective: Spring 2011

Prerequisite: INART 258A

MUSIC 461W

**Studies in Music History: Antiquity to 1600** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from antiquity to 1600, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 261 MUSIC 331

MUSIC 462W

**Studies in Music History: 1550-1750** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1550-1750, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 261 MUSIC 331

MUSIC 463W

**Studies in Music History: 1700-1900** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1700-1900, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 262 MUSIC 331

MUSIC 464W

**Studies in Music History: 1850-Present** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1850 to the present, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 262 MUSIC 332

MUSIC 465

**Advanced Conducting I** (3) Advanced instruction in conducting; conducting techniques specific to instrumental or choral music; emphasis on score study and rehearsal technique.

Effective: Summer 1994

Prerequisite: MUSIC 366

MUSIC 466

**Advanced Conducting II** (2 per semester/maximum of 8) Standard scores of symphonies, tone poems, operas, oratorios, and shorter vocal and instrumental works studied from the viewpoint of the conductor.

Effective: Spring 1995

Prerequisite: MUSIC 465

MUSIC 467

**Opera Workshop** (1-3 per semester/maximum of 6) History, analysis, and production of operas from sixteenth century to present.

Effective: Spring 2001

Prerequisite: audition

MUSIC 471

**Structural and Sixteenth-Century Counterpoint** (2) Advanced species counterpoint and its application to the sixteenth-century style.

Effective: Fall 1983

Prerequisite: MUSIC 222 MUSIC 232

MUSIC 472

**Eighteenth-Century Counterpoint** (2) Imitative and nonimitative counterpoint in the style of Bach.

Effective: Fall 1983

Prerequisite: MUSIC 222 MUSIC 232

MUSIC 473J

**Composition VII** (3) Composition instruction for fourth-year composition majors.

Effective: Fall 2012

Prerequisite: MUSIC 374J

MUSIC 474J

**Composition VIII** (3) Composition instruction for fourth-year composition majors.

Effective: Fall 2012

Prerequisite: MUSIC 473J

MUSIC 476W

**B.A. Senior Project** (3) A semester project appropriate to student's option in B.A. program (e.g., research paper, performance with program notes, or related paper).

Effective: Spring 1992

Prerequisite: seventh-semester standing

MUSIC 478

**Vocal Literature** (3) Introduction to the literature for solo voice in opera, oratorio, cantata, art song, and chamber music from the baroque to the present.

Effective: Spring 1997

Prerequisite: MUSIC 262 MUSIC 331

MUSIC 480

**Opera Literature** (3) Studies in the development of the opera from 1600 to the present, treating both libretto and music.

Effective: Spring 1997

Prerequisite: MUSIC 262 MUSIC 331

MUSIC 481

**Keyboard Literature** (3) Studies in the development of keyboard music and instruments; a survey of all eras using listening, analysis, and performance.

Effective: Spring 1997

Prerequisite: MUSIC 262 MUSIC 331

MUSIC 483

**Seminar in Voice Pedagogy** (2) Survey of literature relevant to the teaching of voice from historical sources through recent pedagogical scholarship.

Effective: Spring 2004

Prerequisite: MUSIC 418

MUSIC 485

**Chamber Music Literature** (3) Survey of chamber music for strings, winds, and brass instruments from the mid-16th century to the present day.

Effective: Spring 1997

Prerequisite: MUSIC 262 MUSIC 331

MUSIC 487

**Orchestral Literature** (3) Survey of orchestral literature.

Effective: Spring 1997

Prerequisite: MUSIC 262 MUSIC 331

MUSIC 489

**Studio and Recital Accompaniment** (1 per semester/maximum of 4) Advanced keyboard accompaniment of student soloists in the studio and in public performance under faculty supervision.

Effective: Fall 1983

Prerequisite: MUSIC 194 or permission of instructor

MUSIC 493

**Sonata Duos** (1 per semester/maximum of 4) Preparation for performance of advanced sonata literature for various individual instruments with keyboard.

Effective: Fall 1983

Prerequisite: MUSIC 193 or equivalent; permission of instructor

MUSIC 494

**Research Topics** (1-3 per semester/maximum of 6) Supervised research leading to senior thesis or project.

Effective: Fall 2012

MUSIC 494H

**Research Topics** (1-3 per semester/maximum of 6) Supervised research leading to senior thesis or project.

Effective: Fall 2012

MUSIC 495A

**Student Teaching: General Music** (5-7) Observation and teaching under supervision.

Effective: Fall 2001

Prerequisite: completion of all courses in the major with a grade of "C" or better

MUSIC 495B

**Student Teaching: Choral Music** (5-7) Observation and teaching under supervision.

Effective: Fall 2001

Prerequisite: completion of all courses in the major with a grade of "C" or better

MUSIC 495C

**Student Teaching: Instrumental Music** (5-7) Observation and teaching under supervision.

Effective: Fall 2001

Prerequisite: completion of all courses in the major with a grade of "C" or better

MUSIC 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

MUSIC 496H

**Independent Studies - Honors** (1-18) Creative projects, including research and design, which are supervised on an

individual basis and which fall outside the scope of formal courses.

Effective: Summer 2011

MUSIC 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

MUSIC 497A

**Survey Music History I** (3) For graduate students who need remedial work in music history.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

MUSIC 497A

**Survey Music History** (3) For graduate students who need remedial work in music history.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

MUSIC 497B

**Double Bass Excerpts** (1) This course is designed to study in depth a series of double bass excerpts from standard orchestral and opera repertoire. We will look at how to prepare a mock audition behind a screen at the end of the semester.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

MUSIC 497B

**Double Bass Excerpts** (1) This course is designed to study in depth a series of double bass excerpts from standard orchestral and opera repertoire. We will look at how to prepare a mock audition behind a screen at the end of the semester.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

MUSIC 497C

**Viola Orchestral Excerpts** (1) An introduction to excerpts from the viola parts of standard orchestral literature required for professional orchestral auditions.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

MUSIC 497C

**Viola Orchestral Excerpts** (1) An introduction to excerpts from the viola parts of standard orchestral literature required for professional orchestral auditions.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

MUSIC 497D

**Review of Harmony/Analysis** (2) Devoted to in-depth study of tonal harmony and analysis, beginning with a review of diatonic progressions and continuing with chromatic harmony.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

MUSIC 497D

**History of Electroacoustic Music** (3) A history of electroacoustic music as a consequence of developments in culture and technology from 1880 to present.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

PERCN 100J (GA)

**Percussion: Secondary** (1 per semester, maximum of 8) Individual instruction in percussion one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

PERCN 110J (GA)

**Percussion: Secondary** (2 per semester, maximum of 16) Individual instruction in percussion one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

PHOTO 100 (GA)

**Introduction to Photography** (3) An introduction to the aesthetics, history, and science of photography including practical and critical approaches to the art of photography.

Effective: Spring 2006

PHOTO 400

**Digital Photography in the Studio** (4) Concepts and technology of the digital photography studio; large format digital cameras, electronic studio lighting and digital printing.

Effective: Fall 2006

Prerequisite: PHOTO 200

PHOTO 402

**Photographic Narratives** (4 per semester/maximum of 8) The development of a photographic project that leads to the creation of a handmade book.

Effective: Fall 2006

Prerequisite: PHOTO 200

PHOTO 403

**Photo Assemblage** (4) Collage making through collecting and assembling found materials, including photography; origins of photographic manipulation and contemporary uses.

Effective: Fall 2006



## PHOTO 405

**Creative Projects in Photography** (4 per semester/maximum of 8) Special individual problems related to photographic vision.

Effective: Fall 2006

Prerequisite: PHOTO 201 PHOTO 300

## STRNG 100J (GA)

**Violin: Secondary** (1 per semester, maximum of 8) Individual instruction in violin one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

## STRNG 101J (GA)

**Viola: Secondary** (1 per semester, maximum of 8) Individual instruction in viola one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

## STRNG 102J (GA)

**Violoncello: Secondary** (1 per semester, maximum of 8) Individual instruction in violoncello one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

## STRNG 103J (GA)

**Double Bass: Secondary** (1 per semester, maximum of 8) Individual instruction in double bass one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

## STRNG 110J (GA)

**Violin: Secondary** (2 per semester, maximum of 16) Individual instruction in violin one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

## STRNG 111J (GA)

**Viola: Secondary** (2 per semester, maximum of 16) Individual instruction in viola one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

## STRNG 112J (GA)

**Violoncello: Secondary** (2 per semester, maximum of 16) Individual instruction in violoncello one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

## STRNG 113J (GA)

**Double Bass: Secondary** (2 per semester, maximum of 16) Individual instruction in double bass one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

## THEA 001S

**First-Year Seminar: Theatre Production Practices** (1) An orientation to the School of Theatre production practices, resources, faculty, and practicum.

Effective: Spring 2006

Prerequisite: admission into Theatre Program

## THEA 080 (GA)

**Pit Orchestra** (1-3 per semester/maximum of 3) Rehearsal and performance of contemporary and historical musical theatre styles, including operetta and light opera.

Effective: Summer 2008

Prerequisite: audition

## THEA 100 (GA;US;IL)

**The Art of the Theatre** (3) An experiential survey of all aspects of the living theatre, as presented by a resident company of theatre artists.

Effective: Spring 2006

## THEA 102 (GA)

**Fundamentals of Acting** (3) Introduction to the art and craft of acting for non-theatre majors.

Effective: Fall 2003

## THEA 103

**Fundamentals of Directing** (3) Training and experience in basic skills of directing. Designed for non-theatre majors.

Effective: Fall 1983

## THEA 104

**Fundamentals of Theatre Production** (3) Training and experience in basic skills of technical theatre. Designed for non-theatre majors.

Effective: Fall 1983

## THEA 105 (GA)

**Introduction to Theatre** (3) An introduction and overview of the history, craft, and art of the theatre to foster an informed appreciation of theatrical events. This course is an alternate to THEA 100.

Effective: Spring 2003

## THEA 110

**Playscript Analysis** (3) Theory and method of playscript analysis for the general theatre student.  
Effective: Fall 1983

## THEA 112 (GA)

**Introduction to Musical Theatre** (3) A survey of music theatre as an art form.  
Effective: Spring 2012

## THEA 113

**Musical Theatre Theory I** (3) Studies in the fundamentals of music notation and sight-singing.  
Effective: Summer 2000  
Prerequisite: admission into Musical Theatre Option

## THEA 114

**Music Theatre: Form and Analysis** (3) A survey of music theatre as an art form.  
Effective: Summer 1993  
Prerequisite: admission into Musical Theatre Option

## THEA 120

**Acting I** (3) Fundamental skills and training in acting. Emphasis on physical/vocal awareness and the nature of dramatic communication. Theatre majors only.  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

## THEA 146

**Basic Theatrical Makeup** (2) Both straight and corrective makeup, with character and styling techniques for stage, film, and television.  
Effective: Summer 1989

## THEA 150

**Fundamentals of Design for the Theatre** (3) Exploration of the philosophy and technique of scenic, costume, and lighting design.  
Effective: Spring 2008

## THEA 170

**Introduction to Stage Lighting Production Techniques** (3) Introduction to theatre lighting facilities, equipment, and practice. Practical experience with major productions.  
Effective: Fall 1998  
Prerequisite: THEA 150

## THEA 180

**Introduction to Stagecraft** (3) Introduction to methods, materials, equipment, facilities, and concepts used in scenery construction for the Theatre. Practical experience with departmental productions.  
Effective: Fall 1998  
Prerequisite: THEA 150

## THEA 189 (GA)

**Theatre Production Practicum** (1 per semester/maximum of 6)\* Supervised experience in theatre by crew participation in University theatre productions. For non-theatre students only.  
Effective: Spring 2004

## THEA 198

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1994

## THEA 199 (IL)

**Foreign Studies--Theatre Arts** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005  
Prerequisite: approval by department

## THEA 207 (GA;US)

**Gender and Theatre** (3) A study of theatre and drama literature as formed by issues of gender, race, and ethnic background.  
Effective: Summer 2005

## THEA 208 (AF AM 208) (GA;US;IL)

**Workshop: Theatre in Diverse Cultures** (3) A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples.  
Effective: Spring 2013

## THEA 208S (GA;US;IL)

**Workshop: Theatre in Diverse Cultures** (3) A performance-oriented class, which explores the historic and contemporary theatrical works of various culturally diverse peoples.  
Effective: Summer 2005

## THEA 210

**Hip Hop Theatre Performance Workshop** (3 per semester/maximum of 9) Hip Hop Theatre Performance Workshop expands on the Hip Hop Theatre lecture component and experience from Hip Hop Theatre, and delves more into a performance and workshop structure. Students will apply themes studied in Hip Hop THEA 209 or DANCE 271 to this

course, which focuses on performance experiences.

Effective: Summer 2012

Prerequisite: THEA 209 or DANCE 271 or permission of the program

THEA 212

**Musical Theatre Theory II** (3) Intermediate studies in diatonic harmony, analysis, sight-singing and dictation.

Effective: Summer 2000

Prerequisite: THEA 113 THEA 114 and admission into Musical Theatre Option

THEA 214

**Musical Theatre Theory III** (3) Advanced studies in the technique and practice of chromatic harmonic analysis and sight-singing.

Effective: Summer 2000

Prerequisite: THEA 113 THEA 114 THEA 212

THEA 220

**Acting II** (3) Principles of acting through improvisation, exercises, and character analysis, with emphasis on basic skills of voice and movement. For theatre majors only.

Effective: Spring 2001

Prerequisite: THEA 120

THEA 221

**Acting III** (3) A continuation of Thea. 220. For Theatre majors only.

Effective: Spring 2008

Prerequisite: THEA 130 or THEA 131 and School of Theatre approval

THEA 222

**Acting Laboratory** (2) Laboratory experience in student-directed scenes and/or one-act plays.

Effective: Spring 2014

Prerequisite: THEA 120

THEA 223

**Musical Theatre Performance I** (2) Studio training in the unique performance skills, repertoire and business of professional music theatre.

Effective: Spring 2006

Prerequisite: THEA 114 THEA 115 THEA 116 THEA 212 admission into Musical Theatre option

THEA 224

**Musical Theatre Performance II** (2) Studio training in the unique performance skills, repertoire and business of professional music theatre.

Effective: Spring 2006

Prerequisite: THEA 223 admission into Musical Theatre Option

THEA 251

**Theatre Drafting Techniques** (2) Introduction to drafting of floor plans, section drawings, construction graphics, and mechanical perspective for the theatre.

Effective: Spring 2001

THEA 252

**Design Presentation Techniques** (1) Media and materials exploration; sketching, rendering, and modeling methods.

Effective: Fall 1983

THEA 253

**Scene Painting** (1) Introduction to painting scenery for the theatre; methods and materials.

Effective: Fall 1983

THEA 260

**Introduction to Costume Design** (3) Introduction to costume design process through character analysis and the use of color, line, and texture.

Effective: Spring 2006

THEA 270

**Introduction to Lighting Design** (3 per semester/maximum of 99) This course will focus on helping each student to develop a design process that takes them from script to stage.

Effective: Spring 2006

THEA 282 (GA)

**Production Practicum** (3--may repeat once for a total of 6) Introduction to all aspects of theatre production--analysis, design, construction, production, performance--for non-theatre majors.

Effective: Spring 2000

THEA 289

**Theatre Production Practicum** (1 per semester/maximum of 3) Supervised experience in production techniques.

Effective: Summer 2000

THEA 296

**Independent Studies** (1-18) Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

THEA 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a subject which may be topical or of special interest.

Effective: Fall 1983

THEA 298

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1994

THEA 321

**Scene Study II** (3) A continuation of THEA 320.

Effective: Spring 2013

Prerequisite: THEA 420 and approval by department

THEA 322

**Voice and Speech I** (2) Vocal techniques for the actor: articulation, voice control, support, and projection.

Effective: Spring 1990

Prerequisite: THEA 120

THEA 324

**Movement for Actors I** (2) Techniques and skills in physical expression, awareness, control, and stage movement.

Effective: Spring 1990

Prerequisite: THEA 120

THEA 325

**Movement for Actors II** (2) Continuation of THEA 324.

Effective: Spring 1990

Prerequisite: THEA 324

THEA 326

**Music Theatre Performance Workshop** (1 per semester/maximum of 3) Performance studies in cabaret, revue, and club environments.

Effective: Spring 2008

Prerequisite: DANCE 234 THEA 224 audition enrollment in Musical Theatre Option

THEA 327

**Musical Theatre Auditions** (2) Research and preparation of auditions for work in professional musical theatre venues.

Effective: Summer 2004

Prerequisite: THEA 224

THEA 398

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1994

THEA 400

**Advanced Theatre Projects** (1-6 per semester) Individual and group-directed study of in-depth projects involving reading, discussion, performance, and critical analysis by faculty.

Effective: Spring 1991

Prerequisite: seventh-semester standing or 12 credits in theatre or related areas

THEA 401Y (IL)

**Theatre History I: Ancient to 1700** (3) Survey of drama and theatre from primitive rites through the Renaissance.

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

THEA 402

**Theatre History II: From 1700 to Present** (3) Survey of European drama and theatre from the eighteenth century through the modern period.

Effective: Spring 2012

Prerequisite: THEA 401Y

THEA 405 (US)

**Theatre History: American Theatre** (3) Survey of American drama and theatre from the colonial period to the present.

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

THEA 407 (WMNST 407) (US)

**Women and Theatre** (3) A study of theatre practice and dramatic literature as informed by issues of gender, race, and ethnic background.

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

THEA 408 (US)

**History of American Musical Theatre** (3) A survey of the history of American musical theatre presented in a social, cultural, and aesthetic prospective.

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

THEA 410

**Play Analysis** (3) Advanced skills in textual analysis of plays and screenplays.

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

THEA 412 (AF AM 412) (US;IL)

**African American Theatre** (3) Exploration of the development of African American theatre from its roots in Africa through the diaspora, to the present time.

Effective: Spring 2013

Prerequisite: THEA 100 or THEA 105

THEA 420

**Scene Study I** (3 per semester/maximum of 9) Advanced monologue and scene study techniques. Principal focus on realism.

Effective: Spring 2013

Prerequisite: THEA 221 AND APPROVAL BY THE DEPARTMENT

THEA 423

**Musical Theatre Performance III** (2) Studio training in the unique performance skills, repertoire and business of professional musical theatre.

Effective: Spring 2006

Prerequisite: THEA 224 seventh-semester standing in the Musical Theatre Option

THEA 424

**Musical Theatre Performance IV** (2) Studio training in the unique performance skills, repertoire and business of professional musical theatre.

Effective: Spring 2006

Prerequisite: THEA 423

THEA 426

**Children's Theatre** (3) Theories and practice of theatre for children.

Effective: Spring 2001

Prerequisite: THEA 150 THEA 220

THEA 429

**Theatre Performance Practicum** (1-3 per semester) Supervised experience in rehearsal and performance of significant roles.

Effective: Fall 1983

Prerequisite: admission by audition only

THEA 434

**Introduction to Directing** (3) Introduction to principles and procedures of play direction.

Effective: Summer 2012

Prerequisite: THEA 114 or THEA 410 ; THEA 170 or THEA 180

THEA 436

**Directorial Processes** (3) Preparing a play for production including the scoring of the script, developing ground plan, casting, and staging projects in American realism.

Effective: Spring 1991

Prerequisite: THEA 434 and approval of instructor prior to registration

THEA 437

**Artistic Staff for Production** (1-6) To provide students with experience in choreography, dramaturgy, combat, staging, voice/speech, musical direction, assisting in direction, for major productions.

Effective: Summer 1989

Prerequisite: approval of the proposed assignment by the instructor prior to registration

THEA 440

**Principles of Playwriting** (3 per semester/maximum of 6) Structure, dramatic effect, characterization, and dialogue; the writing, reading, and criticism of original one-act plays.

Effective: Spring 2013

Prerequisite: THEA 100 or THEA 105

THEA 447

**Make-Up Design for Production** (1-6) Materials, research, preparation, design, execution of make-up for major University Theatre productions.

Effective: Summer 1989

Prerequisite: approval of proposed assignment by the instructor prior to registration

THEA 450

**Advanced Topics in Scene Design** (3 per semester/maximum of 6) Design emphasis on a variety of production techniques, genre, and styles.

Effective: Spring 2006

Prerequisite: THEA 250 or portfolio review

THEA 451

**Drafting, Drawing, and Painting for the Theatre** (1) Drafting, freehand drawing including perspective methods and property development, rendering techniques, and painters' elevations.

Effective: Summer 1993

Prerequisite: THEA 251 THEA 252 and prior approval of instructor; first-year MFA theatre candidacy

THEA 453

**Advanced Scene Painting** (1 per semester, maximum of 12) Practicum study in painting techniques currently in professional use. Exploration of tools, available paints, and texturing materials.

Effective: Spring 1991

Prerequisite: THEA 253

THEA 454

**Period Research for the Theatre** (3) History of decor, styles, and movements in art and architecture.

Effective: Summer 1993

Prerequisite: BFA theatre arts candidacy or permission of instructor

THEA 456

**Scenic Projects for Production** (1 per semester, maximum of 6) Special projects for production; painting, properties, design assistance.

Effective: Summer 1993

Prerequisite: approval of proposed projects by instructor prior to registration

THEA 457

**Scene Design for Production** (1 per semester/maximum of 6) Design and execution of production projects.

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

THEA 459

**Theatre Portfolio & Business Practices** (2) Life as a professional theatre designer. Contracts, taxes, record-keeping, resumes, portfolios, interviewing, job hunting, and legal considerations.

Effective: Spring 2006

Prerequisite: B.F.A. Theatre candidacy

THEA 460

**Advanced Topics in Costume Design** (3 per semester/maximum of 6) Developing and executing a design concept in a variety of the performing arts.

Effective: Spring 2006

Prerequisite: THEA 260 THEA 464

THEA 461

**Advanced Topics in Costume Construction and Technology** (3 per semester/maximum of 6) A specialized course in advanced costume construction techniques and theatrical costume technologies.

Effective: Spring 2006

Prerequisite: THEA 261

THEA 464

**History of Fashion** (3) Survey of dress from Egyptian period to contemporary fashion.

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

THEA 465

**History of Fashion II** (3) Survey of dress from 1800 to contemporary fashion.

Effective: Summer 2004

Prerequisite: THEA 100 or THEA 105

THEA 466

**Costume Construction for Production** (1 per semester/maximum of 6) Execution of production projects in construction and shop management.

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

THEA 467

**Costume Design for Production** (1 per semester/maximum of 6) Design and execution of production design projects.

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

THEA 470

**Advanced Topics in Lighting Design** (3 per semester/maximum of 6) Advanced Topics in Lighting Design will rotate through opera, dance, non-traditional spaces, architecture, advanced technology, and color theory.

Effective: Spring 2006

Prerequisite: THEA 270

THEA 471

**Stagelighting Design II** (3) Advanced training through lectures and laboratory experience with color, shape, and form as it relates to the specifics of illumination.

Effective: Summer 1993

Prerequisite: THEA 470

THEA 477

**Lighting Design for Production** (1 per semester/maximum of 6) Design and execution of design projects.

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

THEA 480B

**Technical Production IV** (3) Discussion of problems of the technical director: personnel management, time management, scheduling, budgeting, purchasing, and the technical drawing of production.

Effective: Spring 1995  
Prerequisite: THEA 381

THEA 481

**Stage and Production Management** (3) Production planning, scheduling, assignment of personnel, rehearsal procedures, and budgeting.

Effective: Fall 1983  
Prerequisite: THEA 170 THEA 180

THEA 482

**Technical Production - Rigging** (3) In-depth exploration of current rigging techniques used in entertainment.

Effective: Fall 2013

THEA 485

**Sound for Theatre Production** (3 per semester/maximum of 6) Aesthetics of live and recorded sound; recording and editing techniques for the stage.

Effective: Fall 2012  
Prerequisite: THEA 100 THEA 150

THEA 486

**Stage Management for Production** (1-9) Stage manager for University Theatre production.

Effective: Summer 1996  
Prerequisite: approval of proposed assignment by instructor prior to registration

THEA 487

**Technical Projects for Production** (1 per semester/maximum of 6) Execution of practical production projects.

Effective: Fall 1983  
Prerequisite: approval of proposed project by instructor prior to registration

THEA 489

**Theatre Production Practicum** (1 per semester) Supervised experience in production techniques. For theatre majors only.

Effective: Summer 2012  
Prerequisite: THEA 160 or THEA 180

THEA 495

**Internship Practicum** (1-6 per semester/maximum of 12) Professional field experience in theatre performance, production, and management assignments.

Effective: Fall 1983  
Prerequisite: approval of internship by instructor prior to registration

THEA 496

**Independent Studies** (1-18) Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

THEA 496H

**Independent Studies - Honors** (1-18) Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

THEA 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

THEA 497A

**Professional Training Internship** (1) Off-site professional training in specific program-related area.

Effective: Summer 2014 Ending: Summer 2014

THEA 497B

**Advanced Acting Studio for Musical Theatre** (3) Acting studio for advanced Musical Theatre students.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014  
Prerequisite: permission of MT program

THEA 497C

**Acting for Camera** (3) Camera acting workshop for advanced actors.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

THEA 497F

**Theatre Workshop** (2) Production project.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014  
Prerequisite: permission of program

THEA 497J

**Comedy Writing Workshop** (3) A writing workshop in the comedy genre.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

THEA 497K

**Writer's Room** (3) Workshop for students writing the script for the School of Theatre/College of Communications sitcom.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

## THEA 498

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1994

## VOICE 100J (GA)

**Voice: Secondary** (1 per semester, maximum of 8) Individual instruction in voice one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

## VOICE 110J (GA)

**Voice: Secondary** (2 per semester, maximum of 16) Individual instruction in voice one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

## WWNDS 100J (GA)

**Flute: Secondary** (1 per semester, maximum of 8) Individual instruction in flute one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

## WWNDS 101J (GA)

**Oboe: Secondary** (1 per semester, maximum of 8) Individual instruction in oboe one-half hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

## WWNDS 102J (GA)

**Clarinet: Secondary** (1 per semester, maximum of 8) Individual instruction in clarinet one-half hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

## WWNDS 103J (GA)

**Bassoon: Secondary** (1 per semester, maximum of 8) Individual instruction in bassoon one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

## WWNDS 104J (GA)

**Saxophone: Secondary** (1 per semester, maximum of 8) Individual instruction in saxophone one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

## WWNDS 110J (GA)

**Flute: Secondary** (2 per semester, maximum of 16) Individual instruction in flute one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

## WWNDS 111J (GA)

**Oboe: Secondary** (2 per semester, maximum of 16) Individual instruction in oboe one hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

## WWNDS 112J (GA)

**Clarinet: Secondary** (2 per semester, maximum of 16) Individual instruction in clarinet one hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

## WWNDS 113J (GA)

**Bassoon: Secondary** (2 per semester, maximum of 16) Individual instruction in bassoon one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

## WWNDS 114J (GA)

**Saxophone: Secondary** (2 per semester, maximum of 16) Individual instruction in saxophone one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor



## B.A. Degree Requirements: Humanities

1148 Courses

AAS 100 (AM ST 160) (GH;US)

**Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.  
Effective: Fall 2013

AAS 428 (ENGL 428) (US)

**Asian American Literatures** (3 per semester/maximum of 6) A seminar on the literatures and cultures of Asian America, with attention to forms of geographic, historical, and ethnic diversity.  
Effective: Summer 2010

AF AM 083S (GH;US;IL)

**First-Year Seminar in African American Studies** (3) Cultural, philosophical, economic, political, and global dynamics of the Black experience in the United States and the Diaspora.  
Effective: Fall 2013

AF AM 101 (WMNST 101) (GH;US)

**The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.  
Effective: Spring 2013

AF AM 101U (WMNST 101U) (GH;US)

**The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AF AM 101U (WMNST 101U) (GH;US)

**The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

AF AM 132 (SPAN 132, AFR 132) (IL)

**Afro-Hispanic Civilization** (3) A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America.  
Effective: Spring 2013

AF AM 139 (ENGL 139) (GH;US)

**Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.  
Effective: Fall 2013

AF AM 145 (RL ST 145) (GH;US;IL)

**African American Religion** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2013

AF AM 146 (RL ST 146) (GH;US)

**The Life and Thought of Martin Luther King, Jr.** (3) A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.  
Effective: Spring 2013

AF AM 147 (RL ST 147) (GH;US)

**The Life and Thought of Malcolm X** (3) The life of Malcolm X/El Hajj Malik El Shabazz (1925-1965) and his social, political, economic, and moral thought.  
Effective: Fall 2013

AF AM 152 (HIST 152) (GH;US;IL)

**African American History** (3) African roots; colonial and revolutionary experiences; slavery and abolitionism; civil war and reconstruction; accommodation and protest; the new militancy.  
Effective: Fall 2013

AF AM 210 (HIST 210) (GH;US)

**Between Accommodation and Alienation: African Americans in a Jim Crow Nation, 1896-1932** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100 HIST 021

AF AM 210 (HIST 210) (GH;US)

**Freedom's First Generation: African American Life and Work, 1865 to World War II** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: AF AM 100 HIST 021

AF AM 211 (HIST 211) (GH;US;IL)

**The Emergence and Evolution of the Black Diaspora in the Atlantic World** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

AF AM 211 (HIST 211) (GH;US;IL)

**Slavery and Freedom in the Black Atlantic** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

AF AM 235 (ENGL 235) (US)

**African-American Oral Folk Tradition** (3) The origins, forms, and function of the oral folk tradition of African Americans.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: ENGL 015 or ENGL 030

AF AM 235 (ENGL 235) (US)

**From Folk Shouts and Work Songs to Hip Hop Poetry** (3) The origins, forms, and function of the oral folk tradition of African Americans.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ENGL 015 or ENGL 030

AF AM 250 (HIST 250) (GH;IL)

**Introduction to the Modern Caribbean** (3) A survey course which, explores the historical evolution and emergence of the modern Caribbean.

Effective: Fall 2012

AF AM 422 (CAS 422) (US)

**Contemporary African American Communication** (3) A focused study on the continuities between African and African American culture and communication.

Effective: Spring 2013

Prerequisite: CAS 100

AF AM 469 (ENGL 469) (US)

**Slavery and the Literary Imagination** (3) The impact of slavery on the petitions, poetry, slave narratives, autobiographies, and novels of African Americans.

Effective: Fall 2012

Prerequisite: ENGL 015 or ENGL 030

AFR 191 (HIST 191) (GH;IL)

**Early African History** (3) Explores important economic and cultural transformations in the making of early African empires from 1 MBC to 1750.

Effective: Fall 2012

AFR 192 (HIST 192) (GH;IL)

**Modern African History** (3) Impact of the slave trade, expansion of Islam, colonial conquest, social and cultural transformations, resistance, nationalism, and independence.

Effective: Fall 2012

AM ST 050 (GH)

**The Literature and Lore of Mining** (3) Experience and values of mining tradition: survey of the literature and lore, including field research.

Effective: Spring 2004

AM ST 083S (GH)

**First-Year Seminar in American Studies** (3) Critical approaches to the interdisciplinary study of American culture.

Effective: Summer 1999

AM ST 100 (GH;US)

**Introduction to American Studies** (3) A study of selected attempts to identify and interpret movements and patterns in American culture.

Effective: Spring 2006

Prerequisite: third-semester standing

AM ST 100Y (GH;US)

**Introduction to American Studies** (3) A study of selected attempts to identify and interpret movements and patterns in American culture.

Effective: Spring 2006

Prerequisite: third-semester standing

AM ST 104 (WMNST 104) (GH;US)

**Women and the American Experience** (3) Selected aspects of the role of women in United States history and culture from colonial to modern times.

Effective: Summer 2005

AM ST 105 (ENGL 105) (GH;US)

**American Popular Culture and Folklife** (3) Survey of popular culture, folklife, and ethnicity, synthesizing material from such areas as literature, media, entertainment, print, music, and film.

Effective: Fall 2008

AM ST 135 (ENGL 135) (GH;US)

**Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses

to issues such as race, class, gender, and ethnicity.

Effective: Fall 2013

AM ST 140Y (RL ST 140Y) (GH;US)

**Religion in American Life and Thought** (3) The function, contributions, tensions, and perspectives of religion in American culture.

Effective: Summer 2005

AM ST 160 (AAS 100) (GH;US)

**Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.

Effective: Fall 2013

AM ST 160U (GH;US)

**Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AM ST 196 (ENGL 196, AMSTD 196) (GH;US)

**Introduction to American Folklore** (3) A basic introduction to verbal and non-verbal folklore stressing the basic procedures of collection, classification, and analysis.

Effective: Summer 2005

AM ST 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1995

AM ST 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

AM ST 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

AM ST 295

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Fall 2007

Prerequisite: prior approval of proposed assignment by instructor

AM ST 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

AM ST 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

AM ST 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

AM ST 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

AM ST 421 (PHIL 401)

**American Philosophy** (3) Survey of key figures and movements in American thought, including the Transcendentalists, the Pragmatists, and contemporary developments.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy or 6 credits of philosophy at the 200-level or 5th semester standing

AM ST 422 (RL ST 422)

**Religion and American Culture** (3 per semester, maximum of 6) Selected topics, problems, or historical movements in American religion; relation between religion and American culture.

Effective: Summer 1996

AM ST 432

**Ethnicity and the American Experience** (3) Theoretical and conceptual framework of ethnic studies: examination of specific issues related to major American ethnic and racial groups.

Effective: Fall 2007

AM ST 439

**American Regional Cultures** (3-6) An interdisciplinary study of the culture of a region of the United States, such as the south or the west.

Effective: Fall 2007

Prerequisite: seventh-semester standing

AM ST 447 (HIST 447) (US)

**Recent American History** (3) Contemporary economic, social, and political aspects of the United States and its role as a world power since 1945.

Effective: Spring 2014

Prerequisite: HIST 021 3 additional credits in history economics or political science

AM ST 491W

**American Themes, American Eras** (3-6) Interdisciplinary American culture course on major themes and eras such as the American Revolutionary Era or the 1930s.

Effective: Fall 2007

Prerequisite: seventh-semester standing

AM ST 493 (ENGL 493)

**The Folktale in American Literature** (3) A survey of the literary uses of the folktale and legendary materials, with particular concentration on the literature of America.

Effective: Spring 1986

Prerequisite: ENGL 015 or ENGL 030

AM ST 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

AM ST 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

AM ST 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

AM ST 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

AM ST 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ANTH 146 (GS;US)

**North American Indians** (3) An introduction to the cultures of the indigenous peoples of North America, north of Mexico, and the effect of contact.

Effective: Spring 2006

ANTH 220 (GA;GH;IL)

**Anthropology and Art/facts** (3) This course examines anthropological approaches to the study of art works, their production, and function in diverse human societies, both past and present.

Effective: Summer 2012

ARAB 110 (GH;IL)

**Arab Language, Cultures, and Current Topics** (3) Fourth-semester Modern Standard Arabic: study of cultures through authentic discourse, texts, film; development of reading, writing, listening, speaking skills.

Effective: Summer 2010

Prerequisite: ARAB 003 or permission of program

ARAB 165 (HIST 165, RL ST 165) (IL)

**Introduction to Islamic Civilization** (3) Islamic history, culture, and religious life c.600-1500 C.E.

Effective: Spring 2006

ASIA 003 (RL ST 003) (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

Effective: Spring 2015 Future: Spring 2015

ASIA 004 (CMLIT 004) (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2010

ASIA 100 (GH;IL)

**What is Asia?** (3) An introduction to the history, literatures, politics, and cultures of Asia.

Effective: Fall 2012

ASIA 104 (RL ST 104) (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

Effective: Spring 2015 Future: Spring 2015

ASIA 120Y (GH;IL)

**South Asia: A Literary History** (3) The course traces the cultural history of South Asia by studying its literary tradition from ancient to modern times.

Effective: Summer 2014

ASIA 181 (RL ST 181) (IL)

**Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.

Effective: Spring 2015 Future: Spring 2015

ASIA 182 (HIST 182) (GH;IL)

**Asian Trade: Economy, Industrialization and Capitalism in Asia** (3) An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present.

Effective: Summer 2014

ASIA 183 (HIST 183) (GH;IL)

**Gender, Family, and Society in East Asia** (3) Investigates the history of gender, family, love, and sex in East Asia.

Effective: Summer 2012

ASIA 184 (HIST 184) (GH;IL)

**Society and Culture in the Pacific War** (3) Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.

Effective: Summer 2012

ASIA 185 (HIST 185) (GH;IL)

**Asian Pop: The History of Popular Culture in Asia** (3) A history of popular culture from the early modern period to the present.

Effective: Summer 2014

ASIA 189 (HIST 189) (GH;IL)

**Illicit Asia: An Alternative Introduction to Asia** (3) A historical introduction to unlawful, illegitimate and forbidden ideas, goods, people and places in modern Asia.

Effective: Summer 2014

ASIA 404 (CMLIT 404) (IL)

**Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan.

Effective: Fall 2010

Prerequisite: 3 credits in literature or related field appropriate to this course

ASIA 404Y (IL)

**Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan, taught with focus on written analysis and interpretation.

Effective: Summer 2013

ASIA 405

**Seminar in Asian Studies** (3-6 per semester/maximum of 6) Advanced seminar in Asian Studies

Effective: Summer 2013

Prerequisite: ASIA 100

ASIA 405Y (IL)

**Seminar in Asian Studies** (3-6 per semester/maximum of 6) An advanced, writing-focused seminar in Asian Studies.

Effective: Fall 2009

Prerequisite: ASIA 100

ASIA 475Y (HIST 475Y) (IL)

**The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 010 HIST 011 HIST 172 HIST 175 HIST 176 HIST 181 or HIST 191

ASIA 480 (HIST 480) (IL)

**Japan in the Age of Warriors** (3) An overview of Japan from the 10th to 17th century, a period of political decentralization, cultural efflorescence, and social change.

Effective: Fall 2014 Future: Fall 2014

ASIA 481 (HIST 481) (IL)

**Modern Japan Since 1800** (3) The transformation of Japan from a relatively isolated, agricultural nation into a highly industrialized world power.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172 HIST 174 or HIST 175

ASIA 483 (HIST 483) (IL)

**Middle China** (3) The social, political, and cultural issues and developments from the 8th to 16th century.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 174

ASIA 484Y (HIST 484Y) (IL)

**History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 174 or HIST 175

ASIA 485Y (HIST 485Y) (IL)

**China's Last Empire: The Qing Dynasty, 1644-1911** (3) China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H

ASIA 486 (HIST 486) (IL)

**China in Revolution** (3) China from 1900 to the present; nationalism, cultural change; development of communism.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H

CAMS 001 (GH)

**Greek and Roman Literature** (3) Selected readings within a chronological and thematic context of significant and influential masterworks of Greece and Rome.

Effective: Spring 2004

CAMS 004 (J ST 004, RL ST 004) (GH;US;IL)

**Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationships to culture.

Effective: Summer 2005

CAMS 010 (GH;IL)

**Mesopotamian Civilization** (3) Cultural, technological, literary, political, and economic achievements of peoples who occupied the region of Mesopotamia (4,000-331 B.C.E.), in historical context.

Effective: Spring 2006

CAMS 012 (J ST 012, RL ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

CAMS 012U (J ST 012U, RL ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CAMS 015 (GH)

**Wonders of the Ancient World** (3) Overview of ancient world by focusing on the famed "Seven Wonders" and similar achievements from 3000 B.C.E.-1st Century C.E.

Effective: Spring 2003

CAMS 020 (GH)

**Egyptian Civilization** (3) The culture, history, literature, and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.

Effective: Fall 2005

CAMS 025 (GH;IL)

**Greek Civilization** (3) The origin and development of the ancient Greek people; their political and social institutions, public and private life.

Effective: Summer 2005

CAMS 033 (GH;IL)

**Roman Civilization** (3) Origin of the Romans; sociopolitical development; food, homes, education, marriage, family life, amusements, private and public worship.

Effective: Summer 2005

CAMS 044 (RL ST 044) (GH;IL)

**Ancient Near Eastern and Egyptian Mythology** (3) Survey of major ancient Mediterranean myths, gods, and goddesses in their cultural contexts; influence on later cultures.

Effective: Summer 2005

CAMS 045 (GH;IL)

**Classical Mythology** (3) Introduction to Greek and Roman divinities, heroes and heroines; survey of the major myths and their influence on Western culture.

Effective: Summer 2005

CAMS 050 (GH)

**Words: Classical Sources of English Vocabulary** (3) An introduction to English word forms stressing the most frequently occurring Latin and Greek elements and their derivatives.

Effective: Fall 2004

CAMS 083S (GH;IL)

**First-Year Seminar in Classics and Ancient Mediterranean Studies** (3) Critical approach to the study of ancient Mediterranean languages, literatures, and/or material cultures.

Effective: Summer 2005

CAMS 090 (J ST 090, RL ST 090) (GH;IL)

**Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

Effective: Summer 2005

CAMS 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CAMS 100 (HIST 100) (GH;IL)

**Ancient Greece** (3) Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization.

Effective: Spring 2006

CAMS 101 (HIST 101) (GH;IL)

**The Roman Republic and Empire** (3) History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire.

Effective: Spring 2006

CAMS 102 (HIST 102, J ST 102, RL ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

CAMS 104 (HIST 104) (GH)

**Ancient Egypt** (3) The history and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.

Effective: Summer 2002

CAMS 105 (GH;IL)

**History of the Ancient Near East** (3) History of the Ancient Near East from the end of the Neolithic to the Hellenistic period.

Effective: Summer 2005

CAMS 109Y (GH;IL)

**Writing Systems of the World** (3) Writing intensive overview of the world's writing systems throughout history.

Effective: Spring 2007

CAMS 110 (J ST 110, RL ST 110) (GH;US;IL)

**Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.

Effective: Summer 2005

CAMS 111 (J ST 111, RL ST 111) (GH;IL)

**Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

Effective: Summer 2005

CAMS 115 (GH;IL)

**Literature of the Ancient Near East** (3) Reading and study of literary works from the Ancient Near East, especially from Mesopotamia and Ancient Egypt.

Effective: Fall 2012

Prerequisite: 3 credits from the following list: CAMS 005 CAMS 010 CAMS 020 CAMS 105

CAMS 120 (J ST 120, RL ST 120) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

Effective: Spring 2004

CAMS 120H (J ST 120H, RL ST 120H) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CAMS 121 (RL ST 121, J ST 112)

**Jesus the Jew** (3) A historical critical examination of the life of Jesus of Nazareth within the context of first century Palestinian Judaism.

Effective: Fall 2013

CAMS 122 (J ST 122, RL ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

Effective: Summer 2014

CAMS 123 (J ST 123, RL ST 123) (GH;IL)

**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of ancient Near East: Judaism, Christianity, and Islam.

Effective: Summer 2014

CAMS 124 (J ST 124, RL ST 124) (GH;US;IL)

**Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.

Effective: Summer 2005

CAMS 133 (GH)

**Archaeology of the Levant and Ancient Israel** (3) Archaeology of the Levant and Ancient Israel to c. 1000 B.C.E.;

relationship between archaeological and textual evidence.  
Effective: Summer 2013

CAMS 134 (J ST 134, RL ST 134) (GH;IL)

**Archaeology of Biblical Israel** (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.

Effective: Summer 2005

CAMS 140 (GH;IL)

**Classical Archaeology--Ancient Greece** (3) Literary sources and material evidence for society; culture of the inhabitants of Greece in ancient times.

Effective: Summer 2005

CAMS 150 (GH;IL)

**Classical Archaeology--Ancient Rome** (3) Literary sources for the development of Roman civilization in relation to the relevant archaeological discoveries.

Effective: Summer 2005

CAMS 151 (HEBR 151, J ST 151)

**Introductory Biblical Hebrew** (3) Fundamentals of Biblical Hebrew grammar, syntax, and vocabulary.

Effective: Summer 2005

CAMS 152 (HEBR 152, J ST 152)

**Intermediate Biblical Hebrew** (3) Intermediate study of Biblical Hebrew grammar, syntax, and vocabulary.

Effective: Summer 2011

CAMS 153 (J ST 153, RL ST 153) (GH;IL)

**Dead Sea Scrolls** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.

Effective: Summer 2014

CAMS 160 (J ST 160, RL ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.

Effective: Summer 2014

CAMS 180 (HIST 180) (GH;IL)

**Ancient Warfare** (3) Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire.

Effective: Summer 2006

CAMS 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1997

CAMS 197A (WMNST 197A)

**Women in Greece and Rome** (3) This course is an introductory survey of the life and status of women in the Classical world as represented in literature, art, and historical sources. Through the analysis of Greek and Roman textual, visual, and archaeological evidence we will examine the domestic, sexual, social, legal, and religious roles of women in these cultures. We will also consider current debates concerning women in ancient Greece and Rome while we discuss and acknowledge the contemporary filters through which we view the ancient evidence.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CAMS 198

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2005

CAMS 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CAMS 200 (PHIL 200) (GH)

**Ancient Philosophy** (3) Examines the thought and influence of major Western thinkers from the pre-Socratics to the neo-Platonists, emphasizing Plato and Aristotle.

Effective: Fall 2003

CAMS 250U (GH;IL)

**Honors Classics in Literature and Film** (3) This honors course explores the Classical Tradition as it thrives in the literature of later epochs and film.

Effective: Summer 2010

CAMS 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 1997

CAMS 295

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.



Effective: Spring 2001

Prerequisite: prior approval of proposed assignment by instructor

CAMS 296

**Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 1997

CAMS 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1996

CAMS 298

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2005

CAMS 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CAMS 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

CAMS 397

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2005

CAMS 398

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2005

CAMS 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CAMS 400W

**Comparative Study of the Ancient Mediterranean World** (3) Comparative study of ancient Mediterranean civilizations.

Effective: Spring 2001

Prerequisite: 3 credits in Classics and Ancient Mediterranean Studies

CAMS 405 (IL)

**Law & Economy in the Ancient Near East** (3) This course is an overview of the legal and economic texts and institutions in the Ancient Near East.

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS courses.

CAMS 410

**Classical Epic** (3) Homer, Hellenistic Epic, and Vergil; influences on later epic.

Effective: Spring 1998

CAMS 411W

**Classical Drama** (3) Masterpieces of Greek tragedy (Aeschylus, Sophocles, Euripides) and comedy (Aristophanes, Menander); their influence on Roman writers.

Effective: Spring 2001

CAMS 440W

**Studies in Classical and Ancient Mediterranean Archaeology** (3-6) Selected topics in the literary sources and material evidence for classical and ancient Mediterranean society.

Effective: Summer 2000

Prerequisite: 3 credits from: ANTH 002 ART H 311 CAMS 010 CAMS 020 CAMS 025 CAMS 033 CAMS 140 CAMS 150 HIST 100 HIST 101

CAMS 442 (KINES 442) (IL)

**Sport in Ancient Greece and Rome** (3) An examination of the continuity of sport in Greek and Roman societies.

Effective: Spring 2008

Prerequisite: CAMS 025 CAMS 033 CAMS 140 CAMS 150 CAMS 100 CAMS 101 or KINES 141

CAMS 471

**Sumerian** (3) Introduction to the Sumerian language and the cuneiform writing system.

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS course.

CAMS 472

**Akkadian** (3) Introduction to the Akkadian language (Babylonian & Assyrian) and the cuneiform writing system.

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS courses

CAMS 480 (J ST 480)

**Greeks and Persians** (3) Development and achievements of the Achaemenid kingdom; relationships between Persians and Greeks.

Effective: Spring 2001

Prerequisite: CAMS 010 CAMS 025 or CAMS 100

CAMS 490

**Ancient Mediterranean Languages** (3-6) Variable topic study of an ancient language of the Mediterranean basin and related areas, other than Greek, Latin, or Hebrew.

Effective: Summer 2011

Prerequisite: LATIN 003

CAMS 492

**Intermediate Field Methods** (3-6) On-site experience in archaeological fieldwork in the ancient Mediterranean region.

Effective: Spring 2000

Prerequisite: approval by field school director

CAMS 493

**Intermediate Field Analysis** (3-6) On-site experience in archaeological analysis in the ancient Mediterranean region.

Effective: Spring 2000

Prerequisite: approval by field school director

CAMS 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 1997

CAMS 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2001

CAMS 495

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1999

CAMS 496

**Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 1996

CAMS 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1997

CAMS 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CAS 084S (GH)

**First-Year Seminar in Communication Arts and Sciences** (3) Introduction to significant issues surrounding effective human communication; humanities emphasis.

Effective: Summer 2002

CAS 175 (GH)

**Persuasion and Propaganda** (3) An introductory examination of how symbols have been used to create belief and action in revolutionary, totalitarian, and democratic settings.

Effective: Spring 2003

CAS 201 (GH)

**Rhetorical Theory** (3) History and theory of public advocacy and civic discourse.

Effective: Spring 2003

CAS 411

**Rhetorical Criticism** (3) Principles of rhetorical criticism examined through analysis of selected texts and critics.

Effective: Spring 2003

Prerequisite: CAS 201 or CAS 100

CAS 415

**Rhetoric of Film and Television** (3) Rhetorical analysis of the artistic forms and cultural structures of film and television; intensive study of selected examples.

Effective: Spring 2003

Prerequisite: CAS 100 or COMM 150

CAS 420

**Rhetorical Theory** (3) Ancient, medieval, Renaissance, Enlightenment, and contemporary theories of rhetoric.

Effective: Spring 2003  
Prerequisite: CAS 201

CAS 422 (AF AM 422) (US)

**Contemporary African American Communication** (3) A focused study on the continuities between African and African American culture and communication.

Effective: Spring 2013  
Prerequisite: CAS 100

CAS 426W

**Communication Ethics** (3) Ethical issues in public and private communication; role of communication in expressing and realizing individual and social values.

Effective: Spring 2003  
Prerequisite: CAS 100

CAS 475

**Studies in Public Address** (3) History and criticism of public discourse; intensive analysis of selected public addresses and social movements.

Effective: Spring 2003  
Prerequisite: CAS 100

CAS 480

**Group Performance of Literature** (3) Applying storytelling skills and performance theory to the group presentation of literature; criticism of literature through group presentations.

Effective: Spring 2003  
Prerequisite: CAS 100

CHNS 120 (GH;IL)

**Introduction to Chinese Literature and Culture** (3) Chinese cultural productions, classical through contemporary; literature and film; changing cultural settings in multiple Chinese-speaking locations. Taught in English.

Effective: Spring 2010

CHNS 121 (GH;IL)

**Chinese Film and New Media** (3) Survey of Chinese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English.

Effective: Spring 2010

CHNS 402 (IL)

**Level Three Chinese B** (4) Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Chinese culture.

Effective: Spring 2011  
Prerequisite: CHNS 401 OR EQUIVALENT

CHNS 410 (IL)

**Chinese Through Film** (3) This course is designed for students who finish Level Two Chinese or higher and aims to help them develop Chinese proficiency through movies.

Effective: Summer 2013  
Prerequisite: CHNS 110 or equivalent

CHNS 426 (IL)

**The Chinese Rhetorical Tradition** (3 per semester/maximum of 6) Study of the rhetorical works in ancient China as well as multiple facets of modern Chinese rhetoric.

Effective: Summer 2011  
Prerequisite: 3 credits in ENGL 015

CMLIT 001 (GH;IL)

**Introduction to Western Literatures Through the Renaissance** (3) Introductory comparative survey of European and American literatures of Ancient through Renaissance periods, considering genre, themes, cultural and literary values.

Effective: Spring 2005

CMLIT 002 (GH;IL)

**Introduction to Western Literatures Since the Renaissance** (3) Introductory comparative survey of European and American literatures, post-Renaissance through Modern, considering genre, themes, cultural, and literary values.

Effective: Summer 2005

CMLIT 003 (GH;IL)

**Introduction to African Literatures** (3) Comparative analysis of drama, essay, novel, poetry, and stories from traditional oral forms to contemporary expressions of African literary styles.

Effective: Summer 2005

CMLIT 004 (ASIA 004) (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2010

CMLIT 004U (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 005 (GH;US;IL)

**Introduction to Literatures of the Americas** (3) Comparative interpretation of the oral and written literary traditions of North, Central, and South America.  
Effective: Summer 2005

CMLIT 006 (PHIL 006) (GH;IL)

**Philosophy and Literature in Western Culture** (3) Explores fundamental issues of human existence through the traditions of western literature and philosophy.  
Effective: Spring 2006

CMLIT 010 (GH;IL)

**World Literatures** (3) The development of literature around the world--from epic, legend, lyric, etc. in the oral tradition to modern written forms.  
Effective: Fall 2010

CMLIT 011 (GH;IL)

**The Hero in World Literature** (3) The figure of the hero/heroine examined in world literature as a vehicle for expressing social and cultural values.  
Effective: Summer 2005

CMLIT 011U (GH;IL)

**The Hero in World Literature** (3) The figure of the hero/heroine examined in world literature as a vehicle for expressing social and cultural values.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 012 (GH;IL)

**Introduction to World Drama and Performance** (3) The power, ethics, and excitement of drama and related forms of performance literature, presented in a global and comparative context.  
Effective: Summer 2010

CMLIT 013 (GH;IL)

**Virtual Worlds: Antiquity to the Present** (3) Virtual worlds from ancient to postmodern, in a comparative and global context that includes literature, film, and online multiplayer games.  
Effective: Summer 2010

CMLIT 083S (GH;IL)

**First-Year Seminar in Comparative Literature** (3) International topics in literature and culture; each seminar will have a specific topic as announced (see the Comparative Literature Web site).  
Effective: Summer 2005

CMLIT 097

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1995

CMLIT 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CMLIT 100 (GH;IL)

**Reading Across Cultures** (3) Comparative approaches (studying international literary periods, themes, genres, etc.) and principles of literary interpretation introduced through readings representing various cultures.  
Effective: Fall 2010

CMLIT 101 (GH;US;IL)

**Race, Gender, and Identity in World Literature** (3) Identity and race, gender and heritage, centrality and marginality, self and other, as expressed in literary works from around the world.  
Effective: Fall 2010

CMLIT 105 (GH;IL)

**The Development of Literary Humor** (3) Literary humor expressed as satire, comedy, and farce--from ancient times to the present--in an international and multicultural context.  
Effective: Summer 2005

CMLIT 106 (GH;IL)

**The Arthurian Legend** (3) The growth and development of the legend of King Arthur, from medieval Europe to modern Japan.  
Effective: Summer 2005

CMLIT 107 (GH;IL)

**Exploration, Travel, Migration, and Exile** (3) An international selection of journey narratives, from the real to the imaginary; travel narratives as critiques of self and society.  
Effective: Spring 2011

CMLIT 108 (GH;IL)

**Myths and Mythologies** (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.  
Effective: Summer 2005

CMLIT 108U (GH;IL)

**Myths and Mythologies** (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 109 (GH;US;IL)

**Native American Myths, Legends, and Literatures** (3) Myths, legends, and literatures of Native American cultures.

Effective: Spring 2006

CMLIT 110 (J ST 131) (GH;US;IL)

**Jewish Literature: An International Perspective** (3) Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas.

Effective: Spring 2011

CMLIT 111 (GH;IL)

**Introduction to Literatures of India** (3) Narrative, lyric, religious, oral, and dramatic literature, as well as film from India studied in translation from a global perspective.

Effective: Summer 2005

CMLIT 120 (GH;IL)

**The Literature of the Occult** (3) Important literary works dealing with witchcraft, demonology, vampirism, ghosts, and related concepts, from biblical times to present.

Effective: Spring 2006

CMLIT 122 (GH;US;IL)

**Global Science Fictions** (3) A study of the relationships between science, literature, and film, from an international and interdisciplinary perspective.

Effective: Summer 2010

CMLIT 132 (GH;IL)

**Nobel Prize Literature** (3) Introduction to Nobel Prize winning literature and the culture of the prize in international and historical context.

Effective: Summer 2010

CMLIT 140 (GH;IL)

**Literature and the Other Arts: International and Comparative Perspectives** (3) A comparative, international examination of the relationship between literature and non-literary art forms.

Effective: Summer 2010

CMLIT 141 (GH;US;IL)

**Religion and Literature** (3) Major religious themes as expressed in literary masterpieces; sacred texts from various cultures read as literature.

Effective: Summer 2005

CMLIT 142 (GH;IL)

**The Psychology of World Literature** (3) A comparative, psychological approach to world literature from the perspectives of writer, narrative, character, and reader.

Effective: Summer 2010

CMLIT 143 (GH;US;IL)

**Human Rights and World Literature** (3) Human rights violations discussed in tandem with their literary representation, presented in a global and comparative context.

Effective: Summer 2010

CMLIT 153 (GH;IL)

**International Cultures: Film and Literature** (3) Comparison of narrative techniques employed by literature and film in portraying different cultures, topics may vary each semester.

Effective: Spring 2011

CMLIT 153U (GH;IL)

**International Cultures: Film and Literature** (3) Comparison of narrative techniques employed by literature and film in portraying different cultures, topics may vary each semester.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 184 (ENGL 184) (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the Nineteenth and Twentieth Century.

Effective: Spring 2006

CMLIT 185 (ENGL 185) (GH;IL)

**World Novel** (3) Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation.

Effective: Spring 2011

CMLIT 189 (ENGL 189) (GH;IL)

**Modern Drama** (3) Playwrights who set the world's stage for twentieth-century drama; issues that continue to shape the contemporary theatrical world.

Effective: Spring 2011

CMLIT 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1995

CMLIT 199 (IL)

**Foreign Study--Comparative Literature** (3-6) Course offered on comparative literary topics as part of a foreign-study program.

Effective: Summer 2005

CMLIT 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1995

CMLIT 295

**Internship** (1-18) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1997

CMLIT 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1995

CMLIT 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1995

CMLIT 298

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1995

CMLIT 300H

**Honors Thesis** (3) Individual projects involving research, reading, and writing; preparation of an honors thesis in comparative literature or world literature.

Effective: Summer 1995

Prerequisite: Participation in the University Scholars program

CMLIT 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

CMLIT 399 (IL)

**Foreign Study--Comparative Literature** (3-6) Special course offered on comparative literary topics as part of a foreign-study program.

Effective: Summer 2005

Prerequisite: third-semester standing

CMLIT 400Y (US;IL)

**Senior Seminar in Literary Criticism and Theory** (3) Discussions of theories of literature, of literary criticism, and particularly of the distinct methods of comparative study; individual projects.

Effective: Spring 2006

Prerequisite: seventh-semester standing; 18 credits in literature

CMLIT 401Y (IL)

**The Western Literary Heritage I** (3) Major literary movements and authors in the literature of the Western world from the beginnings through the early Renaissance.

Effective: Spring 2006

Prerequisite: 3 credits in literature or history

CMLIT 402Y (US;IL)

**The Western Literary Heritage II** (3) Major literary movements and authors in the literature of the Western world from the late Renaissance to the present time.

Effective: Spring 2006

Prerequisite: 3 credits in literature or history

CMLIT 403 (LTNST 403) (US)

**Latino/a Literature and Culture** (3) Literary and other forms of cultural expression (film, music, art, and theater) are compared across different Latina/o communities.

Effective: Spring 2011

Prerequisite: 3 credits in the humanities or in any LTNST course or 4th-semester proficiency in Spanish

CMLIT 404 (ASIA 404) (IL)

**Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan.

Effective: Spring 2011

Prerequisite: 3 credits in literature or related field appropriate to this course

CMLIT 405 (US;IL)

**Inter-American Literature** (3) This course examines the development of literature in Canada, the United States, Spanish

America, the Caribbean area, and Brazil.

Effective: Spring 2006

Prerequisite: 3 credits in literature

CMLIT 406 (IL)

**Women and World Literature** (3) Literature written by women, especially women from non-Western cultures; the spectrum of genres in which women writers have excelled.

Effective: Spring 2006

Prerequisite: 3 credits in literature or in women's studies

CMLIT 408 (IL)

**Heroic Literature** (3) Traditional heroes, their traits and adventures; typical themes and examples chosen from the epics and sagas of world literature.

Effective: Spring 2006

Prerequisite: 3 credits in literature or folklore

CMLIT 410 (IL)

**Literary Translation: Theory and Practice** (3) Emphasizing literary translation, a study of the theoretical and practical problems encountered in the processes of translation, transmission, and interpretation.

Effective: Spring 2011

Prerequisite: 18 credits in a foreign language

CMLIT 415 (GH;US;IL)

**World Graphic Novels** (3) Critical analyses of form, genre, medium, and discourse of the graphic novel and its historical precedents in an international and comparative context.

Effective: Summer 2010

Prerequisite: 3 credits in literature

CMLIT 422 (IL)

**African Drama** (3) Traditional and popular drama forms; modern anglophone and francophone drama; nationalism and social criticism in contemporary African drama.

Effective: Spring 2006

CMLIT 423 (IL)

**African Novel** (3) From traditional oral narratives to modern autobiographical, historical, satirical, sociological, and allegorical forms; novelist as social critic.

Effective: Spring 2006

CMLIT 429 (ENGL 429)

**New Media and Literature** (3) New media literary genres; critical discussion of creative works in digital media.

Effective: Summer 2010

CMLIT 430 (IL)

**Global Modernisms** (3) A comparative investigation of global Modernisms, with an emphasis on the relations between modernism, modernity, and modernization.

Effective: Summer 2010

Prerequisite: 3 credits in literature

CMLIT 443 (US;IL)

**Transatlantic Literature** (3 per semester/maximum of 6) Comparative literary and cultural relations across the Atlantic Ocean; may include Europe, Africa, the Americas, and/or the Caribbean.

Effective: Spring 2011

Prerequisite: 3 credits in literature

CMLIT 446 (IL)

**Postcolonial Literature and Culture** (3) Postcolonial literature and theory in a comparative and international context.

Effective: Summer 2010

Prerequisite: 3 credits in the study of literature

CMLIT 449 (IL)

**Literary Cultures of Islam** (3) Comparative discussion of the literary cultures of Islam from the seventh century to the present.

Effective: Summer 2010

Prerequisite: 3 credits in the study of literature

CMLIT 453 (COMM 453) (IL)

**Narrative Theory: Film and Literature** (3) Comparative study of the aesthetics and techniques of film and literature; close analyses of masters of each art form.

Effective: Fall 2006

Prerequisite: COMM 150 or 3 credits in literature

CMLIT 459

**Topics in Theory** (3) Selected topics in this history of theory and literary criticism within a global, comparative context.

Effective: Summer 2010

Prerequisite: 3 credits in literature

CMLIT 470 (IL)

**The Modern Novel** (3) Major novels of Joyce, Proust, Kafka, Thomas Mann, Nabokov, and others; their contributions to the art of the novel.

Effective: Spring 2011

Prerequisite: 3 credits in literature

CMLIT 480 (IL)

**The International Folktale** (3) Traditional tales from various parts of the world: their origin, characteristics, forms; their transmission as oral narrative and written literature.

Effective: Spring 2006

Prerequisite: 3 credits in literature or folklore

CMLIT 486 (IL)

**Tragedy** (3) Development of tragic drama and its relationship to social background and philosophical theory.

Effective: Spring 2006

CMLIT 487 (IL)

**Comedy** (3) Development of comic drama and its relationship to social background and philosophical theory.

Effective: Spring 2006

CMLIT 488 (ENGL 488) (IL)

**Modern Continental Drama** (3) From Ibsen to the drama of today: Strindberg, Chekhov, Hauptmann, Pirandello, Ionesco, Beckett, Genet, and others.

Effective: Spring 2006

Prerequisite: ENGL 015 or ENGL 030

CMLIT 490

**Video Game Studies** (3) A comparative look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.

Effective: Summer 2010

Prerequisite: 3 credits in literature

CMLIT 491 (IL)

**Literary Adaptation: International and Comparative Perspectives** (3) A comparative, international study of adaptations between literature and other media (film, theater, photography, music).

Effective: Summer 2010

Prerequisite: 3 credits in literature or other fields relevant to this course

CMLIT 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1995

CMLIT 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

CMLIT 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1995

CMLIT 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1995

CMLIT 498

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1995

CMLIT 499 (IL)

**Foreign Study--Comparative Literature** (3-6) Advanced courses offered on comparative literary topics as part of a foreign-study program.

Effective: Summer 2005

Prerequisite: 18 credits or equivalent in the appropriate foreign language; 6 credits in literature or related field appropriate to this course

COMM 110 (GH)

**Media and Democracy** (3) This course considers the role of the mass media with regard to developing civic awareness and engagement in democratic societies.

Effective: Spring 2009

COMM 453 (CMLIT 453) (IL)

**Narrative Theory: Film and Literature** (3) Comparative study of the aesthetics and techniques of film and literature; close analyses of masters of each art form.

Effective: Fall 2006

Prerequisite: COMM 150 or 3 credits in literature

CRIMJ 469 (HIST 469)

**Drugs and Drug Policy in the United States** (3) Examines the history and dimensions of drug use and analyzes the impact of drug policy.

Effective: Spring 2008



Prerequisite: CRIMJ 100 or HIST 021

EM SC 150 (S T S 150) (GN;IL)

**Out of the Fiery Furnace** (3) A history of materials, energy and man, with emphasis on their interrelationships. For nontechnical students.

Effective: Spring 2006

ENGL 001 (GH)

**Understanding Literature** (3) Explores how major fiction, drama, and poetry, past and present, primarily English and American, clarify enduring human values and issues.

Effective: Spring 2003

ENGL 001H (GH)

**Understanding Literature** (3) Explores how major fiction, drama, and poetry, past and present, primarily English and American, clarify enduring human values and issues.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 001W (GH)

**Understanding Literature** (3) Studies the various critical ways of reading, understanding, and writing about fiction, poetry, and drama.

Effective: Spring 1999

ENGL 002 (GH)

**The Great Traditions in English Literature** (3) Major works of fiction, drama, and poetry from the Middle Ages to the twentieth century expressing enduring issues and values.

Effective: Spring 2000

ENGL 003S (GH)

**The Great Traditions in American Literature** (3) Major works of fiction, drama, and poetry from the colonial to the modern periods expressing enduring issues and values.

Effective: Fall 2002

ENGL 006

**Creative Writing Common Time** (1 per semester/maximum of 8) Required one hour a week meeting time; readings, professional development, advising, community-building.

Effective: Fall 2007

ENGL 083S (GH)

**First-Year Seminar in English** (3) Critical approaches to the dimensions and directions in English/American literature and rhetoric.

Effective: Summer 1999

ENGL 088 (GH)

**Australian/New Zealand Cultural Perspectives** (3) Australian and New Zealand cultural and social perspectives, with emphasis on the historical development of intellectual, aesthetic, and humanistic values.

Effective: Spring 2001

ENGL 097

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ENGL 098

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ENGL 100

**English Language Analysis** (3) An examination of English sounds, words, and syntax using traditional, structural, and transformational grammar.

Effective: Spring 1984

ENGL 103 (GH;US)

**The Great Traditions in American Literature** (3) Major works of fiction, drama, and poetry from the colonial to the modern periods expressing enduring issues and values.

Effective: Spring 2013

ENGL 104 (GH)

**The Bible as Literature** (3) Study of the English Bible as a literary and cultural document.

Effective: Spring 2002

ENGL 105 (AM ST 105) (GH;US)

**American Popular Culture and Folklife** (3) Survey of popular culture, folklife, and ethnicity, synthesizing material from such areas as literature, media, entertainment, print, music, and film.

Effective: Fall 2008

ENGL 110

**Newswriting Practicum** (2 per semester, maximum of 6) Practice in writing and editing articles for the campus newspaper.

Effective: Fall 2001

ENGL 129 (GH)

**Shakespeare** (3) A selection of the major plays studied to determine the sources of their permanent appeal. Intended for non-majors.

Effective: Spring 2003

ENGL 129H (GH)

**Shakespeare** (3) A selection of the major plays studied to determine the sources of their permanent appeal. Intended for non-majors.

Effective: Summer 2012

ENGL 130 (GH)

**Reading Popular Texts** (3) Popular texts (printed, visual, and aural texts) and their social, political, and cultural significance in the contemporary world.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030H

ENGL 133 (GH)

**Modern American Literature to World War II** (3) Cather, Eliot, Frost, Faulkner, Fitzgerald, Hemingway, Hurston, Wharton, Wright, and other writers representative of the years between the world wars.

Effective: Spring 2002

ENGL 134 (GH)

**American Comedy** (3) Studies in American comedy and satire, including such writers as Mark Twain, Faulkner, Vonnegut, Ellison, O'Connor, Welty, and Heller.

Effective: Spring 2003

ENGL 135 (AM ST 135) (GH;US)

**Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

Effective: Fall 2013

ENGL 135S (GH;US)

**Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

Effective: Summer 2005

ENGL 136 (GH)

**The Graphic Novel** (3) The graphic novel as a literary and visual form (produced primarily in English).

Effective: Summer 2010

ENGL 139 (AF AM 139) (GH;US)

**Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

Effective: Fall 2013

ENGL 139S (GH;US)

**Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

Effective: Fall 2006

ENGL 140 (GH)

**Contemporary Literature** (3) Writers such as Baldwin, Beckett, Bellow, Ellison, Gordimer, Lessing, Lowell, Mailer, Naipaul, Pinter, Plath, Pynchon, Rushdie, and Walker.

Effective: Spring 2003

ENGL 145 (GH;IL)

**Modern Irish Literature** (3) Irish literature in the twentieth century and beyond; focus on the interplay of political, social, and cultural, forces on literature.

Effective: Spring 2007

ENGL 180 (GH)

**Literature and the Natural World** (3) Literary representations of the natural world, focusing on English language traditions.

Effective: Spring 2003

ENGL 182A (GH;US;IL)

**Literature and Empire** (3) Literature written in English from countries that were once part of European empires, e.g., India, Canada, South Africa, and others.

Effective: Summer 2005

ENGL 182C (GH;IL)

**Literature and Empire** (3) Literature written in English from countries that were once part of European empires, e.g., India, Canada, South Africa, and others.

Effective: Summer 2005

ENGL 184 (CMLIT 184) (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.

Effective: Spring 2006

ENGL 184S (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.  
Effective: Spring 2006

ENGL 184U (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 185 (CMLIT 185) (GH;IL)

**World Novel** (3) Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation.  
Effective: Spring 2011

ENGL 189 (CMLIT 189) (GH;IL)

**Modern Drama** (3) Playwrights who set the world's stage for twentieth-century drama; issues that continue to shape the contemporary theatrical world.  
Effective: Spring 2011

ENGL 191 (GH)

**Science Fiction** (3) Science fiction as the literature of technological innovation and social change--its development, themes, and problems.  
Effective: Summer 1995

ENGL 192 (GH)

**The Literature of Fantasy** (3) Literature(s) of fantasy from early forms through a variety of contemporary traditions.  
Effective: Spring 2011

ENGL 194 (WMNST 194) (GH;US;IL)

**Women Writers** (3) Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers.  
Effective: Summer 2005

ENGL 194S (GH;US;IL)

**Women Writers** (3) Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers.  
Effective: Summer 2005

ENGL 196 (AM ST 196, AMSTD 196) (GH;US)

**Introduction to American Folklore** (3) A basic introduction to verbal and nonverbal folklore stressing the basic procedures of collection, classification, and analysis.  
Effective: Summer 2005

ENGL 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

ENGL 197A

**Hollywood's Golden Age** (1) Through weekly mandatory screenings of classic Hollywood film, students will learn how Hollywood has helped to create the American experience.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 198

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ENGL 199 (IL)

**Foreign Study--English** (3-6) Studies in English language and/or literature.  
Effective: Summer 2005

ENGL 200

**Introduction to Critical Reading** (3) Responses to a variety of literary texts written in English that evoke different approaches.  
Effective: Fall 1991  
Prerequisite: ENGL 015 or ENGL 030

ENGL 200W

**Introduction to Critical Reading** (3) Responses to a variety of literary texts written in English that evoke different approaches.  
Effective: Fall 2001  
Prerequisite: 6 credits of ENGL ENLSH or LIT

ENGL 201 (GH)

**What is Literature** (3) Acquaints students with theory and practice relevant to studies of narrative, lyric poetry, and drama.  
Effective: Summer 2006  
Prerequisite: ENGL 015 or ENGL 030

ENGL 201H (GH)

**What is Literature** (3) Acquaints students with theory and practice relevant to studies of narrative, lyric poetry, and drama.

Effective: Summer 2012

Prerequisite: ENGL 015 or ENGL 030

ENGL 209

**Journal or Magazine Practicum** (1-6 per semester/maximum of 8) A practicum in the editing and publishing of a magazine or journal.

Effective: Fall 2007

ENGL 210

**The Process of Writing** (3) Examination of the relation between fiction and nonfiction; practice in principles common to all writing.

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

ENGL 212

**Introduction to Fiction Writing** (3) Written exercises and short readings in the elements of fiction writing; the writing of at least one short story.

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

ENGL 213

**Introduction to Poetry Writing** (3) Written exercises in the components and techniques of poetry writing in conjunction with selected readings.

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

ENGL 215

**Introduction to Article Writing** (3) Written exercises in, and a study of, the principles of article writing; practice in the writing of specific articles.

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

ENGL 221

**British Literature to 1798** (3) Introduction to literary history and analysis; Beowulf and writers such as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, and Fielding.

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030

ENGL 221W

**British Literature to 1798** (3) Introduction to literary history and analysis. Beowulf and writers such as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, and Fielding.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

ENGL 222

**British Literature from 1798** (3) Introduction to literary history and analysis; writers such as Austen, Wordsworth, Keats, Browning, Dickens, The Brontes, Yeats, Joyce, and Woolf.

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030

ENGL 222W

**British Literature from 1798** (3) Introduction to literary history and analysis. Writers such as Austen, Wordsworth, Keats, Browning, Dickens, the Brontes, Yeats, Joyce, and Woolf.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

ENGL 226 (LTNST 226) (GH;US;IL)

**Latina and Latino Border Theories** (3) English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture.

Effective: Spring 2007

ENGL 231

**American Literature to 1865** (3) Introduction to literary history and analysis; writers such as Bradstreet, Franklin, Emerson, Hawthorne, Douglass, Thoreau, Fuller, Melville, Whitman, and Dickinson.

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030

ENGL 231W

**American Literature to 1865** (3) Introduction to literary history and analysis. Writers such as Bradstreet, Franklin, Emerson, Hawthorne, Douglass, Thoreau, Fuller, Melville, Whitman, and Dickinson.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

ENGL 232

**American Literature from 1865** (3) Introduction to literary history and analysis; writers such as Mark Twain, James, Cather, Frost, O'Neill, Faulkner, Hemingway, Hughes, and Morrison.

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030

## ENGL 232W

**American Literature from 1865** (3) Introduction to literary history and analysis. Writers such as Mark Twain, James, Cather, Frost, O'Neill, Faulkner, Hemingway, Hughes, and Morrison.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

## ENGL 233 (CHEM 233) (GH;GN)

**Chemistry and Literature** (3) Exploration of key concepts of chemistry, the reciprocal influence of chemistry and literature through history, and the relationship of science to society, culture, and values.

Effective: Spring 2006

## ENGL 235 (AF AM 235) (US)

**African-American Oral Folk Tradition** (3) The origins, forms, and function of the oral folk tradition of African Americans.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: ENGL 015 or ENGL 030

## ENGL 235 (AF AM 235) (US)

**From Folk Shouts and Songs to Hip Hop Poetry** (3) The origins, forms, and function of the oral folk tradition of African Americans.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ENGL 015 or ENGL 030

## ENGL 240

**Exploring Literary Traditions** (3 per semester, maximum of 6) The examination of specific literary traditions in English-language texts and an inquiry into the question of tradition itself. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

## ENGL 250

**Peer Tutoring in Writing** (3) Introduction to skills and attitudes required for successful peer tutoring in writing. Provides internship experience in a writing center.

Effective: Spring 1987

Prerequisite: ENGL 202A ENGL 202B ENGL 202C or ENGL 202D ; approval of department

## ENGL 261

**Exploring Literary Forms** (3 per semester/maximum of 6) The examination of specific genres in English-language texts and an inquiry into the question of genre itself. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

## ENGL 262 (GH)

**Reading Fiction** (3) Elements of fiction including plot, character, viewpoint, and fictional genres in British, American, and other English-language traditions.

Effective: Spring 2003

Prerequisite: ENGL 015 or ENGL 030

## ENGL 263 (GH)

**Reading Poetry** (3) Elements of poetry including meter, rhyme, image, diction, and poetic forms in British, American, and other English-language traditions.

Effective: Spring 2003

Prerequisite: ENGL 015 or ENGL 030

## ENGL 265 (GH)

**Reading Nonfiction** (3) Forms of nonfictional prose such as autobiography, biography, essay, letter, memoir, oration, travelogue in British, American, and other English-language traditions.

Effective: Spring 2003

Prerequisite: ENGL 015 or ENGL 030

## ENGL 268 (GH)

**Reading Drama** (3) Elements of drama including plot, character, dialogue, staging, and dramatic forms in British, American, and other English-language traditions.

Effective: Spring 2003

Prerequisite: ENGL 015 or ENGL 030

## ENGL 268H (GH)

**Reading Drama** (3) Elements of drama including plot, character, dialogue, staging, and dramatic forms in British, American, and other English-language traditions.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: ENGL 015 or ENGL 030

## ENGL 281

**Television Script Writing** (3) An introduction to the writing of scripts for television production.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

## ENGL 294

**Research Topics** (1-12) Individual or small group instruction.

Effective: Spring 2001

ENGL 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2001

ENGL 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

ENGL 297A

**Walden** (1) "How many a man has dated a new era in his life from the reading of a book?" Here is your chance to focus on a literary classic--just one great book for the whole class. In this one-credit class, meeting once a week for the first ten weeks of the semester, we'll read *Walden*, Henry Thoreau's account of his two-year stay in a cabin he built himself by the side of Walden Pond. This is a book that is widely recognized as the most important work of nature writing, the book that essentially has come to define the genre. It is a book that changes lives, like a kind of scripture. You'll find out where Thoreau lived (and what he lived for), how much it cost him to build his cabin (and to live in it), and what he has to say about the meaning and purpose of life. All this, and transcendentalism, too!

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 297D

**London Calling: Ordering the World - the Trip** (0.5) This course will take students on an 8-day exploration of London and surrounding areas. Students will be expected to attend all scheduled visits and to act as responsible representatives of Penn State Altoona while abroad. Students will also be asked to compose short writings during the trip that respond to our site visits and to write a final evaluative paper after the trip.

Effective: Summer 2014 Ending: Summer 2014

ENGL 298

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ENGL 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ENGL 300M

**Honors Course in English** (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

ENGL 301M

**Honors Seminar in English: Literature Before 1800** (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

Effective: Fall 2005

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

ENGL 302M

**Honors Seminar in English: Literature After 1800** (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

Effective: Fall 2005

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

ENGL 303M

**Honors Seminar in English: American Literature & Culture** (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

Effective: Fall 2005

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

ENGL 304M

**Honors Seminar in English: Creative Writing** (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

Effective: Fall 2005

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

ENGL 310H

**Honors Thesis in English** (3) Research paper or creative project on a topic approved by the Departmental Honors Committee.

Effective: Fall 1983

Prerequisite: 9 credits of ENGL 300H

ENGL 311

**The Canon and Its Critics** (3) History and formation of literary canons, and challenges to canon ideology by writers and critics, through readings in English and American literature.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030H

## ENGL 312

**Globality and Literature** (3) Examines relationships between literature and culture, through the study of major texts in English by writers of various cultures.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030H

## ENGL 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

## ENGL 397

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

## ENGL 398

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

## ENGL 399 (IL)

**Foreign Study--English** (3-6) Advanced studies in English language and/or literature.

Effective: Summer 2005

## ENGL 400

**Authors, Texts, Contexts** (3 per semester, maximum of 6) Styles, cultural milieus, critical perspectives toward particular English-language authors and/or movements they represent, and the idea of authorship. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

## ENGL 401

**Studies in Genre** (3 per semester, maximum of 6) English-language texts exemplifying particular genres, with attention to critical theories, historical development, rhetorical strategies, and social, cultural, and aesthetic values. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

## ENGL 401W

**Creative Writing Theory** (3) Theories of art and creativity which inform the making of literary works.

Effective: Fall 2007

Prerequisite: ENGL 200 ; ELISH 201 ELISH 209 ENGL 212 or ENGL 213

## ENGL 402

**Literature and Society** (3 per semester, maximum of 6) Texts confronting social, political, technological, or other issues in the English-speaking world. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

## ENGL 403

**Literature and Culture** (3 per semester, maximum of 6) Historical, theoretical, and practical issues within cultural studies in relation to English-speaking texts. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

## ENGL 404

**Mapping Identity, Difference, and Place** (3 per semester, maximum of 6) Ethnicity, gender, class, race with reference to theoretical inquiry into identity, difference, and place in English-language literatures. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

## ENGL 405

**Taking Shakespeare From Page to Stage** (3) Students experience a Shakespeare play as a text to be explicated and as a script to be performed.

Effective: Summer 2003

Prerequisite: permission of program

## ENGL 407

**History of the English Language** (3) Historical and structural study of developments in English sounds, forms, inflections, syntax, derivations, and meanings.

Effective: Spring 1987

Prerequisite: ENGL 100 ; ENGL 202A ENGL 202B ENGL 202C or ENGL 202D

## ENGL 409

**Composition Theory and Practice for Teachers** (3) An overview of the theory and practice of writing for teachers, with emphasis on the writing process.

Effective: Summer 2000

Prerequisite: permission of the program

**ENGL 412**

**Advanced Fiction Writing** (3 per semester/maximum of 6) Advanced study of the techniques of fiction writing; regular practice in writing the short story; group discussion of student work.

Effective: Spring 1992

Prerequisite: ENGL 212 and permission of the department

**ENGL 413**

**Advanced Poetry Writing** (3 per semester/maximum of 6) Advanced study of the techniques of poetic composition; regular practice in writing poetry; group discussion of student work.

Effective: Fall 2013

Prerequisite: ENGL 213

**ENGL 414**

**Biographical Writing** (3) Writing of biography and autobiography, character sketches, "profiles," and literary portraits; analysis and interpretations of source materials.

Effective: Spring 1987

Prerequisite: ENGL 200 ENGL 202B ENGL 210 ENGL 212 or ENGL 215

**ENGL 415**

**Advanced Nonfiction Writing** (3 per semester/maximum of 6) Advanced study of the principles of nonfiction; substantial practice in writing and submitting magazine articles for publication.

Effective: Spring 1992

Prerequisite: ENGL 215 and permission of the department

**ENGL 416**

**Science Writing** (3 per semester/maximum of 6) Prepares scientists and writers to gather, interpret, and present scientific information to the layman with clarity and accuracy.

Effective: Spring 2001

Prerequisite: COMM 260W ENGL 202C ENGL 210 ENGL 215 or ENGL 421

**ENGL 417**

**The Editorial Process** (3) The process of editing from typescript through final proof.

Effective: Summer 2011

Prerequisite: ENGL 202A ENGL 202B ENGL 202C ENGL 202D ENGL 210 ENGL 215

**ENGL 418**

**Advanced Technical Writing and Editing** (3 per semester/maximum of 6) Preparing and editing professional papers for subject specialists and for others interested in careers as writers or editors.

Effective: Fall 1987

Prerequisite: ENGL 202A ENGL 202B ENGL 202C ENGL 202D or ENGL 215

**ENGL 419**

**Advanced Business Writing** (3) Preparing and editing reports and presentations common to business, industry, and government.

Effective: Fall 1987

Prerequisite: ENGL 202A ENGL 202B ENGL 202C or ENGL 202D

**ENGL 420**

**Writing for the Web** (3) Analysis and composition of informative, persuasive, and "creative" Web texts, based on rhetorical principles; no prior Web writing experience required.

Effective: Spring 2002

Prerequisite: ENGL 015 or ENGL 030

**ENGL 421**

**Advanced Expository Writing** (3) Develops skill in writing expository essays, with particular attention to style. Intended for liberal arts majors.

Effective: Spring 1987

Prerequisite: ENGL 202A ENGL 202B ENGL 202C or ENGL 202D

**ENGL 422**

**Fiction Workshop** (3 per semester/maximum of 6) Practice and criticism in the composition of the short story and the novel.

Effective: Spring 1985

Prerequisite: ENGL 412

**ENGL 423**

**Poetry Writing Workshop** (3 per semester/maximum of 6) Extensive practice in writing poetry; consideration of contemporary poetic forms; selected readings.

Effective: Spring 1985

Prerequisite: ENGL 413

**ENGL 425**

**Nonfiction Workshop** (3 per semester/maximum of 6) Extensive writing of nonfiction for publication; an introduction to the principles of writing the nonfiction book.

Effective: Spring 1985

Prerequisite: ENGL 415

ENGL 426 (LTNST 426) (US)



**Chicana and Chicano Cultural Production: Literature, Film, Music** (3) An in-depth study of Chicana/Chicano literature, film, and music from the inception of the Chicano Movement (1965-1975) to the present.

Effective: Spring 2007

Prerequisite: 3 credits in English

ENGL 428 (AAS 428) (US)

**Asian American Literatures** (3 per semester/maximum of 6) A seminar on the literatures and cultures of Asian America, with attention to forms of geographic, historical, and ethnic diversity.

Effective: Summer 2010

ENGL 429 (CMLIT 429)

**New Media and Literature** (3) New media literary genres; critical discussion of creative works in digital media.

Effective: Summer 2010

ENGL 430

**The American Renaissance** (3) Studies in the works and the interrelationships of writers such as Emerson, Hawthorne, Poe, Thoreau, Whitman, Melville, and Dickinson.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

ENGL 431 (AM ST 475) (US)

**Black American Writers** (3 per semester, maximum of 6) A particular genre or historical period in the development of Black American literature.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030

ENGL 432

**The American Novel to 1900** (3) Such writers as Hawthorne, Melville, Stowe, Mark Twain, James, Crane, Chopin, and others.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

ENGL 433

**The American Novel: 1900-1945** (3) Such writers as Wharton, Dreiser, Cather, Fitzgerald, Faulkner, Hemingway, Hurston, Wright, and others.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

ENGL 434 (AM ST 472)

**Topics in American Literature** (3 per semester) Focused study of a particular genre, theme, or problem in American literature. (May be repeated for credit.)

Effective: Fall 2007

Prerequisite: 6 credits of ENGL ENLSH or LIT

ENGL 435

**The American Short Story** (3) Development of the short story as a recognized art form, with emphasis on major writers.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

ENGL 436

**American Fiction Since 1945** (3) Representative fiction by such writers as Barth, Bellow, Ellison, Heller, Mailer, Morrison, Nabokov, Oates, O'Connor, Pynchon, Updike, Walker.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

ENGL 437

**The Poet in America** (3) American poets such as Bradstreet, Taylor, Poe, Emerson, Whitman, Dickinson, Frost, Eliot, Stevens, Hughes, Brooks, Moore, Williams, Plath, Rich, Lowell.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

ENGL 438

**American Drama** (3) Development from the colonial period to playwrights such as O'Neill, Wilder, Hellman, Miller, Williams, Albee, Shepard, Norman, Wilson, and others.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

ENGL 439

**American Nonfiction Prose** (3) Major prose writers such as Franklin, Emerson, Thoreau, Fuller, Henry Adams, Mailer, Baldwin, McCarthy, Dillard, Didion, Angelou, and others.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

ENGL 440

**Studies in Shakespeare** (3) Intensive study of a single genre, topic, or critical approach to selected plays.

Effective: Summer 1991

Prerequisite: ENGL 015 or ENGL 030

ENGL 441

**Chaucer** (3) The principal narrative poems and their background.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

ENGL 442

**Medieval English Literature** (3) Study of major works and genres of medieval English literature, exclusive of Chaucer.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

ENGL 443

**The English Renaissance** (3) Such writers as More, Sidney, Spenser, Shakespeare, Donne, Jonson, Bacon, and Marvell.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

ENGL 444

**Shakespeare** (3) Selected tragedies, comedies, and histories.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

ENGL 445

**Shakespeare's Contemporaries** (3) Selected plays by Shakespeare's major predecessors and contemporaries: Kyd, Marlowe, Jonson, Webster, Marston, Middleton, and others.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

ENGL 446

**Milton** (3) Analysis of principal poems and their background.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

ENGL 447

**The Restoration and the Eighteenth Century** (3) The neoclassical age (1660-1776). Such writers as Dryden, Congreve, Swift, Pope, Fielding, Goldsmith, Sheridan, Boswell, Johnson.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

ENGL 448

**The English Novel to Jane Austen** (3) Novelists such as Defoe, Richardson, Fielding, Smollett, Sterne, and Austen.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

ENGL 450

**The Romantics** (3) Poets such as Blake, Wordsworth, Coleridge, Keats, Shelley, and Byron; also prose by writers such as Hazlitt, Lamb, and DeQuincey.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

ENGL 451

**Literary Modernism in English** (3) Survey of literary modernism in English and English translation in a variety of genres, including poetry, fiction, and drama.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030 ; ENGL 200 ELISH 300 or ELISH 301

ENGL 452

**The Victorians** (3) Poets such as Tennyson, Browning, Arnold, and Hopkins; also prose by writers such as Carlyle, Mill, Ruskin, and Arnold.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

ENGL 453

**Victorian Novel** (3) Novelists such as the Brontes, Thackeray, Dickens, George Eliot, Meredith, and Hardy.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

ENGL 454

**Modern British and Irish Drama** (3) From Wilde and Shaw to the present season.

Effective: Fall 2004

Prerequisite: ENGL 015 or ENGL 030

ENGL 455

**Topics in British Literature** (3) Focused study of a particular genre, theme, or problem in British literature. (May be repeated for credit.)

Effective: Fall 2001

Prerequisite: 6 credits of ENGL ENLSH or LIT

ENGL 456

**British Fiction, 1900-1945** (3) Major writers such as Conrad, Lawrence, Mansfield, Forster, Joyce, Woolf, Waugh, Greene, Bowen, Beckett, and others.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

ENGL 457

**British Fiction Since 1945** (3) Readings in British fiction since World War II.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

ENGL 458

**Twentieth-Century Poetry** (3) Poets writing in English such as Yeats, Pound, Eliot, Frost, Auden, Stevens, Plath, Bishop, Brooks, H.D., and others.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

ENGL 461 (US)

**The Vernacular Roots of African American Literature** (3) The relationship between oral tradition and literary texts and the double consciousness of African American voice in "print."

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 462 (WMNST 462) (US)

**Reading Black, Reading Feminist** (3) Female identity and its construction in textual representations of gender, class, color, and cultural difference in English-language literatures.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 463 (US)

**African American Autobiography** (3) The African American literary quest for identity and its adaptation to Euro-American culture and autobiographies.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 466 (US)

**African American Novel I** (3) Thematic, structural, and stylistic characteristics of the African American novel from residually oral forms to satiric realism.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 467 (US)

**African American Novel II** (3) Thematic, stylistic, and structural characteristics of the African American novel from naturalism to modernism and postmodernism.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 468 (US)

**African American Poetry** (3) African American poetry within the contexts of the black oral tradition and transformed European literary tradition.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 469 (AF AM 469) (US)

**Slavery and the Literary Imagination** (3) The impact of slavery on the petitions, poetry, slave narratives, autobiographies, and novels of African Americans.

Effective: Fall 2012

Prerequisite: ENGL 015 or ENGL 030

ENGL 470

**Rhetorical Theory and Practice** (3) Application of certain rhetorical principles to problems in composition. Writing exercise. Designed as preparation for the teaching of composition.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

ENGL 471

**Rhetorical Traditions** (3 per semester, maximum of 6) Introduces major traditions of rhetorical inquiry and their relevance for English studies. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

ENGL 472

**Current Theories of Writing and Reading** (3 per semester, maximum of 6) Investigates models of textual production and reception current within English studies. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

ENGL 473

**Rhetorical Approaches to Discourse** (3 per semester, maximum of 6) Practices the criticism of written texts from selected rhetorical perspectives. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

ENGL 474

**Issues in Rhetoric and Composition** (3 per semester, maximum of 6) Examines selected topics in the field of rhetoric and composition. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

ENGL 477

**Teaching Children's Literature** (3) Teaching Children's Literature in light of recent literary pedagogy, the history of childhood, and critical approaches to Children's Literature.

Effective: Fall 2007

Prerequisite: ENGL 202

ENGL 479

**Business or Technical Writing Practicum** (1-3) Practical experience applying business or technical writing principles, working with advanced business, science, or engineering students on classroom projects.

Effective: Fall 2007

Prerequisite: Prerequisite or concurrent: ENGL 418 or ENGL 419

ENGL 480

**Communication Design for Writers** (3) This course explores visual design, non-verbal communication, and software packages used in professional settings to most effectively present written communications.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030 ; ENGL 202A ENGL 202B ENGL 202C or ENGL 202D ; 7th semester standing or higher

ENGL 481

**Literary Theory: Historical Perspectives** (3) Selected topics in the history of literary criticism and theory within the English-language tradition.

Effective: Summer 1994

Prerequisite: ENGL 015 or ENGL 030

ENGL 482

**Contemporary Literary Theory and Practice** (3 per semester, maximum of 6) Contemporary literary theories and their implication for critical practice as applied to British, American, and other English-language literary works.

Effective: Summer 1992

Prerequisite: ENGL 015 OR ENGL 030

ENGL 482W

**Contemporary Literary and Cultural Theory** (3) Contemporary literary and cultural theories and their implication for critical practice as applies to a variety of texts, e.g. literary, linguistic, visual, multimedia, and/or popular.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030H ; ENGL 200

ENGL 483

**Problems in Critical Theory and Practice** (3) Intensive study of one or more recent theoretical approaches as applied to British, American, and other English-language literary works.

Effective: Summer 1994

Prerequisite: ENGL 015 or ENGL 030

ENGL 485

**Australian and New Zealand Literature and Culture** (3) Questions of nationality, identity, gender, race, class, colonialism, and postcolonialism in these literatures.

Effective: Summer 1995

Prerequisite: ENGL 015 or ENGL 030

ENGL 486 (IL)

**The World Novel in English** (3) Studies in the novel, written in English, by writers outside of the United States and Great Britain.

Effective: Fall 2007

Prerequisite: ENGL 002 ; ENGL 015 or ENGL 030

ENGL 487W

**Senior Seminar** (3) Issues, themes, periods, critical theories, etc., that invite students to use prior English studies, limited to seniors majoring in English.

Effective: Summer 1997

Prerequisite: six credits of 400-level courses in English

ENGL 488 (CMLIT 488) (IL)

**Modern Continental Drama** (3) From Ibsen to the drama of today: Strindberg, Chekhov, Hauptmann, Pirandello, Ionesco, Beckett, Genet, and others.

Effective: Spring 2006

Prerequisite: ENGL 015 or ENGL 030

ENGL 489 (WMNST 489)

**British Women Writers** (3) A study of selected British women writers.

Effective: Spring 2008

Prerequisite: 6 credits of ENGL

ENGL 490 (WMNST 490) (US;IL)

**Women Writers and Their Worlds** (3) American and British literature written from the perspective of women.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 491

**The Capstone Course in Professional Writing** (3) This culminating course for Professional Writing majors concentrates

on reflective analyses, design, and presentation of documents in the development of professional portfolios.

Effective: Summer 2004

Prerequisite: ENGL 015 or ENGL 030 ; ENGL 202A ENGL 202B ENGL 202C or ENGL 202D ;seventh-semester standing or higher; enrollment in Professional Writing major

ENGL 492 (AM ST 476, WMNST 491)

**American Women Writers** (3) A study of selected American women writers.

Effective: Spring 2008

Prerequisite: 6 credits of ENGL

ENGL 493 (AM ST 493)

**The Folktale in American Literature** (3) A survey of the literary uses of the folktale and legendary materials, with particular concentration on the literature of America.

Effective: Spring 1986

Prerequisite: ENGL 015 or ENGL 030

ENGL 494

**Senior Thesis in English** (1-6) Senior English (ELISH) majors write a thesis arranged with in-charge person and submit it to a faculty committee for appraisal.

Effective: Fall 2007

Prerequisite: seventh-semester standing

ENGL 494H

**Senior Thesis in English** (1-6) Senior English (ELISH) majors write a thesis arranged with in-charge person and submit it to a faculty committee for appraisal.

Effective: Fall 2007

Prerequisite: seventh-semester standing

ENGL 495

**Internship** (3-12) Supervised practicum in fields appropriate to the English major.

Effective: Spring 2001

ENGL 496

**Independent Studies** (1-18) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

ENGL 496H

**Creative Fiction** (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ENGL 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

ENGL 497A

**Words and Images: Artists and Writers Collaborate** (3) Students consider the artist's book as a form and locate it within the context of contemporary writing and visual art.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ENGL 497B

**London Calling: Ordering the World - The Trip** (0.5) This course will take students on an 8-day exploration of London and surrounding areas. Students will be expected to attend all scheduled visits and to act as responsible representatives of Penn State Altoona while abroad. Students will also be asked to compose short writings during the trip that respond to our site visits and to write a final evaluative paper after the trip.

Effective: Summer 2014 Ending: Summer 2014

ENGL 498

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ENGL 499 (IL)

**Foreign Study--English** (3-6) Studies abroad in English language and/or literature.

Effective: Summer 2005

ENVST 424 (ENGL 424)

**Creative Writing and the Natural World** (3) Creative writing workshop focused on the environment and related issues.

Effective: Summer 2011

Prerequisite: ENGL 050 or ENVST 100

FR 083S (GH;IL)

**First-Year Seminar in French** (3) Critical approaches to the dimensions and directions in French/Francophone literatures and cultures.

Effective: Summer 2005

FR 111

**Elementary French** (6) Acquisition of basic skills in the active use of French: listening, speaking, reading, and writing.

Effective: Fall 1983

FR 121G

**Fundamentals of Reading French** (3) Instruction in fundamental skills required for reading expository French prose, primarily for research purposes. (This course may not be used to satisfy any baccalaureate degree requirements. No graduate credit is given for this course.)

Effective: Spring 2001

Prerequisite: seventh-semester standing

FR 122G

**Practice in Reading French** (3) Development and reinforcement of basic reading skills, with emphasis on the individual student's area of research. (This course may not be used to satisfy any baccalaureate degree requirements. No graduate credit is given for this course.)

Effective: Fall 1984

Prerequisite: FR 121G

FR 137 (GH;IL)

**Paris: Anatomy of a City** (3) Survey of the cultural, artistic, literary, and social life of the city of Paris from Gallo-Roman times to the present.

Effective: Summer 2005

FR 138 (GH)

**French Culture Through Film** (3) Introduction to French culture through film by French and francophone directors examining gender, ethnicity, and global issues. Taught in English.

Effective: Spring 2002

FR 139 (GH;IL)

**France and the French-speaking World** (3) An introduction to the culture of France and its impact on the world.

Effective: Summer 2005

FR 141 (IL)

**Cultural Tradition in French Cuisine** (3) A study of French culture in English, emphasizing the French gastronomical traditions in literature and civilization.

Effective: Spring 2006

FR 142 (GH)

**French and Francophone Literatures in Translation** (3) An introduction to the literature of France and French-speaking countries.

Effective: Spring 2004

FR 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

FR 199 (IL)

**Foreign Study--French** (1-12) Intensive postintermediate grammar review, with emphasis on oral skills and vocabulary building.

Effective: Summer 2005

Prerequisite: FR 003

FR 202 (IL)

**Grammar and Composition** (3) Grammar review and writing of short essays.

Effective: Spring 2006

Prerequisite: FR 003

FR 270 (WMNST 270)

**Race and Gender in Literature Translated from French** (3) A critical presentation, taught in English, of changing ideas and values on race and gender in French and Francophone literatures.

Effective: Spring 2005

FR 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

FR 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1982

FR 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1982

FR 331 (IL)

**French Culture and Civilization I** (3) French history and culture from the Middle Ages until the French Revolution.

Effective: Summer 2006

Prerequisite: FR 201 FR 202

FR 332 (IL)

**French Culture and Civilization II** (3) French history and culture from the French Revolution through the Third Republic.  
Effective: Summer 2006  
Prerequisite: FR 201 FR 202

FR 351 (IL)

**Introduction to French Literature I** (3) Introduction to close textual reading and analysis of selected works of French literature from the middle ages to 1789.  
Effective: Summer 2013  
Prerequisite: FR 201 FR 202

FR 352 (IL)

**Introduction to French Literature II** (3) Introduction to close textual reading and analysis of selected works of French Literature from 1789 to the present.  
Effective: Summer 2013  
Prerequisite: FR 201 FR 202

FR 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996

FR 399 (IL)

**Foreign Study--French** (3-12) Advanced training in the French language skills.  
Effective: Summer 2005  
Prerequisite: FR 201 FR 202

FR 402Y (IL)

**Advanced Grammar and Writing** (3) Advanced study of the structure of the French language. Intensive essay writing.  
Effective: Spring 2006  
Prerequisite: FR 201 FR 202

FR 407 (IL)

**Business Writing in French** (3) Common forms of business communication; writing of reports and abstracts.  
Effective: Spring 2007  
Prerequisite: FR 331 or FR 332

FR 409 (IL)

**Commercial and Technical Translation** (3) Translation from English to French of commercial and technical materials; vocabulary building; writing of abstracts and summaries.  
Effective: Spring 2006  
Prerequisite: FR 402Y

FR 410 (IL)

**French Press** (3) Extensive readings of selected french daily and weekly newspapers and magazines, along with newscast viewings.  
Effective: Spring 2007  
Prerequisite: FR 331 or FR 332

FR 417 (IL)

**French Phonology** (3) A formal study of the sound pattern of French.  
Effective: Spring 2007  
Prerequisite: FR 201 FR 202

FR 418 (IL)

**French Syntax** (3) A formal theory of word order and related issues in French grammar.  
Effective: Spring 2006  
Prerequisite: FR 201 and FR 202

FR 422 (IL)

**Old French Literature** (3) Medieval masterpieces in original and modern French versions.  
Effective: Fall 2006  
Prerequisite: FR 351 or FR 352

FR 426Y (IL)

**French Literature of the Renaissance** (3) Survey of key texts from sixteenth century France, with attention to historical and philosophical currents of French social thought.  
Effective: Fall 2006  
Prerequisite: FR 351 or FR 352

FR 430 (IL)

**Contemporary France** (3) Study of contemporary French society, politics, and culture from 1870 to the present.  
Effective: Summer 2013

FR 436Y (IL)

**Readings in Seventeenth-Century French Literature** (3) Baroque and classicism: reappraisal of major and lesser-known 17th-century texts and theories.  
Effective: Fall 2006  
Prerequisite: FR 351 or FR 352

FR 440 (IL)

**Teaching of Romance Languages** (3) Theories of second language acquisition. Current classroom practices in the

teaching of Romance languages.

Effective: Spring 2006

Prerequisite: 15 credits beyond the elementary level

FR 445Y (IL)

**Self and Society in Eighteenth-Century France** (3) The changing relationship of the individual to society in pre-Revolutionary France will be explored in texts by major writers.

Effective: Spring 2006

Prerequisite: FR 351 . Prerequisite or concurrent: FR 352

FR 452Y (IL)

**Nineteenth-Century French Literature** (3) Selected readings in romanticism, realism, and symbolism, including Balzac, Stendhal, Sand, Baudelaire, and others, with emphasis on cultural issues.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 453Y (IL)

**La Belle Epoque: Politics, Society, and Culture in France, 1880-1914** (3) Interdisciplinary perspectives on the politics, society, and culture of France, 1880-1914.

Effective: Summer 2013

Prerequisite: FR 351 or FR 352

FR 458 (IL)

**African Literature of French Expression** (3) Genesis of Franco-African literature in the 1930s; phases of the negritude movement; colonial and national literature.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 460 (IL)

**Contemporary French Literature** (3) Major authors and movements in French novel, drama, and poetry from Proust to the present.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 470 (IL)

**Race and Gender Issues in Literatures in French** (3) A critical presentation, taught in French, of changing ideas and values on race and gender in French and Francophone literatures.

Effective: Summer 2005

Prerequisite: FR 351 or FR 352

FR 487 (IL)

**Topics in French Film History and Theory I: 1895-1945** (3) Provide background needed to understand the broad outlines of French film history and theory in their first fifty years (1895-1945).

Effective: Spring 2006

Prerequisite: FR 351 and FR 352 or COMM 250

FR 488 (IL)

**Topics in French Film History and Theory II: 1945-2002** (3) Provide background needed to understand the broad outlines of French film history and theory in their second half-century (1945-2002).

Effective: Spring 2006

Prerequisite: FR 351 and FR 352 or COMM 250

FR 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

FR 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

FR 495

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1998

Prerequisite: prior approval of proposed assignment by instructor

FR 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

FR 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

FR 499 (IL)

**Foreign Study--French** (3-12) Advanced studies in French language and literature.



Effective: Summer 2005  
Prerequisite: FR 201 FR 202

GEOG 122 (GH;US)

**The American Scene** (3) Historical perspectives on the social and cultural forces associated with the production of distinctive American landscapes.  
Effective: Spring 2007

GER 008

**Business German** (4) Introduction to Business German. Students may receive credit for only one of the following: GER 003 or GER 008.

Effective: Summer 2000  
Prerequisite: GER 001 GER 002

GER 083S (GH;US;IL)

**First-Year Seminar in German** (3) Germany's cultural past and present.  
Effective: Summer 2005

GER 099 (IL)

**Foreign Study--German** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

GER 100 (GH;IL)

**German Culture and Civilization** (3) Culture and civilization of the German people from the Germanic migrations to the Nazi period. Conducted in English.  
Effective: Summer 2005

GER 143 (RUS 143) (GH;IL)

**The Culture of Stalinism and Nazism** (3) The culture of Stalinist Russia and Nazi Germany in comparative perspective.  
Effective: Summer 2005

GER 157 (GH;US)

**Pennsylvania Germans: The Culture of the Sectarians** (3) Survey of the religious background, beliefs, social life, customs, education, and culture of the Pennsylvania German sectarians, especially the Amish. Conducted in English.  
Effective: Summer 2005

GER 175 (GH;IL)

**Germanic Heroic and Medieval Literature in English Translation** (3) Germanic heroic and medieval courtly literature from 800 to 1350 focusing on the prevailing cultural, social, and legal conditions.  
Effective: Spring 2006

GER 190 (GH;IL)

**Twentieth-Century German Literature in English Translation** (3) Works of such writers as Boll, Brecht, Durrenmatt, Frisch, Grass, Hesse, Kafka, Mann, Rilke, Weiss, and Wolf.  
Effective: Spring 2006

GER 195 (GH;IL)

**Modern German Drama and Theatre in English Translation** (3) Plays and their stage realization by writers such as Brecht, Durrenmatt, Handke, Hauptmann, Kaiser, Schnitzler, Wedekind, and Weiss.  
Effective: Spring 2006

GER 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1995

GER 200 (GH;IL)

**Contemporary German Culture** (3) Germany since WWI, its politics, economics, society, arts, and educational system in the international context; conducted in English.  
Effective: Summer 2005

GER 208Y (IL)

**Business German** (4) Intermediate Business German.  
Effective: Fall 2006  
Prerequisite: GER 003 or GER 008

GER 245 (GH)

**The Vikings** (3) Focus on the history of the Vikings from 800 to 1400 as conveyed to us in mythology, literature, and archaeology. Conducted in English.  
Effective: Spring 2005

GER 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

GER 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

GER 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1985

GER 302W

**Intermediate Composition and Grammar** (3) Continuation of oral and written practice in German with extensive work in composition.

Effective: Spring 2012

Prerequisite: GER 201 or GER 208

GER 310 (IL)

**Introduction to the Study of German Literature** (3) History, methods, and the terminology of literary interpretation and analysis in German.

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

GER 344 (IL)

**Intermediate German Culture** (3) An overview of German culture from the Middle Ages to the present. Conducted in German.

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

GER 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

GER 399 (IL)

**Foreign Study--German** (3-12) Advanced studies in German language and/or literature.

Effective: Summer 2005

Prerequisite: GER 201

GER 412 (IL)

**Contrastive Analysis of Modern German and English** (3) Structural comparison of the German and English grammatical systems: morphology, syntax, phonology.

Effective: Spring 2006

Prerequisite: or concurrent: GER 401

GER 420 (IL)

**Genre** (3-9) Special studies in a particular literary genre in German literature, such as lyrical poetry, drama, or narrative prose.

Effective: Spring 2006

Prerequisite: GER 310 GER 401

GER 430 (IL)

**History of the German Language** (3) Development of German from its earliest stages, including historical and cultural aspects.

Effective: Fall 2007

Prerequisite: or concurrent: GER 401Y

GER 431 (IL)

**History of German Literature and Culture I** (3) Significant works of German literature before the mid-eighteenth century considered in their cultural context.

Effective: Spring 2006

Prerequisite: GER 310 . Prerequisite or concurrent: GER 401

GER 432 (IL)

**History of German Literature and Culture II** (3) Significant works of German literature from the mid-eighteenth century to the present considered in their cultural context.

Effective: Spring 2006

Prerequisite: GER 310 . Prerequisite or concurrent: GER 401

GER 440 (IL)

**Seminar in German Culture** (3-6) Seminar devoted to a special topic in the field of German culture and civilization.

Effective: Spring 2006

Prerequisite: or concurrent: GER 401

GER 472 (IL)

**Romanticism** (3) A study of both early and late romanticism, including such writers as Novalis, the Schlegels, E.T.A. Hoffmann, and Heine.

Effective: Spring 2006

Prerequisite: or concurrent: GER 431 or GER 432

GER 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

GER 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

GER 495

**Internship** (3-9) Supervised off-campus, non-group instruction including individual field experiences, practicums, or internships. Written and oral critique of activity required.  
Effective: Summer 1981  
Prerequisite: prior approval of proposed assignment by instructor

GER 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

GER 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1985

GER 499 (IL)

**Foreign Study--German** (3-12) Advanced studies in German language, literature, and culture.  
Effective: Summer 2005  
Prerequisite: any 300-level course in German

GREEK 099 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

GREEK 101

**Introductory Ancient Greek** (4) Fundamentals of classical Greek grammar, syntax, and vocabulary.  
Effective: Fall 2001

GREEK 102

**Intermediate Ancient Greek** (4) Intermediate study of classical Greek grammar, syntax, and vocabulary.  
Effective: Fall 2001  
Prerequisite: GREEK 101

GREEK 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1995

GREEK 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

GREEK 296

**Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2001

GREEK 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1983

GREEK 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

GREEK 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

GREEK 397

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Spring 2001

GREEK 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

GREEK 401

**Introductory Reading in Greek Literature** (3-6) Analysis of selected passages of ancient Greek literature; attention will be paid to grammatical as well as literary details.  
Effective: Summer 2011

Prerequisite: GREEK 102

GREEK 420

**Greek Prose Authors** (3-6) Readings in representative authors.

Effective: Summer 2011

GREEK 425

**Greek Historians** (3-6) Translation and study of one or more of the ancient Greek historians.

Effective: Summer 2011

Prerequisite: GREEK 102

GREEK 430

**Greek Poetry** (3-6) Translation and analysis of selected readings in Greek poetry.

Effective: Summer 2011

Prerequisite: GREEK 102

GREEK 440

**Greek Drama** (3-6) Translation and study of a selected play.

Effective: Summer 2011

Prerequisite: GREEK 102

GREEK 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

GREEK 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

GREEK 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

GREEK 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

GREEK 499 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HEBR 010 (J ST 010) (GH;IL)

**Jewish Civilization** (3) Life of the Jewish people from Biblical times, emphasizing cultural, religious, and institutional developments.

Effective: Summer 2005

HEBR 097

**Special Topics** (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1992

HEBR 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HEBR 151 (CAMS 151, J ST 151)

**Introductory Biblical Hebrew** (3) Fundamentals of Biblical Hebrew grammar, syntax, and vocabulary.

Effective: Summer 2005

HEBR 152 (CAMS 152, J ST 152)

**Intermediate Biblical Hebrew** (3) Intermediate study of Biblical Hebrew grammar, syntax, and vocabulary.

Effective: Summer 2005

Prerequisite: HEBR 151

HEBR 197

**Special Topics** (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1992

HEBR 199 (IL)

**Foreign Study--Basic Hebrew** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HEBR 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

HEBR 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1986

HEBR 297

**Special Topics** (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1983

HEBR 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HEBR 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

HEBR 397

**Special Topics** (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1992

HEBR 399 (IL)

**Foreign Study--Intermediate Hebrew** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HEBR 401

**Advanced Hebrew--Conversation Emphasis** (3 per semester, maximum of 6) Development of oral proficiency through discussions focusing on issues in contemporary Jewish culture.

Effective: Summer 2011

HEBR 402

**Advanced Hebrew--Reading Emphasis** (3 per semester, maximum of 6) Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Jewish culture.

Effective: Summer 2011

HEBR 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

HEBR 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

HEBR 496

**Independent Studies** (1-18) Creative projects including research and design which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1982

HEBR 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1983

HEBR 498

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 1992

HEBR 499 (IL)

**Foreign Study--Advanced Hebrew** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HIST 001 (GH;IL)

**The Western Heritage I** (3) A survey of the Western heritage from the ancient Mediterranean world to the dawn of modern Europe.

Effective: Spring 2006

HIST 001T (GH;IL)

**The Western Heritage I** (3) A survey of the Western heritage from the ancient Mediterranean world to the dawn of modern Europe.

Effective: Spring 2006

HIST 002 (GH;IL)

**The Western Heritage II** (3) A survey of the Western heritage from the dawn of modern Europe in the seventeenth century to the present.

Effective: Spring 2006

HIST 003 (GH)

**The American Nation: Historical Perspectives** (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.

Effective: Spring 1995 Ending: Summer 2014

HIST 003 (GH;US)

**The American Nation: Historical Perspectives** (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.

Effective: Fall 2014 Future: Fall 2014

HIST 003U (GH;US)

**The American Nation: Historical Perspectives** (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 010 (GH;IL)

**World History I** (3) Human origins; early civilizations; major political and intellectual developments on all continents; cultural interrelationships to 1500.

Effective: Summer 2005

HIST 011 (GH;IL)

**World History II** (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.

Effective: Summer 2005

HIST 011U (GH;IL)

**World History II** (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 012 (GH;US)

**History of Pennsylvania** (3) Chronological and topical survey, emphasizing immigration of diverse ethnic groups and religious, political, economic, and social developments, including industrialization and urbanization.

Effective: Spring 2006

HIST 020 (GH;US)

**American Civilization to 1877** (3) An historical survey of the American experience from its colonial beginnings through the Civil War and Reconstruction.

Effective: Spring 2006

HIST 020Y (GH;US)

**American Civilization to 1877** (3) An historical survey of the American experience from its colonial beginnings through the Civil War and Reconstruction.

Effective: Spring 2006

HIST 021 (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Spring 2006

HIST 021U (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 021U (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

HIST 021Y (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Spring 2006

HIST 083S (GH)

**First-Year Seminar in History** (3) Critical approaches to the dimensions and directions in History.

Effective: Summer 1999

HIST 100 (CAMS 100) (GH;IL)

**Ancient Greece** (3) Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization.

Effective: Spring 2006

HIST 101 (CAMS 101) (GH;IL)

**The Roman Republic and Empire** (3) History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire.

Effective: Spring 2006

HIST 102 (CAMS 102, J ST 102, RL ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era:

Late Bronze and Iron Ages.  
Effective: Summer 2005

HIST 103 (GH;IL)

**The History of Madness, Mental Illness, and Psychiatry** (3) This course will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness.  
Effective: Summer 2005

HIST 103U (GH;IL)

**The History of Madness, Mental Illness, and Psychiatry** (3) This course will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 104 (CAMS 104) (GH)

**Ancient Egypt** (3) The history and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.  
Effective: Summer 2002

HIST 105 (GH;IL)

**The Byzantine Empire** (3) Development of Byzantine civilization from the decline of the Roman Empire to the fall of Constantinople.  
Effective: Spring 2006

HIST 107 (MEDVL 107) (GH;IL)

**Medieval Europe** (3) Rise and development of the civilization of medieval Europe from the decline of Rome to 1500.  
Effective: Spring 2006

HIST 108 (GH;IL)

**The Crusades: Holy War in the Middle Ages** (3) The social and political history of medieval religious warfare in Europe and in the Middle East.  
Effective: Spring 2006

HIST 110 (GH;IL)

**Nature and History** (3) A broad introduction to the history of human relationships with nature throughout the world.  
Effective: Summer 2005

HIST 117 (WMNST 117) (GH;US;IL)

**Women in Modern History** (3) Modernization and women: changing images and roles since mid-eighteenth century in the family, workshop, politics, society; cross-cultural comparisons.  
Effective: Summer 2005

HIST 118 (J ST 118) (US;IL)

**Modern Jewish History: 1492 to Present** (3) Jewish social and political history from 1492 to the present.  
Effective: Spring 2006

HIST 119 (GH;IL)

**Gender and History** (3) Survey of the development of gender roles in Western societies from the prehistoric era to the early modern period.  
Effective: Spring 2008

HIST 121 (J ST 121) (GH;IL)

**History of the Holocaust 1933-1945** (3) Historical analysis of holocaust themes.  
Effective: Summer 2005

HIST 122 (S T S 122) (GH)

**History of Science I** (3) A history of science and culture from Stonehenge to the scientific revolution.  
Effective: Spring 2005 Ending: Summer 2014

HIST 122 (GH)

**History of Science I** (3) A history of science and culture from pre-history until the Scientific Revolution.  
Effective: Fall 2014 Future: Fall 2014

HIST 123 (S T S 123) (GH)

**History of Science II** (3) A history of science and culture from the scientific revolution to the present.  
Effective: Spring 2004 Ending: Summer 2014

HIST 123 (GH)

**History of Science II** (3) A history of science and culture from the scientific revolution to the present.  
Effective: Fall 2014 Future: Fall 2014

HIST 130 (GH;US)

**Introduction to the Civil War Era, 1848 through 1877** (3) Survey of causes and consequences of American Civil War, end of Mexican War in 1848 through end of Reconstruction, 1877.  
Effective: Spring 2010

HIST 141 (GH;IL)

**Medieval and Modern Russia** (3) Introductory survey, including political, social, economic, and cultural development of Kievan, Muscovite, and Imperial Russia.  
Effective: Spring 2006

HIST 143 (GH;IL)

**History of Fascism and Nazism** (3) The study of right-wing totalitarianism in the twentieth century, with special emphasis on Fascist Italy and Nazi Germany.

Effective: Spring 2006

HIST 143U (GH;IL)

**History of Fascism and Nazism** (3) The study of right-wing totalitarianism in the twentieth century, with special emphasis on Fascist Italy and Nazi Germany.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 144 (GH;US;IL)

**The World at War: 1939-1945** (3) In-depth study of the origins and conduct of World War II. Political and economic aspects as well as military.

Effective: Spring 2006

HIST 152 (AF AM 152) (GH;US;IL)

**African American History** (3) African roots; colonial and revolutionary experiences; slavery and abolitionism; civil war and reconstruction; accommodation and protest; the new militancy.

Effective: Fall 2013

HIST 153 (GH;US)

**The Indian in North America** (3) A survey of the American Indian from prehistory to the present.

Effective: Summer 2005

HIST 153Y (GH;US)

**The Indian in North America** (3) A survey of the American Indian from prehistory to the present.

Effective: Summer 2005

HIST 154 (GH;US)

**History of Welfare and Poverty in the United States** (3) History of care of the impoverished (emphasis on gender, race, nationality, age of poor, and welfare givers), 18th century to present.

Effective: Summer 2005

HIST 158 (US;IL)

**History of American Immigration** (3) The waves of migration to America and an analysis of the resulting minority groups, their reception, assimilation, and persisting identity.

Effective: Spring 2006

HIST 160 (US)

**American Naval History** (3) Introduction to the role of the United States Navy in the defense, diplomacy, commerce, and scientific development of the nation.

Effective: Spring 2006

HIST 161 (US)

**The Battle of Gettysburg in American Historical Memory** (3) Examines factors shaping understanding of the Civil War's decisive battle and its meanings as a national symbol.

Effective: Spring 2006

HIST 165 (ARAB 165, RL ST 165) (IL)

**Introduction to Islamic Civilization** (3) Islamic history, culture, and religious life c.600-1500 C.E.

Effective: Spring 2006

HIST 172 (IL)

**Survey of Japanese Civilization** (3) Survey of social, institutional, cultural, and religious developments from ancient times to the present.

Effective: Summer 2005

HIST 174 (GH;IL)

**The History of Traditional East Asia** (3) Comparative cultural, institutional, and social history of traditional China and Japan to their contact with the industrialized West.

Effective: Summer 2005

HIST 175 (GH;IL)

**The History of Modern East Asia** (3) Comparative survey of the internal developments and external relations of China and Japan since their contact with the industrialized West.

Effective: Summer 2005

HIST 176 (GH;IL)

**Survey of Indian History** (3) Survey of cultural, institutional, and political history from ancient times to the present.

Effective: Summer 2005

HIST 178 (GH;IL)

**Latin-American History to 1820** (3) Conquest of the New World, development of colonial institutions, impact on native cultures, and origins of independence movements.

Effective: Summer 2005

HIST 179 (GH;IL)

**Latin-American History Since 1820** (3) Origin, political growth, international relations, and economic status of the Latin-American republics, with emphasis upon present-day conditions.

Effective: Summer 2005

HIST 180 (CAMS 180) (GH;IL)

**Ancient Warfare** (3) Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire.



Effective: Summer 2006

HIST 181 (GH;IL)

**Introduction to the Middle East** (3) Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.

Effective: Summer 2005

HIST 181U (GH;IL)

**Introduction to the Middle East** (3) Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

HIST 182 (ASIA 182) (GH;IL)

**Asian Trade: Economy, Industrialization and Capitalism in Asia** (3) An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present.

Effective: Summer 2014

HIST 183 (ASIA 183) (GH;IL)

**Gender, Family, and Society in East Asia** (3) Investigates the history of gender, family, love, and sex in East Asia.

Effective: Summer 2012

HIST 184 (ASIA 184) (GH;IL)

**Society and Culture in the Pacific War** (3) Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.

Effective: Summer 2012

HIST 185 (ASIA 185) (GH;IL)

**Asian Pop: The History of Popular Culture in Asia** (3) A history of popular culture from the early modern period to the present.

Effective: Summer 2014

HIST 189 (ASIA 189) (GH;IL)

**Illicit Asia: An Alternative Introduction to Asia** (3) A historical introduction to unlawful, illegitimate and forbidden ideas, goods people and places in modern Asia.

Effective: Summer 2014

HIST 191 (AFR 191) (GH;IL)

**Early African History** (3) Explores important economic and cultural transformations in the making of early African empires from 1 MBC to 1750.

Effective: Fall 2012

HIST 192 (AFR 192) (GH;IL)

**Modern African History** (3) Impact of the slave trade, expansion of Islam, colonial conquest, social and cultural transformations, resistance, nationalism, and independence.

Effective: Fall 2012

HIST 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1995

HIST 197A

**History of Genocide** (3) Raphael Lemkin, in his work *Axis Rule in Occupied Europe* (1944), coined the term "genocide" by combining Greek *genos* and Latin. "Generally speaking, genocide does not necessarily mean the immediate destruction of a nation, except when accomplished by mass killings of all members of a nation. It is intended rather to signify a coordinated plan of different actions aiming at the destruction of essential foundations of the life of national groups, with the aim of annihilating the groups themselves." It is the goal of this course to establish an historical understanding of genocide. We will primarily examine incidents and personal accounts from the record of the nineteenth and twentieth centuries but will also reflect on earlier incidents. In so doing we will not only examine the victims of genocide, but put a face on the perpetrators.

Effective: Summer 2014 Ending: Summer 2014

HIST 197A (J ST 197A)

**East European Jewish History** (3) This course examines the history of Jewish life in Eastern Europe beginning with its Medieval origins and up through the Holocaust. Topics to be covered include religious, political, social, and cultural transformations, in the context of the general political changes in this area.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

HIST 197B

**London Calling: Ordering the World - the Trip** (0.5) This course will take students on an 8-day exploration of London and surrounding areas. Students will be expected to attend all scheduled visits and to act as responsible representatives of Penn State Altoona while abroad. Students will also be asked to compose short writings during the trip that respond to our site visits and to write a final evaluative paper after the trip.

Effective: Summer 2014 Ending: Summer 2014

HIST 197H (ANTH 197H, RL ST 197H)

**Religion and Society in Russia** (1) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

HIST 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

HIST 200 (US)

**American Local History** (3 per semester/maximum of 6) Topics in American local history relating local to national developments and studying the historical method by using primary source material.  
Effective: Spring 2006  
Prerequisite: HIST 020 or HIST 021

HIST 210 (AF AM 210) (GH;US)

**Between Accommodation and Alienation: African Americans in a Jim Crow Nation, 1896-1932** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100 three credits of American history or permission of the instructor

HIST 210 (AF AM 210) (GH;US)

**Freedom's First Generation: African American Life and Work, 1865 to World War II** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: AF AM 100 three credits of American history or permission of the instructor

HIST 211 (AF AM 211) (GH;US;IL)

**The Emergence and Evolution of the Black Diaspora in the Atlantic World** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

HIST 211 (AF AM 211) (GH;US;IL)

**Slavery and Freedom in the Black Atlantic** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

HIST 235 (J ST 235, RL ST 235) (US;IL)

**The Church and the Jews** (3) Examination of the relationship between Western church and the Jews from the First Century to Enlightenment.  
Effective: Spring 2006

HIST 250 (AF AM 250) (GH;IL)

**Introduction to the Modern Caribbean** (3) A survey course which explores the historical evolution and emergence of the modern Caribbean.  
Effective: Fall 2012

HIST 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

HIST 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 1986

HIST 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1986

HIST 297B

**History Goes Outside** (3) Learn how historical thinking moves from scholars to the public -- examine museums, films, historic districts and some other professional pathways.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

HIST 300B

**American Historiography** (3) Readings, group discussions, and oral and written reports on great historians, philosophy of history, and conflicting interpretations in American history.  
Effective: Fall 1983  
Prerequisite: third-semester standing 6 credits in history with a grade of A or B an all-University average of B

HIST 300C

**Independent Study** (3) Readings and oral and written reports in areas to be arranged with the chairman of the Honors Committee.  
Effective: Spring 2012  
Prerequisite: HIST 300B

HIST 300D

**Honors Thesis** (3) Research paper in an area arranged with the chairman of the Honors Committee.

Effective: Spring 2012

Prerequisite: HIST 300B HIST 300C

HIST 300H

**Honors Course in History** (3-12) No description available.

Effective: Fall 1983

HIST 302M

**American Indian History** (3) Thematic or topical investigation; emphasis on historical criticism and analysis.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 4th semester standing

HIST 302W

**Undergraduate Seminar** (3) Thematic or topical investigation; emphasis on historical criticism and analysis.

Effective: Spring 2014

Prerequisite: 4th semester standing

HIST 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships.

Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

HIST 399 (IL)

**Foreign Study--History** (1-12) Study in selected foreign countries of various periods and topics in history.

Effective: Summer 2005

HIST 401 (J ST 401) (IL)

**Ancient Technologies and Socio-cultural History in the Ancient Levant** (3) Social and intellectual development in the Ancient Levant as they affected and were affected by technological development.

Effective: Spring 2006

Prerequisite: RL ST 110

HIST 402 (IL)

**The Rise of the Greek Polis** (3) Development of the Greek city-state from Homeric times to the fifth century B.C.; special references to Athenian society.

Effective: Spring 2006

Prerequisite: HIST 100

HIST 403 (IL)

**Alexander the Great and the Hellenistic World** (3) The career of Alexander, his impact on his own time, and the Hellenistic legacy.

Effective: Spring 2006

Prerequisite: HIST 100

HIST 405Y (IL)

**The Roman Empire** (3) The political and social history of the Roman empire; economic institutions and religious groups which influenced Roman administration.

Effective: Spring 2006

Prerequisite: HIST 001 HIST 101 or 3 credits in classical studies

HIST 407 (IL)

**Early Medieval Society** (3) Rise of European nations and evolution of their social and political institutions from the time of Constantine to the Crusades.

Effective: Spring 2006

Prerequisite: HIST 107

HIST 408 (IL)

**Church and State in the High Middle Ages** (3) European political, institutional, and social history in light of church-state tensions from the Crusades to the Renaissance.

Effective: Spring 2006

Prerequisite: HIST 107

HIST 409Y (J ST 409Y, RL ST 407Y) (IL)

**European Anti-Semitism from Antiquity to the Present** (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.

Effective: Summer 2005

HIST 410 (J ST 410, RL ST 410) (US;IL)

**Jews in the Medieval World** (3) Trends in medieval Jewish society under Islam and Western Christendom.

Effective: Spring 2006

HIST 411 (MEDVL 411) (IL)

**Medieval Britain** (3) Political, cultural, and economic history of Britain from circa 400 to 1485 with an emphasis on the kingdom of England.

Effective: Spring 2006

Prerequisite: 6 credits in European history or medieval studies

HIST 412 (IL)

**Intellectual History of the Middle Ages** (3) Intensive study of selected topics, such as philosophy, mysticism, heresy, the church, literary and artistic expression, and science.

Effective: Spring 2006  
Prerequisite: HIST 107

HIST 413 (MEDVL 413) (IL)

**Medieval Celtic Studies** (3) Celtic civilization from antiquity to the end of the middle ages.

Effective: Spring 2006

Prerequisite: 3 credits in medieval studies or in language literature or European history of the medieval period

HIST 414 (IL)

**Renaissance and Reformation** (3) The transformation of consciousness from medieval to modern times, with special emphasis on Renaissance Italy and Reformation Germany.

Effective: Spring 2006

Prerequisite: HIST 001

HIST 415 (US;IL)

**Race, Gender, and Politics in the United States and South Africa** (3) This thematic course will compare key issues, figures, and events in the historical development of the United States and South Africa.

Effective: Spring 2013

Prerequisite: AF AM 100 AF AM 102 AFR 110 AFR 192 or HIST 152

HIST 416 (J ST 416)

**Zionist History 1890-1948** (3) History of Zionist thought and politics to the foundation of Esrael 1948.

Effective: Summer 1997

HIST 417 (IL)

**The Age of Absolutism** (3) Seventeenth- and eighteenth-century royal absolutism in France, Prussia, and Austria; concurrent economic, social, and scientific developments; the Enlightenment.

Effective: Spring 2006

Prerequisite: HIST 001

HIST 418 (IL)

**The French Revolution and the Napoleonic Era** (3) Development of revolutionary France and the First French Empire and their impact on Europe from 1789 to the Vienna settlement.

Effective: Spring 2006

Prerequisite: HIST 002

HIST 418W (IL)

**The French Revolution and the Napoleonic Era** (3) Developments of revolutionary France and the First French Empire and their impact on Europe from 1789 to the Vienna settlement.

Effective: Spring 2008

Prerequisite: HIST 002

HIST 419 (US;IL)

**The History of Feminist Thought** (3) A critical analysis of European and United States feminist thought from the renaissance to the present.

Effective: Spring 2013

Prerequisite: HIST 116 HIST 117 WMNST 100 or WMNST 106

HIST 420 (IL)

**Recent European History** (3) Impact of two World Wars in twentieth century; social conflict and economic catastrophe; political radicalism; post-1945 recovery and cooperation.

Effective: Spring 2006

Prerequisite: 3 credits in European history

HIST 421 (WMNST 421) (IL)

**The History of European Women** (3) European women's lives from the Middle Ages to the present.

Effective: Spring 2013

Prerequisite: HIST 116 HIST 117 WMNST 100 or WMNST 106

HIST 424H (J ST 424H, RL ST 424H)

**Monotheism and the Birth of the West** (3) The birth of monotheism and its relation to social organization, the idea of individuality, and science.

Effective: Fall 2012

Prerequisite: CAMS 004 CAMS 110 CAMS 120 or HIST 102

HIST 427 (IL)

**Germany Since 1860** (3) Bismarckian power-state; rise to economic dominance; welfare and warfare under Weimar republic and Hitler; post-1945 reconstruction and democracy.

Effective: Spring 2006

Prerequisite: 3 credits in European history

HIST 428 (S T S 428) (IL)

**The Darwinian Revolution** (3) The origins and implications of evolutionary theory.

Effective: Spring 2006

Prerequisite: an introductory science course and a history course

HIST 430 (IL)

**Eastern Europe in Modern Times** (3) Influence of geography, economic conditions, and nationalism upon the Eastern European and Balkan peoples; Pan-Slavism, conflicting interests of the great powers.

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

HIST 431 (AF AM 431) (US;IL)

**Black Liberation and American Foreign Policy** (3) This course deals with American foreign policy and Black liberation in Africa since 1945.

Effective: Fall 2012

Prerequisite: 3 credits in African history; 3 credits in African political science; or 3 credits in American political science

HIST 432 (AF AM 432) (IL)

**Between Nation and Empire: The Caribbean in the 20th Century** (3) An exploration of the political evolution of the Caribbean Region over the course of the 20th Century.

Effective: Fall 2012

Prerequisite: HIST 250

HIST 433 (IL)

**Imperial Russia, 1700-1917** (3) Enlightened absolutism, mercantilism, westernization; economic progress, liberal reforms, and revolutionary movement; major intellectual and cultural trends; Russia as great power.

Effective: Spring 2006

Prerequisite: HIST 141

HIST 434 (IL)

**History of the Soviet Union** (3) Revolution; social, political, economic, and cultural continuity and change in the U.S.S.R. since 1917.

Effective: Spring 2006

Prerequisite: HIST 141 or HIST 142

HIST 436 (IL)

**Great Britain Under the Tudors and Stuarts, 1485-1688** (3) Religious, political, and constitutional developments in the British Isles.

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

HIST 437 (IL)

**Great Britain 1688-1867** (3) Social, economic, and political history of Great Britain from late Stuart times until the mid-Victorian era.

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

HIST 438 (IL)

**Great Britain 1867-Present** (3) Social, economic, and political history of Great Britain from the mid-Victorian era to the present.

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

HIST 440 (US)

**Colonial America to 1753** (3) Background, establishment, and growth of the American colonies, including economic, political, social, religious, and intellectual developments.

Effective: Spring 2006

Prerequisite: HIST 020 3 additional credits in history

HIST 441 (US)

**Revolutionary America, 1753-1783** (3) Forces in Great Britain and America causing withdrawal of thirteen colonies from the British Empire and the Revolutionary War.

Effective: Spring 2006

Prerequisite: HIST 020 3 additional credits in history

HIST 442 (US)

**The Early American Republic, 1783-1850** (3) Confederation and Constitution; the Federalist and Jeffersonian periods; "the Era of Good Feelings"; "the Age of Jackson."

Effective: Spring 2006

Prerequisite: 3 credits in American history

HIST 444 (US)

**The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

Effective: Spring 2006

Prerequisite: HIST 130

HIST 444U (US)

**The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: HIST 130

HIST 444U (US)

**The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: HIST 130

HIST 444W (US)

**The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of reconstruction.

Effective: Spring 2008

Prerequisite: HIST 130 or HIST 020

HIST 445 (US)

**The Emergence of Modern America** (3) Economic, social, political history of the United States, 1877-1919, emphasizing growth of industrialism and development as a modern nation.

Effective: Spring 2006

Prerequisite: HIST 021 3 additional credits in history economics or political science

HIST 446 (US)

**America Between the Wars** (3) The Roaring Twenties, the Great Crash, Depression, and New Deal; war debts, reparations, isolationism, and World War II.

Effective: Spring 2006

HIST 447 (AM ST 447) (US)

**Recent American History** (3) Contemporary economic, social, and political aspects of the United States and its role as a world power since 1945.

Effective: Spring 2014

Prerequisite: HIST 021 3 additional credits in history economics or political science

HIST 448 (US)

**America in the 1960s** (3) Social, political, and cultural themes in the United States in the 1960s.

Effective: Spring 2006

Prerequisite: HIST 021

HIST 449 (US)

**Constitutional History of the United States to 1877** (3) Colonial background; framing and adoption of the constitution; development of the court under Marshall and Taney; sectionalism, Civil War, Reconstruction.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021 3 additional credits in history or political science

HIST 450 (US)

**Constitutional History of the United States Since 1877** (3) Constitutional developments from laissez-faire to the welfare state; imperialism, war, internationalism; the contemporary court, civil liberties, and civil rights.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021 3 additional credits in history or political science

HIST 451 (US)

**The Consumer Revolution** (3) The origins and impact of American consumer society since 1870.

Effective: Spring 2006

Prerequisite: three credits in history marketing or advertising

HIST 452 (US;IL)

**History of U.S. Foreign Relations** (3) History of U.S. foreign relations since 1789; emphasis on twentieth century.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021

HIST 453

**American Environmental History** (3) The history of the ways Americans have used and thought about the environment since 1500.

Effective: Summer 2012

Prerequisite: GEOG 030 ; and HIST 020 HIST 021 ; or 6 credits in the humanities or social sciences

HIST 454 (US)

**American Military History** (3) Development of U.S. military policy, 1776 to the present, emphasizing the conduct of our wars, interrelationship of civil and military authority.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021

HIST 456Y (US)

**The Social History of American Vernacular Building, 1607-1980** (3) Social, historical, and cultural context of American building including settlements, housing, workplaces, stores, recreational facilities; changes over time.

Effective: Spring 2006

Prerequisite: 3 credits in American history

HIST 457 (S T S 457, WMNST 457) (US;IL)

**The History of Women in Science** (3) Critical analysis of the roles women, gender, and minorities have played in natural sciences.

Effective: Spring 2013

Prerequisite: HIST 116 HIST 117 WMNST 100 WMNST 106 or WMNST 157

HIST 459Y (US)

**Social and Cultural History of the United States Since 1783** (3) Role of immigration, social reform movements, religion, education, science, literature, and the arts in American history.

Effective: Spring 2006

HIST 460 (US;IL)

**United States Foreign Intelligence** (3) Aims, methods, and organization of U.S. foreign intelligence from the American Revolution to the Cold War and beyond.  
Effective: Spring 2006

HIST 461 (US;IL)

**The Emergence of the American City: 1100-1880** (3) The growth of American cities from their urban origins in Europe and the Native-American Southwest to 1880.  
Effective: Spring 2006

HIST 462 (US;IL)

**The Twentieth Century City** (3) Political, economic, social, and cultural transformations in American cities from 1880 to 2000.  
Effective: Spring 2006

HIST 463 (US)

**American Thought to 1865** (3) Introduction to, scholarly commentary on, major documents of American Intellectual history, early colonial period to end of the Civil War.  
Effective: Spring 2006

Prerequisite: any American history course at the college freshman level

HIST 464 (US)

**American Thought from 1865** (3) Introduction to, scholarly commentary on, major documents of American Intellectual history from end of the Civil War to the present.  
Effective: Spring 2006

Prerequisite: any American history course at the college freshman level

HIST 465 (AF AM 465) (US)

**Civil Rights and American Politics 1933-1968** (3) The civil rights struggle and its impact upon American politics.  
Effective: Spring 2013 Ending: Fall 2014

Prerequisite: AF AM 100 HIST 021 HIST 152 PL SC 001 or PL SC 002

HIST 465 (AF AM 465) (US)

**The Post-World War II Civil Rights Movement** (3) The civil rights struggle and its impact upon American politics.  
Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 HIST 021 HIST 152 PL SC 001 or PL SC 002

HIST 466 (WMNST 466) (US;IL)

**Lesbian and Gay History** (3) Critical exploration of the history of sexuality, focusing especially on the emergence of modern lesbian and gay identities.

Effective: Spring 2013

Prerequisite: HIST 117 WMNST 100

HIST 467 (LTNST 467) (US;IL)

**Latin America and the United States** (3) Historical development of policies of the United States with regard to Latin-American affairs from colonial times to the present.

Effective: Fall 2008

HIST 468 (IL)

**Mexico and the Caribbean Nations in the Twentieth Century** (3) Political, economic, and social development in Mexico and the Caribbean since 1900. Emphasis on Mexican, Guatemalan, and Cuban revolutions.

Effective: Spring 2006

HIST 469 (CRIMJ 469)

**Drugs and Drug Policy in the United States** (3) Examines the history and dimensions of drug use and analyzes the impact of drug policy.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or HIST 021

HIST 471Y (RL ST 471Y) (IL)

**Classical Islamic Civilization, 600-1258** (3) Pre-Islamic Arabia; Muhammad; Arab conquests; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.  
Effective: Fall 2006

HIST 472 (IL)

**The Ottoman Empire and Other Muslim States** (3) Turkish and Mongol invasions; Mamluks; Ottoman expansion and institutions; Safavid Persia; disintegration and reform; emergence of modern Turkey and Iran.

Effective: Spring 2006

Prerequisite: HIST 181

HIST 473 (IL)

**The Contemporary Middle East** (3) Political, economic, and social changes in Turkey, Iran, Israel, and the Arab countries in the twentieth century; Arab-Israeli conflict.

Effective: Spring 2006

HIST 475Y (IL)

**The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

Effective: Spring 2006 Ending: Fall 2014

Prerequisite: HIST 010 HIST 011 HIST 172 HIST 175 HIST 176 HIST 181 or HIST 191

HIST 475Y (ASIA 475Y) (IL)

**The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 010 HIST 011 HIST 172 HIST 175 HIST 176 HIST 181 or HIST 191

HIST 476 (ASIA 476) (IL)

**Technology & Society in Modern Asia** (3) Role of technology in modernization, national identity, and foreign relations of an Asian country from 19th century to present day.

Effective: Summer 2014

Prerequisite: ASIA 100 HIST 172 HIST 173 HIST 174 HIST 175 HIST 176 HIST 183 HIST 184 HIST 188

HIST 479 (IL)

**History of Imperialism and Nationalism in Africa** (3) Theories and types of imperialism; varied patterns of colonial administration; initial African responses; nationalism; decolonization and independence.

Effective: Spring 2006

Prerequisite: HIST 191

HIST 480 (IL)

**Medieval Japan** (3) An overview of Japan between 1150-1550, a period of political decentralization, cultural efflorescence, and social change.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 107 HIST 172 HIST 174 or HIST 407

HIST 480 (ASIA 480) (IL)

**Japan in the Age of Warriors** (3) An overview of Japan the 10th to 17th century, a period of political decentralization, cultural efflorescence, and social change.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 107 HIST 172 HIST 174 or HIST 407

HIST 481 (IL)

**Modern Japan Since 1800** (3) The transformation of Japan from a pre-modern, isolated, and agricultural nation into a highly industrialized world power.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 172 HIST 174 or HIST 175

HIST 481 (ASIA 481) (IL)

**Modern Japan Since 1800** (3) The transformation of Japan from a relatively isolated, agricultural nation into a highly industrialized world power.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172 HIST 174 or HIST 175

HIST 483 (IL)

**Chinese Society and Culture to 1800** (3) The social, political, and cultural issues and developments from ancient to the late-imperial times.

Effective: Spring 2006 Ending: Fall 2014

Prerequisite: HIST 174

HIST 483 (ASIA 483) (IL)

**Middle China** (3) The social, political, and cultural issues and developments from the 8th to 16th century.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 174

HIST 484Y (IL)

**History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 174 or HIST 175

HIST 484Y (ASIA 484Y) (IL)

**History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 174 or HIST 175

HIST 485Y (IL)

**Nineteenth-Century China** (3) Ch'ing society and institutions; "opening" to the west; imperialism; domestic upheaval and its effect upon Chinese society; reform movements.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian history)

HIST 485Y (ASIA 485Y) (IL)

**China's Last Empire: The Qing Dynasty, 1644-1911** (3) China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian history)

HIST 486 (IL)

**Twentieth-Century China** (3) China from the Republican Revolution of 1911 to the present; nationalism, cultural change; development of communism.

Effective: Spring 2006 Ending: Summer 2014



Prerequisite: HIST 175 or HIST 300H (Honors in East Asian History)

HIST 486 (ASIA 486) (IL)

**China in Revolution** (3) China from 1900 to the present; nationalism, cultural change; development of communism.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian History)

HIST 490 (L ST 490)

**Archival Management** (1-3) Introduction to the principles and procedures in the management of archives and historical manuscripts.

Effective: Fall 1978

HIST 493 (JAPNS 427) (IL)

**Japan in the World** (3) Study of Japan's foreign relations and position in the international community from the early 19th century to the present.

Effective: Spring 2014 Ending: Fall 2014

Prerequisite: ASIA 100 HIST 172 HIST 175 or HIST 481

HIST 493 (ASIA 493) (IL)

**Japan in the World** (3) Study of Japan's foreign relations and position in the international community from the early 19th century to the present.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ASIA 100 HIST 172 HIST 175 or HIST 481

HIST 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

HIST 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

HIST 495

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practicums, or internships.

Effective: Summer 1986

Prerequisite: prior written approval of proposed assignment by instructor

HIST 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

HIST 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

HIST 497A

**World War I** (3) Course studies how the Great War happened why it happened and how those nations and people involved were affected. Also it will look at WWI relevance a century later.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 497B

**Powering America** (3) Discover how the United States became the world's biggest consumer and provider of energy. What is the impact of American energy production on the environment?

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 497C

**Londong Calling: Ordering the World - the Trip** (0.5) This course will take students on an 8-day exploration of London and surrounding areas. Students will be expected to attend all scheduled visits and to act as responsible representatives of Penn State Altoona while abroad. Students will also be asked to compose short writings during the trip that respond to our site visits and to write a final evaluative paper after the trip.

Effective: Summer 2014 Ending: Summer 2014

HIST 497C (J ST 497A, WMNST 497A)

**Gender and Autobiography in Modern Jewish History** (3) In this course we will read autobiographies critically and carefully in examining the tremendous changes wrought by modernity in the Jewish community. In particular we will look at memoir literature to illuminate the role of gender in Jewish life over the past two hundred years.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 499 (IL)

**Foreign Study--History** (1-6) Study in selected foreign countries of various periods and topics in history.

Effective: Summer 2005

Prerequisite: 3 credits in the appropriate introductory history course for the geographic location specified

IT 050

**Italian Conversation Tutorial** (1-3) Roundtable conversation practicum for students concurrently enrolled in IT 001, 002, 003, 010, or 020. May be repeated up to 3 times for credit.

Effective: Summer 2004

Prerequisite: Concurrent enrollment in IT 001 IT 002 IT 003 IT 010 or IT 020

IT 083S (GH;IL)

**First-Year Seminar in Italian Literature, Film, and Culture** (3) Introduction to the study of Italian literature, film, and culture.

Effective: Summer 2005

IT 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

IT 130 (GH;IL)

**Italian Culture and Civilization** (3) Italian life from antiquity to the present; literature, film, the arts, and contemporary problems in historical perspective.

Effective: Summer 2005

IT 131 (GH;US)

**Italian American Culture and Civilization** (3) Italian-American experience from the late 19th century to present. Socio-political issues seen through cinema and through literary and other readings.

Effective: Summer 2005

IT 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1995

IT 197A

**Italian for Study Abroad** (3) Introduction to key Italian social issues, essential vocabulary terms, phrases and pronunciation to prepare students who are planning to study abroad. Taught in English; no Italian language knowledge is expected.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

IT 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

IT 230 (GH)

**Masterpieces of Italian Literature in English Translation** (3) Emphasis on works and authors of international importance. Lectures, readings, and written work in English.

Effective: Summer 1995

IT 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

IT 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 1998

IT 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1985

IT 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

IT 320

**Introduction to Italian Culture; Food, Fashion, Family** (3) Focus on the social, historical, and socio-political issues of Italy in the last two centuries.

Effective: Summer 2004

Prerequisite: IT 003

IT 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

IT 412

**Theory and Practice of Translation** (3) Advanced practicum in Italian explores the technical, artistic, and practical applications of translation between Italian and American cultures.

Effective: Summer 2004

Prerequisite: any 300-level course in Italian

IT 415

**Dante** (3) Readings in the Divina Commedia and the related lesser works of Dante Alighieri.

Effective: Summer 2011

IT 422

**Topics in the Italian Renaissance** (3) Topics vary by year and may include "Theories of Love," "Magic, Witchcraft, Alchemy, and the Emergence of Modern Science," etc.

Effective: Fall 2005

Prerequisite: any Italian course at the 300-level

IT 450

**Nineteenth-Century Italian Literature** (3) Italian romanticism, Verismo and neoclassicism, their origin and development in the novel, poetry, and drama.

Effective: Winter 1978

Prerequisite: IT 351

IT 460

**Twentieth-Century Italian Literature** (3) Modern and contemporary Italian prose, drama, and poetry.

Effective: Winter 1978

Prerequisite: IT 351

IT 475

**Modern Italian Literature and Cinema** (3) Focus on silent films, fascism, WWII, Resistance, Neorealism, and reactions against Neorealism.

Effective: Spring 2003

IT 490

**Dante in Translation** (3) The reading of Dante's Divine Comedy and selected minor works.

Effective: Fall 1983

Prerequisite: junior standing or permission of instructor

IT 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

IT 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

IT 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

IT 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

J ST 004 (CAMS 004, RL ST 004) (GH;US;IL)

**Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationship to culture.

Effective: Summer 2005

J ST 010 (HEBR 010) (GH;IL)

**Jewish Civilization** (3) Life of the Jewish people from biblical times; emphasizing cultural, religious, and institutional developments.

Effective: Summer 2005

J ST 012 (CAMS 012, RL ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

J ST 012U (CAMS 012U, RL ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 083S (GH;IL)

**First-Year Seminar in Jewish Studies** (3) Critical approaches to the history, sociology, and literature of Jewish Studies.

Effective: Summer 2005

J ST 090 (CAMS 090, RL ST 090) (GH;IL)

**Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

Effective: Summer 2005

J ST 102 (CAMS 102, HIST 102, RL ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

J ST 106 (RL ST 106) (GH;IL)

**Mysticism** (3) A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

Effective: Spring 2012

J ST 110 (CAMS 110, RL ST 110) (GH;US;IL)

**Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.

Effective: Summer 2005

J ST 111 (CAMS 111, RL ST 111) (GH;IL)

**Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

Effective: Summer 2005

J ST 112 (CAMS 121, RL ST 121)

**Jesus the Jew** (3) A historical critical examination of the life of Jesus of Nazareth within the context of first century Palestinian Judaism.

Effective: Fall 2013

J ST 114 (RL ST 114) (GH;US;IL)

**Modern Judaism** (3) Trends in Jewish life and thought since the French revolution; Judaism's responses to the challenge of modernity.

Effective: Summer 2005

J ST 118 (HIST 118) (US;IL)

**Modern Jewish History: 1492 to Present** (3) Jewish social and political history from 1492 to the present.

Effective: Spring 2006

J ST 120 (CAMS 120, RL ST 120) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

Effective: Spring 2004

J ST 120H (RL ST 120H, CAMS 120H) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 121 (HIST 121) (GH;IL)

**History of the Holocaust 1933-1945** (3) Historical analysis of holocaust themes.

Effective: Summer 2005

J ST 122 (CAMS 122, RL ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

Effective: Summer 2014

J ST 123 (CAMS 123, RL ST 123) (GH;IL)

**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of the ancient Near East: Judaism, Christianity, and Islam.

Effective: Summer 2014

J ST 124 (CAMS 124, RL ST 124) (GH;US;IL)

**Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.

Effective: Summer 2005

J ST 131 (CMLIT 110) (GH;US;IL)

**Jewish Literature: An International Perspective** (3) Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas.

Effective: Spring 2011

J ST 153 (CAMS 153, RL ST 153) (GH;IL)

**Dead Sea Scroll** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scroll, Jewish texts from approximately 225 B.C.E. to 68 C.E.

Effective: Summer 2014

J ST 160 (CAMS 160, RL ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.

Effective: Summer 2014

J ST 280 (WMNST 280, RL ST 280) (GH;IL)

**Women and Judaism** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.

Effective: Fall 2006

J ST 401 (HIST 401) (IL)

**Ancient Technologies and Socio-cultural History in the Ancient Levant** (3) Social and intellectual development in the Ancient Levant as they affected and were affected by technological development.

Effective: Spring 2006  
Prerequisite: RL ST 110

J ST 409Y (HIST 409Y, RL ST 407Y) (IL)

**European Anti-Semitism from Antiquity to the Present** (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.

Effective: Summer 2005

J ST 411 (RL ST 411) (US;IL)

**Jewish Studies** (3) Study of the life and thought of a particular period or movement in the history of Judaism.

Effective: Spring 2006

Prerequisite: 3 credits in religious studies

J ST 416 (HIST 416)

**Zionist History 1890-1948** (3) History of Zionist thought and politics to the foundation of Israel 1948.

Effective: Summer 1997

J ST 478 (RL ST 478)

**Ethics After the Holocaust** (3) Explores the philosophical effects of the Holocaust for thinking about the primary question: Is ethics possible?

Effective: Summer 2012

Prerequisite: one course in Jewish Studies or Philosophy

JAPNS 120 (GH;IL)

**Japanese Literature in Its Cultural Context** (3) Japanese literature and film from classical through contemporary times, with attention to changing cultural settings. Taught in English.

Effective: Spring 2010

JAPNS 402 (IL)

**Level Three Japanese B** (4) Exclusively for study abroad returnees. To further develop Japanese proficiency in speaking, listening, reading, and writing.

Effective: Spring 2011

Prerequisite: JAPNS 401

KINES 442 (CAMS 442) (IL)

**Sport in Ancient Greece and Rome** (3) An examination of the continuity of sport in ancient Greek and Roman societies.

Effective: Spring 2008

Prerequisite: CAMS 025 CAMS 033 CAMS 140 CAMS 150 CAMS 100 CAMS 101 or KINES 141

L ST 490 (HIST 490)

**Archival Management** (1-3) Introduction to the principles and procedures in the management of archives and historical manuscripts.

Effective: Fall 1978

LATIN 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

LATIN 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1995

LATIN 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

LATIN 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

LATIN 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2001

LATIN 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1983

LATIN 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

LATIN 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

## LATIN 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## LATIN 402

**Republican Literature** (3-12) Selected works by Plautus, Lucretius, Catullus, Cicero (content varies).

Effective: Summer 1995

Prerequisite: LATIN 003

## LATIN 403

**Augustan Age Literature** (3-12) Selected works by Virgil, Horace, Propertius, Tibullus, Ovid, Livy (content varies).

Effective: Summer 1995

Prerequisite: LATIN 003

## LATIN 404

**Silver Age Literature** (3-12) Selected works by Petronius, Seneca, Tacitus, Juvenal, Martial, Pliny the Younger (content varies).

Effective: Summer 1995

Prerequisite: LATIN 003

## LATIN 420

**Medieval Latin Literature** (3-6) Survey of Medieval Latin literature.

Effective: Spring 1995

Prerequisite: LATIN 003

## LATIN 450W

**History of Latin** (3) History of the Latin language and its speakers, from their origins to the 2nd century C.E.

Effective: Summer 1994

Prerequisite: LING 102 ; LATIN 401 LATIN 402 or LATIN 403

## LATIN 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

## LATIN 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

## LATIN 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

## LATIN 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

## LATIN 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## LING 102 (GH)

**Introduction to Historical Linguistics** (3) How languages change and evolve over time; language families; effects of borrowing and language contact.

Effective: Spring 2002

Prerequisite: LING 010 or LING 100

## LTNST 100 (GH;US)

**Introduction to Latina/s Studies** (3) This course provides an interdisciplinary introduction to the study of Latinas/os in the U.S.

Effective: Fall 2012

## LTNST 226 (ENGL 226) (GH;US;IL)

**Latina and Latino Border Theories** (3) English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture.

Effective: Fall 2012

## LTNST 300 (WMNST 300) (US)

**Latinas in the US: Gender Culture and Society** (3) This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latina feminisms in the United States.

Effective: Spring 2013

Prerequisite: LTNST 100 or WMNST 100

## LTNST 315 (SPAN 315) (GH;US)

**Spanish and Spanish-speakers in the U.S.** (3) In this course, we investigate various aspects of the language(s) and language behaviors of U.S. Latinos.

Effective: Fall 2012

LTNST 403 (CMLIT 403) (US)

**Latina/o Literature and Culture** (3) Literary and other forms of cultural expression (film, music, art, and theater) are compared across different Latina/o communities.

Effective: Fall 2012

Prerequisite: 3 credits in the humanities or in any LTNST course or 4th-semester proficiency in Spanish

LTNST 426 (ENGL 426) (US)

**Chicana and Chicano Cultural Production: Literature, Film, Music** (3) An in-depth study of Chicana/Chicano literature, film, and music from the inception of the Chicano Movement (1965-1975) to the present.

Effective: Fall 2012

Prerequisite: 3 credits in English

LTNST 467 (HIST 467) (US;IL)

**Latin America and the United States** (3) Historical development of policies of the United States with regard to Latin-American affairs from colonial times to the present.

Effective: Fall 2012

MEDVL 107 (HIST 107) (GH;IL)

**Medieval Europe** (3) Rise and development of the civilization of medieval Europe from the decline of Rome to 1500.

Effective: Spring 2006

MEDVL 108 (GH;IL)

**Medieval Civilization** (3) An interdisciplinary introduction to literature, art, and thought of the Middle Ages.

Effective: Spring 2006

MEDVL 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1995

MEDVL 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MEDVL 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

MEDVL 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MEDVL 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

MEDVL 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MEDVL 411 (HIST 411) (IL)

**Medieval Britain** (3) Political, cultural, and economic history of Britain from circa 400 to 1485 with an emphasis on the kingdom of England.

Effective: Spring 2006

Prerequisite: 6 credits in European history or medieval studies

MEDVL 413 (HIST 413) (IL)

**Medieval Celtic Studies** (3) Celtic civilization from antiquity to the end of the middle ages.

Effective: Spring 2006

Prerequisite: 3 credits in medieval studies or in language literature or European history of the medieval period

MEDVL 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

MEDVL 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

MEDVL 495

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 2002

Prerequisite: prior approval of proposed assignments by instructor

## MEDVL 496

**Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 1995

## MEDVL 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1995

## MEDVL 499 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## OLEAD 100 (GS)

**Introduction to Leadership** (3) This course introduces key leadership concepts and practices based on current theory and research. It is designed to help students to discover the knowledge and skills that are characteristic of effective leaders.

Effective: Summer 2012

## PHIL 001 (GH)

**Basic Problems of Philosophy** (3) Introduction to central philosophical themes, including the mind/body problem, the existence of God, ethical problems, the nature of reality. Students may take only one course for General Education credit from PHIL 001 GH or 004 GH.

Effective: Spring 2000

## PHIL 002 (GH)

**Philosophy, Politics, and Social Theory** (3) Examines relations between political and social organizations, the justification and limits of the state, and issues concerning individuality and community.

Effective: Fall 2003

## PHIL 003 (GH)

**Persons, Moral Values and the Good Life** (3) Major ethical positions and assumptions regarding questions of freedom, choice, obligation, and conflicts in contemporary moral conduct, values, and reasoning.

Effective: Fall 2004

## PHIL 005 (GH)

**Philosophy, Art, and Film** (3) Explores relations between images and reality, representation and culture, and beauty and politics through film, artworks, and aesthetic theories.

Effective: Spring 2002

## PHIL 006 (CMLIT 006) (GH;IL)

**Philosophy and Literature in Western Culture** (3) Explores fundamental issues of human existence through the traditions of western literature and philosophy.

Effective: Spring 2006

## PHIL 007 (GH;IL)

**Asian Philosophy** (3) Introduction to philosophical, moral, and aesthetic teachings of Asian traditions such as Hinduism, Buddhism (including Zen), Taoism, Confucianism, and Shintoism.

Effective: Summer 2005

## PHIL 008 (WMNST 008) (GH)

**Philosophy and Feminism** (3) Explores diverse feminist philosophies of culture and knowledge, and examines gender's role in accounts of reality, truth, morality, and justice.

Effective: Spring 2006

## PHIL 009 (GH;US)

**Philosophy, Race, and Diversity** (3) Critically examines the significance of race and cultural diversity for, and in, understandings of reality, knowledge, truth, morality, and justice.

Effective: Summer 2005

## PHIL 009U (GH;US)

**Philosophy, Race, and Diversity** (3) Critically examines the significance of race and cultural diversity for, and in, understandings of reality, knowledge, truth, morality, and justice.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## PHIL 010 (GH)

**Critical Thinking** (3) Discussion of the validity, soundness, and fallacies of everyday language use and reasoning; informal logic; and manipulative arguments and propaganda.

Effective: Fall 2003

## PHIL 010S (GH)

**Critical Thinking** (3) Discussion of the validity, soundness, and fallacies of everyday language use and reasoning; informal logic; and manipulative arguments and propaganda.

Effective: Spring 2005

## PHIL 011 (GH)

**Philosophy, Science, and Truth** (3) Examines the philosophical foundations of natural scientific inquiry, knowledge, objectivity, and the relation of scientific truth to common sense.

Effective: Fall 2003

## PHIL 013 (GH)



**Philosophy, Nature, and the Environment** (3) Studies competing historical and contemporary conceptions of nature, their philosophical foundations, and their implications for environmental problems and public policy.  
Effective: Fall 2003

PHIL 014 (GH;US)

**Philosophy of Love and Sex** (3) Explores Western theories and attitudes concerning intimacy and examines various ethical issues involving love and sex.  
Effective: Summer 2005

PHIL 083S (GH)

**First-Year Seminar in Philosophy** (3) Critical introduction to philosophical issues in ethics, social and political theory, religion, art, metaphysics, and epistemology.  
Effective: Summer 1999

PHIL 098

**Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

PHIL 100 (GH)

**The Meaning of Human Existence** (3) Explores differing views of the significance of human life, the meaning of freedom, and the way to a meaningful life.  
Effective: Fall 2003

PHIL 101 (GH)

**Pragmatism and American Philosophy** (3) An introduction to American thought and its relation to American culture, with a focus on the development of pragmatism.  
Effective: Fall 2003

PHIL 102 (GH)

**Existentialism and European Philosophy** (3) Introduction to European philosophy and issues of life, death, meaning, and absurdity, with a focus on existentialism and its development.  
Effective: Fall 2003

PHIL 102H (GH)

**Existentialism and European Philosophy** (3) Introduction to European philosophy and issues of life, death, meaning, and absurdity, with a focus on existentialism and its development.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PHIL 103 (GH)

**Introduction to Ethics** (3) Ethical theory about virtue, duty, autonomy, and life quality applied to moral problems, including character, violence, oppression, abortion, and suicide.  
Effective: Fall 2003

PHIL 103W (GH)

**Introduction to Ethics** (3) Ethical theory about virtue, duty, autonomy, and life quality applied to moral problems, including character, violence, oppression, abortion, and suicide.  
Effective: Fall 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 105 (GH)

**Introduction to Philosophy of Law and Legal Ethics** (3) Historical and contemporary philosophies of law; concepts of responsibility, property, rights, and justice; and ethical issues in legal practice.  
Effective: Fall 2003

PHIL 106 (GH)

**Introduction to Business Ethics** (3) Studies ethical foundations of business and ethical problems in business practices such as advertising, international trade, labor relations, and marketing.  
Effective: Fall 2003

PHIL 107 (S T S 107) (GH)

**Introduction to Philosophy of Technology** (3) The character of technology; its relation to human values; philosophical assumptions in its development; and how it transforms the world.  
Effective: Spring 2004

PHIL 108 (GH)

**Introduction to Social and Political Philosophy** (3) Critical introduction to political authority, rights, justice, community, inequality, power, pluralism, and other contemporary, social, and political issues.  
Effective: Fall 2003

PHIL 108W (GH)

**Introduction to Social and Political Philosophy** (3) Critical introduction to political authority, rights, justice, community, inequality, power, pluralism, and other contemporary, social, and political issues.  
Effective: Summer 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 109 (GH)

**Introduction to Aesthetics** (3) Examines the nature of art and aesthetic experience, art's relation to beauty and truth, and the nature of creativity.  
Effective: Fall 2003

PHIL 109H (GH)

**Introduction to Aesthetics** (3) Examines the nature of art and aesthetic experience, art's relation to beauty and truth, and the nature of creativity.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PHIL 110 (GH)

**Introduction to Philosophy of Science** (3) Examines science's assumptions about knowledge and reality, the relation between science and culture, and the nature of scientific progress.

Effective: Fall 2003

PHIL 113 (GH)

**Introduction to Philosophy of Literature** (3) Examines philosophical ideas in literature, literary forms in philosophies, style and genre, and relation of philosophy, literature, writing, and culture.

Effective: Fall 2003

PHIL 115 (GH)

**Introduction to Philosophy and Education** (3) Examines the nature and goals of education, the philosophical foundations of educational theories, and their economic, political, and cultural implications.

Effective: Fall 2003

PHIL 118 (GH)

**Introduction to Environmental Philosophy** (3) Considers the moral status of the environment and applies ethical theory to issues such as preservation, hunger, pollution, and sustainability.

Effective: Fall 2003

PHIL 122 (GH)

**Introduction to Philosophy of History** (3) Examines methodological foundations and interpretations of history, the objectivity of history, and the issue of history as design or chance.

Effective: Fall 2003

PHIL 123 (GH)

**Introduction to Ethics in Media and Journalism** (3) Studies ethical problems, human values, and politics in differing media forms and the ways media shape such problems and values.

Effective: Fall 2003

PHIL 124 (GH)

**Introduction to Philosophy of Religion** (3) Explores the meaning of religious belief and experience, the existence of God, ideas of spirituality, and the question of immortality.

Effective: Fall 2003

Prerequisite: third-semester standing

PHIL 125 (GH)

**Introduction to Theories of Knowledge** (3) Historical and contemporary views on the foundations and conditions of knowledge, belief, justification, and truth, conception, perception, and interpretation.

Effective: Fall 2003

PHIL 125W (GH)

**Introduction to Theories of Knowledge** (3) Historical and contemporary views on the foundations and conditions of knowledge, belief, justification, and truth, conception, perception, and interpretation.

Effective: Summer 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 126 (GH)

**Introduction to Metaphysics** (3) Explores the nature of being and reality, the problem of free will and the mind/body problem, identity, and causality.

Effective: Fall 2003

PHIL 126W (GH)

**Introduction to Metaphysics** (3) Explores the nature of being and reality, the problem of free will and the mind/body problem, identity, and causality.

Effective: Summer 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 127 (GH)

**Introduction to Philosophy of Mind** (3) Problems and concepts of mind and consciousness including mind-brain identification, the nature of subjectivity, identity, and artificial intelligence.

Effective: Fall 2003

PHIL 129 (GH)

**Introduction to Philosophy of Language** (3) Studies the nature of meaning in language, how we acquire language, communication, signs, and language as descriptive of reality.

Effective: Fall 2003

PHIL 132 (RL ST 131) (GH)

**Introduction to Bioethics** (3) Studies questions of ethics in relation to biotechnology research and implementation, genetic engineering, medicine, animal and human rights.

Effective: Fall 2003

PHIL 197

**Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1995

PHIL 198

**Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2001

PHIL 199 (IL)

**Foreign Study--Philosophy** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PHIL 200 (CAMS 200) (GH)

**Ancient Philosophy** (3) Examines the thought and influence of major Western thinkers from the pre-Socratics to the neo-Platonists, emphasizing Plato and Aristotle.

Effective: Fall 2003

PHIL 201 (GH)

**Medieval Philosophy** (3) Examines the thought and influence of major Western thinkers from the fourth to the fifteenth centuries, emphasizing Augustine and Aquinas.

Effective: Fall 2003

PHIL 202 (GH)

**Modern Philosophy** (3) Examines the thought and influence of major Western thinkers from Descartes to Kant, emphasizing rationalism and empiricism, and critical philosophy.

Effective: Fall 2003

PHIL 203 (GH)

**Nineteenth Century Philosophy** (3) Examines the thought and influence of major Western thinkers from Hegel to Nietzsche, including Marx, Kierkegaard, and Schopenhauer.

Effective: Fall 2003

PHIL 204 (GH)

**Twentieth Century Philosophy** (3) Examines the thought and influence of major Western thinkers of the century, including pragmatists, phenomenologists, existentialists, critical theorists, and feminists.

Effective: Fall 2003

PHIL 208 (GH)

**Contemporary Philosophy** (3) Recent trends in philosophical thought and culture, hybrid philosophies, and the philosophical landscape of the future.

Effective: Fall 2003

PHIL 221 (GH)

**Philosophy of Science** (3) An inquiry into the form and function of concepts, laws, theories, and into the character of scientific explanation and prediction.

Effective: Fall 2003

PHIL 233 (S T S 233) (GH)

**Ethics and the Design of Technology** (3) Ethics and individual and group decision-making in the design of technology including design projects and specific attention to institutional ethics.

Effective: Spring 2004

PHIL 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

PHIL 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

PHIL 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

PHIL 298

**Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2001

PHIL 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PHIL 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

## PHIL 398

**Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2001

## PHIL 399 (IL)

**Foreign Study--Philosophy** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## PHIL 401 (AM ST 421)

**American Philosophy** (3) Survey of key figures and movements in American thought including the Transcendentalists, the Pragmatists, and contemporary developments.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy or 6 credits of philosophy at the 200-level or 5th semester standing

## PHIL 402

**European Philosophy** (3 per semester, maximum of 6) Survey of key figures and movements of Europe, including phenomenology, existentialism, structuralism and post-structuralism, and critical theory.

Effective: Fall 2007

Prerequisite: PHIL 102 6 credits of philosophy at the 200 level or 5th semester standing

## PHIL 403

**Environmental Ethics** (3) Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level or 5th semester standing

## PHIL 403H

**Environmental Ethics** (3) Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level or 5th semester standing

## PHIL 405

**Philosophy of Law** (3) Examines philosophical views of the nature of law, legal ethics, law and society through questions regarding definition, interpretation, and institutions.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 105 or 6 credits of philosophy at the 200 level or 5th semester standing

## PHIL 406

**Business Ethics** (3) Examines the moral justification of business practices and economic systems through critical analyses of case studies and applied ethical theories.

Effective: Summer 1998

Prerequisite: fifth-semester standing

## PHIL 407 (S T S 407)

**Technology and Human Values** (3) Interrelationships of twentieth-century technological change and human values. Emphasis on the social and ethical aspects of technological progress.

Effective: Spring 1999

Prerequisite: 9 credits of philosophy including PHIL 107 or 6 credits of philosophy at the 200 level

## PHIL 408W

**Social and Political Philosophy** (3) Historical and philosophical foundations of political organization, authority, and justice, and contemporary issues of rights, community, and culture.

Effective: Fall 1998

Prerequisite: 9 credits in philosophy including PHIL 108 or 6 credits at the 200 level

## PHIL 409

**Aesthetics** (3) Studies concepts of beauty, truth, value, representation, production and reproduction, and reality through philosophical theory and works of art.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 109 or 6 credits of philosophy at the 200 level or 3 credits of art or 5th semester standing

## PHIL 410

**Philosophy of Science** (3) Historical and contemporary foundational and methodological issues such as causality, relativity and epistemological relativism, teleology, and the nature of reality.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 110 or 6 credits of philosophy at the 200 level

## PHIL 413

**Philosophy of Literature** (3) Discusses truth, belief, illusion, imagination and creativity through philosophical literature, as well as problems of philosophical writing.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 113 or 6 credits of philosophy at the 200 level

## PHIL 416

**Philosophy of Social Science** (3) Examines the philosophical nature and foundations of methodology, structures and objects, value-neutrality and objectivity in the social sciences.

Effective: Summer 2013

Prerequisite: 9 credits of philosophy including or 6 credits of philosophy at the 200 level

PHIL 418

**Ethics** (3) Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level or 5th semester standing

PHIL 418W

**Ethics** (3) Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level

PHIL 424

**Philosophy of Religion** (3) Examines the relation between faith and reason, the nature of religious experience, the problem of evil, the existence of God.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 124 or 6 credits of philosophy at the 200 level or 5th semester standing

PHIL 425W

**Epistemology** (3) The nature of cognition and perception, the conditions of experience, and the justification and truth of belief.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 125 or 6 credits of philosophy at the 200 level; in addition to ENGL 015 or ENGL 030

PHIL 426W

**Metaphysics** (3) Examines the nature of reality, the existence of freedom, and the nature of matter, mind, and values.

Effective: Summer 1998

Prerequisite: 9 credits in philosophy including PHIL 126 or 6 credits of philosophy at the 200 level

PHIL 427

**Philosophy of Mind** (3) Investigates problems of mind from the standpoint of traditional metaphysical views, modern scientific psychology, neuroscience, and artificial intelligence.

Effective: Spring 1999

Prerequisite: 9 credits of philosophy including PHIL 127 or 6 credits of philosophy at the 200 level

PHIL 432 (S T S 432)

**Medical and Health Care Ethics** (3) Examines ethical, political, and social issues in the research, implementation, and practice of medicine, medical technologies, and healthcare.

Effective: Fall 1998

Prerequisite: fifth-semester standing

PHIL 433 (S T S 433)

**Ethics in Science and Engineering** (3) Ethical issues arising in the practice of science and engineering and their philosophical analysis.

Effective: Fall 1995

PHIL 435 (S T S 435)

**The Interrelation of Science, Philosophy, and Religion** (3) The historical and transformative interactions between science and Western philosophical and religious views of nature, humanity, and God.

Effective: Spring 1996

PHIL 437 (IL)

**World Philosophies and Cultures** (3) Philosophical traditions, problems, and authors in African, Asian, Middle- Eastern, Native American, or other non-Western cultures and intellectual traditions.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including 6 credits of philosophy at the 200 level or 5th semester standing

PHIL 438 (WMNST 438)

**Feminist Philosophy** (3) Examines the central currents of feminist philosophy, selected problems and concepts regarding difference, gender and sex, identity, and political culture.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including 6 credits of philosophy at the 200-level or 5th semester standing

PHIL 453

**Topics in Ancient Philosophy** (3 per semester, maximum of 6) Examines the philosophy of central figures in ancient philosophy from the pre-Socratics to the post-Aristotelians and Neoplatonists.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 200 or 6 credits of philosophy at the 200 level

PHIL 455

**Topics in Modern Philosophy** (3 per semester, maximum of 6) Descartes to Kant, including mind and reality, space and time, God and nature, morality and autonomy.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 202 or 6 credits of philosophy at the 200 level

**PHIL 456**

**Topics in Nineteenth Century Philosophy** (3 per semester, maximum of 6) Hegel to Nietzsche, including nature and spirit, history and human nature, ideology and morality.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 203 or 6 credits of philosophy at the 200 level

**PHIL 457**

**Topics in Twentieth Century Philosophy** (3 per semester, maximum of 6) Topics in the philosophy of figures such as Husserl, James, Russell, Wittgenstein, Heidegger, Merleau-Ponty, and Dewey.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 204 or 6 credits of philosophy at the 200 level or 5th semester standing

**PHIL 458**

**Topics in Contemporary Philosophy** (3 per semester, maximum of 6) Topics in the philosophy of contemporary figures such as Foucault, Habermas, Rorty, Derrida, Rawls, Davidson, and MacIntyre.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 208 or 6 credits of philosophy at the 200 level

**PHIL 461**

**Plato** (3 per semester, maximum of 6) Examines the metaphysics, epistemology, politics, aesthetics, and moral theory of this central figure in the history of philosophy.

Effective: Spring 1999

Prerequisite: 9 credits of philosophy including PHIL 200 or 6 credits of philosophy at the 200 level

**PHIL 473**

**German Idealism** (3 per semester, maximum of 6) Critically examines the philosophy of central German idealists, including Kant, Fichte, Schelling, and Hegel, and its impact on later philosophy.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including either PHIL 202 or PHIL 203 or 6 credits of philosophy at the 200 level

**PHIL 474**

**Kant** (3 per semester, maximum of 6) Critical examination of the metaphysics, epistemology, aesthetics, legal and moral philosophy, and influence of Immanuel Kant.

Effective: Fall 1998

Prerequisite: 9 credits in philosophy including PHIL 202 or 6 credits of philosophy at the 200 level

**PHIL 476**

**Hegel** (3 per semester, maximum of 6) Critical examination of the metaphysics, moral theory, epistemology, and philosophy of history of this central figure of 19th-century philosophy.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 203 or 6 credits of philosophy at the 200 level

**PHIL 479**

**Critical Theory** (3 per semester, maximum of 6) Examines the ontology, political and social thought of the Frankfurt School from Horkheimer and Adorno to Marcuse and Habermas.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including either PHIL 203 or 6 credits of philosophy at the 200 level

**PHIL 485**

**Heidegger** (3 per semester, maximum of 6) Studies Heidegger's metaphysical thought from his early to later works regarding being, history, subjectivity, aesthetics, language, and his influence.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 402 or 6 credits of philosophy at the 200 level

**PHIL 486**

**Wittgenstein** (3 per semester, maximum of 6) Examines Wittgenstein's early and late work, including logical atomism, meaning, language games, forms of life, and the private-language argument.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 204 or 6 credits of philosophy at the 200 level

**PHIL 487**

**Analytic Philosophy** (3 per semester, maximum of 6) Analytic philosophy's founding by Frege, Russell, Moore, Wittgenstein; and its contemporary development by Quine, Kripke, Dummett, and Davidson.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 202 or PHIL 204 along with 3 credits of philosophy at the 200 level

**PHIL 490**

**Dewey** (3 per semester, maximum of 6) Critically examines the metaphysics, epistemology, ethics, logic, aesthetics, education theory, and social and political philosophy of this major American pragmatist.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 401 or 6 credits of philosophy at the 200-level

**PHIL 491**

**Merleau-Ponty** (3 per semester, maximum of 6) Merleau-Ponty's phenomenological anti-dualism through his studies on the body and the flesh, aesthetics, political philosophy, and late ontology.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 402 or 6 credits of philosophy at the 200-level

PHIL 493

**Phenomenology and Hermeneutics** (3 per semester, maximum of 6) Studies major figures and issues in phenomenology and hermeneutics, focussing on the work of Husserl, Gadamer, Heidegger, Merleau-Ponty, and Levinas.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 202 and PHIL 204

PHIL 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

PHIL 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

PHIL 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

PHIL 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

PHIL 498

**Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2001

PHIL 499 (IL)

**Foreign Study--Philosophy** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PL SC 111 (GH)

**Debating the Purpose of Government** (3) Students will become acquainted with a variety of political theories and debate their usefulness in considering contemporary political controversies.

Effective: Summer 2012

PORT 197

**Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1995

PORT 197C (SPAN 197C)

**Portuguese for Learners of Spanish** (3) This course is designed for learners of Spanish who wish to acquire Portuguese at an accelerated pace.

Effective: Summer 2014 Ending: Summer 2014

PORT 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PORT 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

PORT 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PORT 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

PORT 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PORT 405

**Advanced Composition and Conversation** (3) Intended to strengthen the advanced student's ability to speak, read, and write in modern Brazilian Portuguese.

Effective: Summer 1981

Prerequisite: PORT 003

PORT 476

**Brazilian Literature, The Modern Era (1880 to the Present)** (3) A survey of the major texts of Brazilian literature from romanticism to the present.

Effective: Summer 1991

Prerequisite: PORT 003

PORT 480

**The Brazilian Novel** (3) A survey of the Brazilian novel from its origins to the present.

Effective: Spring 1993

Prerequisite: PORT 003 PORT 405

PORT 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

PORT 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

PORT 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

PORT 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

PORT 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

RL ST 001 (GH;US;IL)

**Introduction to World Religions** (3) An historical and comparative survey of the principal beliefs and practices of the world's major religions.

Effective: Summer 2005

RL ST 003 (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

Effective: Summer 2005 Ending: Fall 2014

RL ST 003 (ASIA 003) (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

Effective: Spring 2015 Future: Spring 2015

RL ST 004 (CAMS 004, J ST 004) (GH;US;IL)

**Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationships to culture.

Effective: Summer 2005

RL ST 007

**Inner Lives in Religious Biography** (3) Reading and discussion of selected autobiographical and biographical statements to discover and compare different forms of spirituality.

Effective: Fall 1983

RL ST 012 (CAMS 012, J ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

RL ST 012U (CAMS 012U, J ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

RL ST 044 (CAMS 044) (GH;IL)

**Ancient Near Eastern and Egyptian Mythology** (3) Survey of major ancient Mediterranean myths, gods, and goddesses in their cultural contexts; influence on later cultures.

Effective: Summer 2005

RL ST 083S (GH)

**First-Year Seminar in Religious Studies** (3) Critical approaches to the dimensions and directions in Religious Studies.

Effective: Summer 1999

RL ST 090 (CAMS 090, J ST 090) (GH;IL)

**Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE)



to the present.

Effective: Summer 2005

RL ST 101 (GH;IL)

**Comparative Religion** (3) Comparative or historical analysis of religious factors--worship, theology, ethics, scriptures, etc., in two or more religious traditions.

Effective: Summer 2005

RL ST 102 (CAMS 102, HIST 102, J ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

RL ST 103 (GH;US;IL)

**Introduction to Hinduism** (3) Historical development of Hinduism to the present.

Effective: Summer 2005 Ending: Fall 2014

RL ST 103 (ASIA 103) (GH;US;IL)

**Introduction to Hinduism** (3) Historical development of Hinduism to the present.

Effective: Spring 2015 Future: Spring 2015

RL ST 104 (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

Effective: Summer 2005 Ending: Fall 2014

RL ST 104 (ASIA 104) (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

Effective: Spring 2015 Future: Spring 2015

RL ST 105 (GH;US;IL)

**Buddhism in the Western World** (3) A general survey of the development of Buddhism as a religious tradition in the West, focusing especially on America.

Effective: Summer 2005

RL ST 106 (J ST 106) (GH;IL)

**Mysticism** (3) A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

Effective: Spring 2012

RL ST 107 (GH;US;IL)

**Introduction to Islam** (3) Community and message of the early movement; development of authoritative structures and traditions; proliferation of sects; theology and creeds; mysticism.

Effective: Spring 2006

RL ST 110 (CAMS 110, J ST 110) (GH;US;IL)

**Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.

Effective: Summer 2005

RL ST 111 (CAMS 111, J ST 111) (GH;IL)

**Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

Effective: Summer 2005

RL ST 114 (J ST 114) (GH;US;IL)

**Modern Judaism** (3) Trends in Jewish life and thought since the French revolution; Judaism's responses to the challenge of modernity.

Effective: Summer 2005

RL ST 120 (CAMS 120, J ST 120) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in its Jewish-Hellenistic setting.

Effective: Spring 2004

RL ST 120H (CAMS 120H, J ST 120H) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in its Jewish-Hellenistic setting.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

RL ST 121

**Jesus of Nazareth** (3) An historical critical examination of the life and message of Jesus of Nazareth.

Effective: Spring 1995

RL ST 122 (CAMS 122, J ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

Effective: Summer 2014

RL ST 123 (CAMS 123, J ST 123) (GH;IL)

**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major

monotheisms of ancient Near East: Judaism, Christianity, and Islam.  
Effective: Summer 2014

RL ST 124 (CAMS 124, J ST 124) (GH;US;IL)

**Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.  
Effective: Summer 2005

RL ST 125W (GH)

**Modern Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the sixteenth century to the present.  
Effective: Summer 1995

RL ST 130 (GH)

**The Ethics of Western Religion** (3) History of theological-social ethics of the Judaeo-Christian tradition.  
Effective: Summer 1995

RL ST 131 (PHIL 132) (GH)

**Introduction to Bioethics** (3) Studies questions of ethics in relation to biotechnology research and implementation, genetic engineering, medicine, animal and human rights.  
Effective: Spring 2003

RL ST 132W

**Sects and Cults** (3) The origins, beliefs, and practices of new or dissenting religious groups and their relationship to the dominant religious culture.  
Effective: Spring 1994

RL ST 134 (CAMS 134, J ST 134) (GH;IL)

**Archaeology of Biblical Israel** (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.  
Effective: Summer 2005

RL ST 137 (WMNST 137, J ST 137) (GH;US;IL)

**Women and Religion** (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.  
Effective: Fall 2012

Prerequisite: third-semester standing

RL ST 140Y (AM ST 140Y) (GH;US)

**Religion in American Life and Thought** (3) The function, contributions, tensions, and perspectives of religion in American culture.  
Effective: Summer 2005

RL ST 145 (AF AM 145) (GH;US;IL)

**African American Religion** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2013 Ending: Fall 2014

RL ST 145 (AF AM 145) (GH;US;IL)

**African American Religions and Spirituality** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2015 Future: Spring 2015

RL ST 146 (AF AM 146) (GH;US)

**The Life and Thought of Martin Luther King, Jr.** (3) A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.  
Effective: Spring 2013

RL ST 147 (AF AM 147) (GH;US)

**The Life and Thought of Malcolm X** (3) The life of Malcolm X/El Hajj Malik El Shabazz (1925-1965) and his social, political, economic, and moral thought.  
Effective: Fall 2013

RL ST 153 (CAMS 153, J ST 153) (GH;IL)

**Dead Sea Scrolls** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.  
Effective: Summer 2014

RL ST 160 (CAMS 160, J ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.  
Effective: Summer 2014

RL ST 165 (ARAB 165, HIST 165) (IL)

**Introduction to Islamic Civilization** (3) Islamic history, culture, religious life c.600-1500 C.E.  
Effective: Spring 2006

RL ST 181 (IL)

**Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.  
Effective: Spring 2006 Ending: Fall 2014

RL ST 181 (ASIA 181) (IL)

**Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.

Effective: Spring 2015 Future: Spring 2015

RL ST 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1995

RL ST 197H (ANTH 197H, HIST 197H)

**Religions and Society in Russia** (1) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

RL ST 235 (HIST 235, J ST 235) (US;IL)

**The Church and the Jews** (3) Examination of the relationship between Western church and the Jews from the First Century to Enlightenment.

Effective: Spring 2006

RL ST 280 (WMNST 280, J ST 280) (GH;IL)

**WOMEN AND JUDAISM** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.

Effective: Spring 2006

RL ST 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

RL ST 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

RL ST 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

RL ST 400

**Theories of Religion** (3) Comparative and interdisciplinary study of two or more systematic theories of religion: anthropological, psychological, sociological, philosophical/theological.

Effective: Fall 1983

Prerequisite: 6 credits in religious studies or seventh-semester standing

RL ST 407Y (HIST 409Y, J ST 409Y) (IL)

**European Anti-Semitism from Antiquity to the Present** (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.

Effective: Summer 2005

RL ST 408 (US;IL)

**Hindu Studies** (3) Special topics in Hindu studies.

Effective: Summer 2005

Prerequisite: 3 credits in religious studies

RL ST 409 (US;IL)

**Buddhist Studies** (3) Special topics in Buddhist studies.

Effective: Spring 2006

Prerequisite: 3 credits in religious studies

RL ST 410 (HIST 410, J ST 410) (US;IL)

**Jews in the Medieval World** (3) Trends in medieval Jewish society under Islam and Western Christendom.

Effective: Spring 2006

RL ST 411 (J ST 411) (US;IL)

**Jewish Studies** (3) Study of the life and thought of a particular period or movement in the history of Judaism.

Effective: Spring 2006

Prerequisite: 3 credits in religious studies

RL ST 412 (J ST 412)

**American Judaism** (3) The development of Jewish religion and culture in America from the colonial era to the present.

Effective: Summer 1999

Prerequisite: HEBR 010 or J ST 010

RL ST 420

**Major Christian Thinkers** (3) Systematic inquiry into the religious thought of one or more Christian thinkers, such as Paul, Augustine, Luther, Calvin, Kierkegaard, or Tillich.

Effective: Fall 1983

Prerequisite: 3 credits in religious studies

RL ST 422 (AM ST 422)

**Religion and American Culture** (3 per semester/maximum of 6) Selected topics, problems, or historical movements in American religion. Relation between religion and American culture.

Effective: Summer 1996

RL ST 424H (HIST 424H, J ST 424H)

**Monotheism and the Birth of the West** (3) The birth of monotheism and its relation to social organization, the idea of individuality, and science.

Effective: Fall 2012

Prerequisite: RL ST 004 RL ST 102 RL ST 110 or RL ST 120

RL ST 440Y (US;IL)

**The Orthodox Christian Tradition** (3) History, culture, and beliefs of the Eastern Orthodox religious tradition with special reference to Russia.

Effective: Summer 2011

Prerequisite: RL ST 004 RL ST 124 RL ST 125 RUS 100 or RUS 110

RL ST 471Y (HIST 471Y) (IL)

**Classical Islamic Civilization, 600-1258** (3) Pre-Islamic Arabia; Muhammad; Arab conquest; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.

Effective: Spring 2006

RL ST 478 (J ST 478)

**Ethics After the Holocaust** (3) Explores the philosophical effects of the Holocaust for thinking about the primary question: Is ethics possible?

Effective: Summer 2012

Prerequisite: one course in Jewish Studies or Philosophy

RL ST 483 (IL)

**Zen Buddhism** (3) The development and current state of Zen Buddhist thought and practice.

Effective: Spring 2006

Prerequisite: HIST 172 HIST 173 HIST 174 HIST 175 PHIL 111 RL ST 003 RL ST 104 or RL ST 181

RL ST 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

RL ST 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

RL ST 495

**Internship** (1-18) Supervised off-campus, non-group instruction, including field experience, practica, or internships.

Effective: Summer 2004

Prerequisite: prior approval of proposed assignment by instructor

RL ST 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

RL ST 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

RL ST 499 (IL)

**Foreign Study--Religious Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

RUS 083S (GH;US;IL)

**First-Year Seminar in Russian** (3) Russia's cultural past and present.

Effective: Summer 2005

RUS 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

RUS 100 (GH;IL)

**Russian Culture and Civilization** (3) The Russian people from the tenth century to present times; their literature, arts, music, science, and philosophy. In English.

Effective: Summer 2005

RUS 110 (GH;IL)

**Russian Folklore** (3) Study of bylina, lyrical and historical songs, folktales, drama, ceremonial poetry, chants, charms, proverbs, and mythology of Russia. In English.

Effective: Summer 2005

RUS 141Y (IL)

**Russian Literature in English Translation: 1800-1870** (3) Pushkin, Lermontov, Gogol, the critics, Turgenev, Dostoevsky, Tolstoy. Writing assignments will serve as a major way of exploring subject matter.

Effective: Spring 2006

RUS 142Y (IL)

**Russian Literature in English Translation: 1870 to Present** (3) Dostoevsky, Tolstoy, Chekhov, Gorky, symbolists, selected Soviet authors. Writing assignments will serve as a major way of exploring subject matter.

Effective: Spring 2006

RUS 143 (GER 143) (GH;IL)

**The Culture of Stalinism and Nazism** (3) The culture of Stalinist Russia and Nazi Germany in comparative perspective.

Effective: Summer 2005

RUS 196

**Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2004

RUS 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1995

RUS 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

RUS 204 (IL)

**Intermediate Russian II** (4) Intensive practice of Russian reading, writing, listening and speaking; review of Russian grammar.

Effective: Summer 2011

Prerequisite: RUS 003

RUS 214 (IL)

**Intermediate Russian III** (4) Intensive practice of Russian reading, writing, listening and speaking; review of Russian grammar.

Effective: Summer 2011

Prerequisite: RUS 003

RUS 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

RUS 296

**Independent Studies** (1-18) Creative projects, including research design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1986

RUS 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1986

RUS 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

RUS 304 (IL)

**Readings in Russian III** (3) Extensive reading of contemporary Russian texts, including articles from Soviet press and short fiction.

Effective: Spring 2006

Prerequisite: 6 credits of Russian at the 200 level

RUS 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

RUS 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

RUS 400 (IL)

**Senior Seminar in Russian Culture** (3) Senior seminar devoted to topics in Russian culture; conducted in Russian.

Effective: Spring 2006

Prerequisite: RUS 204 RUS 214 RUS 304

RUS 412 (IL)

**Russian Translation** (3 per semester/maximum of 6) Translation from Russian into English of complex texts from the humanities, social sciences, and technical fields.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 426 (IL)

**Dostoevsky** (3) Study of representative works by Dostoevsky in the original Russian.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 427 (IL)

**Tolstoy** (3) Study of representative works by Tolstoy in the original Russian.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 460 (IL)

**Linguistic Analysis of Contemporary Russian** (3) Detailed study of the phonology, morphology, and syntax of Modern Standard Russian and the major dialects.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

RUS 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

RUS 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

RUS 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

RUS 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

S T S 100 (GH)

**Science, Technology, and Culture** (3) A survey of the development and culture of science, technology, and medicine in world history.

Effective: Spring 2011

S T S 101 (GH)

**Modern Science, Technology, and Human values** (3) Relationships of science and technology to human aspirations, values, and arts.

Effective: Spring 1996

S T S 107 (PHIL 107) (GH)

**Introduction to Philosophy of Technology** (3) The character of technology; its relation to human values; philosophical assumptions in its development; and how it transforms the world.

Effective: Spring 2004

S T S 122 (HIST 122) (GH)

**History of Science I** (3) A history of science and culture from Stonehenge to the scientific revolution.

Effective: Spring 2005 Ending: Summer 2014

S T S 122 (GH)

**History of Science I** (3) A history of science and culture from Stonehenge to the scientific revolution.

Effective: Fall 2014 Future: Fall 2014

S T S 123 (HIST 123) (GH)

**History of Science II** (3) A history of science and culture from the scientific revolution to the present.

Effective: Spring 2004 Ending: Summer 2014

S T S 123 (GH)

**History of Science II** (3) A history of science and culture from the scientific revolution to the present.

Effective: Fall 2014 Future: Fall 2014

S T S 233 (PHIL 233) (GH)

**Ethics and the Design of Technology** (3) Ethics and individual and group decision-making in the design of technology including design projects and specific attention to institutional ethics.

Effective: Spring 2004

S T S 407 (PHIL 407)

**Technology and Human Values** (3) Interrelationships of twentieth-century technological change and human values. Emphasis on the social and ethical aspects of technological progress.

Effective: Spring 1999

Prerequisite: 9 credits in philosophy including PHIL 107 or 6 credits of philosophy at the 200 level

S T S 428 (HIST 428) (IL)

**The Darwinian Revolution** (3) The origins and implications of evolutionary theory.

Effective: Spring 2006

Prerequisite: An introductory Science course and a history course.

S T S 432 (PHIL 432)

**Medical and Health Care Ethics** (3) Examines ethical, political, and social issues in the research, implementation, and practice of medicine, medical technologies, and healthcare.

Effective: Fall 1998

Prerequisite: fifth-semester standing

S T S 433 (PHIL 433)

**Ethics in Science and Engineering** (3) Ethical issues arising in the practice of science and engineering and their philosophical analysis.

Effective: Fall 1995

S T S 435 (PHIL 435)

**The Interrelation of Science, Philosophy, and Religion** (3) The historical and transformative interactions between science and Western philosophical and religious views of nature, humanity, and God.

Effective: Spring 1996

S T S 457 (HIST 457, WMNST 457) (US;IL)

**The History of Women in Science** (3) Critical analysis of the role women, gender, and minorities have played in the natural sciences.

Effective: Spring 2013

Prerequisite: HIST 116 HIST 117 WMNST 100 WMNST 106 or WMNST 157

SPAN 083S (GH;IL)

**First-Year Seminar in Hispanic Literatures and Cultures** (3) Introduction to the study of Hispanic literatures and cultures.

Effective: Summer 2005

SPAN 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

SPAN 100A

**Intermediate Grammar and Composition for Spanish Bilinguals** (3) A review of grammar and practice with composition focusing on needs and problems specific to Spanish-speaking bilinguals.

Effective: Spring 1996

Prerequisite: placement

SPAN 105

**Elementary Spanish I for Students in the Agricultural Sciences** (4) The course covers basic Spanish, grammar, and oral, aural, and writing skills for students in the Agricultural Sciences. Students who have received high school credit for two or more years of Spanish may not schedule this course for credit without the permission of the instructor. This course does not count toward Spanish majors or the Spanish minor.

Effective: Spring 2014

SPAN 130 (GH;IL)

**Iberian Civilization** (3) Spanish and Portuguese life from the medieval period to the present; literature, the arts, and contemporary problems in historical perspective.

Effective: Spring 2006

SPAN 131 (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

Effective: Summer 2005

SPAN 131U (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

SPAN 131Y (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

Effective: Summer 2005

SPAN 132 (AF AM 132, AFR 132) (IL)

**Afro-Hispanic Civilization** (3) A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America.

Effective: Spring 2013

## SPAN 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1995

## SPAN 197A

**Medical Spanish: Health Issues and Cultural Awareness** (3) This course is designed to develop oral and written communication skills using specialized vocabulary in the health care field. In addition, the course incorporates contemporary and essential cultural aspects of the health of the Hispanic population residing in the United States.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: SPAN 003

## SPAN 197A

**Medical Spanish: Health Issues and Cultural Awareness** (3) This course is designed to develop oral and written communication skills using specialized vocabulary in the health care field. Completing course achieves 15th credit level proficiency and is designed to replace SPAN 100 for students going in to any major that has a medical or health component.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: SPAN 003

## SPAN 197B

**Spanish in the Media** (3) Content-based course for Spanish majors aimed to develop communication skills through a focus on mass media in Hispanic culture. This online course is a perfect match for double majors in Spanish and Media (Advertising/Public Relations, Media Studies, Journalism, etc). This course is restricted to students who are Communication majors or pre-majors.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: SPAN 003

## SPAN 197B

**Spanish in the Media** (3) This course is designed to develop skills through a focus on mass media in Hispanic culture. Completing course achieves 15th credit level proficiency and is designed to replace SPAN 100 but ONLY for students going in to Communication majors.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: SPAN 003

## SPAN 197C (PORT 197C)

**Portuguese for Learners for Spanish** (3) This course is designed for learners of Spanish who wish to acquire Portuguese at an accelerated pace.

Effective: Summer 2014 Ending: Summer 2014

## SPAN 197D

**Catalan** (3) Intensive introduction to the Catalan language and culture.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: basic reading knowledge of another Romance language (Spanish French Italian Portuguese or Romanian)

## SPAN 210

**Readings in Iberian Civilization** (3) Intermediate level Spanish readings dealing with Iberian life from pre-historic times to the present.

Effective: Spring 1993

Prerequisite: SPAN 200

## SPAN 220

**Readings in Ibero-American Civilization** (3) Intermediate level Spanish readings dealing with Ibero-American life from the pre-conquest to the present.

Effective: Spring 1992

Prerequisite: SPAN 200

## SPAN 230 (GH)

**Masterpieces of Spanish Literature in English Translation** (3) Study of works and authors of international importance; lectures, readings, and written works in English.

Effective: Spring 2003

## SPAN 253W

**Introduction to Hispanic Literature** (3) Introduction to generic distinctions, critical methods, and approaches to Hispanic literature.

Effective: Spring 2008

Prerequisite: SPAN 100 and SPAN 110

## SPAN 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

## SPAN 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

## SPAN 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be



topical or of special interest.

Effective: Fall 1983

SPAN 297A

**Sport and Modernity in Latin America** (3) This course will provide an interpretative framework for understanding the enormous success of sport in Latin America and its larger role in the global economic and geopolitical landscape.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

SPAN 299 (IL)

**Foreign Study--Intermediate Conversational Spanish** (3) Grammar review and practice in oral expression and aural comprehension.

Effective: Summer 2005

SPAN 300

**Advanced Grammar and Composition Through Reading** (3) Development of advanced grammar and composition skills through reading texts by native speakers and adapting their techniques for original compositions.

Effective: Spring 2013

Prerequisite: SPAN 200

SPAN 301

**Advanced Writing and Stylistics in Spanish for Spanish Speakers** (3) This course will enhance writing proficiency in Spanish of Spanish speaking students by targeting common problems characteristic of Spanish speakers.

Effective: Spring 2008

Prerequisite: SPAN 100A

SPAN 353

**Survey of Spanish Literature before 1700** (3) Selected major works of prose, poetry, and drama from the Middle Ages to the end of the seventeenth century.

Effective: Spring 2008

Prerequisite: SPAN 253W

SPAN 354

**Survey of Spanish Literature Since 1700** (3) Selected major works of prose, poetry, and drama from the eighteenth century to the present.

Effective: Spring 2008

Prerequisite: SPAN 253W

SPAN 355

**Survey of Spanish American Literature through "Modernismo"** (3) Selected major works of prose, poetry, and drama from the discovery through "modernismo".

Effective: Spring 2008

Prerequisite: SPAN 253W

SPAN 356

**Survey of Spanish American Literature after "Modernismo"** (3) Historical survey of the major figures and periods in Spanish American literature after "modernismo".

Effective: Spring 2008

Prerequisite: SPAN 253W

SPAN 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

SPAN 397

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1999

SPAN 420

**Spanish for Business and International Trade** (3) Introduction to the Spanish of international business and to the social and cultural norms of negotiation in Spanish-speaking countries.

Effective: Spring 2008

Prerequisite: SPAN 300

SPAN 439

**Don Quijote** (3) Thorough study of the masterpiece, including its sources, genesis, language, style, success, and influence.

Effective: Spring 2013

Prerequisite: SPAN 253W

SPAN 472

**The Contemporary Spanish American Novel** (3) The regionalist and social novel since 1910, together with the social background.

Effective: Spring 2013

Prerequisite: SPAN 253W

SPAN 476

**Masterpieces of Spanish American Literature** (3) Reading, analysis, and discussion of selected major works

representative of Spanish American prose and poetry.

Effective: Spring 2013

Prerequisite: SPAN 253W

SPAN 490

**Masterpieces of Spanish Prose** (3) Reading, analysis, and discussion of selected masterpieces of Spanish novels, short stories, etc.

Effective: Spring 2013

Prerequisite: SPAN 253W

SPAN 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

SPAN 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

SPAN 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

SPAN 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

SPAN 497A

**Contemporary Youth Cultures in Latin America** (3) Music bazaars, DJs and rave parties, and "barras de futbol," are only some of the manifestations associated with young people in Latin American literature, film, and music. In this course, we will compare different youth cultures in Latin America in terms of their productions and representations in the public sphere.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

SPAN 497B

**Language Variation Across the Spanish-Speaking World** (3) Esta o ehta? Yo digo o digo yo? We will discuss language variation across the Spanish-speaking world with a focus on phonology and morphosyntax. We will also discuss bilingualism and different varieties of Spanish spoken in the U.S., and will work with data sets to illustrate the methodologies used for studying language variation.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

SPAN 497C

**Latino Culture en Espanol** (3) This is an overview of literature and culture, in Spanish, created within the United States. We will read fiction, essays and film, but also consider poetry, travel accounts, visual art and performances, and cultural practice and sociological issues (like "quinceaneras" and soccer leagues) in order to discuss some of the following themes particular to the Hispanic experience within the U.S.: immigration and transnationalism; the imaginary homeland; families and assimilation; conflicted identity; language and a sense of place.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

SPAN 499 (IL)

**Foreign Study--Spanish** (1-12) Contemporary Spanish life and civilization. Emphasis on post-Civil War period: literature, arts, and sociopolitical problems.

Effective: Summer 2005

Prerequisite: SPAN 100 SPAN 110 or SPAN 120

WMNST 008 (PHIL 008) (GH)

**Philosophy and Feminism** (3) Explores diverse feminist philosophies of culture and knowledge, and examines gender's role in accounts of reality, truth, morality, and justice.

Effective: Spring 2006

WMNST 083S (GH;US;IL)

**First-Year Seminar in Women's Studies** (3) Critical approaches to the dimensions and directions in Women's Studies.

Effective: Summer 2005

WMNST 101 (AF AM 101) (GH;US)

**The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.

Effective: Spring 2013

WMNST 101U (AF AM 101U) (GH;US)

**The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

WMNST 101U (AF AM 101U) (GH;US)

**The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

WMNST 104 (AM ST 104) (GH;US)

**Women and the American Experience** (3) Selected aspects of the role of women in United States history and culture from colonial to modern times.

Effective: Summer 2005

WMNST 106 (GH;US;IL)

**Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.

Effective: Spring 2013

WMNST 106U (GH;US;IL)

**Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

WMNST 106U (GH;US;IL)

**Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

WMNST 117 (HIST 117) (GH;US;IL)

**Women in Modern History** (3) Modernization and women: changing images and roles since mid-eighteenth century in the family, workshop, politics, society. Cross-cultural comparisons.

Effective: Summer 2005

WMNST 137 (RL ST 137, J ST 137) (GH;US;IL)

**Women and Religion** (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.

Effective: Fall 2012

Prerequisite: third-semester standing

WMNST 194 (ENGL 194) (GH;US;IL)

**Women Writers** (3) Short stories, novels, poetry, drama, and essays by British, American, and other English-speaking women writers.

Effective: Summer 2005

WMNST 270 (FR 270)

**Race and Gender in Literature Translated from French** (3) A critical presentation, taught in English, of changing ideas and values on race and gender in French and Francophone literatures.

Effective: Spring 2005

Prerequisite: FR 351

WMNST 280 (J ST 280, RL ST 280) (GH;IL)

**Women and Judaism** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.

Effective: Fall 2006

WMNST 421 (HIST 421) (IL)

**The History of European Women** (3) European women's lives from the Middle Ages to the present.

Effective: Spring 2013

Prerequisite: WMNST 100 WMNST 106 WMNST 116 or WMNST 117

WMNST 457 (HIST 457, S T S 457) (US;IL)

**The History of Women in Science** (3) Critical analysis of the roles women, gender, and minorities have played in the natural sciences.

Effective: Spring 2013

Prerequisite: WMNST 100 WMNST 106 WMNST 157 WMNST 116 or WMNST 117

WMNST 462 (ENGL 462) (US)

**Reading Black, Reading Feminist** (3) Female identity and its construction in textual representations of gender, class, color, and cultural difference in English-language literatures.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

WMNST 490 (ENGL 490) (US;IL)

**Women Writers and Their Worlds** (3) American and British literature written from the perspective of women.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

## B.A. Degree Requirements: Natural Sciences

131 Courses

AERSP 055 (S T S 055) (GN)

**Space Science and Technology** (3) The science and technology of space exploration and exploitation; physical principles; research and development; history, space policy, and social implications.  
Effective: Spring 1994

AFR 105 (EARTH 105) (GN;IL)

**Environments of Africa: Geology and Climate Change** (3) Significant natural features of Africa as related to human endeavor; case studies include the Nile, climate change, natural resources.  
Effective: Spring 2013

AGECO 121 (GN)

**Plant Stress: It's Not Easy Being Green** (3) The many hazards faced by plants and the dynamic ways that plants respond to these problems are examined.  
Effective: Summer 2013

AGECO 134 (R SOC 134) (GN)

**Sustainable Agriculture Science and Policy** (3) The science, socio-economics, and politics of managing food and fiber production systems. Sustainability implications of current practices and future options.  
Effective: Summer 2013

AN SC 300 (GN)

**Integrated Animal Biology** (3) An integrated study of the biology of domestic animal growth and the underlying cellular, endocrine and immune systems involved.

Effective: Summer 2013

Prerequisite: BIOL 011 and BIOL 012 or BIOL 110 ; at least third-semester standing

ANTH 021 (GN)

**Introductory Biological Anthropology** (3) The role of human biology and evolution in culture, society, and behavior.  
Effective: Spring 2001

ANTH 222 (GS;IL)

**Archaeology of Domesticated Animals** (3) Biological, ecological and cultural history of animal domestication.  
Effective: Summer 2013

ASTRO 001 (GN)

**Astronomical Universe** (3) The development of modern understanding of the astronomical universe from planets and stars to galaxies and cosmology. Student who have passed ASTRO 005, ASTRO 006, or ASTRO 010 may not take this course for credit.  
Effective: Fall 2009

ASTRO 001H (GN)

**Astronomical Universe** (3) The development of modern understanding of the astronomical universe from planets and stars to galaxies and cosmology. Students who have passed ASTRO 005, ASTRO 006, or ASTRO 010 may not take this course for credit.  
Effective: Fall 2009

ASTRO 010 (GN)

**Elementary Astronomy** (2) Introductory survey of modern astronomy from planets and stars to galaxies and the universe. Students who have passed ASTRO 001, ASTRO 005, or ASTRO 006 may not take this course for credit. Students may not receive General Education credit for ASTRO 010 unless they also take ASTRO 011.  
Effective: Fall 2009

ASTRO 011 (GN)

**Elementary Astronomy Laboratory** (1) Selected experiments and explorations to illustrate major astronomical principles and techniques. Telescopes observations of planets, stars and nebulae.  
Effective: Fall 2004  
Prerequisite: or concurrent: ASTRO 001 or ASTRO 010

ASTRO 120 (GN)

**The Big Bang Universe** (3) Exploration of cosmology, birth, and ultimate fate of the universe; origin of galaxies, quasars, and dark matter. For non-science majors.  
Effective: Fall 2012  
Prerequisite: ASTRO 001 ASTRO 006 or ASTRO 010

ASTRO 130 (GN)

**Black Holes in the Universe** (3) The predicted properties of black holes and the astronomical evidence for their existence are investigated in the context of modern ideas about space, time, and gravity.  
Effective: Spring 2004  
Prerequisite: ASTRO 001 or ASTRO 010

ASTRO 140 (GN)

**Life in the Universe** (3) The problem of the existence of life beyond Earth is investigated, drawing from recent research in astronomy and other fields. For non-science majors.  
Effective: Fall 2012

Prerequisite: ASTRO 001 ASTRO 005 or ASTRO 010

ASTRO 291 (GN)

**Astronomical Methods and the Solar System** (3) Physical processes and observational techniques in astronomical systems, characteristics of the sun, planets, and moons.

Effective: Spring 2002

Prerequisite: PHYS 211

ASTRO 292 (GN)

**Astronomy of the Distant Universe** (3) Observed properties and astrophysical understanding of stars, stellar evolution, galaxies, the large-scale universe, and cosmology.

Effective: Spring 2002

Prerequisite: ASTRO 291

B M B 001 (GN)

**Understanding the Bases of Human Disease** (3) A broad survey of the molecular and cellular factors that contribute to an understanding of selected human diseases.

Effective: Fall 2004

B M B 001S (GN)

**Understanding the Bases of Human Disease** (3) A broad survey of the molecular and cellular factors that provide an explanation for an understanding of human disease.

Effective: Spring 2001

BI SC 001 (GN)

**Structure and Function of Organisms** (3) An exploration of how cellular structures and processes contribute to life and how life displays unity even in its diversity. Students who have passed BIOL 027, 110, or 141 may not schedule this course.

Effective: Fall 2004

BI SC 001H (GN)

**Structure and Function of Organisms** (3) An exploration of how cellular structures and processes contribute to life and how life displays unity even in its diversity. Students who have passed BIOL 027, 110, or 141 may not schedule this course.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

BI SC 002 (GN)

**Genetics, Ecology, and Evolution** (3) The study of how living organisms inherit their traits, how plants and animals evolved, and how they now interact. Students who have passed BIOL 033, 133, 110, 220W, or 222 may not schedule this course.

Effective: Spring 2003

BI SC 003 (GN)

**Environmental Science** (3) Kinds of environments; past and present uses and abuses of natural resources; disposal of human wastes; prospects for the future. Students who have passed BIOL 220 or any other upper-level ecology course in biology may not schedule this course.

Effective: Fall 2003

BI SC 004 (GN)

**Human Body: Form and Function** (3) A general survey of structure and function--from conception, through growth and reproduction, to death. Students who have passed BIOL 129 and 141 may not schedule this course.

Effective: Spring 2002

BIOL 011 (GN)

**Introductory Biology I** (3) An introduction to fundamental biological topics (including cells, energy transduction, genetics, evolution, organismal structure/function, ecology) for non-majors biology-related fields.

Effective: Fall 2003

BIOL 012 (GN)

**Introductory Biology II** (1) Laboratory exercises demonstrating principles of biology.

Effective: Summer 1992

Prerequisite: or concurrent: BIOL 011

BIOL 110 (GN)

**Biology: Basic Concepts and Biodiversity** (4) A study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Fall 2003

BIOL 110H (GN)

**Honors Biology: Basic Concepts and Biodiversity** (4) Honors study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Spring 2006

BIOL 110L (GN)

**Biology: Basic Concepts and Biodiversity** (4) A study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Summer 1994

BIOL 110P (GN)

**Biology: Basic Concepts and Biodiversity** A study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Summer 1994

BIOL 110S (GN)

**Biology: Basic Concepts and Biodiversity** (4) A study of the evolution of the major groups of organisms including the fundamental concepts of biology. This course also fulfills the First-Year Seminar requirements.

Effective: Summer 1999

BIOL 120A (GN;US;IL)

**Plants, Places, and People** (3) Useful and dangerous plants; historical (archaeological), cultural (ethnological), and economic (anthropocentric) aspects, including structural and chemical characteristics of botanical importance. Students who have passed BIOL (PPATH;S T S) 424 may not schedule this course.

Effective: Spring 2008

BIOL 127 (GN)

**Introduction to Plant Biology** (3) Cellular structure and organization; physiological processes; classification; reproduction and development; relationship of plant groups. Students who have passed BIOL 240W may not schedule this course.

Effective: Spring 2008

BIOL 129 (GN)

**Mammalian Anatomy** (4) Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.

Effective: Fall 2003

BIOL 129L (GN)

**Mammalian Anatomy** (4) Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.

Effective: Fall 2003

BIOL 129P (GN)

**Mammalian Anatomy** Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.

Effective: Fall 1998

BIOL 133 (GN)

**Genetics and Evolution of the Human Species** (3) Human heredity and evolution, individual and social implications. The course is for non-majors; students who have passed BIOL 222, 230W, B M B 251 or any upper-division biology course may not schedule this course.

Effective: Spring 2008

BIOL 141 (GN)

**Introductory Physiology** (3) Explanation of the normal structure and function of the animal body, with special emphasis on human body systems. Students who have passed BIOL 472 may not schedule this course.

Effective: Fall 2003

BIOL 155 (GN)

**Introduction to the Biology of Aging** (3) Examination of human aging from a biological perspective. Population demographics, physiological and pathological changes, and healthy lifestyles are discussed. Students who have passed BIOL 409 may not schedule this course.

Effective: Spring 2008

BIOL 177 (GN)

**Biology of Sex** (3) Basic structure and function of the human reproductive system. Physiology of gametogenesis, fertilization, contraception, gestation, parturition, lactation, and sexual behavior.

Effective: Spring 2008

BIOL 220M (GN)

**Honors Biology: Populations and Communities** (4) Honors study of the major physical, chemical, and biological factors constituting environment and their dynamic interaction with organisms forming ecosystems.

Effective: Summer 2005

Prerequisite: BIOL 110

BIOL 220W (GN)

**Biology: Populations and Communities** (4) A study of the structures and functions of organismic interactions from simple populations to complex ecosystems. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement.

Effective: Fall 2004

Prerequisite: BIOL 110

BIOL 230M (GN)

**Honors Biology: Molecules and Cells** (4) Honors study of cellular phenomena including molecular genetics and metabolic interactions.

Effective: Summer 2007

Prerequisite: BIOL 110 CHEM 110

BIOL 230W (GN)

**Biology: Molecules and Cells** (4) A study of cellular phenomena including molecular genetics and metabolic interactions. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement.

Effective: Summer 2007

Prerequisite: BIOL 110 CHEM 110

BIOL 240W (GN)

**Biology: Function and Development of Organisms** (4) A study of development and physiological processes at the organismic level. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement.

Effective: Summer 2007

Prerequisite: BIOL 110 CHEM 110

CHEM 001 (GN)

**Molecular Science** (3) Selected concepts and topics designed to give non-science majors an appreciation for how chemistry impacts everyday life. Students who have received credit for CHEM 003, 101, or 110 may not schedule this course.

Effective: Summer 2007

CHEM 003 (GN)

**Molecular Science With Laboratory** (3) Selected concepts and topics designed to give non-science majors an appreciation for how chemistry impacts everyday life. Students who have received credit for CHEM 001, 101, or 110 may not schedule this course.

Effective: Summer 2007

CHEM 106 (GN)

**Introductory and General Chemistry** (5) Introductory chemistry and chemical principles for students who are required to take additional chemistry, e.g., CHEM 112, but are unprepared for CHEM 110. GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).

Effective: Summer 2013

Prerequisite: satisfactory performance on the Math placement test--i.e. placement beyond the level of MATH 022; or

MATH 022 or MATH 041

CHEM 110 (GN)

**Chemical Principles I** (3) Basic concepts and quantitative relations. Students may take only one course for General Education credit from CHEM 110 or CHEM 101. GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). Students may take only one course for General Education credit from CHEM 101 GN or CHEM 110 GN.

Effective: Summer 2013

Prerequisite: satisfactory performance on the Math placement tests -- i.e. placement beyond the level of MATH 022 ; or CHEM 101 and MATH 022 or MATH 041

CHEM 111 (GN)

**Experimental Chemistry I** (1) Introduction to quantitative experimentation in chemistry. GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).

Effective: Summer 2007

Prerequisite: or concurrent: CHEM 110 or CHEM 106

CHEM 111H (GN)

**Experimental Chemistry I** (1) Introduction to quantitative experimentation in chemistry.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: or concurrent: CHEM 110 or CHEM 106

CHEM 112 (GN)

**Chemical Principles II** (3) Continuation of CHEM 110, including an introduction to the chemistry of the elements. GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).

Effective: Spring 2009

Prerequisite: CHEM 110 or CHEM 106

CHEM 112H (GN)

**Chemical Principles II - Honors** (3) Continuation of CHEM 110, including an introduction to the chemistry of the elements. GN to receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and (CHEM 111; CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).

Effective: Summer 2013

Prerequisite: CHEM 110 or CHEM 106

CHEM 113 (GN)

**Experimental Chemistry II** (1) Continuation of CHEM 111, with emphasis on topics related to CHEM 112. GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).

Effective: Summer 2007

Prerequisite: CHEM 111 . Prerequisite or concurrent: CHEM 112

E R M 210 (GN)

**Environmental Factors and Their Effect on Your Food Supply** (3) An exploration of how urban environmental problems influence our ability to obtain food and natural resources.

Effective: Spring 2000

EARTH 002 (GN)

**The Earth System and Global Change** (3) An interdisciplinary introduction to the processes, interactions and evolution of the earth's biosphere, geosphere and hydrosphere.

Effective: Fall 2007

EARTH 100 (GN)

**Environment Earth** (3) Natural processes and their relationship to anthropogenic influences. General principles of global cycles and the role they play in natural hazards, global warming, ozone depletion, etc.

Effective: Fall 2004

EARTH 101 (GN;US)

**Natural Disasters: Hollywood vs. Reality** (3) Analysis of the causes and consequences of natural disasters; comparison of popular media portrayal of disasters with perspective from scientific research.

Effective: Summer 2005

EARTH 103 (GN)

**Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century** (3) Climate predictions for the coming century are utilized to examine potential impacts on regions, sectors of society, and natural ecosystems.

Effective: Summer 2000

EARTH 105 (AFR 105) (GN;IL)

**Environments of Africa: Geology and Climate Change** (3) Significant natural features of Africa as related to human endeavor; case studies include the Nile, climate change, and natural resources.

Effective: Spring 2013

EARTH 106 (GN)

**The African Continent: Earthquakes, Tectonics and Geology** (3) Study of earthquakes and seismic waves to learn about the geology and plate tectonics of the African continent.

Effective: Summer 2007

EARTH 150 (GN)

**Dinosaur Extinctions and Other Controversies** (3) Dinosaur extinctions and other major and controversial events in the history of life.

Effective: Spring 2004

EGEE 101 (MATSE 101) (GN)

**Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Fall 2007

EGEE 101A (MATSE 101A) (GN;IL)

**Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Fall 2007

EGEE 101H (GN)

**Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Summer 2009

EGEE 102 (GN)

**Energy Conservation for Environmental Protection** (3) Exposure to energy efficiency in day-to-day life to save money and energy, and thereby protect the environment.

Effective: Spring 2000

EGEE 102H (GN)

**Energy Conservation for Environmental Protection** (3) Honors level exposure to energy efficiency in day to day life to save money and energy, and thereby protect the environment.

Effective: Summer 2008

EM SC 121 (GN)

**Minerals and Modern Society** (3) Production and use of mineral resources in modern society with an emphasis on the interrelationships and their effect on the Earth system.

Effective: Summer 1996

EM SC 150 (S T S 150) (GN;IL)

**Out of the Fiery Furnace** (3) A history of materials, energy and man, with emphasis on their interrelationships. For nontechnical students.

Effective: Spring 2006

ENT 202 (GN)

**The Insect Connection** (3) An introduction to the diversity of insects and the ways in which they interact with humans and impact our world.

Effective: Summer 1998



## GEOG 010 (GN)

**Physical Geography: An Introduction** (3) Survey and synthesis of processes creating geographical patterns of natural resources, with application of basic environmental processes in resource management.  
Effective: Spring 2006

## GEOG 010S (GN)

**Physical Geography: An Introduction** (3) Survey and synthesis of processes creating geographical patterns of natural resources, with application of basic environmental processes in resource management.  
Effective: Spring 2006

## GEOG 110 (GN)

**Climates of the World** (3) Introduction to climatology, including principal processes of the global climatic system and their variation over space and time.  
Effective: Fall 2004

## GEOG 115 (GN)

**Landforms of the World** (3) Distribution of the world's landform features and mineral resources; their characteristics, causes, and significance. Practicum includes correlated field trips and laboratory studies.  
Effective: Fall 2004

## GEOSC 002 (GN)

**Historical Geology** (3) History of the earth and its life; fundamentals of evolution, correlation, and paleogeography; practicum includes field trips, study of geologic maps, geologic problems, and fossils, with emphasis on Appalachian geology. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.) This course contains from one to several field trips for which an additional charge will be made to cover transportation.  
Effective: Summer 1995

## GEOSC 010 (GN)

**Geology of the National Parks** (3) Introduction to geology, geological change, and environmental hazards, as seen in the National Parks.  
Effective: Fall 2003

## GEOSC 020 (GN)

**Planet Earth** (3) Nontechnical presentation of earth processes, materials, and landscape. Practicum includes field trips, study of maps, rocks, and dynamic models, introduction to geologic experimentation. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.) This course contains from one to several field trips for which an additional charge will be made to cover transportation.  
Effective: Fall 2003

## GEOSC 020L (GN)

**Planet Earth** (3) Nontechnical presentation of earth processes, materials, and landscape. Practicum includes field trips, study of maps, rocks, and dynamic models, introduction to geologic experimentation. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)  
Effective: Summer 1988

## GEOSC 021 (GN)

**Earth and Life: Origin and Evolution** (3) Introduction to the origin and evolution of life on Earth from the perspective of geologic time and the fossil record. This course contains from one to several field trips for which an additional charge will be made to cover transportation.  
Effective: Spring 2002

## GEOSC 040 (GN)

**The Sea Around Us** (3) Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography.  
Effective: Fall 2003

## GEOSC 040L (GN)

**The Sea Around Us** (2) Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography.  
Effective: Summer 2009

## GEOSC 040P (GN)

**The Sea Around Us** (1) Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography.  
Effective: Spring 2009

## GEOSC 109H (GN)

**Earthquakes and Society** (3) Introduction to earthquakes and seismology, and their relationship to society, including monitoring for nuclear weapons and seismic hazards.  
Effective: Spring 2007

## GEOSC 110H (GN)

**The Science of Gemstones** (3) An exploration of the geological uses of gems and of the physical and chemical properties underlying their brilliance and color.  
Effective: Summer 2002

Prerequisite: high school chemistry and trigonometry

## HORT 101 (GN)

**Horticultural Science** (3) Introduction to horticulture with emphasis on plant domestication, morphology, classification,

world food crops, commodities, gardens, propagation, and agrochemicals.

Effective: Summer 2013

INART 050 (GN)

**The Science of Music** (3) Waves, physics of sound, hearing, musical scales, musical instruments, and room acoustics.

Effective: Spring 2012

MATSE 081 (GN;IL)

**Materials in Today's World** (3) A survey of the properties, manufacture, and uses of polymers, ceramics and metals in today's world with emphasis on modern developments and new materials.

Effective: Summer 2005

MATSE 101 (EGEE 101) (GN)

**Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Fall 2007

METEO 002 (GN)

**Our Changing Atmosphere: Personal and Societal Consequences** (3) A survey of meteorology emphasizing how the nature of our lives, individually/societally, depends upon atmospheric structure, quality, and processes.

Effective: Spring 2003

METEO 003 (GN)

**Introductory Meteorology** (3) Nontechnical treatment of fundamentals of modern meteorology and the effects of weather and climate. A student who took METEO 002 may take the laboratory part of this course for 1 credit only.

Effective: Spring 2003

METEO 101 (GN)

**Understanding Weather Forecasting** (3) Fundamental principles of synoptic and physical meteorology, satellite and radar imagery, and data analysis in the setting of mid-latitude weather forecasting.

Effective: Fall 2001

MICRB 106 (GN)

**Elementary Microbiology** (3) Importance of microorganisms in health and disease, agriculture, and industry; descriptive course for students not planning advanced study in microbiology. The combination of MICRB 106 GN and 107 GN must be taken to receive General Education credit in biology. Students must take a combination of MICRB 106 GN and 107 GN to receive General Education credit in biology.

Effective: Spring 2002

MICRB 107 (GN)

**Elementary Microbiology Laboratory** (1) Selected techniques used to observe, identify and count bacteria; effects of chemical and physical agents on microorganisms. The combination of MICRB 106 GN and 107 GN must be taken to receive General Education credit in biology. Students must take a combination of MICRB 106 GN and 107 GN to receive General Education credit in biology.

Effective: Spring 2002

Prerequisite: or concurrent: MICRB 106

PHYS 001 (GN)

**The Science of Physics** (3) Historical development and significance of major concepts, with emphasis on the nature of physics and its role in modern life. (For students in non-mathematical fields.)

Effective: Fall 2004

PHYS 001H (GN)

**The Science of Physics** (3) Historical development and significance of major concepts, with emphasis on the nature of physics and its role in modern life. (For students in non-mathematical fields.)

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PHYS 150 (GN)

**Technical Physics I** (3) Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.

Effective: Spring 2007

Prerequisite: 1 1/2 units of algebra. Prerequisite or concurrent: MATH 021 or MATH 081

PHYS 150L (GN)

**Technical Physics I** (3) Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.

Effective: Summer 1994

PHYS 150P (GN)

**Technical Physics I** (3) Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.

Effective: Summer 1994

PHYS 151 (GN)

**Technical Physics II** (3) Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.

Effective: Fall 2001

Prerequisite: PHYS 150

PHYS 151H (GN)

**Technical Physics II** (3) Elementary treatment of topics in electricity, light, and modern physics leading toward an

understanding of technical applications.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: PHYS 150

PHYS 151L (GN)

**Technical Physics II** (3) Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.

Effective: Fall 2001

Prerequisite: PHYS 150

PHYS 211 (GN)

**General Physics: Mechanics** (4) Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation.

Effective: Fall 1999

PHYS 211H (GN)

**General Physics: Mechanics** (4) Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, rotation, and oscillations.

Effective: Spring 2012

PHYS 211L (GN)

**General Physics: Mechanics** (0-4) Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation. NOTE: UP offers for 0 credits; Altoona offers for 4 credits.

Effective: Fall 2000

PHYS 211R (GN)

**General Physics: Mechanics** (4) Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation.

Effective: Spring 1999

PHYS 212 (GN)

**General Physics: Electricity and Magnetism** (4) Calculus-based study of the basic concepts of electricity and magnetism.

Effective: Fall 1999

Prerequisite: MATH 140 PHYS 211

PHYS 212H (GN)

**General Physics: Electricity and Magnetism** (4) Calculus-based study of the basic concepts of electricity and magnetism.

Effective: Summer 2012

Prerequisite: MATH 140 PHYS 211

PHYS 212L (GN)

**General Physics: Electricity and Magnetism** (0-4) Calculus-based study of the basic concepts of electricity and magnetism. NOTE: UP offers for 0 credits; Altoona offers for 4 credits.

Effective: Fall 2000

Prerequisite: MATH 140 PHYS 211

PHYS 212R (GN)

**General Physics: Electricity and Magnetism** (4) Calculus-based study of the basic concepts of electricity and magnetism.

Effective: Spring 2000

Prerequisite: MATH 140 PHYS 211

PHYS 213 (GN)

**General Physics: Fluids and Thermal Physics** (2) Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

Effective: Fall 1999

Prerequisite: MATH 140 PHYS 211

PHYS 213L (GN)

**General Physics: Fluids and Thermal Physics** (0) Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

Effective: Fall 1999

Prerequisite: MATH 140 PHYS 211

PHYS 213R (GN)

**General Physics: Fluids and Thermal Physics** (2) Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

Effective: Fall 1999

Prerequisite: MATH 140 PHYS 211

PHYS 214 (GN)

**General Physics: Wave Motion and Quantum Physics** (2) Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

Effective: Spring 2004

Prerequisite: MATH 141 PHYS 211 and PHYS 212

PHYS 214L (GN)

**General Physics: Wave Motion and Quantum Physics** (0) Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

Effective: Spring 2004

Prerequisite: MATH 141 PHYS 211 and PHYS 212

PHYS 214R (GN)

**General Physics: Wave Motion and Quantum Physics** (2) Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

Effective: Spring 2004

Prerequisite: MATH 141 PHYS 211 and PHYS 212

PHYS 250 (GN)

**Introductory Physics I** (4) Selected topics in mechanics, heat, and sound.

Effective: Fall 2002

Prerequisite: MATH 022 MATH 026 ; or MATH 040 ; or MATH 041 or satisfactory performance on the mathematics proficiency examination

PHYS 250L (GN)

**Introductory Physics I** (0-4) Selected topics in mechanics, heat, and sound.

Effective: Spring 2010

Prerequisite: MATH 022 MATH 026 ; or MATH 040 ; or MATH 041 or satisfactory performance on the mathematics proficiency examination

PHYS 250P (GN)

**Introductory Physics I** (0) Selected topics in mechanics, heat, and sound.

Effective: Fall 2002

Prerequisite: MATH 022 MATH 026 ; or MATH 040 ; or MATH 041 or satisfactory performance on the mathematics proficiency examination

PHYS 250R (GN)

**Introductory Physics I** (4) Selected topics in mechanics, heat, and sound.

Effective: Fall 2002

Prerequisite: MATH 022 MATH 026 ; or MATH 040 ; or MATH 041 or satisfactory performance on the mathematics proficiency examination

PHYS 251 (GN)

**Introductory Physics II** (4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2002

Prerequisite: PHYS 250

PHYS 251H (GN)

**Introductory Physics II** (4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: PHYS 250

PHYS 251L (GN)

**Introductory Physics II** (0-4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2010

Prerequisite: PHYS 250

PHYS 251P (GN)

**Introductory Physics II** (0) Selected topics in light, electricity, and magnetism.

Effective: Fall 2002

Prerequisite: PHYS 250

PHYS 251R (GN)

**Introductory Physics II** (4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2002

Prerequisite: PHYS 250

R SOC 134 (AGECO 134) (GN)

**Sustainable Agriculture Science and Policy** (3) The science, socio-economics, and politics of managing food and fiber production systems. Sustainability implications of current practices and future options.

Effective: Summer 2013

S T S 055 (AERSP 055) (GN)

**Space Science and Technology** (3) The science and technology of space exploration and exploitation; physical principles; research and development; history, space policy, and social implications.

Effective: Spring 1994

S T S 150 (EM SC 150) (GN;IL)

**Out of the Fiery Furnace** (3) A history of materials, energy, and humans, with emphasis on their interrelationships. For nontechnical students.

Effective: Spring 2006

S T S 201 (GN)

**Climate Change, Energy, and Biodiversity** (3) Studies of global warming, energy options, and biodiversity; their interrelations as sciences and as societal issues.

Effective: Summer 1994

S T S 201H (GN)

**Climate Change, Energy, and Biodiversity** (3) Studies of global warming, energy options, and biodiversity; their interrelations as sciences and as societal issues.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

SOILS 101 (GN)

**Introductory Soil Science** (3) A study of soil properties and processes and relationships to land use, plant growth, environmental quality, and society.  
Effective: Summer 2013

VB SC 211 (GN)

**The Immune System and Disease** (3) Introduction to the immune system that emphasizes the immune response to infection and consequences of a defective immune response.  
Effective: Fall 2007

W F S 209 (GN)

**Wildlife and Fisheries Conservation** (3) Survey of current and historical issues in wildlife and fisheries conservation; emphasis on vertebrate biodiversity, habitat management and protection, and populations.  
Effective: Summer 2013  
Prerequisite: BIOL 110 or BIOL 240W

## B.A. Degree Requirements: Quantification

140 Courses

CMPSC 101 (GQ)

**Introduction to C++ Programming** (3) Properties of algorithms, languages, and notations for describing algorithms, applications of a procedure-oriented language to problem solving. A student may receive credit for only one of the following courses: CMPSC 101, 200, 201, 202, 121.

Effective: Fall 2010

Prerequisite: 2 entrance units in mathematics

CMPSC 121 (GQ)

**Introduction to Programming Techniques** (3) Design and implementation of algorithms. Structured programming. Problem solving techniques. Introduction to a high-level language, including arrays, procedures, and recursion.

Effective: Fall 2010

Prerequisite: MATH 110 or prerequisite or concurrent MATH 140

CMPSC 201 (GQ)

**Programming for Engineers with C++** (3) Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, 102, 200, 201, or 202.

Effective: Spring 2008

Prerequisite: MATH 140

CMPSC 202 (GQ)

**Programming for Engineers with FORTRAN** (3) Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, 102, 200, 201, or 202.

Effective: Spring 2008

Prerequisite: MATH 140

CMPSC 203 (GQ)

**Introduction to Spreadsheets and Databases** (4) Design, use, and programming of spreadsheets and data bases with applications from a range of disciplines.

Effective: Spring 2008

Prerequisite: 2 entrance units in mathematics

EDPSY 101 (GQ)

**Analysis and Interpretation of Statistical Data in Education** (3) An introduction to quantitative methods in educational research emphasizing the interpretation of frequently encountered statistical procedures.

Effective: Summer 2011

MATH 017 (GQ)

**Finite Mathematics** (3) Introduction to logic, sets, probability.

Effective: Summer 1988

Prerequisite: 2 units of high school mathematics

MATH 018 (GQ)

**Elementary Linear Algebra** (3) Linear functions; systems of equations; matrices; linear programming.

Effective: Fall 1999

Prerequisite: 2 units of high school mathematics

MATH 021 (GQ)

**College Algebra I** (3) Quadratic equations; equations in quadratic form; word problems; graphing; algebraic fractions; negative and rational exponents; radicals.

Effective: Summer 2013

Prerequisite: MATH 004 or satisfactory performance on the mathematics placement examination

MATH 022 (GQ)

**College Algebra II and Analytic Geometry** (3) Relations, functions, graphs; polynomial, rational functions, graphs; word problems; nonlinear inequalities; inverse functions; exponential, logarithmic functions; conic sections; simultaneous equations.

Effective: Summer 2013

Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination

MATH 026 (GQ)

**Plane Trigonometry** (3) Trigonometric functions; solutions of triangles; trigonometric equations; identities.

Effective: Summer 2013

Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination; I unit of geometry

MATH 030 (GQ)

**Problem Solving** (3) Concepts in problem solving; reducing new problems to old ones; techniques for attacking problems; building mathematical models.

Effective: Spring 1994

MATH 035 (GQ)

**General View of Mathematics** (3) Survey of mathematical thought in logic, geometry, combinatorics, and chance.

Effective: Summer 1992

**MATH 036 (GQ)**

**Insights Into Mathematics** (3) Examples of mathematical applications in many areas including voting theory, fair division, apportionment, and Euler and Hamilton circuits.

Effective: Fall 2008

Prerequisite: one unit of algebra or MATH 004

MATH 040 GQ covers all the topics in MATH 004, 021 GQ, 022 GQ, and 026 GQ in one semester, MATH 041 GQ covers the same topics in trigonometry and analytic geometry as MATH 040 GQ. These courses are designed to prepare students for MATH 140 GQ. Students are placed in the appropriate course depending upon the results of the mathematics placement examinations.

**MATH 040 (GQ)**

**Algebra, Trigonometry, and Analytic Geometry** (5) Concepts of algebra; equations; inequalities; functions; graphs; polynomial and rational functions; exponential and logarithmic functions; trigonometry; analytic geometry; complex numbers.

Effective: Summer 2013

Prerequisite: satisfactory performance on the mathematics placement examination

**MATH 041 (GQ)**

**Trigonometry and Analytic Geometry** (3-4) Straight lines; circles; functions and graphs; graphs of polynomial and rational functions; exponential and logarithmic functions; trigonometry; conic sections.

Effective: Summer 2013

Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination

**MATH 081 (GQ)**

**Technical Mathematics I** (3) Algebraic expressions, equations, systems of equations, trigonometric functions, graphs, solution of triangles, vectors.

Effective: Summer 2013

Prerequisite: MATH 004 or satisfactory performance on the mathematics placement examination

**MATH 082 (GQ)**

**Technical Mathematics II** (3) Exponents, radicals, complex numbers, theory of equations, inequalities, half angle and double angle formulas, inverse trigonometric functions, exponential, logarithm, conic sections.

Effective: Summer 1995

Prerequisite: MATH 081

**MATH 083 (GQ)**

**Technical Calculus** (4) Limits, derivatives of algebraic functions, implicit differentiation, related rates, applied extrema problems, curve sketching, integration, numerical integration, applications of integration, integration techniques, differential equations.

Effective: Summer 1995

Prerequisite: MATH 082

**MATH 097**

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**MATH 097A**

**Math Tutorial** (1) Course designed to help students develop study skills and a strong foundation, in basic mathematics and to further their intellectual independence in MATH 021, 022, 026, 040, and 140.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**MATH 097C**

**Introduction Algebra Problem Solving** (4) Introduction Algebra Problem Solving is a college level introduction to algebra combined with individualized review of basic algebra.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: MATH 021

MATH 110 GQ and MATH 140 GQ, 141 GQ are two sequences that discuss differential and integral calculus. They differ in the areas where calculus is applied. The MATH 110 GQ, 111 GQ sequence includes applications from business; the engineering sciences. A student who wants to change from one sequence to another should consult with the chair of the mathematics department.

**MATH 110 (GQ)**

**Techniques of Calculus I** (4) Functions, graphs, derivatives, integrals, techniques of differentiation and integration, exponentials, improper integrals, applications. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

Effective: Summer 2013

Prerequisite: MATH 022 or satisfactory performance on the mathematics placement examination

**MATH 111 (GQ)**

**Techniques of Calculus II** (2) Analytic geometry, partial differentiation, maxima and minima, differential equations.

Effective: Summer 1988

Prerequisite: MATH 110

**MATH 140 (GQ)**

**Calculus With Analytic Geometry I** (4) Functions, limits; analytic geometry; derivatives, differentials, applications; integrals, applications. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

Effective: Summer 2013

Prerequisite: MATH 022 MATH 026 ; or MATH 040 or MATH 041 or satisfactory performance on the mathematics placement examination

MATH 140A (GQ)

**Calculus, Analytic Geometry, Algebra, and Trigonometry** (6) Review of algebra and trigonometry; analytic geometry; functions; limits; derivatives, differentials, applications; integrals, applications. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

Effective: Summer 2013

Prerequisite: satisfactory performance on the mathematics placement examination

MATH 140B (GQ)

**Calculus and Biology I** (4) Functions, limits, analytic geometry; derivatives, differentials, applications from biology; integrals, applications from biology. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

Effective: Summer 2013

Prerequisite: MATH 022 MATH 026 ; or MATH 040 or MATH 041 or satisfactory performance on mathematics placement examination

MATH 140E (GQ)

**Calculus with Engineering Applications I** (4) Functions; limits; analytic geometry; derivatives; differentials, applications; integrals, applications.

Effective: Summer 2013

Prerequisite: MATH 022 MATH 026 ; or MATH 040 or MATH 041 or satisfactory performance in the mathematics placement examination

MATH 140G (GQ)

**Calculus with Earth and Mineral Sciences Applications I** (4) Functions, limits, analytic geometry; derivatives, differentials, applications from the earth and mineral sciences; integrals, applications from the earth and mineral sciences. Students may only take one course for credit from MATH 110, 140, 140A, 140B, 140E, and 140G.

Effective: Summer 2013

Prerequisite: MATH 022 MATH 026 ; or MATH 040 or MATH 041 or satisfactory performance on the mathematics placement examination

MATH 140H (GQ)

**Honors Calculus with Analytic Geometry I** (4) Honors course in functions, limits; analytic geometry; derivatives, differentials, applications; integrals, applications. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

Effective: Summer 2013

Prerequisite: MATH 022 MATH 026 ; or MATH 040 or MATH 041 or satisfactory performance on the mathematics placement examination

MATH 141 (GQ)

**Calculus with Analytic Geometry II** (4) Derivatives, integrals, applications; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, and 141H.

Effective: Spring 1996

Prerequisite: MATH 140 MATH 140A MATH 140B or MATH 140H

MATH 141B (GQ)

**Calculus and Biology II** (4) Derivatives, integrals, applications from biology; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141 and 141B.

Effective: Spring 1996

Prerequisite: MATH 140B

MATH 141E (GQ)

**Calculus with Engineering Applications II** (4) Integration, applications; sequences and series; parametric equations, application.

Effective: Fall 2001

Prerequisite: MATH 140 MATH 140A MATH 140B or MATH 140E

MATH 141G (GQ)

**Calculus with Earth and Mineral Sciences Applications II** (4) Derivatives, integrals, applications from the earth and mineral sciences; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, 141E, and 141G.

Effective: Summer 2005

Prerequisite: MATH 140 MATH 140A MATH 140B MATH 140E or MATH 140G

MATH 141H (GQ)

**Honors Calculus with Analytic Geometry II** (4) Honors course in derivatives, integrals, applications; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, and 141H.

Effective: Summer 2006

Prerequisite: MATH 140 MATH 140A MATH 140B or MATH 140H

MATH 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

MATH 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.



Effective: Summer 2005

MATH 200 (GQ)

**Problem Solving in Mathematics** (3) Fundamental concepts of arithmetic and geometry, including problem solving, number systems, and elementary number theory. For elementary and special education teacher certification candidates only. A student who has passed EDMTH 444 may not take MATH 200 for credit.

Effective: Summer 2009

MATH 210 (GQ)

**Calculus with Engineering Technology Applications** (3) Topics in calculus with an emphasis on applications in engineering technology.

Effective: Spring 2013

Prerequisite: trigonometry and an introductory course in calculus

MATH 211 (GQ)

**Intermediate Calculus and Differential Equations with Applications** (3) Topics in ordinary differential equations, linear algebra, complex numbers, Eigenvalue solutions and Laplace transform methods.

Effective: Spring 2013

Prerequisite: MATH 210

MATH 220 (GQ)

**Matrices** (2-3) Systems of linear equations; matrix algebra; eigenvalues and eigenvectors; linear systems of differential equations.

Effective: Spring 2009

Prerequisite: MATH 110 MATH 140 or MATH 140H

MATH 220H (GQ)

**Honors Matrices** (2-3) Honors course in systems of linear equations; matrix algebra; eigenvalues and eigenvectors; linear systems of differential equations.

Effective: Spring 2009

Prerequisite: MATH 110 MATH 140 or MATH 140H

MATH 230

**Calculus and Vector Analysis** (4) Three-dimensional analytic geometry; vectors in space; partial differentiation; double and triple integrals; integral vector calculus. Students who have passed either Math 231 or 232 may not schedule Math 230 or 230H for credit.

Effective: Spring 1996

Prerequisite: MATH 141 or MATH 141H

MATH 230H

**Honors Calculus and Vector Analysis** (4) Honors course in three-dimensional analytic geometry; vectors in space; partial differentiation; double and triple integrals; integral vector calculus. Students who have passed either MATH 231 or 232 may not schedule MATH 230 or 230H for credit.

Effective: Spring 2006

Prerequisite: MATH 141 or MATH 141H

MATH 231

**Calculus of Several Variables** (2) Analytic geometry in space; partial differentiation and applications. Students who have passed MATH 230 or MATH 230H may not schedule this course.

Effective: Spring 1996

Prerequisite: MATH 141 or MATH 141H

MATH 231H

**Honors Calculus of Several Variables** (2) Honors course in analytic geometry in space; partial differentiation and applications. Students who have passed MATH 230 or MATH 230H may not schedule this course.

Effective: Summer 2006

Prerequisite: MATH 141 or MATH 141H

MATH 232

**Integral Vector Calculus** (2) Multidimensional analytic geometry, double and triple integrals; potential fields; flux; Green's, divergence and Stokes' theorems. Students who have passed MATH 230 may not schedule this course for credit.

Effective: Spring 1996

Prerequisite: MATH 231

MATH 250

**Ordinary Differential Equations** (3) First- and second-order equations; special functions; Laplace transform solutions; higher order equations. Students who have passed MATH 251 may not schedule this course for credit.

Effective: Fall 1988

Prerequisite: MATH 141

MATH 251

**Ordinary and Partial Differential Equations** (4) First- and second-order equations; special functions; Laplace transform solutions; higher order equations; Fourier series; partial differential equations.

Effective: Fall 1988

Prerequisite: MATH 141 or MATH 141H

MATH 251H

**Honors Ordinary and Partial Differential Equations** (4) Honors course in first- and second-order equations; special functions; Laplace transform solutions; higher order equations; Fourier series; partial differential equations.

Effective: Summer 2006

Prerequisite: MATH 141 or MATH 141H

MATH 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 1995

MATH 296

**Independent Studies** (1-18) Creative projects, including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

MATH 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

MATH 310

**Elementary Combinatorics** (3) Fundamental techniques of enumeration and construction of combinatorial structures, permutations, recurrences, inclusion-exclusion, permanents, 0, 1- matrices, Latin squares, combinatorial designs.

Effective: Spring 1985

Prerequisite: MATH 220

MATH 310A

**Concepts in Combinatorics - Recitation** (1) Recitation for MATH 310H - Concepts in Combinatorics.

Effective: Spring 2013

Prerequisite: MATH 220

MATH 310H

**Honors Concepts of Combinatorics** (3) Honors version of elementary and enumerative combinatorics.

Effective: Spring 2012

Prerequisite: MATH 220

MATH 311M

**Honors Concepts of Discrete Mathematics** (3) Basic methods of mathematical thinking and fundamental mathematical structures, primarily in the context of numbers, groups, and symmetries.

Effective: Spring 2006

Prerequisite: MATH 141

MATH 311W

**Concepts of Discrete Mathematics** (3-4) Introduction to mathematical proofs; elementary number theory and group theory. Students who have passed CMPSC 360 may not schedule this course for credit.

Effective: Spring 2007

Prerequisite: MATH 141

MATH 312

**Concepts of Real Analysis** (3) An introduction to rigorous analytic proofs involving properties of real numbers, continuity, differentiation, integration, and infinite sequences and series.

Effective: Spring 1994

Prerequisite: MATH 141

MATH 312A

**Honors Concepts of Real Analysis - Recitation** (1) A recitation component to MATH 312H, practice in problem solving.

Effective: Fall 2012

Prerequisite: MATH 140H MATH 311M

MATH 312H

**Honors Concepts of Real Analysis** (3) Basic methods of mathematical thinking and fundamental structures, primarily in the context of infinite sets, real numbers, and metric spaces.

Effective: Summer 2006

Prerequisite: MATH 141

MATH 315

**Foundations of Mathematics** (3) A consideration of selected topics in the foundations of mathematics, with emphasis on development of basic meaning and concepts.

Effective: Spring 2007

Prerequisite: MATH 141

MATH 318 (STAT 318)

**Elementary Probability** (3) Combinatorial analysis, axioms of probability, conditional probability and independence, discrete and continuous random variables, expectation, limit theorems, additional topics. Students who have passed either MATH(STAT) 414 or 418 may not schedule this course for credit.

Effective: Spring 1989

Prerequisite: MATH 141

MATH 319 (STAT 319)

**Applied Statistics in Science** (3) Statistical inference: principles and methods, estimation and testing hypotheses, regression and correlation analysis, analysis of variance, computer analysis. Students who have passed MATH(STAT) 415 may not schedule this course for credit.

Effective: Spring 1989

Prerequisite: MATH 318 or knowledge of basic probability

MATH 397

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

MATH 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MATH 401

**Introduction to Analysis I** (3) Review of calculus, properties of real numbers, infinite series, uniform convergence, power series. Students who have passed Math. 403 may not schedule this course.

Effective: Fall 1983

Prerequisite: MATH 230 or MATH 231

MATH 403

**Classical Analysis I** (3) Topology of  $\mathbb{R}^n$ , compactness, continuity of functions, uniform convergence, Arzela-Ascoli theorem in the plane, Stone-Wierstrass theorem.

Effective: Spring 1996

Prerequisite: MATH 312

MATH 403H

**Honors Classical Analysis I** (3) Development of a thorough understanding and technical mastery of foundations of classical analysis in the framework of metric spaces.

Effective: Spring 2010

Prerequisite: MATH 311M MATH 312H

MATH 404

**Classical Analysis II** (3) Differentiation of functions from  $\mathbb{R}^n$  to  $\mathbb{R}^m$ , implicit function theorem, Riemann integration, Fubini's theorem, Fourier analysis.

Effective: Fall 1985

Prerequisite: MATH 403

MATH 405

**Advanced Calculus for Engineers and Scientists I** (3) Vector calculus, linear algebra, ordinary and partial differential equations. Students who have passed MATH 411 or 412 may not take this course for credit.

Effective: Spring 1994

Prerequisite: MATH 231 ; MATH 250 or MATH 251

MATH 406

**Advanced Calculus for Engineers and Scientists II** (3) Complex analytic functions, sequences and series, residues, Fourier and Laplace transforms. Students who have passed MATH 421 may not take this course for credit.

Effective: Spring 1994

Prerequisite: MATH 405

MATH 408

**Advanced Calculus** (3) Differential and integral calculus of functions of several variables, line and surface integrals, infinite series, series of functions, power series.

Effective: Spring 2007

Prerequisite: MATH 141

MATH 411

**Ordinary Differential Equations** (3) Linear ordinary differential equations; existence and uniqueness questions; series solutions; special functions; eigenvalue problems; Laplace transforms; additional topics and applications.

Effective: Fall 1983

Prerequisite: MATH 230 or MATH 231 ; MATH 250 or MATH 251

MATH 412

**Fourier Series and Partial Differential Equations** (3) Orthogonal systems and Fourier series; derivation and classification of partial differential equations; eigenvalue function method and its applications; additional topics.

Effective: Spring 2009

Prerequisite: MATH 230 ; MATH 250 or MATH 251

MATH 414 (STAT 414)

**Introduction to Probability Theory** (3) Probability spaces, discrete and continuous random variables, transformations, expectations, generating functions, conditional distributions, law of large numbers, central limit theorems. Students may take only one course from MATH(STAT) 414 and 418 for credit.

Effective: Fall 2001

Prerequisite: MATH 230 or MATH 231

MATH 415 (STAT 415)

**Introduction to Mathematical Statistics** (3) A theoretical treatment of statistical inference, including sufficiency, estimation, testing, regression, analysis of variance, and chi-square tests.

Effective: Fall 1989

Prerequisite: MATH 414

MATH 416 (STAT 416)

**Stochastic Modeling** (3) Review of distribution models, probability generating functions, transforms, convolutions,

Markov chains, equilibrium distributions, Poisson process, birth and death processes, estimation.

Effective: Spring 1984

Prerequisite: MATH 318 or MATH 414 ; MATH 230

#### MATH 417

**Qualitative Theory of Differential Equations** (3) Linear differential equations, stability of stationary solutions, ordinary bifurcation, exchange of stability, Hopf bifurcation, stability of periodic solutions, applications.

Effective: Spring 2009

Prerequisite: MATH 220 ; MATH 250 or MATH 251

#### MATH 418 (STAT 418)

**Introduction to Probability and Stochastic Processes for Engineering** (3) Introduction to probability axioms, combinatorics, random variables, limit laws, and stochastic processes. Students may take only one course from MATH(STAT) 414 and 418 for credit.

Effective: Fall 2011

Prerequisite: MATH 230 or MATH 231

#### MATH 419 (PHYS 419)

**Theoretical Mechanics** (3) Principles of Newtonian, Lagrangian, and Hamiltonian mechanics of particles with applications to vibrations, rotations, orbital motion, and collisions.

Effective: Spring 2007

Prerequisite: MATH 230 or MATH 231 ; MATH 250 or MATH 251 ; PHYS 212 PHYS 213 and PHYS 214

#### MATH 421

**Complex Analysis** (3) Infinite sequences and series; algebra and geometry of complex numbers; analytic functions; integration; power series; residue calculus; conformal mapping, applications.

Effective: Summer 1993

Prerequisite: MATH 230 MATH 232 or MATH 405 ; MATH 401 or MATH 403

#### MATH 422

**Wavelets and Fourier Analysis: Theory and Applications** (3) Fundamental mathematical issues of the theory of wavelets for senior undergraduate and graduate students in mathematics, engineering, physics, and computer science.

Effective: Summer 2000

Prerequisite: complete one of the following: MATH 312 MATH 401 MATH 403 MATH 405 or MATH 412

#### MATH 425

**Introduction to Operations Research** (3) Nature of operations research, problem formulation, model construction, deriving solution from models, allocation problems, general linear allocation problem, inventory problems.

Effective: Spring 2012

Prerequisite: MATH 141 and MATH 220

#### MATH 426

**Introduction to Modern Geometry** (3) Plane and space curves; space surfaces; curvature; intrinsic geometry of surfaces; Gauss-Bonnet theorem; covariant differentiation; tensor analysis.

Effective: Spring 1994

Prerequisite: MATH 401 or MATH 403

#### MATH 427

**Foundations of Geometry** (3) Euclidean and various non-Euclidean geometries and their development from postulate systems. Students who have passed MATH 427 may not schedule MATH 471.

Effective: Spring 1994

Prerequisite: MATH 230 or MATH 231

#### MATH 428

**Geometry for Teachers** (1) Research in mathematics education using ideas from Euclidean and non-Euclidean geometry. Students who have passed MATH 471 may not schedule MTHBD 478.

Effective: Spring 2007

Prerequisite: MATH 311W . Prerequisite or concurrent: MATH 427

#### MATH 429

**Introduction to Topology** (3) Metric spaces, topological spaces, separation axioms, product spaces, identification spaces, compactness, connectedness, fundamental group.

Effective: Spring 1994

Prerequisite: MATH 311W

#### MATH 430

**Linear Algebra and Discrete Models I** (3) Vector spaces, linear transformations, matrices determinants, characteristic values and vectors, systems of linear equations, applications to discrete models.

Effective: Spring 2010

Prerequisite: MATH 220

#### MATH 431

**Linear Algebra and Discrete Models II** (3) Vector spaces and linear transformations, matrices, determinants, characteristic values and vectors, systems of linear equations, applications to discrete models.

Effective: Spring 2007

Prerequisite: MATH 430

#### MATH 435

**Basic Abstract Algebra** (3) Elementary theory of groups, rings, and fields. Students who have passed MATH 435 may not schedule MATH 470.

Effective: Spring 2010

Prerequisite: MATH 311W or MATH 315

MATH 436

**Linear Algebra** (3) Vector spaces and linear transformations, canonical forms of matrices, elementary divisors, invariant factors; applications. Students who have passed MATH 436 may not schedule MATH 441.

Effective: Fall 1983

Prerequisite: MATH 311W

MATH 437

**Algebraic Geometry** (3) Study of curves in the plane defined by polynomial equations  $p(x,y) = 0$ . Projective equivalence, singular points, classification of cubics.

Effective: Spring 2009

Prerequisite: MATH 230 or MATH 231 ; MATH 311W

MATH 441

**Matrix Algebra** (3) Determinants, matrices, linear equations, characteristic roots, quadratic forms, vector spaces. Students who have passed Math 436 may not schedule this course.

Effective: Fall 1985

Prerequisite: MATH 220

MATH 444

**Mathematical Statistics and Applications I** (3) Distributions of random variables, special distributions, limiting distributions, sampling, statistical inference, point and interval estimation, orthogonal polynomials, and least squares.

Effective: Spring 2007

Prerequisite: MATH 141

MATH 445

**Mathematical Statistics and Applications II** (3) Further topics in point estimation, statistical hypotheses, other statistical tests, nonparametric methods.

Effective: Spring 2007

Prerequisite: MATH 444

MATH 446

**Introduction to Applied Statistics I** (3) Descriptive statistics, probability theory, discrete and continuous probability distributions, statistical inferences for means and proportions.

Effective: Spring 2007

Prerequisite: MATH 022 or MATH 040

MATH 447

**Introduction to Applied Statistics II** (3) Regression, correlation, analysis of variance, contingency tables, nonparametric methods, time series, index numbers.

Effective: Spring 2007

MATH 449

**Applied Ordinary Differential Equations** (3) Differential and difference equations and their application to biology, chemistry, and physics; techniques in dynamical systems theory.

Effective: Spring 2007

Prerequisite: MATH 250 or MATH 251

MATH 450

**Mathematical Modeling** (3) Constructing mathematical models of physical phenomena; topics include pendulum motion, polymer fluids, chemical reactions, waves, flight, and chaos.

Effective: Spring 2007

Prerequisite: MATH 315 and MATH 430 or MATH 405 or MATH 412

MATH 451 (CMPSC 451)

**Numerical Computations** (3) Algorithms for interpolation, approximation, integration, nonlinear equations, linear systems, fast FOURIER transform, and differential equations emphasizing computational properties and implementation. Students may take only one course for credit from MATH 451 and 455.

Effective: Spring 2008

Prerequisite: 3 credits of programming; MATH 230 or MATH 231

MATH 455 (CMPSC 455)

**Introduction to Numerical Analysis I** (3) Floating point computation, numerical rootfinding, interpolation, numerical quadrature, direct methods for linear systems. Students may take only one course for credit from MATH 451 and MATH 455.

Effective: Spring 2008

Prerequisite: CMPSC 201 CMPSC 202 or CMPSC 121 ; MATH 220 ; MATH 230 or MATH 231

MATH 456 (CMPSC 456)

**Introduction to Numerical Analysis II** (3) Polynomial and piecewise polynomial approximation, matrix least squares problems, numerical solution of eigenvalue problems, numerical solution of ordinary differential equations.

Effective: Spring 2008

Prerequisite: MATH 455

MATH 457

**Introduction to Mathematical Logic** (3) Propositional logic, first-order predicate logic, axioms and rules of inference, structures, models, definability, completeness, compactness.

Effective: Summer 2011

Prerequisite: MATH 311W ; 3 additional credits in philosophy

MATH 461 (PHYS 461)

**Theoretical Mechanics** (3) Continuation of Math.(Phys.) 419. Theoretical treatment of dynamics of a rigid body, theory of elasticity, aggregates of particles, wave motion, mechanics of fluids.

Effective: Fall 1986

Prerequisite: MATH 419

MATH 465

**Number Theory** (3) Elements, divisibility of numbers, congruences, residues, and forms.

Effective: Spring 2009

Prerequisite: MATH 311W

MATH 467 (CMPSC 467)

**Factorization and Primality Testing** (3) Prime sieves, factoring, computer numeration systems, congruences, multiplicative functions, primitive roots, cryptography, quadratic residues. Students who have passed MATH 465 may not schedule this course.

Effective: Spring 1995

Prerequisite: MATH 311W

MATH 468

**Mathematical Coding Theory** (3) Shannon's theorem, block codes, linear codes, Hamming codes, Hadamard codes, Golay codes, Reed-Muller codes, bounds on codes, cyclic codes.

Effective: Fall 1983

Prerequisite: MATH 311W ; advanced calculus

MATH 470

**Algebra for Teachers** (3) An introduction to algebraic structures and to the axiomatic approach, including the elements of linear algebra. Designed for teachers and prospective teachers. Students who have passed Math 435 may not schedule this course.

Effective: Fall 1988

Prerequisite: MATH 311W

MATH 471

**Geometry for Teachers** (4) Problem solving oriented introduction to Euclidean and non-Euclidean geometries; construction problems and geometrical transformations via "Geometer's Sketchpad" software. Intended primarily for those seeking teacher certification in secondary mathematics. Students who have passed MATH 427 may not schedule this course.

Effective: Spring 1996

Prerequisite: MATH 311W

MATH 475W (US;IL)

**History of Mathematics** (3) A global survey of the history of mathematics as viewed as a human response to cultural, political, economic, and societal pressures.

Effective: Spring 2012

Prerequisite: MATH 315 or MATH 311W

MATH 479 (PHYS 479)

**Special and General Relativity** (3) Mathematical description, physical concepts, and experimental tests of special and general relativity.

Effective: Spring 2007

Prerequisite: PHYS 237 PHYS 400 PHYS 419 ; MATH 250 or MATH 251 ; MATH 230 or MATH 231

MATH 482

**Mathematical Methods of Operations Research** (3) Survey of linear and nonlinear programming; mathematics of optimization; queues; simulation.

Effective: Spring 2007

Prerequisite: MATH 220 MATH 230 STAT 301

MATH 484

**Linear Programs and Related Problems** (3) Introduction to theory and applications of linear programming; the simplex algorithm and newer methods of solution; duality theory.

Effective: Spring 1987

Prerequisite: MATH 220 ; MATH 230 or MATH 231

MATH 485

**Graph Theory** (3) Introduction to the theory and applications of graphs and directed graphs. Emphasis on the fundamental theorems and their proofs.

Effective: Spring 1987

Prerequisite: MATH 311W

MATH 486

**Mathematical Theory of Games** (3) Basic theorems, concepts, and methods in the mathematical study of games of strategy; determination of optimal play when possible.

Effective: Spring 2006

Prerequisite: MATH 220

MATH 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 1995

**MATH 494H**

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**MATH 495**

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2007

Prerequisite: prior approval of proposed assignment by instructor

**MATH 496**

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**MATH 497**

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**MATH 497A**

**Finite Fields and Applications** (4) This course will consist of an introduction to the theory of finite fields. We also discuss some of the many practical applications of finite fields. These applications will include algebraic coding theory for the error-free transmission of information, and cryptology for the secure transmission of information. Finite fields are also of great use in the construction of various kinds of combinatorial designs.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: acceptance into the MASS Program

**MATH 497B**

**An Introduction to Dynamical Systems** (4) The theory of dynamical systems is a modern branch of mathematics. Its main objective is to analyze long-term behavior of systems that evolve over time. In this course, we will introduce the fundamental concepts and tools of dynamics and discuss an array of examples with gradual increase in complexity. The topics will include contractions, linear maps, differential equations, recurrence, equidistribution, hyperbolic systems, symbolic systems and coding, fractals, entropy, and chaos.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: acceptance into the MASS program

**MATH 497C**

**Affine and Projective Geometries** (4) This course is an introduction to Geometry and its goal is to describe Geometry following Felix Klein's Erlangen program, that is an the action of the group of isometries. The emphasis is on Affine, Projective and non- Euclidean (Lobachevsky-Poincare hyperbolic geometries).

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: acceptance into the MASS program

**MATH 497D**

**MASS Interdisciplinary Seminar** (3) The seminar is designed to focus on selected interdisciplinary topics in algebra, analysis and geometry to coordinate core courses and to prepare students to MASS Colloquium.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: acceptance into the MASS Program

**MATH 497E**

**MASS Colloquium** (1) Cover selected topics in Mathematics.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: acceptance into MASS program

**MATH 497G**

**MASS Research Project** (4) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: acceptance into the MASS program

**MATH 498**

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**MATH 499 (IL)**

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**MATH 499A (IL)**

**Geometry and Mathematical Physics** (2) PSU-PKU International Undergraduate Summer School, 2014 in Beijing, China.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: MATH 220 MATH 230 MATH 250 MATH 312

**PHIL 012 (GQ)**

**Symbolic Logic** (3) Formal logical structures of propositions and arguments; mechanical tests and proof techniques for

logically necessary truth and deductive validity.

Effective: Fall 1998

STAT 100 (GQ)

**Statistical Concepts and Reasoning** (3) Introduction to the art and science of decision making in the presence of uncertainty.

Effective: Summer 1988

STAT 200 (GQ)

**Elementary Statistics** (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.

Effective: Summer 1988 Ending: Summer 2014

Prerequisite: 2 units in algebra

STAT 200 (GQ)

**Elementary Statistics** (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Placement into MATH 021 or higher

STAT 200H (GQ)

**Elementary Statistics** (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: Placement into MATH 021 or higher

STAT 240 (GQ)

**Introduction to Biometry** (3) Statistical analysis, sampling, and experimentation in the agricultural sciences; data collection, descriptive statistics, statistical inference, regression, one factor AOV, probability. Students may take only one course from STAT 200, 220, 240, 250 for credit.

Effective: Spring 2005 Ending: Summer 2014

Prerequisite: 3 credits in mathematics

STAT 240 (GQ)

**Introduction to Biometry** (3) Statistical analysis, sampling, and experimentation in the agricultural sciences; data collection, descriptive statistics, statistical inference, regression, one factor AOV, probability. Students may take only one course from STAT 200, 220, 240, 250 for credit.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Placement into MATH 021 or higher

STAT 250 (GQ)

**Introduction to Biostatistics** (3) Statistical analysis and interpretation of data in the biological sciences; probability; distributions; statistical inference for one- and two-sample problems.

Effective: Spring 2001 Ending: Summer 2014

Prerequisite: 3 credits in mathematics

STAT 250 (GQ)

**Introduction to Biostatistics** (3) Statistical analysis and interpretation of data in the biological sciences; probability; distributions; statistical inference for one- and two-sample problems.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Placement into MATH 021 or higher

STAT 301 (GQ)

**Statistical Analysis I** (3) Probability concepts; nature of statistical methods; elementary distribution and sampling theory; fundamental ideas relative to estimation and testing hypotheses.

Effective: Summer 1988

Prerequisite: 3 credits of calculus



## B.A. Degree Requirements: Social and Behavioral Sciences

623 Courses

AF AM 100 (GS;US)

**Evolving Status of Blacks in the Twentieth Century: Interdisciplinary Perspectives** (3) An interdisciplinary, team-taught exploration of the evolving status of Black Americans in the twentieth century. Emphasis on the civil rights movement.

Effective: Spring 2013 Ending: Fall 2014

AF AM 100 (GS;US)

**Living While Black: Themes in African American Thought and Experience** (3) What it means to be Black in America by engaging with questions about identity and authenticity, freedom and unfreedom, radicalism and reform, gender and sexuality, and the role of music in African American life.

Effective: Spring 2015 Future: Spring 2015

AF AM 103 (SOC 103, WMNST 103) (US)

**Racism and Sexism** (3) Critical analysis of the structure of race and gender in the contemporary United States.

Effective: Spring 2013

AF AM 210 (HIST 210) (GH;US)

**Between Accommodation and Alienation: African Americans in a Jim Crow Nation, 1896-1932** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: AF AM 100 HIST 021

AF AM 210 (HIST 210) (GH;US)

**Freedom's First Generation: African American Life and Work, 1865 to World War II** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 HIST 021

AF AM 250 (HIST 250) (GH;IL)

**Introduction to the Modern Caribbean** (3) A survey course which, explores the historical evolution and emergence of the modern Caribbean.

Effective: Fall 2012

AF AM 409 (SOC 409) (US)

**Racial and Ethnic Inequality in America** (3) The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.

Effective: Spring 2013

Prerequisite: SOC 001

AF AM 409U (US)

**Racial and Ethnic Inequality in America** (3) The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: SOC 001

AF AM 432 (HIST 432) (IL)

**Between Nation and Empire: The Caribbean in the 20th Century** (3) An exploration of the political evolution of the Caribbean Region over the course of the 20th Century.

Effective: Fall 2012

Prerequisite: AF AM 250

AF AM 445Y (LER 445Y, PL SC 445Y) (US)

**Politics of Affirmative Action** (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

AFR 110 (GS;IL)

**Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.

Effective: Fall 2012

AFR 110U (GS;IL)

**Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AFR 110U (GS;IL)

**Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

AFR 440 (PL SC 440, I B 440) (US;IL)

**Globalization and Its Implications** (3) This course explores the socioeconomic implications of globalization.

Effective: Spring 2013

Prerequisite: AF AM 100 or AFR 110 or PL SC 003 or PL SC 014 or PL SC 020 or PL SC 022

AFR 443 (PL SC 443) (IL)

**Ethnic Conflict in Africa** (3) This course explores the various causes and impacts of ethnic conflicts in the African context.

Effective: Spring 2013

Prerequisite: AF AM 100 AFR 110 PL SC 001 PL SC 003 PL SC 007 PL SC 014 PL SC 017 PL SC 020 or AFRAS 301

AFR 459 (PL SC 459) (IL)

**Culture and World Politics** (3) Role of culture in world politics.

Effective: Spring 2013

Prerequisite: PL SC 014

AG BM 101 (GS)

**Economic Principles of Agribusiness Decision Making** (3) Introduction to economic principles and their application to real world examples of agribusiness management issues.

Effective: Summer 2013

AM ST 106 (COMM 100) (GS)

**The Mass Media and Society** (3) Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films.

Effective: Fall 2013

ANTH 001 (GS;US;IL)

**Introductory Anthropology** (3) Prehistoric and traditional peoples and cultures; traditional customs and institutions compared with those of modern society.

Effective: Summer 2005

ANTH 002 (GS)

**Introduction to Archaeology** (3) Survey of basic approaches used by archaeologists to interpret basic prehistoric human cultural patterns.

Effective: Spring 2000

ANTH 008 (GS;IL)

**Aztecs, Mayas, and Incas** (3) Comparative survey of the development of the pre-Columbian Latin American civilizations.

Effective: Summer 2005

ANTH 009 (GS;IL)

**Rise of Civilization in the Old World** (3) Evolution of Old World complex societies, especially the first great civilizations of Mesopotamia, Egypt, China, and the Indus Valley.

Effective: Spring 2006

ANTH 011 (GS;IL)

**Introductory North American Archaeology** (3) Introduction to archaeology of the North American Indians; sites, methods, and results of research interpreted in cultural history.

Effective: Summer 2005

ANTH 040

**Biocultural Evolution** (3) Examination of evolutionary models of the development of the human capacity for culture, and of culture as an adaptive mechanism.

Effective: Fall 1986

ANTH 040H

**Biocultural Evolution** (3) Examination of evolutionary models of the development of the human capacity for culture, and of culture as an adaptive mechanism.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ANTH 045 (GS;US;IL)

**Cultural Anthropology** (3) Beginnings of human culture; economic life, society, government, religion, and art among traditional peoples.

Effective: Summer 2005

ANTH 045U (GS;US;IL)

**Cultural Anthropology** (3) Beginnings of human culture; economic life, society, government, religion, and art among traditional peoples.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ANTH 083S (GS)

**First-Year Seminar in Anthropology** (3) This seminar introduces students to anthropology as a scientific discipline with ties to other social and natural sciences.

Effective: Summer 1999

ANTH 120 (GS;IL)

**First Farmers** (3) Cross-cultural comparison of the origins of plant and animal domestication and the earliest farming societies.

Effective: Summer 2013

ANTH 146 (GS;US)

**North American Indians** (3) An introduction to the cultures of the indigenous peoples of North America, north of Mexico, and the effect of contact.

Effective: Spring 2006

ANTH 152

**Hunters and Gatherers** (3) A comparative study of hunter/gatherer societies using both archaeological and ethnographic evidence.

Effective: Fall 1986

ANTH 221 (GS;IL)

**The Ancient Maya** (3) The Maya and their neighbors: Origin and Evolution of Classic Maya civilization.

Effective: Spring 2012

Prerequisite: any anthropology course on 100 level or below

ANTH 222 (GS;IL)

**Archaeology of Domesticated Animals** (3) Biological, ecological and cultural history of animal domestication.

Effective: Summer 2013

ANTH 223 (GS;IL)

**European Prehistory** (3) The prehistory of European societies from the Upper Palaeolithic to the Iron Age.

Effective: Summer 2013

Prerequisite: 3 credits in 100 level or below ANTH course

ANTH 241 (IL)

**Peoples and Cultures of Highland New Guinea** (3) History, ecology, social, economic, religious, and political systems of the aboriginal peoples and cultures of highland New Guinea.

Effective: Spring 2007

Prerequisite: ANTH 001 or ANTH 045

ANTH 285 (GS;IL)

**Culture Contact** (3) Survey of changes in indigenous societies following contact with colonial powers.

Effective: Summer 2005

Prerequisite: ANTH 002 ANTH 045

ANTH 408

**Anthropological Demography** (3) Analysis of demographic studies in traditional and very small populations.

Effective: Fall 2003

Prerequisite: 3 credits in anthropology

ANTH 420 (J ST 420)

**Archaeology of the Near East** (3) Culture of the Near East and India from Paleolithic times through the Bronze Age.

Effective: Summer 1999

Prerequisite: ANTH 008 ANTH 009 ANTH 011 or ANTH 012

ANTH 422

**Meso-American Archaeology and Ethnography** (3) Survey of ethnohistorical and ethnographic patterns of Meso-American society; origin and development of ancient civilization in Mexico, Guatemala, and Honduras.

Effective: Spring 1999

Prerequisite: ANTH 008 ANTH 009 ANTH 011 or ANTH 012

ANTH 423

**The Evolution of American Indian Culture** (3) Historic and archaeological sources used to trace American Indian lifestyles from the first immigrants to the period of Euro-American contact.

Effective: Spring 1999

Prerequisite: 3 credits in anthropology

ANTH 424

**Andean Ethnology and Archaeology** (3) Cultures of the Andes from earliest settlements to Inka Empire; includes discussion of life in modern Andean communities.

Effective: Spring 2002

Prerequisite: ANTH 002 ANTH 045

ANTH 435 (IL)

**Ancient Economy** (3) The course examines the comparative organization and development of ancient economies in both the Old and New Worlds.

Effective: Summer 2013

ANTH 440

**South American Tribal Societies** (3) Ethnographic survey of tribal societies in South America. Special emphasis on non-Andean area.

Effective: Fall 1986

ANTH 450

**Comparative Social Organization** (3) Social structure and cultural change among nonliterate societies.

Effective: Fall 1986

Prerequisite: ANTH 045

ANTH 451

**Economic Anthropology** (3) Different approaches to the study of the economics of non-Western societies, emphasizing the interrelationships between noneconomic factors and economic behavior.

Effective: Fall 1986

Prerequisite: ANTH 045

ANTH 453

**Anthropology of Religion** (3) Traditional and modern religions and historical and contemporary religious movements from an anthropological perspective.

Effective: Fall 2003

Prerequisite: ANTH 001 or ANTH 045

ANTH 455

**Global Processes and Local Systems** (3) Ethnographic, comparative, historic, evolutionary treatment of global economic, political, and cultural processes and their consequences for local systems.

Effective: Fall 2001

Prerequisite: ANTH 045

ANTH 456

**Cultural Ecology** (3) Survey of the methods and concepts of cultural ecology, focusing on the interaction between cultural and geographical systems.

Effective: Fall 1986

Prerequisite: 3 credits in anthropology

ANTH 457 (J ST 457, SOC 457) (US;IL)

**Jewish Communities: Identity, Survival, and Transformation in Unexpected Places** (3) Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement.

Effective: Summer 2006

Prerequisite: ANTH 001 or ANTH 045 HEBR 010 J ST 010 SOC 001 SOC 005 SOC 007 SOC 015

ANTH 458

**Ethnographic Field Methods** (3) Course introduces students to ethnographic field methods, includes student projects and simple analyses that don't require statistical sophistication.

Effective: Spring 2009

Prerequisite: ANTH 045

APLNG 083S (GS;US;IL)

**First-Year Seminar in Applied Linguistics** (3) Introduction to the application of theories of language to cognition, culture, gender, society, and second language acquisition.

Effective: Summer 2005

APLNG 410

**Teaching American English Pronunciation** (3) Study and application of principles of North American English phonetics and theories of teaching pronunciation.

Effective: Fall 2001

CAMS 012 (J ST 012, RL ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

CAMS 012U (J ST 012U, RL ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

CAS 083S (GS)

**First-Year Seminar in Speech Communication** (3) Introduction to major theoretical, critical, research and pedagogical issues in human communication.

Effective: Fall 2003

CAS 101 (GS)

**Introduction to Human Communication** (3) Introduction to major theoretical, critical, research and pedagogical issues in human communication.

Effective: Fall 2003

CAS 202 (GS)

**Introduction to Communication Theory** (3) Survey of human communication studies in relational, interpersonal, group, organization, intercultural, health, technology and communication systems.

Effective: Spring 2003

CAS 450W

**Group Communication Theory and Research** (3) Selected theories of problem solving through group discussion emphasizing participation and leadership.

Effective: Spring 2003

Prerequisite: CAS 100 or CAS 250

CAS 475

**Studies in Public Address** (3) History and criticism of public discourse; intensive analysis of selected public addresses and social movements.

Effective: Spring 2003

Prerequisite: CAS 100

CED 155 (GS)

**Science, Technology and Public Policy** (3) This course will survey the main issues that relate science and technology to public policy.

Effective: Summer 2013

COMM 100 (AM ST 106) (GS)

**The Mass Media and Society** (3) Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films.

Effective: Fall 2013

COMM 100S (GS)

**The Mass Media and Society** (3) Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films.

Effective: Fall 2005

COMM 180 (GS)

**Survey of Electronic Media and Telecommunications** (3) The development of electronic media and telecommunications, emphasizing social, economic, political and global impact.

Effective: Fall 2006

COMM 205 (WMNST 205) (US)

**Women, Minorities, and the Media** (3) Analysis of historical, economic, legal, political, and social implications of the relationship between women, minorities, and the mass media.

Effective: Summer 2005 Ending: Fall 2014

COMM 205 (WMNST 205) (GS;US)

**Gender, Diversity and the Media** (3) Explores the relationship between media and society through critical analysis of its role in social reality.

Effective: Spring 2015 Future: Spring 2015

COMM 401

**Mass Media in History** (3) Relationship of news media to social, economic, and political developments in the Western world.

Effective: Fall 1986

COMM 403

**Law of Mass Communications** (3) Nature and theories of law; the Supreme Court and press freedom; legal problems of the mass media.

Effective: Fall 1986

COMM 405

**Political Economy of Communications** (3) Structure and functions of American and other mass communications systems and their relationship to political and economic systems.

Effective: Spring 2011

Prerequisite: ECON 102

COMM 408 (S T S 408)

**Cultural Foundations of Communications** (3) Examination of oral, scribal, print, industrial, and electronic cultures; analysis of impact of technology on communications and social structure.

Effective: Spring 2009

Prerequisite: select 3 credits from COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260W COMM 320 COMM 370 ; or 3 credits of S T S

COMM 409

**News Media Ethics** (3) Ethical problems in the practice of journalism; principal public criticisms of news media; case study approach.

Effective: Fall 2006

COMM 410 (IL)

**International Mass Communications** (3) The role of international media in communication among and between nations and peoples.

Effective: Spring 2014

Prerequisite: select 3 credits from the following COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260W COMM 320 or COMM 370

COMM 411

**Cultural Aspects of the Mass Media** (3) The mass media as creators and critics of mass culture in American life; relationships between the media and mass culture.

Effective: Spring 2009

Prerequisite: 6 credits in the arts or the humanities; and 3 credits selected from the following COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260W COMM 320 or COMM 370

COMM 413

**The Mass Media and the Public** (3) Nature of mass communications, relationships between mass media and public, media influences on opinion; social pressures on the media.

Effective: Spring 2009

Prerequisite: 3 credits selected from the following: COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260W COMM 320 or COMM 370

COMM 413W

**The Mass Media and the Public** (3) Social-level and political theories of the relationships between media and public; media influences on public opinion; social pressure on the media; political communications.

Effective: Spring 2011

Prerequisite: select 3 credits from the following COMM 100 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260W COMM 320 or COMM 370 and select 3 credits from the following: COMM 304 COMM 420

COMM 417

**Ethics and Regulation in Advertising and Public Relations** (3) Ethical issues in practice of advertising and public relations; legal and regulatory issues; case studies.

Effective: Spring 2007

Prerequisite: COMM 320 or COMM 370

COMM 419 (US;IL)

**World Media Systems** (3) Comparative study of modern mass systems and the evolution and structure of specific countries' systems.

Effective: Spring 2014

Prerequisite: COMM 410 ; and select 6 credits in the arts or the humanities

COMM 419H (US;IL)

**World Media Systems** (3) Comparative study of modern media systems of mass communications in selected foreign countries.

Effective: Spring 2009

Prerequisite: select 6 credits in the arts or the humanities; and 3 credits from the following: COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260W COMM 320 or COMM 370

CRIMJ 012 (CRIM 012, SOC 012) (GS)

**Criminology** (3) Explanations and measurement of crime; criminal law; characteristics of criminals and victims; violent, property, white-collar, organized, and sexual crimes.

Effective: Spring 2008

CRIMJ 083S (CRIM 083S) (GS)

**First-Year Seminar in Criminal Justice** (3) Critical approaches to issues in criminal justice and criminology.

Effective: Spring 2008

CRIMJ 100 (CRIM 100) (GS)

**Introduction to Criminal Justice** (3) Overview of the criminal justice system, including legal foundations, processing and correction of offenders, extent and types of crime, victims.

Effective: Spring 2008

CRIMJ 406 (SOC 406, CRIM 406)

**Sociology of Deviance** (3) Theory and research concerning behaviors and lifestyles viewed as significant departures from a group's normative expectations.

Effective: Spring 2008

Prerequisite: CRIMJ 100 and CRIMJ 113 and CRIMJ 230 or permission of program

CRIMJ 412 (SOC 412, CRIM 412)

**Crime, Social Control, and the Legal System** (3) Legal and extralegal control; public opinion on crime; criminal justice and correctional processes; legal sanctions; control strategies. Field trip.

Effective: Spring 2008

Prerequisite: CRIMJ 012 CRIMJ 013 or SOC 005

CRIMJ 414 (SOC 414, CRIM 414)

**Criminal Careers and the Organization of Crime** (3) Research on and theory of criminal careers and crime organizations, emphasizing recruitment and disengagement; offender characteristics and lifestyles; policy implications.

Effective: Spring 2008

Prerequisite: CRIMJ 012 or CRIMJ 013 or SOC 005

CRIMJ 439 (PL SC 439)

**The Politics of Terrorism** (3) Analysis of political terrorism as a violent alternative for peaceful change and traditional warfare in the nuclear age.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or PL SC 014 or permission of program

CRIMJ 451 (CRIM 451) (US)

**Race, Crime, and Justice** (3) This course focuses on the significance of race, class, and ethnicity to criminal justice processing and criminal offending.

Effective: Spring 2008

Prerequisite: CRIMJ 100

CRIMJ 460

**History and Function of Criminal Justice Components** (3) Historical development of criminal justice system components (police, courts, corrections) related to formulation and function of the state.

Effective: Spring 2008

CRIMJ 462

**Comparative Criminal Justice Systems** (3) A comparison of American and selected foreign justice systems to illustrate the variety of possible responses to crime.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or permission of program

CRIMJ 467 (SOC 467, CRIM 467)

**Law and Society** (3) Law and society studies the social origins of law and legal systems; occupational careers, and decision-making of legal officials.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or CRIMJ 113 or permission of program

E B F 200 (GS)

**Introduction to Energy and Earth Sciences Economics** (3) Resource use decisions and their effect on local, national, and global development.

Effective: Fall 2010

ECON 014 (GS)

**Principles of Economics** (3) Analysis of the American economy, emphasizing the nature and interrelationships of such groups as consumers, business, governments, labor, and financial institutions. Students who have passed ECON 002 or 004 or are registered in the College of Business Administration may not schedule this course.

Effective: Spring 2003

ECON 083S (GS)

**First-Year Seminar in Economics** (3) Experiments in microeconomic principles.

Effective: Summer 1999

ECON 102 (GS)

**Introductory Microeconomic Analysis and Policy** (3) Methods of economic analysis and their use; price determination; theory of the firm; distribution.

Effective: Spring 2011

ECON 102H (GS)

**Honors Introductory Microeconomic Analysis and Policy** (3) Methods of economic analysis and their use; price determination; theory of the firm; distribution.

Effective: Summer 2011

ECON 104 (GS)

**Introductory Macroeconomic Analysis and Policy** (3) National income measurement; aggregate economic models; money and income; policy problems.

Effective: Spring 2011

ECON 104H (GS)

**Honors Introductory Macroeconomic Analysis and Policy** (3) National income measurement; aggregate economic models; money and income; policy problems.

Effective: Summer 2011

ECON 106

**Statistical Foundations for Econometrics** (3) Basic statistical concepts used in economics. Topics include probability distributions, expectations, estimation, hypothesis testing, correlation, and simple regression. Students who have completed ECON 306 may not schedule this course.

Effective: Spring 2011

ECON 106H

**Statistical Foundations for Econometrics** (3) Basic statistical concepts used in economics. Topics include probability distributions, expectations, estimation, hypothesis testing, correlation, and simple regression. Students who have completed ECON 306 may not schedule this course.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ECON 197

**Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1995

ECON 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ECON 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

ECON 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ECON 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ECON 302 (GS)

**Intermediate Microeconomic Analysis** (3) Allocation of resources and distribution of income within various market structures, with emphasis on analytical tools.

Effective: Spring 2011

Prerequisite: ECON 102

ECON 302H (GS)

**Intermediate Microeconomic Analysis (Honors)** (3) Allocation of resources and distribution of income within various

market structures, with emphasis on analytical tools.

Effective: Spring 2011

Prerequisite: ECON 102 and MATH 110 or MATH 140

ECON 304 (GS)

**Intermediate Macroeconomic Analysis** (3) Analysis of forces that determine the level of aggregate economic activity.

Effective: Spring 2011

Prerequisite: ECON 104

ECON 304H (GS)

**Intermediate Macroeconomic Analysis (Honors)** (3) Analysis of forces that determine the level of aggregate economic activity.

Effective: Spring 2011

Prerequisite: ECON 104 and MATH 110 or MATH 140

ECON 315 (GS)

**Labor Economics** (3) Economic analysis of employment, earnings, and the labor market; labor relations; related government policies.

Effective: Spring 2011

Prerequisite: ECON 102

ECON 323 (GS)

**Public Finance** (3) Contemporary fiscal institutions in the United States; public expenditures; public revenues; incidence of major tax types; intergovernmental fiscal relations; public credit.

Effective: Spring 2011

Prerequisite: ECON 102

ECON 333 (GS)

**International Economics** (3) Why nations trade, barriers to trade, balance of payments adjustment and exchange rate determination, eurocurrency markets, and trade-related institutions.

Effective: Spring 2011

Prerequisite: ECON 102 ECON 104 or ECON 014

ECON 342 (GS)

**Industrial Organization** (3) Industrial concentration, size, and efficiency of business firms, market structure and performance, competitive behavior, public policy and antitrust issues.

Effective: Spring 2011

Prerequisite: ECON 102

ECON 351

**Money and Banking** (3) Money, credit, commercial and central banking, financial intermediaries, treasury operations, monetary theory and policy, and foreign exchange. Students who have already taken Econ. 451 may not schedule this course.

Effective: Spring 2011

Prerequisite: ECON 102 or ECON 104

ECON 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

ECON 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ECON 400M

**Honors Seminar in Economics** (3-12) Readings, discussion, and oral and written reports on selected topics in economics.

Effective: Spring 1993

Prerequisite: ECON 302 ECON 304 fifth-semester standing admission into Honors program

ECON 401

**History of Economic Thought** (3) Survey of economic ideas from Greco-Roman times to the present.

Effective: Spring 2001

Prerequisite: ECON 302 or ECON 304

ECON 402

**Decision Making and Strategy in Economics** (3) Development and application of the tools for decision making under uncertainty and for game theoretic analysis of economic problems.

Effective: Spring 2007

Prerequisite: ECON 302 ; SCM 200 or STAT 200

ECON 404W

**Current Economic Issues** (3) An analytical survey of significant problems of current economic policy and the application of economic analysis to important social issues.

Effective: Spring 1993

Prerequisite: ECON 302 or ECON 304

ECON 412

**Labor Economics and Labor Markets: Theory, Evidence, and Policy** (3) Advanced topics in labor economics: theory,



empirical evidence, and policy.

Effective: Spring 2009

Prerequisite: ECON 302 or ECON 315

ECON 424

**Income Distribution** (3) Inequality and poverty in the United States, measurement problems, determinants of inequality, arguments for and against equality, impact of redistributive policies.

Effective: Fall 1992

Prerequisite: ECON 302 ECON 315 or ECON 323

ECON 425

**Economics of Public Expenditures** (3) Analytic and policy aspects of public expenditure decisions; applications from areas of contemporary public interest.

Effective: Summer 1992

Prerequisite: ECON 302 or ECON 323

ECON 427

**Economics of Energy and Energy Security** (3) Energy economics studies topics related to the supply, energy markets, and environmental impacts of energy use.

Effective: Spring 2013

Prerequisite: ECON 302

ECON 428

**Environmental Economics** (3) Environmental pollution, the market economy, and optimal resource allocation; alternative control procedures; levels of environmental protection and public policy.

Effective: Summer 1992

Prerequisite: ECON 302 or ECON 323

ECON 429

**Public Finance and Fiscal Policy** (3) Analysis of public revenue and expenditure structure primarily at the federal level; federalism; fiscal policy and public debt.

Effective: Fall 1983

Prerequisite: ECON 323 ; ECON 302 or ECON 304

ECON 432

**Urban Economics** (3) Theories and methods for economic analysis of such urban problems as housing, segregation, government services, and transportation.

Effective: Summer 1992

Prerequisite: ECON 302 or ECON 323

ECON 433

**Advanced International Trade Theory and Policy** (3) Causes/consequences of trade; effects of tariffs and quotas; strategic trade policy; political economy of trade restrictions and other topics.

Effective: Summer 1992

Prerequisite: ECON 302 or ECON 333

ECON 434

**International Finance and Open Economy Macroeconomics** (3) Trade balance movements, exchange rate determination; monetary and fiscal policies in open economies; international policy coordination; the world monetary system.

Effective: Spring 1992

Prerequisite: ECON 304 or ECON 333

ECON 436W (US)

**Economics of Discrimination** (3) Analysis of the economic characteristics of women and minorities, with examination of race and sex discrimination and related government policies.

Effective: Fall 2007

Prerequisite: ECON 302 or ECON 315

ECON 443

**Economics of Law and Regulation** (3) An economic analysis of property rights, contractual arrangements, illegal activities, and regulation; competitive problems due to externalities and market failure.

Effective: Summer 1992

Prerequisite: ECON 302 or ECON 342

ECON 444

**Economics of the Corporation** (3) Coordination and incentive issues within a corporation. Topics include employment contracts, performance incentives and pricing of financial assets.

Effective: Summer 1997

Prerequisite: ECON 302

ECON 445 (H P A 445)

**Health Economics** (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.

Effective: Spring 1994

Prerequisite: ECON 302 ECON 315 or ECON 323

ECON 447W

**Economics of Sports** (3) Examination of economic issues pertaining to professional and collegiate sports, including analysis of industrial organization, labor markets, and local economies.

Effective: Spring 2009

Prerequisite: ECON 302 and ECON 490

ECON 450

**The Business Cycle** (3) Measurement and theories of the business cycle; stabilization policies; forecasting.

Effective: Summer 1992

Prerequisite: ECON 304 or ECON 351

ECON 451

**Monetary Theory and Policy** (3) Monetary and income theory; monetary and fiscal policy.

Effective: Winter 1978

Prerequisite: ECON 304 or ECON 351

ECON 463 (IL)

**Economic Demography** (3) Microeconomics of demographic behavior; interrelationships between demographic and economic factors, in developing and industrialized economies; economic welfare and policy implications.

Effective: Spring 2006

Prerequisite: ECON 302 or ECON 304 ; or 9 credits in demography

ECON 471

**Growth and Development** (3) Problems of capital formation, institutional considerations, theories of economic growth.

Effective: Summer 2011

Prerequisite: ECON 302 or ECON 304 or ECON 372

ECON 472

**Transition to Market Economies** (3) Economics of transition to a market economy; problems of former Soviet-type economies; privatization, stabilization, and institutional change.

Effective: Fall 2005

Prerequisite: ECON 302 or ECON 304

ECON 480

**Mathematical Economics** (3) Mathematical techniques employed in economic analysis; formal development of economic relationships.

Effective: Summer 1992

Prerequisite: ECON 302 ECON 304 MATH 110

ECON 489M

**Honors Thesis** (1-6) No description.

Effective: Spring 1993

Prerequisite: ECON 302 ECON 304 and admission into the departmental honors program

ECON 490

**Introduction to Econometrics** (3) Use of simple and multiple regression models in measuring and testing economic relationships. Problems including multicollinearity, hetroskedasticity, and serial correlation.

Effective: Summer 2000

Prerequisite: MATH 110 ECON 390

ECON 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

ECON 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

ECON 495

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1995

Prerequisite: prior approval of proposed assignment by instructor

ECON 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

ECON 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

ECON 499 (IL)

**Foreign Study--Economics** (2-6) Study in selected countries of economic institutions and current economic problems.

Effective: Spring 2011

Prerequisite: ECON 102 ECON 104

EDPSY 010 (GS)

**Individual Differences and Education** (3) Relationships between learner differences and physical, cognitive, language, social, and cultural development; emphasis on ethnicity, gender, special needs; schooling implications.

Effective: Summer 2011

EDPSY 450 (PSYCH 404)

**Principles of Measurement** (3) Scale transformation, norms, standardization, validation procedures, estimation of reliability.

Effective: Summer 2011

Prerequisite: EDPSY 400 or PSYCH 200 or PSYCH 100 ; STAT 200

EDTHP 115A (GS;US)

**Competing Rights: Issues in American Education** (3) An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society.

Effective: Spring 2006

EDTHP 115S (GS;US)

**Competing Rights: Issues in American Education** (3) An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society.

Effective: Spring 2006

EDTHP 416 (SOC 416) (US)

**Sociology of Education** (3) The theoretical, conceptual, and descriptive contributions of sociology to education.

Effective: Spring 2006

EM SC 420 (SOC 420, S T S 420)

**Energy and Modern Society** (3) Technology and economics of energy resources, production, and consumption; environmental factors, exhaustion, new technology.

Effective: Fall 1986

ENVST 100 (GS)

**Visions of Nature** (3) An interdisciplinary introduction to environmental studies, including perspectives from ethics, economics, public policy, art, literature, history, geology, biology, and ecology.

Effective: Fall 2000

FD SC 105 (S T S 105) (GHA)

**Food Facts and Fads** (3) Impact on society and the individual of modern food technology, food laws, additives, etc.; historical, current, and futuristic aspects.

Effective: Spring 2004

GEOG 020 (GS;US;IL)

**Human Geography: An Introduction** (3) Spatial perspective on human societies in a modernizing world; regional examples; use of space and environmental resources; elements of geographic planning.

Effective: Summer 2005

GEOG 030 (GS;IL)

**Geographic Perspectives on Sustainability and Human-Environment Systems** (3) Introduction to theory, methods, history and contemporary issues in global and regional relationships between human activity and the physical environment.

Effective: Spring 2012

GEOG 040 (GS;IL)

**World Regional Geography** (3) Introduction to the world as an interdependent community built from unique and independent regions and nations.

Effective: Spring 2012

GEOG 111 (GN)

**Biogeography and Global Ecology** (3) Distribution of plants and animals on global, regional, and local scales; their causes and significance.

Effective: Fall 2007

GEOG 120 (GS;US;IL)

**Urban Geography: A Global Perspective** (3) Introduction to the geography of the world's cities and urban system.

Effective: Spring 2006

GEOG 123 (GS;IL)

**Geography of Developing World** (3) Patterns of poverty in poor countries; conventional and non-conventional explanations; focus on solutions; case studies of specific regions.

Effective: Spring 2007

GEOG 124 (GS;IL)

**Elements of Cultural Geography** (3) Locational analysis of changes in non-Western cultures. Problems of plural societies, economic development, population growth, and settlement.

Effective: Summer 2005

GEOG 126 (GS;US;IL)

**Economic Geography** (3) The geographic location and organization of economic activities and outcomes at global, national, regional, and local scales.

Effective: Spring 2012

GEOG 128 (GS;IL)

**Geography of International Affairs** (3) Contemporary international affairs in their geographical setting; geographic elements in the development of national power, political groupings, and international disputes.

Effective: Summer 2005

## GEOG 160 (GS)

**Mapping Our Changing World** (3) Fundamental concepts of GIS, cartography, remote sensing, and GPS in the context of environmental and social problems.

Effective: Spring 2007

## GEOG 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1988

## GEOG 298

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2001

## GEOG 313

**Introduction to Field Geography** (3) Introduction to the methods and techniques for collecting spatial and environmental data for physical geography and ecological studies.

Effective: Spring 2007

Prerequisite: GEOG 160

## GEOG 323

**GIS and Social Theory** (3) Critical understanding of how to use GIS and tools of regional analysis in the context of postmodern social theory.

Effective: Spring 2007

Prerequisite: GEOG 160

## GEOG 333

**Human Dimensions of Natural Hazards** (3) An introduction to natural hazards, integrating physical and social science perspectives.

Effective: Fall 2011

Prerequisite: junior or senior standing

## GEOG 361

**Cartography--Maps and Map Construction** (3) The art and science of creating small-scale maps as a medium for communication and research.

Effective: Spring 2007

Prerequisite: GEOG 160

## GEOG 362

**Image Analysis** (3) Introduction to the basic principles of remote sensing, and the analysis of aerial and satellite data.

Effective: Spring 2007

Prerequisite: GEOG 160

## GEOG 363

**Geographic Information Systems** (3) Principles and use of geographic information; emphasis is on data acquisition and techniques for computer-aided analysis.

Effective: Spring 2007

Prerequisite: GEOG 160

## GEOG 364

**Spatial Analysis** (3) Geographic measurement, scaling, and classification; analysis of spatial pattern and structure; geographic covariation and autocorrelation.

Effective: Fall 2008

Prerequisite: STAT 200 and 6 credits in social science

## GEOG 411

**Forest Geography** (3) This course studies processes that control spatial and temporal change in forests.

Effective: Fall 2007

Prerequisite: GEOG 010 GEOG 111 ; or BIOL 220W

## GEOG 411W

**Forest Geography** (3) This course studies processes that control spatial and temporal change in forests.

Effective: Fall 2007

Prerequisite: GEOG 010 GEOG 111 ; or BIOL 220W

## GEOG 412W

**Climatic Change and Variability** (3) Theories and observations of past, present, and future climatic change and variability; introduction to techniques used in climatic change research.

Effective: Spring 2007

Prerequisite: GEOG 110 or METEO 003

## GEOG 417

**Satellite Climatology** (3) A discussion of the application of satellite data to current and planned large-scale climate experiments.

Effective: Spring 2007

Prerequisite: GEOG 362

## GEOG 420Y (US;IL)

**Comparative Urbanism** (3) This course investigates selected urban issues through the lens of comparative urbanism.

Effective: Fall 2011

Prerequisite: GEOG 120 GEOG 160

GEOG 423Y (US)

**Historical Geography of North America** (3) Exploration, settlement, and changing patterns of human occupancy from the seventeenth century to the 1930s.

Effective: Fall 2011

Prerequisite: GEOG 122 3 additional credits in geography or 6 credits American history

GEOG 424 (US;IL)

**Geography of the Global Economy** (3) Focus on industrial location theory, factors in industrial location, studies of selected industries and problems of industrial development.

Effective: Spring 2011

Prerequisite: ECON 102 ECON 104 GEOG 126

GEOG 425 (US)

**Geography of Race, Class, and Poverty in America** (3) This class examines the spatial interactions of race, class and poverty in the United States.

Effective: Fall 2011

Prerequisite: GEOG 126 ; ECON 102 or ECON 104

GEOG 426Y (WMNST 426Y) (US;IL)

**Gender Geographies** (3) Description and explanation of the links between gender relations and spatial structures.

Effective: Fall 2013

Prerequisite: GEOG 020 or GEOG 126 or GEOG 120 or WMNST 100

GEOG 427 (US;IL)

**Urban Historical Geography** (3) Study of the development and transformation of the historical urban built environment.

Effective: Spring 2007

Prerequisite: 6 credits in geography humanities or social sciences

GEOG 428 (US)

**Political Geography** (3) Geographical foundations of political phenomena; significant geographic factors in growth and development of states, boundary problems, population distribution, colonies, and internal and international regional problems.

Effective: Spring 2007

Prerequisite: 6 credits in history or 6 credits in political science

GEOG 428Y (US;IL)

**Political Geography** (3) Geographical foundations of political phenomena; significant geographic factors in growth and development of states, boundary problems, population distribution, colonies, and internal and international regional problems.

Effective: Spring 2012

Prerequisite: 3 credits human geography (GEOG 020 or 120 or 122 or 123 or 124 or 126 or 128)

GEOG 429 (US;IL)

**Geographic Perspectives on Global Urbanization** (3) This course reflects critically on a number of issues related to global urbanization, including the culture and political economy of urban space.

Effective: Spring 2012

Prerequisite: GEOG 020 GEOG 126 or GEOG 120

GEOG 430

**Human Use of Environment** (3) The human use of resources and ecosystems and social causes and consequences of environmental degradation in different parts of the world; development of environmental policy and management strategies.

Effective: Fall 2008

Prerequisite: GEOG 010 or GEOG 020 or GEOG 030 or GEOG 040 or GEOG 130 or permission of the program

GEOG 431

**Geography of Water Resources** (3) Perspectives on water as a resource and hazard for human society; water resource issues in environmental and regional planning.

Effective: Spring 2007

Prerequisite: 6 credits in geography or natural sciences

GEOG 438W

**Human Dimensions of Global Warming** (3) Human dimensions of climate change: human causes, human consequences, and policy implications of global warming.

Effective: Spring 2012

Prerequisite: EARTH 002 GEOG 010 or METEO 003 ; GEOG 030

GEOG 444

**African Resources and Development** (3) Ecological and cultural factors in the geography of Africa; natural resources and development.

Effective: Spring 2001

Prerequisite: GEOG 010 GEOG 020 GEOG 030 or GEOG 124

GEOG 461W

**Dynamic Cartographic Representation** (3) Theory and practice of mapping and geo-representation in a dynamic media context. Applications in science, policy, travel, and education.

Effective: Spring 2010

Prerequisite: GEOG 361 or GEOG 362 or GEOG 363

GEOG 463

**Geospatial Information Management** (3) This course examines geospatial data representations and algorithmic techniques that apply to spatially-organized data in digital form.

Effective: Fall 2011

Prerequisite: GEOG 363

GEOG 464

**Advanced Spatial Analysis** (3) Skills and knowledge for applying quantitative methods to analyze information with spatial distributions.

Effective: Spring 2012

Prerequisite: GEOG 364

GEOG 467

**Applied Cartographic Design** (3) Project-based map production problems with emphasis on map design and advanced mapping tools in geographic information systems.

Effective: Fall 2011

Prerequisite: GEOG 361

GEOG 468

**Geographic Information Systems Design and Evaluation** (3) Design and evaluation of Geographic Information Systems and other forms of integrated spatial data systems.

Effective: Spring 2007

Prerequisite: GEOG 363

GEOG 482

**The Nature of Geographic Information** (2) Orientation to the properties of geographic data and the practice of distance learning.

Effective: Summer 2004

Prerequisite: admission to the Master of GIS program or Certificate Program in GIS

GEOG 483

**Problem-Solving with GIS** (3) How geographic information systems facilitate data analysis and communication to address common geographic problems.

Effective: Summer 2004

Prerequisite: GEOG 482

GEOG 484

**GIS Database Development** (3) Database design, creation, maintenance, and data integration using desktop GIS software.

Effective: Summer 2004

Prerequisite: GEOG 483

GEOG 485

**GIS Programming and Customization** (3) Customizing GIS software to extend its built-in functionality and to automate repetitive tasks.

Effective: Fall 2007

Prerequisite: GEOG 363 or GEOG 484 ; CMPSC 101 or equivalent

GEOG 486

**Cartography and Visualization** (3) Theory and practice of cartographic design emphasizing effective visual thinking and visual communication with geographic information systems.

Effective: Summer 2004

Prerequisite: GEOG 484

GEOG 487

**Environmental Applications of GIS** (3) Real-world applications of GIS and spatial analysis to investigate a variety of current environmental issues.

Effective: Spring 2010

Prerequisite: GEOG 484

GEOG 488

**Acquiring and Integrating Geospatial Data** (3) Advanced technical, legal, ethical and institutional problems related to data acquisition for geospatial information systems.

Effective: Summer 2004

Prerequisite: GEOG 484

GEOG 489

**GIS Application Development** (3) Advanced topics in GIS customization, including the Systems Development Life Cycle, packaging and deployment, and consuming Web services.

Effective: Summer 2004

Prerequisite: GEOG 485

GEOG 495

**Internship** (1-13) Supervised off-campus, non-group instruction including individual field experience, practicums, or internships. Written and oral critique of activity required.

Effective: Fall 1981

Prerequisite: prior approval of proposed assignment by instructor

GEOG 495B

**Geography Teaching Internship** (1-10) Supervised undergraduate teaching experience in which students serve as peer tutors, laboratory assistants, or course material developers.  
Effective: Summer 2004

GEOG 495C

**Internship Supervision and Mentoring** (1) Candidates for the Master of GIS degree sponsor a GIS-related internship for students in Penn State's resident undergraduate program.  
Effective: Summer 2004

GEOG 495G

**Giscience Internship** (1-10) Supervised research experience within the Department of Geography's GeoVISTA Center, Gould Center, or an appropriate external agency.  
Effective: Spring 2007  
Prerequisite: GEOG 160

GEOG 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

GEOG 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

GEOG 497B

**Location Intelligence for Business** (3) Understanding location technology and geospatial analysis to support an efficient and effective pathway to better business decisions.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

GEOG 497C

**GIS for Transportation Principles, Data, and Applications** (3) This course examines the use of GIS principles, data, and applications that have been developed for the field of transportation.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: GEOG 483

GEOG 497D

**Lidar Technology and Applications** (3) Understanding lidar systems' design, operation, data processing techniques, and product generation to address typical application scenarios faced by the geospatial professional.  
Effective: Summer 2014 Ending: Summer 2014

GEOG 497D

**Lidar Technology and Applications** (3) Understanding lidar systems' design, operation, data processing techniques, and product generation to address typical application scenarios faced by the geospatial professional.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

GEOG 498

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1998

H P A 445 (ECON 445)

**Health Economics** (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.  
Effective: Spring 1994  
Prerequisite: ECON 302 ECON 315 or ECON 323

HD FS 129 (GS)

**Introduction to Human Development and Family Studies** (3) Introduction to psychosocial and family development at all stages of the individual and family life cycle. Students may take only one course for General Education credit from SOC 030 or HD FS 129. Student may take only one course for General Education credits from HD FS 129 GS or SOC 030 GS.  
Effective: Fall 2004

HD FS 129H (GS)

**Introduction to Human Development and Family Studies** (3) Introduction to psychosocial and family development at all stages of the individual and family life cycle. Students may take only one course for General Education credit from SOC 030 or HD FS 129.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HD FS 129S (GS)

**Introduction to Human Development and Family Studies** (3) Introduction to psychosocial and family development at all stages of the individual and family life cycle.  
Effective: Summer 2006

HD FS 229 (GS)

**Infant and Child Development** (3) Theory, research, and methods of social/behavioral/biological sciences related to developmental processes and intervention during infancy and childhood.  
Effective: Fall 2004

HD FS 239 (GS)

**Adolescent Development** (3) Social, behavioral, and biological development and intervention throughout adolescence.

Effective: Spring 2002

HD FS 249 (GS)

**Adult Development and Aging** (3) Physiological, psychological, and social development and intervention from young adulthood through old age.

Effective: Spring 2003

HD FS 431 (SOC 431)

**Family Disorganization: Stress Points in the Contemporary Family** (3) Focuses on divorce, remarriage, incest, family violence as well as problems associated with family formation and parent-child relations.

Effective: Spring 1996

Prerequisite: HD FS 312W ; 6 credits of Human Development and Family Studies psychology sociology

HD FS 434 (SOC 435)

**Perspectives on Aging** (3) An analysis of the demographic, social, and cultural factors affecting the aged population in American society.

Effective: Fall 2007

Prerequisite: HD FS 312W ; 6 credits in sociology

HD FS 440 (SOC 440)

**Family Policy** (3) An in-depth examination of family policy.

Effective: Spring 2007

Prerequisite: 3 credits of SOC or HD FS

HD FS 445 (PSYCH 416)

**Development Throughout Adulthood** (3) Processes of development and change of behavior from early adulthood through old age, emphasizing theory, method, and empirical research.

Effective: Spring 2007

Prerequisite: HD FS 249 or PSYCH 100 ; HD FS 312W or PSYCH 301W ; PSYCH 200 STAT 200 or 3 credits of statistics ; 6 credits in HD FS PSYCH or SOC.

HIST 116 (WMNST 116) (GS;US;IL)

**Family and Sex Roles in Modern History** (3) Historical perspectives on the Western family since 1500: gender roles, marriage, sexuality, child rearing, and old age; emphasis on United States.

Effective: Spring 2006

HIST 119 (GH;IL)

**Gender and History** (3) Survey of the development of gender roles in Western societies from the prehistoric era to the early modern period.

Effective: Spring 2008

HIST 120 (GS;IL)

**Europe Since 1848** (3) Political, social, and ideological developments; origin and impact of two World Wars; totalitarianism and democracy; changing role in the world.

Effective: Spring 2006

HIST 142 (GS;IL)

**History of Communism** (3) Marxism; Leninism and evolution of the Soviet Union; formation and development of the Communist bloc; impact of Chinese Communism.

Effective: Spring 2006

HIST 151 (S T S 151) (GS;US)

**Technology and Society in American History** (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.

Effective: Spring 2006

HIST 155 (GH;US)

**American Business History** (3) Major developments in the history of business and industry from the colonial period to the present.

Effective: Spring 2006

HIST 156 (US)

**History of the American Worker** (3) A study of the American worker from the preindustrial era to the present.

Effective: Spring 2006

HIST 173 (GH;IL)

**Vietnam in War and Peace** (3) Rise of nationalism and communism; origins of conflict; United States involvement; impact on postwar regional and international politics; contemporary Vietnam.

Effective: Spring 2006

HIST 453

**American Environmental History** (3) The history of the ways Americans have used and thought about the environment since 1500.

Effective: Summer 2012

Prerequisite: GEOG 030 ; and HIST 020 HIST 021 ; or 6 credits in the humanities or social sciences

HIST 458Y (LER 458Y) (US)

**History of Work in America** (3) A study of selected problems in the history of work in the United States, especially since 1877.

Effective: Spring 2008

Prerequisite: HIST 021 HIST 156 or LER 100



I B 440 (PL SC 440, AFR 440) (US;IL)

**Globalization and Its Implications** (3) This course explores the socioeconomic implications of globalization.

Effective: Spring 2013

Prerequisite: AF AM 100 or AFR 110 or PL SC 003 or PL SC 014 or PL SC 020 or PL SC 022

INTAG 100 (GS;IL)

**Introduction to International Agriculture** (3) Ag in developing countries; contemporary crucial issues in global agriculture; emphasizing hunger and food security.

Effective: Summer 2013

INTST 100 (GS;IL)

**Introduction to International Studies** (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.

Effective: Summer 2005

INTST 100S (GS;IL)

**Introduction to International Studies** (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.

Effective: Summer 2005

INTST 100U (GS;IL)

**Introduction to International Studies** (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

J ST 012 (CAMS 012, RL ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

J ST 012U (CAMS 012U, RL ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

LER 083S (GS)

**First-Year Seminar in Labor Studies and Employment Relations** (3) Critical approaches to the dimensions and direction in Labor and Employment Relations.

Effective: Spring 2008

LER 100 (GS)

**Employment Relations** (3) Introductory analysis of the employment relationship and of the interrelated interests of managements, workers, unions, and the public.

Effective: Spring 2008

LER 136 (WMNST 136) (US)

**Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

Effective: Spring 2008

LER 136U (WMNST 136U) (US)

**Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

LER 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2008

LER 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2008

LER 201 (GS)

**Employment Relationship: Law and Policy** (3) An examination of basic legal principles underlying the employment relationship and their social, political, and economic bases.

Effective: Spring 2008

LER 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

LER 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2008

LER 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2008

LER 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2008

LER 312

**Research Methods in Labor Studies and Employment Relations** (4) Provides an understanding of social science research as employed in the field of Human Resources and Employment Relations.

Effective: Spring 2008

LER 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships.

Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

LER 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2008

LER 400 (IL)

**Comparative Employment Relations Systems** (3) Analysis of structure and elements of employment relations systems in developed and developing areas.

Effective: Spring 2008

Prerequisite: 3 credits in Labor and Employment Relations

LER 401

**The Law of Labor-Management Relations** (3) Development of Anglo-American law regulating collective bargaining, with emphasis on American labor-management relations under Wagner, Taft-Hartley, and other acts.

Effective: Spring 2008

Prerequisite: 3 credits in Labor and Employment Relations or Political Science

LER 414W

**Labor and Employment Relations Theory** (3) Content and implications of major and minor theories of Labor and Employment Relations.

Effective: Spring 2008

Prerequisite: 6 credits in Labor and Employment Relations

LER 424

**Employment Compensation** (3) Development and management of employee compensation systems.

Effective: Spring 2008

Prerequisite: LER 201 and sixth-semester standing

LER 426

**Staffing and Training Strategies in Organizations** (3) This course focuses on the theory and practice of human resource staffing and training in organizations.

Effective: Spring 2011

Prerequisite: 3 credits in Labor and Employment Relations (LER) or Human Resources and Employment Relations (HRER)

LER 434

**Collective Bargaining and Contract Administration** (3) Theory, practice, and economic impact of collective bargaining, including administration of the collective bargaining agreement.

Effective: Spring 2008

Prerequisite: LER 100

LER 435

**Labor Relations in the Public Sector** (3) Analysis of labor relations problems within different areas of public employment.

Effective: Spring 2008

Prerequisite: 3 credits in Labor and Employment Relations

LER 437

**Workplace Dispute Resolution** (3) Dispute resolution practices and procedures used in the workplace and employment law settings.

Effective: Spring 2008

Prerequisite: LER 100

LER 444

**Workplace Safety and Health: Principles and Practices** (3) The role of employees, unions, employers, and government in dealing with work-related safety and health issues.

Effective: Fall 2013

Prerequisite: LER 100 or sixth-semester standing

LER 445Y (AF AM 445Y, PL SC 445Y) (US)

**Politics of Affirmative Action** (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

LER 458Y (HIST 458Y) (US)

**History of Work in America** (3) A study of selected problems in the history of work in the United States, especially since 1877.

Effective: Spring 2008

Prerequisite: HIST 021 HIST 156 or LER 100

LER 460

**Human Resources Ethics** (3) Ethics of human resources management.

Effective: Spring 2011 Ending: Summer 2014

Prerequisite: Take one of the following courses: ARMY 402 H P A 460 HRIM 466 MGMT 341 MGMT 441 NAVSC 402 NURS 432 PSYCH 281 3 credits in Labor and Employment Relations (LER) or Human Resources and Employment Relations (HRER)

LER 460

**Human Resources Ethics** (3) Ethics of human resources management.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Take one of the following courses: ARMY 402 H P A 460 HM 466 MGMT 341 MGMT 441 NAVSC 402 NURS 432 PSYCH 281 3 credits in Labor and Employment Relations (LER) or Human Resources and Employment Relations (HRER)

LER 464 (OLEAD 464)

**Communication Skills for Leaders in Groups and Organizations** (3) Theory-and research-based communication skills for leaders dealing with work-related problems in contemporary groups and organizations.

Effective: Spring 2013

LER 465 (OLEAD 465)

**Collective Decision Making** (3) Application of theories of decision making to work-related issues in groups and organizations requiring collective resolution and action.

Effective: Spring 2013

LER 472 (WMNST 472)

**Work-Life Practices and Policies** (3) Explore the causes and consequences of conflicts between work, family, and other life commitments, and how these may be resolved.

Effective: Spring 2008

Prerequisite: 3 credits of LER

LER 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

LER 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

LER 495

**Labor Studies Internship** (1-12) Supervised practicum in labor relations setting with union, management, or government agency.

Effective: Spring 2008

Prerequisite: prior approval by department

LER 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2008

LER 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2008

LER 497A

**International Human Resource Management** (3) International Human Resource Management builds on the foundations of human resource management (HR) by considering what this concept means in different countries around the world. As organizations become increasingly international, issues of national culture and institutions can often stand in the way of a seamless progression of HRM across national boundaries. From a cultural perspective, the course compares how people in different countries see themselves and others around them, and how expectations, values, and beliefs can differ. From an institutional perspective, it compares how national level legislation, state intervention, trade union influence, and the respective power of shareholders versus stakeholders all impact on patterns of HRM practices in different countries.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

LER 497B

**Leadership Development: A Life-Long Learning Perspective** (3) The course examines the continuing influence of social and environmental factors in shaping leadership and leadership development.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

LER 497C

**Career Development Seminar II** (1.5) This seminar will help students to position themselves for a successful career as a professional in human resources, employment relations, or labor. This seminar focuses on helping students to launch their

career by prioritizing potential employers and promoting yourself as a strong candidate for a career path and positions that match their interests and strengths. Students will discover proven techniques for marketing themselves through their resume, correspondence, and screening interviews. This seminar includes guidelines for managing behavior-based interviews, strategies for showing prospective employers and recruiters how they can meet their needs and add value. The course also offers useful tips for negotiating offers and compensation packages as well as suggestions related to planning for graduate or professional school.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

LER 499 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2008

LING 001 (GS;US;IL)

**The Study of Language** (3) A non-technical introduction to the study of human language, and its role in human interaction. Students who have successfully completed LING 100 may not enroll in LING 001.

Effective: Summer 2005

LING 097

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1992

LING 098

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1992

LING 100 (GS)

**Foundations of Linguistics** (3) Systematic study of linguistic structures in a variety of the world's languages; an overview of language, and its organization.

Effective: Spring 2011

LING 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1992

LING 198

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1992

LING 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

LING 294

**Research Project** A1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

LING 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1983

LING 298

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1992

LING 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

LING 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

LING 397

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1992

LING 398

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1992

LING 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

LING 402

**Syntax I** (3) Principles of grammatical analysis in the generative framework; an overview of syntactic structures across languages.

Effective: Fall 2001

LING 404

**Phonology I** (3) The analysis of the sound systems of human languages; focus on common phonological processes across languages and on phonetics-phonology interface.

Effective: Fall 2001

LING 429 (PSYCH 426)

**Language and Thought** (3) Relations between language and cognition; cognitive implications of normal and impaired language development; cognition and bilingualism.

Effective: Spring 2007

Prerequisite: PSYCH 100 LING 001 or LING 100

LING 446 (PSYCH 427)

**L1 Acquisition** (3) How children learn their first language; psycholinguistic aspects of lexical, syntactic, semantic, and phonological development.

Effective: Spring 2010

Prerequisite: LING 100 or PSYCH 002 or permission of program

LING 447

**Bilingualism** (3) Explores the social and psychological aspects of bilingualism; topics include languages in contact, transference, maintenance, and loss.

Effective: Fall 2001

LING 448

**Sociolinguistics** (3) Issues in the study of language in its sociocultural context; analysis of social dialects and speech styles.

Effective: Fall 2001

LING 449

**Semantics I** (3) The study of meaning in human language; methods of analysis; study of sense, reference, compositionality, quantification, presupposition, and sentence-level meaning.

Effective: Fall 2001

LING 457 (PSYCH 457)

**Psychology of Language** (3) Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.

Effective: Fall 2013 Ending: Summer 2014

Prerequisite: LING 100

LING 457 (PSYCH 457)

**Psychology of Language** (3) Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: PSYCH 100 or LING 100

LING 493

**Field Methods** (3) Primary linguistic investigation of a language different from English; field work with a native speaker; data gathering; linguistic analysis.

Effective: Fall 2001

LING 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

LING 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

LING 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

LING 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1983

LING 497A

**EEG/ERP Methods and Experimental Research** (3) This course introduces students to the basic concepts, principles and research methods in scalp-recorded EEG, in particular the application of the Event-Related brain Potentials (ERPs)

technique, signal-averaged EEG recordings that are time-locked to perceptual or cognitive events. The course also includes a practical part in which students receive hands-on training in which they learn to record, analyze and interpret ERP data.

Effective: Summer 2014 Ending: Summer 2014

#### LING 498

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Fall 1992

#### LING 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

#### LTNST 300 (WMNST 300) (US)

**Latinas in the US: Gender Culture and Society** (3) This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latina feminisms in the United States.

Effective: Spring 2013

Prerequisite: LTNST 100 or WMNST 100

#### NUTR 111 (HIST 111) (GH;US)

**American Food System: History, Technology and Culture** (3) A cultural analysis of the evolution of U.S. agricultural production and food consumption patterns, the food industry and food marketing.

Effective: Fall 2013

#### NUTR 430 (S T S 430) (IL)

**Global Food Strategies: Problems and Prospects for Reducing World Hunger** (3) Technological, social, and political solutions to providing basic food needs; food resources, population, and the environment; current issues.

Effective: Summer 2005

#### OLEAD 100 (GS)

**Introduction to Leadership** (3) This course introduces key leadership concepts and practices based on current theory and research. It is designed to help students to discover the knowledge and skills that are characteristic of effective leaders.

Effective: Summer 2012

#### OLEAD 409

**Leadership Development: A Life-Long Learning Perspective** (3) The course examines the continuing influence of social and environmental factors in shaping leadership and leadership development.

Effective: Summer 2012

Prerequisite: 6th semester standing

#### OLEAD 464 (LER 464)

**Communication Skills for Leaders in Groups and Organizations** (3) Theory-and research-based communication skills for leaders dealing with work-related problems in contemporary groups and organizations.

Effective: Spring 2013

#### OLEAD 465 (LER 465)

**Collective Decision Making** (3) Application of theories of decision making to work-related issues in groups and organizations requiring collective resolution action.

Effective: Spring 2013

#### PL SC 001 (GS)

**Introduction to American National Government** (3) Introduction to development and nature of American political culture, constitutional/structural arrangements, electoral/policy processes; sources of conflict and consensus.

Effective: Spring 2002

#### PL SC 001H (GS)

**Introduction to American National Government** (3) Introduction to development and nature of American political culture, constitutional/structural arrangements, electoral/policy processes; sources of conflict and consensus.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

#### PL SC 001S (GS)

**Introduction to American National Government** (3) Introduction to development and nature of American political culture, constitutional/structural arrangements, electoral/policy processes; sources of conflict and consensus.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

#### PL SC 002

**American Public Policy** (3) Examination of selected areas of public policy in America. Analysis of policy content, alternatives, and impact.

Effective: Fall 1983

Prerequisite: PL SC 001

#### PL SC 003 (GS;IL)

**Introduction to Comparative Politics** (3) Introduction to study of comparative government and politics: normative/empirical theories; government functions in modern societies; representative structures and processes.

Effective: Fall 2007

#### PL SC 003U (GS;IL)

**Introduction to Comparative Politics** (3) Introduction to study of comparative government and politics: normative/empirical theories; government functions in modern societies; representative structures and processes.

Effective: Summer 2012

PL SC 007 (GS)

**Contemporary Political Ideologies** (3) Critical analysis of contemporary political ideologies such as liberalism, conservatism, socialism, anarchism, fascism, feminism, and environmentalism.  
Effective: Fall 2004

PL SC 014 (GS;IL)

**International Relations** (3) Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200.

Effective: Fall 2007

PL SC 014U (GS;IL)

**International Relations** (3) Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PL SC 014U (GS;IL)

**International Relations** (3) Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

PL SC 017 (GS)

**Introduction to Political Theory** (3) Introduction to basic issues in political theory through analysis of selected major political thinkers.

Effective: Spring 2003

PL SC 017W (GS)

**Introduction to Political Theory** (3) Introduction to basic issues in political theory through analysis of selected major political thinkers.

Effective: Spring 2001

PL SC 020 (GS;IL)

**Comparative Politics--Western Europe** (3) Comparative analysis of political cultures, interest groups, parties, and decision-making processes in principal Western European political systems.

Effective: Fall 2007

PL SC 022 (GS;IL)

**Politics of the Developing Areas** (3) The impact of colonialism, nationalism, and development policy on the political culture, structure, and transformation of post-colonial regimes.

Effective: Spring 2010

PL SC 060 (ANTH 060, J ST 060, SOC 060) (GS;IL)

**Society and Cultures in Modern Israel** (3) An introduction to the society and cultures of the State of Israel from 1948 to the present.

Effective: Summer 2006

PL SC 083S (GS)

**First-Year Seminar in Political Science** (3) Exploration of current topics of interest in political science, international relations, and/or political theory.

Effective: Summer 1999

PL SC 091

**Introduction to Peace and Conflict Studies** (3) Introduction to theory and practice concerning major contemporary issues of peace and conflict; includes anthropological, technological, psychological, and economic perspectives.

Effective: Spring 2013

PL SC 110 (GS;US)

**Rights in America** (3) This course explores the historical and contemporary struggles of particular groups within American society to expand their rights.

Effective: Summer 2006

PL SC 123 (GS;US;IL)

**Ethnic and Racial Politics** (3) Political movements among United States ethnic and racial groups; government policies on race and ethnicity; comparison to other culturally diverse countries.

Effective: Fall 2007

Prerequisite: PL SC 001 or PL SC 003

PL SC 125

**Pennsylvania Government and Politics** (3) Pennsylvania political processes; executive, legislative, judicial decision-making, and electoral behavior; selected public policies.

Effective: Fall 1984

PL SC 130 (GS;US)

**American Political Campaigns and Elections** (3) Methods and strategies of American political campaigns: polls, political consultants, parties, and the media.

Effective: Fall 2007

PL SC 132 (GS;IL)

**The Politics of International Intolerance** (3) Introductory course emphasizing psychological, historical, and political aspects of global intolerance towards minorities.  
Effective: Fall 2007

PL SC 135 (S T S 135) (GS)

**The Politics of the Ecological Crisis** (3) The political implications of the increasing scarcity of many of the world's resources.  
Effective: Spring 2001

PL SC 137

**United States Intelligence and Policy Making** (3) The policy making process in the United States foreign intelligence and security policy; emphasis on the period following World War II.  
Effective: Spring 2001

PL SC 155

**Understanding Tyranny** (3) Exploration of the rationales, methods, and consequences of highly repressive political regimes through novels, films, and memoirs.  
Effective: Summer 1996

PL SC 177 (GS)

**Politics and Government in Washington DC** (1-3) The course centers on a Spring Break trip to Washington DC, with students meeting on campus before and after the trip.  
Effective: Fall 2007

PL SC 197

**Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

PL SC 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PL SC 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

PL SC 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

PL SC 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

PL SC 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PL SC 300H

**Introduction to Independent Thesis Research** (3) Introduction to research design, principles of social science research, and development on honors theses research proposal.  
Effective: Fall 2008

PL SC 306H

**Senior Thesis Writing Workshop** (1 per semester, maximum of 3) This seminar supports the writing and editing of senior honors theses.  
Effective: Fall 2005

PL SC 309

**Quantitative Political Analysis** (3) Data analysis and statistical applications in political research, including data processing; inferential statistics; contingency analysis; correlation and regression; multivariate analysis.  
Effective: Fall 2009  
Prerequisite: any 3 credits in political science

PL SC 395

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

PL SC 397

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

PL SC 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.



Effective: Summer 2005

PL SC 403

**The Legislative Process** (3) Analysis of the policy process within the legislative system; the effects of environmental factors on policy alternatives and legislative decision making.

Effective: Spring 2001

Prerequisite: PL SC 001 or PL SC 003

PL SC 405

**The American Presidency** (3) An examination of the selection methods for, and powers of, the American presidency, as well as other chief executives.

Effective: Fall 1983

Prerequisite: PL SC 001

PL SC 409 (CAS 409)

**Democratic Deliberation** (3) Explores the theory and practice of democratic deliberation in elections, town meetings, juries, legislatures, and other public institutions.

Effective: Spring 2014

Prerequisite: CAS 137 CAS 175 CAS 201 CAS 202 CAS 216 CAS 250 CAS 272 or PL SC 001 PL SC 017 PL SC 112 PL SC 130

PL SC 410

**Strategy and Politics** (3) This course examines political behavior using social choice theory and game theory.

Effective: Spring 2013

Prerequisite: PL SC 001 PL SC 003 or PL SC 014

PL SC 411W

**Principles of International Cooperation** (3) An exploration of the forces that make conflict, or cooperation, more likely in international relations.

Effective: Summer 2006

Prerequisite: PL SC 014

PL SC 412

**International Political Economy** (3) The transnational politics of trade, investment, aid, raw materials, and the environment; nation-states, multinational corporations, and the U.N.

Effective: Spring 2011

Prerequisite: ECON 102 ECON 104 ECON 014 I B 303 or BUS 364

PL SC 413

**The Rise and Fall of the Soviet Union** (3) Background, organization, and operation of the Communist Party and the government of the Soviet Union.

Effective: Spring 2001

Prerequisite: 3 credits from: PL SC 003 PL SC 014 PL SC 155 or RUS 100

PL SC 414

**Dictators and Their Demise** (3) Dictators and Their Demise examines the political economy of authoritarian rule.

Effective: Summer 2011

Prerequisite: PL SC 003

PL SC 415

**International Organization: Political and Security Functions** (3) Theory and evolution of international organization; political and security functions of the United Nations and regional organizations.

Effective: Spring 2003

Prerequisite: PL SC 014

PL SC 417

**American Local Government and Administration** (3) Organization, powers, functions, and problems of American cities and metropolitan areas; modern trends and developments.

Effective: Winter 1978

Prerequisite: PL SC 001

PL SC 418

**International Relations Theory** (3) A survey of traditional and contemporary conceptual frameworks and theoretical approaches for the analysis of international relations.

Effective: Winter 1978

Prerequisite: PL SC 014

PL SC 418W

**International Relations Theory** (3) A survey of traditional and contemporary conceptual frameworks and theoretical approaches for the analysis of international relations.

Effective: Spring 1999

Prerequisite: PL SC 014

PL SC 419

**The Bureaucratic State** (3) Overview of structural, technological, decision-making, behavioral, and political subsystems of bureaucracy; emphasis on bureaucratic dynamics within larger environmental, interorganizational contexts.

Effective: Fall 2007

Prerequisite: PL SC 001 PL SC 002 or PUBPL 304W

PL SC 422

**Comparative Urban Politics** (3) Relationships between structure and evolution of city systems and patterns of political

behavior.

Effective: Spring 2001

Prerequisite: PL SC 003 PL SC 020 PL SC 022 or PL SC 417

PL SC 423

**Post-Soviet Politics** (3) Aspects of political transition and institutions of the fifteen Soviet successor republics; emphasis on Russia and republican confederation.

Effective: Fall 2007

Prerequisite: PL SC 003 PL SC 155 or RUS 100

PL SC 424

**Topics in Comparative Government and Institutions** (3) Topics in the comparative analysis of representative contemporary Western and non-Western governmental institutions.

Effective: Fall 2007

Prerequisite: 3 credits from PL SC 003 PL SC 020 PL SC 022

PL SC 425

**Government and Politics of the American States** (3) Comparative analysis of political processes; executive, legislative, and judicial decision making and behavior; examination of systems functioning; selected public policies.

Effective: Winter 1978

Prerequisite: PL SC 001

PL SC 426

**Political Parties and Interest Groups** (3) Interest group basis of American politics, analysis of party and group behavior in electoral politics and the policy process.

Effective: Fall 1983

Prerequisite: PL SC 001

PL SC 427

**Political Opinion** (3) Nature and development of mass attitudes and opinions; political socialization; voting behavior; relation between opinions and public policy.

Effective: Spring 2001

Prerequisite: PL SC 001

PL SC 428 (WMNST 428) (US;IL)

**Gender and Politics** (3) Gender in politics in the United States and around the world; major areas of women and politics research.

Effective: Fall 2007

Prerequisite: 3 credits in political science or women's studies

PL SC 429

**Analysis of Electoral Politics** (3) The new politics, its technology, and the strategic perspectives that underlie it.

Effective: Spring 2007

Prerequisite: PL SC 001

PL SC 430

**Selected Works in the History of Political Theory** (3) Detailed examination and analysis of a selected major work, thinker, or tradition in the history of political theory.

Effective: Spring 1998

Prerequisite: PL SC 017 or PL SC 007

PL SC 430W

**Selected Works in the History of Political Theory** (3) Detailed examination and analysis of a selected major work, thinker, or tradition in the history of political theory.

Effective: Spring 2008

Prerequisite: PL SC 017 or PL SC 007

PL SC 431

**Ancient, Medieval, and Renaissance Political Theories** (3) Political theories of Plato and Aristotle; selected Greek, Roman, medieval, and Renaissance theorists through Machiavelli.

Effective: Spring 2003

Prerequisite: PL SC 017 or PL SC 007

PL SC 432

**Modern and Contemporary Political Theories** (3) Political theories of the seventeenth through the twentieth centuries, including Hobbes, Locke, Rousseau, Marx, Mill, Mosca, Weber, and selected theorists.

Effective: Spring 2003

Prerequisite: PL SC 017 or PL SC 007

PL SC 434 (AFR 434) (IL)

**War and Development in Africa** (3) This course will examine the relationship between war and development in sub-Saharan Africa in the post colonial era.

Effective: Fall 2012

Prerequisite: PL SC 014 PL SC 003 AFR 110

PL SC 435

**Foundations of American Political Theory** (3) Political theories of colonial, revolutionary, and constitutional periods presented through works of selected thinkers and analysis of particular political problems.

Effective: Spring 2001

Prerequisite: PL SC 001 PL SC 017 or PL SC 007

PL SC 435W

**Foundations of American Political Theory** (3) Political theories of the revolutionary and constitutional periods presented through works of selected political thinkers and political issues.

Effective: Spring 2001

Prerequisite: PL SC 001 PL SC 017 or PL SC 007

PL SC 437

**War in World Politics** (3) Causes, resolution, and consequences of crises and wars; testing theories of conflict using both case and statistical studies.

Effective: Summer 1997

Prerequisite: PL SC 014

PL SC 438

**National Security Policies** (3) Impact of national security on U.S. government and foreign policy; roles and interaction of President, Congress, government agencies, interest groups.

Effective: Spring 2001

Prerequisite: PL SC 001 or PL SC 014

PL SC 439 (CRIMJ 439)

**The Politics of Terrorism** (3) Analysis of political terrorism as a violent alternative for peaceful change and traditional warfare in the nuclear age.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or PL SC 014 or permission of program

PL SC 440 (AFR 440, I B 440) (US;IL)

**Globalization and Its Implications** (3) This course explores the socioeconomic implications of globalization.

Effective: Spring 2013

Prerequisite: AF AM 100 or AFR 110 or PL SC 003 or PL SC 014 or PL SC 020 or PL SC 022

PL SC 441

**Transnational Corporations and Other Organizations in International Relations** (3) Analysis of the effects of transnational actor behavior on international relations.

Effective: Fall 2007

Prerequisite: ECON 333 I B 303 PL SC 014 or BUS 364

PL SC 442

**American Foreign Policy** (3) Principles of American foreign policy; processes of policy formulation; roles of the President, Congress, the State Department, and other government agencies.

Effective: Spring 2001

Prerequisite: PL SC 014

PL SC 443 (AFR 443) (IL)

**Ethnic Conflict in Africa** (3) This course explores the various causes and impacts of ethnic conflicts in the African context.

Effective: Spring 2013

Prerequisite: AF AM 100 AFR 110 PL SC 001 PL SC 003 PL SC 007 PL SC 014 PL SC 017 PL SC 020 or AFRAS 301

PL SC 444

**Government and the Economy** (3) Interactions of governmental and economic activity in American life. Survey of governmental (national, state, local) promotional, regulatory, and ownership policies.

Effective: Winter 1978

Prerequisite: 3 credits in political science or economics

PL SC 445Y (AF AM 445Y, LER 445Y) (US)

**Politics of Affirmative Action** (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

PL SC 452

**Government and Politics of Central Europe** (3) Politics and society in the Communist Era, the revolutions of 1989, and problems of adjustment to democracy and market.

Effective: Fall 2007

Prerequisite: PL SC 003 PL SC 020 PL SC 022 or PL SC 155

PL SC 453 (IL)

**Political Processes in Underdeveloped Systems** (3) Comparative analysis of the political, social, and economic problems characteristic of underdeveloped systems.

Effective: Fall 2007

Prerequisite: PL SC 003 PL SC 020 or PL SC 022

PL SC 454 (AFR 454) (IL)

**Government and Politics of Africa** (3) Contemporary African politics, institutions, and ideologies; patterns of change, social forces, and nation building in selected African states.

Effective: Fall 2012

Prerequisite: 3 credits from: AFR 110 PL SC 003 PL SC 020 or PL SC 022

PL SC 455

**Governments and Politics of Western Europe** (3) Comparative analysis of political and governmental structures of major

West European nations; main functions and processes of such structures.

Effective: Spring 2001

Prerequisite: PL SC 003 or PL SC 020

PL SC 456

**Politics and Institutions of Latin-American Nations** (3) Social forces and processes, governmental institutions, foreign policies of major states of Latin America.

Effective: Spring 2001

Prerequisite: HIST 179 PL SC 003 PL SC 020 or PL SC 022

PL SC 457

**International Politics of Latin America** (3-6) Relationships among the nations of Latin America and the social forces which determine and shape their direction.

Effective: Spring 2001

Prerequisite: HIST 179 PL SC 003 PL SC 014 PL SC 020 or PL SC 022

PL SC 458

**Government and Politics of East Asia** (3-6) Examination of political institutions, democratic and communist revolution, political leadership, political processes of major states of East Asia.

Effective: Summer 1996

Prerequisite: 3 credits from PL SC 003 PL SC 020 PL SC 022

PL SC 459 (AFR 459) (IL)

**Culture and World Politics** (3) Role of culture in world politics.

Effective: Spring 2013

PL SC 460 (S T S 460)

**Science, Technology, and Public Policy** (3) The all-pervasive importance of science and technology policy in modern societies and mechanisms and processes by which it is made.

Effective: Spring 1995

Prerequisite: 3 credits in natural sciences or engineering 3 credits in social and behavioral sciences

PL SC 462

**Marxist and Socialist Political Theory** (3) Analysis of major problems and key works in the Marxist and Socialist tradition; dialectical materialism, alienation, class warfare, etc.

Effective: Spring 2001

Prerequisite: PL SC 017 PL SC 007 PL SC 413 or PL SC 452

PL SC 466

**Political Psychology** (3) An interdisciplinary investigation of the major topics and debates characterizing the subfield of political psychology.

Effective: Spring 2014

Prerequisite: PL SC 001 PL SC 003 PL SC 014 or PSYCH 100

PL SC 467

**International Relations of the Middle East** (3) The international relations of the Middle East, stressing national security policies of regional and outside actors, and major contemporary conflicts.

Effective: Spring 1985

Prerequisite: PL SC 014 or HIST 181

PL SC 470W

**Legal Brief Writing** (3) Writing of legal briefs as practiced in American courts.

Effective: Spring 1998

Prerequisite: PL SC 001

PL SC 471

**American Constitutional Law** (3) The origins of judicial review, landmark decisions of the Supreme Court, and their impact on the American form of government.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 472

**The American Legal Process** (3) Analysis of the roles, procedures, and policies characterizing the American legal system.

Effective: Spring 2001

Prerequisite: PL SC 001

PL SC 473

**American Judicial Behavior** (3) Analyzes behavior of judges and other participants in the legal process; examines how and why courts function as policymaking bodies.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 474

**Civil Liberties and Due Process** (3) Fundamental problems relating to civil liberties and due process.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 480W

**Congress and the Presidency** (3) Basic characteristics and processes of the national legislature and executive; roles and interaction of these institutions in the policy process.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 481

**Global Political Economy** (3) This course examines states, markets, power, production, and the relations between the various transnational agents who act in these areas. Students may not receive credit for PL SC 481 and PL SC 412.

Effective: Spring 2007

Prerequisite: PL SC 014 or INTST 100

PL SC 482

**American State and Urban Politics** (3) Explores basic characteristics and processes of American state and urban politics; nature of intergovernmental relations involving these governmental levels.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 484W

**The Foreign Policy of Soviet Successor States** (3) Relations between Russia and The Newly Independent States (NIS); Russia's relations with selected foreign states and political Institutions; regional impact of the NIS in Baltic, Asian, and Central Asian areas.

Effective: Fall 2007

Prerequisite: PL SC 003

PL SC 487

**International Law and Organizations** (3) Major topics and issues of international law with special attention to institutional arrangements (international organizations) through which that law operates.

Effective: Fall 2007

Prerequisite: PL SC 003 or PL SC 014

PL SC 488

**Comparative Public Policy** (3) Comparative methodology and public policy implementation in postindustrial societies; selected case studies of policy output.

Effective: Fall 2007

Prerequisite: PL SC 003

PL SC 489

**Public Administration** (3) A survey of the major approaches to the management of most governmental agencies.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 490

**Policy Making and Evaluation** (3) Advanced analysis of public policy, emphasizing policy evaluation and the factors that determine policy success and failure.

Effective: Fall 2007

Prerequisite: PL SC 001 PL SC 002 or PUBPL 304W

PL SC 491

**Peace and Conflict Studies Seminar** (3) Advanced study of major contemporary issues of peace and conflict; includes anthropological, technological, psychological, and economic perspectives.

Effective: Spring 2013

Prerequisite: PL SC 014 PL SC 091

PL SC 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

PL SC 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

PL SC 495

**Political Science Internship** (1-6) Combining experience in government offices, related agencies, or law firms, with appropriate readings and a research paper/report.

Effective: Fall 2007

Prerequisite: prior consent of supervisor adviser or department head; applicable departmental internship requirements such as satisfactory completion of required 300- or 400-level courses appropriate for the internship program selected

PL SC 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

PL SC 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

PL SC 497A

**Democracy and Its Impacts** (3) Does democracy matter? Do democratic countries grow faster than dictatorships, or

provide more public benefits to their people? Do they invest more in health and education? Are incomes more equal in democratic states? Are democracies less corrupt? This course focuses on differences in government policies and performance across different regime types, to determine whether democratic regimes outpace autocracies. Given the amounts of international aid devoted to democracy promotion around the globe, the topic should be relevant for anyone interested in foreign aid, international development, or the impacts of transitions from dictatorship to democracy.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## PL SC 497B

**The Psychology of Terrorism** (3) This class introduces students to the study of terrorism from a psychological perspective. That is, the study of the thoughts and the behaviors of those individuals who use fear to attain their goals, and those individuals who are victims of fear-driven compliance. We will explore the psychological processes that create a terrorist, the motivation for individual terrorists, terrorist organizations and their leaders, which may greatly differ. Students will learn about recruitment and indoctrination and gain an understanding of the socio-political conditions that propagate terrorist organizations and serve as recruitment tools for terrorists. Students will learn to "think" like a terrorist, in order to better understand their motives, their objectives, the methods used to achieve their objectives, and how to defeat them.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## PL SC 497C

**Religion and War in World Politics** (3) This course examines the relationship between religion and war in world politics in the modern era. Religion has become increasingly important in the relations within and between states; however, it has been an under-studied topic in world politics. This class focuses on the salience of religion in world politics; specifically, it examines the role of religion in warfare (primarily, but not exclusively international warfare). In this course, we will evaluate the extent to which religious motivation(s) of leaders (and followers), religious characteristics of states, and religious justifications generate armed conflicts; and also attempt to determine the extent to which presumable "religious wars" are different from "non-religious" (or "secular") wars. Although the class will examine the topic broadly, particular attention will be paid to more systematic studies and findings regarding these issues.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## PL SC 497D

**Politics and the Media** (3) This course is designed to introduce students to the interactive dynamics of the news media and the political system. We focus primarily on the news media as it is the dominant medium for political communication. Theoretical concerns include the type of information systems necessary for a healthy and vibrant democratic culture. We also examine the relationship between the historical development of mass media and its impact on democratic communication. Other topics addressed include media bias, framing journalistic norms and routines, and government regulation. Finally, we are in the midst of a profound transformation of the news media - largely influenced by the Internet - and understanding the implication of the changing nature of the news provide insight for the future of American democracy.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## PL SC 497E

**Government and Politics of South Asia** (3) This course will present an overview of the politics of modern South Asia focusing on Afghanistan, India and Pakistan. We will then begin our exploration of South Asian politics by studying the impact of the British colonial experience, the rise of nationalism and the emergence of independent nation states in South Asia. In order to develop a broad understanding of the political and economic experience of the region we will spend time analyzing the 3 countries individually. Additionally, we will explore in detail three important themes in Political Science. First, the state of economic development in these countries. Second, the relationship between identity politics and violence. Third, international relations of these countries focusing on terrorism and nuclear policy.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## PL SC 497F

**Democratization in Asia** (3) This seminar addresses the literature on democracy and democratization and then applies it in Asia. Since 1974, over thirty countries around the world started a transition toward democracy. As a result of these democratic events, comparative scholars have studied these, and earlier transition cases, to understand why some countries become democratic while others do not, and why some new democracies show signs of considering while others collapse. This seminar, then, addresses the recent work in the field of democratization. First, we will review works that define and measure key concepts, such as authoritarianism, democracy, and democratic consolidation. Then, we will consider a range of factors to explain the installation, consolidation, or failure of democracy in specific Asian countries. The goal of this seminar are three-fold.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## PL SC 497H

**Working with & Communicating Information in Data Instructor** (3) This course will give honors students the skills needed to find data, prepare it for analysis, engage in simple forms of data analysis that illustrate relationships, and interpret substantively the results of their analyses. No statistical background is assumed. Particular attention will be given to developing data visualization skills that allow students to effectively communicate the results of their analyses to others. Data used in the course will cover a variety of substantive fields in political science including such topics as the causes of war, death penalty, elections in the US and cross nationally, campaign speeches. Additional topics will come from other fields such as global health, economics, and the geography. These skills will develop student facility to work with data in a variety of courses, senior honors project and upon graduation in the workforce.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

## PL SC 499 (IL)

**Foreign Study--Government** (1-12) Study, in selected foreign countries, of political institutions.

Effective: Summer 2005

Prerequisite: PL SC 003 3 credits in economics history political science or sociology

## PSYCH 083S (GS)

**First-Year Seminar in Psychology** (3) Scientific, societal, and individual implications of contemporary psychological theory.

Effective: Spring 2007

PSYCH 100 (GS)

**Introductory Psychology** (3) Introduction to general psychology; principles of human behavior and their applications.

Effective: Spring 2007

PSYCH 100H (GS)

**Introductory Psychology** (3) Introduction to general psychology; principles of human behavior and their applications.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

PSYCH 100H (GS)

**Introductory Psychology** (3) Introduction to general psychology; principles of human behavior and their applications.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

PSYCH 100S (GS)

**Introductory Psychology** (3) Introduction to general psychology; principles of human behavior and their applications.

Effective: Spring 2007

PSYCH 105

**Psychology as a Science and Profession** (3) Overview of history and methods of psychology as a science and profession; applications and ethical issues in psychology.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

PSYCH 212 (GS)

**Introduction to Developmental Psychology** (3) Developmental principles; physical growth; linguistic, intellectual, emotional, and social development from infancy to maturity.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 212H (GS)

**Introduction to Developmental Psychology** (3) Developmental principles; physical growth; linguistic, intellectual, emotional, and social development from infancy to maturity.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: PSYCH 100

PSYCH 212H (GS)

**Introduction to Developmental Psychology** (3) Developmental principles; physical growth; linguistic, intellectual, emotional, and social development from infancy to maturity.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

Prerequisite: PSYCH 100

PSYCH 221 (GS)

**Introduction to Social Psychology** (3) Research and theory on topics including interpersonal attraction, aggression, helping, attitudes, attribution, cooperation, competition, and groups, from a psychological perspective.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 230 (GS)

**Introduction to Psychologies of Religion** (3) Introduction to major Western psychologies of religion (James, Freud, Jung) and to subsequent extensions of and departures from them.

Effective: Fall 2012

PSYCH 231 (GS;US)

**Introduction to the Psychology of Gender** (3) Psychological study of gender in historical and contemporary perspective. Role of gender in development, self-concept, social relations, and mental health.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 232 (GS;US;IL)

**Cross-Cultural Psychology** (3) This course examines how ethnic and cultural background influences patterns of human thought and behavior.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 238 (GS)

**Introduction to Personality Psychology** (3) Past and recent conceptualizations of key issues and root ideas of personality psychology.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 243 (GS)

**Introduction to Well-being and Positive Psychology** (3) Applying psychological knowledge to develop and maintain effective personal adjustment and well-being and positive social relations.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 253 (GS)

**Introduction to Psychology of Perception** (3) Survey of human perception and processing of perceptual information, with some reference to animal literature. Emphasizes vision and audition.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 256 (GS)

**Introduction to Cognitive Psychology** (3) Introduction to study of such higher mental processes as thinking and reasoning, imagery, concept formation, problem solving, and skilled performance.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 260A (GS)

**Neurological Bases of Human Behavior** (3) An introduction to biopsychology, emphasizing the structure and function of the human brain. Students may take only one course for credit from PSY 203 and PSY 203A.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 261 (GS)

**Introduction to Psychology of Learning** (3) A general survey of the learning area, including animal and human experiments, with the applicability of learning principles being discussed.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 269

**Evolutionary Psychology** (3) Survey of evolutionary perspectives in current psychological research.

Effective: Spring 2008

Prerequisite: PSYCH 100 ; ANTH 021 BI SC 002 BIOL 133 or BIOL 222

PSYCH 270

**Introduction to Abnormal Psychology** (3) Overview of assessment, causes, and treatments of psychological disorders.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 281 (GS)

**Introduction to Industrial-Organizational Psychology** (3) Personnel selection, training, accident prevention, morale, and organizational behavior.

Effective: Spring 2007

Prerequisite: PSYCH 100

PSYCH 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2007

PSYCH 295

**Internship** (1-18) Supervised off-campus nongroup instruction including field experiences, practica, or internships.

Written and oral critique of activity required.

Effective: Spring 2007

PSYCH 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2007

PSYCH 297E (MUSIC 297E)

**Introduction to Music Therapy** (3) Introductory course in music therapy to study the populations served by this form of therapy and its basic techniques.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PSYCH 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

PSYCH 300H

**Honors Course in Psychology** (1-6) Individual study and seminar in selected phases of psychology.

Effective: Spring 2007

Prerequisite: invitation of Program Honors Committee

PSYCH 301W

**Basic Research Methods in Psychology** (4) Introduction to methods of psychological research, with special attention to hypothesis formation and testing, threats to validity, and data presentation.

Effective: Spring 2007

Prerequisite: PSYCH 100 ; PSYCH 200 or STAT 200

PSYCH 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007



## PSYCH 400

**Intermediate Experimental Design** (3) Design and analysis of experiments on human and animal behavior, including application of the t, F, chi-square, and binomial distributions.

Effective: Spring 2007

Prerequisite: PSYCH 200 or STAT 200

## PSYCH 404 (EDPSY 450)

**Principles of Measurement** (3) Scale transformation, norms, standardization, validation procedures, estimation of reliability.

Effective: Spring 2007

Prerequisite: EDPSY 400 PSYCH 100 or PSYCH 200 ; STAT 200

## PSYCH 405

**Mathematical Psychology** (3) Formalized psychological theories including models of social, biological, cognitive, and learning phenomena.

Effective: Spring 2007

Prerequisite: MATH 040 or equivalent PSYCH 200 or STAT 200

## PSYCH 407

**Advanced Research Methods in Psychology** (3) Advanced methodology focusing on the logic and practice of research in a selected content area of psychology.

Effective: Spring 2007

Prerequisite: PSYCH 100 ; PSYCH 200 or STAT 200 ; PSYCH 301W

## PSYCH 415

**Topics in Developmental Psychology** (3) Special topics in developmental psychology.

Effective: Spring 2007

Prerequisite: PSYCH 413 or PSYCH 414

## PSYCH 421

**Self and Social Judgment** (3) Individual's perceptions, evaluations, and decision-making strategies about themselves, others, and social situations or issues.

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 221

## PSYCH 423

**Social Psychology of Interpersonal/Intergroup Relationships** (3) In-depth study of relationships among individuals (e.g., intimate relationships) or groups (e.g., prejudice, cooperation, competition, aggression, and negotiation).

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 221

## PSYCH 424

**Applied Social Psychology** (3) Application of social psychological theories and research methods to field settings and to the study of social issues.

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 221

## PSYCH 425

**Psychology of Human Emotion** (3) Reviews, critiques, and applies major historical and contemporary psychological theories of emotion experience, understanding, and expression.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

## PSYCH 426 (LING 429)

**Language and Thought** (3) Relations between language and cognition; cognitive implications of normal and impaired language development; cognition and bilingualism.

Effective: Spring 2007

Prerequisite: PSYCH 100 or LING 001 or LING 100

## PSYCH 427 (LING 446)

**L1 Acquisition** (3) How children learn their first language; psycholinguistic aspects of lexical, syntactic, semantic, and phonological development.

Effective: Spring 2010

Prerequisite: LING 100 or PSYCH 002 or permission of program

## PSYCH 432 (US)

**Multicultural Psychology in America** (3) This course focuses on the central role of culture, race, and ethnicity in the human condition.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

## PSYCH 436

**Humanistic, Existential, and Religious Approaches to Psychology** (3) Existential, humanistic, and religious approaches to the psychology of experience, consciousness and will.

Effective: Fall 2012

Prerequisite: PSYCH 100 or RL ST 001

## PSYCH 441

**Health Psychology** (3) Overview of the field with an emphasis on how psychological research contributes to an understanding of health and behavior.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

PSYCH 444

**Engineering Psychology** (3) Methods and results of experimental psychology pertinent to problems which involve man-machine relationships.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of GQ or PSYCH

PSYCH 445

**Forensic Psychology** (3) Relations between psychological theory and research and the law, legal processes, and social policy.

Effective: Spring 2007

Prerequisite: PSYCH 100 ; PSYCH 238 PSYCH 243 or PSYCH 270

PSYCH 450

**Psychology of Consciousness** (3) Introduction to psychological and physiological aspects of consciousness as related to brain function and clinical psychology.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

PSYCH 457 (LING 457)

**Psychology of Language** (3) Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.

Effective: Fall 2013 Ending: Summer 2014

Prerequisite: LING 100

PSYCH 457 (LING 457)

**Psychology of Language** (3) Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: PSYCH 100 or LING 100

PSYCH 458

**Visual Cognition** (3) Overview of concepts and methods in cognitive visual-spatial processing.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

PSYCH 459

**Attention and Information Processing** (3) An examination of attentional processes. Contemporary informational processing approaches will be emphasized.

Effective: Spring 2007

Prerequisite: PSYCH 100 ; PSYCH 200 or STAT 200 ; 3 credits 400-level PSYCH

PSYCH 460

**Comparative Psychology** (3) Behavior from standpoint of phylogenetic growth and development; biological implications; comparison of different types of animals, including man.

Effective: Spring 2007

Prerequisite: PSYCH 100 ; PSYCH 260

PSYCH 464

**Behavior Genetics** (3) Survey of gene mechanisms and gene-environment interactions in the determination of behavior; emphasis on deviant human behavior.

Effective: Spring 2008

Prerequisite: PSYCH 100 ; ANTH 021 BI SC 002 BIOL 133 or BIOL 222

PSYCH 474

**Psychological Intervention in Childhood** (3) Psychology of personal relationships in school situations.

Effective: Spring 2007

Prerequisite: PSYCH 100 ; PSYCH 212 PSYCH 238 PSYCH 243 or PSYCH 270

PSYCH 475

**Psychology of Fear and Stress** (3) Description and evaluation of major trends in research on stress and fear in humans and other animals.

Effective: Spring 2007

Prerequisite: PSYCH 100 3 credits of BIOL statistics PSYCH 200 or STAT 200

PSYCH 476

**Child Psychopathology** (3) Etiology, diagnosis, and facilitation of adjustment of the mentally retarded, gifted, physically handicapped, and emotionally disturbed child.

Effective: Spring 2007

Prerequisite: PSYCH 100 ; PSYCH 212 PSYCH 238 PSYCH 243 or PSYCH 270

PSYCH 477

**Mental Health Practicum with Children** (3) Overview of interventions for children at risk for mental health disorders; emphasis on intervention strategies, program evaluation, and applied skills.

Effective: Spring 2007

Prerequisite: PSYCH 100 permission of program

PSYCH 478

**Clinical Neuropsychology** (3) Overview of functional human neuroanatomy and clinical neuropsychology, with emphasis on origin, assessment, and treatment of human brain damage.

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 260

PSYCH 482

**Selection and Assessment in Organizations** (3) Background in personnel testing, performance measurement, selection strategies, with emphasis on validity and measurement reliability.

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 200 or STAT 200 PSYCH 281

PSYCH 484

**Work Attitudes and Motivation** (3) Survey of theory and research with respect to attitudes, morale, and motivation of employees and management.

Effective: Spring 2007

Prerequisite: PSYCH 100 ; PSYCH 200 or STAT 200 or 6 credits of GQ

PSYCH 485

**Leadership in Work Settings** (3) Review of research and application of behavior principles in the areas of management and supervision.

Effective: Spring 2007

Prerequisite: PSYCH 100 ; PSYCH 281 or 3 credits MGMT

PSYCH 490

**Senior Seminar in Psychology** (3) Capstone experience for senior psychology majors; review of current research literature; topics vary.

Effective: Spring 2007

Prerequisite: PSYCH 301W 6 credits 400-level PSY senior Psychology major

PSYCH 493

**Senior Thesis** (3-6) Supervised senior thesis research in psychology.

Effective: Spring 2007

Prerequisite: approval of a thesis adviser in the department seventh-semester standing

PSYCH 494

**Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2007

PSYCH 494H

**Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

PSYCH 499 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

R SOC 011 (GS;US)

**Introductory Rural Sociology** (3) Basic sociological concepts applied to rural societal institutions and rural communities; causes and consequences of rural social change. Students may take only one course for General Education credit from R SOC 011 GS or SOC 001 GS.

Effective: Summer 2013

R SOC 327 (S T S 327)

**Natural Resources, Science, Ethics, and Society** (3) The purpose of this course is to enable students to become competent critical thinkers about the state of natural resources through greater understanding of scientific, discourse formation, and the ethical dimensions of natural resources issues.

Effective: Summer 2013 Ending: Summer 2014

RL ST 461 (SOC 461) (US;IL)

**Sociology of Religion** (3) Contemporary religion in the global perspectives: beliefs, structure, and function of major religious traditions, denominations, and cults.

Effective: Fall 2013

Prerequisite: 3 credits of sociology or religious studies

S T S 047 (SOC 047)

**Wilderness, Technology, and Society** (3) Impact of developments in science, literature, and art on changing attitudes toward nature; consequences for conservation, preservation, environmental ethics.

Effective: Spring 1991

S T S 055 (AERSP 055) (GN)

**Space Science and Technology** (3) The science and technology of space exploration and exploitation; physical principles; research and development; history, space policy, and social implications.

Effective: Spring 1994

S T S 105 (FD SC 105) (GHA)

**Food Facts and Fads** (3) Impact on society and the individual of modern food technology, food laws, additives, etc.; historical, current, and futuristic aspects.

Effective: Spring 2004

## S T S 130

**World Food Problems** (1-3) Critical examination of data sources, issues, and perspectives concerning contributions of science, technology, and society in resolving world food problems.  
Effective: Spring 1991

## S T S 130H

**World Food Problems** (1-3) Critical examination of data sources, issues, and perspectives concerning contributions of science, technology, and society in resolving world food problems.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## S T S 135 (PL SC 135) (GS)

**The Politics of the Ecological Crisis** (3) The political implications of the increasing scarcity of many of the world's resources.  
Effective: Spring 2001

## S T S 150 (EM SC 150) (GN;IL)

**Out of the Fiery Furnace** (3) A history of materials, energy, and humans, with emphasis on their interrelationships. For nontechnical students.  
Effective: Spring 2006

## S T S 151 (HIST 151) (GS;US)

**Technology and Society in American History** (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.  
Effective: Spring 2006

## S T S 151S (HIST 151S) (GS;US)

**Technology and Society in American History** (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.  
Effective: Spring 2006

## S T S 157 (WMNST 157) (US)

**Science, Technology, and Gender** (3) The role of women and gender in science, technology, and engineering.  
Effective: Fall 2011

## S T S 200 (GS)

**Critical Issues in Science, Technology, and Society** (3) An overview of interactions between science, technology, and society from social sciences and humanities perspectives.  
Effective: Spring 1995

## S T S 200S (GS)

**Critical Issues in Science, Technology, and Society** (3) An overview of interactions between science, technology, and society from social sciences and humanities perspectives.  
Effective: Summer 1999

## S T S 201 (GN)

**Climate Change, Energy, and Biodiversity** (3) Studies of global warming, energy options, and biodiversity; their interrelations as sciences and as societal issues.  
Effective: Summer 1994

## S T S 201H (GN)

**Climate Change, Energy, and Biodiversity** (3) Studies of global warming, energy options, and biodiversity; their interrelations as sciences and as societal issues.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## S T S 327 (R SOC 327)

**Natural Resources, Science, Ethics, and Society** (3) The purpose of this course is to enable students to become competent critical thinkers about the state of natural resources through greater understanding of scientific, discourse formation, and the ethical dimensions of natural resources issues.  
Effective: Fall 2011 Ending: Summer 2014

## S T S 407 (PHIL 407)

**Technology and Human Values** (3) Interrelationships of twentieth-century technological change and human values. Emphasis on the social and ethical aspects of technological progress.  
Effective: Spring 1999  
Prerequisite: 9 credits in philosophy including PHIL 107 or 6 credits of philosophy at the 200 level

## S T S 408 (COMM 408)

**Cultural Foundations of Communications** (3) Examination of oral, scribal, print, industrial and electronic cultures; analysis of impact of technology on communications and social structure.  
Effective: Spring 2009  
Prerequisite: select 3 credits from COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260W COMM 320 COMM 370 ; or 3 credits of S T S

## S T S 420 (EM SC 420, SOC 420)

**Energy and Modern Society** (3) Technology and economics of energy resources, production, and consumption; environmental factors, exhaustion, new technology.  
Effective: Spring 1991

## S T S 428 (HIST 428) (IL)

**The Darwinian Revolution** (3) The origins and implications of evolutionary theory.  
Effective: Spring 2006

Prerequisite: An introductory Science course and a history course.

S T S 430 (NUTR 430) (IL)

**Global Food Strategies: Problems and Prospects for Reducing World Hunger** (3) Technological, social, and political solutions to providing basic food needs; food resources, population, and the environment; current issues.

Effective: Summer 2005

S T S 432 (PHIL 432)

**Medical and Health Care Ethics** (3) Examines ethical, political, and social issues in the research, implementation, and practice of medicine, medical technologies, and healthcare.

Effective: Fall 1998

Prerequisite: fifth-semester standing

S T S 433 (PHIL 433)

**Ethics in Science and Engineering** (3) Ethical issues arising in the practice of science and engineering and their philosophical analysis.

Effective: Fall 1995

S T S 435 (PHIL 435)

**The Interrelation of Science, Philosophy, and Religion** (3) The historical and transformative interactions between science and Western philosophical and religious views of nature, humanity, and God.

Effective: Spring 1996

S T S 457 (HIST 457, WMNST 457) (US;IL)

**The History of Women in Science** (3) Critical analysis of the role women, gender, and minorities have played in the natural sciences.

Effective: Spring 2013

Prerequisite: HIST 116 HIST 117 WMNST 100 WMNST 106 or WMNST 157

S T S 460 (PL SC 460)

**Science, Technology, and Public Policy** (3) The all-pervasive importance of science and technology policy in modern societies and mechanisms and processes by which it is made.

Effective: Spring 1995

Prerequisite: three credits in Natural Sciences or Engineering three credits in Social and Behavioral Sciences

S T S 470

**Technology Assessment and Transfer** (3) Nature of technology assessment and technology transfer in product design and development process from federal and university labs, and internationally.

Effective: Summer 1996

SO SC 001 (GS)

**Urbanization** (3) An overview of the social sciences, including an interdisciplinary analysis of the urban process.

Effective: Summer 1995

SO SC 297

**Special Topics** (1-9) Formal courses given infrequently to explore in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

SOC 001 (GS)

**Introductory Sociology** (3) The nature and characteristics of human societies and social life. Students may take only one course for General Education credit from SOC 001 GS or R SOC 011 GS.

Effective: Spring 2003

SOC 001S (GS)

**Introductory Sociology** (3) The nature and characteristics of human societies and social life.

Effective: Spring 2006

SOC 001W (GS)

**Introductory Sociology** (3) The nature and characteristics of human societies and social life.

Effective: Fall 1998

SOC 003 (GS)

**Introductory Social Psychology** (3) The impact of the social environment on perception, attitudes, and behavior.

Effective: Spring 2003

SOC 003H (GS)

**Honors Introduction to Social Psychology** (3) This is an honors course that enables students to learn, apply, and evaluate basic social psychology concepts, theories, and research.

Effective: Summer 2011

SOC 005 (GS)

**Social Problems** (3) Current social problems such as economic, racial, and gender inequalities; social deviance and crime; population, environmental, energy, and health problems.

Effective: Spring 2003

SOC 005H (GS)

**Social Problems** (3) Current social problems such as economic, racial, and gender inequalities; social deviance and crime; population, environmental, energy, and health problems.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## SOC 007

**Introduction to Social Research** (3) Fundamental concepts and problems in social science research; design, measurement, sampling, causation, validity, interpretation.  
Effective: Spring 2001

## SOC 012 (CRIMJ 012, CRIM 012) (GS)

**Criminology** (3) Explanations and measurement of crime; criminal law; characteristics of criminals and victims; violent, property, white-collar, organized, and sexual crimes.  
Effective: Spring 2008

## SOC 012H (CRIM 012H) (GS)

**Criminology** (3) Explanations and measurement of crime; criminal law; characteristics of criminals and victims; violent, property, white-collar, organized, and sexual crimes.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## SOC 013 (CRIMJ 013) (GS)

**Juvenile Delinquency** (3) Juvenile conduct, causes of delinquency, current methods of treatment; organization and function of agencies concerned with delinquency.  
Effective: Spring 2008

## SOC 015 (GS)

**Urban Sociology** (3) City growth and decline; impact of city life on individuals, families, neighborhoods, and government; urban life-styles.  
Effective: Summer 1995

## SOC 023 (GS)

**Population and Policy Issues** (3) Local, national, and international population trends; basic techniques of demographic analysis; population problems; implications for public planning and policy.  
Effective: Fall 2004

## SOC 023H (GS)

**Population and Policy Issues** (3) Local, national, and international population trends; basic techniques of demographic analysis; population problems; implications for public planning and policy.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## SOC 030 (GS)

**Sociology of the Family** (3) Family structure and interaction; functions of the family as an institution; cross-cultural comparisons. Students may take only one course for General Education credit from SOC 030 or HD FS 129.  
Effective: Spring 2003

## SOC 030H (GS)

**Sociology of the Family** (3) Family structure and interaction; functions of the family as an institution; cross-cultural comparisons. Students may take only one course for General Education credit from SOC 030 or HD FS 129.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## SOC 035

**Sociology of Aging** (3) Introduction to the sociological study of aging.  
Effective: Spring 2000

## SOC 047 (S T S 047)

**Wilderness, Technology, and Society** (3) Impact of developments in science, literature, and art on changing attitudes toward nature; consequences for conservation, preservation, environmental ethics.  
Effective: Fall 1983

## SOC 055 (GS)

**Work in Modern Society** (3) The nature of work in varied occupational and organizational settings; current trends and work life in the future.  
Effective: Summer 1995

## SOC 083S (GS)

**First-Year Seminar in Sociology** (3) Critical approaches to issues in the structure of society.  
Effective: Summer 1999

## SOC 103 (AF AM 103, WMNST 103) (US)

**Racism and Sexism** (3) Critical analysis of the structure of race and gender inequality in the contemporary United States.  
Effective: Spring 2013

## SOC 109

**Sociological Perspectives** (3) Intensive and critical analysis of the bases of the social order, change, values, knowledge, and conflict.  
Effective: Spring 2001

## SOC 110 (WMNST 110) (GS;US)

**Sociology of Gender** (3) Changing sex role expectations and behavior for men and women in contemporary society.  
Effective: Summer 2005

## SOC 119 (GS;US)

**Race and Ethnic Relations** (4) Historical patterns and current status of racial and ethnic groups; inequality, competition, and conflict; social movements; government policy.  
Effective: Summer 2005

## SOC 197

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1995

## SOC 207

**Research Methods in Sociology** (3) Experiential-based course covering the four main social research methods: available data, survey research, experiments, and field research.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

## SOC 294

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

## SOC 296

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which will fall outside the scope of formal courses.

Effective: Fall 1983

## SOC 297

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

## SOC 298

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Effective: Spring 1995

## SOC 300

**Preceptorship in Sociology** (1-8, maximum of 4 per semester) Supervised experience as a teaching assistant under the supervision of an approved faculty member.

Effective: Spring 2003

Prerequisite: 3 credits in course work related to the subject of the course

## SOC 309

**Sociology of Health** (3) Sociological concepts and principles operative in public and private areas of health and illness, including cultural, ethnic, and ecological factors.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

## SOC 381H

**Junior Honors Seminar in Sociology** (1) Supervised experience in planning the honors thesis and a sociological career.

Effective: Spring 1999

Prerequisite: sociology major junior standing and admission to the Schreyer Honors College

## SOC 395

**Internship** (1-6) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.

Effective: Fall 1981

Prerequisite: prior approval of proposed assignment by instructor

## SOC 400W

**Senior Research Seminar** (3) Major concepts and principles of sociology through reading, data analysis, and writing. Capstone course for senior Sociology majors.

Effective: Fall 2001

Prerequisite: SOC 470

## SOC 403

**Advanced Social Psychology** (3) Analysis of the major theoretical approaches and research findings of contemporary social psychology.

Effective: Fall 1983

Prerequisite: SOC 003

## SOC 404

**Social Influence and Small Groups** (3) The study of social influence, leadership and status, and social cohesion and commitment processes in small groups.

Effective: Spring 2007

Prerequisite: SOC 003 or PSYCH 420

## SOC 405

**Sociological Theory** (3) Overview of the development of sociological theory; current issues and controversies.

Effective: Spring 2001

Prerequisite: 3 credits in the Sociology

## SOC 406 (CRIMJ 406, CRIM 406)

**Sociology of Deviance** (3) Theory and research concerning deviant behaviors and lifestyles viewed as significant departures from a group's normative expectations.

Effective: Spring 2008

Prerequisite: SOC 012 SOC 013 or SOC 005 or permission of program

SOC 408

**Urban Ecology** (3) Spatial and temporal aspects of urban structure; urban growth, neighborhoods, racial and ethnic groups, mental illness; cross-cultural perspectives.

Effective: Fall 1983

Prerequisite: 3 credits in sociology

SOC 409 (AF AM 409) (US)

**Racial and Ethnic Inequality in America** (3) The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.

Effective: Fall 2012

Prerequisite: 3 credits in Sociology

SOC 412 (CRIMJ 412, CRIM 412)

**Crime, Social Control, and the Legal System** (3) Legal and extralegal control; public opinion on crime; criminal justice and correctional processes; legal sanctions; control strategies. Field trip.

Effective: Spring 2008

Prerequisite: SOC 012 SOC 013 or SOC 005

SOC 413 (CRIM 413, CRIMJ 413)

**Advanced Criminological Theory** (3) This course provides an in-depth look at theories of crime and examines influential empirical studies designed to these theories.

Effective: Spring 2008

Prerequisite: SOC 012 CRIMJ 250W

SOC 414 (CRIMJ 414, CRIM 414)

**Criminal Careers and the Organization of Crime** (3) Research on and theory of criminal careers and crime organizations, emphasizing recruitment and disengagement; offender characteristics and life- styles; policy implications.

Effective: Spring 2008

Prerequisite: SOC 012 SOC 013 or SOC 005

SOC 416 (EDTHP 416) (US)

**Sociology of Education** (3) The theoretical, conceptual, and descriptive contributions of sociology to education.

Effective: Spring 2006

Prerequisite: 3 credits in Sociology

SOC 419 (US)

**Race and Public Policy** (3) Seminar format course in which sociological theory and research are applied to current race policy issues.

Effective: Spring 2006

Prerequisite: 3 credits in Sociology

SOC 420 (EM SC 420, S T S 420)

**Energy and Modern Society** (3) Technology and economics of energy resources, production, and consumption; environmental factors, exhaustion, new technology.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

SOC 422

**World Population Diversity** (3) Survey of world diversity in national population growth/composition; the impacts of demographic change on the economic/social life of nations/people.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

SOC 423

**Social Demography** (3) Social demographic perspectives on fertility, mortality, morbidity, migration, population density, demographic transitions, social mobility, family, the aged, and minorities.

Effective: Spring 2001

Prerequisite: SOC 023 or SOC 422

SOC 424

**Social Change** (3) Critical review of classical and recent theories of social change, emphasizing the transformations occurring in the modern world.

Effective: Fall 1983

Prerequisite: 3 credits in sociology

SOC 424H

**Social Change** (3) Critical review of classical and recent theories of social change, emphasizing the transformations occurring in the modern world.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 3 credits in sociology

SOC 428

**Homelessness in America** (3) Survey of social science research on homelessness in the contemporary United States.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

SOC 429



**Social Stratification** (3) Structure and dynamics of class, caste, and status systems; class differentials and social mobility; current theoretical and methodological issues.

Effective: Winter 1978

Prerequisite: 3 credits in sociology

SOC 430

**Family in Cross-Cultural Perspective** (3) Sociological analysis of family systems in various cultures and subcultures.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

SOC 431 (HD FS 431)

**Family Disorganization: Stress Points in the Contemporary Family** (3) Focuses on divorce, remarriage, incest, family violence as well as problems associated with family formation and parent-child relations.

Effective: Spring 1994

Prerequisite: 6 credits of human development and family studies psychology or sociology

SOC 432

**Social Movements** (3) Why and how people mobilize to promote or retard social change. Factors predicting success or failure of social movements.

Effective: Fall 1983

Prerequisite: 3 credits in sociology

SOC 435 (HD FS 434)

**Perspectives on Aging** (3) An analysis of the demographic, social, and cultural factors affecting the aged population in American society.

Effective: Fall 2007

Prerequisite: 3 credits in Sociology

SOC 440 (HD FS 440)

**Family Policy** (3) An in-depth examination of family policy.

Effective: Spring 2007

Prerequisite: 3 credits of SOC or HD FS

SOC 446

**Political Sociology** (3) Sociological analysis of types of political organization and their relations with other elements of social life.

Effective: Winter 1978

Prerequisite: 3 credits in sociology

SOC 454 (US)

**The City in Postindustrial Society** (3) Postindustrial social organization in the United States and Europe; consequences for metropolitan social stratification, community power, and environmental quality.

Effective: Spring 2006

Prerequisite: 3 credits in Sociology

SOC 455

**Work and Occupations** (3) Work and occupational life in modern society; work in the past, present, and future.

Effective: Fall 1983

Prerequisite: 3 credits in sociology

SOC 456 (WMNST 456)

**Gender, Occupations, and Professions** (3) The role of gender in shaping contemporary North American patterns of employment, occupational roles, and statuses.

Effective: Spring 2013

Prerequisite: WMNST 100 or 3 credits in Sociology

SOC 461 (RL ST 461) (US;IL)

**Sociology of Religion** (3) Contemporary religion in the global perspective: beliefs, structure, and function of major religious traditions, denominations, and cults.

Effective: Fall 2013

Prerequisite: 3 credits in sociology or religious studies

SOC 467 (CRIM 467, CRIMJ 467)

**Law and Society** (3) Law and society studies the social origins of law and legal systems; occupational careers, and decision-making of legal officials.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or CRIMJ 113 or permission of program

SOC 470

**Intermediate Social Statistics** (4) Descriptive and inferential statistics in social research: central tendency and variation, normal distribution, measures of association, confidence intervals, hypothesis testing.

Effective: Fall 2001

Prerequisite: SOC 207

SOC 471

**Qualitative Research Methods in Sociology** (3) Theory, methods, and practice of qualitative data collection, including observation, participant observation, interviewing; supervised projects in natural settings.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

## SOC 481H

**Senior Honors Seminar in Sociology** (1) Supervised experience in planning and writing the honors thesis.

Effective: Spring 1999

Prerequisite: sociology major senior standing and admission to the Schreyer Honors College

## SOC 494

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

## SOC 494H

**Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

## SOC 495

**Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2000

Prerequisite: prior approval of proposed assignment by instructor

## SOC 496

**Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

## SOC 497

**Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

## SOC 499 (IL)

**Foreign Study--Sociology** (2-6) Study, in selected foreign countries, of groups, institutions, and social problems.

Effective: Summer 2005

Prerequisite: 3 credits in Sociology

## WMNST 001S (GS;US;IL)

**Introduction to Women's Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

Effective: Fall 2009

## WMNST 100 (GS;US;IL)

**Introduction to Women's and Gender Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

Effective: Spring 2013

## WMNST 100U (GS;US;IL)

**Introduction to Women's and Gender Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

## WMNST 100U (GS;US;IL)

**Introduction to Women's and Gender Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

## WMNST 103 (AF AM 103, SOC 103) (US)

**Racism and Sexism** (3) Critical analysis of the structure of race and gender inequality in the contemporary United States.

Effective: Spring 2013

## WMNST 110 (SOC 110) (GS;US)

**Sociology of Gender** (3) Changing sex role expectations and behavior for men and women in contemporary society.

Effective: Summer 2005

## WMNST 116 (HIST 116) (GS;US;IL)

**Family and Sex Roles in Modern History** (3) Historical perspectives on the Western family since 1500: gender roles, marriage, sexuality, child rearing, and old age; emphasis on United States.

Effective: Spring 2006

## WMNST 136 (LER 136) (US)

**Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

Effective: Spring 2008

## WMNST 136U (LER 136U) (US)

**Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

## WMNST 157 (S T S 157) (US)

**Science, Technology, and Gender** (3) The role of women and gender in science, technology, and engineering.

Effective: Fall 2011

WMNST 200 (GS;IL)

**Global Feminisms** (3) This course examines the diverse contents and forms of "feminism" worldwide, emphasizing women's engagement with unequal, unjust, impacts of globalization.

Effective: Summer 2012

WMNST 202 (AFR 202) (GS;IL)

**Gender Dynamics in Africa** (3) Critical analysis of multidisciplinary research on relations between men and women in Africa and critique of Western feminist theories.

Effective: Fall 2012

WMNST 205 (COMM 205) (US)

**Women, Minorities, and the Media** (3) Analysis of historical, economic, legal, political, and social implications of the relationship between women, minorities, and the mass media.

Effective: Summer 2005 Ending: Fall 2014

WMNST 205 (COMM 205) (GS;US)

**Gender, Diversity and the Media** (3) Explores the relationship between media and society through critical analysis of its role in social reality.

Effective: Spring 2015 Future: Spring 2015

WMNST 426Y (GEOG 426Y) (US;IL)

**Gender Geographies** (3) Description and explanation of the links between gender relations and spatial structures; gender and work, social services, and neighborhood activism.

Effective: Fall 2013

Prerequisite: GEOG 020 GEOG 126 GEOG 120 WMNST 100

WMNST 428 (PL SC 428) (US;IL)

**Gender and Politics** (3) Gender in politics in the United States and around the world; major areas of women and politics research.

Effective: Fall 2007

Prerequisite: 3 credits in political science or women's studies

WMNST 456 (SOC 456)

**Gender, Occupations, and Professions** (3) The role of gender in shaping contemporary North American patterns of employment, occupational roles, and statuses.

Effective: Spring 2013

Prerequisite: WMNST 100 or 3 credits in Sociology

WMNST 471 (PSYCH 479) (US)

**The Psychology of Gender** (3) Theories and research on gender differences and gender roles. Emphasis on women's and men's current positions in society.

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 221

WMNST 472 (LER 472)

**Work-Life Practices and Policies** (3) Explore the causes and consequences of conflicts between work, family, and other life commitments, and how these may be resolved.

Effective: Spring 2008

Prerequisite: 3 credits of LER

## B.A. Degree Requirements: Second Foreign Language

131 Courses

ARAB 001

**Elementary Modern Standard Arabic I** (4) Introduction to reading, writing, pronunciation, and aural comprehension of modern standard Arabic; simple grammatical forms; basic vocabulary.  
Effective: Summer 2010

ARAB 002

**Elementary Modern Standard Arabic II** (4) Continuation of ARAB 001; development of additional skills in conversation, reading, and writing; grammar and vocabulary building; cultural components.  
Effective: Summer 2010  
Prerequisite: ARAB 001

ARAB 003

**Intermediate Modern Standard Arabic** (4) More complex grammatical forms; vocabulary building principles; continued development of skills in conversation, reading, writing; culturally-oriented readings and films.  
Effective: Summer 2010  
Prerequisite: ARAB 002

ARAB 110 (GH;IL)

**Arab Language, Cultures, and Current Topics** (3) Fourth-semester Modern Standard Arabic: study of cultures through authentic discourse, texts, film; development of reading, writing, listening, speaking skills.  
Effective: Summer 2010  
Prerequisite: ARAB 003 or permission of program

CHNS 001

**Level One Chinese A** (4) Introductory study of Chinese language, with audio-lingual practice of Mandarin Chinese and attention to structure and the writing system.  
Effective: Spring 2011

CHNS 002

**Level One Chinese B** (4) Continued audio-lingual practice of Mandarin Chinese, further study of structure, practice in reading and writing Chinese.  
Effective: Spring 2011  
Prerequisite: CHNS 001

CHNS 003

**Level Two Chinese A** (4) Continued audio-lingual practice of Mandarin Chinese, more extensive practice in reading and writing; study of Chinese culture.  
Effective: Spring 2011  
Prerequisite: CHNS 002

CHNS 110 (IL)

**Level Two Chinese B** (4) Readings in selected modern Chinese literature (short stories, plays, essays, poems) and other texts; practice in conversation and simple composition.  
Effective: Spring 2011  
Prerequisite: CHNS 003

CHNS 401 (IL)

**Level Three Chinese A** (4) Emphasis on oral proficiency through discussions of aspects of contemporary Chinese culture.  
Effective: Spring 2011  
Prerequisite: CHNS 110

CHNS 402 (IL)

**Level Three Chinese B** (4) Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Chinese culture.  
Effective: Spring 2011  
Prerequisite: CHNS 401 OR EQUIVALENT

FR 001

**Elementary French I** (4) Grammar, with reading and writing of simple French; oral and aural work stressed. Students who have received high school credit for two or more years of French may not schedule this course for credit, without the permission of the department.  
Effective: Fall 1985

FR 002

**Elementary French II** (4) Grammar and reading continued; oral and aural phases progressively increased. Students who have received high school credit for four years of French may not schedule this course for credit, without the permission of the department.  
Effective: Fall 1985  
Prerequisite: FR 001

FR 003

**Intermediate French** (4) Grammar, reading, composition, oral and aural exercises.  
Effective: Fall 1985  
Prerequisite: FR 002

FR 111

**Elementary French** (6) Acquisition of basic skills in the active use of French: listening, speaking, reading, and writing.  
Effective: Fall 1983

FR 112

**Intermediate French** (6) Reinforcement of basic skills previously acquired in the active use of French in FR 111.  
Effective: Fall 1983

FR 199 (IL)

**Foreign Study--French** (1-12) Intensive postintermediate grammar review, with emphasis on oral skills and vocabulary building.

Effective: Summer 2005

Prerequisite: FR 003

FR 201 (IL)

**Oral Communication and Reading Comprehension** (3) Emphasis on oral skills and reading for total comprehension.

Effective: Spring 2007

Prerequisite: FR 003 or FR 112

FR 201U (IL)

**Oral Communication and Reading Comprehension** (3) Emphasis on oral skills and reading for total comprehension.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: FR 003 or FR 112

FR 201U (IL)

**Oral Communication and Reading Comprehension** (3) Emphasis on oral skills and reading for total comprehension.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: FR 003 or FR 112

FR 202 (IL)

**Grammar and Composition** (3) Grammar review and writing of short essays.

Effective: Spring 2006

Prerequisite: FR 003

FR 299 (IL)

**Foreign Study--French** (3-12) Writing practice at postintermediate level. Cultural readings about French civilization.

Effective: Summer 2005

Prerequisite: FR 199

FR 351 (IL)

**Introduction to French Literature I** (3) Introduction to close textual reading and analysis of selected works of French literature from the middle ages to 1789.

Effective: Summer 2013

Prerequisite: FR 201 FR 202

FR 352 (IL)

**Introduction to French Literature II** (3) Introduction to close textual reading and analysis of selected works of French Literature from 1789 to the present.

Effective: Summer 2013

Prerequisite: FR 201 FR 202

FR 401 (IL)

**Advanced Oral Communication** (3) Emphasis on speaking and listening comprehension through discussion of current issues, using journalistic materials.

Effective: Spring 2006

Prerequisite: FR 201 FR 202

FR 402Y (IL)

**Advanced Grammar and Writing** (3) Advanced study of the structure of the French language. Intensive essay writing.

Effective: Spring 2006

Prerequisite: FR 201 FR 202

FR 410 (IL)

**French Press** (3) Extensive readings of selected french daily and weekly newspapers and magazines, along with newscast viewings.

Effective: Spring 2007

Prerequisite: FR 331 or FR 332

GER 001

**Elementary German I** (4) Introduction to listening, speaking, reading, and writing with emphasis on the first two skills; cultural aspects through readings and videos. Students who have received high school credit for two or more years of German may not schedule this course for credit, without the permission of the department.

Effective: Fall 2012

GER 002

**Elementary German II** (4) Continuation of GER 001; further introduction of basic structures, culture, and development of four basic skills stressing aural-oral aspects. Students who have received high school credit for four or more years of German may not schedule this course for credit, without the permission of the department.

Effective: Fall 2012

Prerequisite: GER 001

## GER 003

**Intermediate German** (4) Continued four-skill development with increased emphasis on reading, writing, and grammatical accuracy; culturally-oriented reading selections and videos. Students may receive credit for only one of the following: GER 003 or GER 008.

Effective: Summer 1994

Prerequisite: GER 002

## GER 008

**Business German** (4) Introduction to Business German. Students may receive credit for only one of the following: GER 003 or GER 008.

Effective: Summer 2000

Prerequisite: GER 001 GER 002

## GER 011

**Intensive Basic German** (6) Listening, speaking, reading, writing, basic structures and vocabulary of German. Taught on an accelerated basis. Students may receive credit for only one of the following: GER 001, 011, or 015.

Effective: Fall 1983

## GER 012

**Intensive Intermediate German** (6) Continued skill development of structures and vocabulary; listening, speaking, reading, writing. Taught on an accelerated basis. Students may receive credit for only one of the following: GER 002, 003, 012, or 016.

Effective: Fall 1983

Prerequisite: GER 011

## GER 199 (IL)

**Foreign Study--German** (3-6) Intermediate training in German language skills.

Effective: Summer 2005

Prerequisite: GER 002

## GER 201 (IL)

**Conversation and Composition** (4) Continuation of GER 003; emphasis on reading, writing, and conversational skills; course utilizes short literary selections, a concise novel, videos.

Effective: Fall 2006

Prerequisite: GER 003 or GER 008

## GER 301 (IL)

**Intermediate Speaking and Listening** (3) Intensive practice in spoken German through readings, discussions and video.

Effective: Spring 2012

Prerequisite: GER 201 or GER 208

## GER 302W

**Intermediate Composition and Grammar** (3) Continuation of oral and written practice in German with extensive work in composition.

Effective: Spring 2012

Prerequisite: GER 201 or GER 208

## GER 344 (IL)

**Intermediate German Culture** (3) An overview of German culture from the Middle Ages to the present. Conducted in German.

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

## GREEK 001

**Elementary Classical and New Testament Greek** (4) Pronunciation, forms, syntax, and translation.

Effective: Fall 1983

## GREEK 002

**Elementary Classical and New Testament Greek** (4) Further instruction in syntax and sentence structure.

Effective: Fall 1983

Prerequisite: GREEK 001

## GREEK 003

**Intermediate Classical and New Testament Greek** (4) Selections from representative authors.

Effective: Fall 1983

Prerequisite: GREEK 002

## GREEK 101

**Introductory Ancient Greek** (4) Fundamentals of classical Greek grammar, syntax, and vocabulary.

Effective: Fall 2001

## GREEK 102

**Intermediate Ancient Greek** (4) Intermediate study of classical Greek grammar, syntax, and vocabulary.

Effective: Fall 2001

Prerequisite: GREEK 101

## GREEK 401

**Introductory Reading in Greek Literature** (3-6) Analysis of selected passages of ancient Greek literature; attention will be paid to grammatical as well as literary details.

Effective: Summer 2011

Prerequisite: GREEK 102

GREEK 420

**Greek Prose Authors** (3-6) Readings in representative authors.

Effective: Summer 2011

GREEK 425

**Greek Historians** (3-6) Translation and study of one or more of the ancient Greek historians.

Effective: Summer 2011

Prerequisite: GREEK 102

GREEK 430

**Greek Poetry** (3-6) Translation and analysis of selected readings in Greek poetry.

Effective: Summer 2011

Prerequisite: GREEK 102

HEBR 001

**Basic Modern Hebrew I** (4) An introduction to modern Hebrew in its written and spoken forms; oral and aural work stressed.

Effective: Summer 1990

HEBR 002

**Basic Modern Hebrew II** (4) Continued study of grammar; emphasis on improving oral-aural facility, with increased attention to reading and writing.

Effective: Summer 1990

Prerequisite: HEBR 001

HEBR 003

**Intermediate Modern Hebrew** (4) Grammar, reading, composition, and oral and aural exercises.

Effective: Summer 1977

Prerequisite: HEBR 002

HEBR 401

**Advanced Hebrew--Conversation Emphasis** (3 per semester, maximum of 6) Development of oral proficiency through discussions focusing on issues in contemporary Jewish culture.

Effective: Summer 2011

HEBR 402

**Advanced Hebrew--Reading Emphasis** (3 per semester, maximum of 6) Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Jewish culture.

Effective: Summer 2011

HINDI 001

**Level One Hindi A** (4) This is an introductory course in Hindi that presents the Devanagari script, elementary grammar and sentence structure.

Effective: Summer 2010

HINDI 002

**Level One Hindi B** (4) This intermediate level course seeks to impart functional literacy in oral and written expression in Hindi to students.

Effective: Summer 2010

Prerequisite: HINDI 001 or equivalent competency

HINDI 003

**Level Two Hindi A** (4) This is an intermediate level course in Hindi that seeks to improve student's skills in oral and written expression.

Effective: Summer 2010

Prerequisite: HINDI 002 or equivalent competency

IT 001

**Elementary Italian I** (4) For beginners. Grammar, with reading and writing of simple Italian; oral and aural work stressed.

Effective: Spring 1988

IT 002

**Elementary Italian II** (4) Grammar and reading continued; oral and aural phrases progressively increased; composition.

Effective: Spring 1988

Prerequisite: IT 001

IT 002H

**Elementary Italian II** (4) Grammar and reading continued; oral and aural phrases progressively increased; composition.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: IT 001

IT 003

**Intermediate Italian** (4) Advanced grammar; oral and written composition; reading of modern authors; Italian life and culture.

Effective: Winter 1978

Prerequisite: IT 002

IT 003H

**Intermediate Italian** (4) Advanced grammar; oral and written composition; reading of modern authors; Italian life and

culture.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: IT 002

IT 301

**Pathways to Fluency** (3) For majors, minors, and others with adequate preparation; deepening of grammatical skills, integrated conversation, composition, and reading.

Effective: Fall 2005

Prerequisite: IT 003

IT 415

**Dante** (3) Readings in the Divina Commedia and the related lesser works of Dante Alighieri.

Effective: Summer 2011

IT 422

**Topics in the Italian Renaissance** (3) Topics vary by year and may include "Theories of Love," "Magic, Witchcraft, Alchemy, and the Emergence of Modern Science," etc.

Effective: Fall 2005

Prerequisite: any Italian course at the 300-level

IT 450

**Nineteenth-Century Italian Literature** (3) Italian romanticism, Verismo and neoclassicism, their origin and development in the novel, poetry, and drama.

Effective: Winter 1978

Prerequisite: IT 351

IT 460

**Twentieth-Century Italian Literature** (3) Modern and contemporary Italian prose, drama, and poetry.

Effective: Winter 1978

Prerequisite: IT 351

JAPNS 001

**Level One Japanese A** (4) Introduction to modern Japanese; development of audio-lingual facility and ability to read and write Japanese without aid of romanization.

Effective: Spring 2011

JAPNS 002

**Level One Japanese B** (4) Continuation of elementary Japanese, with emphasis on improving audio-lingual facility and strengthening reading and writing skills in modern Japanese.

Effective: Spring 2011

Prerequisite: JAPNS 001

JAPNS 003

**Level Two Japanese A** (4) Continued study of modern Japanese at elementary level; extensive audio-lingual practice for conversational fluency; reading/writing original scripts.

Effective: Spring 2011

Prerequisite: JAPNS 002

JAPNS 110 (IL)

**Level Two Japanese B** (4) Intermediate Japanese - Continued study of modern Japanese at intermediate level; extensive audio-lingual practice for conversational fluency; reading/writing original scripts.

Effective: Spring 2011

Prerequisite: JAPNS 003

JAPNS 401 (IL)

**Level Three Japanese A** (4) Further acquisition of the four language skills in Japanese--reading, writing, speaking and listening comprehension.

Effective: Spring 2011

Prerequisite: JAPNS 110

JAPNS 402 (IL)

**Level Three Japanese B** (4) Exclusively for study abroad returnees. To further develop Japanese proficiency in speaking, listening, reading, and writing.

Effective: Spring 2011

Prerequisite: JAPNS 401

JAPNS 452 (IL)

**Contemporary Japan: Cultures, Lifestyles, Trends** (3 per semester/maximum of 6) Survey of aspects of modern Japanese society; includes readings from Japanese newspapers, magazines, and fiction; topics may vary each semester.

Effective: Spring 2010

Prerequisite: JAPNS 401

JAPNS 453 (IL)

**Japanese Film** (3 per semester/maximum of 6) Selected films and directors representing various aspects of Japanese culture and cinema; topics may vary each semester.

Effective: Spring 2010

Prerequisite: JAPNS 401

JAPNS 454 (IL)

**Japanese Literature** (3 per semester/maximum of 6) Selected works from important Japanese texts representing genres



such as autobiography, poetry, fiction, and drama; topics may vary each semester.

Effective: Spring 2010

Prerequisite: JAPNS 401

KOR 001

**Level One Korean A** (4) Listening, speaking, reading, writing Korean: an introduction for beginners; basic structures and vocabulary; cultural elements.

Effective: Spring 2011

KOR 002

**Level One Korean B** (4) Listening, speaking, reading, writing Korean: structures and vocabulary; cultural elements.

Effective: Spring 2011

Prerequisite: KOR 001

KOR 003

**Level Two Korean A** (4) Further development of listening, speaking, reading, writing skills in Korean; cultural elements.

Effective: Spring 2011

Prerequisite: KOR 002

LATIN 001

**Elementary Latin** (4) Pronunciation; inflections; simple rules of syntax.

Effective: Winter 1978

LATIN 002

**Elementary Latin** (4) Advanced syntax and sentence structure.

Effective: Winter 1978

Prerequisite: LATIN 001

LATIN 003

**Intermediate Latin** (4) Selected readings from representative authors.

Effective: Winter 1978

Prerequisite: LATIN 002

LATIN 402

**Republican Literature** (3-12) Selected works by Plautus, Lucretius, Catullus, Cicero (content varies).

Effective: Summer 1995

Prerequisite: LATIN 003

LATIN 403

**Augustan Age Literature** (3-12) Selected works by Virgil, Horace, Propertius, Tibullus, Ovid, Livy (content varies).

Effective: Summer 1995

Prerequisite: LATIN 003

LATIN 404

**Silver Age Literature** (3-12) Selected works by Petronius, Seneca, Tacitus, Juvenal, Martial, Pliny the Younger (content varies).

Effective: Summer 1995

Prerequisite: LATIN 003

LATIN 420

**Medieval Latin Literature** (3-6) Survey of Medieval Latin literature.

Effective: Spring 1995

Prerequisite: LATIN 003

PORT 001

**Elementary Portuguese I** (4) For beginners. Grammar, with reading and writing of simple Portuguese; oral and aural work stressed.

Effective: Spring 1987

PORT 002

**Elementary Portuguese II** (4) Grammar, reading, and conversation continued; special emphasis on the language, literature, and life of Brazil.

Effective: Spring 1988

Prerequisite: PORT 001

PORT 003

**Intermediate Portuguese** (4) Grammar, reading, composition, and conversation.

Effective: Winter 1978

Prerequisite: PORT 002

PORT 405

**Advanced Composition and Conversation** (3) Intended to strengthen the advanced student's ability to speak, read, and write in modern Brazilian Portuguese.

Effective: Summer 1981

Prerequisite: PORT 003

PORT 476

**Brazilian Literature, The Modern Era (1880 to the Present)** (3) A survey of the major texts of Brazilian literature from romanticism to the present.

Effective: Summer 1991

Prerequisite: PORT 003

## PORT 480

**The Brazilian Novel** (3) A survey of the Brazilian novel from its origins to the present.

Effective: Spring 1993

Prerequisite: PORT 003 PORT 405

## RUS 001

**Elementary Russian I** (4) Audio-lingual approach to basic Russian; writing. Students who have received high school credit for two or more years of Russian may not schedule this course for credit, without the permission of the department.

Effective: Fall 1985

## RUS 002

**Elementary Russian II** (4) Audio-lingual approach to basic Russian continued; writing. Students who have received high school credit for four years of Russian may not schedule this course for credit, without the permission of the department.

Effective: Fall 1985

Prerequisite: RUS 001

## RUS 003

**Intermediate Russian** (4) Emphasis on reading unsimplified texts; composition; grammatical analysis.

Effective: Fall 1985

Prerequisite: RUS 002

## RUS 204 (IL)

**Intermediate Russian II** (4) Intensive practice of Russian reading, writing, listening and speaking; review of Russian grammar.

Effective: Summer 2011

Prerequisite: RUS 003

## RUS 214 (IL)

**Intermediate Russian III** (4) Intensive practice of Russian reading, writing, listening and speaking; review of Russian grammar.

Effective: Summer 2011

Prerequisite: RUS 003

## RUS 304 (IL)

**Readings in Russian III** (3) Extensive reading of contemporary Russian texts, including articles from Soviet press and short fiction.

Effective: Spring 2006

Prerequisite: 6 credits of Russian at the 200 level

## RUS 305 (IL)

**Advanced Russian Conversation** (3) Discussion and role-playing based on real-life situations and current events; supervised by a native speaker.

Effective: Spring 2006

Prerequisite: RUS 204 RUS 214

## RUS 360 (IL)

**Advanced Russian Grammar** (3) Russian morphology and syntax on an advanced level.

Effective: Spring 2006

Prerequisite: 6 credits of Russian at the 200 level

## RUS 412 (IL)

**Russian Translation** (3 per semester/maximum of 6) Translation from Russian into English of complex texts from the humanities, social sciences, and technical fields.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

## RUS 426 (IL)

**Dostoevsky** (3) Study of representative works by Dostoevsky in the original Russian.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

## RUS 427 (IL)

**Tolstoy** (3) Study of representative works by Tolstoy in the original Russian.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

## SPAN 001

**Elementary Spanish I** (4) Audio-lingual approach to basic Spanish; writing. Students who have received high school credit for two or more years of Spanish may not schedule this course for credit, without the permission of the department.

Effective: Fall 1985

## SPAN 001H

**Elementary Spanish I** (4) Audio-lingual approach to basic Spanish; writing. Students who have received high school credit for two or more years of Spanish may not schedule this course for credit, without the permission of the department.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## SPAN 002

**Elementary Spanish II** (4) Audio-lingual approach to basic Spanish continued; writing. Students who have received high school credit for four years of Spanish may not schedule this course for credit, without the permission of the department.

Effective: Fall 1985

Prerequisite: SPAN 001

SPAN 002H

**Elementary Spanish II** (4) Audio-lingual approach to basic Spanish continued; writing. Students who have received high school credit for four years of Spanish may not schedule this course for credit, without the permission of the department.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: SPAN 001

SPAN 003

**Intermediate Spanish** (4) Audio-lingual review of structure; writing; reading.

Effective: Fall 1985

Prerequisite: SPAN 002

SPAN 010

**Intensive Spanish** (6) Basic Spanish grammar, oral, aural, and writing skills (essentially equivalent to SPAN 001 and first half of SPAN 002).

Effective: Fall 1988

SPAN 020

**Intensive Spanish** (6) Basic and intermediate Spanish grammar, oral, aural, and writing skills (essentially equivalent to second half of SPAN 002 and all of SPAN 003).

Effective: Fall 1988

Prerequisite: SPAN 010

SPAN 100

**Intermediate Grammar and Composition** (3) An intermediate level grammar review that also incorporates directed and original composition exercises.

Effective: Summer 1996

Prerequisite: SPAN 003 or placement

SPAN 110

**Intermediate Conversation** (3) Practice in oral expression in Spanish, with emphasis on aural comprehension, idiomatic usage, and fluency. Use of journalistic materials.

Effective: Winter 1978

Prerequisite: SPAN 003 or placement

SPAN 120

**Intermediate Reading** (3) Emphasis on rapid reading comprehension. Selected readings from contemporary Hispanic literature, social sciences, current events, etc.

Effective: Winter 1978

Prerequisite: SPAN 003 or placement

SPAN 200

**Intensive Grammar and Composition** (3) Intensive grammar review; composition. Designed primarily for majors and prospective majors.

Effective: Spring 2001

Prerequisite: SPAN 100 or by placement

SPAN 210

**Readings in Iberian Civilization** (3) Intermediate level Spanish readings dealing with Iberian life from pre-historic times to the present.

Effective: Spring 1993

Prerequisite: SPAN 200

SPAN 220

**Readings in Ibero-American Civilization** (3) Intermediate level Spanish readings dealing with Ibero-American life from the pre-conquest to the present.

Effective: Spring 1992

Prerequisite: SPAN 200

SPAN 253W

**Introduction to Hispanic Literature** (3) Introduction to generic distinctions, critical methods, and approaches to Hispanic literature.

Effective: Spring 2008

Prerequisite: SPAN 100 and SPAN 110

SPAN 300

**Advanced Grammar and Composition Through Reading** (3) Development of advanced grammar and composition skills through reading texts by native speakers and adapting their techniques for original compositions.

Effective: Spring 2013

Prerequisite: SPAN 200

SPAN 301

**Advanced Writing and Stylistics in Spanish for Spanish Speakers** (3) This course will enhance writing proficiency in Spanish of Spanish speaking students by targeting common problems characteristic of Spanish speakers.

Effective: Spring 2008

Prerequisite: SPAN 100A

SPAN 353

**Survey of Spanish Literature before 1700** (3) Selected major works of prose, poetry, and drama from the Middle Ages to

the end of the seventeenth century.

Effective: Spring 2008

Prerequisite: SPAN 253W

SPAN 354

**Survey of Spanish Literature Since 1700** (3) Selected major works of prose, poetry, and drama from the eighteenth century to the present.

Effective: Spring 2008

Prerequisite: SPAN 253W

SPAN 355

**Survey of Spanish American Literature through "Modernismo"** (3) Selected major works of prose, poetry, and drama from the discovery through "modernismo".

Effective: Spring 2008

Prerequisite: SPAN 253W

SPAN 356

**Survey of Spanish American Literature after "Modernismo"** (3) Historical survey of the major figures and periods in Spanish American literature after "modernismo".

Effective: Spring 2008

Prerequisite: SPAN 253W

SPAN 410

**Advanced Oral Expression and Communication** (3) Emphasis on achieving practical command of spoken Spanish and the comprehension of native speech. Use of journalistic materials.

Effective: Fall 1995

Prerequisite: SPAN 200

SPAN 439

**Don Quijote** (3) Thorough study of the masterpiece, including its sources, genesis, language, style, success, and influence.

Effective: Spring 2013

Prerequisite: SPAN 253W

SPAN 472

**The Contemporary Spanish American Novel** (3) The regionalist and social novel since 1910, together with the social background.

Effective: Spring 2013

Prerequisite: SPAN 253W

SPAN 476

**Masterpieces of Spanish American Literature** (3) Reading, analysis, and discussion of selected major works representative of Spanish American prose and poetry.

Effective: Spring 2013

Prerequisite: SPAN 253W

SPAN 490

**Masterpieces of Spanish Prose** (3) Reading, analysis, and discussion of selected masterpieces of Spanish novels, short stories, etc.

Effective: Spring 2013

Prerequisite: SPAN 253W

SWA 001

**Elementary Swahili I** (4) Listening, speaking, reading, writing Swahili: an introduction for beginners; basic structures and vocabulary; cultural elements.

Effective: Spring 1995

SWA 002

**Elementary Swahili II** (4) Listening, speaking, reading, and writing Swahili; structures and vocabulary; cultural elements.

Effective: Spring 1995

Prerequisite: SWA 001

SWA 003

**Intermediate Swahili** (4) Further development of listening, speaking, reading, and writing skills in Swahili: structures and vocabulary; cultural elements.

Effective: Spring 1995

Prerequisite: SWA 002

UKR 001

**Elementary Ukrainian I** (4) Reading, writing, and speaking Ukrainian.

Effective: Summer 1991

UKR 002

**Elementary Ukrainian II** (4) Reading, writing, and speaking Ukrainian.

Effective: Summer 1991

Prerequisite: UKR 001

UKR 003

**Intermediate Ukrainian** (4) Reading, writing, and speaking Ukrainian.

Effective: Summer 1991

Prerequisite: UKR 002

## B.A. Degree Requirements: Other Cultures

177 Courses

A&A 100 (GA;IL)

**Introduction to International Arts** (3) An interdisciplinary, multicultural introduction to the arts of the world.  
Effective: Summer 2005

AF AM 250 (HIST 250) (GH;IL)

**Introduction to the Modern Caribbean** (3) A survey course which, explores the historical evolution and emergence of the modern Caribbean.  
Effective: Fall 2012

AFR 110 (GS;IL)

**Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.  
Effective: Fall 2012

AFR 110U (GS;IL)

**Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.  
Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

AFR 110U (GS;IL)

**Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.  
Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

AFR 191 (HIST 191) (GH;IL)

**Early African History** (3) Explores important economic and cultural transformations in the making of early African empires from 1 MBC to 1750.  
Effective: Fall 2012

AFR 202 (WMNST 202) (GS;IL)

**Gender Dynamics in Africa** (3) Critical analysis of multidisciplinary research on relations between men and women in Africa and critique of Western feminist theories.  
Effective: Fall 2012

AFR 335 (ART H 335) (IL)

**African Art** (3) Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa.  
Effective: Fall 2013

AFR 443 (PL SC 443) (IL)

**Ethnic Conflict in Africa** (3) This course explores the various causes and impacts of ethnic conflicts in the African context.

Effective: Spring 2013

Prerequisite: AF AM 100 AFR 110 PL SC 001 PL SC 003 PL SC 007 PL SC 014 PL SC 017 PL SC 020 or AFRAS 301

AFR 446 (ART H 446) (IL)

**Topics in African Art** (3 per semester/maximum of 9) Topics vary from "Arts of Eastern and Southern Africa" to "Art of West Africa."

Effective: Spring 2014

Prerequisite: 3 credits of Art History

AFR 447 (ART H 447) (IL)

**Topics in the Art of the African Diaspora** (3 per semester/maximum of 6) Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

Effective: Spring 2014

Prerequisite: 3 credits of Art History

ANTH 008 (GS;IL)

**Aztecs, Mayas, and Incas** (3) Comparative survey of the development of the pre-Columbian Latin American civilizations.  
Effective: Summer 2005

ANTH 009 (GS;IL)

**Rise of Civilization in the Old World** (3) Evolution of Old World complex societies, especially the first great civilizations of Mesopotamia, Egypt, China, and the Indus Valley.

Effective: Spring 2006

ANTH 011 (GS;IL)

**Introductory North American Archaeology** (3) Introduction to archaeology of the North American Indians; sites, methods, and results of research interpreted in cultural history.

Effective: Summer 2005

ANTH 045 (GS;US;IL)

**Cultural Anthropology** (3) Beginnings of human culture; economic life, society, government, religion, and art among traditional peoples.

Effective: Summer 2005

ANTH 045U (GS;US;IL)

**Cultural Anthropology** (3) Beginnings of human culture; economic life, society, government, religion, and art among traditional peoples.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ANTH 120 (GS;IL)

**First Farmers** (3) Cross-cultural comparison of the origins of plant and animal domestication and the earliest farming societies.

Effective: Summer 2013

ANTH 146 (GS;US)

**North American Indians** (3) An introduction to the cultures of the indigenous peoples of North America, north of Mexico, and the effect of contact.

Effective: Spring 2006

ANTH 152

**Hunters and Gatherers** (3) A comparative study of hunter/gatherer societies using both archaeological and ethnographic evidence.

Effective: Fall 1986

ANTH 220 (GA;GH;IL)

**Anthropology and Artifacts** (3) This course examines anthropological approaches to the study of art works, their production, and function in diverse human societies, both past and present.

Effective: Summer 2012

ANTH 221 (GS;IL)

**The Ancient Maya** (3) The Maya and their neighbors: Origin and Evolution of Classic Maya civilization.

Effective: Spring 2012

Prerequisite: any anthropology course on 100 level or below

ANTH 223 (GS;IL)

**European Prehistory** (3) The prehistory of European societies from the Upper Palaeolithic to the Iron Age.

Effective: Summer 2013

Prerequisite: 3 credits in 100 level or below ANTH course

ANTH 241 (IL)

**Peoples and Cultures of Highland New Guinea** (3) History, ecology, social, economic, religious, and political systems of the aboriginal peoples and cultures of highland New Guinea.

Effective: Spring 2007

Prerequisite: ANTH 001 or ANTH 045

ANTH 420 (J ST 420)

**Archaeology of the Near East** (3) Culture of the Near East and India from Paleolithic times through the Bronze Age.

Effective: Summer 1999

Prerequisite: ANTH 008 ANTH 009 ANTH 011 or ANTH 012

ANTH 422

**Meso-American Archaeology and Ethnography** (3) Survey of ethnohistorical and ethnographic patterns of Meso-American society; origin and development of ancient civilization in Mexico, Guatemala, and Honduras.

Effective: Spring 1999

Prerequisite: ANTH 008 ANTH 009 ANTH 011 or ANTH 012

ANTH 423

**The Evolution of American Indian Culture** (3) Historic and archaeological sources used to trace American Indian lifestyles from the first immigrants to the period of Euro-American contact.

Effective: Spring 1999

Prerequisite: 3 credits in anthropology

ANTH 424

**Andean Ethnology and Archaeology** (3) Cultures of the Andes from earliest settlements to Inka Empire; includes discussion of life in modern Andean communities.

Effective: Spring 2002

Prerequisite: ANTH 002 ANTH 045

ANTH 435 (IL)

**Ancient Economy** (3) The course examines the comparative organization and development of ancient economies in both the Old and New Worlds.

Effective: Summer 2013

ANTH 440

**South American Tribal Societies** (3) Ethnographic survey of tribal societies in South America. Special emphasis on non-Andean area.

Effective: Fall 1986

ANTH 450

**Comparative Social Organization** (3) Social structure and cultural change among nonliterate societies.

Effective: Fall 1986

Prerequisite: ANTH 045

ANTH 453

**Anthropology of Religion** (3) Traditional and modern religions and historical and contemporary religious movements from an anthropological perspective.

Effective: Fall 2003

Prerequisite: ANTH 001 or ANTH 045

ARAB 110 (GH;IL)

**Arab Language, Cultures, and Current Topics** (3) Fourth-semester Modern Standard Arabic: study of cultures through authentic discourse, texts, film; development of reading, writing, listening, speaking skills.

Effective: Summer 2010

Prerequisite: ARAB 003 or permission of program

ART H 120 (GA;IL)

**Asian Art and Architecture** (3) A selective overview of the art and architecture of India, Southeast Asia, China, Korea, and Japan.

Effective: Summer 2005

ART H 130 (GA;US;IL)

**Art of Africa, Oceania, and the Americas** (3) A selective overview of the indigenous art of Africa, Oceania and the Americas.

Effective: Spring 2013

ART H 301 (GA;IL)

**Egyptian and Mesopotamian Art** (3) Art of the Ancient Near East, including Egypt, Mesopotamia, and neighboring civilizations.

Effective: Spring 2006

ART H 315 (ASIA 315) (GA;IL)

**Architecture and Art of South and Southeast Asia** (3) Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.

Effective: Summer 2010

ART H 320 (GA;IL)

**Chinese Art** (3) A general survey of the great periods of Chinese art from the Shang dynasty until the modern period.

Effective: Summer 2005

ART H 330 (GA;IL)

**Islamic Architecture and Art** (3) Survey of the art and architecture of Islamic lands from the late seventh century until the eighteenth century.

Effective: Summer 2005

ART H 335 (AFR 335) (GA;IL)

**African Art** (3) Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa.

Effective: Fall 2013

ART H 440 (ASIA 440) (IL)

**Monuments of Asia** (3-9 per semester/maximum of 9) An exploration of major Asian sites and monuments through a focus on their historical and cultural significance.

Effective: Summer 2012

Prerequisite: ART H 100 or ART H 120 or ART H 315 or ART H 320 or ART H 330

ART H 445 (IL)

**Oceanic Art** (3) Survey of the arts of Oceania (Polynesia, Micronesia, Melanesia), including masks, sculpture, textiles, architecture and other art forms.

Effective: Summer 2012

Prerequisite: 3 credits of Art History

ART H 446 (AFR 446) (IL)

**Topics in African Art** (3 per semester/maximum of 9) Topics vary from "Arts of Eastern and Southern Africa" to "Arts of West Africa."

Effective: Spring 2014

Prerequisite: 3 credits of Art History

ART H 447 (AFR 447) (IL)

**Topics in the Art of the African Diaspora** (3 per semester/maximum of 6) Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

Effective: Spring 2014

Prerequisite: 3 credits of Art History

ART H 460 (IL)

**Art and Empire: Aztec, Inca and Spanish** (3) This course is a comparative study of the artistic production used in Aztec, Inca and Spanish empires.

Effective: Summer 2012

Prerequisite: 3 credits of ART H

ART H 462 (IL)

**Studies in Latin American Art** (3 per semester/maximum of 6) Specific studies of the visual and material culture created in Latin America from the colonial through the modern era.

Effective: Summer 2012



Prerequisite: 3 credits of Art History

ASIA 003 (RL ST 003) (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

Effective: Spring 2015 Future: Spring 2015

ASIA 004 (CMLIT 004) (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2010

ASIA 100 (GH;IL)

**What is Asia?** (3) An introduction to the history, literatures, politics, and cultures of Asia.

Effective: Fall 2012

ASIA 104 (RL ST 104) (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

Effective: Spring 2015 Future: Spring 2015

ASIA 181 (RL ST 181) (IL)

**Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.

Effective: Spring 2015 Future: Spring 2015

ASIA 183 (HIST 183) (GH;IL)

**Gender, Family, and Society in East Asia** (3) Investigates the history of gender, family, love, and sex in East Asia.

Effective: Summer 2012

ASIA 184 (HIST 184) (GH;IL)

**Society and Culture in the Pacific War** (3) Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.

Effective: Summer 2012

ASIA 315 (ART H 315) (GA;IL)

**Architecture and Art of South and Southeast Asia** (3) Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.

Effective: Summer 2010

ASIA 404 (CMLIT 404) (IL)

**Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan.

Effective: Fall 2010

Prerequisite: 3 credits in literature or related field appropriate to this course

ASIA 404Y (IL)

**Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan, taught with focus on written analysis and interpretation.

Effective: Summer 2013

ASIA 405

**Seminar in Asian Studies** (3-6 per semester/maximum of 6) Advanced seminar in Asian Studies

Effective: Summer 2013

Prerequisite: ASIA 100

ASIA 405Y (IL)

**Seminar in Asian Studies** (3-6 per semester/maximum of 6) An advanced, writing-focused seminar in Asian Studies.

Effective: Fall 2009

Prerequisite: ASIA 100

ASIA 440 (ART H 440) (IL)

**Monuments of Asia** (3-9 per semester/maximum of 9) An exploration of major Asian sites and monuments through a focus on their historical and cultural significance.

Effective: Summer 2012

Prerequisite: ART H 100 or ART H 120 or ART H 315 or ART H 320 or ART H 330

ASIA 483 (HIST 483) (IL)

**Middle China** (3) The social, political, and cultural issues and developments from the 8th to 16th century.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 174

ASIA 485Y (HIST 485Y) (IL)

**China's Last Empire: The Qing Dynasty, 1644-1911** (3) China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H

ASIA 486 (HIST 486) (IL)

**China in Revolution** (3) China from 1900 to the present; nationalism, cultural change; development of communism.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H

ASIA 489 (HIST 489, PL SC 486) (IL)

**International Culture in East Asia** (3) Study of the role of culture in East Asian regional and East-West international relations.

Effective: Summer 2013

Prerequisite: any one of the following: HIST 172 HIST 174 HIST 175 HIST 480 HIST 481 HIST 483 HIST 484 HIST 485 HIST 486

CAMS 012 (J ST 012, RL ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

CAMS 012U (J ST 012U, RL ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CAMS 105 (GH;IL)

**History of the Ancient Near East** (3) History of the Ancient Near East from the end of the Neolithic to the Hellenistic period.

Effective: Summer 2005

CAMS 109Y (GH;IL)

**Writing Systems of the World** (3) Writing intensive overview of the world's writing systems throughout history.

Effective: Spring 2007

CAMS 115 (GH;IL)

**Literature of the Ancient Near East** (3) Reading and study of literary works from the Ancient Near East, especially from Mesopotamia and Ancient Egypt.

Effective: Fall 2012

Prerequisite: 3 credits from the following list: CAMS 005 CAMS 010 CAMS 020 CAMS 105

CAMS 122 (J ST 122, RL ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

Effective: Summer 2014

CAMS 123 (J ST 123, RL ST 123) (GH;IL)

**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of ancient Near East: Judaism, Christianity, and Islam.

Effective: Summer 2014

CAMS 153 (J ST 153, RL ST 153) (GH;IL)

**Dead Sea Scrolls** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.

Effective: Summer 2014

CAMS 160 (J ST 160, RL ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.

Effective: Summer 2014

CAMS 250U (GH;IL)

**Honors Classics in Literature and Film** (3) This honors course explores the Classical Tradition as it thrives in the literature of later epochs and film.

Effective: Summer 2010

CAMS 405 (IL)

**Law & Economy in the Ancient Near East** (3) This course is an overview of the legal and economic texts and institutions in the Ancient Near East.

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS courses.

CAMS 471

**Sumerian** (3) Introduction to the Sumerian language and the cuneiform writing system.

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS course.

CAMS 472

**Akkadian** (3) Introduction to the Akkadian language (Babylonian & Assyrian) and the cuneiform writing system.

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS courses

CAMS 481 (IL)

**Introduction to Middle Egyptian & Hieroglyphics** (3) An introduction to the language and script of Ancient Egypt, familiarizing the student with grammar, syntax and lexicon.

Effective: Summer 2012

Prerequisite: 6 credits of any CAMS course

CHNS 120 (GH;IL)

**Introduction to Chinese Literature and Culture** (3) Chinese cultural productions, classical through contemporary; literature and film; changing cultural settings in multiple Chinese-speaking locations. Taught in English.

Effective: Spring 2010

CHNS 402 (IL)

**Level Three Chinese B** (4) Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Chinese culture.

Effective: Spring 2011

Prerequisite: CHNS 401 OR EQUIVALENT

CHNS 452 (IL)

**Contemporary China: Culture and Trends** (3 per semester/maximum of 6) Survey of aspects of the contemporary Chinese-speaking world. Includes readings from Chinese newspapers, magazines, and fiction. Topics may vary each semester.

Effective: Spring 2010

Prerequisite: CHNS 401

CHNS 453 (IL)

**Chinese Film** (3 per semester/maximum of 6) Selected films and directors representing various aspects of Chinese culture and cinema. Topics may vary each semester. Taught in Chinese.

Effective: Spring 2010

Prerequisite: CHNS 401

CHNS 454 (IL)

**Introduction to Classical Chinese** (3 per semester/maximum of 6) Basic patterns and structures of Classical Chinese to the first millennium B.C. to the 19th century.

Effective: Spring 2010

Prerequisite: CHNS 401 or equivalent (such as study abroad credit)

CHNS 455 (IL)

**Masterpieces of Traditional Chinese Literature** (3) Survey of traditional Chinese literature, including poetry, historical narratives, philosophical texts, and drama and novel.

Effective: Spring 2010

Prerequisite: CHNS 401 or equivalent

CMLIT 003 (GH;IL)

**Introduction to African Literatures** (3) Comparative analysis of drama, essay, novel, poetry, and stories from traditional oral forms to contemporary expressions of African literary styles.

Effective: Summer 2005

CMLIT 004 (ASIA 004) (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2010

CMLIT 004U (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

CMLIT 108 (GH;IL)

**Myths and Mythologies** (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.

Effective: Summer 2005

CMLIT 108U (GH;IL)

**Myths and Mythologies** (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

CMLIT 109 (GH;US;IL)

**Native American Myths, Legends, and Literatures** (3) Myths, legends, and literatures of Native American cultures.

Effective: Spring 2006

CMLIT 111 (GH;IL)

**Introduction to Literatures of India** (3) Narrative, lyric, religious, oral, and dramatic literature, as well as film from India studied in translation from a global perspective.

Effective: Summer 2005

CMLIT 143 (GH;US;IL)

**Human Rights and World Literature** (3) Human rights violations discussed in tandem with their literary representation, presented in a global and comparative context.

Effective: Summer 2010

CMLIT 404 (ASIA 404) (IL)

**Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan.

Effective: Spring 2011

Prerequisite: 3 credits in literature or related field appropriate to this course

CMLIT 422 (IL)

**African Drama** (3) Traditional and popular drama forms; modern anglophone and francophone drama; nationalism and social criticism in contemporary African drama.

Effective: Spring 2006

CMLIT 423 (IL)

**African Novel** (3) From traditional oral narratives to modern autobiographical, historical, satirical, sociological, and allegorical forms; novelist as social critic.

Effective: Spring 2006

CMLIT 446 (IL)

**Postcolonial Literature and Culture** (3) Postcolonial literature and theory in a comparative and international context.

Effective: Summer 2010

Prerequisite: 3 credits in the study of literature

CMLIT 449 (IL)

**Literary Cultures of Islam** (3) Comparative discussion of the literary cultures of Islam from the seventh century to the present.

Effective: Summer 2010

Prerequisite: 3 credits in the study of literature

FR 458 (IL)

**African Literature of French Expression** (3) Genesis of Franco-African literature in the 1930s; phases of the negritude movement; colonial and national literature.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

GEOG 040 (GS;IL)

**World Regional Geography** (3) Introduction to the world as an interdependent community built from unique and independent regions and nations.

Effective: Spring 2012

GEOG 123 (GS;IL)

**Geography of Developing World** (3) Patterns of poverty in poor countries; conventional and non-conventional explanations; focus on solutions; case studies of specific regions.

Effective: Spring 2007

GEOG 124 (GS;IL)

**Elements of Cultural Geography** (3) Locational analysis of changes in non-Western cultures. Problems of plural societies, economic development, population growth, and settlement.

Effective: Summer 2005

GEOG 444

**African Resources and Development** (3) Ecological and cultural factors in the geography of Africa; natural resources and development.

Effective: Spring 2001

Prerequisite: GEOG 010 GEOG 020 GEOG 030 or GEOG 124

HIST 010 (GH;IL)

**World History I** (3) Human origins; early civilizations; major political and intellectual developments on all continents; cultural interrelationships to 1500.

Effective: Summer 2005

HIST 011 (GH;IL)

**World History II** (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.

Effective: Summer 2005

HIST 011U (GH;IL)

**World History II** (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

HIST 119 (GH;IL)

**Gender and History** (3) Survey of the development of gender roles in Western societies from the prehistoric era to the early modern period.

Effective: Spring 2008

HIST 141 (GH;IL)

**Medieval and Modern Russia** (3) Introductory survey, including political, social, economic, and cultural development of Kievan, Muscovite, and Imperial Russia.

Effective: Spring 2006

HIST 142 (GS;IL)

**History of Communism** (3) Marxism; Leninism and evolution of the Soviet Union; formation and development of the Communist bloc; impact of Chinese Communism.

Effective: Spring 2006

HIST 173 (GH;IL)

**Vietnam in War and Peace** (3) Rise of nationalism and communism; origins of conflict; United States involvement; impact on postwar regional and international politics; contemporary Vietnam.

Effective: Spring 2006

HIST 174 (GH;IL)

**The History of Traditional East Asia** (3) Comparative cultural, institutional, and social history of traditional China and Japan to their contact with the industrialized West.

Effective: Summer 2005

HIST 175 (GH;IL)

**The History of Modern East Asia** (3) Comparative survey of the internal developments and external relations of China and Japan since their contact with the industrialized West.

Effective: Summer 2005

HIST 178 (GH;IL)

**Latin-American History to 1820** (3) Conquest of the New World, development of colonial institutions, impact on native cultures, and origins of independence movements.

Effective: Summer 2005

HIST 181 (GH;IL)

**Introduction to the Middle East** (3) Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.

Effective: Summer 2005

HIST 181U (GH;IL)

**Introduction to the Middle East** (3) Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 183 (ASIA 183) (GH;IL)

**Gender, Family, and Society in East Asia** (3) Investigates the history of gender, family, love, and sex in East Asia.

Effective: Summer 2012

HIST 184 (ASIA 184) (GH;IL)

**Society and Culture in the Pacific War** (3) Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.

Effective: Summer 2012

HIST 191 (AFR 191) (GH;IL)

**Early African History** (3) Explores important economic and cultural transformations in the making of early African empires from 1 MBC to 1750.

Effective: Fall 2012

HIST 471Y (RL ST 471Y) (IL)

**Classical Islamic Civilization, 600-1258** (3) Pre-Islamic Arabia; Muhammad; Arab conquests; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.

Effective: Fall 2006

HIST 472 (IL)

**The Ottoman Empire and Other Muslim States** (3) Turkish and Mongol invasions; Mamluks; Ottoman expansion and institutions; Safavid Persia; disintegration and reform; emergence of modern Turkey and Iran.

Effective: Spring 2006

Prerequisite: HIST 181

HIST 473 (IL)

**The Contemporary Middle East** (3) Political, economic, and social changes in Turkey, Iran, Israel, and the Arab countries in the twentieth century; Arab-Israeli conflict.

Effective: Spring 2006

HIST 479 (IL)

**History of Imperialism and Nationalism in Africa** (3) Theories and types of imperialism; varied patterns of colonial administration; initial African responses; nationalism; decolonization and independence.

Effective: Spring 2006

Prerequisite: HIST 191

HIST 483 (IL)

**Chinese Society and Culture to 1800** (3) The social, political, and cultural issues and developments from ancient to the late-imperial times.

Effective: Spring 2006 Ending: Fall 2014

Prerequisite: HIST 174

HIST 483 (ASIA 483) (IL)

**Middle China** (3) The social, political, and cultural issues and developments from the 8th to 16th century.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 174

HIST 485Y (IL)

**Nineteenth-Century China** (3) Ch'ing society and institutions; "opening" to the west; imperialism; domestic upheaval and its effect upon Chinese society; reform movements.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian history)

HIST 485Y (ASIA 485Y) (IL)

**China's Last Empire: The Qing Dynasty, 1644-1911** (3) China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian history)

HIST 486 (IL)

**Twentieth-Century China** (3) China from the Republican Revolution of 1911 to the present; nationalism, cultural change; development of communism.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian History)

HIST 486 (ASIA 486) (IL)

**China in Revolution** (3) China from 1900 to the present; nationalism, cultural change; development of communism.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian History)

HIST 489 (PL SC 486, ASIA 489) (IL)

**International Culture in East Asia** (3) Study of the role of culture in East Asian regional and East-West international relations.

Effective: Summer 2013

Prerequisite: any one of the following: HIST 172 HIST 174 HIST 175 HIST 480 HIST 481 HIST 483 HIST 484 HIST 485 HIST 486

INART 062 (GA;US;IL)

**West African and African American Arts: from the 1960s to the present** (3) An introduction to West African and African American Arts from the 1960s to the present.

Effective: Summer 2014

INART 062U (GA;US;IL)

**West African and African American Arts: from the 1960s to the present** (3) An introduction to West African and African American Arts from the 1960s to the present.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 012 (CAMS 012, RL ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

J ST 012U (CAMS 012U, RL ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 106 (RL ST 106) (GH;IL)

**Mysticism** (3) A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

Effective: Spring 2012

J ST 122 (CAMS 122, RL ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

Effective: Summer 2014

J ST 123 (CAMS 123, RL ST 123) (GH;IL)

**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of the ancient Near East: Judaism, Christianity, and Islam.

Effective: Summer 2014

J ST 153 (CAMS 153, RL ST 153) (GH;IL)

**Dead Sea Scroll** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scroll, Jewish texts from approximately 225 B.C.E. to 68 C.E.

Effective: Summer 2014

J ST 160 (CAMS 160, RL ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.

Effective: Summer 2014

JAPNS 120 (GH;IL)

**Japanese Literature in Its Cultural Context** (3) Japanese literature and film from classical through contemporary times, with attention to changing cultural settings. Taught in English.

Effective: Spring 2010

JAPNS 120W (GH;IL)

**Japanese Literature in its Cultural Context** (3) Japanese Literature in its Cultural Context: Japanese literature and Culture from Classical through contemporary times; writing intensive.

Effective: Summer 2013

JAPNS 121 (GH;IL)

**Japanese Film and New Media** (3) Survey of Japanese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English.

Effective: Spring 2010

JAPNS 402 (IL)

**Level Three Japanese B** (4) Exclusively for study abroad returnees. To further develop Japanese proficiency in speaking, listening, reading, and writing.

Effective: Spring 2011

Prerequisite: JAPNS 401

JAPNS 410 (IL)

**Japanese Through Manga** (3) The course aims to expand students' knowledge and application of Japanese language beyond elementary and intermediate textbooks through the use of manga (graphic novels).

Effective: Summer 2013

Prerequisite: JAPNS 110 or equivalent

JAPNS 421 (IL)

**Courtly Japan** (3) Focused study of aristocratic society and culture of Heian period Japan.

Effective: Spring 2012

Prerequisite: JAPNS 120 JAPNS 121 or HIST 172

JAPNS 422 (IL)

**War and the Warrior in Japan** (3) Survey of the role of warfare and the warrior in Japan, with attention to changing cultural settings. Taught in English.

Effective: Summer 2011

Prerequisite: JAPNS 120 or JAPNS 121 or HIST 172

JAPNS 424 (IL)

**Traveling Voices** (3) Transnational Writings of Japan: from Modern to Contemporary Eras .

Effective: Spring 2012

Prerequisite: JAPNS 120 JAPNS 121 or HIST 172

PL SC 022 (GS;IL)

**Politics of the Developing Areas** (3) The impact of colonialism, nationalism, and development policy on the political culture, structure, and transformation of post-colonial regimes.

Effective: Spring 2010

PL SC 132 (GS;IL)

**The Politics of International Intolerance** (3) Introductory course emphasizing psychological, historical, and political aspects of global intolerance towards minorities.

Effective: Fall 2007

PL SC 443 (AFR 443) (IL)

**Ethnic Conflict in Africa** (3) This course explores the various causes and impacts of ethnic conflicts in the African context.

Effective: Spring 2013

Prerequisite: AF AM 100 AFR 110 PL SC 001 PL SC 003 PL SC 007 PL SC 014 PL SC 017 PL SC 020 or AFRAS 301

PL SC 454 (AFR 454) (IL)

**Government and Politics of Africa** (3) Contemporary African politics, institutions, and ideologies; patterns of change, social forces, and nation building in selected African states.

Effective: Fall 2012

Prerequisite: 3 credits from: AFR 110 PL SC 003 PL SC 020 or PL SC 022

PL SC 458

**Government and Politics of East Asia** (3-6) Examination of political institutions, democratic and communist revolution, political leadership, political processes of major states of East Asia.

Effective: Summer 1996

Prerequisite: 3 credits from PL SC 003 PL SC 020 PL SC 022

PL SC 486 (HIST 489, ASIA 489) (IL)

**International Culture in East Asia** (3) Study of the role of culture in East Asian regional and East-West international relations.

Effective: Summer 2013

Prerequisite: any one of the following: HIST 172 HIST 174 HIST 175 HIST 480 HIST 481 HIST 483 HIST 484 HIST 485 HIST 486

PSYCH 232 (GS;US;IL)

**Cross-Cultural Psychology** (3) This course examines how ethnic and cultural background influences patterns of human thought and behavior.

Effective: Spring 2007

Prerequisite: PSYCH 100

RL ST 001 (GH;US;IL)

**Introduction to World Religions** (3) An historical and comparative survey of the principal beliefs and practices of the world's major religions.

Effective: Summer 2005

RL ST 003 (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

Effective: Summer 2005 Ending: Fall 2014

RL ST 003 (ASIA 003) (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.  
Effective: Spring 2015 Future: Spring 2015

RL ST 101 (GH;IL)

**Comparative Religion** (3) Comparative or historical analysis of religious factors--worship, theology, ethics, scriptures, etc., in two or more religious traditions.  
Effective: Summer 2005

RL ST 103 (GH;US;IL)

**Introduction to Hinduism** (3) Historical development of Hinduism to the present.  
Effective: Summer 2005 Ending: Fall 2014

RL ST 103 (ASIA 103) (GH;US;IL)

**Introduction to Hinduism** (3) Historical development of Hinduism to the present.  
Effective: Spring 2015 Future: Spring 2015

RL ST 104 (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.  
Effective: Summer 2005 Ending: Fall 2014

RL ST 104 (ASIA 104) (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.  
Effective: Spring 2015 Future: Spring 2015

RL ST 106 (J ST 106) (GH;IL)

**Mysticism** (3) A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.  
Effective: Spring 2012

RL ST 107 (GH;US;IL)

**Introduction to Islam** (3) Community and message of the early movement; development of authoritative structures and traditions; proliferation of sects; theology and creeds; mysticism.  
Effective: Spring 2006

RL ST 116 (GH;IL)

**Muslims in America** (3) This course is a study of Muslims from multiple racial, cultural, and national perspectives; it explores what it means to be a Muslim in America.  
Effective: Summer 2010

RL ST 122 (CAMS 122, J ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.  
Effective: Summer 2014

RL ST 123 (CAMS 123, J ST 123) (GH;IL)

**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of ancient Near East: Judaism, Christianity, and Islam.  
Effective: Summer 2014

RL ST 153 (CAMS 153, J ST 153) (GH;IL)

**Dead Sea Scrolls** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.  
Effective: Summer 2014

RL ST 160 (CAMS 160, J ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.  
Effective: Summer 2014

RL ST 181 (IL)

**Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.  
Effective: Spring 2006 Ending: Fall 2014

RL ST 181 (ASIA 181) (IL)

**Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.  
Effective: Spring 2015 Future: Spring 2015

RL ST 408 (US;IL)

**Hindu Studies** (3) Special topics in Hindu studies.  
Effective: Summer 2005  
Prerequisite: 3 credits in religious studies

RL ST 409 (US;IL)

**Buddhist Studies** (3) Special topics in Buddhist studies.  
Effective: Spring 2006  
Prerequisite: 3 credits in religious studies



RL ST 471Y (HIST 471Y) (IL)

**Classical Islamic Civilization, 600-1258** (3) Pre-Islamic Arabia; Muhammad; Arab conquest; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.

Effective: Spring 2006

RL ST 483 (IL)

**Zen Buddhism** (3) The development and current state of Zen Buddhist thought and practice.

Effective: Spring 2006

Prerequisite: HIST 172 HIST 173 HIST 174 HIST 175 PHIL 111 RL ST 003 RL ST 104 or RL ST 181

SOC 019 (GS)

**Sociology of Popular Culture** (3) Students are introduced to the sociological study of how popular culture is produced, consumed, and experienced.

Effective: Spring 2014

SPAN 131 (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

Effective: Summer 2005

SPAN 131U (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

SPAN 131Y (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

Effective: Summer 2005

SPAN 476

**Masterpieces of Spanish American Literature** (3) Reading, analysis, and discussion of selected major works representative of Spanish American prose and poetry.

Effective: Spring 2013

Prerequisite: SPAN 253W

WMNST 200 (GS;IL)

**Global Feminisms** (3) This course examines the diverse contents and forms of "feminism" worldwide, emphasizing women's engagement with unequal, unjust, impacts of globalization.

Effective: Summer 2012

## WHAT IS GENERAL EDUCATION?

The inclusion of General Education in every degree program reflects Penn State's deep conviction that successful, satisfying lives require a wide range of skills and knowledge. These skills include the ability to reason logically and quantitatively and to communicate effectively; an understanding of the sciences that makes sense of the natural environment; a familiarity with the cultural movements that have shaped societies and their values; and an appreciation for the enduring arts that express, inspire, and continually change these values. General Education, in essence, augments and rounds out the specialized training students receive in their majors and aims to cultivate a knowledgeable, informed, literate human being.

Penn State's General Education program is designed to enable students to:

- acquire knowledge through critical information gathering, including reading and listening, computer-assisted searching, and scientific experimentation and observation;
- analyze and evaluate, where appropriate in a quantitative manner, the acquired knowledge;
- integrate knowledge from a variety of sources and fields;
- make critical judgments in a logical and rational manner;
- develop the skills to maintain health and understand the factors that impinge upon it;
- communicate effectively, both in writing and orally, and using the accepted methods for presentation, organization, and debate particular to their disciplines;
- seek and share knowledge, independently and in collaboration with others;
- gain understanding of international interdependence and cultural diversity and develop consideration for values, lifestyles, and traditions that may differ from their own;
- comprehend the role of aesthetic and creative activities expressing both imagination and experience.

Courses within the structure of General Education become an integral part of the overall educational experience. These courses may be relevant to a major or to an individual's interests. Students are encouraged to consider how a course might be useful to their current interests and goals. An important part of academic planning is working with an academic adviser not only to understand the role of General Education requirements, but also to make sure that course selections complement the academic requirements of a student's specific major.

## Components of General Education

The *typical* baccalaureate Penn State academic program requires the completion of between 120 and 130 credits. The General Education requirements are common to all degree programs and compose about one-third of the course work (45 credits). All students must also complete a First-Year Engagement program, courses in United States Cultures and International Cultures, and a writing-across-the-curriculum course as part of their degree program. For simplicity, those courses are included with the General Education program as described in this bulletin. The course selections are designed to provide students with a well-rounded academic experience within an integrated curriculum that allows for individual flexibility. The components of the program are:

- *Skills courses* that help develop quantitative and communication skills.
- *Studies in the Knowledge Domains of the Arts, Humanities, and the Sciences* (including the Health Sciences, Natural Sciences, and the Social and Behavioral Sciences) that provide a broad overview of the world in which we live.
- *First-Year Engagement Programs* that help introduce students to the scholarly community of the University.
- *Writing Intensive* courses of the "Writing Across the Curriculum" component that further enhance writing skills.
- *United States Cultures and International Cultures* that provide opportunities to increase understanding of the relationship between people of different cultures and widen international perspective.

## General Education Requirement Descriptions

### SKILLS

#### Writing / Speaking

*Courses with the GWS designation satisfy this component.*

It is the objective of these courses to teach students to communicate information clearly and set forth their beliefs persuasively both orally and in writing. In particular, it is expected that students become sufficiently proficient in writing, such that their expository prose meets the expectations of educated readers in both form and style.

#### Quantification

*Courses with the GQ designation satisfy this component*

The objective of the quantification courses is to teach the students to work with numbers so as to measure space, time, mass, forces, and probabilities; to reason quantitatively; and to apply basic mathematical processes to daily work and everyday living.

### KNOWLEDGE DOMAINS

#### Health and Physical Activity

*Courses with the GHA designation satisfy this component*

Courses in the Health and Physical Activity area focus on the theory and practice of life span wellness and fitness activities, and on the knowledge, attitudes, habits, and skills needed to live well. The courses include such diverse topics as diet, exercise, stress management, the wise use of leisure time, alcohol consumption and drug use, sexual health awareness,

and safety education. Courses may be knowledge-focused (about aspects of the biological, social, and behavioral aspects of healthful living) or practice-focused (emphasize attitudes, habits, and skills needed to engage in healthful living and can include traditional dance, exercise, and sport activity classes) or integrated in any manner.

### **Natural Sciences**

*Courses with the GN designation satisfy this component*

The Natural Sciences reveal the order, diversity, and beauty of nature and in so doing enable students to develop a greater appreciation of the world around them. These courses help students to understand the nature of science through exposure to the broad divisions of science--physical science, biological science, earth science, and applied natural science. In these courses the students will be taught how to acquire scientific factual information, to use scientific methodology and to develop an appreciation of the natural world. Students should gain an understanding of how scientists reason and how they draw conclusions and think critically.

### **Arts**

*Courses with the GA designation satisfy this component*

Courses taught in the area of the Arts are expected to help students understand and appreciate some of the more important creative works, traditions, literature, and history of the arts and architecture. General Education Arts courses aim to teach students to recognize the comprehensive role of arts and architecture as an expression of the cultural values of a society and the need to preserve these expressions for the benefit of future generations.

Through the courses in the Arts area, students should recognize aesthetic values as an integral part of society's essential need and gain lifelong benefits through the acquisition and appreciation of arts-related skills. Students should become conversant with the terminology, techniques, attitudes, ideas, and skills that the arts comprise so as to understand how humankind relates to the arts.

### **Humanities**

*Courses with the GH designation satisfy this component*

Humanistic studies are divided into four categories:

1. (1) literature,
2. (2) history and culture,
3. (3) advanced language, and
4. (4) philosophy.

The study of the Humanities should develop competency in interpretive understanding of the human condition and of the values inherent in it. This interpretive understanding should evolve into the development of insights and a critical evaluation of the meaning of life, in its everyday details as well as in its historical and universal dimensions. Through this development students should acquire knowledge of and concern for the humanistic values that motivate and inform all humanistic studies.

### **Social and Behavioral Sciences**

*Courses with the GS designation satisfy this component*

Social and Behavioral Sciences courses develop students' understanding of the diverse personal, interpersonal, and societal forces that shape people's lives and teach them how to approach these subjects through the concepts, principles, and methods of scientific inquiry. The general goal is a theoretical understanding of the interrelationships of the determinants of the organization of human behavior. These courses are expected to introduce students to the scientific analysis of:

1. (1) the forms, practices, and theories of politics;
2. (2) the nature and operation of economic analysis;
3. (3) the interrelationships of social institutions;
4. (4) the dynamics of individual and group behavior and change; and
5. (5) the processes and functions of human communication.

Through the application of the methodologies of the Social and Behavioral Sciences, students should develop an understanding of the multiple nature of causality in social settings. The Social and Behavioral Sciences require a comprehensive, integrative, empirical, and theoretical view of the social world.

*Note:* Some colleges or majors might require the completion of specific GWS, GQ, GHA, GN, GA, GH, and/or GS courses.

## **ADDITIONAL REQUIREMENTS**

### **First-Year Engagement Program**

The First-Year Engagement Programs are designed to actively involve students in learning, acquaint them with the learning tools and resources available at Penn State and orient them to the scholarly community from the outset of their undergraduate studies in a way that will bridge to later experiences in their chosen majors. In addition, the First-Year Engagement Programs facilitate students' adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life and introduce them to their responsibilities as members of the University community.

All incoming first-year baccalaureate students are required to complete a First-Year Engagement Program, with a student's campus of enrollment determining whether or not this includes a First-Year Seminar (FYS). All students enrolled in a University Park college, the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan. Other campuses may require the First-Year Seminar; campuses that no longer require a First-Year Seminar provide students with a first-year engagement experience. First-year baccalaureate students entering Penn State should consult their enrollment

home for these requirements.

*Courses with the suffix S, T, or X, or PSU abbreviation satisfy a First-Year Seminar requirement.*

**United States Cultures**

*Courses with the US designation satisfy this requirement*

A course that fulfills the United States Cultures requirement must strive to increase students' understanding of contemporary United States society. Such a course need not focus exclusively on the present and may concern a historical subject.

Courses with the United States Cultures designation will include two or more of the following components and will include those components in the graded evaluation of student performance:

1. Cultivate student knowledge of issues of social identity such as ethnicity, race, class, religion, gender, physical/mental disability, age, or sexual orientation;
2. Convey to students knowledge of different United States values, traditions, beliefs, and customs;
3. Increase student knowledge of the range of United States cultural achievements and human conditions through time;
4. Increase student knowledge of United States social identities not in isolation, but in relation to one another (for example, the interaction of race or gender with socioeconomic status);
5. Introduce students to interpersonal communication and interaction issues among United States cultures.

**International Cultures**

*Courses with the IL designation satisfy this requirement*

A course that fulfills the International Cultures requirement must strive to increase student knowledge of the variety of international societies and may deal to some extent with U.S. culture in its international connections. It need not focus exclusively on the present and may, indeed, be a historical subject. Courses with the International Cultures designation will do two or more of the following:

1. Cultivate student knowledge of the similarities and differences among international cultures;
2. Convey to students knowledge of other nations' cultural values, traditions, beliefs, and customs;
3. Increase students' knowledge of the range of international cultural achievements and human conditions through time;
4. Increase students' knowledge of nations and cultures not in isolation, but in relation to one another;
5. Introduce students to interpersonal communication and interaction issues among international cultures.

**Writing Across the Curriculum**

*Courses with the suffix W, M, X, or Y satisfy this requirement*

Developing the skill to communicate by means of the written word is extremely important. Courses other than General Education English composition courses emphasize the ability of students to write. Colleges and/or departments have established "W" courses in specific programs. Students are required to complete at least 3 credits of writing-intensive courses offered within their major or college of enrollment.

Typically, "W" courses include writing assignments that relate clearly to the course objectives and serve as effective instruments for learning the subject matter of the course. In writing-intensive courses, assignments are designed to help students investigate the course subject matter, gain experience in interpreting data or the results of research, shape writing for a particular audience, or practice the type of writing associated with a given profession or discipline.

Opportunities for students to receive written feedback from the instructor and to apply the instructor's feedback to their future writing are built into the writing courses. A writing-intensive course may also include peer review of written work, tutorial assistance, instructor conferences, group writing projects, the use of writing or learning centers, teaching assistant feedback, and classroom discussions of assigned readings about writing.

Courses that are designed to develop the students' writing competence are identified by the suffix "W, M, X, or Y" in the Undergraduate Bulletin and the Schedule of Courses. Both baccalaureate and associate degree students complete 3 credits in this area.

## Program Structure--Baccalaureate and Associate

### The Baccalaureate Degree General Education Program

The baccalaureate degree General Education program consists of 45 credits that are distributed among two General Education components: (1) Skills (15 credits) and (2) Knowledge Domains (30 credits) in the Natural Sciences, Arts, Humanities, Social and Behavioral Sciences, and Health and Physical Activity. Every baccalaureate degree student also completes the First-Year Seminar, United States Cultures and International Cultures, and Writing Across the Curriculum requirements.

A restriction is placed on students in majors that are closely linked to the Knowledge Domains of Natural Sciences, Arts, Humanities, and Social and Behavioral Sciences to ensure that they participate in the full breadth of General Education. These students may not use a course in their academic major to satisfy one of the Knowledge Domains requirements. For example, an Economics major may not use an economics course to fulfill his/her social and behavioral sciences requirement. Also, students may not count courses cross-listed with courses in their major to fulfill one of the General Education Knowledge Domain, e.g., a Theatre major may not register for THEA 208 (GA;US;IL)/AAAS 208 (GA;US;IL) and have it count in the Arts requirement.

#### **SKILLS** (15 credits)

##### ***Writing/Speaking*** (9 credits)

Courses with the GWS designation satisfy this component.

##### ***Quantification*** (6 credits)

Courses with the GQ designation satisfy this component. (3-6 credits are selected from mathematics, applied mathematics, and statistics; 3 credits may be selected from computer science or symbolic logic.)

#### **KNOWLEDGE DOMAINS** (30 credits)

##### ***Health and Physical Activity*** (3 credits)

Courses with the GHA designation satisfy this component.

##### ***Natural Sciences*** (9 credits)

Courses with the GN designation satisfy this component.

##### ***Arts*** (6 credits)

Courses with the GA designation satisfy this component.

##### ***Humanities*** (6 credits)

Courses with the GH designation satisfy this component.

##### ***Social and Behavioral Sciences*** (6 credits)

Courses with the GS designation satisfy this component.

### ADDITIONAL REQUIREMENTS

Baccalaureate degree students must complete one First-Year Seminar (S, T, or X suffix, or PSU abbreviation), 3 credits of United States Cultures (US) and 3 credits of International Cultures (IL), and 3 credits of Writing Across the Curriculum (W, M, X, and Y). These requirements may be completed by designated courses that also meet other degree or General Education requirements.

### FLEXIBILITY OF THE BACCALAUREATE DEGREE GENERAL EDUCATION REQUIREMENTS

Penn State wants students to use General Education to experiment and explore, to take academic risks, to discover things they did not know before, and to learn to do things they have not done before. To that end, the General Education program extends the concept of flexibility to all aspects of the degree program.

Students may, with the permission of their adviser and dean's representative:

1. substitute a 200- to 499-level course in an area of General Education for a course found on the General Education list. For example, a student may take a 400-level course in history and use it to meet the General Education requirement satisfied by a comparable lower-level history course.
2. substitute a foreign language at the twelfth credit level of proficiency, as measured by the Penn State foreign language offerings, for 3 credits in any of the categories of General Education. Baccalaureate degree students may substitute study in a foreign/second language at the twelfth credit level of proficiency or higher for any three credits in any of the categories of general education only if those three credits are in language study beyond their degree requirements.\*
3. substitute a third course in one of the Knowledge Domains areas of Arts, Humanities, or Social and Behavioral Sciences for a second course in one of the other areas. For example, a student might take 3 courses in the Arts, two courses in the Humanities, and only one course in the Social and Behavioral Sciences. This substitution is often referred to as the 9-6-3 sequence, representing the 9 credits, 6 credits, and 3 credits completed in place of the specified 6-6-6.\*
4. meet the United States Cultures (US) and International Cultures (IL) requirement through completion of an experiential learning program or practicum (one-semester or year long) approved by their college dean's office. Approved Penn State Education Abroad Programs may be used to satisfy the International Cultures (IL) requirement.

5. meet the First-Year Seminar (FYS) requirement through completion of a FYS course offered by any unit of the University. Thus, a student who successfully completes a FYS course in one college, prior to transferring to another college, will not be required to complete another FYS. However, since there are various modes of offering a FYS throughout the University, students transferring to a new college may find that a required course that is also a FYS must still be taken.

\*Please note: The use of these two substitutions (No. 2 and No. 3 above), either alone or in combination, may not lead to the complete elimination of any area in the skills or knowledge domains categories in the student's General Education program.

\* Three credits of United States Cultures (US) and International Cultures (IL), and 3 credits of Writing Across the Curriculum (W, M, X, and Y) may be designated courses that also meet other degree or General Education requirements.

## The Associate Degree General Education Program

The associate degree General Education program consists of 21 credits that are distributed among two General Education components: (1) Skills6 credits in courses that develop communicative and quantitative skills; and (2) Knowledge Domains12 credits in the Natural Sciences, Arts, Humanities, and Social and Behavioral Sciences, with an additional 3 credits in any General Education area. Associate degree students have a 3-credit requirement and may choose either a United States Cultures (US) course or an International Cultures (IL) course, and must complete a 3-credit writing intensive course (W). While associate degree students are not required to complete a First-Year Seminar, they are encouraged to participate in such a seminar if the opportunity to do so exists.

A restriction is placed on students in majors that are closely linked to the Knowledge Domains areas of Natural Sciences, Arts, Humanities, and Social and Behavioral Sciences, in order to ensure that they participate in the full breadth of General Education. These students may not use a course in their academic major to satisfy one of the Knowledge Domains area requirements. For example, an Economics major may not use an economics course to fulfill his/her social and behavioral sciences requirement.

### SKILLS (6 credits)

#### **Writing/Speaking** (3 credits)

Courses with the GWS designation satisfy this component.

#### **Quantification** (3 credits)

Courses with the GQ designation satisfy this component. (3 credits are selected from mathematics, applied mathematics, statistics, computer science, or symbolic logic)

### KNOWLEDGE DOMAINS (12 credits)

#### **Natural Sciences** (3 credits)

Courses with the GN designation satisfy this component.

#### **Arts** (3 credits)

Courses with the GA designation satisfy this component.

#### **Humanities** (3 credits)

Courses with the GH designation satisfy this component.

#### **Social and Behavioral Sciences** (3 credits)

Courses with the GS designation satisfy this component.

### SKILLS OR KNOWLEDGE DOMAINS (3 credits)

Any General Education course can be taken to satisfy these 3 credits.

## ADDITIONAL REQUIREMENTS

Every associate degree student will also complete, as part of his or her additional associate degree requirements, 3 credits of United States Cultures (US) or 3 credits of International Cultures (IL) and 3 credits of Writing Across the Curriculum (M, W, Y, and X) requirements.

### Flexibility of the Associate Degree General Education Requirements

The General Education program extends the concept of flexibility to all aspects of the degree program. Penn State wants students to use General Education as an opportunity to experiment and explore, to take academic risks, to discover things they did not know before, and to learn to do things they have not done before.

To these ends, students may, with the permission of their adviser and dean's representative:

1. substitute a 200- to 499-level course for an Arts, Humanities, Natural Sciences, or Social and Behavioral Sciences course found on the General Education list. For example, a student may take a 400-level course in history and use it to meet the General Education requirement satisfied by a comparable lower level history course.
2. meet the United States Cultures (US) and International Cultures (IL) requirement through completion of an experiential learning program or practicum (one-semester or year long) approved by their college dean's office. Approved Penn State Education Abroad Programs may be used to satisfy the International Cultures (IL) requirement.
3. Three credits of the required 21 credits of General Education courses are to be selected from any of the following General Education areas: Writing/Speaking, Quantification, Natural Sciences, Arts, Humanities, or Social and Behavioral Sciences.



## General Education Course Designations

Courses that appear in this Bulletin with the following designations have been approved for General Education and for additional requirements.

### General Education Skills Courses

- GQ--Quantification Courses
- GWS--Writing/Speaking Courses

### General Education Knowledge Domains Courses

- GA--Arts Courses
- GH--Humanities Courses
- GHA--Health and Physical Activity Courses
- GN--Natural Sciences Courses
- GS--Social and Behavioral Sciences Courses

## ADDITIONAL REQUIREMENTS

### United States Cultures and International Cultures Courses

- IL--International Cultures Courses
- US--United States Cultures Courses
- US; IL--United States Cultures and International Cultures Courses
- U--United States Cultures and/or International Cultures and Honors
- Y-- United States Cultures and/or International Cultures and Writing Across the Curriculum

### First-Year Seminar

- PSU--First-Year Seminar
- S--First-Year Seminar
- T--First-Year Seminar, Honors
- X--Writing Across the Curriculum in a First-Year Seminar

### Writing Across the Curriculum

- M--Writing Across the Curriculum, Honors
- W--Writing Across the Curriculum
- X--Writing Across the Curriculum in a First-Year Seminar
- Y-- United States Cultures and/or International Cultures and Writing Across the Curriculum

### Honors Course in Any Category

- H--Honors



## THE BACCALAUREATE DEGREE GENERAL EDUCATION PROGRAM

The baccalaureate degree General Education program consists of 45 credits that are distributed among two General Education components: (1) Skills (15 credits) and (2) Knowledge Domains (30 credits) in the Natural Sciences, Arts, Humanities, Social and Behavioral Sciences, and Health and Physical Activity. Every baccalaureate degree student also completes the First-Year Seminar, United States Cultures and International Cultures, and Writing Across the Curriculum requirements.

A restriction is placed on students in majors that are closely linked to the Knowledge Domains of Natural Sciences, Arts, Humanities, and Social and Behavioral Sciences to ensure that they participate in the full breadth of General Education. These students may not use a course in their academic major to satisfy one of the Knowledge Domains requirements. For example, an Economics major may not use an economics course to fulfill his/her social and behavioral sciences requirement. Also, students may not count courses cross-listed with courses in their major to fulfill one of the General Education Knowledge Domain, e.g., a Theatre major may not register for THEA 208 (GA;US;IL) / AAAS 208 (GA;US;IL) and have it count in the Arts requirement.

### BACCALAUREATE DEGREE REQUIREMENTS GENERAL EDUCATION

#### SKILLS

	credits
Writing/Speaking (GWS)	9 credits
Quantification (GQ)	6 credits
	total 15 credits

#### KNOWLEDGE DOMAINS

	credits
Health and Physical Activity (GHA)	3 credits
Natural Sciences (GN)	9 credits
Arts (GA)	6 credits
Humanities (GH)	6 credits
Social and Behavioral Sciences (GS)	6 credits
	total 30 credits

#### ADDITIONAL REQUIREMENTS

	credits
First-Year Engagement Program (S, T, X, or PSU)*	credits vary
United States Cultures (US)	3 credits**
International Cultures (IL)	3 credits**
Writing Across the Curriculum (W, M, X, Y)	3 credits**

\*May include a First-Year Seminar (S, T, X, or PSU); a student's campus of enrollment determines whether or not a First-Year Seminar is required. Students at the University Park campus are required to complete at least 1 credit of first-year seminar and meet any other first-year requirements specified by their home college. Students at the Commonwealth campuses are required to complete the first-year experiences specified by their campus. First-year baccalaureate students entering Penn State should consult their enrollment home for these requirements.

\*\*May be completed by designated courses that also meet other degree or General Education requirements.

## Flexibility of the Baccalaureate Degree General Education Requirements

Penn State wants students to use General Education to experiment and explore, to take academic risks, to discover things they did not know before, and to learn to do things they have not done before. To that end, the General Education program extends the concept of flexibility to all aspects of the degree program.

Students may, with the permission of their adviser and dean's representative:

1. Substitute a 200- to 499-level course in an area of General Education for a course found on the General Education list. For example, a student may take a 400-level course in history and use it to meet the General Education requirement satisfied by a comparable lower-level history course.
2. Substitute a foreign language at the twelfth credit level of proficiency, as measured by the Penn State foreign language offerings, for 3 credits in any of the categories of General Education. Baccalaureate degree students may substitute study in a foreign/second language at the twelfth credit level of proficiency or higher for any three credits in any of the categories of general education only if those three credits are in language study beyond their degree requirements.\*
3. Substitute a third course in one of the Knowledge Domains areas of Arts, Humanities, or Social and Behavioral Sciences for a second course in one of the other areas. For example, a student might take 3 courses in the Arts, two courses in the Humanities, and only one course in the Social and Behavioral Sciences. This substitution is often referred to as the 9-6-3 sequence, representing the 9 credits, 6 credits, and 3 credits completed in place of the specified 6-6-6.\*
4. Meet the United States Cultures (US) and International Cultures (IL) requirement through completion of an experiential learning program or practicum (one-semester or year long) approved by their College Dean's Office. Approved Penn State Education Abroad Programs may be used to satisfy the International Cultures (IL) requirement.
5. Meet First-Year Engagement Program requirements through completion of a First-Year Experience offered by any unit of the University. Thus, a student who successfully completes a First-Year Engagement Program in one college or campus, prior to transferring to another college or campus, will not be required to complete another First-Year Experience. However, since there are various modes of offering First-Year Seminars throughout the University, students transferring to a new college may find that a required course that is also a First-Year Seminar must still be taken.

\*The use of these two substitutions (No. 2 and No. 3 above), either alone or in combination, may not lead to the complete elimination of any area in the skills or knowledge domains categories in the student's general education program.

## THE ASSOCIATE DEGREE GENERAL EDUCATION PROGRAM

The associate degree General Education program consists of 21 credits that are distributed among two General Education components:

1. (1) Skills: 6 credits in courses that develop communicative and quantitative skills; and
2. (2) Knowledge Domains: 12 credits in the Natural Sciences, Arts, Humanities, and Social and Behavioral Sciences, with an additional 3 credits in any General Education area.

Associate degree students have a 3-credit requirement and may choose either a United States Cultures (US) course or an International Cultures (IL) course, and must complete a 3-credit writing intensive course (W).

A restriction is placed on students in majors that are closely linked to the Knowledge Domains areas of Natural Sciences, Arts, Humanities, and Social and Behavioral Sciences, in order to ensure that they participate in the full breadth of General Education. These students may not use a course in their academic major to satisfy one of the Knowledge Domains area requirements. For example, an Economics major may not use an economics course to fulfill his/her social and behavioral sciences requirement.

### ASSOCIATE DEGREE REQUIREMENTS GENERAL EDUCATION

<b>SKILLS</b>		<b>credits</b>
Writing/Speaking (GWS)		3 credits
Quantification (GQ)		3 credits
		total 6 credits

<b>KNOWLEDGE DOMAINS</b>		<b>credits</b>
Natural Sciences (GN)		3 credits
Arts (GA)		3 credits
Humanities (GH)		3 credits
Social and Behavioral Sciences (GS)		3 credits
		total 12 credits

<b>SKILL OR KNOWLEDGE DOMAINS</b>	<b>credits</b>
Any General Education course can be taken to satisfy these 3 credits	3 credits

<b>ADDITIONAL REQUIREMENTS</b>	<b>credits</b>
United States Cultures (US)	3 credits*
Writing Across the Curriculum (W, M, X, Y)	3 credits*
	total 6 credits

\* May be completed by designated courses that also meet other degree or General Education requirements.

### Flexibility of the Associate Degree General Education Requirements

The General Education program extends the concept of flexibility to all aspects of the degree program. Penn State wants students to use General Education as an opportunity to experiment and explore, to take academic risks, to discover things they did not know before, and to learn to do things they have not done before.

To these ends, students may, with the permission of their adviser and dean's representative:

1. Substitute a 200- to 499-level course for an Arts, Humanities, Natural Sciences, or Social and Behavioral Sciences course found on the General Education list. For example, a student may take a 400-level course in history and use it to meet the General Education requirement satisfied by a comparable lower level history course.
2. Meet the United States Cultures (US) and International Cultures (IL) requirement through completion of an experiential learning program or practicum (one-semester or year long) approved by their college dean's Office. Approved Penn State Education Abroad Programs may be used to satisfy the International Cultures (IL) requirement.
3. Three credits of the required 21 credits of General Education courses are to be selected from any of the following

General Education areas: Writing/Speaking, Quantification, Natural Sciences, Arts, Humanities, or Social and Behavioral Sciences.

## Health and Physical Activity

All course descriptions are updated periodically.

85 courses.

BB H 048 (GHA)

**Values and Health Behavior** (1.5) Examination of issues that impact the social, emotional, and physical well-being of college students through a values and decision-making process.

Effective: Fall 2003

BB H 101 (GHA)

**Introduction to Biobehavioral Health** (3) Introduction to an interdisciplinary study of health, examining the interaction of biological processes and behavior on health.

Effective: Spring 2000

BB H 101H (GHA)

**Introduction to Biobehavioral Health** (3) Introduction to interdisciplinary study of health, examining the interaction of biological processes and behavior on health.

Effective: Summer 1998

BB H 119 (GHA)

**Behavior, Health, and Disease** (3) Principles of health promotion, disease prevention, and treatment of acute and chronic illness. This course is designed for non-BB H majors.

Effective: Spring 2002

BB H 130 (GHA)

**Strategies for Addressing the Obesity and Diabetes Epidemics** (3) Strategies for understanding and modifying the factors underlying weight, health, and the current U.S. and worldwide obesity/diabetes epidemics.

Effective: Spring 2011

BB H 143 (GHA)

**Drugs, Behavior, and Health** (3) Health aspects of use and abuse of licit and illicit drugs; related social problems and prevention. Designed for non-BB H majors.

Effective: Spring 2002

BB H 146 (GHA)

**Introduction to Health and Human Sexuality** (3) An examination of human sexuality as it relates to health.

Effective: Summer 2002

C E 254 (GHA;US)

**Personal & Occupational Safety** (3) Students will learn about principles of safety in work and personal settings.

Effective: Spring 2008

CSD 100 (GHA;US)

**Preventing Vocal Abuse, Misuse, and Disorders** (3) Principles of the voice mechanisms, preventing vocal abuse, and promoting vocal health across the life span.

Effective: Fall 2012

CSD 101 (GHA;US)

**Preventing Hearing Loss** (1.5) Assessment, intervention, and prevention of hearing loss caused by loud music and recreational and industrial noise.

Effective: Summer 2005

DANCE 170 (GHA)

**Conditioning for Dancers** (1.5 per semester/maximum of 3) This course is designed to improve technique through strengthening, toning, improving coordination, increasing balance, and helping alignment. The course also addresses common areas of injury.

Effective: Spring 2013

Prerequisite: and dance course

DANCE 270 (GHA)

**Introduction to Bartenieff Fundamentals** (3) Physical and theoretical approach to movement: facilitates efficiency, and expression through dynamic alignment, mobility, kinesthetic awareness; reduce physical injuries.

Effective: Spring 2003

FD SC 105 (S T S 105) (GHA)

**Food Facts and Fads** (3) Impact on society and the individual of modern food technology, food laws, additives, etc.; historical, current, and futuristic aspects.

Effective: Spring 2004

H P A 057 (GHA)

**Consumer Choices in Health Care** (3) Introduction to consumers' role in health-care decisions, including health benefits, physician and hospital choice, and end-of-life choices.

Effective: Spring 2004

KINES 001 (GHA)

**Introduction to Outdoor Pursuits** (1.5-3 per semester, maximum of 12) Introduction to selected outdoor pursuit

activities, such as, but not limited to, rock climbing, cross country skiing, backpacking, hiking, orienteering.

Effective: Fall 2008

KINES 004 (GHA)

**Principles of Fly Tying and Fly Fishing for Trout** (1.5) A course designed to enhance student's knowledge, skill, and performance in fly tying and the sport of fly fishing for trout.

Effective: Fall 2001

KINES 006 (GHA)

**Cycling** (1.5) A course designed to give students an understanding of and the ability to establish an exercise program involving riding.

Effective: Summer 2003

KINES 008 (GHA)

**Competition Casting** (1.5) A course designed to enhance student's knowledge, skills, and performance in all forms of casting for sport fishing.

Effective: Fall 2001

KINES 010 (GHA)

**Indoor Rock Climbing** (1.5) A course designed to provide students with the basic skills, safety, and knowledge of rock climbing.

Effective: Summer 2003

KINES 010A (GHA)

**Lead Rock Climbing** (1.5) A course designed to provide students with skills, safety, and knowledge of lead rock climbing in a top rope environment.

Effective: Summer 2003

Prerequisite: KINES 010 or with permission of program

KINES 011 (GHA)

**Basic Downhill Skiing** (1) Students will gain a comprehensive understanding and basic level of proficiency in Downhill Skiing.

Effective: Summer 2004

KINES 011A (GHA)

**Intermediate Downhill Skiing** (1) Students will gain a comprehensive understanding and intermediate to advanced level of proficiency in Downhill Skiing.

Effective: Summer 2004

KINES 012 (GHA)

**Snowboarding** (1) Students will gain a comprehensive understanding and basic level of proficiency in Snowboarding.

Effective: Summer 2004

KINES 013 (GHA)

**First Aid, Personal Safety, and CPR** (1) A course designed to provide students with the opportunity for Red Cross certification in Community First Aid, Safety, and CPR.

Effective: Fall 2003

KINES 017 (GHA)

**Ballroom Dance** (1.5) A course designed to provide students with basic dance skills and an understanding and appreciation of ballroom dance.

Effective: Summer 2003

KINES 017S (GHA)

**Ballroom Dance** (1.5) A course designed to provide students with basic dance skills and an understanding and appreciation of ballroom dance.

Effective: Fall 2007

KINES 020 (GHA)

**Modern Dance** (1.5) A course designed to teach the basic skills of modern dance and to develop a further appreciation of modern dance.

Effective: Summer 2002

KINES 024 (GHA)

**Introduction to Lifetime Sports** (1.5) Students participate in lifetime sports such as archery, bowling, golf, and at least one racquet and/or winter sport.

Effective: Summer 2002

KINES 025 (GHA)

**Introduction to Court Sports** (1.5) A course designed to introduce students to various court sports such as tennis, racquetball, handball, squash, and/or badminton.

Effective: Summer 1999

KINES 026 (GHA)

**Archery/Indoor & Outdoor** (1.5) Course designed to introduce students to Archery/Bowhunting.

Effective: Summer 2003

KINES 027 (GHA)

**Badminton 1** (1.5) The course promotes health, fitness, and enjoyment of the game of badminton.

Effective: Summer 2002

## KINES 028 (GHA)

**Fencing I** (1.5) Kinesiology 028 is designed to give students knowledge of the rules, strategies and skills of the sport of Fencing.

Effective: Summer 2004

## KINES 029 (GHA)

**Golf I** (1-1.5) A course designed to give students an understanding of and a proficiency in golf skills, rules, and etiquette.

Effective: Summer 1999

## KINES 029A (GHA)

**Golf II** (1.5) A course designed to provide a further understanding of and a more advanced proficiency in golf skills, rules and etiquette.

Effective: Summer 2004

Prerequisite: KINES 029 or equivalent

## KINES 041 (GHA)

**Handball** (1.5) A course designed to introduce students to a basic instructional course in the fundamentals of 4-wall handball.

Effective: Spring 2001

## KINES 042 (GHA)

**Ice Skating--Beginning** (1.5) A course of instruction focused on the physical development and knowledge of basic ice skating skills.

Effective: Summer 2002

## KINES 042A (GHA)

**Ice Skating--Advanced Beginning** (1.5) A course of instruction focused on the physical development and knowledge of basic ice skating skills.

Effective: Summer 2002

Prerequisite: KINES 042 or some experience with the activity

## KINES 042B (GHA)

**Ice Skating--Intermediate/Advanced** (1.5) A course of instruction in basic figure skating: field moves, freestyle, choreography, pairs skating, and ice dance.

Effective: Summer 2002

Prerequisite: KINES 042 and/or KINES 042A or equivalent skating experience

## KINES 043 (GHA)

**Power Skating** (1.5) A course of instruction in basic power skating specifically designed for ice hockey, applicable to other ice sports.

Effective: Summer 2002

Prerequisite: KINES 042 or KINES 042A or equivalent skating experience

## KINES 044 (GHA)

**Racquetball I** (1-1.5) The course promotes health, fitness, and enjoyment of the game of racquetball.

Effective: Spring 2001

## KINES 045 (GHA)

**NAUI Basic Scuba** (1.5) A course to introduce students to the fundamentals of Scuba diving.

Effective: Summer 2002

Prerequisite: meet NAUI standards and/or by permission of the instructor

## KINES 046 (GHA)

**Squash I** (1-1.5) A course designed to give students an appreciation of and proficiency in the skills, rules, and regulations of squash.

Effective: Spring 2001

## KINES 047 (GHA)

**Beginning Swimming** (1.5) A course designed to give students skills and knowledge necessary to be safe in shallow and deep water.

Effective: Summer 2002

## KINES 047A (GHA)

**Advanced Beginner Swimming** (1.5) A course designed to give students skills and knowledge necessary to be safe in shallow and deep water.

Effective: Summer 2002

Prerequisite: students should be comfortable in shallow and deep water and be moderately proficient in front crawl elementary backstroke sidestroke and breaststroke

## KINES 047B (GHA)

**Intermediate Swimming** (1.5) A course designed to teach students a variety of swimming strokes and increase their knowledge of fitness using aquatic activities.

Effective: Summer 2002

Prerequisite: KINES 047A or equivalent skills; students should be safe in deep water and have proficiency in the front crawl elementary backstroke sidestroke and breaststroke

## KINES 048 (GHA)

**Tennis I** (1.5) A course designed to give students an appreciation of and proficiency in the skills, rules, and regulations of tennis.

Effective: Spring 2001

## KINES 048A (GHA)

**Tennis II** (1.5) A course designed to give students an appreciation of and proficiency in the skills, rules, and regulations of tennis.

Effective: Summer 2004

Prerequisite: KINES 048 or for students who demonstrate reasonable consistency in depth and placement of ground strokes and the serve and who have not had instruction at Penn State.

## KINES 054 (GHA)

**Aikido** (1.5) Students will gain a comprehensive understanding and basic level of proficiency in the Japanese Traditional martial art of Aikido.

Effective: Summer 2003

## KINES 056 (GHA)

**Introduction to Martial Arts** (1.5) A course designed to give students an introduction to martial arts, and the use of martial arts for lifelong fitness.

Effective: Summer 2002

## KINES 057 (GHA)

**Personal Defense** (1.5) A course designed to give students an understanding of and a proficiency in martial arts and self-defense.

Effective: Summer 2004

## KINES 058 (GHA)

**Judo I** (1.5) Kinesiology 058 will help students develop stamina, confidence and discipline, and promote general fitness through the introduction to basic Judo.

Effective: Summer 2003

## KINES 059 (GHA)

**Introduction to Karate** (1.5) A course designed to give students an understanding of and a proficiency in Karate.

Effective: Summer 2003

## KINES 061 (GHA)

**Fitness Theory and Practice** (3) Students will learn about the science of fitness/wellness; evaluate their present fitness levels and create a personal fitness plan.

Effective: Spring 2001

## KINES 061S (GHA)

**Fitness Theory and Practice** (3) Students will learn about the science of fitness/wellness; evaluate their present fitness levels and create a personal fitness plan.

Effective: Summer 2005

## KINES 062 (GHA)

**Introduction to Cardiovascular Activities** (1.5) A course designed to give students an introduction to various types of cardiovascular training.

Effective: Summer 2002

## KINES 063 (GHA)

**Aerobic Dance** (1.5) A course designed to involve students in daily aerobic activity while teaching the fundamentals of overall health and well-being.

Effective: Summer 2002

## KINES 065 (GHA)

**Jogging** (1.5) A course designed to give students an understanding of and the ability to establish an exercise program involving jogging.

Effective: Summer 2003

## KINES 067 (GHA)

**Physical Conditioning** (1.5) A course designed to give students an experience with an understanding of vigorous physical training.

Effective: Spring 2001

## KINES 068 (GHA)

**Strength Training** (1.5) Designed to improve students' muscular strength/endurance, teaches students how to develop an effective personal strength/endurance training program for lifelong fitness.

Effective: Summer 2002

## KINES 070 (GHA)

**Swim Conditioning** (1.5) A course designed to provide students an understanding of and proficiency in swimming conditioning.

Effective: Summer 2002

Prerequisite: KINES 047A

## KINES 072 (GHA)

**Fitness Walking** (1-1.5) A course designed to give students an understanding of and a proficiency in fitness walking.

Effective: Spring 2001

## KINES 076 (GHA)

**Introduction to Tai Chi Ch'uan** (1.5) A course designed to introduce students to Tai Chi Ch'uan, a traditional Chinese system of personal cultivation and self-defense.

Effective: Summer 2004



KINES 077 (GHA)

**Yoga 1** (1.5) A course designed to give students an understanding of and proficiency in yoga.

Effective: Summer 2002

KINES 077A (GHA)

**Advanced Yoga** (1.5) A course designed to expand on a student's fundamental understanding of and proficiency in yoga.

Effective: Summer 2003

Prerequisite: KINES 077

KINES 081 (GHA)

**Wellness Theory** (3) Focused on preparing and engaging students in the attitudes and behaviors that enhance quality of life and maximize personal potential.

Effective: Summer 2002

KINES 082 (GHA)

**Action Methods for Stress Management** (3) Achieving wellness by studying the effects of stressors on systems of the body and effectiveness of activity to relieve stress.

Effective: Summer 2002

KINES 083 (GHA)

**Exercise for Stress Management** (1.5) A course designed to identify the factors that contribute to student stress and develop strategies that will manage these factors. Students who receive credit for KINES 083 will not receive credit for KINES 082.

Effective: Summer 2002

KINES 084 (GHA)

**Fitness for Life** (1.5-2) A course designed to give students an understanding of the fundamental principles of physical fitness. Students who receive credit for KINES 084 shall not receive credit for either KINES 061 or 081.

Effective: Summer 1999

KINES 088 (GHA)

**Varsity Sport Experience** (2) A course designed to promote an active and healthful lifestyle through participation in a varsity sport sanctioned by Penn State.

Effective: Summer 2004

KINES 089 (GHA)

**Student Wilderness Experience** (3) Incoming student wilderness experience. Backpacking and one additional adventure: rock climbing, high ropes course/canoeing. One-day of community service.

Effective: Summer 2003

KINES 090 (GHA)

**Introduction to Team Sports/Indoor** (1-1.5) A course designed to introduce students to indoor team sports.

Effective: Spring 2001

KINES 090A (GHA)

**Introduction to Team Sports/Indoor - Volleyball** (1.5 per semester/maximum of 99) A course designed to introduce students to the team sport of volleyball.

Effective: Spring 2004

KINES 090B (GHA)

**Introduction to Team Sports/Indoor - Basketball** (1.5 per semester/maximum of 99) A course designed to introduce students to the team sport of basketball.

Effective: Spring 2004

KINES 090C (GHA)

**Introduction to Team Sports/Indoor - Team Handball** (1.5 per semester/maximum of 99) A course designed to introduce students to the sport of team handball.

Effective: Spring 2004

KINES 091A (GHA)

**Introduction to Team Sports/Outdoor - Soccer** (1.5 per semester) A course designed to introduce students to the outdoor team sport of Soccer.

Effective: Summer 2004

KINES 091C (GHA)

**Introduction to Team Sports/Outdoor - Rugby** (1.5 per semester) A course designed to introduce students to the outdoor team sport of Rugby.

Effective: Summer 2004

KINES 091D (GHA)

**Introduction to Team Sports/Outdoor-Ultimate Frisbee** (1.5 per semester) A course designed to introduce students to the outdoor team sport of Ultimate Frisbee.

Effective: Summer 2004

KINES 093 (GHA)

**Masters Activity (Sport)** (1.5 per semester/maximum of 12) A course that introduces students to movement subcultures by providing the knowledge, habits, and skills for activity across the lifespan.

Effective: Spring 2003

Prerequisite: successful completion of relevant activity course or permission of the instructor

KINES 096 (GHA)

**Independent Study in Physical Activity** (.5-3 per semester) This course is designed to meet the needs of students to expand Kinesiology experiences beyond the designed course curriculum.  
Effective: Spring 2006

KINES 303 (GHA)

**Emergency Care - First Aid/Safety/AED** (3) Develop skills for First Responder Certification in CPR/AED, First Aid and Safety by American Red Cross or National Safety Council.  
Effective: Fall 2003

NURS 203 (GHA)

**First Aid and CPR** (3) An introductory first aid course designed to provide the basic knowledge and skills to provide assistance to someone injured/ill.  
Effective: Fall 2008

NUTR 100 (GHA)

**Contemporary Nutrition Concerns** (1.5) Interpretation of nutrition principles in relation to contemporary problems in selecting a diet to promote a healthy lifestyle. Students who have received credit for NUTR 151 or NUTR 251 may not schedule this course.  
Effective: Spring 2004

NUTR 251 (GHA)

**Introductory Principles of Nutrition** (3) The nutrients: food sources and physiological functions as related to human growth and well-being throughout life; current nutrition issues. Students who have passed NUTR 151 may not schedule this course.  
Effective: Spring 2004

S T S 105 (FD SC 105) (GHA)

**Food Facts and Fads** (3) Impact on society and the individual of modern food technology, food laws, additives, etc.; historical, current, and futuristic aspects.  
Effective: Spring 2004

VB SC 130 (GHA)

**Understanding Human Disease** (3) An explanation of disease mechanisms, enabling non-scientists to better understand medical journalism and apply basic medical principles to everyday life.  
Effective: Summer 2014

## Natural Sciences

All course descriptions are updated periodically.

173 courses.

AERSP 055 (S T S 055) (GN)

**Space Science and Technology** (3) The science and technology of space exploration and exploitation; physical principles; research and development; history, space policy, and social implications.

Effective: Spring 1994

AFR 105 (EARTH 105) (GN;IL)

**Environments of Africa: Geology and Climate Change** (3) Significant natural features of Africa as related to human endeavor; case studies include the Nile, climate change, natural resources.

Effective: Spring 2013

AGECO 121 (GN)

**Plant Stress: It's Not Easy Being Green** (3) The many hazards faced by plants and the dynamic ways that plants respond to these problems are examined.

Effective: Summer 2013

AGECO 122 (METEO 122) (GN)

**Atmospheric Environment: Growing in the Wind** (3) Dynamic effects of weather on ecosystems and habitation of Earth.

Effective: Summer 2013

AGECO 134 (R SOC 134) (GN)

**Sustainable Agriculture Science and Policy** (3) The science, socio-economics, and politics of managing food and fiber production systems. Sustainability implications of current practices and future options.

Effective: Summer 2013

AGECO 144 (GN)

**Principles and Practices of Organic Agriculture** (3) An introduction to the science, principles and practices of organic agricultural systems for food production.

Effective: Summer 2013

AN SC 100 (GN)

**Introduction to Animal Industries** (3) Students will study the biology, production systems, terminology, and emerging issues of the N. American animal industries.

Effective: Summer 2013

AN SC 300 (GN)

**Integrated Animal Biology** (3) An integrated study of the biology of domestic animal growth and the underlying cellular, endocrine and immune systems involved.

Effective: Summer 2013

Prerequisite: BIOL 011 and BIOL 012 or BIOL 110 ; at least third-semester standing

ANTH 021 (GN)

**Introductory Biological Anthropology** (3) The role of human biology and evolution in culture, society, and behavior.

Effective: Spring 2001

ANTH 022 (GN)

**Humans as Primates** (3) The biological basis of human behavior within the context of primate biology, behavior, and evolution.

Effective: Spring 2009

ANTH 216 (GN;GS)

**Sex and Evolution** (3) Introduction to evolutionary theory and its application to understanding human sexuality and sex differences.

Effective: Summer 2009

ANTH 218 (GN)

**Genes, Evolution and Behavior** (4) This course explores how genes influence our traits and how our traits evolve, with special emphasis on behavior.

Effective: Summer 2013

ANTH 260H (GN)

**Building the Human Animal** (3) An exploration of how the same genetic and developmental properties that shape animal evolution produced the unique human form.

Effective: Summer 2014

ANTH 271H (GN)

**Parasites and Human Evolution** (3) Advance our understanding of human evolution by studying the ecologies and evolutionary histories of our parasites.

Effective: Spring 2014

Prerequisite: one introductory course that covers some aspects of evolutionary biology or parasitology for example: ANTH 021 BIOL 110 ENT 202 MICRB 106 or MICRB 201.

ASTRO 001 (GN)

**Astronomical Universe** (3) The development of modern understanding of the astronomical universe from planets and stars to galaxies and cosmology. Student who have passed ASTRO 005, ASTRO 006, or ASTRO 010 may not take this course for credit.

Effective: Fall 2009

ASTRO 001H (GN)

**Astronomical Universe** (3) The development of modern understanding of the astronomical universe from planets and stars to galaxies and cosmology. Students who have passed ASTRO 005, ASTRO 006, or ASTRO 010 may not take this course for credit.

Effective: Fall 2009

ASTRO 005 (GN)

**The Sky and Planets** (3) The development of our modern understanding of the visible sky and planetary systems. Students who have passed ASTRO 001 or ASTRO 010 may not take this course for credit.

Effective: Summer 2008

Prerequisite: Students who have passed ASTRO 001 or ASTRO 010 may not take this course.

ASTRO 006 (GN)

**Stars, Galaxies, and the Universe** (3) The development of our modern understanding of stars, galaxies, and the astronomical universe. Students who have passed ASTRO 001 or ASTRO 010 may not take this course for credit.

Effective: Summer 2008

Prerequisite: Students who have passed ASTRO 001 and ASTRO 010 may not take this course.

ASTRO 010 (GN)

**Elementary Astronomy** (2) Introductory survey of modern astronomy from planets and stars to galaxies and the universe. Students who have passed ASTRO 001, ASTRO 005, or ASTRO 006 may not take this course for credit. Students may not receive General Education credit for ASTRO 010 unless they also take ASTRO 011.

Effective: Fall 2009

ASTRO 011 (GN)

**Elementary Astronomy Laboratory** (1) Selected experiments and explorations to illustrate major astronomical principles and techniques. Telescopes observations of planets, stars and nebulae.

Effective: Fall 2004

Prerequisite: or concurrent: ASTRO 001 or ASTRO 010

ASTRO 120 (GN)

**The Big Bang Universe** (3) Exploration of cosmology, birth, and ultimate fate of the universe; origin of galaxies, quasars, and dark matter. For non-science majors.

Effective: Fall 2012

Prerequisite: ASTRO 001 ASTRO 006 or ASTRO 010

ASTRO 130 (GN)

**Black Holes in the Universe** (3) The predicted properties of black holes and the astronomical evidence for their existence are investigated in the context of modern ideas about space, time, and gravity.

Effective: Spring 2004

Prerequisite: ASTRO 001 or ASTRO 010

ASTRO 140 (GN)

**Life in the Universe** (3) The problem of the existence of life beyond Earth is investigated, drawing from recent research in astronomy and other fields. For non-science majors.

Effective: Fall 2012

Prerequisite: ASTRO 001 ASTRO 005 or ASTRO 010

ASTRO 291 (GN)

**Astronomical Methods and the Solar System** (3) Physical processes and observational techniques in astronomical systems, characteristics of the sun, planets, and moons.

Effective: Spring 2002

Prerequisite: PHYS 211

ASTRO 292 (GN)

**Astronomy of the Distant Universe** (3) Observed properties and astrophysical understanding of stars, stellar evolution, galaxies, the large-scale universe, and cosmology.

Effective: Spring 2002

Prerequisite: ASTRO 291

ASTRO 320 (GN)

**Observational Astronomy Laboratory** (2) Basic observational astronomy techniques introduced through observational exercises, lab experiments, and lectures on relevant statistical techniques.

Effective: Fall 2012

Prerequisite: ASTRO 291

B M B 001 (GN)

**Understanding the Bases of Human Disease** (3) A broad survey of the molecular and cellular factors that contribute to an understanding of selected human diseases.

Effective: Fall 2004

B M B 001S (GN)

**Understanding the Bases of Human Disease** (3) A broad survey of the molecular and cellular factors that provide an explanation for an understanding of human disease.

Effective: Spring 2001

BI SC 001 (GN)

**Structure and Function of Organisms** (3) An exploration of how cellular structures and processes contribute to life and how life displays unity even in its diversity. Students who have passed BIOL 027, 110, or 141 may not schedule this course.

Effective: Fall 2004

BI SC 001H (GN)

**Structure and Function of Organisms** (3) An exploration of how cellular structures and processes contribute to life and how life displays unity even in its diversity. Students who have passed BIOL 027, 110, or 141 may not schedule this course.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

BI SC 002 (GN)

**Genetics, Ecology, and Evolution** (3) The study of how living organisms inherit their traits, how plants and animals evolved, and how they now interact. Students who have passed BIOL 033, 133, 110, 220W, or 222 may not schedule this course.

Effective: Spring 2003

BI SC 003 (GN)

**Environmental Science** (3) Kinds of environments; past and present uses and abuses of natural resources; disposal of human wastes; prospects for the future. Students who have passed BIOL 220 or any other upper-level ecology course in biology may not schedule this course.

Effective: Fall 2003

BI SC 004 (GN)

**Human Body: Form and Function** (3) A general survey of structure and function--from conception, through growth and reproduction, to death. Students who have passed BIOL 129 and 141 may not schedule this course.

Effective: Spring 2002

BIOL 011 (GN)

**Introductory Biology I** (3) An introduction to fundamental biological topics (including cells, energy transduction, genetics, evolution, organismal structure/function, ecology) for non-majors biology-related fields.

Effective: Fall 2003

BIOL 012 (GN)

**Introductory Biology II** (1) Laboratory exercises demonstrating principles of biology.

Effective: Summer 1992

Prerequisite: or concurrent: BIOL 011

BIOL 110 (GN)

**Biology: Basic Concepts and Biodiversity** (4) A study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Fall 2003

BIOL 110H (GN)

**Honors Biology: Basic Concepts and Biodiversity** (4) Honors study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Spring 2006

BIOL 110L (GN)

**Biology: Basic Concepts and Biodiversity** (4) A study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Summer 1994

BIOL 110P (GN)

**Biology: Basic Concepts and Biodiversity** A study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Summer 1994

BIOL 110S (GN)

**Biology: Basic Concepts and Biodiversity** (4) A study of the evolution of the major groups of organisms including the fundamental concepts of biology. This course also fulfills the First-Year Seminar requirements.

Effective: Summer 1999

BIOL 120A (GN;US;IL)

**Plants, Places, and People** (3) Useful and dangerous plants; historical (archaeological), cultural (ethnological), and economic (anthropocentric) aspects, including structural and chemical characteristics of botanical importance. Students who have passed BIOL (PPATH;S T S) 424 may not schedule this course.

Effective: Spring 2008

BIOL 127 (GN)

**Introduction to Plant Biology** (3) Cellular structure and organization; physiological processes; classification; reproduction and development; relationship of plant groups. Students who have passed BIOL 240W may not schedule this course.

Effective: Spring 2008

BIOL 129 (GN)

**Mammalian Anatomy** (4) Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.

Effective: Fall 2003

BIOL 129L (GN)

**Mammalian Anatomy** (4) Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.  
Effective: Fall 2003

BIOL 129P (GN)

**Mammalian Anatomy** Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.  
Effective: Fall 1998

BIOL 133 (GN)

**Genetics and Evolution of the Human Species** (3) Human heredity and evolution, individual and social implications. The course is for non-majors; students who have passed BIOL 222, 230W, B M B 251 or any upper-division biology course may not schedule this course.  
Effective: Spring 2008

BIOL 141 (GN)

**Introductory Physiology** (3) Explanation of the normal structure and function of the animal body, with special emphasis on human body systems. Students who have passed BIOL 472 may not schedule this course.  
Effective: Fall 2003

BIOL 155 (GN)

**Introduction to the Biology of Aging** (3) Examination of human aging from a biological perspective. Population demographics, physiological and pathological changes, and healthy lifestyles are discussed. Students who have passed BIOL 409 may not schedule this course.  
Effective: Spring 2008

BIOL 177 (GN)

**Biology of Sex** (3) Basic structure and function of the human reproductive system. Physiology of gametogenesis, fertilization, contraception, gestation, parturition, lactation, and sexual behavior.  
Effective: Spring 2008

BIOL 220M (GN)

**Honors Biology: Populations and Communities** (4) Honors study of the major physical, chemical, and biological factors constituting environment and their dynamic interaction with organisms forming ecosystems.  
Effective: Summer 2005  
Prerequisite: BIOL 110

BIOL 220W (GN)

**Biology: Populations and Communities** (4) A study of the structures and functions of organismic interactions from simple populations to complex ecosystems. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement.  
Effective: Fall 2004  
Prerequisite: BIOL 110

BIOL 230M (GN)

**Honors Biology: Molecules and Cells** (4) Honors study of cellular phenomena including molecular genetics and metabolic interactions.  
Effective: Summer 2007  
Prerequisite: BIOL 110 CHEM 110

BIOL 230W (GN)

**Biology: Molecules and Cells** (4) A study of cellular phenomena including molecular genetics and metabolic interactions. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement.  
Effective: Summer 2007  
Prerequisite: BIOL 110 CHEM 110

BIOL 240M (GN)

**Honors Biology: Function and Development of Organisms** (4) Honors study of development and physiological processes at the organismic level. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.)  
Effective: Summer 2007  
Prerequisite: BIOL 110 CHEM 110

BIOL 240W (GN)

**Biology: Function and Development of Organisms** (4) A study of development and physiological processes at the organismic level. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement.  
Effective: Summer 2007  
Prerequisite: BIOL 110 CHEM 110

CHEM 001 (GN)

**Molecular Science** (3) Selected concepts and topics designed to give non-science majors an appreciation for how chemistry impacts everyday life. Students who have received credit for CHEM 003, 101, or 110 may not schedule this course.  
Effective: Summer 2007

## CHEM 003 (GN)

**Molecular Science With Laboratory** (3) Selected concepts and topics designed to give non-science majors an appreciation for how chemistry impacts everyday life. Students who have received credit for CHEM 001, 101, or 110 may not schedule this course.  
Effective: Summer 2007

## CHEM 005 (GN)

**Kitchen Chemistry** (3) An elementary discussion of the chemistry associated with foods and cooking.  
Effective: Summer 2014

## CHEM 101 (GN)

**Introductory Chemistry** (2-3) Selected principles and applications of chemistry. Prior study of chemistry is not assumed. Students may take only one course for General Education credit from CHEM 101 or CHEM 110. Students may take only one course for General Education credit from CHEM 101 GN or CHEM 110 GN.  
Effective: Summer 2013  
Prerequisite: MATH 021 ; or satisfactory performance on the MATH placement examination-- i.e. placement beyond the level of MATH 021

## CHEM 106 (GN)

**Introductory and General Chemistry** (5) Introductory chemistry and chemical principles for students who are required to take additional chemistry, e.g., CHEM 112, but are unprepared for CHEM 110. GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).  
Effective: Summer 2013  
Prerequisite: satisfactory performance on the Math placement test--i.e. placement beyond the level of MATH 022; or MATH 022 or MATH 041

## CHEM 110 (GN)

**Chemical Principles I** (3) Basic concepts and quantitative relations. Students may take only one course for General Education credit from CHEM 110 or CHEM 101. GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). Students may take only one course for General Education credit from CHEM 101 GN or CHEM 110 GN.  
Effective: Summer 2013  
Prerequisite: satisfactory performance on the Math placement tests -- i.e. placement beyond the level of MATH 022 ; or CHEM 101 and MATH 022 or MATH 041

## CHEM 110H (GN)

**Chemical Principles I - Honors** (3) Basic concepts and quantitative relations of chemistry at a level appropriate for students with advanced backgrounds and talents. Students may take only one course for General Education credit from CHEM 110 or CHEM 101. GN to receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).  
Effective: Spring 2013  
Prerequisite: satisfactory performance on the Chemistry and Math FTCAP tests-- i.e. placement beyond the level of CHEM 101 and MATH 022; or CHEM 101 and MATH 022 or MATH 041

## CHEM 111 (GN)

**Experimental Chemistry I** (1) Introduction to quantitative experimentation in chemistry. GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).  
Effective: Summer 2007  
Prerequisite: or concurrent: CHEM 110 or CHEM 106

## CHEM 111H (GN)

**Experimental Chemistry I** (1) Introduction to quantitative experimentation in chemistry.  
Effective: Fall 2014 Ending: Fall 2014  
Prerequisite: or concurrent: CHEM 110 or CHEM 106

## CHEM 112 (GN)

**Chemical Principles II** (3) Continuation of CHEM 110, including an introduction to the chemistry of the elements. GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).  
Effective: Spring 2009  
Prerequisite: CHEM 110 or CHEM 106

## CHEM 112H (GN)

**Chemical Principles II - Honors** (3) Continuation of CHEM 110, including an introduction to the chemistry of the elements. GN to receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and (CHEM 111; CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).  
Effective: Summer 2013

Prerequisite: CHEM 110 or CHEM 106

CHEM 113 (GN)

**Experimental Chemistry II** (1) Continuation of CHEM 111, with emphasis on topics related to CHEM 112. GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).

Effective: Summer 2007

Prerequisite: CHEM 111 . Prerequisite or concurrent: CHEM 112

CHEM 113B (GN)

**Experimental Chemistry II--Bioscience** (1) A continuation of CHEM 111 with emphasis on topics related to CHEM 112 in the context of bioscience. GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).

Effective: Summer 2007

Prerequisite: CHEM 111 . Prerequisite or Concurrent: CHEM 112

CHEM 233 (ENGL 233) (GH;GN)

**Chemistry and Literature** (3) Exploration of key concepts of chemistry, the reciprocal influence of chemistry and literature throughout history, and the relationship of science to society, culture, and values.

Effective: Summer 2007

DANCE 370 (GN)

**Anatomy for Performers** (3) To provide performers with anatomical theory and concepts applicable to the disciplines of the performing arts.

Effective: Summer 2012

Prerequisite: DANCE 270 or THEA 102

E R M 210 (GN)

**Environmental Factors and Their Effect on Your Food Supply** (3) An exploration of how urban environmental problems influence our ability to obtain food and natural resources.

Effective: Spring 2000

EARTH 002 (GN)

**The Earth System and Global Change** (3) An interdisciplinary introduction to the processes, interactions and evolution of the earth's biosphere, geosphere and hydrosphere.

Effective: Fall 2007

EARTH 100 (GN)

**Environment Earth** (3) Natural processes and their relationship to anthropogenic influences. General principles of global cycles and the role they play in natural hazards, global warming, ozone depletion, etc.

Effective: Fall 2004

EARTH 100H (GN)

**Environment Earth: Environment and Energy** (3) Examination of climate change and energy issues.

Effective: Summer 2014

EARTH 101 (GN;US)

**Natural Disasters: Hollywood vs. Reality** (3) Analysis of the causes and consequences of natural disasters; comparison of popular media portrayal of disasters with perspective from scientific research.

Effective: Summer 2005

EARTH 103 (GN)

**Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century** (3) Climate predictions for the coming century are utilized to examine potential impacts on regions, sectors of society, and natural ecosystems.

Effective: Summer 2000

EARTH 105 (AFR 105) (GN;IL)

**Environments of Africa: Geology and Climate Change** (3) Significant natural features of Africa as related to human endeavor; case studies include the Nile, climate change, and natural resources.

Effective: Spring 2013

EARTH 106 (GN)

**The African Continent: Earthquakes, Tectonics and Geology** (3) Study of earthquakes and seismic waves to learn about the geology and plate tectonics of the African continent.

Effective: Summer 2007

EARTH 111 (GN;US)

**Water: Science and Society** (3) Investigation of water behavior and occurrence, its relevance to life, human activities, politics, and society.

Effective: Summer 2006

EARTH 150 (GN)

**Dinosaur Extinctions and Other Controversies** (3) Dinosaur extinctions and other major and controversial events in the history of life.

Effective: Spring 2004

EARTH 240 (GN)

**Coral Reef Systems** (4) The geography, geology, biology ecology and chemistry of coral reef ecosystems; threats to reef environments; and techniques for reef surveying and monitoring; with local geologic and distant modern field studies.



Effective: Spring 2012

Prerequisite: Prerequisite or concurrent: KINES 045 or Nationally Recognized Scuba Certification

EGEE 101 (MATSE 101) (GN)

**Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Fall 2007

EGEE 101A (MATSE 101A) (GN;IL)

**Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Fall 2007

EGEE 101H (GN)

**Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Summer 2009

EGEE 102 (GN)

**Energy Conservation for Environmental Protection** (3) Exposure to energy efficiency in day-to-day life to save money and energy, and thereby protect the environment.

Effective: Spring 2000

EGEE 102H (GN)

**Energy Conservation for Environmental Protection** (3) Honors level exposure to energy efficiency in day to day life to save money and energy, and thereby protect the environment.

Effective: Summer 2008

EGEE 110 (GN)

**Safety Science for the Rest of Your Life** (3) Survey of applications and technologies associated with safety in our every day life with associated review of scientific principles and economic, social and political impacts.

Effective: Summer 2005

EGEE 210 (GN)

**Technological Legacy of Pennsylvania Coal** (3) Survey of coal technologies with a review of scientific principles and economic, social, and political impacts.

Effective: Summer 2005

EM SC 121 (GN)

**Minerals and Modern Society** (3) Production and use of mineral resources in modern society with an emphasis on the interrelationships and their effect on the Earth system.

Effective: Summer 1996

EM SC 150 (S T S 150) (GN;IL)

**Out of the Fiery Furnace** (3) A history of materials, energy and man, with emphasis on their interrelationships. For nontechnical students.

Effective: Spring 2006

ENGL 233 (CHEM 233) (GH;GN)

**Chemistry and Literature** (3) Exploration of key concepts of chemistry, the reciprocal influence of chemistry and literature through history, and the relationship of science to society, culture, and values.

Effective: Spring 2006

ENT 202 (GN)

**The Insect Connection** (3) An introduction to the diversity of insects and the ways in which they interact with humans and impact our world.

Effective: Summer 1998

ENT 222 (GN)

**Honey Bees and Humans** (3) This course explores the unique biology and behavior of bees, examining our relationship with them through time and across cultures.

Effective: Spring 2014

FOR 201 (GN)

**Global Change and Ecosystems** (3) This course will provide students with an understanding of the climate system, ecosystems, and feedbacks between the two.

Effective: Summer 2013

Prerequisite: 3 credits of science

FRNSC 100 (GN)

**Introduction to Forensic Science** (3) Introduction forensic science.

Effective: Spring 2011

FRNSC 200 (GN)

**Introduction to Crime Scene Investigation** (3) This course offers an exploration of the science, management, and investigative techniques for the field of crime scene investigation.

Effective: Spring 2010

GEOG 010 (GN)

**Physical Geography: An Introduction** (3) Survey and synthesis of processes creating geographical patterns of natural resources, with application of basic environmental processes in resource management.

Effective: Spring 2006

GEOG 010S (GN)

**Physical Geography: An Introduction** (3) Survey and synthesis of processes creating geographical patterns of natural resources, with application of basic environmental processes in resource management.

Effective: Spring 2006

GEOG 110 (GN)

**Climates of the World** (3) Introduction to climatology, including principal processes of the global climatic system and their variation over space and time.

Effective: Fall 2004

GEOG 111 (GN)

**Biogeography and Global Ecology** (3) Distribution of plants and animals on global, regional, and local scales; their causes and significance.

Effective: Fall 2007

GEOG 115 (GN)

**Landforms of the World** (3) Distribution of the world's landform features and mineral resources; their characteristics, causes, and significance. Practicum includes correlated field trips and laboratory studies.

Effective: Fall 2004

GEOSC 002 (GN)

**Historical Geology** (3) History of the earth and its life; fundamentals of evolution, correlation, and paleogeography; practicum includes field trips, study of geologic maps, geologic problems, and fossils, with emphasis on Appalachian geology. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.) This course contains from one to several field trips for which an additional charge will be made to cover transportation.

Effective: Summer 1995

GEOSC 010 (GN)

**Geology of the National Parks** (3) Introduction to geology, geological change, and environmental hazards, as seen in the National Parks.

Effective: Fall 2003

GEOSC 020 (GN)

**Planet Earth** (3) Nontechnical presentation of earth processes, materials, and landscape. Practicum includes field trips, study of maps, rocks, and dynamic models, introduction to geologic experimentation. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.) This course contains from one to several field trips for which an additional charge will be made to cover transportation.

Effective: Fall 2003

GEOSC 020L (GN)

**Planet Earth** (3) Nontechnical presentation of earth processes, materials, and landscape. Practicum includes field trips, study of maps, rocks, and dynamic models, introduction to geologic experimentation. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

Effective: Summer 1988

GEOSC 021 (GN)

**Earth and Life: Origin and Evolution** (3) Introduction to the origin and evolution of life on Earth from the perspective of geologic time and the fossil record. This course contains from one to several field trips for which an additional charge will be made to cover transportation.

Effective: Spring 2002

GEOSC 030 (GN)

**Volcanoes** (3) Basic concepts in Volcanology and Geosciences are explored through a series of virtual field trips to historic eruptions.

Effective: Summer 2014

GEOSC 040 (GN)

**The Sea Around Us** (3) Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography.

Effective: Fall 2003

GEOSC 040L (GN)

**The Sea Around Us** (2) Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography.

Effective: Summer 2009

GEOSC 040P (GN)

**The Sea Around Us** (1) Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography.

Effective: Spring 2009

GEOSC 109H (GN)

**Earthquakes and Society** (3) Introduction to earthquakes and seismology, and their relationship to society, including monitoring for nuclear weapons and seismic hazards.

Effective: Spring 2007

GEOSC 110H (GN)

**The Science of Gemstones** (3) An exploration of the geological uses of gems and of the physical and chemical properties

underlying their brilliance and color.

Effective: Summer 2002

Prerequisite: high school chemistry and trigonometry

GEOSC 111 (GN)

**Forensic Geoscience** (3) Covers fundamental geoscience concepts such as stratigraphy, mineral and soil identification, seismology, and geochemistry within the context of forensic investigation.

Effective: Spring 2008

HORT 101 (GN)

**Horticultural Science** (3) Introduction to horticulture with emphasis on plant domestication, morphology, classification, world food crops, commodities, gardens, propagation, and agrochemicals.

Effective: Summer 2013

HORT 150 (GN)

**Plants in the Human Context** (3) An introduction to the many fascinating and vital relationships between plants and human society.

Effective: Summer 2013

INART 050 (GN)

**The Science of Music** (3) Waves, physics of sound, hearing, musical scales, musical instruments, and room acoustics.

Effective: Spring 2012

MATSE 081 (GN;IL)

**Materials in Today's World** (3) A survey of the properties, manufacture, and uses of polymers, ceramics and metals in today's world with emphasis on modern developments and new materials.

Effective: Summer 2005

MATSE 091 (GN)

**Polymers, Life and Society** (3) An exploration of the science and use of polymer materials and their impact on society using a case study approach.

Effective: Summer 2005

MATSE 101 (EGEE 101) (GN)

**Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Fall 2007

MATSE 101A (EGEE 101A) (GN;IL)

**Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Fall 2007

MATSE 112 (GN)

**Applied Materials Chemistry for Engineers** (3) Chemistry of materials with emphasis on intermolecular forces between atoms, molecules, ions, and dense materials and inorganic and organic physical chemistry. In most majors, this course is not a substitute for CHEM 013 or CHEM 112.

Effective: Spring 2009

Prerequisite: CHEM 110

METEO 002 (GN)

**Our Changing Atmosphere: Personal and Societal Consequences** (3) A survey of meteorology emphasizing how the nature of our lives, individually/societally, depends upon atmospheric structure, quality, and processes.

Effective: Spring 2003

METEO 003 (GN)

**Introductory Meteorology** (3) Nontechnical treatment of fundamentals of modern meteorology and the effects of weather and climate. A student who took METEO 002 may take the laboratory part of this course for 1 credit only.

Effective: Spring 2003

METEO 004 (GN)

**Weather and Risk** (3) Non-technical introduction to the science and historical development of meteorology, and the role of weather forecasting as a tool for risk management by individuals, businesses, and societies.

Effective: Summer 2007

METEO 005 (GN)

**Severe and Unusual Weather** (3) Non-technical introduction to the physical processes important in the formation of various severe and unusual weather phenomena.

Effective: Summer 2011

METEO 101 (GN)

**Understanding Weather Forecasting** (3) Fundamental principles of synoptic and physical meteorology, satellite and radar imagery, and data analysis in the setting of mid-latitude weather forecasting.

Effective: Fall 2001

METEO 122 (AGECO 122) (GN)

**Atmospheric Environment: Growing in the Wind** (3) Students will learn about the effect of weather on plants, animals, and humans.

Effective: Summer 2006

MICRB 106 (GN)

**Elementary Microbiology** (3) Importance of microorganisms in health and disease, agriculture, and industry; descriptive course for students not planning advanced study in microbiology. The combination of MICRB 106 GN and 107 GN must be taken to receive General Education credit in biology. Students must take a combination of MICRB 106 GN and 107 GN to receive General Education credit in biology.  
Effective: Spring 2002

MICRB 107 (GN)

**Elementary Microbiology Laboratory** (1) Selected techniques used to observe, identify and count bacteria; effects of chemical and physical agents on microorganisms. The combination of MICRB 106 GN and 107 GN must be taken to receive General Education credit in biology. Students must take a combination of MICRB 106 GN and 107 GN to receive General Education credit in biology.  
Effective: Spring 2002  
Prerequisite: or concurrent: MICRB 106

PHYS 001 (GN)

**The Science of Physics** (3) Historical development and significance of major concepts, with emphasis on the nature of physics and its role in modern life. (For students in non-mathematical fields.)  
Effective: Fall 2004

PHYS 001H (GN)

**The Science of Physics** (3) Historical development and significance of major concepts, with emphasis on the nature of physics and its role in modern life. (For students in non-mathematical fields.)  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PHYS 010 (GN)

**Physics Behind the Headlines** (3) Select topics in modern physics with emphasis on understanding science related articles in the news (For students in non-mathematical fields.)  
Effective: Summer 2013

PHYS 150 (GN)

**Technical Physics I** (3) Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.  
Effective: Spring 2007  
Prerequisite: 1 1/2 units of algebra. Prerequisite or concurrent: MATH 021 or MATH 081

PHYS 150L (GN)

**Technical Physics I** (3) Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.  
Effective: Summer 1994

PHYS 150P (GN)

**Technical Physics I** (3) Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.  
Effective: Summer 1994

PHYS 151 (GN)

**Technical Physics II** (3) Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.  
Effective: Fall 2001  
Prerequisite: PHYS 150

PHYS 151H (GN)

**Technical Physics II** (3) Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: PHYS 150

PHYS 151L (GN)

**Technical Physics II** (3) Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.  
Effective: Fall 2001  
Prerequisite: PHYS 150

PHYS 211 (GN)

**General Physics: Mechanics** (4) Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation.  
Effective: Fall 1999

PHYS 211H (GN)

**General Physics: Mechanics** (4) Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, rotation, and oscillations.  
Effective: Spring 2012

PHYS 211L (GN)

**General Physics: Mechanics** (0-4) Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation. NOTE: UP offers for 0 credits; Altoona offers for 4 credits.  
Effective: Fall 2000

PHYS 211R (GN)

**General Physics: Mechanics** (4) Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws,

energy, collisions, and rotation.

Effective: Spring 1999

PHYS 212 (GN)

**General Physics: Electricity and Magnetism** (4) Calculus-based study of the basic concepts of electricity and magnetism.

Effective: Fall 1999

Prerequisite: MATH 140 PHYS 211

PHYS 212H (GN)

**General Physics: Electricity and Magnetism** (4) Calculus-based study of the basic concepts of electricity and magnetism.

Effective: Summer 2012

Prerequisite: MATH 140 PHYS 211

PHYS 212L (GN)

**General Physics: Electricity and Magnetism** (0-4) Calculus-based study of the basic concepts of electricity and magnetism. NOTE: UP offers for 0 credits; Altoona offers for 4 credits.

Effective: Fall 2000

Prerequisite: MATH 140 PHYS 211

PHYS 212R (GN)

**General Physics: Electricity and Magnetism** (4) Calculus-based study of the basic concepts of electricity and magnetism.

Effective: Spring 2000

Prerequisite: MATH 140 PHYS 211

PHYS 213 (GN)

**General Physics: Fluids and Thermal Physics** (2) Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

Effective: Fall 1999

Prerequisite: MATH 140 PHYS 211

PHYS 213L (GN)

**General Physics: Fluids and Thermal Physics** (0) Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

Effective: Fall 1999

Prerequisite: MATH 140 PHYS 211

PHYS 213R (GN)

**General Physics: Fluids and Thermal Physics** (2) Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

Effective: Fall 1999

Prerequisite: MATH 140 PHYS 211

PHYS 214 (GN)

**General Physics: Wave Motion and Quantum Physics** (2) Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

Effective: Spring 2004

Prerequisite: MATH 141 PHYS 211 and PHYS 212

PHYS 214L (GN)

**General Physics: Wave Motion and Quantum Physics** (0) Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

Effective: Spring 2004

Prerequisite: MATH 141 PHYS 211 and PHYS 212

PHYS 214R (GN)

**General Physics: Wave Motion and Quantum Physics** (2) Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

Effective: Spring 2004

Prerequisite: MATH 141 PHYS 211 and PHYS 212

PHYS 250 (GN)

**Introductory Physics I** (4) Selected topics in mechanics, heat, and sound.

Effective: Fall 2002

Prerequisite: MATH 022 MATH 026 ; or MATH 040 ; or MATH 041 or satisfactory performance on the mathematics proficiency examination

PHYS 250L (GN)

**Introductory Physics I** (0-4) Selected topics in mechanics, heat, and sound.

Effective: Spring 2010

Prerequisite: MATH 022 MATH 026 ; or MATH 040 ; or MATH 041 or satisfactory performance on the mathematics proficiency examination

PHYS 250P (GN)

**Introductory Physics I** (0) Selected topics in mechanics, heat, and sound.

Effective: Fall 2002

Prerequisite: MATH 022 MATH 026 ; or MATH 040 ; or MATH 041 or satisfactory performance on the mathematics proficiency examination

PHYS 250R (GN)

**Introductory Physics I** (4) Selected topics in mechanics, heat, and sound.

Effective: Fall 2002

Prerequisite: MATH 022 MATH 026 ; or MATH 040 ; or MATH 041 or satisfactory performance on the mathematics proficiency examination

PHYS 251 (GN)

**Introductory Physics II** (4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2002

Prerequisite: PHYS 250

PHYS 251H (GN)

**Introductory Physics II** (4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: PHYS 250

PHYS 251L (GN)

**Introductory Physics II** (0-4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2010

Prerequisite: PHYS 250

PHYS 251P (GN)

**Introductory Physics II** (0) Selected topics in light, electricity, and magnetism.

Effective: Fall 2002

Prerequisite: PHYS 250

PHYS 251R (GN)

**Introductory Physics II** (4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2002

Prerequisite: PHYS 250

PPEM 120 (GN)

**The Fungal Jungle: A Mycological Safari From Truffles to Slime Molds** (3) This course is an introduction to the world of fungi and their impact on humans and the environment around us.

Effective: Spring 2014

PPEM 300 (GN)

**Horticultural Crop Diseases** (3) Diseases of horticultural crops are examined stressing their cause, diagnosis, management and national and international importance.

Effective: Spring 2014

Prerequisite: 3 credits in a biological science

R SOC 134 (AGECO 134) (GN)

**Sustainable Agriculture Science and Policy** (3) The science, socio-economics, and politics of managing food and fiber production systems. Sustainability implications of current practices and future options.

Effective: Summer 2013

S T S 055 (AERSP 055) (GN)

**Space Science and Technology** (3) The science and technology of space exploration and exploitation; physical principles; research and development; history, space policy, and social implications.

Effective: Spring 1994

S T S 150 (EM SC 150) (GN;IL)

**Out of the Fiery Furnace** (3) A history of materials, energy, and humans, with emphasis on their interrelationships. For nontechnical students.

Effective: Spring 2006

S T S 201 (GN)

**Climate Change, Energy, and Biodiversity** (3) Studies of global warming, energy options, and biodiversity; their interrelations as sciences and as societal issues.

Effective: Summer 1994

S T S 201H (GN)

**Climate Change, Energy, and Biodiversity** (3) Studies of global warming, energy options, and biodiversity; their interrelations as sciences and as societal issues.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

SC 200 (GN)

**Science in Our World: Certainty and Controversy** (3) A science appreciation course, aimed at making non-scientists more informed consumers of science.

Effective: Summer 2010

SOILS 071 (GN;IL)

**Environmental Sustainability** (3) An introduction to environmental science, exploring sustainable human- environment interactions with examples from environmental soil science.

Effective: Summer 2013

SOILS 101 (GN)

**Introductory Soil Science** (3) A study of soil properties and processes and relationships to land use, plant growth, environmental quality, and society.

Effective: Summer 2013

VB SC 211 (GN)

**The Immune System and Disease** (3) Introduction to the immune system that emphasizes the immune response to infection and consequences of a defective immune response.

Effective: Fall 2007

W F S 209 (GN)

**Wildlife and Fisheries Conservation** (3) Survey of current and historical issues in wildlife and fisheries conservation; emphasis on vertebrate biodiversity, habitat management and protection, and populations.

Effective: Summer 2013

Prerequisite: BIOL 110 or BIOL 240W

## Arts

All course descriptions are updated periodically.

188 courses.

A ED 211 (GA)

**Interpreting Art Experience: Social and Behavioral Perspectives** (3) Examination of psychological, cultural, aesthetic, philosophical and educational perspectives on creation and response to art in children, adolescents and adults.  
Effective: Summer 2002

A ED 225 (GA;US)

**Diversity, Pedagogy, and Visual Culture** (3) Issues of diversity in art, education, visual culture, and pedagogy.  
Effective: Summer 2005

A&A 100 (GA;IL)

**Introduction to International Arts** (3) An interdisciplinary, multicultural introduction to the arts of the world.  
Effective: Summer 2005

AF AM 126 (INART 126) (GA;US)

**The Popular Arts in America: The History of Hip-Hop** (3) An examination of the roots, development, and significance of hip-hop in our culture.  
Effective: Summer 2014

AF AM 208 (THEA 208) (GA;US;IL)

**Theatre Workshop in Diverse Cultures** (3) A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples.  
Effective: Spring 2013

AM ST 307 (ART H 307) (GA;US)

**American Art** (3) History of art in the English colonies and the United States from the seventeenth century to the present.  
Effective: Spring 2008

AM ST 308 (ART H 308) (GA;US)

**American Architecture** (3) History of the architecture of the United States, as well as its Native American and colonial antecedents.  
Effective: Summer 2013

ANTH 220 (GA;GH;IL)

**Anthropology and Art/facts** (3) This course examines anthropological approaches to the study of art works, their production, and function in diverse human societies, both past and present.  
Effective: Summer 2012

ARCH 100 (GA)

**Architecture and Ideas** (3) General introduction to world architecture, emphasizing the relationship between concepts, philosophies, values and ideologies in shaping the built environment.  
Effective: Summer 2011

ARCH 210 (GA)

**Introduction to Architecture and Planning Theories** (3) The course introduces architectural and urban theory by presenting and exploring key concepts through major texts from the Western tradition.  
Effective: Spring 2009

ARCH 211 (GA)

**Contemporary Design and Planning Theories II** (3) Continuation of ARCH 210, with an in-depth analysis and study of significant and current environmental constructs and issues.  
Effective: Summer 1995  
Prerequisite: ARCH 210

ARCH 316 (GA)

**Analysis of Human Settlements: Cities** (3) Analysis of the interrelated factors which determined and shaped the various types of early cities through the nineteenth century.  
Effective: Summer 1989

ART 001 (GA)

**Introduction to the Visual Arts** (3) Introduction to the media, elements, function, making, and meaning of visual arts today and in diverse historical and cultural contexts.  
Effective: Spring 2004

ART 002 (GA)

**Interactive Learning and Web-Design** (3) Introduce students to research on-line, preparing verbal, visual and other elements for presentation of outcomes and posting them to the Internet.  
Effective: Fall 2001

ART 003 (GA)

**Visual Images on the Web** (3) Introduce students to using visual images for communication on the World Wide Web.  
Effective: Fall 2001



ART 010 (GA)

**Introduction to Visual Studies** (3) Introduction to visual studies; pictorial space and the principles of visual organization.  
Effective: Fall 2004

ART 017 (GA)

**Introduction to Metal Arts** (3) Introduction for non-art majors to fundamental jewelry making and small-scale metalsmithing processes including fabrication, surface treatment, and finishing of metalwork.  
Effective: Spring 2004

ART 020 (GA)

**Introduction to Drawing** (3) Introductory experience in making of art through drawing media; designed for non-majors seeking general overview of studio practice.  
Effective: Spring 2004

ART 030 (GA)

**Introduction to Sculpture** (3) Introduction to sculpture for non-art majors consisting of lectures/basic studio work coordinated to cover broad range of processes.  
Effective: Fall 2004

ART 040 (GA)

**Introduction to Printmaking** (3) Instruction and practice in elementary printmaking and papermaking processes.  
Effective: Fall 2004

ART 050 (GA)

**Introduction to Painting** (3) Introductory experience in making of art through painting media; designed for non-majors seeking a general overview of studio practice.  
Effective: Fall 2004

ART 080 (GA)

**Introduction to Ceramics** (3) Introduction to the concepts and techniques fundamental to the making of pottery and ceramic sculpture.  
Effective: Spring 2004

ART 100 (GA)

**Concepts and Creation in the Visual Arts** (3) A study of the personal and cultural foundations of artistic creation and practice of creative production in the art studio.  
Effective: Spring 2004

ART 101 (GA)

**Introduction to Web Design** (3) A beginning level course in Web Design, with emphasis on designing with standards to assure accessibility and effective communication.  
Effective: Spring 2008

ART 102 (GA)

**Beginning Computer Aided Design for Artists** (3) ART 102 explores the computer as artistic media. Student creations are realized through 3D printing, vinyl cutting, and laser engraving.  
Effective: Summer 2014

ART 165 (GA)

**Artistic Concepts of Space** (3) A studio course that utilizes lecture and varied media experiences to investigate space as artistic expression.  
Effective: Fall 2012

ART 166 (GA)

**Artistic Concepts of Form** (3) A studio course that utilizes lecture and varied media experiences to investigate form in artistic expression.  
Effective: Fall 2012

ART 168 (GA)

**The Digital Medium** (3) A studio course where the computer is introduced as an artistic media.  
Effective: Fall 2012

ART H 001S (GA)

**First-Year Seminar** (3) An introduction to the field of art history, through an examination of a selected issue in a seminar setting.  
Effective: Fall 2000

ART H 100 (GA;IL)

**Introduction to Art** (3) An approach to the understanding of art through a critical analysis of selected works of architecture, painting, and sculpture. Students who have passed ART H 110 may not schedule this course.  
Effective: Spring 2006

ART H 111 (GA;IL)

**Ancient to Medieval Art** (3) Survey of Ancient Egyptian, Greek, Roman, Byzantine, Early Medieval, Romanesque, and Gothic art, with an emphasis on sculpture and painting.  
Effective: Spring 2006

ART H 112 (GA;IL)

**Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.  
Effective: Spring 2006

ART H 112U (GA;IL)

**Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ART H 112U (GA;IL)

**Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

ART H 120 (GA;IL)

**Asian Art and Architecture** (3) A selective overview of the art and architecture of India, Southeast Asia, China, Korea, and Japan.

Effective: Summer 2005

ART H 130 (GA;US;IL)

**Art of Africa, Oceania, and the Americas** (3) A selective overview of the indigenous art of Africa, Oceania and the Americas.

Effective: Spring 2013

ART H 140 (GA;IL)

**Introduction to Pre-Columbian Art and Architecture** (3) This course examines the artistic and architectural production of Pre-Columbian Mesoamerica and the Andes.

Effective: Summer 2011

ART H 201 (GA;IL)

**Ancient to Medieval Architecture** (3) A survey of Prehistoric, Ancient Near Eastern Egyptian, Greek, Roman, Early Christian, Byzantine, Early Medieval, Romanesque, and Gothic architecture.

Effective: Spring 2006

ART H 202 (GA;US;IL)

**Renaissance to Modern Architecture** (3) A survey of Renaissance, Baroque, Rococo, Romantic, Victorian, Modern, Post-Modern, and Contemporary architecture in Europe and America.

Effective: Spring 2006

ART H 225 (ENGL 225, WMNST 225) (GA;GH)

**Sexuality and Modern Visual Culture** (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

Effective: Summer 2009

ART H 225H (GA;GH)

**Sexuality and Modern Visual Culture** (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ART H 226 (GA)

**The Comic Book: A History of Sequential Art** (3) An overview and examination of the history of sequential art with a focus on comic books and graphic novels.

Effective: Summer 2012

ART H 301 (GA;IL)

**Egyptian and Mesopotamian Art** (3) Art of the Ancient Near East, including Egypt, Mesopotamia, and neighboring civilizations.

Effective: Spring 2006

ART H 302 (GA;IL)

**Art of the Early Middle Ages** (3) A survey of the art of Western Europe from the Early Christian era through the Ottonian Empire, c.300-1050 A.D.

Effective: Spring 2006

ART H 303 (GA;IL)

**Italian Renaissance Art** (3) The major arts in Italy from the thirteenth century A.D. through the Renaissance; emphasis on sculpture and painting.

Effective: Spring 2006

ART H 304 (GA;IL)

**Italian, Spanish, and Spanish Colonial Baroque Art and Architecture** (3) A survey of painting, sculpture, and architecture in Italy, Spain, and the Spanish Americas from 1600-1750.

Effective: Fall 2010

ART H 305 (GA;IL)

**Romanticism and Revolution** (3) A survey of painting and sculpture in Europe 1780-1860, from the origins of Neoclassicism through Romanticism and Realism.

Effective: Fall 2012

ART H 307 (AM ST 307) (GA;US)

**American Art** (3) History of art in the English colonies and the United States from the seventeenth century to the present.

Effective: Spring 2008

ART H 308 (AM ST 308) (GA;US)

**American Architecture** (3) History of the architecture of the United States, as well as its Native American and colonial antecedents.

Effective: Summer 2013

ART H 311 (GA;IL)

**Greek and Roman Art** (3) Greek and Roman art, with emphasis on painting and sculpture.

Effective: Spring 2006

ART H 312 (GA;IL)

**Romanesque and Gothic Art** (3) Survey of the architecture, sculpture, and painting of the Christian church in western Europe from 1000 to 1500.

Effective: Spring 2006

ART H 313 (GA;IL)

**Northern Renaissance Art** (3) Art in northern Europe in the fifteenth and sixteenth centuries, emphasizing painters such as Van Eyck, Durer, and Bruegel.

Effective: Spring 2006

ART H 314 (GA;IL)

**Art in the Age of Rembrandt** (3) Dutch and Flemish painting in the seventeenth century.

Effective: Spring 2006

ART H 315 (ASIA 315) (GA;IL)

**Architecture and Art of South and Southeast Asia** (3) Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.

Effective: Summer 2010

ART H 320 (GA;IL)

**Chinese Art** (3) A general survey of the great periods of Chinese art from the Shang dynasty until the modern period.

Effective: Summer 2005

ART H 325 (GA;IL)

**Impressionism to Surrealism** (3) A survey of European painting and sculpture from ca. 1850 to ca. 1940.

Effective: Spring 2006

ART H 326 (GA;US;IL)

**Art Since 1940** (3) An international survey of painting, sculpture, photography and other media since 1940.

Effective: Summer 2012

ART H 330 (GA;IL)

**Islamic Architecture and Art** (3) Survey of the art and architecture of Islamic lands from the late seventh century until the eighteenth century.

Effective: Summer 2005

ART H 335 (AFR 335) (GA;IL)

**African Art** (3) Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa.

Effective: Fall 2013

ASIA 315 (ART H 315) (GA;IL)

**Architecture and Art of South and Southeast Asia** (3) Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.

Effective: Summer 2010

BRASS 100J (GA)

**Trumpet: Secondary** (1 per semester, maximum of 8) Individual instruction in trumpet one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

BRASS 101J (GA)

**French Horn: Secondary** (1 per semester, maximum of 8) Individual instruction in French horn one-half hour per week.

For students who qualify.

Effective: Fall 2004

Prerequisite: permission of instructor

BRASS 102J (GA)

**Trombone: Secondary** (1 per semester, maximum of 8) Individual instruction in trombone one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

BRASS 103J (GA)

**Euphonium: Secondary** (1 per semester, maximum of 8) Individual instruction in euphonium/baritone one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

BRASS 104J (GA)

**Tuba: Secondary** (1 per semester, maximum of 8) Individual instruction in tuba one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

## BRASS 110J (GA)

**Trumpet: Secondary** (2 per semester, maximum of 16) Individual instruction in trumpet one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

## BRASS 111J (GA)

**French Horn: Secondary** (2 per semester, maximum of 16) Individual instruction in French horn one hour per week. For students who qualify.

Effective: Fall 2004

Prerequisite: permission of instructor

## BRASS 112J (GA)

**Trombone: Secondary** (2 per semester, maximum of 16) Individual instruction in trombone one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

## BRASS 113J (GA)

**Euphonium: Secondary** (2 per semester, maximum of 16) Individual instruction in euphonium/baritone one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

## BRASS 114J (GA)

**Tuba: Secondary** (2 per semester, maximum of 16) Individual instruction in tuba one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

## COMM 150 (GA)

**The Art of the Cinema** (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.

Effective: Spring 2007

## COMM 150H (GA)

**The Art of the Cinema** (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.

Effective: Spring 2007

## COMM 150S (GA)

**The Art of the Cinema** (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.

Effective: Fall 2005

## COMM 250 (GA)

**Film History and Theory** (3) Exploration of film theory and criticism in the context of aesthetic, technological, and economic evolution of film history.

Effective: Spring 2004

Prerequisite: COMM 150

## DANCE 100 (GA;US;IL)

**Dance Appreciation** (3) Explore dance as a vital, communicative and performing art, reflecting social values and cultural beliefs.

Effective: Fall 2007

## DANCE 230 (GA)

**Ballet** (1.5 per semester/maximum of 6) An exploration of Ballet technique.

Effective: Summer 2012

## DANCE 240 (GA)

**Jazz Dance** (1.5 per semester/maximum of 6) An exploration of jazz dance technique throughout history.

Effective: Summer 2012

## DANCE 250 (GA)

**Tap Dance** (1.5 per semester/maximum of 6) An exploration of tap dance technique throughout history.

Effective: Summer 2012

## DANCE 261 (GA)

**Beginning Modern Dance I** (1.5 per semester/maximum of 6) Introduction to modern dance as an art form; development of dance technique and composition; teaching methods for improvisational skills.

Effective: Spring 2013

## DANCE 361 (GA)

**Intermediate Modern Dance I** (1.5 per semester/maximum of 6) Development of techniques and principles of modern dance on the intermediate level.

Effective: Spring 2013

Prerequisite: DANCE 262

## DANCE 362 (GA)

**Intermediate Modern Dance II** (1.5 per semester/maximum of 6) A continuation of Modern Dance I to augment technical proficiency.

Effective: Spring 2013

Prerequisite: DANCE 361

ENGL 050 (GA)

**Introduction to Creative Writing** (3) Practice and criticism in the reading, analysis and composition of fiction, nonfiction and poetry writing.

Effective: Spring 2001

ENGL 050H (GA)

**Introduction to Creative Writing** (3) Practice and criticism in the reading, analysis and composition of fiction, nonfiction and poetry writing.

Effective: Summer 2012

ENGL 225 (ART H 225, WMNST 225) (GA;GH)

**Sexuality and Modern Visual Culture** (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

Effective: Summer 2009

GAME 220 (GA)

**Introduction to Game Design** (3) Design of games as aesthetic objects and cultural artifacts that people find meaningful and entertaining.

Effective: Spring 2014

GD 100 (GA)

**Introduction to Graphic Design** (3) A beginning level graphic design course. Instruction touches on the practice, theories, history and processes of the graphic design industry.

Effective: Spring 2006

INART 001 (GA)

**The Arts** (3) Develop critical perception, knowledge, and judgments through an examination of the basic concepts common among the arts.

Effective: Spring 2006

INART 003 (GA)

**Reception of the Arts** (3) This course considers how art uses time, space, and causality to define culture and the human condition.

Effective: Spring 2004

INART 005 (GA)

**Performing Arts** (3) Introduction to music, dance, and theatre. Orientation to the aesthetics, theory, and practice of professional performance.

Effective: Summer 2012

INART 010 (GA)

**The Popular Arts in America: Mass Media Arts** (3) An introduction to the arts of the mass media with emphasis on how film, radio, television, and the print media influence and reflect society.

Effective: Summer 2012

INART 015 (GA)

**The Popular Arts in America: Performing Arts** (3) The development of the performing arts of American popular culture; emphasis on popular music, dance, theatre, and variety arts.

Effective: Spring 2004

INART 055 (GA)

**History of Electroacoustic Music** (3) A history of electroacoustic music as a consequence of developments in culture and technology from 1880 to present.

Effective: Summer 2012

INART 062 (GA;US;IL)

**West African and African American Arts: from the 1960s to the present** (3) An introduction to West African and African American Arts from the 1960s to the present.

Effective: Summer 2014

INART 062U (GA;US;IL)

**West African and African American Arts: from the 1960s to the present** (3) An introduction to West African and African American Arts from the 1960s to the present.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

INART 100 (GA)

**Seminar in Integrative Arts** (3) A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester.

Effective: Spring 2004

INART 100W (GA)

**Seminar in Integrative Arts** (3) A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester.

Effective: Summer 2012

INART 110 (GA)

**The Dramatic Arts in the Mass Media** (3) The place of television-radio-film drama in our culture; relationship with other art forms; standards of evaluation.

Effective: Summer 2012

INART 115 (GA;US)

**The Popular Arts in America: Popular Music** (3) An examination of the roots, development, and significance of popular music in our culture.

Effective: Summer 2013

INART 116 (GA;US)

**The Popular Arts in America: The History of Rock and Roll-The 1950s** (3) This course examines the roots, development, and significance of rock and roll music in its first decade.

Effective: Summer 2012

INART 125 (GA;US;IL)

**The Popular Arts in America: The History of Rock and Roll - Punk Rock** (3) An examination of the roots, development, and significance of punk rock in our culture.

Effective: Summer 2012

INART 126 (AF AM 126) (GA;US)

**The Popular Arts in America: The History of Rock and Roll - Hip-Hop** (3) An examination of the roots, development, and significance of hip-hop in our culture.

Effective: Spring 2014

INART 200 (GA)

**The Popular Arts in America: Elvis Presley - The King of Rock and Roll** (3) The significance and influence of Elvis Presley as an artist and cultural force focusing on his recordings and major performances.

Effective: Summer 2013

INART 205 (GA)

**Introducing the Beatles** (3) The influence and achievement of the Beatles as artists focusing on their recordings and films as sociocultural artifacts.

Effective: Summer 2008

INART 210 (GA)

**Integrative Approaches to Computer-Aided Music Composition** (3) Interdisciplinary introduction to music composition using software to assist with notation; historical perspectives drawn from art, dance, theater, and literature.

Effective: Fall 2004

Prerequisite: MUSIC 008 or instructor permission

INART 215 (GA)

**The Craft of Singing** (3) Vocal and breathing anatomy and technique, vocal health and classifications, posture, and beginning acting/movement techniques for singers.

Effective: Summer 2014

Prerequisite: MUSIC 052 MUSIC 104 VOICE 110J or THEA 112

INART 220 (GA;US)

**Stand-Up Comedy: A Cultural History** (3) An American cultural history from mid-19th through mid-20th Century as seen through the prism of stand-up comedy.

Effective: Summer 2013

Prerequisite: sophomore standing

INART 236 (GA)

**Integrating Music and Animation with Technology** (3) An introduction to the theory, design and creation of musical animations. For general students.

Effective: Summer 2011

INART 258A (GA)

**Fundamentals of Digital Audio** (3) A thorough introduction to digital music production technologies, covering fundamentals of how digital musical information is stored, processed and transmitted.

Effective: Spring 2012

Prerequisite: MUSIC 008 or concurrent enrollment in either MUSIC 131 or MUSIC 132

INART 258B (GA)

**Fundamentals of Digital Audio** (1) A general overview of music technologies current to music educators and performers.

Effective: Spring 2012

IST 130 (GA)

**Emerging Technologies in Popular Culture** (3) A survey course that explores emerging technologies used to produce and consume popular cultural artifacts.

Effective: Summer 2009

KEYBD 100J (GA)

**Piano: Secondary** (1 per semester, maximum of 8) Individual instruction in piano one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

KEYBD 101J (GA)

**Organ: Secondary** (1 per semester, maximum of 8) Individual instruction in pipe organ one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

KEYBD 110J (GA)

**Piano: Secondary** (2 per semester, maximum of 16) Individual instruction in piano one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

KEYBD 111J (GA)

**Organ: Secondary** (2 per semester, maximum of 16) Individual instruction in pipe organ one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

LARCH 060 (GA;US;IL)

**History of Design on the Land** (3) A survey of the historical development of outdoor space in relationship to allied arts from early beginnings to this century. Students may take only one course for General Education credit from LARCH 003 GA or 060 GA.

Effective: Fall 2010

LARCH 065 (GA;US;IL)

**Built Environment and Culture** (3) Investigates the relationship between socio-cultural practices and the development and organization of contemporary built environments.

Effective: Summer 2005

MUSIC 004 (GA)

**Film Music** (3) An introductory examination of music's role in Hollywood narrative film from the classic era (1930s and 1940s) to the present.

Effective: Summer 2009

MUSIC 005 (GA)

**An Introduction to Western Music** (3) A general survey of art music in western society, highlighting important composers and stylistic developments.

Effective: Spring 2004

MUSIC 005S (GA)

**An Introduction to Western Music** (3) A general survey of art music in western society, highlighting important composers and stylistic developments.

Effective: Summer 2006

MUSIC 007 (GA;US)

**Evolution of Jazz** (3) Study of the origins and development of jazz as an art form.

Effective: Summer 2005

MUSIC 008 (GA)

**Rudiments of Music** (3) Introduction to the elements of music: notation, scales, meter, rhythm, intervals; basic chord structure.

Effective: Fall 2004

MUSIC 009 (GA;IL)

**Introduction to World Musics** (3) An overview of the music of India, China, Japan, Indonesia, Africa, and the Middle East.

Effective: Summer 2005

MUSIC 011 (GA)

**Under the Hood: How Classical Music Works** (3) An introductory examination of classical music, drawing together aspects of theory and repertoire to understand how the music works.

Effective: Summer 2013

MUSIC 050 (GA)

**Beginning Piano: Non-Music Major** (1) Introduction to the keyboard, notation, chord progressions, transposition, improvisation, and simple accompanying techniques for the non-music major. An additional fee is required for this course.

Effective: Fall 2004

MUSIC 051 (GA)

**Intermediate Class Piano: Non-Music Major** (1) Instruction in harmonizing melodies, accompanying techniques, improvisation, and repertoire.

Effective: Fall 2004

Prerequisite: MUSIC 050 or placement audition

MUSIC 052 (GA)

**Voice CClass: Non-Music Major** (1) Group study emphasizing development of rudimentary skills and their recreational use in a range of popular and art music.

Effective: Fall 2004

MUSIC 053 (GA)

**Class Voice Practicum** (1) Voice study in group and individual formats, supervised by in-class lessons and discussions, enhanced by additional individual instruction with pedagogy students.

Effective: Fall 2004

Prerequisite: audition

MUSIC 054 (GA)

**Beginning Class Guitar: Non-Music Major** (1) Class instruction in guitar for non-music majors.

Effective: Fall 2004

MUSIC 077 (GA)

**Philharmonic Orchestra** (1 per semester/maximum of 8) Orchestra rehearsal and performance.

Effective: Fall 2004

Prerequisite: audition

MUSIC 078 (GA)

**Symphonic Wind Ensemble** (1 per semester/maximum of 8) Rehearsal and performance of wind repertoire and concert band literature.

Effective: Fall 2004

Prerequisite: audition

MUSIC 080 (GA)

**Symphonic Band** (1 per semester/maximum of 8) Rehearsal and performance of symphonic band literature. A select group using standard instrumentation.

Effective: Fall 2004

Prerequisite: audition

MUSIC 081 (GA)

**Marching Blue Band** (1 per semester/maximum of 4) Rehearsal and performance of appropriate music and maneuvers for football games and related events.

Effective: Fall 2004

Prerequisite: audition

MUSIC 082 (GA)

**Concert Band** (1 per semester/maximum of 8) Rehearsal and performance of concert band literature.

Effective: Fall 2004

Prerequisite: audition

MUSIC 083 (GA)

**Campus Band** (1 per semester/maximum of 8) Rehearsal and performance of concert band literature.

Effective: Spring 2002

Prerequisite: audition

MUSIC 084 (GA)

**Jazz Ensemble** (1 per semester/maximum of 8) Survey and performance of historic and contemporary big band styles.

Effective: Fall 2004

Prerequisite: audition

MUSIC 086 (GA)

**Percussion Ensemble** (1 per semester/maximum of 8) Study and performance of percussion chamber music in various instrumental combinations, focusing on the classical and contemporary repertoire.

Effective: Spring 2004

Prerequisite: audition

MUSIC 088 (GA)

**Campus Choir** (1 per semester/maximum of 8) Building skills needed for successful choral singing including vocal production, sight singing, ear training, and music fundamentals.

Effective: Fall 2001

MUSIC 089 (GA)

**University Choir** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of 100-150 voices.

Effective: Spring 2004

Prerequisite: audition

MUSIC 090 (GA)

**Glee Club** (1 per semester/maximum of 8) Rehearsal and performance of music composed for male voices from the sixteenth to the twentieth centuries, including sacred and secular compositions.

Effective: Spring 2004

Prerequisite: audition

MUSIC 091 (GA)

**Oriana Singers** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire for treble voices from the sixteenth to twentieth centuries, including sacred and secular compositions.

Effective: Spring 2004

Prerequisite: audition

MUSIC 092 (GA)

**Chamber Music for Voices** (1 per semester/maximum of 8) Select groups of singers performing choral chamber music.

Effective: Spring 2004

Prerequisite: audition

MUSIC 093 (GA;US;IL)

**Essence of Joy** (1 per semester, maximum of 8) Rehearsal and performance of choral repertoire from the African/American tradition.

Effective: Spring 2006

Prerequisite: audition

MUSIC 094 (GA)

**Women's Chorale** (1 per semester, maximum of 8) Rehearsal and performance of treble choral literature.

Effective: Spring 2004

Prerequisite: audition

MUSIC 100 (GA)



**Campus Orchestra** (1 per semester/maximum of 10) Rehearsal and performance orchestral literature.

Effective: Fall 2012

Prerequisite: audition

MUSIC 103 (GA)

**Concert Choir** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of approximately sixty voices.

Effective: Spring 2004

Prerequisite: audition

MUSIC 104 (GA)

**Chamber Singers** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of approximately twenty-four voices.

Effective: Spring 2004

Prerequisite: audition

MUSIC 106 (GA)

**Early Music Ensemble** (1 per semester/maximum of 8) Ensemble for the performance and study of Baroque or early music on instruments of the era.

Effective: Spring 2004

Prerequisite: audition

MUSIC 109 (GA)

**The Music of the Beatles** (3) This course will consider the music of the Beatles by examining how John Lennon, Paul McCartney, and George Harrison developed as songwriters.

Effective: Spring 2013

MUSIC 190 (GA)

**Chamber Music for Strings** (1 per semester/maximum of 8) Preparation for performance of advanced chamber music literature involving primarily string instruments--string quartets, piano trios, clarinet quintets.

Effective: Spring 2004

Prerequisite: permission of instructor

MUSIC 191 (GA)

**Chamber Music for Woodwinds** (1 per semester/maximum of 8) Preparation for performance of advanced chamber music literature involving primarily woodwind instruments--woodwind quintets and quartets.

Effective: Spring 2004

Prerequisite: permission of instructor

MUSIC 192 (GA)

**Chamber Music for Brass** (1 per semester/maximum of 8) Preparation for performance of advanced chamber music literature involving primarily brass instruments--brass quartets and quintets.

Effective: Spring 2004

Prerequisite: permission of instructor

MUSIC 261 (GA;IL)

**Survey of Music History I** (3) A survey of music history to 1750, with readings, listening, and lecture.

Effective: Spring 2012

Prerequisite: MUSIC 131 MUSIC 162

MUSIC 262 (GA;IL)

**Survey of Music History II** (3) A survey of music history from 1750 to the present, with readings, listening, and lecture.

Effective: Spring 2012

Prerequisite: MUSIC 132 MUSIC 162

PERCN 100J (GA)

**Percussion: Secondary** (1 per semester, maximum of 8) Individual instruction in percussion one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

PERCN 110J (GA)

**Percussion: Secondary** (2 per semester, maximum of 16) Individual instruction in percussion one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

PHOTO 100 (GA)

**Introduction to Photography** (3) An introduction to the aesthetics, history, and science of photography including practical and critical approaches to the art of photography.

Effective: Spring 2006

STRNG 100J (GA)

**Violin: Secondary** (1 per semester, maximum of 8) Individual instruction in violin one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 101J (GA)

**Viola: Secondary** (1 per semester, maximum of 8) Individual instruction in viola one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 102J (GA)

**Violoncello: Secondary** (1 per semester, maximum of 8) Individual instruction in violoncello one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 103J (GA)

**Double Bass: Secondary** (1 per semester, maximum of 8) Individual instruction in double bass one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 110J (GA)

**Violin: Secondary** (2 per semester, maximum of 16) Individual instruction in violin one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 111J (GA)

**Viola: Secondary** (2 per semester, maximum of 16) Individual instruction in viola one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 112J (GA)

**Violoncello: Secondary** (2 per semester, maximum of 16) Individual instruction in violoncello one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 113J (GA)

**Double Bass: Secondary** (2 per semester, maximum of 16) Individual instruction in double bass one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

THEA 080 (GA)

**Pit Orchestra** (1-3 per semester/maximum of 3) Rehearsal and performance of contemporary and historical musical theatre styles, including operetta and light opera.

Effective: Summer 2008

Prerequisite: audition

THEA 100 (GA;US;IL)

**The Art of the Theatre** (3) An experiential survey of all aspects of the living theatre, as presented by a resident company of theatre artists.

Effective: Spring 2006

THEA 102 (GA)

**Fundamentals of Acting** (3) Introduction to the art and craft of acting for non-theatre majors.

Effective: Fall 2003

THEA 105 (GA)

**Introduction to Theatre** (3) An introduction and overview of the history, craft, and art of the theatre to foster an informed appreciation of theatrical events. This course is an alternate to THEA 100.

Effective: Spring 2003

THEA 107 (GA)

**Introduction to Dramatic Structure** (3) An introduction to structural analysis in dramatic literature.

Effective: Summer 2011

THEA 112 (GA)

**Introduction to Musical Theatre** (3) A survey of music theatre as an art form.

Effective: Spring 2012

THEA 189 (GA)

**Theatre Production Practicum** (1 per semester/maximum of 6)\* Supervised experience in theatre by crew participation in University theatre productions. For non-theatre students only.

Effective: Spring 2004

THEA 207 (GA;US)

**Gender and Theatre** (3) A study of theatre and drama literature as formed by issues of gender, race, and ethnic background.

Effective: Summer 2005

THEA 208 (AF AM 208) (GA;US;IL)

**Workshop: Theatre in Diverse Cultures** (3) A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples.

Effective: Spring 2013

THEA 208S (GA;US;IL)

**Workshop: Theatre in Diverse Cultures** (3) A performance-oriented class, which explores the historic and contemporary theatrical works of various culturally diverse peoples.

Effective: Summer 2005

THEA 282 (GA)

**Production Practicum** (3--may repeat once for a total of 6) Introduction to all aspects of theatre production--analysis, design, construction, production, performance--for non-theatre majors.  
Effective: Spring 2000

VOICE 100J (GA)

**Voice: Secondary** (1 per semester, maximum of 8) Individual instruction in voice one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

VOICE 110J (GA)

**Voice: Secondary** (2 per semester, maximum of 16) Individual instruction in voice one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

WMNST 225 (ENGL 225, ART H 225) (GA;GH)

**Sexuality and Modern Visual Culture** (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

Effective: Summer 2009

WWNDS 100J (GA)

**Flute: Secondary** (1 per semester, maximum of 8) Individual instruction in flute one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 101J (GA)

**Oboe: Secondary** (1 per semester, maximum of 8) Individual instruction in oboe one-half hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 102J (GA)

**Clarinet: Secondary** (1 per semester, maximum of 8) Individual instruction in clarinet one-half hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 103J (GA)

**Bassoon: Secondary** (1 per semester, maximum of 8) Individual instruction in bassoon one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 104J (GA)

**Saxophone: Secondary** (1 per semester, maximum of 8) Individual instruction in saxophone one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 110J (GA)

**Flute: Secondary** (2 per semester, maximum of 16) Individual instruction in flute one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 111J (GA)

**Oboe: Secondary** (2 per semester, maximum of 16) Individual instruction in oboe one hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 112J (GA)

**Clarinet: Secondary** (2 per semester, maximum of 16) Individual instruction in clarinet one hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 113J (GA)

**Bassoon: Secondary** (2 per semester, maximum of 16) Individual instruction in bassoon one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 114J (GA)

**Saxophone: Secondary** (2 per semester, maximum of 16) Individual instruction in saxophone one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

## Humanities

All course descriptions are updated periodically.

493 courses.

AAS 100 (AM ST 160) (GH;US)

**Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.  
Effective: Fall 2013

AF AM 083S (GH;US;IL)

**First-Year Seminar in African American Studies** (3) Cultural, philosophical, economic, political, and global dynamics of the Black experience in the United States and the Diaspora.  
Effective: Fall 2013

AF AM 101 (WMNST 101) (GH;US)

**The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.  
Effective: Spring 2013

AF AM 101U (WMNST 101U) (GH;US)

**The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.  
Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

AF AM 101U (WMNST 101U) (GH;US)

**The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.  
Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

AF AM 102 (WMNST 102) (GH;IL)

**Women of Color: Cross-Cultural Perspective** (3) Global examination of value systems of women of color; attention to minority ethnic groups in the United States and developing countries.  
Effective: Spring 2013

AF AM 110 (GH;US)

**Introduction to African American Studies** (3) An introductory survey of African American Studies practice and scholarship, focused on the major methods, figures, texts, and debates that define the field.  
Effective: Spring 2013

AF AM 110U (GH;US)

**Introduction to African American Studies** (3) An introductory survey of African American Studies practice and scholarship, focused on the major methods, figures, texts, and debates that define the field.  
Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

AF AM 139 (ENGL 139) (GH;US)

**Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.  
Effective: Fall 2013

AF AM 145 (RL ST 145) (GH;US;IL)

**African American Religion** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2013

AF AM 146 (RL ST 146) (GH;US)

**The Life and Thought of Martin Luther King, Jr.** (3) A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.  
Effective: Spring 2013

AF AM 147 (RL ST 147) (GH;US)

**The Life and Thought of Malcolm X** (3) The life of Malcolm X/El Hajj Malik El Shabazz (1925-1965) and his social, political, economic, and moral thought.  
Effective: Fall 2013

AF AM 152 (HIST 152) (GH;US;IL)

**African American History** (3) African roots; colonial and revolutionary experiences; slavery and abolitionism; civil war and reconstruction; accommodation and protest; the new militancy.  
Effective: Fall 2013

AF AM 210 (HIST 210) (GH;US)

**Between Accommodation and Alienation: African Americans in a Jim Crow Nation, 1896-1932** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100 HIST 021

AF AM 210 (HIST 210) (GH;US)

**Freedom's First Generation: African American Life and Work, 1865 to World War II** (3) The course will explore the

context and events that shaped African American life over the period 1896-1932.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 HIST 021

AF AM 211 (HIST 211) (GH;US;IL)

**The Emergence and Evolution of the Black Diaspora in the Atlantic World** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

AF AM 211 (HIST 211) (GH;US;IL)

**Slavery and Freedom in the Black Atlantic** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

AF AM 250 (HIST 250) (GH;IL)

**Introduction to the Modern Caribbean** (3) A survey course which, explores the historical evolution and emergence of the modern Caribbean.

Effective: Fall 2012

AF AM 280 (GH;US)

**Historical Ethnography of Freedom** (3) Studies the Underground Railroad movement to guide slaves to freedom, and public heritage surrounding this institution. Students use ethnographic approaches.

Effective: Summer 2014

AFR 150 (GH;IL)

**Africa in Cinema** (3) The study of the image of Africa as seen in fiction and non-fictional feature length films, ethnographic and documentary films.

Effective: Fall 2012

AFR 191 (HIST 191) (GH;IL)

**Early African History** (3) Explores important economic and cultural transformations in the making of early African empires from 1 MBC to 1750.

Effective: Fall 2012

AFR 192 (HIST 192) (GH;IL)

**Modern African History** (3) Impact of the slave trade, expansion of Islam, colonial conquest, social and cultural transformations, resistance, nationalism, and independence.

Effective: Fall 2012

AG 160 (GH)

**Introduction into Ethics and Issues in Agriculture** (3) The course explores ethical theories, concepts of critical thinking, and major ethical issues related to American agriculture.

Effective: Summer 1999

AG 160S (GH)

**Introduction to Ethics and Issues in Agriculture** (3) Introduce students to the University and College of Ag Sciences preparing them to succeed. Review ethical theories and issues in American agriculture.

Effective: Summer 2012

Prerequisite: fifth- or second semester standing

AM ST 050 (GH)

**The Literature and Lore of Mining** (3) Experience and values of mining tradition: survey of the literature and lore, including field research.

Effective: Spring 2004

AM ST 083S (GH)

**First-Year Seminar in American Studies** (3) Critical approaches to the interdisciplinary study of American culture.

Effective: Summer 1999

AM ST 100 (GH;US)

**Introduction to American Studies** (3) A study of selected attempts to identify and interpret movements and patterns in American culture.

Effective: Spring 2006

Prerequisite: third-semester standing

AM ST 100Y (GH;US)

**Introduction to American Studies** (3) A study of selected attempts to identify and interpret movements and patterns in American culture.

Effective: Spring 2006

Prerequisite: third-semester standing

AM ST 103 (GH;US)

**American Masculinities** (3) Introduction to aspects of masculinities and manhood in America.

Effective: Summer 2008

AM ST 104 (WMNST 104) (GH;US)

**Women and the American Experience** (3) Selected aspects of the role of women in United States history and culture from colonial to modern times.

Effective: Summer 2005

AM ST 105 (ENGL 105) (GH;US)

**American Popular Culture and Folklife** (3) Survey of popular culture, folklife, and ethnicity, synthesizing material from such areas as literature, media, entertainment, print, music, and film.

Effective: Fall 2008

AM ST 135 (ENGL 135) (GH;US)

**Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

Effective: Fall 2013

AM ST 140Y (RL ST 140Y) (GH;US)

**Religion in American Life and Thought** (3) The function, contributions, tensions, and perspectives of religion in American culture.

Effective: Summer 2005

AM ST 160 (AAS 100) (GH;US)

**Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.

Effective: Fall 2013

AM ST 160U (GH;US)

**Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AM ST 196 (ENGL 196, AMSTD 196) (GH;US)

**Introduction to American Folklore** (3) A basic introduction to verbal and non-verbal folklore stressing the basic procedures of collection, classification, and analysis.

Effective: Summer 2005

AM ST 301 (GH)

**American Civilization** (3) An interdisciplinary overview of major themes, works, and events, in American history and culture.

Effective: Fall 2007

Prerequisite: HIST 020 or HIST 021 or 3 credits in American Studies

ANTH 220 (GA;GH;IL)

**Anthropology and Art/ifacts** (3) This course examines anthropological approaches to the study of art works, their production, and function in diverse human societies, both past and present.

Effective: Summer 2012

APLNG 200 (GH;IL)

**Introduction to Language, Culture, and Social Interaction** (3) Introduction to the interrelationships among language, culture, and social interaction and their fundamental links to social identities and discourse communities.

Effective: Spring 2009

APLNG 210 (GH;IL)

**The Ecology of Global English** (3) This course explores how English language enables globalization processes and how globalization changes the structure, norms, and usage of English.

Effective: Spring 2009

ARAB 110 (GH;IL)

**Arab Language, Cultures, and Current Topics** (3) Fourth-semester Modern Standard Arabic: study of cultures through authentic discourse, texts, film; development of reading, writing, listening, speaking skills.

Effective: Summer 2010

Prerequisite: ARAB 003 or permission of program

ART H 225 (ENGL 225, WMNST 225) (GA;GH)

**Sexuality and Modern Visual Culture** (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

Effective: Summer 2009

ART H 225H (GA;GH)

**Sexuality and Modern Visual Culture** (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ASIA 003 (RL ST 003) (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

Effective: Spring 2015 Future: Spring 2015

ASIA 004 (CMLIT 004) (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2010

ASIA 100 (GH;IL)

**What is Asia?** (3) An introduction to the history, literatures, politics, and cultures of Asia.

Effective: Fall 2012

ASIA 103 (RL ST 103) (GH;US;IL)

**Introduction to Hinduism** (3) Historical development of Hinduism to the present.  
Effective: Spring 2015 Future: Spring 2015

ASIA 104 (RL ST 104) (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.  
Effective: Spring 2015 Future: Spring 2015

ASIA 120Y (GH;IL)

**South Asia: A Literary History** (3) The course traces the cultural history of South Asia by studying its literary tradition from ancient to modern times.  
Effective: Summer 2014

ASIA 177 (HIST 177) (GH;IL)

**The Rise of Modern Southeast Asia** (3) Study of Southeast Asia from the rise of early empires to the present.  
Effective: Summer 2014

ASIA 182 (HIST 182) (GH;IL)

**Asian Trade: Economy, Industrialization and Capitalism in Asia** (3) An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present.  
Effective: Summer 2014

ASIA 183 (HIST 183) (GH;IL)

**Gender, Family, and Society in East Asia** (3) Investigates the history of gender, family, love, and sex in East Asia.  
Effective: Summer 2012

ASIA 184 (HIST 184) (GH;IL)

**Society and Culture in the Pacific War** (3) Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.  
Effective: Summer 2012

ASIA 185 (HIST 185) (GH;IL)

**Asian Pop: The History of Popular Culture in Asia** (3) A history of popular culture from the early modern period to the present.  
Effective: Summer 2014

ASIA 188 (HIST 188) (GH;IL)

**Tibet: People, Places and Spaces** (3) This course examines the historical, cultural, and ethnic dimensions of Tibet from the seventh century to the present.  
Effective: Summer 2012

ASIA 189 (HIST 189) (GH;IL)

**Illicit Asia: An Alternative Introduction to Asia** (3) A historical introduction to unlawful, illegitimate and forbidden ideas, goods, people and places in modern Asia.  
Effective: Summer 2014

C I 280 (GH)

**Introduction to Teaching English to English Language Learners** (3) Introductory English language teaching, and pedagogical strategies with English Language Learners.

Effective: Spring 2013

Prerequisite: EDPSY 010 or EDPSY 014

CAMS 001 (GH)

**Greek and Roman Literature** (3) Selected readings within a chronological and thematic context of significant and influential masterworks of Greece and Rome.  
Effective: Spring 2004

CAMS 004 (J ST 004, RL ST 004) (GH;US;IL)

**Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationships to culture.  
Effective: Summer 2005

CAMS 005 (HIST 005) (GH;IL)

**Ancient Mediterranean Civilizations** (3) Survey of the history and cultures of ancient Mediterranean civilizations in Mesopotamia, Egypt, Syro-Levant, Anatolia, Greece, and Rome.  
Effective: Spring 2008

CAMS 010 (GH;IL)

**Mesopotamian Civilization** (3) Cultural, technological, literary, political, and economic achievements of peoples who occupied the region of Mesopotamia (4,000-331 B.C.E.), in historical context.  
Effective: Spring 2006

CAMS 012 (J ST 012, RL ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.  
Effective: Summer 2005

CAMS 012U (J ST 012U, RL ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CAMS 015 (GH)

**Wonders of the Ancient World** (3) Overview of ancient world by focusing on the famed "Seven Wonders" and similar achievements from 3000 B.C.E.-1st Century C.E.

Effective: Spring 2003

CAMS 020 (GH)

**Egyptian Civilization** (3) The culture, history, literature, and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.

Effective: Fall 2005

CAMS 025 (GH;IL)

**Greek Civilization** (3) The origin and development of the ancient Greek people; their political and social institutions, public and private life.

Effective: Summer 2005

CAMS 033 (GH;IL)

**Roman Civilization** (3) Origin of the Romans; sociopolitical development; food, homes, education, marriage, family life, amusements, private and public worship.

Effective: Summer 2005

CAMS 044 (RL ST 044) (GH;IL)

**Ancient Near Eastern and Egyptian Mythology** (3) Survey of major ancient Mediterranean myths, gods, and goddesses in their cultural contexts; influence on later cultures.

Effective: Summer 2005

CAMS 045 (GH;IL)

**Classical Mythology** (3) Introduction to Greek and Roman divinities, heroes and heroines; survey of the major myths and their influence on Western culture.

Effective: Summer 2005

CAMS 050 (GH)

**Words: Classical Sources of English Vocabulary** (3) An introduction to English word forms stressing the most frequently occurring Latin and Greek elements and their derivatives.

Effective: Fall 2004

CAMS 070 (J ST 070, RL ST 070) (GH;IL)

**Prophecy: The Near East Then and Now** (3) Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.

Effective: Summer 2007

CAMS 083S (GH;IL)

**First-Year Seminar in Classics and Ancient Mediterranean Studies** (3) Critical approach to the study of ancient Mediterranean languages, literatures, and/or material cultures.

Effective: Summer 2005

CAMS 090 (J ST 090, RL ST 090) (GH;IL)

**Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

Effective: Summer 2005

CAMS 100 (HIST 100) (GH;IL)

**Ancient Greece** (3) Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization.

Effective: Spring 2006

CAMS 101 (HIST 101) (GH;IL)

**The Roman Republic and Empire** (3) History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire.

Effective: Spring 2006

CAMS 102 (HIST 102, J ST 102, RL ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

CAMS 104 (HIST 104) (GH)

**Ancient Egypt** (3) The history and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.

Effective: Summer 2002

CAMS 105 (GH;IL)

**History of the Ancient Near East** (3) History of the Ancient Near East from the end of the Neolithic to the Hellenistic period.

Effective: Summer 2005

CAMS 109Y (GH;IL)

**Writing Systems of the World** (3) Writing intensive overview of the world's writing systems throughout history.

Effective: Spring 2007

CAMS 110 (J ST 110, RL ST 110) (GH;US;IL)

**Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.



Effective: Summer 2005

CAMS 111 (J ST 111, RL ST 111) (GH;IL)

**Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

Effective: Summer 2005

CAMS 115 (GH;IL)

**Literature of the Ancient Near East** (3) Reading and study of literary works from the Ancient Near East, especially from Mesopotamia and Ancient Egypt.

Effective: Fall 2012

Prerequisite: 3 credits from the following list: CAMS 005 CAMS 010 CAMS 020 CAMS 105

CAMS 120 (J ST 120, RL ST 120) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

Effective: Spring 2004

CAMS 120H (J ST 120H, RL ST 120H) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CAMS 122 (J ST 122, RL ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

Effective: Summer 2014

CAMS 123 (J ST 123, RL ST 123) (GH;IL)

**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of ancient Near East: Judaism, Christianity, and Islam.

Effective: Summer 2014

CAMS 124 (J ST 124, RL ST 124) (GH;US;IL)

**Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.

Effective: Summer 2005

CAMS 133 (GH)

**Archaeology of the Levant and Ancient Israel** (3) Archaeology of the Levant and Ancient Israel to c. 1000 B.C.E.; relationship between archaeological and textual evidence.

Effective: Summer 2013

CAMS 134 (J ST 134, RL ST 134) (GH;IL)

**Archaeology of Biblical Israel** (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.

Effective: Summer 2005

CAMS 140 (GH;IL)

**Classical Archaeology--Ancient Greece** (3) Literary sources and material evidence for society; culture of the inhabitants of Greece in ancient times.

Effective: Summer 2005

CAMS 150 (GH;IL)

**Classical Archaeology--Ancient Rome** (3) Literary sources for the development of Roman civilization in relation to the relevant archaeological discoveries.

Effective: Summer 2005

CAMS 153 (J ST 153, RL ST 153) (GH;IL)

**Dead Sea Scrolls** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.

Effective: Summer 2014

CAMS 160 (J ST 160, RL ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.

Effective: Summer 2014

CAMS 180 (HIST 180) (GH;IL)

**Ancient Warfare** (3) Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire.

Effective: Summer 2006

CAMS 200 (PHIL 200) (GH)

**Ancient Philosophy** (3) Examines the thought and influence of major Western thinkers from the pre-Socratics to the neo-Platonists, emphasizing Plato and Aristotle.

Effective: Fall 2003

CAMS 210 (J ST 210) (GH;IL)

**Numismatics and the Historian** (3) Numismatics--the scholarly study of coins and medals--is a major tool in the study of Classical history and archaeology.

Effective: Summer 2012

CAMS 250U (GH;IL)

**Honors Classics in Literature and Film** (3) This honors course explores the Classical Tradition as it thrives in the literature of later epochs and film.

Effective: Summer 2010

CAS 084S (GH)

**First-Year Seminar in Communication Arts and Sciences** (3) Introduction to significant issues surrounding effective human communication; humanities emphasis.

Effective: Summer 2002

CAS 175 (GH)

**Persuasion and Propaganda** (3) An introductory examination of how symbols have been used to create belief and action in revolutionary, totalitarian, and democratic settings.

Effective: Spring 2003

CAS 201 (GH)

**Rhetorical Theory** (3) History and theory of public advocacy and civic discourse.

Effective: Spring 2003

CAS 206 (GH)

**Mediation and Communication** (3) Presentation of the history, theory, and practice of mediation as a means of resolving conflict through communication.

Effective: Fall 2007

CAS 272 (GH)

**Political Communication and Technology** (3) This course examines how interactive communication technologies reshape political rhetoric, discursive civic culture, deliberation, and participatory democracy.

Effective: Spring 2014

CHEM 233 (ENGL 233) (GH;GN)

**Chemistry and Literature** (3) Exploration of key concepts of chemistry, the reciprocal influence of chemistry and literature throughout history, and the relationship of science to society, culture, and values.

Effective: Summer 2007

CHNS 120 (GH;IL)

**Introduction to Chinese Literature and Culture** (3) Chinese cultural productions, classical through contemporary; literature and film; changing cultural settings in multiple Chinese-speaking locations. Taught in English.

Effective: Spring 2010

CHNS 120W (GH)

**Introduction to Chinese Literature and Culture** (3) An introduction to Chinese histories and societies through literature and visual culture. Readings drawn from both classical and modern traditions, covering the period from the 11th century B.C. to the contemporary era.

Effective: Summer 2013

CHNS 121 (GH;IL)

**Chinese Film and New Media** (3) Survey of Chinese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English.

Effective: Spring 2010

CMLIT 001 (GH;IL)

**Introduction to Western Literatures Through the Renaissance** (3) Introductory comparative survey of European and American literatures of Ancient through Renaissance periods, considering genre, themes, cultural and literary values.

Effective: Spring 2005

CMLIT 002 (GH;IL)

**Introduction to Western Literatures Since the Renaissance** (3) Introductory comparative survey of European and American literatures, post-Renaissance through Modern, considering genre, themes, cultural, and literary values.

Effective: Summer 2005

CMLIT 003 (GH;IL)

**Introduction to African Literatures** (3) Comparative analysis of drama, essay, novel, poetry, and stories from traditional oral forms to contemporary expressions of African literary styles.

Effective: Summer 2005

CMLIT 004 (ASIA 004) (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2010

CMLIT 004U (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 005 (GH;US;IL)

**Introduction to Literatures of the Americas** (3) Comparative interpretation of the oral and written literary traditions of North, Central, and South America.

Effective: Summer 2005

CMLIT 006 (PHIL 006) (GH;IL)

**Philosophy and Literature in Western Culture** (3) Explores fundamental issues of human existence through the traditions of western literature and philosophy.

Effective: Spring 2006

CMLIT 010 (GH;IL)

**World Literatures** (3) The development of literature around the world--from epic, legend, lyric, etc. in the oral tradition to modern written forms.

Effective: Fall 2010

CMLIT 011 (GH;IL)

**The Hero in World Literature** (3) The figure of the hero/heroine examined in world literature as a vehicle for expressing social and cultural values.

Effective: Summer 2005

CMLIT 011U (GH;IL)

**The Hero in World Literature** (3) The figure of the hero/heroine examined in world literature as a vehicle for expressing social and cultural values.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 012 (GH;IL)

**Introduction to World Drama and Performance** (3) The power, ethics, and excitement of drama and related forms of performance literature, presented in a global and comparative context.

Effective: Summer 2010

CMLIT 013 (GH;IL)

**Virtual Worlds: Antiquity to the Present** (3) Virtual worlds from ancient to postmodern, in a comparative and global context that includes literature, film, and online multiplayer games.

Effective: Summer 2010

CMLIT 083S (GH;IL)

**First-Year Seminar in Comparative Literature** (3) International topics in literature and culture; each seminar will have a specific topic as announced (see the Comparative Literature Web site).

Effective: Summer 2005

CMLIT 100 (GH;IL)

**Reading Across Cultures** (3) Comparative approaches (studying international literary periods, themes, genres, etc.) and principles of literary interpretation introduced through readings representing various cultures.

Effective: Fall 2010

CMLIT 101 (GH;US;IL)

**Race, Gender, and Identity in World Literature** (3) Identity and race, gender and heritage, centrality and marginality, self and other, as expressed in literary works from around the world.

Effective: Fall 2010

CMLIT 105 (GH;IL)

**The Development of Literary Humor** (3) Literary humor expressed as satire, comedy, and farce--from ancient times to the present--in an international and multicultural context.

Effective: Summer 2005

CMLIT 106 (GH;IL)

**The Arthurian Legend** (3) The growth and development of the legend of King Arthur, from medieval Europe to modern Japan.

Effective: Summer 2005

CMLIT 107 (GH;IL)

**Exploration, Travel, Migration, and Exile** (3) An international selection of journey narratives, from the real to the imaginary; travel narratives as critiques of self and society.

Effective: Spring 2011

CMLIT 108 (GH;IL)

**Myths and Mythologies** (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.

Effective: Summer 2005

CMLIT 108U (GH;IL)

**Myths and Mythologies** (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 109 (GH;US;IL)

**Native American Myths, Legends, and Literatures** (3) Myths, legends, and literatures of Native American cultures.

Effective: Spring 2006

CMLIT 110 (J ST 131) (GH;US;IL)

**Jewish Literature: An International Perspective** (3) Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas.

Effective: Spring 2011

CMLIT 111 (GH;IL)

**Introduction to Literatures of India** (3) Narrative, lyric, religious, oral, and dramatic literature, as well as film from India studied in translation from a global perspective.  
Effective: Summer 2005

CMLIT 120 (GH;IL)

**The Literature of the Occult** (3) Important literary works dealing with witchcraft, demonology, vampirism, ghosts, and related concepts, from biblical times to present.  
Effective: Spring 2006

CMLIT 122 (GH;US;IL)

**Global Science Fictions** (3) A study of the relationships between science, literature, and film, from an international and interdisciplinary perspective.  
Effective: Summer 2010

CMLIT 130 (GH;IL)

**Banned Books: International and Comparative Perspectives** (3) The world of banned books, their history, and their politics, studied comparatively and internationally.  
Effective: Summer 2010

CMLIT 131 (GH;IL)

**Crime and Detection in World Literature** (3) Issues of ethics, truth, justice, and social order as embodied in crime and detective literature, presented in comparative contexts.  
Effective: Summer 2010

CMLIT 132 (GH;IL)

**Nobel Prize Literature** (3) Introduction to Nobel Prize winning literature and the culture of the prize in international and historical context.  
Effective: Summer 2010

CMLIT 140 (GH;IL)

**Literature and the Other Arts: International and Comparative Perspectives** (3) A comparative, international examination of the relationship between literature and non-literary art forms.  
Effective: Summer 2010

CMLIT 141 (GH;US;IL)

**Religion and Literature** (3) Major religious themes as expressed in literary masterpieces; sacred texts from various cultures read as literature.  
Effective: Summer 2005

CMLIT 142 (GH;IL)

**The Psychology of World Literature** (3) A comparative, psychological approach to world literature from the perspectives of writer, narrative, character, and reader.  
Effective: Summer 2010

CMLIT 143 (GH;US;IL)

**Human Rights and World Literature** (3) Human rights violations discussed in tandem with their literary representation, presented in a global and comparative context.  
Effective: Summer 2010

CMLIT 153 (GH;IL)

**International Cultures: Film and Literature** (3) Comparison of narrative techniques employed by literature and film in portraying different cultures, topics may vary each semester.  
Effective: Spring 2011

CMLIT 153U (GH;IL)

**International Cultures: Film and Literature** (3) Comparison of narrative techniques employed by literature and film in portraying different cultures, topics may vary each semester.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 184 (ENGL 184) (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the Nineteenth and Twentieth Century.  
Effective: Spring 2006

CMLIT 185 (ENGL 185) (GH;IL)

**World Novel** (3) Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation.  
Effective: Spring 2011

CMLIT 189 (ENGL 189) (GH;IL)

**Modern Drama** (3) Playwrights who set the world's stage for twentieth-century drama; issues that continue to shape the contemporary theatrical world.  
Effective: Spring 2011

CMLIT 190 (GH;IL)

**Literary and Cultural Theory: An Introduction** (3) A comparative introduction to literary and cultural theory, and its impact on the study of literature.  
Effective: Summer 2010

CMLIT 191 (GH;US;IL)

**Introduction to Video Game Culture** (3) A comparative, international look at the nature and history of video games as

cultural artifacts, from Pong to online role-playing.  
Effective: Summer 2012 Ending: Fall 2014

CMLIT 191 (GAME 160) (GH;US;IL)

**Introduction to Video Game Culture** (3) A comparative, international look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.  
Effective: Spring 2015 Future: Spring 2015

CMLIT 415 (GH;US;IL)

**World Graphic Novels** (3) Critical analyses of form, genre, medium, and discourse of the graphic novel and its historical precedents in an international and comparative context.

Effective: Summer 2010

Prerequisite: 3 credits in literature

COMM 110 (GH)

**Media and Democracy** (3) This course considers the role of the mass media with regard to developing civic awareness and engagement in democratic societies.

Effective: Spring 2009

COMM 168 (GH)

**American Journalism: Values, Traditions, and Practices** (3) This course is designed to give students a broad overview of American journalism, its past, present and future; its traditions, principles and values.

Effective: Summer 2011

COMM 261 (GH)

**The Literature of Journalism** (3) Representative nonfiction by writers such as Susan Sheehan, George Orwell, Joan Didion, Alice Walker, Truman Capote, C. D. B. Bryan, Russell Baker.

Effective: Spring 2001

COMM 292 (GH)

**Introduction to Media & Politics** (3) This course explores the intersection of media and politics, introducing students to the critical analysis of mediated political discourse.

Effective: Spring 2008

CRIMJ 159 (HIST 159) (GH;US)

**History of the FBI** (3) Survey of the FBI's history with special emphasis on civil rights and liberties and bureaucratic development.

Effective: Spring 2014

DANCE 271 (GH)

**From Africa to Hip Hop- The Evolution of African American Dance History** (3) From Africa to Hip Hop- Evolution of African-American Dance History will explore the history of African related dance from its beginnings in West Africa through the contemporary expressions of Hip Hop.

Effective: Summer 2012 Ending: Fall 2014

DANCE 411 (GH)

**From Africa to Hip Hop- The Evolution of African American Dance History** (3) From Africa to Hip Hop- Evolution of African-American Dance History will explore the history of African related dance from its beginnings in West Africa through the contemporary expressions of Hip Hop.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: DANCE 261

ENGL 001 (GH)

**Understanding Literature** (3) Explores how major fiction, drama, and poetry, past and present, primarily English and American, clarify enduring human values and issues.

Effective: Spring 2003

ENGL 001H (GH)

**Understanding Literature** (3) Explores how major fiction, drama, and poetry, past and present, primarily English and American, clarify enduring human values and issues.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 001W (GH)

**Understanding Literature** (3) Studies the various critical ways of reading, understanding, and writing about fiction, poetry, and drama.

Effective: Spring 1999

ENGL 002 (GH)

**The Great Traditions in English Literature** (3) Major works of fiction, drama, and poetry from the Middle Ages to the twentieth century expressing enduring issues and values.

Effective: Spring 2000

ENGL 003S (GH)

**The Great Traditions in American Literature** (3) Major works of fiction, drama, and poetry from the colonial to the modern periods expressing enduring issues and values.

Effective: Fall 2002

ENGL 083S (GH)

**First-Year Seminar in English** (3) Critical approaches to the dimensions and directions in English/American literature and rhetoric.

Effective: Summer 1999

ENGL 088 (GH)

**Australian/New Zealand Cultural Perspectives** (3) Australian and New Zealand cultural and social perspectives, with emphasis on the historical development of intellectual, aesthetic, and humanistic values.

Effective: Spring 2001

ENGL 103 (GH;US)

**The Great Traditions in American Literature** (3) Major works of fiction, drama, and poetry from the colonial to the modern periods expressing enduring issues and values.

Effective: Spring 2013

ENGL 104 (GH)

**The Bible as Literature** (3) Study of the English Bible as a literary and cultural document.

Effective: Spring 2002

ENGL 105 (AM ST 105) (GH;US)

**American Popular Culture and Folklife** (3) Survey of popular culture, folklife, and ethnicity, synthesizing material from such areas as literature, media, entertainment, print, music, and film.

Effective: Fall 2008

ENGL 112 (GH;US)

**Pennsylvania Literature** (3) An introduction to the literature that has been written by Pennsylvania authors from the colonial era through the present day.

Effective: Summer 2014

ENGL 129 (GH)

**Shakespeare** (3) A selection of the major plays studied to determine the sources of their permanent appeal. Intended for non-majors.

Effective: Spring 2003

ENGL 129H (GH)

**Shakespeare** (3) A selection of the major plays studied to determine the sources of their permanent appeal. Intended for non-majors.

Effective: Summer 2012

ENGL 130 (GH)

**Reading Popular Texts** (3) Popular texts (printed, visual, and aural texts) and their social, political, and cultural significance in the contemporary world.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030H

ENGL 132 (J ST 132) (GH;US)

**Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.

Effective: Spring 2009

ENGL 132U (J ST 132U) (GH;US)

**Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 133 (GH)

**Modern American Literature to World War II** (3) Cather, Eliot, Frost, Faulkner, Fitzgerald, Hemingway, Hurston, Wharton, Wright, and other writers representative of the years between the world wars.

Effective: Spring 2002

ENGL 134 (GH)

**American Comedy** (3) Studies in American comedy and satire, including such writers as Mark Twain, Faulkner, Vonnegut, Ellison, O'Connor, Welty, and Heller.

Effective: Spring 2003

ENGL 135 (AM ST 135) (GH;US)

**Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

Effective: Fall 2013

ENGL 135S (GH;US)

**Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

Effective: Summer 2005

ENGL 136 (GH)

**The Graphic Novel** (3) The graphic novel as a literary and visual form (produced primarily in English).

Effective: Summer 2010

ENGL 139 (AF AM 139) (GH;US)

**Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

Effective: Fall 2013

ENGL 139S (GH;US)

**Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

Effective: Fall 2006

ENGL 140 (GH)

**Contemporary Literature** (3) Writers such as Baldwin, Beckett, Bellow, Ellison, Gordimer, Lessing, Lowell, Mailer, Naipaul, Pinter, Plath, Pynchon, Rushdie, and Walker.

Effective: Spring 2003

ENGL 145 (GH;IL)

**Modern Irish Literature** (3) Irish literature in the twentieth century and beyond; focus on the interplay of political, social, and cultural, forces on literature.

Effective: Spring 2007

ENGL 180 (GH)

**Literature and the Natural World** (3) Literary representations of the natural world, focusing on English language traditions.

Effective: Spring 2003

ENGL 181A (GH;US)

**Adventure Literature: Exploring the Chesapeake Bay** (4.5) Examines the interconnection of culture and nature in the Chesapeake Bay region through the literature of the region.

Effective: Summer 2011

ENGL 181B (GH;US)

**Adventure Literature: Exploring Cape Cod** (4.5) Examines the interconnection of culture and nature on Cape Cod through considerations of texts in various literary genres that have contributed to development of a distinctive regional identity and culture.

Effective: Summer 2011

ENGL 181C (GH;US)

**The Beach: Exploring the Literature of the Atlantic Shore** (4.5) Examines the interconnection of culture and nature in coastal areas of the Atlantic seaboard.

Effective: Spring 2012

ENGL 181D (GH;US)

**Adventure Literature: Exploring the Literature of American Wilderness** (3) Examines the history and cultural impact of wilderness in America.

Effective: Spring 2013

ENGL 182A (GH;US;IL)

**Literature and Empire** (3) Literature written in English from countries that were once part of European empires, e.g., India, Canada, South Africa, and others.

Effective: Summer 2005

ENGL 182C (GH;IL)

**Literature and Empire** (3) Literature written in English from countries that were once part of European empires, e.g., India, Canada, South Africa, and others.

Effective: Summer 2005

ENGL 184 (CMLIT 184) (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.

Effective: Spring 2006

ENGL 184S (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.

Effective: Spring 2006

ENGL 184U (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 185 (CMLIT 185) (GH;IL)

**World Novel** (3) Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation.

Effective: Spring 2011

ENGL 189 (CMLIT 189) (GH;IL)

**Modern Drama** (3) Playwrights who set the world's stage for twentieth-century drama; issues that continue to shape the contemporary theatrical world.

Effective: Spring 2011

ENGL 191 (GH)

**Science Fiction** (3) Science fiction as the literature of technological innovation and social change--its development, themes, and problems.

Effective: Summer 1995

ENGL 192 (GH)

**The Literature of Fantasy** (3) Literature(s) of fantasy from early forms through a variety of contemporary traditions.

Effective: Spring 2011

ENGL 194 (WMNST 194) (GH;US;IL)

**Women Writers** (3) Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers.

Effective: Summer 2005

ENGL 194S (GH;US;IL)

**Women Writers** (3) Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers.

Effective: Summer 2005

ENGL 196 (AM ST 196, AMSTD 196) (GH;US)

**Introduction to American Folklore** (3) A basic introduction to verbal and nonverbal folklore stressing the basic procedures of collection, classification, and analysis.

Effective: Summer 2005

ENGL 201 (GH)

**What is Literature** (3) Acquaints students with theory and practice relevant to studies of narrative, lyric poetry, and drama.

Effective: Summer 2006

Prerequisite: ENGL 015 or ENGL 030

ENGL 201H (GH)

**What is Literature** (3) Acquaints students with theory and practice relevant to studies of narrative, lyric poetry, and drama.

Effective: Summer 2012

Prerequisite: ENGL 015 or ENGL 030

ENGL 225 (ART H 225, WMNST 225) (GA;GH)

**Sexuality and Modern Visual Culture** (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

Effective: Summer 2009

ENGL 226 (LTNST 226) (GH;US;IL)

**Latina and Latino Border Theories** (3) English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture.

Effective: Spring 2007

ENGL 227 (WMNST 227) (GH;US;IL)

**Introduction to Culture and Sexuality** (3) A course addressing the relationships between sexuality, literature, and culture.

Effective: Spring 2013

Prerequisite: ENGL 015 or ENGL 030

ENGL 228 (GH;IL)

**Introduction to Disability Studies in the Humanities** (3) Provides a humanities-based interdisciplinary introduction to Disability Studies.

Effective: Spring 2013

ENGL 233 (CHEM 233) (GH;GN)

**Chemistry and Literature** (3) Exploration of key concepts of chemistry, the reciprocal influence of chemistry and literature through history, and the relationship of science to society, culture, and values.

Effective: Spring 2006

ENGL 245 (WMNST 245) (GH;US)

**Introduction to Lesbian and Gay Studies** (3) An introduction to the study of homosexual identities across a wide range of disciplines and methodologies.

Effective: Spring 2013

ENGL 262 (GH)

**Reading Fiction** (3) Elements of fiction including plot, character, viewpoint, and fictional genres in British, American, and other English-language traditions.

Effective: Spring 2003

Prerequisite: ENGL 015 or ENGL 030

ENGL 263 (GH)

**Reading Poetry** (3) Elements of poetry including meter, rhyme, image, diction, and poetic forms in British, American, and other English-language traditions.

Effective: Spring 2003

Prerequisite: ENGL 015 or ENGL 030

ENGL 265 (GH)

**Reading Nonfiction** (3) Forms of nonfictional prose such as autobiography, biography, essay, letter, memoir, oration, travelogue in British, American, and other English-language traditions.

Effective: Spring 2003

Prerequisite: ENGL 015 or ENGL 030

ENGL 268 (GH)

**Reading Drama** (3) Elements of drama including plot, character, dialogue, staging, and dramatic forms in British, American, and other English-language traditions.

Effective: Spring 2003



Prerequisite: ENGL 015 or ENGL 030

ENGL 268H (GH)

**Reading Drama** (3) Elements of drama including plot, character, dialogue, staging, and dramatic forms in British, American, and other English-language traditions.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: ENGL 015 or ENGL 030

ENGR 201 (GH)

**Structures and Society** (3) Historical study of structures in the contexts of cultural, artistic, societal, and technological considerations; brief introduction to the scientific principles underlying their design.

Effective: Spring 2013

FD SC 280H (PHIL 280H) (GH)

**Food, Values, and Health** (3) The perceived relationship between food and health, emphasizing the conceptual nature of both; and how values contribute to the relationship.

Effective: Spring 2007

FR 083S (GH;IL)

**First-Year Seminar in French** (3) Critical approaches to the dimensions and directions in French/Francophone literatures and cultures.

Effective: Summer 2005

FR 137 (GH;IL)

**Paris: Anatomy of a City** (3) Survey of the cultural, artistic, literary, and social life of the city of Paris from Gallo-Roman times to the present.

Effective: Summer 2005

FR 138 (GH)

**French Culture Through Film** (3) Introduction to French culture through film by French and francophone directors examining gender, ethnicity, and global issues. Taught in English.

Effective: Spring 2002

FR 139 (GH;IL)

**France and the French-speaking World** (3) An introduction to the culture of France and its impact on the world.

Effective: Summer 2005

FR 142 (GH)

**French and Francophone Literatures in Translation** (3) An introduction to the literature of France and French-speaking countries.

Effective: Spring 2004

GAME 160 (CMLIT 191) (GH;US;IL)

**Introduction to Video Game Culture** (3) A comparative, international look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.

Effective: Spring 2015 Future: Spring 2015

GEOG 122 (GH;US)

**The American Scene** (3) Historical perspectives on the social and cultural forces associated with the production of distinctive American landscapes.

Effective: Spring 2007

GER 083S (GH;US;IL)

**First-Year Seminar in German** (3) Germany's cultural past and present.

Effective: Summer 2005

GER 100 (GH;IL)

**German Culture and Civilization** (3) Culture and civilization of the German people from the Germanic migrations to the Nazi period. Conducted in English.

Effective: Summer 2005

GER 143 (RUS 143) (GH;IL)

**The Culture of Stalinism and Nazism** (3) The culture of Stalinist Russia and Nazi Germany in comparative perspective.

Effective: Summer 2005

GER 157 (GH;US)

**Pennsylvania Germans: The Culture of the Sectarians** (3) Survey of the religious background, beliefs, social life, customs, education, and culture of the Pennsylvania German sectarians, especially the Amish. Conducted in English.

Effective: Summer 2005

GER 175 (GH;IL)

**Germanic Heroic and Medieval Literature in English Translation** (3) Germanic heroic and medieval courtly literature from 800 to 1350 focusing on the prevailing cultural, social, and legal conditions.

Effective: Spring 2006

GER 189 (GH;IL)

**German Film** (3) A survey of German film from its beginnings to the present, with emphasis on historical, political, and cultural contexts.

Effective: Summer 2014

GER 189U (GH;IL)

**German Film** (3) A survey of German film from its beginnings to the present, with emphasis on historical, political, and cultural contexts.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

GER 190 (GH;IL)

**Twentieth-Century German Literature in English Translation** (3) Works of such writers as Boll, Brecht, Durrenmatt, Frisch, Grass, Hesse, Kafka, Mann, Rilke, Weiss, and Wolf.

Effective: Spring 2006

GER 195 (GH;IL)

**Modern German Drama and Theatre in English Translation** (3) Plays and their stage realization by writers such as Brecht, Durrenmatt, Handke, Hauptmann, Kaiser, Schnitzler, Wedekind, and Weiss.

Effective: Spring 2006

GER 200 (GH;IL)

**Contemporary German Culture** (3) Germany since WWI, its politics, economics, society, arts, and educational system in the international context; conducted in English.

Effective: Summer 2005

GER 245 (GH)

**The Vikings** (3) Focus on the history of the Vikings from 800 to 1400 as conveyed to us in mythology, literature, and archaeology. Conducted in English.

Effective: Spring 2005

HEBR 010 (J ST 010) (GH;IL)

**Jewish Civilization** (3) Life of the Jewish people from Biblical times, emphasizing cultural, religious, and institutional developments.

Effective: Summer 2005

HIST 001 (GH;IL)

**The Western Heritage I** (3) A survey of the Western heritage from the ancient Mediterranean world to the dawn of modern Europe.

Effective: Spring 2006

HIST 001T (GH;IL)

**The Western Heritage I** (3) A survey of the Western heritage from the ancient Mediterranean world to the dawn of modern Europe.

Effective: Spring 2006

HIST 002 (GH;IL)

**The Western Heritage II** (3) A survey of the Western heritage from the dawn of modern Europe in the seventeenth century to the present.

Effective: Spring 2006

HIST 003 (GH)

**The American Nation: Historical Perspectives** (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.

Effective: Spring 1995 Ending: Summer 2014

HIST 003 (GH;US)

**The American Nation: Historical Perspectives** (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.

Effective: Fall 2014 Future: Fall 2014

HIST 003U (GH;US)

**The American Nation: Historical Perspectives** (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 005 (CAMS 005) (GH;IL)

**Ancient Mediterranean Civilizations** (3) Survey of the history and cultures of ancient Mediterranean civilizations in Mesopotamia, Egypt, Syro-Levant, Anatolia, Greece, and Rome.

Effective: Spring 2008

HIST 010 (GH;IL)

**World History I** (3) Human origins; early civilizations; major political and intellectual developments on all continents; cultural interrelationships to 1500.

Effective: Summer 2005

HIST 011 (GH;IL)

**World History II** (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.

Effective: Summer 2005

HIST 011U (GH;IL)

**World History II** (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 012 (GH;US)

**History of Pennsylvania** (3) Chronological and topical survey, emphasizing immigration of diverse ethnic groups and religious, political, economic, and social developments, including industrialization and urbanization.

Effective: Spring 2006

HIST 020 (GH;US)

**American Civilization to 1877** (3) An historical survey of the American experience from its colonial beginnings through the Civil War and Reconstruction.

Effective: Spring 2006

HIST 020Y (GH;US)

**American Civilization to 1877** (3) An historical survey of the American experience from its colonial beginnings through the Civil War and Reconstruction.

Effective: Spring 2006

HIST 021 (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Spring 2006

HIST 021U (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 021U (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

HIST 021Y (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Spring 2006

HIST 066 (GH;IL)

**Survey of British History** (3) The British Isles and their peoples since the ancient period, emphasizing political, cultural, and intellectual developments and imperial rise and fall.

Effective: Summer 2012

HIST 083S (GH)

**First-Year Seminar in History** (3) Critical approaches to the dimensions and directions in History.

Effective: Summer 1999

HIST 100 (CAMS 100) (GH;IL)

**Ancient Greece** (3) Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization.

Effective: Spring 2006

HIST 101 (CAMS 101) (GH;IL)

**The Roman Republic and Empire** (3) History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire.

Effective: Spring 2006

HIST 102 (CAMS 102, J ST 102, RL ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

HIST 103 (GH;IL)

**The History of Madness, Mental Illness, and Psychiatry** (3) This course will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness.

Effective: Summer 2005

HIST 103U (GH;IL)

**The History of Madness, Mental Illness, and Psychiatry** (3) This course will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 104 (CAMS 104) (GH)

**Ancient Egypt** (3) The history and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.

Effective: Summer 2002

HIST 105 (GH;IL)

**The Byzantine Empire** (3) Development of Byzantine civilization from the decline of the Roman Empire to the fall of Constantinople.

Effective: Spring 2006

HIST 107 (MEDVL 107) (GH;IL)

**Medieval Europe** (3) Rise and development of the civilization of medieval Europe from the decline of Rome to 1500.

Effective: Spring 2006

HIST 108 (GH;IL)

**The Crusades: Holy War in the Middle Ages** (3) The social and political history of medieval religious warfare in Europe and in the Middle East.

Effective: Spring 2006

HIST 110 (GH;IL)

**Nature and History** (3) A broad introduction to the history of human relationships with nature throughout the world.

Effective: Summer 2005

HIST 111 (NUTR 111) (GH;US)

**American Food System: History, Technology, and Culture** (3) A cultural analysis of the evolution of U.S. agricultural production and food consumption patterns, the food industry and food marketing.

Effective: Fall 2013

HIST 115 (J ST 115, RL ST 115) (GH;US)

**American Jewish History and Culture** (3) Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.

Effective: Summer 2006

HIST 117 (WMNST 117) (GH;US;IL)

**Women in Modern History** (3) Modernization and women: changing images and roles since mid-eighteenth century in the family, workshop, politics, society; cross-cultural comparisons.

Effective: Summer 2005

HIST 119 (GH;IL)

**Gender and History** (3) Survey of the development of gender roles in Western societies from the prehistoric era to the early modern period.

Effective: Spring 2008

HIST 121 (J ST 121) (GH;IL)

**History of the Holocaust 1933-1945** (3) Historical analysis of holocaust themes.

Effective: Summer 2005

HIST 122 (S T S 122) (GH)

**History of Science I** (3) A history of science and culture from Stonehenge to the scientific revolution.

Effective: Spring 2005 Ending: Summer 2014

HIST 122 (GH)

**History of Science I** (3) A history of science and culture from pre-history until the Scientific Revolution.

Effective: Fall 2014 Future: Fall 2014

HIST 123 (S T S 123) (GH)

**History of Science II** (3) A history of science and culture from the scientific revolution to the present.

Effective: Spring 2004 Ending: Summer 2014

HIST 123 (GH)

**History of Science II** (3) A history of science and culture from the scientific revolution to the present.

Effective: Fall 2014 Future: Fall 2014

HIST 124 (S T S 124) (GH;US;IL)

**History of Western Medicine** (3) This course explores the history of health, illness, and medicine in western society.

Effective: Summer 2008

HIST 130 (GH;US)

**Introduction to the Civil War Era, 1848 through 1877** (3) Survey of causes and consequences of American Civil War, end of Mexican War in 1848 through end of Reconstruction, 1877.

Effective: Spring 2010

HIST 134 (GH;IL)

**Introduction to the British Isles, 1400-1800** (3) Survey of the history and cultures of the British Isles from 1400 to 1800.

Effective: Spring 2010

HIST 141 (GH;IL)

**Medieval and Modern Russia** (3) Introductory survey, including political, social, economic, and cultural development of Kievan, Muscovite, and Imperial Russia.

Effective: Spring 2006

HIST 143 (GH;IL)

**History of Fascism and Nazism** (3) The study of right-wing totalitarianism in the twentieth century, with special emphasis on Fascist Italy and Nazi Germany.

Effective: Spring 2006

HIST 143U (GH;IL)

**History of Fascism and Nazism** (3) The study of right-wing totalitarianism in the twentieth century, with special emphasis on Fascist Italy and Nazi Germany.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 144 (GH;US;IL)

**The World at War: 1939-1945** (3) In-depth study of the origins and conduct of World War II. Political and economic aspects as well as military.

Effective: Spring 2006

HIST 152 (AF AM 152) (GH;US;IL)

**African American History** (3) African roots; colonial and revolutionary experiences; slavery and abolitionism; civil war and

reconstruction; accommodation and protest; the new militancy.  
Effective: Fall 2013

HIST 153 (GH;US)

**The Indian in North America** (3) A survey of the American Indian from prehistory to the present.  
Effective: Summer 2005

HIST 153Y (GH;US)

**The Indian in North America** (3) A survey of the American Indian from prehistory to the present.  
Effective: Summer 2005

HIST 154 (GH;US)

**History of Welfare and Poverty in the United States** (3) History of care of the impoverished (emphasis on gender, race, nationality, age of poor, and welfare givers), 18th century to present.  
Effective: Summer 2005

HIST 155 (GH;US)

**American Business History** (3) Major developments in the history of business and industry from the colonial period to the present.  
Effective: Spring 2006

HIST 159 (CRIMJ 159) (GH;US)

**History of the FBI** (3) Survey of the FBI's history with special emphasis on civil rights and liberties and bureaucratic development.  
Effective: Spring 2014

HIST 166 (WMNST 166) (GH;US)

**History of Sexuality** (3) Discusses the ideas, practices, and identities surrounding sexuality over several centuries in a variety of contexts, focusing primarily on the US.  
Effective: Summer 2012  
Prerequisite: one introductory level course in History or Women's Studies

HIST 173 (GH;IL)

**Vietnam in War and Peace** (3) Rise of nationalism and communism; origins of conflict; United States involvement; impact on postwar regional and international politics; contemporary Vietnam.  
Effective: Spring 2006

HIST 174 (GH;IL)

**The History of Traditional East Asia** (3) Comparative cultural, institutional, and social history of traditional China and Japan to their contact with the industrialized West.  
Effective: Summer 2005

HIST 175 (GH;IL)

**The History of Modern East Asia** (3) Comparative survey of the internal developments and external relations of China and Japan since their contact with the industrialized West.  
Effective: Summer 2005

HIST 176 (GH;IL)

**Survey of Indian History** (3) Survey of cultural, institutional, and political history from ancient times to the present.  
Effective: Summer 2005

HIST 177 (ASIA 177) (GH;IL)

**The Rise of Modern Southeast Asia** (3) Study of Southeast Asia from the rise of early empires to the present.  
Effective: Summer 2014

HIST 178 (GH;IL)

**Latin-American History to 1820** (3) Conquest of the New World, development of colonial institutions, impact on native cultures, and origins of independence movements.  
Effective: Summer 2005

HIST 179 (GH;IL)

**Latin-American History Since 1820** (3) Origin, political growth, international relations, and economic status of the Latin-American republics, with emphasis upon present-day conditions.  
Effective: Summer 2005

HIST 180 (CAMS 180) (GH;IL)

**Ancient Warfare** (3) Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire.  
Effective: Summer 2006

HIST 181 (GH;IL)

**Introduction to the Middle East** (3) Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.  
Effective: Summer 2005

HIST 181U (GH;IL)

**Introduction to the Middle East** (3) Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 182 (ASIA 182) (GH;IL)

**Asian Trade: Economy, Industrialization and Capitalism in Asia** (3) An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present.  
Effective: Summer 2014

HIST 183 (ASIA 183) (GH;IL)

**Gender, Family, and Society in East Asia** (3) Investigates the history of gender, family, love, and sex in East Asia.  
Effective: Summer 2012

HIST 184 (ASIA 184) (GH;IL)

**Society and Culture in the Pacific War** (3) Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.  
Effective: Summer 2012

HIST 185 (ASIA 185) (GH;IL)

**Asian Pop: The History of Popular Culture in Asia** (3) A history of popular culture from the early modern period to the present.  
Effective: Summer 2014

HIST 188 (ASIA 188) (GH;IL)

**Tibet: People, Places and Space** (3) This course examines the historical, cultural, and ethnic dimensions of Tibet from the seventh century to the present.  
Effective: Summer 2012

HIST 189 (ASIA 189) (GH;IL)

**Illicit Asia: An Alternative Introduction to Asia** (3) A historical introduction to unlawful, illegitimate and forbidden ideas, goods people and places in modern Asia.  
Effective: Summer 2014

HIST 191 (AFR 191) (GH;IL)

**Early African History** (3) Explores important economic and cultural transformations in the making of early African empires from 1 MBC to 1750.  
Effective: Fall 2012

HIST 192 (AFR 192) (GH;IL)

**Modern African History** (3) Impact of the slave trade, expansion of Islam, colonial conquest, social and cultural transformations, resistance, nationalism, and independence.  
Effective: Fall 2012

HIST 205 (J ST 205) (GH;US)

**American Antisemitism** (3) The Phenomenon of antisemitism in American history from Peter Stuyvesant to the present.  
Effective: Summer 2011

HIST 210 (AF AM 210) (GH;US)

**Between Accommodation and Alienation: African Americans in a Jim Crow Nation, 1896-1932** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100 three credits of American history or permission of the instructor

HIST 210 (AF AM 210) (GH;US)

**Freedom's First Generation: African American Life and Work, 1865 to World War II** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: AF AM 100 three credits of American history or permission of the instructor

HIST 211 (AF AM 211) (GH;US;IL)

**The Emergence and Evolution of the Black Diaspora in the Atlantic World** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

HIST 211 (AF AM 211) (GH;US;IL)

**Slavery and Freedom in the Black Atlantic** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

HIST 220 (J ST 220) (GH;IL)

**The Jewish and Other Diasporas** (3) Introduction to and survey of the Jewish and other Diasporas around the world.  
Effective: Spring 2012

HIST 250 (AF AM 250) (GH;IL)

**Introduction to the Modern Caribbean** (3) A survey course which explores the historical evolution and emergence of the modern Caribbean.  
Effective: Fall 2012

I HUM 150 (GH;IL)

**World Mythologies in the Arts** (3) Interdisciplinary, cross cultural, historical, and contemporary study of world mythologies as represented in the visual arts, literature, and film.  
Effective: Spring 2009

I HUM 311 (GH;IL)

**The Western Tradition I** (3) From prehistory through the Roman world.

Effective: Summer 2005

Prerequisite: fifth-semester standing

IT 083S (GH;IL)

**First-Year Seminar in Italian Literature, Film, and Culture** (3) Introduction to the study of Italian literature, film, and culture.

Effective: Summer 2005

IT 130 (GH;IL)

**Italian Culture and Civilization** (3) Italian life from antiquity to the present; literature, film, the arts, and contemporary problems in historical perspective.

Effective: Summer 2005

IT 131 (GH;US)

**Italian American Culture and Civilization** (3) Italian-American experience from the late 19th century to present.

Socio-political issues seen through cinema and through literary and other readings.

Effective: Summer 2005

IT 230 (GH)

**Masterpieces of Italian Literature in English Translation** (3) Emphasis on works and authors of international importance. Lectures, readings, and written work in English.

Effective: Summer 1995

J ST 004 (CAMS 004, RL ST 004) (GH;US;IL)

**Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationship to culture.

Effective: Summer 2005

J ST 010 (HEBR 010) (GH;IL)

**Jewish Civilization** (3) Life of the Jewish people from biblical times; emphasizing cultural, religious, and institutional developments.

Effective: Summer 2005

J ST 012 (CAMS 012, RL ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

J ST 012U (CAMS 012U, RL ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 070 (CAMS 070, RL ST 070) (GH;IL)

**Prophecy: The Near East Then and Now** (3) Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.

Effective: Summer 2007

J ST 083S (GH;IL)

**First-Year Seminar in Jewish Studies** (3) Critical approaches to the history, sociology, and literature of Jewish Studies.

Effective: Summer 2005

J ST 090 (CAMS 090, RL ST 090) (GH;IL)

**Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

Effective: Summer 2005

J ST 102 (CAMS 102, HIST 102, RL ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

J ST 106 (RL ST 106) (GH;IL)

**Mysticism** (3) A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

Effective: Spring 2012

J ST 110 (CAMS 110, RL ST 110) (GH;US;IL)

**Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.

Effective: Summer 2005

J ST 111 (CAMS 111, RL ST 111) (GH;IL)

**Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

Effective: Summer 2005

J ST 114 (RL ST 114) (GH;US;IL)

**Modern Judaism** (3) Trends in Jewish life and thought since the French revolution; Judaism's responses to the challenge of modernity.

Effective: Summer 2005

J ST 115 (HIST 115, RL ST 115) (GH;US)

**American Jewish History and Culture** (3) Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.

Effective: Summer 2006

J ST 120 (CAMS 120, RL ST 120) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

Effective: Spring 2004

J ST 120H (RL ST 120H, CAMS 120H) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 121 (HIST 121) (GH;IL)

**History of the Holocaust 1933-1945** (3) Historical analysis of holocaust themes.

Effective: Summer 2005

J ST 122 (CAMS 122, RL ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

Effective: Summer 2014

J ST 123 (CAMS 123, RL ST 123) (GH;IL)

**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of the ancient Near East: Judaism, Christianity, and Islam.

Effective: Summer 2014

J ST 124 (CAMS 124, RL ST 124) (GH;US;IL)

**Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.

Effective: Summer 2005

J ST 131 (CMLIT 110) (GH;US;IL)

**Jewish Literature: An International Perspective** (3) Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas.

Effective: Spring 2011

J ST 132 (ENGL 132) (GH;US)

**Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.

Effective: Spring 2009

J ST 132U (ENGL 132U) (GH;US)

**Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 134 (CAMS 134, RL ST 134) (GH;IL)

**Archaeology of Biblical Israel** (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.

Effective: Summer 2005

J ST 137 (RL ST 137, WMNST 137) (GH;US;IL)

**Women and Religion** (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.

Effective: Fall 2012

Prerequisite: third-semester standing

J ST 153 (CAMS 153, RL ST 153) (GH;IL)

**Dead Sea Scroll** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scroll, Jewish texts from approximately 225 B.C.E. to 68 C.E.

Effective: Summer 2014

J ST 160 (CAMS 160, RL ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.

Effective: Summer 2014

J ST 205 (HIST 205) (GH;US)

**American Antisemitism** (3) The Phenomenon of antisemitism in American history from Peter Stuyvesant to the present.

Effective: Summer 2011

J ST 210 (CAMS 210) (GH;IL)

**Numismatics and the Historian** (3) Numismatics--the scholarly study of coins and medals--is a major tool in the study of Classical history and archaeology.

Effective: Summer 2012

J ST 220 (HIST 220) (GH;IL)

**The Jewish and Other Diasporas** (3) Introduction to and survey of the Jewish and other Diasporas around the world.

Effective: Spring 2012



J ST 280 (WMNST 280, RL ST 280) (GH;IL)

**Women and Judaism** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.

Effective: Fall 2006

JAPNS 120 (GH;IL)

**Japanese Literature in Its Cultural Context** (3) Japanese literature and film from classical through contemporary times, with attention to changing cultural settings. Taught in English.

Effective: Spring 2010

JAPNS 120W (GH;IL)

**Japanese Literature in its Cultural Context** (3) Japanese Literature in its Cultural Context: Japanese literature and Culture from Classical through contemporary times; writing intensive.

Effective: Summer 2013

JAPNS 121 (GH;IL)

**Japanese Film and New Media** (3) Survey of Japanese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English.

Effective: Spring 2010

LING 102 (GH)

**Introduction to Historical Linguistics** (3) How languages change and evolve over time; language families; effects of borrowing and language contact.

Effective: Spring 2002

Prerequisite: LING 010 or LING 100

LTNST 100 (GH;US)

**Introduction to Latina/s Studies** (3) This course provides an interdisciplinary introduction to the study of Latinas/os in the U.S.

Effective: Fall 2012

LTNST 226 (ENGL 226) (GH;US;IL)

**Latina and Latino Border Theories** (3) English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture.

Effective: Fall 2012

LTNST 315 (SPAN 315) (GH;US)

**Spanish and Spanish-speakers in the U.S.** (3) In this course, we investigate various aspects of the language(s) and language behaviors of U.S. Latinos.

Effective: Fall 2012

LTNST 479 (LTNST 479) (GH;US)

**U.S. Latina/o Culture en Espanol** (3) The history, culture, art, and social issues of Latinos in the United States.

Effective: Summer 2014

Prerequisite: SPAN 253W

MEDVL 107 (HIST 107) (GH;IL)

**Medieval Europe** (3) Rise and development of the civilization of medieval Europe from the decline of Rome to 1500.

Effective: Spring 2006

MEDVL 108 (GH;IL)

**Medieval Civilization** (3) An interdisciplinary introduction to literature, art, and thought of the Middle Ages.

Effective: Spring 2006

NUTR 111 (HIST 111) (GH;US)

**American Food System: History, Technology and Culture** (3) A cultural analysis of the evolution of U.S. agricultural production and food consumption patterns, the food industry and food marketing.

Effective: Fall 2013

PHIL 001 (GH)

**Basic Problems of Philosophy** (3) Introduction to central philosophical themes, including the mind/body problem, the existence of God, ethical problems, the nature of reality. Students may take only one course for General Education credit from PHIL 001 GH or 004 GH.

Effective: Spring 2000

PHIL 002 (GH)

**Philosophy, Politics, and Social Theory** (3) Examines relations between political and social organizations, the justification and limits of the state, and issues concerning individuality and community.

Effective: Fall 2003

PHIL 003 (GH)

**Persons, Moral Values and the Good Life** (3) Major ethical positions and assumptions regarding questions of freedom, choice, obligation, and conflicts in contemporary moral conduct, values, and reasoning.

Effective: Fall 2004

PHIL 005 (GH)

**Philosophy, Art, and Film** (3) Explores relations between images and reality, representation and culture, and beauty and politics through film, artworks, and aesthetic theories.

Effective: Spring 2002

PHIL 006 (CMLIT 006) (GH;IL)

**Philosophy and Literature in Western Culture** (3) Explores fundamental issues of human existence through the traditions of western literature and philosophy.

Effective: Spring 2006

PHIL 007 (GH;IL)

**Asian Philosophy** (3) Introduction to philosophical, moral, and aesthetic teachings of Asian traditions such as Hinduism, Buddhism (including Zen), Taoism, Confucianism, and Shintoism.

Effective: Summer 2005

PHIL 008 (WMNST 008) (GH)

**Philosophy and Feminism** (3) Explores diverse feminist philosophies of culture and knowledge, and examines gender's role in accounts of reality, truth, morality, and justice.

Effective: Spring 2006

PHIL 009 (GH;US)

**Philosophy, Race, and Diversity** (3) Critically examines the significance of race and cultural diversity for, and in, understandings of reality, knowledge, truth, morality, and justice.

Effective: Summer 2005

PHIL 009U (GH;US)

**Philosophy, Race, and Diversity** (3) Critically examines the significance of race and cultural diversity for, and in, understandings of reality, knowledge, truth, morality, and justice.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

PHIL 010 (GH)

**Critical Thinking** (3) Discussion of the validity, soundness, and fallacies of everyday language use and reasoning; informal logic; and manipulative arguments and propaganda.

Effective: Fall 2003

PHIL 010S (GH)

**Critical Thinking** (3) Discussion of the validity, soundness, and fallacies of everyday language use and reasoning; informal logic; and manipulative arguments and propaganda.

Effective: Spring 2005

PHIL 011 (GH)

**Philosophy, Science, and Truth** (3) Examines the philosophical foundations of natural scientific inquiry, knowledge, objectivity, and the relation of scientific truth to common sense.

Effective: Fall 2003

PHIL 013 (GH)

**Philosophy, Nature, and the Environment** (3) Studies competing historical and contemporary conceptions of nature, their philosophical foundations, and their implications for environmental problems and public policy.

Effective: Fall 2003

PHIL 014 (GH;US)

**Philosophy of Love and Sex** (3) Explores Western theories and attitudes concerning intimacy and examines various ethical issues involving love and sex.

Effective: Summer 2005

PHIL 083S (GH)

**First-Year Seminar in Philosophy** (3) Critical introduction to philosophical issues in ethics, social and political theory, religion, art, metaphysics, and epistemology.

Effective: Summer 1999

PHIL 100 (GH)

**The Meaning of Human Existence** (3) Explores differing views of the significance of human life, the meaning of freedom, and the way to a meaningful life.

Effective: Fall 2003

PHIL 101 (GH)

**Pragmatism and American Philosophy** (3) An introduction to American thought and its relation to American culture, with a focus on the development of pragmatism.

Effective: Fall 2003

PHIL 102 (GH)

**Existentialism and European Philosophy** (3) Introduction to European philosophy and issues of life, death, meaning, and absurdity, with a focus on existentialism and its development.

Effective: Fall 2003

PHIL 102H (GH)

**Existentialism and European Philosophy** (3) Introduction to European philosophy and issues of life, death, meaning, and absurdity, with a focus on existentialism and its development.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

PHIL 103 (GH)

**Introduction to Ethics** (3) Ethical theory about virtue, duty, autonomy, and life quality applied to moral problems, including character, violence, oppression, abortion, and suicide.

Effective: Fall 2003

PHIL 103W (GH)

**Introduction to Ethics** (3) Ethical theory about virtue, duty, autonomy, and life quality applied to moral problems,

including character, violence, oppression, abortion, and suicide.

Effective: Fall 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 105 (GH)

**Introduction to Philosophy of Law and Legal Ethics** (3) Historical and contemporary philosophies of law; concepts of responsibility, property, rights, and justice; and ethical issues in legal practice.

Effective: Fall 2003

PHIL 106 (GH)

**Introduction to Business Ethics** (3) Studies ethical foundations of business and ethical problems in business practices such as advertising, international trade, labor relations, and marketing.

Effective: Fall 2003

PHIL 107 (S T S 107) (GH)

**Introduction to Philosophy of Technology** (3) The character of technology; its relation to human values; philosophical assumptions in its development; and how it transforms the world.

Effective: Spring 2004

PHIL 108 (GH)

**Introduction to Social and Political Philosophy** (3) Critical introduction to political authority, rights, justice, community, inequality, power, pluralism, and other contemporary, social, and political issues.

Effective: Fall 2003

PHIL 108W (GH)

**Introduction to Social and Political Philosophy** (3) Critical introduction to political authority, rights, justice, community, inequality, power, pluralism, and other contemporary, social, and political issues.

Effective: Summer 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 109 (GH)

**Introduction to Aesthetics** (3) Examines the nature of art and aesthetic experience, art's relation to beauty and truth, and the nature of creativity.

Effective: Fall 2003

PHIL 109H (GH)

**Introduction to Aesthetics** (3) Examines the nature of art and aesthetic experience, art's relation to beauty and truth, and the nature of creativity.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PHIL 110 (GH)

**Introduction to Philosophy of Science** (3) Examines science's assumptions about knowledge and reality, the relation between science and culture, and the nature of scientific progress.

Effective: Fall 2003

PHIL 113 (GH)

**Introduction to Philosophy of Literature** (3) Examines philosophical ideas in literature, literary forms in philosophies, style and genre, and relation of philosophy, literature, writing, and culture.

Effective: Fall 2003

PHIL 115 (GH)

**Introduction to Philosophy and Education** (3) Examines the nature and goals of education, the philosophical foundations of educational theories, and their economic, political, and cultural implications.

Effective: Fall 2003

PHIL 118 (GH)

**Introduction to Environmental Philosophy** (3) Considers the moral status of the environment and applies ethical theory to issues such as preservation, hunger, pollution, and sustainability.

Effective: Fall 2003

PHIL 119 (GH)

**Ethical Leadership** (3) Introduction to philosophical theories of ethics and leadership. Uses literary and biographical texts in developing skills of application.

Effective: Summer 2007

PHIL 122 (GH)

**Introduction to Philosophy of History** (3) Examines methodological foundations and interpretations of history, the objectivity of history, and the issue of history as design or chance.

Effective: Fall 2003

PHIL 123 (GH)

**Introduction to Ethics in Media and Journalism** (3) Studies ethical problems, human values, and politics in differing media forms and the ways media shape such problems and values.

Effective: Fall 2003

PHIL 124 (GH)

**Introduction to Philosophy of Religion** (3) Explores the meaning of religious belief and experience, the existence of God, ideas of spirituality, and the question of immortality.

Effective: Fall 2003

Prerequisite: third-semester standing

PHIL 125 (GH)

**Introduction to Theories of Knowledge** (3) Historical and contemporary views on the foundations and conditions of knowledge, belief, justification, and truth, conception, perception, and interpretation.

Effective: Fall 2003

PHIL 125W (GH)

**Introduction to Theories of Knowledge** (3) Historical and contemporary views on the foundations and conditions of knowledge, belief, justification, and truth, conception, perception, and interpretation.

Effective: Summer 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 126 (GH)

**Introduction to Metaphysics** (3) Explores the nature of being and reality, the problem of free will and the mind/body problem, identity, and causality.

Effective: Fall 2003

PHIL 126W (GH)

**Introduction to Metaphysics** (3) Explores the nature of being and reality, the problem of free will and the mind/body problem, identity, and causality.

Effective: Summer 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 127 (GH)

**Introduction to Philosophy of Mind** (3) Problems and concepts of mind and consciousness including mind-brain identification, the nature of subjectivity, identity, and artificial intelligence.

Effective: Fall 2003

PHIL 129 (GH)

**Introduction to Philosophy of Language** (3) Studies the nature of meaning in language, how we acquire language, communication, signs, and language as descriptive of reality.

Effective: Fall 2003

PHIL 132 (RL ST 131) (GH)

**Introduction to Bioethics** (3) Studies questions of ethics in relation to biotechnology research and implementation, genetic engineering, medicine, animal and human rights.

Effective: Fall 2003

PHIL 200 (CAMS 200) (GH)

**Ancient Philosophy** (3) Examines the thought and influence of major Western thinkers from the pre-Socratics to the neo-Platonists, emphasizing Plato and Aristotle.

Effective: Fall 2003

PHIL 201 (GH)

**Medieval Philosophy** (3) Examines the thought and influence of major Western thinkers from the fourth to the fifteenth centuries, emphasizing Augustine and Aquinas.

Effective: Fall 2003

PHIL 202 (GH)

**Modern Philosophy** (3) Examines the thought and influence of major Western thinkers from Descartes to Kant, emphasizing rationalism and empiricism, and critical philosophy.

Effective: Fall 2003

PHIL 203 (GH)

**Nineteenth Century Philosophy** (3) Examines the thought and influence of major Western thinkers from Hegel to Nietzsche, including Marx, Kierkegaard, and Schopenhauer.

Effective: Fall 2003

PHIL 204 (GH)

**Twentieth Century Philosophy** (3) Examines the thought and influence of major Western thinkers of the century, including pragmatists, phenomenologists, existentialists, critical theorists, and feminists.

Effective: Fall 2003

PHIL 208 (GH)

**Contemporary Philosophy** (3) Recent trends in philosophical thought and culture, hybrid philosophies, and the philosophical landscape of the future.

Effective: Fall 2003

PHIL 221 (GH)

**Philosophy of Science** (3) An inquiry into the form and function of concepts, laws, theories, and into the character of scientific explanation and prediction.

Effective: Fall 2003

PHIL 233 (S T S 233) (GH)

**Ethics and the Design of Technology** (3) Ethics and individual and group decision-making in the design of technology including design projects and specific attention to institutional ethics.

Effective: Spring 2004

PHIL 280H (FD SC 280H) (GH)

**Food, Values, and Health** (3) The perceived relationship between food and health, emphasizing the conceptual nature of both; and how values contribute to the relationship.

Effective: Spring 2007

PL SC 111 (GH)

**Debating the Purpose of Government** (3) Students will become acquainted with a variety of political theories and debate their usefulness in considering contemporary political controversies.

Effective: Summer 2012

RL ST 001 (GH;US;IL)

**Introduction to World Religions** (3) An historical and comparative survey of the principal beliefs and practices of the world's major religions.

Effective: Summer 2005

RL ST 003 (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

Effective: Summer 2005 Ending: Fall 2014

RL ST 003 (ASIA 003) (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

Effective: Spring 2015 Future: Spring 2015

RL ST 004 (CAMS 004, J ST 004) (GH;US;IL)

**Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationships to culture.

Effective: Summer 2005

RL ST 012 (CAMS 012, J ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

RL ST 012U (CAMS 012U, J ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

RL ST 044 (CAMS 044) (GH;IL)

**Ancient Near Eastern and Egyptian Mythology** (3) Survey of major ancient Mediterranean myths, gods, and goddesses in their cultural contexts; influence on later cultures.

Effective: Summer 2005

RL ST 070 (CAMS 070, J ST 070) (GH;IL)

**Prophecy: The Near East Then and Now** (3) Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.

Effective: Summer 2007

RL ST 083S (GH)

**First-Year Seminar in Religious Studies** (3) Critical approaches to the dimensions and directions in Religious Studies.

Effective: Summer 1999

RL ST 090 (CAMS 090, J ST 090) (GH;IL)

**Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

Effective: Summer 2005

RL ST 101 (GH;IL)

**Comparative Religion** (3) Comparative or historical analysis of religious factors--worship, theology, ethics, scriptures, etc., in two or more religious traditions.

Effective: Summer 2005

RL ST 102 (CAMS 102, HIST 102, J ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

RL ST 103 (GH;US;IL)

**Introduction to Hinduism** (3) Historical development of Hinduism to the present.

Effective: Summer 2005 Ending: Fall 2014

RL ST 103 (ASIA 103) (GH;US;IL)

**Introduction to Hinduism** (3) Historical development of Hinduism to the present.

Effective: Spring 2015 Future: Spring 2015

RL ST 104 (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

Effective: Summer 2005 Ending: Fall 2014

RL ST 104 (ASIA 104) (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

Effective: Spring 2015 Future: Spring 2015

RL ST 105 (GH;US;IL)

**Buddhism in the Western World** (3) A general survey of the development of Buddhism as a religious tradition in the West, focusing especially on America.

Effective: Summer 2005

RL ST 106 (J ST 106) (GH;IL)

**Mysticism** (3) A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

Effective: Spring 2012

RL ST 107 (GH;US;IL)

**Introduction to Islam** (3) Community and message of the early movement; development of authoritative structures and traditions; proliferation of sects; theology and creeds; mysticism.

Effective: Spring 2006

RL ST 108 (GH;IL)

**Muhammad and the Qur'an** (3) History of the Qur'an and its interpretation by the early Muslim community; life of Muhammad and his role within Islam.

Effective: Fall 2010

RL ST 110 (CAMS 110, J ST 110) (GH;US;IL)

**Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.

Effective: Summer 2005

RL ST 111 (CAMS 111, J ST 111) (GH;IL)

**Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

Effective: Summer 2005

RL ST 114 (J ST 114) (GH;US;IL)

**Modern Judaism** (3) Trends in Jewish life and thought since the French revolution; Judaism's responses to the challenge of modernity.

Effective: Summer 2005

RL ST 115 (HIST 115, J ST 115) (GH;US)

**American Jewish History and Culture** (3) Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.

Effective: Summer 2006

RL ST 116 (GH;IL)

**Muslims in America** (3) This course is a study of Muslims from multiple racial, cultural, and national perspectives; it explores what it means to be a Muslim in America.

Effective: Summer 2010

RL ST 120 (CAMS 120, J ST 120) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in its Jewish-Hellenistic setting.

Effective: Spring 2004

RL ST 120H (CAMS 120H, J ST 120H) (GH)

**New Testament** (3) Introduction to the history, literature, and religion of early Christianity in its Jewish-Hellenistic setting.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

RL ST 122 (CAMS 122, J ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

Effective: Summer 2014

RL ST 123 (CAMS 123, J ST 123) (GH;IL)

**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of ancient Near East: Judaism, Christianity, and Islam.

Effective: Summer 2014

RL ST 124 (CAMS 124, J ST 124) (GH;US;IL)

**Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.

Effective: Summer 2005

RL ST 125W (GH)

**Modern Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the sixteenth century to the present.

Effective: Summer 1995

RL ST 130 (GH)

**The Ethics of Western Religion** (3) History of theological-social ethics of the Judaeo-Christian tradition.

Effective: Summer 1995

RL ST 131 (PHIL 132) (GH)

**Introduction to Bioethics** (3) Studies questions of ethics in relation to biotechnology research and implementation, genetic engineering, medicine, animal and human rights.  
Effective: Spring 2003

RL ST 134 (CAMS 134, J ST 134) (GH;IL)

**Archaeology of Biblical Israel** (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.  
Effective: Summer 2005

RL ST 137 (WMNST 137, J ST 137) (GH;US;IL)

**Women and Religion** (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.  
Effective: Fall 2012

Prerequisite: third-semester standing

RL ST 140Y (AM ST 140Y) (GH;US)

**Religion in American Life and Thought** (3) The function, contributions, tensions, and perspectives of religion in American culture.  
Effective: Summer 2005

RL ST 145 (AF AM 145) (GH;US;IL)

**African American Religion** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2013 Ending: Fall 2014

RL ST 145 (AF AM 145) (GH;US;IL)

**African American Religions and Spirituality** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2015 Future: Spring 2015

RL ST 146 (AF AM 146) (GH;US)

**The Life and Thought of Martin Luther King, Jr.** (3) A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.  
Effective: Spring 2013

RL ST 147 (AF AM 147) (GH;US)

**The Life and Thought of Malcolm X** (3) The life of Malcolm X/El Hajj Malik El Shabazz (1925-1965) and his social, political, economic, and moral thought.  
Effective: Fall 2013

RL ST 153 (CAMS 153, J ST 153) (GH;IL)

**Dead Sea Scrolls** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.  
Effective: Summer 2014

RL ST 160 (CAMS 160, J ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.  
Effective: Summer 2014

RL ST 280 (WMNST 280, J ST 280) (GH;IL)

**WOMEN AND JUDAISM** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.  
Effective: Spring 2006

RUS 083S (GH;US;IL)

**First-Year Seminar in Russian** (3) Russia's cultural past and present.  
Effective: Summer 2005

RUS 100 (GH;IL)

**Russian Culture and Civilization** (3) The Russian people from the tenth century to present times; their literature, arts, music, science, and philosophy. In English.  
Effective: Summer 2005

RUS 110 (GH;IL)

**Russian Folklore** (3) Study of byliny, lyrical and historical songs, folktales, drama, ceremonial poetry, chants, charms, proverbs, and mythology of Russia. In English.  
Effective: Summer 2005

RUS 143 (GER 143) (GH;IL)

**The Culture of Stalinism and Nazism** (3) The culture of Stalinist Russia and Nazi Germany in comparative perspective.  
Effective: Summer 2005

S T S 100 (GH)

**Science, Technology, and Culture** (3) A survey of the development and culture of science, technology, and medicine in world history.  
Effective: Spring 2011

S T S 101 (GH)

**Modern Science, Technology, and Human values** (3) Relationships of science and technology to human aspirations, values, and arts.

Effective: Spring 1996

S T S 107 (PHIL 107) (GH)

**Introduction to Philosophy of Technology** (3) The character of technology; its relation to human values; philosophical assumptions in its development; and how it transforms the world.

Effective: Spring 2004

S T S 122 (HIST 122) (GH)

**History of Science I** (3) A history of science and culture from Stonehenge to the scientific revolution.

Effective: Spring 2005 Ending: Summer 2014

S T S 122 (GH)

**History of Science I** (3) A history of science and culture from Stonehenge to the scientific revolution.

Effective: Fall 2014 Future: Fall 2014

S T S 123 (HIST 123) (GH)

**History of Science II** (3) A history of science and culture from the scientific revolution to the present.

Effective: Spring 2004 Ending: Summer 2014

S T S 123 (GH)

**History of Science II** (3) A history of science and culture from the scientific revolution to the present.

Effective: Fall 2014 Future: Fall 2014

S T S 124 (HIST 124) (GH;US;IL)

**History of Western Medicine** (3) This course explores the history of health, illness, and medicine in western society.

Effective: Summer 2008

S T S 233 (PHIL 233) (GH)

**Ethics and the Design of Technology** (3) Ethics and individual and group decision-making in the design of technology including design projects and specific attention to institutional ethics.

Effective: Spring 2004

S T S 235 (GH)

**Science and Religion** (3) This course investigates the relationship between science and religion in multiple cultures.

Effective: Spring 2009

Prerequisite: completion of a basic composition course or the equivalent S T S 100 or S T S 101 or completion of 30 credits of coursework

SPAN 083S (GH;IL)

**First-Year Seminar in Hispanic Literatures and Cultures** (3) Introduction to the study of Hispanic literatures and cultures.

Effective: Summer 2005

SPAN 130 (GH;IL)

**Iberian Civilization** (3) Spanish and Portuguese life from the medieval period to the present; literature, the arts, and contemporary problems in historical perspective.

Effective: Spring 2006

SPAN 131 (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

Effective: Summer 2005

SPAN 131U (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

SPAN 131Y (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

Effective: Summer 2005

SPAN 230 (GH)

**Masterpieces of Spanish Literature in English Translation** (3) Study of works and authors of international importance; lectures, readings, and written works in English.

Effective: Spring 2003

SPAN 315 (LTNST 315) (GH;US)

**Spanish and Spanish-speakers in the U.S.** (3) In this course, we investigate various aspects of the language(s) and language behaviors of U.S. Latinos.

Effective: Summer 2006

SPAN 326 (GH;US)

**Reading the Border/Lands** (3) This course examines representations of the U.S.-Mexico border in relation to the actual geographic space.

Effective: Summer 2011

SPAN 479 (LTNST 479) (GH;US)

**U.S. Latina/o Culture en Espanol** (3) The history, culture, art, and social issues of Latinos in the United States.

Effective: Summer 2014



Prerequisite: SPAN 253W

UKR 100 (GH;IL)

**Ukrainian Culture and Civilization** (3) Survey of Ukrainian culture and civilization from the Middle Ages to the present.  
Effective: Summer 2005

WMNST 008 (PHIL 008) (GH)

**Philosophy and Feminism** (3) Explores diverse feminist philosophies of culture and knowledge, and examines gender's role in accounts of reality, truth, morality, and justice.  
Effective: Spring 2006

WMNST 083S (GH;US;IL)

**First-Year Seminar in Women's Studies** (3) Critical approaches to the dimensions and directions in Women's Studies.  
Effective: Summer 2005

WMNST 101 (AF AM 101) (GH;US)

**The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.  
Effective: Spring 2013

WMNST 101U (AF AM 101U) (GH;US)

**The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.  
Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

WMNST 101U (AF AM 101U) (GH;US)

**The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.  
Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

WMNST 102 (AF AM 102) (GH;IL)

**Women of Color: Cross-Cultural Perspective** (3) Global examination of value systems of women of color; attention to minority ethnic groups in the United States and developing countries.  
Effective: Spring 2013

WMNST 104 (AM ST 104) (GH;US)

**Women and the American Experience** (3) Selected aspects of the role of women in United States history and culture from colonial to modern times.  
Effective: Summer 2005

WMNST 106 (GH;US;IL)

**Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.  
Effective: Spring 2013

WMNST 106U (GH;US;IL)

**Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.  
Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

WMNST 106U (GH;US;IL)

**Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.  
Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

WMNST 117 (HIST 117) (GH;US;IL)

**Women in Modern History** (3) Modernization and women: changing images and roles since mid-eighteenth century in the family, workshop, politics, society. Cross-cultural comparisons.  
Effective: Summer 2005

WMNST 137 (RL ST 137, J ST 137) (GH;US;IL)

**Women and Religion** (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.  
Effective: Fall 2012

Prerequisite: third-semester standing

WMNST 166 (HIST 166) (GH;US)

**History of Sexuality** (3) Discusses the ideas, practices, and identities surrounding sexuality over several centuries in a variety of contexts, focusing primarily on the US.  
Effective: Summer 2012

Prerequisite: one introductory level course in History or Women's Studies

WMNST 194 (ENGL 194) (GH;US;IL)

**Women Writers** (3) Short stories, novels, poetry, drama, and essays by British, American, and other English-speaking women writers.  
Effective: Summer 2005

WMNST 225 (ENGL 225, ART H 225) (GA;GH)

**Sexuality and Modern Visual Culture** (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.  
Effective: Summer 2009

WMNST 227 (ENGL 227) (GH;US;IL)

**Introduction to Culture and Sexuality** (3) A course addressing the relationships between sexuality, literature, and culture.

Effective: Spring 2013

Prerequisite: ENGL 015 or ENGL 030

WMNST 245 (ENGL 245) (GH;US)

**Introduction to Lesbian and Gay Studies** (3) An introduction to the study of sex and (homo) sexual identity across a wide range of disciplines and methodologies.

Effective: Spring 2013

WMNST 280 (J ST 280, RL ST 280) (GH;IL)

**Women and Judaism** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.

Effective: Fall 2006

WMNST 301 (GH;US;IL)

**Sexualities, Gender and Power: Feminist Thought and Politics** (3) An interdisciplinary survey of historical and contemporary feminist theories in both the United States and international contexts.

Effective: Spring 2013

Prerequisite: WMNST 100 or WMNST 106

## United States Cultures and International Cultures

All course descriptions are updated periodically.

1539 courses.

A ED 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

A ED 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

A ED 225 (GA;US)

**Diversity, Pedagogy, and Visual Culture** (3) Issues of diversity in art, education, visual culture, and pedagogy.  
Effective: Summer 2005

A ED 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

A ED 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

A ED 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

A&A 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

A&A 100 (GA;IL)

**Introduction to International Arts** (3) An interdisciplinary, multicultural introduction to the arts of the world.  
Effective: Summer 2005

A&A 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

A&A 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

A&A 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

A&A 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

AAS 100 (AM ST 160) (GH;US)

**Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.  
Effective: Fall 2013

AAS 428 (ENGL 428) (US)

**Asian American Literatures** (3 per semester/maximum of 6) A seminar on the literatures and cultures of Asian America, with attention to forms of geographic, historical, and ethnic diversity.  
Effective: Summer 2010

ACCTG 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

ACCTG 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

ACCTG 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

ACCTG 461 (IL)

**International Accounting** (3) Study of international accounting issues with emphasis on need, use, and interpretation of financial accounting required in global business environment.  
Effective: Fall 2012

Prerequisite: ACCTG 471 and ACCTG 472

ACCTG 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

AEE 299 (IL)

**Foreign Studies** (1-12 per semester/maximum of 24) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2014

AEE 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

AEE 499B (IL)

**School-Based Agricultural Education in South Korea** (0.5) Travel component of AEE 499A.

Effective: Summer 2014 Ending: Summer 2014

AERSP 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

AERSP 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

AERSP 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

AERSP 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

AF AM 083S (GH;US;IL)

**First-Year Seminar in African American Studies** (3) Cultural, philosophical, economic, political, and global dynamics of the Black experience in the United States and the Diaspora.

Effective: Fall 2013

AF AM 100 (GS;US)

**Evolving Status of Blacks in the Twentieth Century: Interdisciplinary Perspectives** (3) An interdisciplinary, team-taught exploration of the evolving status of Black Americans in the twentieth century. Emphasis on the civil rights movement.

Effective: Spring 2013 Ending: Fall 2014

AF AM 100 (GS;US)

**Living While Black: Themes in African American Thought and Experience** (3) What it means to be Black in America by engaging with questions about identity and authenticity, freedom and unfreedom, radicalism and reform, gender and sexuality, and the role of music in African American life.

Effective: Spring 2015 Future: Spring 2015

AF AM 101 (WMNST 101) (GH;US)

**The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.

Effective: Spring 2013

AF AM 101U (WMNST 101U) (GH;US)

**The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AF AM 101U (WMNST 101U) (GH;US)

**The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

AF AM 102 (WMNST 102) (GH;IL)

**Women of Color: Cross-Cultural Perspective** (3) Global examination of value systems of women of color; attention to minority ethnic groups in the United States and developing countries.

Effective: Spring 2013

AF AM 103 (SOC 103, WMNST 103) (US)

**Racism and Sexism** (3) Critical analysis of the structure of race and gender in the contemporary United States.

Effective: Spring 2013

AF AM 110 (GH;US)

**Introduction to African American Studies** (3) An introductory survey of African American Studies practice and scholarship, focused on the major methods, figures, texts, and debates that define the field.

Effective: Spring 2013

AF AM 110U (GH;US)

**Introduction to African American Studies** (3) An introductory survey of African American Studies practice and scholarship, focused on the major methods, figures, texts, and debates that define the field.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AF AM 126 (INART 126) (GA;US)

**The Popular Arts in America: The History of Hip-Hop** (3) An examination of the roots, development, and significance of hip-hop in our culture.  
Effective: Summer 2014

AF AM 132 (SPAN 132, AFR 132) (IL)

**Afro-Hispanic Civilization** (3) A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America.  
Effective: Spring 2013

AF AM 139 (ENGL 139) (GH;US)

**Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.  
Effective: Fall 2013

AF AM 145 (RL ST 145) (GH;US;IL)

**African American Religion** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2013

AF AM 146 (RL ST 146) (GH;US)

**The Life and Thought of Martin Luther King, Jr.** (3) A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.  
Effective: Spring 2013

AF AM 147 (RL ST 147) (GH;US)

**The Life and Thought of Malcolm X** (3) The life of Malcolm X/El Hajj Malik El Shabazz (1925-1965) and his social, political, economic, and moral thought.  
Effective: Fall 2013

AF AM 152 (HIST 152) (GH;US;IL)

**African American History** (3) African roots; colonial and revolutionary experiences; slavery and abolitionism; civil war and reconstruction; accommodation and protest; the new militancy.  
Effective: Fall 2013

AF AM 208 (THEA 208) (GA;US;IL)

**Theatre Workshop in Diverse Cultures** (3) A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples.  
Effective: Spring 2013

AF AM 210 (HIST 210) (GH;US)

**Between Accommodation and Alienation: African Americans in a Jim Crow Nation, 1896-1932** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100 HIST 021

AF AM 210 (HIST 210) (GH;US)

**Freedom's First Generation: African American Life and Work, 1865 to World War II** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: AF AM 100 HIST 021

AF AM 211 (HIST 211) (GH;US;IL)

**The Emergence and Evolution of the Black Diaspora in the Atlantic World** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

AF AM 211 (HIST 211) (GH;US;IL)

**Slavery and Freedom in the Black Atlantic** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

AF AM 212 (US)

**Black History to the Twentieth Century** (3) An examination of Black political, economic, social, and cultural life in America from the era of colonization to 1905.  
Effective: Fall 2012 Ending: Fall 2014

AF AM 212 (US)

**African Americans in the New Jim Crow Era, 1968-present** (3) An examination of Black political, economic, social, and cultural life in America from the era of colonization to 1905.  
Effective: Spring 2015 Future: Spring 2015

AF AM 235 (ENGL 235) (US)

**African-American Oral Folk Tradition** (3) The origins, forms, and function of the oral folk tradition of African Americans.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: ENGL 015 or ENGL 030

AF AM 235 (ENGL 235) (US)

**From Folk Shouts and Work Songs to Hip Hop Poetry** (3) The origins, forms, and function of the oral folk tradition of African Americans.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ENGL 015 or ENGL 030

AF AM 250 (HIST 250) (GH;IL)

**Introduction to the Modern Caribbean** (3) A survey course which, explores the historical evolution and emergence of the modern Caribbean.

Effective: Fall 2012

AF AM 280 (GH;US)

**Historical Ethnography of Freedom** (3) Studies the Underground Railroad movement to guide slaves to freedom, and public heritage surrounding this institution. Students use ethnographic approaches.

Effective: Summer 2014

AF AM 302 (BB H 302) (US)

**Diversity and Health** (3) Exam the relationship of diverse personal and sociocultural factors to health, like socioeconomic class, race-ethnicity, gender, age, and sexual orientation.

Effective: Spring 2013

Prerequisite: PSYCH 100 or SOC 001

AF AM 364 (WMNST 364) (GS;US)

**Black & White Sexuality** (3) This course explains how narrow ways of thinking limit our understanding of the diverse expressions of human sexuality.

Effective: Fall 2012

AF AM 409 (SOC 409) (US)

**Racial and Ethnic Inequality in America** (3) The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.

Effective: Spring 2013

Prerequisite: SOC 001

AF AM 409U (US)

**Racial and Ethnic Inequality in America** (3) The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: SOC 001

AF AM 412 (THEA 412) (US;IL)

**African American Theatre** (3) Exploration of the development of African American theatre from its roots in Africa through the Diaspora to the present time.

Effective: Spring 2013

Prerequisite: THEA 100

AF AM 416 (S T S 416, WMNST 416) (US;IL)

**Race, Gender and Science** (3) The class will focus on race and gender as products of science, and how societal values shape scientific activity.

Effective: Spring 2013

Prerequisite: 6 credits in S T S WMNST or AAA S

AF AM 422 (CAS 422) (US)

**Contemporary African American Communication** (3) A focused study on the continuities between African and African American culture and communication.

Effective: Spring 2013

Prerequisite: CAS 100

AF AM 431 (HIST 431) (US;IL)

**Black Liberation and American Foreign Policy** (3) This course deals with American foreign policy and Black liberation in Africa since 1945.

Effective: Spring 2013

Prerequisite: AF AM 100 AFR 192 ; PL SC 001 or PL SC 014

AF AM 432 (HIST 432) (IL)

**Between Nation and Empire: The Caribbean in the 20th Century** (3) An exploration of the political evolution of the Caribbean Region over the course of the 20th Century.

Effective: Fall 2012

Prerequisite: AF AM 250

AF AM 445Y (LER 445Y, PL SC 445Y) (US)

**Politics of Affirmative Action** (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

AF AM 460 (PHIL 460) (US;IL)

**African American Philosophy** (3) Major works by African American Philosophers, on topics of race, freedom, citizenship,

nationhood, law and society.

Effective: Spring 2013

Prerequisite: AF AM 100 or PHIL 009 and 5th semester standing

AF AM 465 (HIST 465) (US)

**Civil Rights and American Politics 1933-1968** (3) The civil rights struggle and its impact upon American politics.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: AF AM 100 HIST 021 HIST 152 PL SC 001 or PL SC 002

AF AM 465 (HIST 465) (US)

**The Post-World War II Civil Rights Movement** (3) The civil rights struggle and its impact upon American politics.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 HIST 021 HIST 152 PL SC 001 or PL SC 002

AF AM 469 (ENGL 469) (US)

**Slavery and the Literary Imagination** (3) The impact of slavery on the petitions, poetry, slave narratives, autobiographies, and novels of African Americans.

Effective: Fall 2012

Prerequisite: ENGL 015 or ENGL 030

AFR 105 (EARTH 105) (GN;IL)

**Environments of Africa: Geology and Climate Change** (3) Significant natural features of Africa as related to human endeavor; case studies include the Nile, climate change, natural resources.

Effective: Spring 2013

AFR 110 (GS;IL)

**Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.

Effective: Fall 2012

AFR 110U (GS;IL)

**Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AFR 110U (GS;IL)

**Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

AFR 132 (AF AM 132, SPAN 132) (IL)

**Afro-Hispanic Civilization** (3) A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America.

Effective: Spring 2013

AFR 150 (GH;IL)

**Africa in Cinema** (3) The study of the image of Africa as seen in fiction and non-fictional feature length films, ethnographic and documentary films.

Effective: Fall 2012

AFR 191 (HIST 191) (GH;IL)

**Early African History** (3) Explores important economic and cultural transformations in the making of early African empires from 1 MBC to 1750.

Effective: Fall 2012

AFR 192 (HIST 192) (GH;IL)

**Modern African History** (3) Impact of the slave trade, expansion of Islam, colonial conquest, social and cultural transformations, resistance, nationalism, and independence.

Effective: Fall 2012

AFR 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2012

AFR 202 (WMNST 202) (GS;IL)

**Gender Dynamics in Africa** (3) Critical analysis of multidisciplinary research on relations between men and women in Africa and critique of Western feminist theories.

Effective: Fall 2012

AFR 209 (SOC 209) (GS;IL)

**Poverty in Africa** (3) The course examines the causes, consequences, and dynamics of poverty in African countries.

Effective: Fall 2013

AFR 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2012

AFR 306 (IL)

**Health and Illness in African and Black Diaspora: Cultural Anthropology** (3) The course explores anthropological approaches to health, mental and physical illness, in African Worlds and Black Diaspora.

Effective: Summer 2013

Prerequisite: AFR 110

AFR 335 (ART H 335) (IL)

**African Art** (3) Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa.

Effective: Fall 2013

AFR 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2012

AFR 434 (PL SC 434) (IL)

**War and Development in Africa** (3) This course will examine the relationship between war and development in sub-Saharan Africa in the post colonial era.

Effective: Fall 2012

Prerequisite: PL SC 014 or PL SC 003 or AFR 110

AFR 440 (PL SC 440, I B 440) (US;IL)

**Globalization and Its Implications** (3) This course explores the socioeconomic implications of globalization.

Effective: Spring 2013

Prerequisite: AF AM 100 or AFR 110 or PL SC 003 or PL SC 014 or PL SC 020 or PL SC 022

AFR 443 (PL SC 443) (IL)

**Ethnic Conflict in Africa** (3) This course explores the various causes and impacts of ethnic conflicts in the African context.

Effective: Spring 2013

Prerequisite: AF AM 100 AFR 110 PL SC 001 PL SC 003 PL SC 007 PL SC 014 PL SC 017 PL SC 020 or AFRAS 301

AFR 446 (ART H 446) (IL)

**Topics in African Art** (3 per semester/maximum of 9) Topics vary from "Arts of Eastern and Southern Africa" to "Art of West Africa."

Effective: Spring 2014

Prerequisite: 3 credits of Art History

AFR 447 (ART H 447) (IL)

**Topics in the Art of the African Diaspora** (3 per semester/maximum of 6) Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

Effective: Spring 2014

Prerequisite: 3 credits of Art History

AFR 454 (PL SC 454) (IL)

**Government and Politics of Africa** (3) Contemporary African Politics, institutions, and ideologies; patterns of change, social forces, and nation building in selected African states.

Effective: Fall 2012

Prerequisite: 3 credits from: AFR 110 PL SC 003 PL SC 020 or PL SC 022

AFR 459 (PL SC 459) (IL)

**Culture and World Politics** (3) Role of culture in world politics.

Effective: Spring 2013

Prerequisite: PL SC 014

AFR 464 (PL SC 464) (IL)

**Globalization, Extractive Industries, and Conflict in Africa** (3) Socioeconomic and environmental impacts of extractive industries in Africa.

Effective: Fall 2012

Prerequisite: AFR 110 or at least one of the following: PL SC 003 or PL SC 014 or PL SC 022

AFR 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2012

AG BM 338 (IL)

**Agribusiness in the Global Economy** (3) Managing agribusinesses in the global food industry, international food product marketing, key public institution and policies affecting food trade.

Effective: Summer 2013

Prerequisite: AG BM 101 AG BM 102 AG BM 106

AG BM 499 (IL)

**Foreign Studies - Agribusiness Management** (1-12) Study in selected countries of agricultural economic institutions and current agricultural economic problems.

Effective: Summer 2013

AG BM 499I (INTAG 499I) (IL)

**Exploring Greek Food Systems** (0.5) Travel to Thessaloniki and surrounding sites. Learn about food systems in Greece, how economic issues are affecting agriculture, and the history and culture of the country. The trip concludes in Athens.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: INTAG 499G or AG BM 499G

AG SC 299 (IL)

**Foreign Studies** (1-12 per semester/maximum of 24) Courses offered in foreign countries by individual or group instruction.



Effective: Summer 2014

AG SC 499 (IL)

**Foreign Studies** (1-12 per semester/maximum of 24) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2014

AGECO 499 (IL)

**Foreign Studies** (1-2 per semester/maximum of 4) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

AGECO 499B (CED 499B) (IL)

**Issues in Economic, Community and Agricultural Development in Kenya Practicum** (0.5) Implement and assess viable economic and youth development options for vulnerable youth in Kenya.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: AGECO 499A or CED 499A

AM ST 100 (GH;US)

**Introduction to American Studies** (3) A study of selected attempts to identify and interpret movements and patterns in American culture.

Effective: Spring 2006

Prerequisite: third-semester standing

AM ST 100Y (GH;US)

**Introduction to American Studies** (3) A study of selected attempts to identify and interpret movements and patterns in American culture.

Effective: Spring 2006

Prerequisite: third-semester standing

AM ST 103 (GH;US)

**American Masculinities** (3) Introduction to aspects of masculinities and manhood in America.

Effective: Summer 2008

AM ST 104 (WMNST 104) (GH;US)

**Women and the American Experience** (3) Selected aspects of the role of women in United States history and culture from colonial to modern times.

Effective: Summer 2005

AM ST 105 (ENGL 105) (GH;US)

**American Popular Culture and Folklife** (3) Survey of popular culture, folklife, and ethnicity, synthesizing material from such areas as literature, media, entertainment, print, music, and film.

Effective: Fall 2008

AM ST 135 (ENGL 135) (GH;US)

**Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

Effective: Fall 2013

AM ST 140Y (RL ST 140Y) (GH;US)

**Religion in American Life and Thought** (3) The function, contributions, tensions, and perspectives of religion in American culture.

Effective: Summer 2005

AM ST 160 (AAS 100) (GH;US)

**Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.

Effective: Fall 2013

AM ST 160U (GH;US)

**Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AM ST 196 (ENGL 196, AMSTD 196) (GH;US)

**Introduction to American Folklore** (3) A basic introduction to verbal and non-verbal folklore stressing the basic procedures of collection, classification, and analysis.

Effective: Summer 2005

AM ST 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

AM ST 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

AM ST 307 (ART H 307) (GA;US)

**American Art** (3) History of art in the English colonies and the United States from the seventeenth century to the present.

Effective: Spring 2008

AM ST 308 (ART H 308) (GA;US)

**American Architecture** (3) History of the architecture of the United States, as well as its Native American and colonial

antecedents.

Effective: Summer 2013

AM ST 321 (US)

**American Indian Studies** (3 per semester, maximum of 99) A study of American Indian history, societies and cultures (may be repeated for credit).

Effective: Fall 2007

Prerequisite: 3 credits of American Studies or ANTH 146 or HIST 153

AM ST 322 (US)

**Ethnic America** (3) A study of the sources, contributions, and conflicts of ethnic groups in the American experience.

Effective: Fall 2007

Prerequisite: 3 credits of American Studies or HIST 158 or SOC 119.

AM ST 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

AM ST 430 (WOMST 430) (US)

**Women in American Society** (3) A historical study of women's roles and experiences in the United States.

Effective: Fall 2007

Prerequisite: 6 credits of American Studies Sociology or Women's Studies

AM ST 441 (KINES 441) (US)

**History of Sport in American Society** (3) Background, establishment, and growth of sport in America from colonial times to the present.

Effective: Fall 2007

Prerequisite: KINES 141 or 3 credits of United States history

AM ST 447 (HIST 447) (US)

**Recent American History** (3) Contemporary economic, social, and political aspects of the United States and its role as a world power since 1945.

Effective: Spring 2014

Prerequisite: HIST 021 3 additional credits in history economics or political science

AM ST 475 (ENGL 431) (US)

**Black American Writers** (3 per semester, maximum of 6) A particular genre or historical period in the development of Black American literature.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030

AM ST 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

AN SC 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2014

AN SC 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

AN SC 499C (IL)

**Normandy France Equine Industry Studies** (0.5) Students will explore/compare United States and French Equine Industry. Topics will include breeding, training, trade issues, agricultural trade policy, animal welfare, animal health and research, marketing equestrian event management, and farm management.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: AN SC 499B

ANTH 001 (GS;US;IL)

**Introductory Anthropology** (3) Prehistoric and traditional peoples and cultures; traditional customs and institutions compared with those of modern society.

Effective: Summer 2005

ANTH 008 (GS;IL)

**Aztecs, Mayas, and Incas** (3) Comparative survey of the development of the pre-Columbian Latin American civilizations.

Effective: Summer 2005

ANTH 009 (GS;IL)

**Rise of Civilization in the Old World** (3) Evolution of Old World complex societies, especially the first great civilizations of Mesopotamia, Egypt, China, and the Indus Valley.

Effective: Spring 2006

ANTH 011 (GS;IL)

**Introductory North American Archaeology** (3) Introduction to archaeology of the North American Indians; sites, methods, and results of research interpreted in cultural history.

Effective: Summer 2005

ANTH 045 (GS;US;IL)

**Cultural Anthropology** (3) Beginnings of human culture; economic life, society, government, religion, and art among

traditional peoples.  
Effective: Summer 2005

ANTH 045U (GS;US;IL)

**Cultural Anthropology** (3) Beginnings of human culture; economic life, society, government, religion, and art among traditional peoples.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ANTH 060 (J ST 060, PL SC 060, SOC 060) (GS;IL)

**Society and Cultures in Modern Israel** (3) An introduction to the society and cultures of the State of Israel from 1948 to the present.  
Effective: Summer 2006

ANTH 120 (GS;IL)

**First Farmers** (3) Cross-cultural comparison of the origins of plant and animal domestication and the earliest farming societies.  
Effective: Summer 2013

ANTH 146 (GS;US)

**North American Indians** (3) An introduction to the cultures of the indigenous peoples of North America, north of Mexico, and the effect of contact.  
Effective: Spring 2006

ANTH 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ANTH 220 (GA;GH;IL)

**Anthropology and Artifacts** (3) This course examines anthropological approaches to the study of art works, their production, and function in diverse human societies, both past and present.  
Effective: Summer 2012

ANTH 221 (GS;IL)

**The Ancient Maya** (3) The Maya and their neighbors: Origin and Evolution of Classic Maya civilization.  
Effective: Spring 2012  
Prerequisite: any anthropology course on 100 level or below

ANTH 222 (GS;IL)

**Archaeology of Domesticated Animals** (3) Biological, ecological and cultural history of animal domestication.  
Effective: Summer 2013

ANTH 223 (GS;IL)

**European Prehistory** (3) The prehistory of European societies from the Upper Palaeolithic to the Iron Age.  
Effective: Summer 2013  
Prerequisite: 3 credits in 100 level or below ANTH course

ANTH 241 (IL)

**Peoples and Cultures of Highland New Guinea** (3) History, ecology, social, economic, religious, and political systems of the aboriginal peoples and cultures of highland New Guinea.  
Effective: Spring 2007  
Prerequisite: ANTH 001 or ANTH 045

ANTH 285 (GS;IL)

**Culture Contact** (3) Survey of changes in indigenous societies following contact with colonial powers.  
Effective: Summer 2005  
Prerequisite: ANTH 002 ANTH 045

ANTH 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ANTH 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ANTH 435 (IL)

**Ancient Economy** (3) The course examines the comparative organization and development of ancient economies in both the Old and New Worlds.  
Effective: Summer 2013

ANTH 441 (IL)

**From Stone Age to Uzi: Tradition and Change in the New Guinea Highlands** (3) This course explores cultural change and innovation among tribal peoples of Highland New Guinea from stone tool technology to globalization.  
Effective: Fall 2009  
Prerequisite: ANTH 045

ANTH 457 (J ST 457, SOC 457) (US;IL)

**Jewish Communities: Identity, Survival, and Transformation in Unexpected Places** (3) Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement.  
Effective: Summer 2006  
Prerequisite: ANTH 001 or ANTH 045 HEBR 010 J ST 010 SOC 001 SOC 005 SOC 007 SOC 015

ANTH 477 (US;IL)

**Language, Culture, and Society** (3) Relationships among language, culture and society, with an anthropological emphasis.

Effective: Spring 2007

Prerequisite: ANTH 045 or ANTH 001

ANTH 478 (IL)

**Cannibalism** (3) Explores the cultural institution of cannibalism, uses of the "cannibal" label, and cannibalism's meaning among those who practiced it.

Effective: Spring 2010

Prerequisite: ANTH 045

ANTH 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

APLNG 083S (GS;US;IL)

**First-Year Seminar in Applied Linguistics** (3) Introduction to the application of theories of language to cognition, culture, gender, society, and second language acquisition.

Effective: Summer 2005

APLNG 200 (GH;IL)

**Introduction to Language, Culture, and Social Interaction** (3) Introduction to the interrelationships among language, culture, and social interaction and their fundamental links to social identities and discourse communities.

Effective: Spring 2009

APLNG 210 (GH;IL)

**The Ecology of Global English** (3) This course explores how English language enables globalization processes and how globalization changes the structure, norms, and usage of English.

Effective: Spring 2009

APLNG 482Y (IL)

**Introduction to Applied Linguistics** (3) Application of theories of language to psycholinguistics, philosophy of language, anthropological linguistics, sociolinguistics, bi/multilingualism, second language acquisition and teaching.

Effective: Spring 2006

APLNG 493 (IL)

**Teaching English as a Second Language** (3) Theory, research, and pedagogy that focus on the teaching of English to speakers of other languages in varied contexts.

Effective: Spring 2006

ARAB 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ARAB 110 (GH;IL)

**Arab Language, Cultures, and Current Topics** (3) Fourth-semester Modern Standard Arabic: study of cultures through authentic discourse, texts, film; development of reading, writing, listening, speaking skills.

Effective: Summer 2010

Prerequisite: ARAB 003 or permission of program

ARAB 165 (HIST 165, RL ST 165) (IL)

**Introduction to Islamic Civilization** (3) Islamic history, culture, and religious life c.600-1500 C.E.

Effective: Spring 2006

ARAB 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ARAB 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ARAB 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ARAB 401 (IL)

**Advanced Language & Cultures I** (3) Fifth-semester Modern Standard Arabic: reading more complex texts, films, further development of conversation, composition skills, Arab cultures, current issues.

Effective: Spring 2008

Prerequisite: ARAB 110 or approval of program

ARAB 402 (IL)

**Advanced Language & Cultures II** (3) Sixth-semester Modern Standard Arabic: reading more complex texts, films, further development of conversation, composition skills, Arab cultures, current issues.

Effective: Spring 2008

Prerequisite: ARAB 401 or approval of program

ARAB 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ARCH 099 (IL)

**Foreign Studies--Architecture** (1-15) Individual or group instruction conducted in a foreign country.  
Effective: Summer 2005

ARCH 199 (IL)

**Foreign Studies--Architecture** (1-15) Individual or group instruction conducted in a foreign country.  
Effective: Summer 2005

ARCH 299 (IL)

**Foreign Studies--Architecture** (1-15) Individual or group instruction conducted in a foreign country.  
Effective: Summer 2005

ARCH 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

ARCH 431A (IL)

**Architectural Design V--Foreign Study** (6) A studio offered in Rome, Italy, which emphasizes urban planning and architectural design in an urban context.  
Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ARCH 332 and A E 424

ARCH 432A (IL)

**Architectural Design VI--Foreign Study** (6) A continuation of ARCH 431, this course explores urban planning and architectural design in an urban context in Rome, Italy.  
Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ARCH 431

ARCH 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

Prerequisite: seventh-semester standing

ARCH 499A (IL)

**Foreign Study--Architectural Design VI** (6) Individual or group instruction conducted in a foreign country.  
Effective: Spring 2007 Ending: Fall 2014

Prerequisite: ARCH 332 fourth-year standing in the architecture curriculum

ARCH 499A (IL)

**Rome Study--Architectural Design** (6) Individual or group instruction conducted in Rome, Italy.  
Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must earn a C or better in: ARCH 332 and A E 424

ARCH 499B (IL)

**Architectural Analysis** (3) Comparative study of architectural elements and building types through on-site drawing, recording, measurement, sketching and decomposition activity.  
Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ART H 201 and ART H 202

ARCH 499C (IL)

**Urban Studies Topics** (3) A presentation of the history of Rome through the medium of its maps and walking tours of the city.  
Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ART H 201 and ART H 202

ARCH 499D (IL)

**Studio** (4) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: seventh-semester standing

ARCH 499E (IL)

**Cartography** (2) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: seventh-semester standing

ARCH 499F (IL)

**Architectural Design--Foreign Study** (6) Group instruction conducted in a foreign country.

Effective: Summer 2014

Prerequisite: Students must earn a C or better in: ARCH 431 ARCH 480 ARCH 499A and ARCH 311W

ART 122Y (US)

**Commentary on Art** (3) An introduction to verbal commentary, both oral and written, about art. The development of critical and expressive skills given emphasis.

Effective: Spring 2006

ART 199 (IL)

**Foreign Studies--Art** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ART 211 (US)

**Introduction to Digital Art and Design Criticism** (3) An introduction to the language, aesthetics and cultural impacts of digital art and design in contemporary society.

Effective: Fall 2007

ART 211Y (US)

**Introduction to Digital Art and Design Criticism** (3) An introduction to the language, aesthetics, and cultural impacts of digital art and design in contemporary society.

Effective: Spring 2010

ART 299 (IL)

**Foreign Study--Art** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ART 399 (IL)

**Foreign Study--Art** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ART 411 (US)

**Seminar in Contemporary Art** (3 per semester/maximum of 6) Trends in contemporary art investigated within the framework of studio visitations, museum tours, and through other related avenues of encounter.

Effective: Fall 2006

Prerequisite: ART 122Y ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

ART 475 (ART H 475) (US)

**Contemporary Women Artists** (3) An interdisciplinary course that investigates women artists who were integral to the production of contemporary art primarily in the Americas, Europe, and Asia.

Effective: Spring 2009

Prerequisite: fifth-semester standing ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

ART 499 (IL)

**Foreign Studies--Art** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ART H 100 (GA;IL)

**Introduction to Art** (3) An approach to the understanding of art through a critical analysis of selected works of architecture, painting, and sculpture. Students who have passed ART H 110 may not schedule this course.

Effective: Spring 2006

ART H 111 (GA;IL)

**Ancient to Medieval Art** (3) Survey of Ancient Egyptian, Greek, Roman, Byzantine, Early Medieval, Romanesque, and Gothic art, with an emphasis on sculpture and painting.

Effective: Spring 2006

ART H 112 (GA;IL)

**Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

Effective: Spring 2006

ART H 112U (GA;IL)

**Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ART H 112U (GA;IL)

**Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

ART H 120 (GA;IL)

**Asian Art and Architecture** (3) A selective overview of the art and architecture of India, Southeast Asia, China, Korea, and Japan.

Effective: Summer 2005

ART H 130 (GA;US;IL)

**Art of Africa, Oceania, and the Americas** (3) A selective overview of the indigenous art of Africa, Oceania and the Americas.

Effective: Spring 2013

ART H 140 (GA;IL)

**Introduction to Pre-Columbian Art and Architecture** (3) This course examines the artistic and architectural production of Pre-Columbian Mesoamerica and the Andes.

Effective: Summer 2011

ART H 199 (IL)

**Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ART H 201 (GA;IL)

**Ancient to Medieval Architecture** (3) A survey of Prehistoric, Ancient Near Eastern Egyptian, Greek, Roman, Early Christian, Byzantine, Early Medieval, Romanesque, and Gothic architecture.

Effective: Spring 2006

ART H 202 (GA;US;IL)

**Renaissance to Modern Architecture** (3) A survey of Renaissance, Baroque, Rococo, Romantic, Victorian, Modern, Post-Modern, and Contemporary architecture in Europe and America.

Effective: Spring 2006

ART H 299 (IL)

**Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ART H 301 (GA;IL)

**Egyptian and Mesopotamian Art** (3) Art of the Ancient Near East, including Egypt, Mesopotamia, and neighboring civilizations.

Effective: Spring 2006

ART H 302 (GA;IL)

**Art of the Early Middle Ages** (3) A survey of the art of Western Europe from the Early Christian era through the Ottonian Empire, c.300-1050 A.D.

Effective: Spring 2006

ART H 303 (GA;IL)

**Italian Renaissance Art** (3) The major arts in Italy from the thirteenth century A.D. through the Renaissance; emphasis on sculpture and painting.

Effective: Spring 2006

ART H 304 (GA;IL)

**Italian, Spanish, and Spanish Colonial Baroque Art and Architecture** (3) A survey of painting, sculpture, and architecture in Italy, Spain, and the Spanish Americas from 1600-1750.

Effective: Fall 2010

ART H 305 (GA;IL)

**Romanticism and Revolution** (3) A survey of painting and sculpture in Europe 1780-1860, from the origins of Neoclassicism through Romanticism and Realism.

Effective: Fall 2012

ART H 307 (AM ST 307) (GA;US)

**American Art** (3) History of art in the English colonies and the United States from the seventeenth century to the present.

Effective: Spring 2008

ART H 308 (AM ST 308) (GA;US)

**American Architecture** (3) History of the architecture of the United States, as well as its Native American and colonial antecedents.

Effective: Summer 2013

ART H 311 (GA;IL)

**Greek and Roman Art** (3) Greek and Roman art, with emphasis on painting and sculpture.

Effective: Spring 2006

ART H 312 (GA;IL)

**Romanesque and Gothic Art** (3) Survey of the architecture, sculpture, and painting of the Christian church in western Europe from 1000 to 1500.

Effective: Spring 2006

ART H 313 (GA;IL)

**Northern Renaissance Art** (3) Art in northern Europe in the fifteenth and sixteenth centuries, emphasizing painters such as Van Eyck, Durer, and Bruegel.

Effective: Spring 2006

ART H 314 (GA;IL)

**Art in the Age of Rembrandt** (3) Dutch and Flemish painting in the seventeenth century.

Effective: Spring 2006

ART H 315 (ASIA 315) (GA;IL)

**Architecture and Art of South and Southeast Asia** (3) Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.

Effective: Summer 2010

ART H 320 (GA;IL)

**Chinese Art** (3) A general survey of the great periods of Chinese art from the Shang dynasty until the modern period.

Effective: Summer 2005

ART H 325 (GA;IL)

**Impressionism to Surrealism** (3) A survey of European painting and sculpture from ca. 1850 to ca. 1940.

Effective: Spring 2006

ART H 326 (GA;US;IL)

**Art Since 1940** (3) An international survey of painting, sculpture, photography and other media since 1940.

Effective: Summer 2012

ART H 330 (GA;IL)

**Islamic Architecture and Art** (3) Survey of the art and architecture of Islamic lands from the late seventh century until the eighteenth century.

Effective: Summer 2005

ART H 335 (AFR 335) (GA;IL)

**African Art** (3) Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa.

Effective: Fall 2013

ART H 399 (IL)

**Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

Prerequisite: ART H 100 or ART H 110 or ART H 111 or ART H 112

ART H 401 (IL)

**Greek Art and Architecture** (3-9) Developments in Greek art and architecture, tenth century B.C. to first century B.C.; emphasis on the importance of Greek sanctuaries.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 or ART H 311

ART H 402 (IL)

**The Illuminated Manuscript** (3) Specific stylistic periods in manuscript painting from A.D. 500-1500 in Western Europe and Byzantium.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 302 or ART H 312

ART H 405 (US;IL)

**Pioneers of Modern Architecture** (3 per semester/maximum of 6) Selected period or theme in the development of modern architecture during the nineteenth and/or early twentieth centuries.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 ART H 202 or ART H 307

ART H 411 (IL)

**Roman Art** (3-9) Roman sculpture and painting from Augustus to Constantine.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 or ART H 311

ART H 412 (IL)

**The Gothic Cathedral** (3) Specific aspects of Romanesque and Gothic church architecture of western Europe, especially France and England, between 1000-1500.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 ART H 302 or ART H 312

ART H 414 (IL)

**Italian Baroque Painting** (3) Survey of Italian Baroque painting from sixteenth-century proto-Baroque masters to painters of the late Baroque and Rococo periods.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 or ART H 304

ART H 415 (US)

**The Skyscraper** (3) Origin and evolution of the skyscraper as seen against the background of cultural conditions and technological factors.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 ART H 202 or ART H 307

ART H 416 (US)

**Studies in American Art** (3 per semester/maximum of 6) Selected time periods and/or issues in the art of the United States.

Effective: Fall 2013

Prerequisite: 3 credits of ART H

ART H 420 (IL)

**Russian Architecture** (3) Russian architecture from the first Orthodox churches of the late tenth century to the end of the Soviet Union.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 112 ART H 201 or ART H 202

ART H 422 (IL)

**Studies in Medieval Sculpture** (3-9) Specific studies of western European sculpture, 300-1500, with attention to sources, styles, type, and iconography.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 ART H 302 or ART H 312

ART H 423 (IL)

**Studies in Italian Renaissance Art** (3-9) Specific studies of Italian Renaissance art, including the work of artists such as Leonardo da Vinci, Michaelangelo, and Raphael.

Effective: Spring 2006



Prerequisite: ART H 100 ART H 112 ART H 202 or ART H 303

ART H 424 (IL)

**Masters of Northern Baroque Art** (3) Seventeenth-century painters in Flanders and Holland, including the works of artists such as Rubens, Rembrandt, and Vermeer.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 or ART H 314

ART H 425 (IL)

**Topics in Northern Renaissance Art** (3 per semester/maximum of 6) Focuses on a topic of interest in Netherlandish and/or German art between 1300 and 1600.

Effective: Spring 2014

Prerequisite: 3 credits of Art History

ART H 426 (US;IL)

**Iconoclasm: Powerful Images and their Destruction** (3) Iconoclasm: exploring the political, religious, and social motivations behind the destruction of powerful imagery throughout history.

Effective: Summer 2009

Prerequisite: 3 credits of Art History in any area

ART H 427 (IL)

**Topics in Global Artistic Communication** (3 per semester/maximum of 6) Explores a specific time period in art history cross-culturally in Europe, Asia, Africa, and/or the Americas.

Effective: Summer 2014

Prerequisite: 3 credits in Art History

ART H 429 (IL)

**Studies in Baroque Art** (3) Selected topics in the painting, sculpture, and architecture of seventeenth-century Italy, France, Flanders, Holland, and Spain.

Effective: Spring 2009

Prerequisite: 6 credits in art history (ART H)

ART H 435 (IL)

**Studies in Modern Art** (3-6) Lectures focusing on a selected movement of nineteenth- or twentieth-century art.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 ART H 305 ART H 307 or ART H 325

ART H 440 (ASIA 440) (IL)

**Monuments of Asia** (3-9 per semester/maximum of 9) An exploration of major Asian sites and monuments through a focus on their historical and cultural significance.

Effective: Summer 2012

Prerequisite: ART H 100 or ART H 120 or ART H 315 or ART H 320 or ART H 330

ART H 442 (IL)

**Late Antique and Early Christian Art** (3) Survey of the architecture, painting, and minor arts of Christian society from the beginning to the mid-sixth century.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 or ART H 302

ART H 445 (IL)

**Oceanic Art** (3) Survey of the arts of Oceania (Polynesia, Micronesia, Melanesia), including masks, sculpture, textiles, architecture and other art forms.

Effective: Summer 2012

Prerequisite: 3 credits of Art History

ART H 446 (AFR 446) (IL)

**Topics in African Art** (3 per semester/maximum of 9) Topics vary from "Arts of Eastern and Southern Africa" to "Arts of West Africa."

Effective: Spring 2014

Prerequisite: 3 credits of Art History

ART H 447 (AFR 447) (IL)

**Topics in the Art of the African Diaspora** (3 per semester/maximum of 6) Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

Effective: Spring 2014

Prerequisite: 3 credits of Art History

ART H 450 (US;IL)

**The History of Photography** (3) The history of photography from 1839, with particular emphasis on the relationship with the plastic arts.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 ART H 305 ART H 307 or ART H 325

ART H 452 (IL)

**Byzantine Art** (3) Monumental and minor arts of Byzantium and related areas from the reign of Justinian to the Turkish conquest of Constantinople.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 111 ART H 201 or ART H 302

ART H 456 (IL)

**Renaissance and Baroque Palaces** (3) This course examines palace architecture and decoration in Italy, France, England, and Germany from 1450-1700.

Effective: Spring 2011

Prerequisite: ART H 100 or ART H 112 or ART H 202 or ART H 303 or ART H 304

ART H 458 (IL)

**Baroque Capitals of Europe** (3) This course examines the architecture and urbanism of European capital cities from 1600-1800.

Effective: Spring 2010

Prerequisite: ART H 100 or ART H 112 or ART H 202 or ART H 304 or ART H 314

ART H 460 (IL)

**Art and Empire: Aztec, Inca and Spanish** (3) This course is a comparative study of the artistic production used in Aztec, Inca and Spanish empires.

Effective: Summer 2012

Prerequisite: 3 credits of ART H

ART H 462 (IL)

**Studies in Latin American Art** (3 per semester/maximum of 6) Specific studies of the visual and material culture created in Latin America from the colonial through the modern era.

Effective: Summer 2012

Prerequisite: 3 credits of Art History

ART H 464 (IL)

**French Baroque Painting** (3) Examination of seventeenth-century French painting, including Italian influences; the provincial, Classical, and official styles in France.

Effective: Spring 2006

Prerequisite: ART H 100 ART H 112 or ART H 304

ART H 475 (ART 475) (US)

**Contemporary Women Artists** (3) An interdisciplinary course that investigates women artists who are integral to the production of contemporary art primarily in the Americas, Europe, and Asia.

Effective: Spring 2009

Prerequisite: Fifth semester standing ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

ART H 499 (IL)

**Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ASIA 003 (RL ST 003) (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

Effective: Spring 2015 Future: Spring 2015

ASIA 004 (CMLIT 004) (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2010

ASIA 100 (GH;IL)

**What is Asia?** (3) An introduction to the history, literatures, politics, and cultures of Asia.

Effective: Fall 2012

ASIA 103 (RL ST 103) (GH;US;IL)

**Introduction to Hinduism** (3) Historical development of Hinduism to the present.

Effective: Spring 2015 Future: Spring 2015

ASIA 104 (RL ST 104) (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

Effective: Spring 2015 Future: Spring 2015

ASIA 120Y (GH;IL)

**South Asia: A Literary History** (3) The course traces the cultural history of South Asia by studying its literary tradition from ancient to modern times.

Effective: Summer 2014

ASIA 177 (HIST 177) (GH;IL)

**The Rise of Modern Southeast Asia** (3) Study of Southeast Asia from the rise of early empires to the present.

Effective: Summer 2014

ASIA 181 (RL ST 181) (IL)

**Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.

Effective: Spring 2015 Future: Spring 2015

ASIA 182 (HIST 182) (GH;IL)

**Asian Trade: Economy, Industrialization and Capitalism in Asia** (3) An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present.

Effective: Summer 2014

ASIA 183 (HIST 183) (GH;IL)

**Gender, Family, and Society in East Asia** (3) Investigates the history of gender, family, love, and sex in East Asia.  
Effective: Summer 2012

ASIA 184 (HIST 184) (GH;IL)

**Society and Culture in the Pacific War** (3) Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.  
Effective: Summer 2012

ASIA 185 (HIST 185) (GH;IL)

**Asian Pop: The History of Popular Culture in Asia** (3) A history of popular culture from the early modern period to the present.  
Effective: Summer 2014

ASIA 188 (HIST 188) (GH;IL)

**Tibet: People, Places and Spaces** (3) This course examines the historical, cultural, and ethnic dimensions of Tibet from the seventh century to the present.  
Effective: Summer 2012

ASIA 189 (HIST 189) (GH;IL)

**Illicit Asia: An Alternative Introduction to Asia** (3) A historical introduction to unlawful, illegitimate and forbidden ideas, goods, people and places in modern Asia.  
Effective: Summer 2014

ASIA 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

ASIA 199A (IL)

**India's Culture, Agricultural and Economic Diversity** (2) Students will participate in volunteerism in sustainability, organic farming and humanitarian projects from helping in orphanages to spearheading a project to provide housing for homeless which they initiated during the ASIA 197A course.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: ASIA 197A

ASIA 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

ASIA 315 (ART H 315) (GA;IL)

**Architecture and Art of South and Southeast Asia** (3) Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.  
Effective: Summer 2010

ASIA 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

ASIA 404 (CMLIT 404) (IL)

**Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan.  
Effective: Fall 2010  
Prerequisite: 3 credits in literature or related field appropriate to this course

ASIA 404Y (IL)

**Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan, taught with focus on written analysis and interpretation.  
Effective: Summer 2013

ASIA 405Y (IL)

**Seminar in Asian Studies** (3-6 per semester/maximum of 6) An advanced, writing-focused seminar in Asian Studies.  
Effective: Fall 2009  
Prerequisite: ASIA 100

ASIA 440 (ART H 440) (IL)

**Monuments of Asia** (3-9 per semester/maximum of 9) An exploration of major Asian sites and monuments through a focus on their historical and cultural significance.  
Effective: Summer 2012  
Prerequisite: ART H 100 or ART H 120 or ART H 315 or ART H 320 or ART H 330

ASIA 469 (PL SC 469) (IL)

**Government and Politics of South Asia** (3) This course offers an overview of the politics of modern South Asia with specific focus on Afghanistan, India and Pakistan.  
Effective: Summer 2014  
Prerequisite: PL SC 003 PL SC 014 PL SC 022 or ASIA 100

ASIA 475Y (HIST 475Y) (IL)

**The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.  
Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 010 HIST 011 HIST 172 HIST 175 HIST 176 HIST 181 or HIST 191

ASIA 476 (HIST 476) (IL)

**Technology & Society in Modern Asia** (3) Role of technology in modernization, national identity, and foreign relations of an Asian country from 19th century to present day.

Effective: Summer 2014

Prerequisite: ASIA 100 HIST 172 HIST 173 HIST 174 HIST 175 HIST 176 HIST 183 HIST 184 HIST 188

ASIA 480 (HIST 480) (IL)

**Japan in the Age of Warriors** (3) An overview of Japan from the 10th to 17th century, a period of political decentralization, cultural efflorescence, and social change.

Effective: Fall 2014 Future: Fall 2014

ASIA 481 (HIST 481) (IL)

**Modern Japan Since 1800** (3) The transformation of Japan from a relatively isolated, agricultural nation into a highly industrialized world power.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172 HIST 174 or HIST 175

ASIA 483 (HIST 483) (IL)

**Middle China** (3) The social, political, and cultural issues and developments from the 8th to 16th century.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 174

ASIA 484Y (HIST 484Y) (IL)

**History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 174 or HIST 175

ASIA 485Y (HIST 485Y) (IL)

**China's Last Empire: The Qing Dynasty, 1644-1911** (3) China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H

ASIA 486 (HIST 486) (IL)

**China in Revolution** (3) China from 1900 to the present; nationalism, cultural change; development of communism.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H

ASIA 489 (HIST 489, PL SC 486) (IL)

**International Culture in East Asia** (3) Study of the role of culture in East Asian regional and East-West international relations.

Effective: Summer 2013

Prerequisite: any one of the following: HIST 172 HIST 174 HIST 175 HIST 480 HIST 481 HIST 483 HIST 484 HIST 485 HIST 486

ASIA 493 (HIST 493) (IL)

**Japan in the World** (3) Study of Japan's foreign relations and position in the international community from the early 19th century to the present.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ASIA 100 HIST 172 HIST 175 or HIST 481

ASIA 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

ASTRO 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ASTRO 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ASTRO 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

AYFCE 211 (CAS 222, CIVCM 211) (GS;US;IL)

**Foundations: Civic and Community Engagement** (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.

Effective: Summer 2013

AYFCE 211S (GS;US;IL)

**Foundations: Civic and Community Engagement** (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.

Effective: Spring 2011

AYFCE 438 (US)

**Living in an Increasingly Diverse Society** (1-3) Students in this course will explore selected dimensions of diversity through lecture, discussion, speakers, active participation, and experiential learning.  
Effective: Summer 2013

AYFCE 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2013

B A 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

B A 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

B A 364Y (US;IL)

**International Business and Society** (3) Business organizations and the sociocultural environment; current issues; corporate responsibility; international and multinational business environments.

Effective: Spring 2008

Prerequisite: ENGL 202D MGMT 301

B A 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

B A 499 (IL)

**Foreign Study--Business Administration** (1-18) Study in selected countries of business institutions, functions, and current business problems.

Effective: Spring 2011

Prerequisite: ACCTG 211 ; ECON 102 ECON 104 ; SCM 200

B E 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2010

B E 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2010

B E 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2010

B LAW 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2011

B LAW 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2011

B LAW 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2011

B LAW 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2011

B M B 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

B M B 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

B M B 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

BB H 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2009

BB H 251 (US)

**Straight Talks I: Advanced Sexual Orientation/Gender Identity Peer Education** (3) Exploration of social justice issues, diversity leadership, and group facilitation skills related to lesbian, gay, bisexual, transgender, and ally issues.

Effective: Summer 2005

BB H 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2009

BB H 302 (AF AM 302) (US)

**Diversity and Health** (3) Examine the relationship of diverse personal and sociocultural factors to health, like socioeconomic class, race-ethnicity, gender, age, and sexual orientation.

Effective: Spring 2013

Prerequisite: PSYCH 100 or SOC 001

BB H 305 (IL)

**Introduction to Global Health Issues** (3) Course will develop awareness of contemporary issues in global health.

Effective: Spring 2014

Prerequisite: BB H 101

BB H 315 (US)

**Gender and Biobehavioral Health** (3) Interdisciplinary study of gender, examining the interaction of biological, behavioral, and sociocultural factors on health differentials throughout the lifespan.

Effective: Summer 2005

Prerequisite: BB H 101

BB H 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2009

BB H 402 (IL)

**African Health & Development** (3) Course will address African health and development strategies in the context of health promotion programs.

Effective: Summer 2010

Prerequisite: BB H 305

BB H 407 (IL)

**Global Health Equity** (3) Health, social disparities, and equity in the global environment.

Effective: Summer 2010 Ending: Fall 2014

BB H 407 (IL)

**Global Health Equity** (3) Health, social disparities, and equity in the global environment.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: BB H 101 or 3 credits of SOC

BB H 440 (H P A 440) (US;IL)

**Principles of Epidemiology** (3) Theory of epidemiology and significant case studies; potential applications to health care.

Effective: Fall 2008

Prerequisite: BB H 101 or BIOL 110 or H P A 310 ; STAT 200 or STAT 250

BB H 452 (NURS 452, WMNST 452) (US)

**Women's Health Issues** (3) Exploration of major health issues concerning women today, with an emphasis on social, cultural, and medical influences.

Effective: Fall 2013

Prerequisite: BIOL 141 or PSYCH 100 or WMNST 100

BB H 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2009

BE SC 464 (WMNST 464) (US)

**Feminine/Masculine** (3) Study of sex role learning; investigating feminine/masculine labeling; implications for contemporary society.

Effective: Spring 2008

Prerequisite: general psychology or general sociology

BIOE 444 (MATSE 404) (IL)

**Surfaces and the Biological Response to Materials** (3) Focus is on special properties of surface as an important causative and mediating agent in the biological response to materials.

Effective: Summer 2007 Ending: Fall 2014

Prerequisite: CHEM 111 CHEM 113

BIOL 120A (GN;US;IL)

**Plants, Places, and People** (3) Useful and dangerous plants; historical (archaeological), cultural (ethnological), and economic (anthropocentric) aspects, including structural and chemical characteristics of botanical importance. Students who have passed BIOL (PPATH;S T S) 424 may not schedule this course.

Effective: Spring 2008

BIOL 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

BIOL 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

BIOL 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

BIOL 499A (IL)

**Tropical Field Ecology** (3) An intensive introduction to tropical biodiversity to be taught in Belize, Central America.  
Effective: Summer 2005  
Prerequisite: BIOL 220W

BKLV 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

BKLV 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

BKLV 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

BKLV 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

BKLV 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

BME 444 (MATSE 404) (IL)

**Surfaces and the Biological Response to Materials** (3) Focus is on special properties of surface as an important causative and mediating agent in the biological response to materials.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: CHEM 112 or MATSE 112

C E 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

C E 254 (GHA;US)

**Personal & Occupational Safety** (3) Students will learn about principles of safety in work and personal settings.  
Effective: Spring 2008

C E 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

C E 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

C E 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

CAMS 004 (J ST 004, RL ST 004) (GH;US;IL)

**Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationships to culture.  
Effective: Summer 2005

CAMS 005 (HIST 005) (GH;IL)

**Ancient Mediterranean Civilizations** (3) Survey of the history and cultures of ancient Mediterranean civilizations in Mesopotamia, Egypt, Syro-Levant, Anatolia, Greece, and Rome.  
Effective: Spring 2008

CAMS 010 (GH;IL)

**Mesopotamian Civilization** (3) Cultural, technological, literary, political, and economic achievements of peoples who occupied the region of Mesopotamia (4,000-331 B.C.E.), in historical context.  
Effective: Spring 2006

CAMS 012 (J ST 012, RL ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.  
Effective: Summer 2005

CAMS 012U (J ST 012U, RL ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CAMS 025 (GH;IL)

**Greek Civilization** (3) The origin and development of the ancient Greek people; their political and social institutions, public and private life.

Effective: Summer 2005

CAMS 033 (GH;IL)

**Roman Civilization** (3) Origin of the Romans; sociopolitical development; food, homes, education, marriage, family life, amusements, private and public worship.

Effective: Summer 2005

CAMS 044 (RL ST 044) (GH;IL)

**Ancient Near Eastern and Egyptian Mythology** (3) Survey of major ancient Mediterranean myths, gods, and goddesses in their cultural contexts; influence on later cultures.

Effective: Summer 2005

CAMS 045 (GH;IL)

**Classical Mythology** (3) Introduction to Greek and Roman divinities, heroes and heroines; survey of the major myths and their influence on Western culture.

Effective: Summer 2005

CAMS 070 (J ST 070, RL ST 070) (GH;IL)

**Prophecy: The Near East Then and Now** (3) Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.

Effective: Summer 2007

CAMS 083S (GH;IL)

**First-Year Seminar in Classics and Ancient Mediterranean Studies** (3) Critical approach to the study of ancient Mediterranean languages, literatures, and/or material cultures.

Effective: Summer 2005

CAMS 090 (J ST 090, RL ST 090) (GH;IL)

**Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

Effective: Summer 2005

CAMS 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CAMS 100 (HIST 100) (GH;IL)

**Ancient Greece** (3) Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization.

Effective: Spring 2006

CAMS 101 (HIST 101) (GH;IL)

**The Roman Republic and Empire** (3) History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire.

Effective: Spring 2006

CAMS 102 (HIST 102, J ST 102, RL ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

CAMS 105 (GH;IL)

**History of the Ancient Near East** (3) History of the Ancient Near East from the end of the Neolithic to the Hellenistic period.

Effective: Summer 2005

CAMS 109Y (GH;IL)

**Writing Systems of the World** (3) Writing intensive overview of the world's writing systems throughout history.

Effective: Spring 2007

CAMS 110 (J ST 110, RL ST 110) (GH;US;IL)

**Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.

Effective: Summer 2005

CAMS 111 (J ST 111, RL ST 111) (GH;IL)

**Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

Effective: Summer 2005

CAMS 115 (GH;IL)

**Literature of the Ancient Near East** (3) Reading and study of literary works from the Ancient Near East, especially from Mesopotamia and Ancient Egypt.

Effective: Fall 2012

Prerequisite: 3 credits from the following list: CAMS 005 CAMS 010 CAMS 020 CAMS 105

CAMS 122 (J ST 122, RL ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

Effective: Summer 2014

CAMS 123 (J ST 123, RL ST 123) (GH;IL)



**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of ancient Near East: Judaism, Christianity, and Islam.  
Effective: Summer 2014

CAMS 124 (J ST 124, RL ST 124) (GH;US;IL)

**Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.  
Effective: Summer 2005

CAMS 134 (J ST 134, RL ST 134) (GH;IL)

**Archaeology of Biblical Israel** (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.  
Effective: Summer 2005

CAMS 140 (GH;IL)

**Classical Archaeology--Ancient Greece** (3) Literary sources and material evidence for society; culture of the inhabitants of Greece in ancient times.  
Effective: Summer 2005

CAMS 150 (GH;IL)

**Classical Archaeology--Ancient Rome** (3) Literary sources for the development of Roman civilization in relation to the relevant archaeological discoveries.  
Effective: Summer 2005

CAMS 153 (J ST 153, RL ST 153) (GH;IL)

**Dead Sea Scrolls** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.  
Effective: Summer 2014

CAMS 160 (J ST 160, RL ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.  
Effective: Summer 2014

CAMS 180 (HIST 180) (GH;IL)

**Ancient Warfare** (3) Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire.  
Effective: Summer 2006

CAMS 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CAMS 210 (J ST 210) (GH;IL)

**Numismatics and the Historian** (3) Numismatics--the scholarly study of coins and medals--is a major tool in the study of Classical history and archaeology.  
Effective: Summer 2012

CAMS 250U (GH;IL)

**Honors Classics in Literature and Film** (3) This honors course explores the Classical Tradition as it thrives in the literature of later epochs and film.  
Effective: Summer 2010

CAMS 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CAMS 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CAMS 405 (IL)

**Law & Economy in the Ancient Near East** (3) This course is an overview of the legal and economic texts and institutions in the Ancient Near East.  
Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS courses.

CAMS 442 (KINES 442) (IL)

**Sport in Ancient Greece and Rome** (3) An examination of the continuity of sport in Greek and Roman societies.  
Effective: Spring 2008

Prerequisite: CAMS 025 CAMS 033 CAMS 140 CAMS 150 CAMS 100 CAMS 101 or KINES 141

CAMS 470 (IL)

**Languages and Cultures of the Ancient Near East** (3) This course is an overview of the languages and cultures that populated the Ancient Near East.  
Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS courses.

CAMS 481 (IL)

**Introduction to Middle Egyptian & Hieroglyphics** (3) An introduction to the language and script of Ancient Egypt, familiarizing the student with grammar, syntax and lexicon.

Effective: Summer 2012

Prerequisite: 6 credits of any CAMS course

CAMS 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CAS 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CAS 200 (US;IL)

**Language, Culture, and Communication** (3) Introduction to language, language development, cultural literacy, culture, and intercultural communication.

Effective: Summer 2005

CAS 222 (CIVCM 211, YFE 211) (GS;US;IL)

**Foundations: Civic and Community Engagement** (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.

Effective: Fall 2010

CAS 271 (US;IL)

**Intercultural Communication** (3) Introduction to intercultural communication. Focus on topics such as language, identity, prejudice, and intergroup relations on a domestic/ international level.

Effective: Summer 2005

CAS 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CAS 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CAS 422 (AF AM 422) (US)

**Contemporary African American Communication** (3) A focused study on the continuities between African and African American culture and communication.

Effective: Spring 2013

Prerequisite: CAS 100

CAS 455 (WMNST 455) (US)

**Gender Roles in Communication** (3) Explores the literature on gender research in the discipline of human communication.

Effective: Summer 2005

Prerequisite: CAS 202

CAS 471 (US;IL)

**Intercultural Communication Theory and Research** (3) Intercultural and cross-cultural communication research theory and practice as applied within and across national boundaries.

Effective: Summer 2005

Prerequisite: CAS 271

CAS 499 (IL)

**Foreign Studies** (1-9) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CED 420 (R SOC 420, WMNST 420) (US;IL)

**Women in Developing Countries** (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

Effective: Summer 2013 Ending: Summer 2014

Prerequisite: 5th semester standing or above

CED 420 (WMNST 420) (US;IL)

**Women in Developing Countries** (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: 5th semester standing or above

CED 450 (IL)

**International Development, Renewable Resources, and the Environment** (3) Theories of agricultural and economic development, with particular attention to interactions between development, renewable resources, and the environment.

Effective: Summer 2013

Prerequisite: 6 credits in agricultural economics or economics

CED 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

CED 499B (AGECO 499B) (IL)

**Issues in Economic, Community and Agricultural Development in Kenya Practicum** (0.5) Implement and assess viable economic and youth development options for vulnerable youth in Kenya.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: CED 499A or AGECO 499A

CH E 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007

CH E 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007

CH E 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007

CH E 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007

CHEM 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CHEM 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CHEM 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CHNS 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

CHNS 110 (IL)

**Level Two Chinese B** (4) Readings in selected modern Chinese literature (short stories, plays, essays, poems) and other texts; practice in conversation and simple composition.

Effective: Spring 2011

Prerequisite: CHNS 003

CHNS 120 (GH;IL)

**Introduction to Chinese Literature and Culture** (3) Chinese cultural productions, classical through contemporary; literature and film; changing cultural settings in multiple Chinese-speaking locations. Taught in English.

Effective: Spring 2010

CHNS 121 (GH;IL)

**Chinese Film and New Media** (3) Survey of Chinese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English.

Effective: Spring 2010

CHNS 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

CHNS 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

CHNS 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

CHNS 401 (IL)

**Level Three Chinese A** (4) Emphasis on oral proficiency through discussions of aspects of contemporary Chinese culture.

Effective: Spring 2011

Prerequisite: CHNS 110

CHNS 402 (IL)

**Level Three Chinese B** (4) Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Chinese culture.

Effective: Spring 2011

Prerequisite: CHNS 401 OR EQUIVALENT

CHNS 410 (IL)

**Chinese Through Film** (3) This course is designed for students who finish Level Two Chinese or higher and aims to help them develop Chinese proficiency through movies.

Effective: Summer 2013

Prerequisite: CHNS 110 or equivalent

CHNS 411 (IL)

**Chinese Written Characters** (3) This course aims to establish a solid foundation of students' Chinese orthography and

prepare students for continuing study in subsequent Chinese courses.

Effective: Summer 2013

Prerequisite: CHNS 110 or the equivalent

CHNS 421 (IL)

**China Beyond China** (3) Study of modern and contemporary Chinese culture in its diversity and its intercultural contexts.

Effective: Summer 2011

Prerequisite: 3 credits in literature or other fields relevant to this course

CHNS 422 (IL)

**Gender and Sexuality in China** (3) Study of gender roles and the imaginary of sexuality in the literary, filmic, and artistic production of modern China.

Effective: Summer 2011

Prerequisite: 3 credits in literature or other fields relevant to this course

CHNS 423 (IL)

**The Warrior, the Courtesan and the Ghost in Classical Chinese Novels** (3) This course provides an introduction to major classical Chinese novels by focusing on three character types: the warrior, the courtesan, and the ghost.

Effective: Spring 2012

Prerequisite: 3 credits in literature or other fields relevant to this course

CHNS 426 (IL)

**The Chinese Rhetorical Tradition** (3 per semester/maximum of 6) Study of the rhetorical works in ancient China as well as multiple facets of modern Chinese rhetoric.

Effective: Summer 2011

Prerequisite: 3 credits in ENGL 015

CHNS 452 (IL)

**Contemporary China: Culture and Trends** (3 per semester/maximum of 6) Survey of aspects of the contemporary Chinese-speaking world. Includes readings from Chinese newspapers, magazines, and fiction. Topics may vary each semester.

Effective: Spring 2010

Prerequisite: CHNS 401

CHNS 453 (IL)

**Chinese Film** (3 per semester/maximum of 6) Selected films and directors representing various aspects of Chinese culture and cinema. Topics may vary each semester. Taught in Chinese.

Effective: Spring 2010

Prerequisite: CHNS 401

CHNS 454 (IL)

**Introduction to Classical Chinese** (3 per semester/maximum of 6) Basic patterns and structures of Classical Chinese to the first millennium B.C. to the 19th century.

Effective: Spring 2010

Prerequisite: CHNS 401 or equivalent (such as study abroad credit)

CHNS 455 (IL)

**Masterpieces of Traditional Chinese Literature** (3) Survey of traditional Chinese literature, including poetry, historical narratives, philosophical texts, and drama and novel.

Effective: Spring 2010

Prerequisite: CHNS 401 or equivalent

CHNS 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

CI ED 401 (EDTHP 401) (IL)

**Introduction to Comparative Education** (3) Origins, nature, scope, basic literature, and methodology of comparative education. Study of sample topics.

Effective: Fall 2007

Prerequisite: 5th semester standing or higher

CIVCM 211 (CAS 222, AYFCE 211) (GS;US;IL)

**Foundations: Civic and Community Engagement** (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.

Effective: Spring 2011

CMLIT 001 (GH;IL)

**Introduction to Western Literatures Through the Renaissance** (3) Introductory comparative survey of European and American literatures of Ancient through Renaissance periods, considering genre, themes, cultural and literary values.

Effective: Spring 2005

CMLIT 002 (GH;IL)

**Introduction to Western Literatures Since the Renaissance** (3) Introductory comparative survey of European and American literatures, post-Renaissance through Modern, considering genre, themes, cultural, and literary values.

Effective: Summer 2005

CMLIT 003 (GH;IL)

**Introduction to African Literatures** (3) Comparative analysis of drama, essay, novel, poetry, and stories from traditional oral forms to contemporary expressions of African literary styles.

Effective: Summer 2005

CMLIT 004 (ASIA 004) (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2010

CMLIT 004U (GH;IL)

**Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

CMLIT 005 (GH;US;IL)

**Introduction to Literatures of the Americas** (3) Comparative interpretation of the oral and written literary traditions of North, Central, and South America.

Effective: Summer 2005

CMLIT 006 (PHIL 006) (GH;IL)

**Philosophy and Literature in Western Culture** (3) Explores fundamental issues of human existence through the traditions of western literature and philosophy.

Effective: Spring 2006

CMLIT 010 (GH;IL)

**World Literatures** (3) The development of literature around the world--from epic, legend, lyric, etc. in the oral tradition to modern written forms.

Effective: Fall 2010

CMLIT 011 (GH;IL)

**The Hero in World Literature** (3) The figure of the hero/heroine examined in world literature as a vehicle for expressing social and cultural values.

Effective: Summer 2005

CMLIT 011U (GH;IL)

**The Hero in World Literature** (3) The figure of the hero/heroine examined in world literature as a vehicle for expressing social and cultural values.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

CMLIT 012 (GH;IL)

**Introduction to World Drama and Performance** (3) The power, ethics, and excitement of drama and related forms of performance literature, presented in a global and comparative context.

Effective: Summer 2010

CMLIT 013 (GH;IL)

**Virtual Worlds: Antiquity to the Present** (3) Virtual worlds from ancient to postmodern, in a comparative and global context that includes literature, film, and online multiplayer games.

Effective: Summer 2010

CMLIT 083S (GH;IL)

**First-Year Seminar in Comparative Literature** (3) International topics in literature and culture; each seminar will have a specific topic as announced (see the Comparative Literature Web site).

Effective: Summer 2005

CMLIT 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CMLIT 100 (GH;IL)

**Reading Across Cultures** (3) Comparative approaches (studying international literary periods, themes, genres, etc.) and principles of literary interpretation introduced through readings representing various cultures.

Effective: Fall 2010

CMLIT 101 (GH;US;IL)

**Race, Gender, and Identity in World Literature** (3) Identity and race, gender and heritage, centrality and marginality, self and other, as expressed in literary works from around the world.

Effective: Fall 2010

CMLIT 105 (GH;IL)

**The Development of Literary Humor** (3) Literary humor expressed as satire, comedy, and farce--from ancient times to the present--in an international and multicultural context.

Effective: Summer 2005

CMLIT 106 (GH;IL)

**The Arthurian Legend** (3) The growth and development of the legend of King Arthur, from medieval Europe to modern Japan.

Effective: Summer 2005

CMLIT 107 (GH;IL)

**Exploration, Travel, Migration, and Exile** (3) An international selection of journey narratives, from the real to the imaginary; travel narratives as critiques of self and society.

Effective: Spring 2011

CMLIT 108 (GH;IL)

**Myths and Mythologies** (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.

Effective: Summer 2005

CMLIT 108U (GH;IL)

**Myths and Mythologies** (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 109 (GH;US;IL)

**Native American Myths, Legends, and Literatures** (3) Myths, legends, and literatures of Native American cultures.

Effective: Spring 2006

CMLIT 110 (J ST 131) (GH;US;IL)

**Jewish Literature: An International Perspective** (3) Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas.

Effective: Spring 2011

CMLIT 111 (GH;IL)

**Introduction to Literatures of India** (3) Narrative, lyric, religious, oral, and dramatic literature, as well as film from India studied in translation from a global perspective.

Effective: Summer 2005

CMLIT 120 (GH;IL)

**The Literature of the Occult** (3) Important literary works dealing with witchcraft, demonology, vampirism, ghosts, and related concepts, from biblical times to present.

Effective: Spring 2006

CMLIT 122 (GH;US;IL)

**Global Science Fictions** (3) A study of the relationships between science, literature, and film, from an international and interdisciplinary perspective.

Effective: Summer 2010

CMLIT 130 (GH;IL)

**Banned Books: International and Comparative Perspectives** (3) The world of banned books, their history, and their politics, studied comparatively and internationally.

Effective: Summer 2010

CMLIT 131 (GH;IL)

**Crime and Detection in World Literature** (3) Issues of ethics, truth, justice, and social order as embodied in crime and detective literature, presented in comparative contexts.

Effective: Summer 2010

CMLIT 132 (GH;IL)

**Nobel Prize Literature** (3) Introduction to Nobel Prize winning literature and the culture of the prize in international and historical context.

Effective: Summer 2010

CMLIT 140 (GH;IL)

**Literature and the Other Arts: International and Comparative Perspectives** (3) A comparative, international examination of the relationship between literature and non-literary art forms.

Effective: Summer 2010

CMLIT 141 (GH;US;IL)

**Religion and Literature** (3) Major religious themes as expressed in literary masterpieces; sacred texts from various cultures read as literature.

Effective: Summer 2005

CMLIT 142 (GH;IL)

**The Psychology of World Literature** (3) A comparative, psychological approach to world literature from the perspectives of writer, narrative, character, and reader.

Effective: Summer 2010

CMLIT 143 (GH;US;IL)

**Human Rights and World Literature** (3) Human rights violations discussed in tandem with their literary representation, presented in a global and comparative context.

Effective: Summer 2010

CMLIT 153 (GH;IL)

**International Cultures: Film and Literature** (3) Comparison of narrative techniques employed by literature and film in portraying different cultures, topics may vary each semester.

Effective: Spring 2011

CMLIT 153U (GH;IL)

**International Cultures: Film and Literature** (3) Comparison of narrative techniques employed by literature and film in portraying different cultures, topics may vary each semester.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 184 (ENGL 184) (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the

Nineteenth and Twentieth Century.

Effective: Spring 2006

CMLIT 185 (ENGL 185) (GH;IL)

**World Novel** (3) Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation.

Effective: Spring 2011

CMLIT 189 (ENGL 189) (GH;IL)

**Modern Drama** (3) Playwrights who set the world's stage for twentieth-century drama; issues that continue to shape the contemporary theatrical world.

Effective: Spring 2011

CMLIT 190 (GH;IL)

**Literary and Cultural Theory: An Introduction** (3) A comparative introduction to literary and cultural theory, and its impact on the study of literature.

Effective: Summer 2010

CMLIT 191 (GH;US;IL)

**Introduction to Video Game Culture** (3) A comparative, international look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.

Effective: Summer 2012 Ending: Fall 2014

CMLIT 191 (GAME 160) (GH;US;IL)

**Introduction to Video Game Culture** (3) A comparative, international look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.

Effective: Spring 2015 Future: Spring 2015

CMLIT 199 (IL)

**Foreign Study--Comparative Literature** (3-6) Course offered on comparative literary topics as part of a foreign-study program.

Effective: Summer 2005

CMLIT 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CMLIT 399 (IL)

**Foreign Study--Comparative Literature** (3-6) Special course offered on comparative literary topics as part of a foreign-study program.

Effective: Summer 2005

Prerequisite: third-semester standing

CMLIT 400Y (US;IL)

**Senior Seminar in Literary Criticism and Theory** (3) Discussions of theories of literature, of literary criticism, and particularly of the distinct methods of comparative study; individual projects.

Effective: Spring 2006

Prerequisite: seventh-semester standing; 18 credits in literature

CMLIT 401Y (IL)

**The Western Literary Heritage I** (3) Major literary movements and authors in the literature of the Western world from the beginnings through the early Renaissance.

Effective: Spring 2006

Prerequisite: 3 credits in literature or history

CMLIT 402Y (US;IL)

**The Western Literary Heritage II** (3) Major literary movements and authors in the literature of the Western world from the late Renaissance to the present time.

Effective: Spring 2006

Prerequisite: 3 credits in literature or history

CMLIT 403 (LTNST 403) (US)

**Latino/a Literature and Culture** (3) Literary and other forms of cultural expression (film, music, art, and theater) are compared across different Latina/o communities.

Effective: Spring 2011

Prerequisite: 3 credits in the humanities or in any LTNST course or 4th-semester proficiency in Spanish

CMLIT 404 (ASIA 404) (IL)

**Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan.

Effective: Spring 2011

Prerequisite: 3 credits in literature or related field appropriate to this course

CMLIT 404Y (ASIA 404Y) (IL)

**Topics in Studies of Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan, taught with focus on written analysis and interpretation.

Effective: Summer 2013

Prerequisite: 3 credits in literature or related field appropriate to this course

CMLIT 405 (US;IL)

**Inter-American Literature** (3) This course examines the development of literature in Canada, the United States, Spanish

America, the Caribbean area, and Brazil.

Effective: Spring 2006

Prerequisite: 3 credits in literature

CMLIT 406 (IL)

**Women and World Literature** (3) Literature written by women, especially women from non-Western cultures; the spectrum of genres in which women writers have excelled.

Effective: Spring 2006

Prerequisite: 3 credits in literature or in women's studies

CMLIT 408 (IL)

**Heroic Literature** (3) Traditional heroes, their traits and adventures; typical themes and examples chosen from the epics and sagas of world literature.

Effective: Spring 2006

Prerequisite: 3 credits in literature or folklore

CMLIT 410 (IL)

**Literary Translation: Theory and Practice** (3) Emphasizing literary translation, a study of the theoretical and practical problems encountered in the processes of translation, transmission, and interpretation.

Effective: Spring 2011

Prerequisite: 18 credits in a foreign language

CMLIT 415 (GH;US;IL)

**World Graphic Novels** (3) Critical analyses of form, genre, medium, and discourse of the graphic novel and its historical precedents in an international and comparative context.

Effective: Summer 2010

Prerequisite: 3 credits in literature

CMLIT 422 (IL)

**African Drama** (3) Traditional and popular drama forms; modern anglophone and francophone drama; nationalism and social criticism in contemporary African drama.

Effective: Spring 2006

CMLIT 423 (IL)

**African Novel** (3) From traditional oral narratives to modern autobiographical, historical, satirical, sociological, and allegorical forms; novelist as social critic.

Effective: Spring 2006

CMLIT 430 (IL)

**Global Modernisms** (3) A comparative investigation of global Modernisms, with an emphasis on the relations between modernism, modernity, and modernization.

Effective: Summer 2010

Prerequisite: 3 credits in literature

CMLIT 435 (IL)

**Cultures of Globalization** (3) Cultural and literary effects of the process of globalization, with an emphasis on world literatures and transnationalism.

Effective: Summer 2010

Prerequisite: 3 credits of literature

CMLIT 438 (IL)

**Fantastic Worlds: International and Comparative Perspectives** (3) A comparative, international study of fantastic worlds in literature and visual culture.

Effective: Summer 2010

Prerequisite: 3 credits in literature

CMLIT 443 (US;IL)

**Transatlantic Literature** (3 per semester/maximum of 6) Comparative literary and cultural relations across the Atlantic Ocean; may include Europe, Africa, the Americas, and/or the Caribbean.

Effective: Spring 2011

Prerequisite: 3 credits in literature

CMLIT 446 (IL)

**Postcolonial Literature and Culture** (3) Postcolonial literature and theory in a comparative and international context.

Effective: Summer 2010

Prerequisite: 3 credits in the study of literature

CMLIT 448 (IL)

**Literary Cultures of Buddhism** (3) Comparative exploration of various Buddhist literary cultures, from the classical Indian subcontinent to modern movements like the Beats and dalit writing.

Effective: Summer 2010

Prerequisite: 3 credits in literature

CMLIT 449 (IL)

**Literary Cultures of Islam** (3) Comparative discussion of the literary cultures of Islam from the seventh century to the present.

Effective: Summer 2010

Prerequisite: 3 credits in the study of literature

CMLIT 453 (COMM 453) (IL)



**Narrative Theory: Film and Literature** (3) Comparative study of the aesthetics and techniques of film and literature; close analyses of masters of each art form.

Effective: Fall 2006

Prerequisite: COMM 150 or 3 credits in literature

CMLIT 455 (IL)

**Ethics, Justice, and Rights in World Literature** (3) Concepts of ethics, justice, and rights, appearing in world literature and/or film.

Effective: Summer 2010

Prerequisite: 3 credits in the study of literature

CMLIT 470 (IL)

**The Modern Novel** (3) Major novels of Joyce, Proust, Kafka, Thomas Mann, Nabokov, and others; their contributions to the art of the novel.

Effective: Spring 2011

Prerequisite: 3 credits in literature

CMLIT 471 (IL)

**Poetry and Poetics** (3) Theoretical and practical concepts in the comparative, global history of poetry and/or poetics.

Effective: Summer 2010

Prerequisite: 3 credits in literature

CMLIT 480 (IL)

**The International Folktale** (3) Traditional tales from various parts of the world: their origin, characteristics, forms; their transmission as oral narrative and written literature.

Effective: Spring 2006

Prerequisite: 3 credits in literature or folklore

CMLIT 486 (IL)

**Tragedy** (3) Development of tragic drama and its relationship to social background and philosophical theory.

Effective: Spring 2006

CMLIT 487 (IL)

**Comedy** (3) Development of comic drama and its relationship to social background and philosophical theory.

Effective: Spring 2006

CMLIT 488 (ENGL 488) (IL)

**Modern Continental Drama** (3) From Ibsen to the drama of today: Strindberg, Chekhov, Hauptmann, Pirandello, Ionesco, Beckett, Genet, and others.

Effective: Spring 2006

Prerequisite: ENGL 015 or ENGL 030

CMLIT 489 (IL)

**Contemporary World Fiction** (3) A survey of developments in contemporary world fiction in translation.

Effective: Spring 2012

Prerequisite: 3 credits in literature

CMLIT 491 (IL)

**Literary Adaptation: International and Comparative Perspectives** (3) A comparative, international study of adaptations between literature and other media (film, theater, photography, music).

Effective: Summer 2010

Prerequisite: 3 credits in literature or other fields relevant to this course

CMLIT 499 (IL)

**Foreign Study--Comparative Literature** (3-6) Advanced courses offered on comparative literary topics as part of a foreign-study program.

Effective: Summer 2005

Prerequisite: 18 credits or equivalent in the appropriate foreign language; 6 credits in literature or related field appropriate to this course

CMPEP 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2010

CMPEP 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2010

CMPEP 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2010

CMPS 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CMPS 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2008

CMPS 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CMPSC 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CNPSY 254 (US)

**Understanding Discrimination: An Educational and Employment Perspective** (3) Study of the effects of educational and employment discrimination on United States social groups/identities.  
Effective: Summer 2011

COMM 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2007

COMM 205 (WMNST 205) (US)

**Women, Minorities, and the Media** (3) Analysis of historical, economic, legal, political, and social implications of the relationship between women, minorities, and the mass media.  
Effective: Summer 2005 Ending: Fall 2014

COMM 205 (WMNST 205) (GS;US)

**Gender, Diversity and the Media** (3) Explores the relationship between media and society through critical analysis of its role in social reality.  
Effective: Spring 2015 Future: Spring 2015

COMM 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

COMM 350 (IL)

**Comparative Media Cultures** (3) Intercultural examination of economic, political, philosophical, and historical forces that shape various societies' newsgathering routines and content.  
Effective: Spring 2008  
Prerequisite: COMM 251

COMM 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2007

COMM 410 (IL)

**International Mass Communications** (3) The role of international media in communication among and between nations and peoples.  
Effective: Spring 2014  
Prerequisite: select 3 credits from the following COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260W COMM 320 or COMM 370

COMM 419 (US;IL)

**World Media Systems** (3) Comparative study of modern mass systems and the evolution and structure of specific countries' systems.  
Effective: Spring 2014  
Prerequisite: COMM 410 ; and select 6 credits in the arts or the humanities

COMM 419H (US;IL)

**World Media Systems** (3) Comparative study of modern media systems of mass communications in selected foreign countries.  
Effective: Spring 2009  
Prerequisite: select 6 credits in the arts or the humanities; and 3 credits from the following: COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260W COMM 320 or COMM 370

COMM 453 (CMLIT 453) (IL)

**Narrative Theory: Film and Literature** (3) Comparative study of the aesthetics and techniques of film and literature; close analyses of masters of each art form.  
Effective: Fall 2006  
Prerequisite: COMM 150 or 3 credits in literature

COMM 499 (IL)

**Foreign Study--Mass Communications** (1-12) Study of mass communication systems and practices in selected foreign countries.  
Effective: Summer 2005  
Prerequisite: departmental approval

CRIM 113 (CRIMJ 113) (US)

**Introduction to Law** (3) Introduction to law in society with a focus on criminal law, judicial code, laws of sentencing and corrections, criminal procedure.  
Effective: Spring 2008

CRIM 423 (CRIMJ 423, WMNST 423) (US)

**Sexual and Domestic Violence** (3) Legal, sociological, and psychological perspectives on sexual and domestic violence.  
Effective: Spring 2013  
Prerequisite: CRIMJ 100 or WMNST 100

CRIM 441 (CRIMJ 441) (US)

**Delinquency and Juvenile Justice** (3) Course examines delinquency and the juvenile justice system including delinquency's nature, causes, and prevention and the processing of juveniles.

Effective: Spring 2008

Prerequisite: CRIM 100

CRIM 451 (CRIMJ 451) (US)

**Race, Crime, and Justice** (3) This course focuses on the significance of race, class, and ethnicity to criminal justice processing and criminal offending.

Effective: Spring 2008

Prerequisite: CRIM 100

CRIM 453 (CRIMJ 453, WMNST 453) (US)

**Women and the Criminal Justice System** (3) This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system.

Effective: Spring 2013

Prerequisite: CRIM 100 or WMNST 100

CRIM 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2008

CRIMJ 113 (CRIM 113) (US)

**Introduction to Law** (3) Introduction to law in society with a focus on criminal law, judicial code, laws of sentencing and corrections, criminal procedure.

Effective: Spring 2008

CRIMJ 159 (HIST 159) (GH;US)

**History of the FBI** (3) Survey of the FBI's history with special emphasis on civil rights and liberties and bureaucratic development.

Effective: Spring 2014

CRIMJ 407 (CRIM 407) (US)

**Victimology** (3) This course will explore the legal, emotional, and social responses to the process of victimization by offenders and third parties.

Effective: Spring 2008

CRIMJ 423 (WMNST 423, CRIM 423) (US)

**Sexual and Domestic Violence** (3) Legal, sociological, and psychological perspectives on sexual and domestic violence.

Effective: Spring 2008

Prerequisite: CRIMJ 100

CRIMJ 441 (CRIM 441) (US)

**The Juvenile Justice System** (3) Historical and contemporary view of the juvenile justice system. Focus on analyzing components of the system, their interactions, processing, and handling of youths.

Effective: Spring 2008

Prerequisite: CRIMJ 100

CRIMJ 451 (CRIM 451) (US)

**Race, Crime, and Justice** (3) This course focuses on the significance of race, class, and ethnicity to criminal justice processing and criminal offending.

Effective: Spring 2008

Prerequisite: CRIMJ 100

CRIMJ 453 (WMNST 453, CRIM 453) (US)

**Women and the Criminal Justice System** (3) This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system.

Effective: Spring 2013

Prerequisite: CRIMJ 100 or WMNST 100

CRIMJ 499 (IL)

**Foreign Studies** (6) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2008

CSD 100 (GHA;US)

**Preventing Vocal Abuse, Misuse, and Disorders** (3) Principles of the voice mechanisms, preventing vocal abuse, and promoting vocal health across the life span.

Effective: Fall 2012

CSD 101 (GHA;US)

**Preventing Hearing Loss** (1.5) Assessment, intervention, and prevention of hearing loss caused by loud music and recreational and industrial noise.

Effective: Summer 2005

CSD 146 (US;IL)

**Introduction to Communication Sciences and Disorders** (3) Classification of speech, language, and hearing disorders, diagnostic and treatment procedures; skills and responsibilities of the speech-language pathologist and audiologist.

Effective: Summer 2005

CSD 269 (GS;US;IL)

**Deaf Culture** (3) Explores the economic, social, psychological, and political aspects of the deaf culture and its interaction with the majority hearing culture.  
Effective: Fall 2012

CSD 300 (US;IL)

**Developmental Considerations in the Assessment and Treatment of Language Disorders** (3) Using a developmental framework to interpret problems in child language acquisition.

Effective: Fall 2010

Prerequisite: CSD 146

CSD 462 (US;IL)

**Clinical Bases of Language Disorders** (3) Description of pathological language and cognitive development, and principles of assessment and remediation among individuals with communication disorders.

Effective: Fall 2010

Prerequisite: CSD 300 plus 6 additional credits in CSD at the 300-level

CWC 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CWC 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CWC 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CWC 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CWC 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

DANCE 100 (GA;US;IL)

**Dance Appreciation** (3) Explore dance as a vital, communicative and performing art, reflecting social values and cultural beliefs.

Effective: Fall 2007

DANCE 199 (IL)

**Dance Foreign Study** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2014

DANCE 299 (IL)

**Dance Foreign Study** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2014

DANCE 399 (IL)

**Dance Foreign Study** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2011

DANCE 410 (US;IL)

**Dance History** (3) Survey of dance history concerning perspectives of culture, race, and gender with a focus on Nineteenth and Twentieth centuries.

Effective: Fall 2014 Future: Fall 2014

DANCE 484 (US;IL)

**Dance History** (3) Survey of dance history concerning perspectives of culture, race, and gender with a focus on Nineteenth and Twentieth centuries.

Effective: Fall 2006 Ending: Summer 2014

DANCE 499 (IL)

**Dance Foreign Study** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2014

E B F 499 (IL)

**Foreign Study** (1-15) This course is designed to enable students to study in EBF study abroad programs.

Effective: Spring 2014

E E 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

E E 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

E E 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

E E 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

E R M 499 (IL)

**Foreign Studies** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 2005

E R M 499B (IL)

**New Zealand Natural Resources** (1) Pre-requisite organizational course for E R M 499C New Zealand Natural Resource embedded course to Christchurch, NZ. Environmental issues in New Zealand will include topics such as climate, sustainability issues, ecotourism, land use and biodiversity issues. Additionally, the course will be infused with content related to New Zealand and international travel tools.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

EARTH 101 (GN;US)

**Natural Disasters: Hollywood vs. Reality** (3) Analysis of the causes and consequences of natural disasters; comparison of popular media portrayal of disasters with perspective from scientific research.  
Effective: Summer 2005

EARTH 105 (AFR 105) (GN;IL)

**Environments of Africa: Geology and Climate Change** (3) Significant natural features of Africa as related to human endeavor; case studies include the Nile, climate change, and natural resources.  
Effective: Spring 2013

EARTH 111 (GN;US)

**Water: Science and Society** (3) Investigation of water behavior and occurrence, its relevance to life, human activities, politics, and society.  
Effective: Summer 2006

ECON 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ECON 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ECON 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ECON 436W (US)

**Economics of Discrimination** (3) Analysis of the economic characteristics of women and minorities, with examination of race and sex discrimination and related government policies.  
Effective: Fall 2007  
Prerequisite: ECON 302 or ECON 315

ECON 463 (IL)

**Economic Demography** (3) Microeconomics of demographic behavior; interrelationships between demographic and economic factors, in developing and industrialized economies; economic welfare and policy implications.  
Effective: Spring 2006  
Prerequisite: ECON 302 or ECON 304 ; or 9 credits in demography

ECON 470 (IL)

**International Trade and Finance** (3) Economic analysis of why nations trade, barriers to trade, the international monetary system, and macroeconomic policy in an open economy.  
Effective: Spring 2011  
Prerequisite: ECON 102 or ECON 104

ECON 473 (IL)

**China in the Global Economy: History, Culture, and Society** (3) Analysis of China's role in the global economy and the impact on U.S. as well as global business and society.  
Effective: Spring 2011  
Prerequisite: ECON 102 or ECON 104 or permission of program

ECON 499 (IL)

**Foreign Study--Economics** (2-6) Study in selected countries of economic institutions and current economic problems.  
Effective: Spring 2011  
Prerequisite: ECON 102 ECON 104

EDSGN 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

EDSGN 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

EDSGN 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

EDSGN 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

EDTHP 115 (US)

**Education in American Society** (3) Introduction to the development of educational institutions, with emphasis on historical, philosophical, and sociological forces, and on problems of equity.  
Effective: Spring 2006

EDTHP 115A (GS;US)

**Competing Rights: Issues in American Education** (3) An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society.  
Effective: Spring 2006

EDTHP 115S (GS;US)

**Competing Rights: Issues in American Education** (3) An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society.  
Effective: Spring 2006

EDTHP 401 (CI ED 401) (IL)

**Introduction to Comparative Education** (3) Origins, nature, scope, basic literature, and methodology of comparative education. Study of sample topics.

Effective: Fall 2007

Prerequisite: 5th semester standing or higher

EDTHP 411 (US)

**Ethnic Minorities and Schools in the United States** (3) Analysis of the social and cultural factors which affect educational outcomes among minority pupils, especially Blacks, Hispanics, and Indians.

Effective: Spring 2006

EDTHP 416 (SOC 416) (US)

**Sociology of Education** (3) The theoretical, conceptual, and descriptive contributions of sociology to education.

Effective: Spring 2006

EDUC 199 (IL)

**Foreign Studies** (1-12) Study of educational topics in a country other than the United States.

Effective: Summer 2007

EDUC 315W (US)

**Social and Cultural Factors in Education** (3) Critical examination of how different experiences linked to race, ethnicity, religion, gender, and sexual orientation influence education.

Effective: Spring 2011

Prerequisite: admission into Elementary Education Major or Secondary Teacher Certification Program

EDUC 499 (IL)

**Foreign Studies** (1-12) Study of educational topics in a country other than the United States.

Effective: Summer 2007

Prerequisite: permission of instructor

EGEE 101A (MATSE 101A) (GN;IL)

**Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Fall 2007

EGEE 120 (GS;US;IL)

**Oil: International Evolution** (3) Survey of the commercial development of the world petroleum industry from various international, historical, business, and cultural perspectives.

Effective: Spring 2006

EGEE 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

EGEE 211 (GS;US)

**Social Legacy of Pennsylvania Coal** (3) Survey of coal technologies with economic, social, and political impacts discussed with historical, cultural, and international perspectives.

Effective: Summer 2005

EGEE 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

EGEE 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

EGEE 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

EM SC 101 (US;IL)

**Resource Wars** (3) "Resource Wars" presents an analysis of natural resources and how competition for them shapes national and international cultures and geopolitics.

Effective: Summer 2006

EM SC 150 (S T S 150) (GN;IL)

**Out of the Fiery Furnace** (3) A history of materials, energy and man, with emphasis on their interrelationships. For nontechnical students.

Effective: Spring 2006

ENGL 015A (GWS;US)

**Rhetoric and Composition** (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.

Effective: Summer 2005

Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

ENGL 103 (GH;US)

**The Great Traditions in American Literature** (3) Major works of fiction, drama, and poetry from the colonial to the modern periods expressing enduring issues and values.

Effective: Spring 2013

ENGL 105 (AM ST 105) (GH;US)

**American Popular Culture and Folklife** (3) Survey of popular culture, folklife, and ethnicity, synthesizing material from such areas as literature, media, entertainment, print, music, and film.

Effective: Fall 2008

ENGL 112 (GH;US)

**Pennsylvania Literature** (3) An introduction to the literature that has been written by Pennsylvania authors from the colonial era through the present day.

Effective: Summer 2014

ENGL 132 (J ST 132) (GH;US)

**Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.

Effective: Spring 2009

ENGL 132U (J ST 132U) (GH;US)

**Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ENGL 135 (AM ST 135) (GH;US)

**Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

Effective: Fall 2013

ENGL 135S (GH;US)

**Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

Effective: Summer 2005

ENGL 139 (AF AM 139) (GH;US)

**Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

Effective: Fall 2013

ENGL 139S (GH;US)

**Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

Effective: Fall 2006

ENGL 145 (GH;IL)

**Modern Irish Literature** (3) Irish literature in the twentieth century and beyond; focus on the interplay of political, social, and cultural, forces on literature.

Effective: Spring 2007

ENGL 181A (GH;US)

**Adventure Literature: Exploring the Chesapeake Bay** (4.5) Examines the interconnection of culture and nature in the Chesapeake Bay region through the literature of the region.

Effective: Summer 2011

ENGL 181B (GH;US)

**Adventure Literature: Exploring Cape Cod** (4.5) Examines the interconnection of culture and nature on Cape Cod through considerations of texts in various literary genres that have contributed to development of a distinctive regional identity and culture.

Effective: Summer 2011

ENGL 181C (GH;US)

**The Beach: Exploring the Literature of the Atlantic Shore** (4.5) Examines the interconnection of culture and nature in coastal areas of the Atlantic seaboard.

Effective: Spring 2012

ENGL 181D (GH;US)

**Adventure Literature: Exploring the Literature of American Wilderness** (3) Examines the history and cultural impact of wilderness in America.  
Effective: Spring 2013

ENGL 182A (GH;US;IL)

**Literature and Empire** (3) Literature written in English from countries that were once part of European empires, e.g., India, Canada, South Africa, and others.  
Effective: Summer 2005

ENGL 182C (GH;IL)

**Literature and Empire** (3) Literature written in English from countries that were once part of European empires, e.g., India, Canada, South Africa, and others.  
Effective: Summer 2005

ENGL 184 (CMLIT 184) (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.  
Effective: Spring 2006

ENGL 184S (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.  
Effective: Spring 2006

ENGL 184U (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 185 (CMLIT 185) (GH;IL)

**World Novel** (3) Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation.  
Effective: Spring 2011

ENGL 189 (CMLIT 189) (GH;IL)

**Modern Drama** (3) Playwrights who set the world's stage for twentieth-century drama; issues that continue to shape the contemporary theatrical world.  
Effective: Spring 2011

ENGL 194 (WMNST 194) (GH;US;IL)

**Women Writers** (3) Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers.  
Effective: Summer 2005

ENGL 194S (GH;US;IL)

**Women Writers** (3) Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers.  
Effective: Summer 2005

ENGL 196 (AM ST 196, AMSTD 196) (GH;US)

**Introduction to American Folklore** (3) A basic introduction to verbal and nonverbal folklore stressing the basic procedures of collection, classification, and analysis.  
Effective: Summer 2005

ENGL 199 (IL)

**Foreign Study--English** (3-6) Studies in English language and/or literature.  
Effective: Summer 2005

ENGL 226 (LTNST 226) (GH;US;IL)

**Latina and Latino Border Theories** (3) English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture.  
Effective: Spring 2007

ENGL 227 (WMNST 227) (GH;US;IL)

**Introduction to Culture and Sexuality** (3) A course addressing the relationships between sexuality, literature, and culture.  
Effective: Spring 2013  
Prerequisite: ENGL 015 or ENGL 030

ENGL 228 (GH;IL)

**Introduction to Disability Studies in the Humanities** (3) Provides a humanities-based interdisciplinary introduction to Disability Studies.  
Effective: Spring 2013

ENGL 235 (AF AM 235) (US)

**African-American Oral Folk Tradition** (3) The origins, forms, and function of the oral folk tradition of African Americans.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: ENGL 015 or ENGL 030



ENGL 235 (AF AM 235) (US)

**From Folk Shouts and Songs to Hip Hop Poetry** (3) The origins, forms, and function of the oral folk tradition of African Americans.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ENGL 015 or ENGL 030

ENGL 245 (WMNST 245) (GH;US)

**Introduction to Lesbian and Gay Studies** (3) An introduction to the study of homosexual identities across a wide range of disciplines and methodologies.

Effective: Spring 2013

ENGL 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ENGL 399 (IL)

**Foreign Study--English** (3-6) Advanced studies in English language and/or literature.

Effective: Summer 2005

ENGL 426 (LTNST 426) (US)

**Chicana and Chicano Cultural Production: Literature, Film, Music** (3) An in-depth study of Chicana/Chicano literature, film, and music from the inception of the Chicano Movement (1965-1975) to the present.

Effective: Spring 2007

Prerequisite: 3 credits in English

ENGL 428 (AAS 428) (US)

**Asian American Literatures** (3 per semester/maximum of 6) A seminar on the literatures and cultures of Asian America, with attention to forms of geographic, historical, and ethnic diversity.

Effective: Summer 2010

ENGL 431 (AM ST 475) (US)

**Black American Writers** (3 per semester, maximum of 6) A particular genre or historical period in the development of Black American literature.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030

ENGL 461 (US)

**The Vernacular Roots of African American Literature** (3) The relationship between oral tradition and literary texts and the double consciousness of African American voice in "print."

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 462 (WMNST 462) (US)

**Reading Black, Reading Feminist** (3) Female identity and its construction in textual representations of gender, class, color, and cultural difference in English-language literatures.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 463 (US)

**African American Autobiography** (3) The African American literary quest for identity and its adaptation to Euro-American culture and autobiographies.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 466 (US)

**African American Novel I** (3) Thematic, structural, and stylistic characteristics of the African American novel from residually oral forms to satiric realism.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 467 (US)

**African American Novel II** (3) Thematic, stylistic, and structural characteristics of the African American novel from naturalism to modernism and postmodernism.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 468 (US)

**African American Poetry** (3) African American poetry within the contexts of the black oral tradition and transformed European literary tradition.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 469 (AF AM 469) (US)

**Slavery and the Literary Imagination** (3) The impact of slavery on the petitions, poetry, slave narratives, autobiographies, and novels of African Americans.

Effective: Fall 2012

Prerequisite: ENGL 015 or ENGL 030

ENGL 486 (IL)

**The World Novel in English** (3) Studies in the novel, written in English, by writers outside of the United States and Great

Britain.

Effective: Fall 2007

Prerequisite: ENGL 002 ; ENGL 015 or ENGL 030

ENGL 488 (CMLIT 488) (IL)

**Modern Continental Drama** (3) From Ibsen to the drama of today: Strindberg, Chekhov, Hauptmann, Pirandello, Ionesco, Beckett, Genet, and others.

Effective: Spring 2006

Prerequisite: ENGL 015 or ENGL 030

ENGL 490 (WMNST 490) (US;IL)

**Women Writers and Their Worlds** (3) American and British literature written from the perspective of women.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 499 (IL)

**Foreign Study--English** (3-6) Studies abroad in English language and/or literature.

Effective: Summer 2005

ENGR 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

ENGR 111 (IL)

**Introduction to Cross-Cultural Communication for Engineers** (1) Introduction to theoretical approaches and practical applications of intercultural communications for engineering students.

Effective: Summer 2013

ENGR 118 (GS;IL)

**Impact of Culture on Engineering in China** (3) Study of engineering in the context of cultural, historical, societal, political, and environmental considerations to understand the relationship between Chinese culture and engineering projects and policies; brief introduction to the basic engineering principles underlying the engineering projects and their design.

Effective: Summer 2013

Prerequisite: ENGR 111

ENGR 195I (IL)

**Engineering International Internship** (0.5- 1 per semester/maximum of 4) A supervised work experience in a professionally relevant position in research, industry, government or service sector.

Effective: Fall 2013

ENGR 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

ENGR 295I (IL)

**Engineering International Cooperative Education** (1) A supervised work experience in research, industry or government relevant to a student's major.

Effective: Spring 2006

ENGR 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

ENGR 320Y (GS;US;IL)

**Design for Global Society** (3) An interdisciplinary study of the engineering design process and the influence of society and culture on design.

Effective: Spring 2012

Prerequisite: ENGL 202

ENGR 395I (IL)

**Engineering International Cooperative Education** (1-2 per semester) A supervised work experience in research, industry or government relevant to a student's major.

Effective: Spring 2006

Prerequisite: ENGR 295A or ENGR 295I

ENGR 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

ENGR 408 (US)

**Leadership Principles** (2) An introduction to an exploration of theories and principles of leadership, supplemented by presentations given by industry and government leaders.

Effective: Spring 2006

ENGR 409 (US)

**Leadership in Organizations** (3) Development of leadership skills essential for engineers to guide colleagues or an organization in a productive direction.

Effective: Spring 2006

ENGR 495I (IL)

**Engineering International Cooperative Education** (1-3 per semester) A supervised work experience in research, industry or government relevant to a student's major.

Effective: Spring 2006

Prerequisite: ENGR 395A or ENGR 395I

ENGR 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

ENNEC 499 (IL)

**Foreign Study--Mineral Industries** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

ENVST 299 (IL)

**Foreign Studies in Environmental Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

Prerequisite: approval of the program

ENVST 499 (IL)

**Foreign Studies in Environmental Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

Prerequisite: 6th semester standing approval of program and 6 credits in ENVST or related disciplines

FD SC 499 (IL)

**Foreign Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

FIN 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

FIN 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

FIN 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

FIN 456 (IL)

**International Capital Markets** (3) This course develops understanding of international capital markets by striking a balance between institutional details, theoretical foundation and practical application.

Effective: Spring 2008

Prerequisite: FIN 301

FIN 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

FOR 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2014

FOR 418 (US;IL)

**Agroforestry: Science, Design, and Practice** (3) Agroforestry integrates trees in agricultural landscapes, and/or agriculture products into forested areas for multiple benefits.

Effective: Summer 2013

FOR 488Y (IL)

**Global Forest Conservation** (3) Ecological, economic, technological, and political aspects of forested ecosystems in a global context, emphasizing tropical and developing countries.

Effective: Spring 2013

Prerequisite: 3 credits in natural sciences and 3 credits in social and behavioral sciences

FOR 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

FR 083S (GH;IL)

**First-Year Seminar in French** (3) Critical approaches to the dimensions and directions in French/Francophone literatures and cultures.

Effective: Summer 2005

FR 137 (GH;IL)

**Paris: Anatomy of a City** (3) Survey of the cultural, artistic, literary, and social life of the city of Paris from Gallo-Roman times to the present.

Effective: Summer 2005

FR 139 (GH;IL)

**France and the French-speaking World** (3) An introduction to the culture of France and its impact on the world.

Effective: Summer 2005

FR 141 (IL)

**Cultural Tradition in French Cuisine** (3) A study of French culture in English, emphasizing the French gastronomical traditions in literature and civilization.

Effective: Spring 2006

FR 199 (IL)

**Foreign Study--French** (1-12) Intensive postintermediate grammar review, with emphasis on oral skills and vocabulary building.

Effective: Summer 2005

Prerequisite: FR 003

FR 201 (IL)

**Oral Communication and Reading Comprehension** (3) Emphasis on oral skills and reading for total comprehension.

Effective: Spring 2007

Prerequisite: FR 003 or FR 112

FR 201U (IL)

**Oral Communication and Reading Comprehension** (3) Emphasis on oral skills and reading for total comprehension.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: FR 003 or FR 112

FR 201U (IL)

**Oral Communication and Reading Comprehension** (3) Emphasis on oral skills and reading for total comprehension.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: FR 003 or FR 112

FR 202 (IL)

**Grammar and Composition** (3) Grammar review and writing of short essays.

Effective: Spring 2006

Prerequisite: FR 003

FR 299 (IL)

**Foreign Study--French** (3-12) Writing practice at postintermediate level. Cultural readings about French civilization.

Effective: Summer 2005

Prerequisite: FR 199

FR 331 (IL)

**French Culture and Civilization I** (3) French history and culture from the Middle Ages until the French Revolution.

Effective: Summer 2006

Prerequisite: FR 201 FR 202

FR 332 (IL)

**French Culture and Civilization II** (3) French history and culture from the French Revolution through the Third Republic.

Effective: Summer 2006

Prerequisite: FR 201 FR 202

FR 351 (IL)

**Introduction to French Literature I** (3) Introduction to close textual reading and analysis of selected works of French literature from the middle ages to 1789.

Effective: Summer 2013

Prerequisite: FR 201 FR 202

FR 352 (IL)

**Introduction to French Literature II** (3) Introduction to close textual reading and analysis of selected works of French Literature from 1789 to the present.

Effective: Summer 2013

Prerequisite: FR 201 FR 202

FR 399 (IL)

**Foreign Study--French** (3-12) Advanced training in the French language skills.

Effective: Summer 2005

Prerequisite: FR 201 FR 202

FR 401 (IL)

**Advanced Oral Communication** (3) Emphasis on speaking and listening comprehension through discussion of current issues, using journalistic materials.

Effective: Spring 2006

Prerequisite: FR 201 FR 202

FR 402Y (IL)

**Advanced Grammar and Writing** (3) Advanced study of the structure of the French language. Intensive essay writing.

Effective: Spring 2006

Prerequisite: FR 201 FR 202

FR 407 (IL)

**Business Writing in French** (3) Common forms of business communication; writing of reports and abstracts.

Effective: Spring 2007

Prerequisite: FR 331 or FR 332

FR 408 (IL)

**French-American Business Translation** (3) Translation from French to English of actual documents from the business world; theoretical consideration and systematic vocabulary building.

Effective: Spring 2007

Prerequisite: FR 407

FR 409 (IL)

**Commercial and Technical Translation** (3) Translation from English to French of commercial and technical materials; vocabulary building; writing of abstracts and summaries.

Effective: Spring 2006

Prerequisite: FR 402Y

FR 410 (IL)

**French Press** (3) Extensive readings of selected french daily and weekly newspapers and magazines, along with newscast viewings.

Effective: Spring 2007

Prerequisite: FR 331 or FR 332

FR 417 (IL)

**French Phonology** (3) A formal study of the sound pattern of French.

Effective: Spring 2007

Prerequisite: FR 201 FR 202

FR 418 (IL)

**French Syntax** (3) A formal theory of word order and related issues in French grammar.

Effective: Spring 2006

Prerequisite: FR 201 and FR 202

FR 422 (IL)

**Old French Literature** (3) Medieval masterpieces in original and modern French versions.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 426Y (IL)

**French Literature of the Renaissance** (3) Survey of key texts from sixteenth century France, with attention to historical and philosophical currents of French social thought.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 430 (IL)

**Contemporary France** (3) Study of contemporary French society, politics, and culture from 1870 to the present.

Effective: Summer 2013

FR 436Y (IL)

**Readings in Seventeenth-Century French Literature** (3) Baroque and classicism: reappraisal of major and lesser-known 17th-century texts and theories.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 440 (IL)

**Teaching of Romance Languages** (3) Theories of second language acquisition. Current classroom practices in the teaching of Romance languages.

Effective: Spring 2006

Prerequisite: 15 credits beyond the elementary level

FR 445Y (IL)

**Self and Society in Eighteenth-Century France** (3) The changing relationship of the individual to society in pre-Revolutionary France will be explored in texts by major writers.

Effective: Spring 2006

Prerequisite: FR 351 . Prerequisite or concurrent: FR 352

FR 452Y (IL)

**Nineteenth-Century French Literature** (3) Selected readings in romanticism, realism, and symbolism, including Balzac, Stendhal, Sand, Baudelaire, and others, with emphasis on cultural issues.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 453Y (IL)

**La Belle Epoque: Politics, Society, and Culture in France, 1880-1914** (3) Interdisciplinary perspectives on the politics, society, and culture of France, 1880-1914.

Effective: Summer 2013

Prerequisite: FR 351 or FR 352

FR 458 (IL)

**African Literature of French Expression** (3) Genesis of Franco-African literature in the 1930s; phases of the negritude movement; colonial and national literature.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 460 (IL)

**Contemporary French Literature** (3) Major authors and movements in French novel, drama, and poetry from Proust to the present.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 470 (IL)

**Race and Gender Issues in Literatures in French** (3) A critical presentation, taught in French, of changing ideas and values on race and gender in French and Francophone literatures.

Effective: Summer 2005

Prerequisite: FR 351 or FR 352

FR 487 (IL)

**Topics in French Film History and Theory I: 1895-1945** (3) Provide background needed to understand the broad outlines of French film history and theory in their first fifty years (1895-1945).

Effective: Spring 2006

Prerequisite: FR 351 and FR 352 or COMM 250

FR 488 (IL)

**Topics in French Film History and Theory II: 1945-2002** (3) Provide background needed to understand the broad outlines of French film history and theory in their second half-century (1945-2002).

Effective: Spring 2006

Prerequisite: FR 351 and FR 352 or COMM 250

FR 499 (IL)

**Foreign Study--French** (3-12) Advanced studies in French language and literature.

Effective: Summer 2005

Prerequisite: FR 201 FR 202

GAME 160 (CMLIT 191) (GH;US;IL)

**Introduction to Video Game Culture** (3) A comparative, international look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.

Effective: Spring 2015 Future: Spring 2015

GD 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2006

GD 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2006

GEOG 020 (GS;US;IL)

**Human Geography: An Introduction** (3) Spatial perspective on human societies in a modernizing world; regional examples; use of space and environmental resources; elements of geographic planning.

Effective: Summer 2005

GEOG 030 (GS;IL)

**Geographic Perspectives on Sustainability and Human-Environment Systems** (3) Introduction to theory, methods, history and contemporary issues in global and regional relationships between human activity and the physical environment.

Effective: Spring 2012

GEOG 040 (GS;IL)

**World Regional Geography** (3) Introduction to the world as an interdependent community built from unique and independent regions and nations.

Effective: Spring 2012

GEOG 120 (GS;US;IL)

**Urban Geography: A Global Perspective** (3) Introduction to the geography of the world's cities and urban system.

Effective: Spring 2006

GEOG 122 (GH;US)

**The American Scene** (3) Historical perspectives on the social and cultural forces associated with the production of distinctive American landscapes.

Effective: Spring 2007

GEOG 123 (GS;IL)

**Geography of Developing World** (3) Patterns of poverty in poor countries; conventional and non-conventional explanations; focus on solutions; case studies of specific regions.

Effective: Spring 2007

GEOG 124 (GS;IL)

**Elements of Cultural Geography** (3) Locational analysis of changes in non-Western cultures. Problems of plural societies, economic development, population growth, and settlement.

Effective: Summer 2005

GEOG 126 (GS;US;IL)

**Economic Geography** (3) The geographic location and organization of economic activities and outcomes at global, national, regional, and local scales.

Effective: Spring 2012

GEOG 128 (GS;IL)

**Geography of International Affairs** (3) Contemporary international affairs in their geographical setting; geographic elements in the development of national power, political groupings, and international disputes.  
Effective: Summer 2005

GEOG 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006  
Prerequisite: prior approval of program

GEOG 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006  
Prerequisite: prior approval of program

GEOG 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006  
Prerequisite: prior approval of program

GEOG 420Y (US;IL)

**Comparative Urbanism** (3) This course investigates selected urban issues through the lens of comparative urbanism.  
Effective: Fall 2011  
Prerequisite: GEOG 120 GEOG 160

GEOG 423Y (US)

**Historical Geography of North America** (3) Exploration, settlement, and changing patterns of human occupancy from the seventeenth century to the 1930s.  
Effective: Fall 2011  
Prerequisite: GEOG 122 3 additional credits in geography or 6 credits American history

GEOG 424 (US;IL)

**Geography of the Global Economy** (3) Focus on industrial location theory, factors in industrial location, studies of selected industries and problems of industrial development.  
Effective: Spring 2011  
Prerequisite: ECON 102 ECON 104 GEOG 126

GEOG 425 (US)

**Geography of Race, Class, and Poverty in America** (3) This class examines the spatial interactions of race, class and poverty in the United States.  
Effective: Fall 2011  
Prerequisite: GEOG 126 ; ECON 102 or ECON 104

GEOG 426Y (WMNST 426Y) (US;IL)

**Gender Geographies** (3) Description and explanation of the links between gender relations and spatial structures.  
Effective: Fall 2013  
Prerequisite: GEOG 020 or GEOG 126 or GEOG 120 or WMNST 100

GEOG 427 (US;IL)

**Urban Historical Geography** (3) Study of the development and transformation of the historical urban built environment.  
Effective: Spring 2007  
Prerequisite: 6 credits in geography humanities or social sciences

GEOG 428 (US)

**Political Geography** (3) Geographical foundations of political phenomena; significant geographic factors in growth and development of states, boundary problems, population distribution, colonies, and internal and international regional problems.  
Effective: Spring 2007  
Prerequisite: 6 credits in history or 6 credits in political science

GEOG 428Y (US;IL)

**Political Geography** (3) Geographical foundations of political phenomena; significant geographic factors in growth and development of states, boundary problems, population distribution, colonies, and internal and international regional problems.  
Effective: Spring 2012  
Prerequisite: 3 credits human geography (GEOG 020 or 120 or 122 or 123 or 124 or 126 or 128)

GEOG 429 (US;IL)

**Geographic Perspectives on Global Urbanization** (3) This course reflects critically on a number of issues related to global urbanization, including the culture and political economy of urban space.  
Effective: Spring 2012  
Prerequisite: GEOG 020 GEOG 126 or GEOG 120

GEOG 435H (IL)

**Global Change and Sustainability - Bulgaria** (3) Sustainability in the context of climate change, global socioeconomic change and regional transformation in Bulgaria; embedded foreign fieldwork (honors).  
Effective: Summer 2008  
Prerequisite: sophomore standing or above; departmental permission required

GEOG 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2006

Prerequisite: prior approval of program

GEOSC 402Y (IL)

**Natural Disasters** (3) Case studies of the causes and consequences of natural disasters; analysis of disaster impact in different economic, cultural, and social conditions.

Effective: Summer 2005

Prerequisite: fourth-semester standing

GEOSC 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

GER 083S (GH;US;IL)

**First-Year Seminar in German** (3) Germany's cultural past and present.

Effective: Summer 2005

GER 099 (IL)

**Foreign Study--German** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

GER 100 (GH;IL)

**German Culture and Civilization** (3) Culture and civilization of the German people from the Germanic migrations to the Nazi period. Conducted in English.

Effective: Summer 2005

GER 143 (RUS 143) (GH;IL)

**The Culture of Stalinism and Nazism** (3) The culture of Stalinist Russia and Nazi Germany in comparative perspective.

Effective: Summer 2005

GER 157 (GH;US)

**Pennsylvania Germans: The Culture of the Sectarians** (3) Survey of the religious background, beliefs, social life, customs, education, and culture of the Pennsylvania German sectarians, especially the Amish. Conducted in English.

Effective: Summer 2005

GER 175 (GH;IL)

**Germanic Heroic and Medieval Literature in English Translation** (3) Germanic heroic and medieval courtly literature from 800 to 1350 focusing on the prevailing cultural, social, and legal conditions.

Effective: Spring 2006

GER 189 (GH;IL)

**German Film** (3) A survey of German film from its beginnings to the present, with emphasis on historical, political, and cultural contexts.

Effective: Summer 2014

GER 189U (GH;IL)

**German Film** (3) A survey of German film from its beginnings to the present, with emphasis on historical, political, and cultural contexts.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

GER 190 (GH;IL)

**Twentieth-Century German Literature in English Translation** (3) Works of such writers as Boll, Brecht, Durrenmatt, Frisch, Grass, Hesse, Kafka, Mann, Rilke, Weiss, and Wolf.

Effective: Spring 2006

GER 195 (GH;IL)

**Modern German Drama and Theatre in English Translation** (3) Plays and their stage realization by writers such as Brecht, Durrenmatt, Handke, Hauptmann, Kaiser, Schnitzler, Wedekind, and Weiss.

Effective: Spring 2006

GER 199 (IL)

**Foreign Study--German** (3-6) Intermediate training in German language skills.

Effective: Summer 2005

Prerequisite: GER 002

GER 200 (GH;IL)

**Contemporary German Culture** (3) Germany since WWI, its politics, economics, society, arts, and educational system in the international context; conducted in English.

Effective: Summer 2005

GER 201 (IL)

**Conversation and Composition** (4) Continuation of GER 003; emphasis on reading, writing, and conversational skills; course utilizes short literary selections, a concise novel, videos.

Effective: Fall 2006

Prerequisite: GER 003 or GER 008

GER 208Y (IL)

**Business German** (4) Intermediate Business German.

Effective: Fall 2006

Prerequisite: GER 003 or GER 008



GER 299 (IL)

**Foreign Study--German** (3-6) Advanced training in German language skills.

Effective: Summer 2005

GER 301 (IL)

**Intermediate Speaking and Listening** (3) Intensive practice in spoken German through readings, discussions and video.

Effective: Spring 2012

Prerequisite: GER 201 or GER 208

GER 308Y (IL)

**German Business Communication** (3) Development of German commerce and industry; extensive practice in the major forms of business communications such as business correspondence.

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

GER 310 (IL)

**Introduction to the Study of German Literature** (3) History, methods, and the terminology of literary interpretation and analysis in German.

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

GER 344 (IL)

**Intermediate German Culture** (3) An overview of German culture from the Middle Ages to the present. Conducted in German.

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

GER 399 (IL)

**Foreign Study--German** (3-12) Advanced studies in German language and/or literature.

Effective: Summer 2005

Prerequisite: GER 201

GER 401Y (IL)

**Advanced Composition** (3) Intensive practice in writing different text types in German.

Effective: Spring 2012

Prerequisite: GER 301 and GER 302W

GER 408 (IL)

**Advanced German Business Communications** (3) Study of German business organization, forms of business communications, business terminology; writing of reports and abstracts.

Effective: Spring 2006

Prerequisite: GER 308

GER 412 (IL)

**Contrastive Analysis of Modern German and English** (3) Structural comparison of the German and English grammatical systems: morphology, syntax, phonology.

Effective: Spring 2006

Prerequisite: or concurrent: GER 401

GER 420 (IL)

**Genre** (3-9) Special studies in a particular literary genre in German literature, such as lyrical poetry, drama, or narrative prose.

Effective: Spring 2006

Prerequisite: GER 310 GER 401

GER 430 (IL)

**History of the German Language** (3) Development of German from its earliest stages, including historical and cultural aspects.

Effective: Fall 2007

Prerequisite: or concurrent: GER 401Y

GER 431 (IL)

**History of German Literature and Culture I** (3) Significant works of German literature before the mid-eighteenth century considered in their cultural context.

Effective: Spring 2006

Prerequisite: GER 310 . Prerequisite or concurrent: GER 401

GER 432 (IL)

**History of German Literature and Culture II** (3) Significant works of German literature from the mid-eighteenth century to the present considered in their cultural context.

Effective: Spring 2006

Prerequisite: GER 310 . Prerequisite or concurrent: GER 401

GER 440 (IL)

**Seminar in German Culture** (3-6) Seminar devoted to a special topic in the field of German culture and civilization.

Effective: Spring 2006

Prerequisite: or concurrent: GER 401

GER 472 (IL)

**Romanticism** (3) A study of both early and late romanticism, including such writers as Novalis, the Schlegels, E.T.A.

Hoffmann, and Heine.

Effective: Spring 2006

Prerequisite: or concurrent: GER 431 or GER 432

GER 499 (IL)

**Foreign Study--German** (3-12) Advanced studies in German language, literature, and culture.

Effective: Summer 2005

Prerequisite: any 300-level course in German

GREEK 099 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

GREEK 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

GREEK 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

GREEK 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

GREEK 499 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

H P A 401 (IL)

**Comparative Health Systems** (3) Comparative analysis of health services in selected developed and developing countries.

Effective: Summer 2011

H P A 440 (BB H 440) (US;IL)

**Principles of Epidemiology** (3) Theory of epidemiology and significant case studies. Potential application to health care.

Effective: Fall 2008

Prerequisite: BB H 101 or BIOL 110 or H P A 310 ; STAT 200 or STAT 250

H P A 440U (US;IL)

**Principles of Epidemiology** (3) Theory of epidemiology and significant case studies. Potential application to health care.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

Prerequisite: BB H 101 or BIOL 110 or H P A 310 ; STAT 200 or STAT 250

H&HD 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

H&HD 499H (IL)

**Foreign Studies-Honors** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HD FS 250 (WMNST 250) (US)

**Sexual Identity over the Life Span** (3) Concepts of affectional and sexual orientation over life span, with emphasis on lesbian and gay male personal, family, and community adaptation.

Effective: Summer 2005

Prerequisite: 3 credits in HD FS or 3 credits in social or behavioral sciences

HD FS 287W (GS;US)

**Intercultural Community-Building** (3) An experiential introduction to negotiating differences in small groups, families, institutions, and communities.

Effective: Summer 2005

HD FS 287X (GS;US)

**Intercultural Community-Building** (3) An experiential introduction to negotiating differences in small groups, families, institutions, and communities.

Effective: Summer 2005

HD FS 287Y (GS;US)

**Intercultural Community-Building** (3) An experiential introduction to negotiating differences in small groups, families, institutions, and communities.

Effective: Summer 2005

HD FS 315 (US)

**Family Development** (3) Family functions over the life course; family from a multidisciplinary perspective, emphasizing adaptation and change.

Effective: Summer 2005

Prerequisite: HD FS 129 ; 3 credits of social behavioral or human biological sciences

HD FS 315Y (US)

**Family Development** (3) Family functions over the life course; family from a multidisciplinary perspective, emphasizing adaptation and change.

Effective: Summer 2005

Prerequisite: HD FS 129 ; 3 credits of social behavioral or human biological sciences

HD FS 405 (US)

**Gender and Social Development** (3) A review of gender-related patterns of social development over the lifespan, as influenced by biological, sociological, and psychological factors.

Effective: Spring 2006

Prerequisite: HD FS 129 HD FS 312W ; or 6 credits in social sciences

HD FS 416 (SOC 411) (US)

**Racial and Ethnic Diversity and the American Family** (3) This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States.

Effective: Spring 2005

Prerequisite: 3 credits in sociology

HD FS 417 (US;IL)

**Biocultural Studies of Family Organization** (3) Study of variability in family organization with an emphasis on cultural and economic factors influencing household organization and family roles.

Effective: Spring 2006

Prerequisite: HD FS 129 ; HD FS 312W ; HD FS 315 or HD FS 315W ; or 6 credits in sociology or anthropology

HD FS 424 (US)

**Family Development in an Economic Context** (3) Economic conditions influencing family functioning; familial effects on the economy; strategies to enhance work-family relations.

Effective: Spring 2006

Prerequisite: HD FS 312W ; HD FS 315 or HD FS 315W

HD FS 425 (US)

**Work as a Context for Human Development** (3) Theory and research on role of work in adult development; interrelationships between work and family; workplace interventions to enhance development.

Effective: Spring 2006

Prerequisite: HD FS 312W ; 3 credits in social and behavioral sciences

HD FS 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007

HD FS 499A (IL)

**Early Childhood in Italy** (3) This course will give students the opportunity to examine the way in which Italians structure the early childhood years, and the social policies that support this structure. Students will observe children in public, as well as having the opportunity to visit preschool and day care programs for young children.

Effective: Summer 2014 Ending: Summer 2014

HD FS 499B (IL)

**Historical Roots of the Modern Italian Family** (3) The purpose of this course is to examine the historical roots of the Italian family system as it has evolved from antiquity to modernity. Issues to be explored include the implications of economic, political, religious, and social factors, the status of Italian women over time with regard to legal rights, roles, societal expectations and cultural values, and the attitudes toward and practices regarding child rearing.

Effective: Summer 2014 Ending: Summer 2014

HD FS 499C (IL)

**Italian Relationships, Both Cultural and Familial** (3) The purpose of this course is to examine the cultural factors affecting business, friendship, and family relationships in Italy. Issues to be explored include the implications of economic, political, religious, and social factors on Italian families, and the influence of the Catholic Church on family and social roles in Italy.

Effective: Summer 2014 Ending: Summer 2014

HEBR 010 (J ST 010) (GH;IL)

**Jewish Civilization** (3) Life of the Jewish people from Biblical times, emphasizing cultural, religious, and institutional developments.

Effective: Summer 2005

HEBR 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HEBR 199 (IL)

**Foreign Study--Basic Hebrew** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HEBR 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HEBR 399 (IL)

**Foreign Study--Intermediate Hebrew** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HEBR 499 (IL)

**Foreign Study--Advanced Hebrew** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HIST 001 (GH;IL)

**The Western Heritage I** (3) A survey of the Western heritage from the ancient Mediterranean world to the dawn of modern Europe.

Effective: Spring 2006

HIST 001T (GH;IL)

**The Western Heritage I** (3) A survey of the Western heritage from the ancient Mediterranean world to the dawn of modern Europe.

Effective: Spring 2006

HIST 002 (GH;IL)

**The Western Heritage II** (3) A survey of the Western heritage from the dawn of modern Europe in the seventeenth century to the present.

Effective: Spring 2006

HIST 003 (GH;US)

**The American Nation: Historical Perspectives** (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.

Effective: Fall 2014 Future: Fall 2014

HIST 003U (GH;US)

**The American Nation: Historical Perspectives** (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 005 (CAMS 005) (GH;IL)

**Ancient Mediterranean Civilizations** (3) Survey of the history and cultures of ancient Mediterranean civilizations in Mesopotamia, Egypt, Syro-Levant, Anatolia, Greece, and Rome.

Effective: Spring 2008

HIST 010 (GH;IL)

**World History I** (3) Human origins; early civilizations; major political and intellectual developments on all continents; cultural interrelationships to 1500.

Effective: Summer 2005

HIST 011 (GH;IL)

**World History II** (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.

Effective: Summer 2005

HIST 011U (GH;IL)

**World History II** (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 012 (GH;US)

**History of Pennsylvania** (3) Chronological and topical survey, emphasizing immigration of diverse ethnic groups and religious, political, economic, and social developments, including industrialization and urbanization.

Effective: Spring 2006

HIST 020 (GH;US)

**American Civilization to 1877** (3) An historical survey of the American experience from its colonial beginnings through the Civil War and Reconstruction.

Effective: Spring 2006

HIST 020Y (GH;US)

**American Civilization to 1877** (3) An historical survey of the American experience from its colonial beginnings through the Civil War and Reconstruction.

Effective: Spring 2006

HIST 021 (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Spring 2006

HIST 021U (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 021U (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

HIST 021Y (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Spring 2006

HIST 066 (GH;IL)

**Survey of British History** (3) The British Isles and their peoples since the ancient period, emphasizing political, cultural,

and intellectual developments and imperial rise and fall.

Effective: Summer 2012

HIST 100 (CAMS 100) (GH;IL)

**Ancient Greece** (3) Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization.

Effective: Spring 2006

HIST 101 (CAMS 101) (GH;IL)

**The Roman Republic and Empire** (3) History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire.

Effective: Spring 2006

HIST 102 (CAMS 102, J ST 102, RL ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

HIST 103 (GH;IL)

**The History of Madness, Mental Illness, and Psychiatry** (3) This course will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness.

Effective: Summer 2005

HIST 103U (GH;IL)

**The History of Madness, Mental Illness, and Psychiatry** (3) This course will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 105 (GH;IL)

**The Byzantine Empire** (3) Development of Byzantine civilization from the decline of the Roman Empire to the fall of Constantinople.

Effective: Spring 2006

HIST 107 (MEDVL 107) (GH;IL)

**Medieval Europe** (3) Rise and development of the civilization of medieval Europe from the decline of Rome to 1500.

Effective: Spring 2006

HIST 108 (GH;IL)

**The Crusades: Holy War in the Middle Ages** (3) The social and political history of medieval religious warfare in Europe and in the Middle East.

Effective: Spring 2006

HIST 110 (GH;IL)

**Nature and History** (3) A broad introduction to the history of human relationships with nature throughout the world.

Effective: Summer 2005

HIST 111 (NUTR 111) (GH;US)

**American Food System: History, Technology, and Culture** (3) A cultural analysis of the evolution of U.S. agricultural production and food consumption patterns, the food industry and food marketing.

Effective: Fall 2013

HIST 113 (IL)

**Baseball in Comparative History** (3) Comparative survey of baseball history from its beginnings to the present.

Effective: Fall 2009

HIST 115 (J ST 115, RL ST 115) (GH;US)

**American Jewish History and Culture** (3) Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.

Effective: Summer 2006

HIST 116 (WMNST 116) (GS;US;IL)

**Family and Sex Roles in Modern History** (3) Historical perspectives on the Western family since 1500: gender roles, marriage, sexuality, child rearing, and old age; emphasis on United States.

Effective: Spring 2006

HIST 117 (WMNST 117) (GH;US;IL)

**Women in Modern History** (3) Modernization and women: changing images and roles since mid-eighteenth century in the family, workshop, politics, society; cross-cultural comparisons.

Effective: Summer 2005

HIST 118 (J ST 118) (US;IL)

**Modern Jewish History: 1492 to Present** (3) Jewish social and political history from 1492 to the present.

Effective: Spring 2006

HIST 119 (GH;IL)

**Gender and History** (3) Survey of the development of gender roles in Western societies from the prehistoric era to the early modern period.

Effective: Spring 2008

HIST 120 (GS;IL)

**Europe Since 1848** (3) Political, social, and ideological developments; origin and impact of two World Wars;

totalitarianism and democracy; changing role in the world.

Effective: Spring 2006

HIST 121 (J ST 121) (GH;IL)

**History of the Holocaust 1933-1945** (3) Historical analysis of holocaust themes.

Effective: Summer 2005

HIST 124 (S T S 124) (GH;US;IL)

**History of Western Medicine** (3) This course explores the history of health, illness, and medicine in western society.

Effective: Summer 2008

HIST 127 (LTNST 127) (US)

**Introduction to U.S. Latina/o History** (3) This course introduces students to the history of U.S. Latina/os, including Puerto Ricans, Dominicans, Chicanos, Cubans, and Central Americans.

Effective: Spring 2008

HIST 130 (GH;US)

**Introduction to the Civil War Era, 1848 through 1877** (3) Survey of causes and consequences of American Civil War, end of Mexican War in 1848 through end of Reconstruction, 1877.

Effective: Spring 2010

HIST 134 (GH;IL)

**Introduction to the British Isles, 1400-1800** (3) Survey of the history and cultures of the British Isles from 1400 to 1800.

Effective: Spring 2010

HIST 141 (GH;IL)

**Medieval and Modern Russia** (3) Introductory survey, including political, social, economic, and cultural development of Kievan, Muscovite, and Imperial Russia.

Effective: Spring 2006

HIST 142 (GS;IL)

**History of Communism** (3) Marxism; Leninism and evolution of the Soviet Union; formation and development of the Communist bloc; impact of Chinese Communism.

Effective: Spring 2006

HIST 143 (GH;IL)

**History of Fascism and Nazism** (3) The study of right-wing totalitarianism in the twentieth century, with special emphasis on Fascist Italy and Nazi Germany.

Effective: Spring 2006

HIST 143U (GH;IL)

**History of Fascism and Nazism** (3) The study of right-wing totalitarianism in the twentieth century, with special emphasis on Fascist Italy and Nazi Germany.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 144 (GH;US;IL)

**The World at War: 1939-1945** (3) In-depth study of the origins and conduct of World War II. Political and economic aspects as well as military.

Effective: Spring 2006

HIST 151 (S T S 151) (GS;US)

**Technology and Society in American History** (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.

Effective: Spring 2006

HIST 152 (AF AM 152) (GH;US;IL)

**African American History** (3) African roots; colonial and revolutionary experiences; slavery and abolitionism; civil war and reconstruction; accommodation and protest; the new militancy.

Effective: Fall 2013

HIST 153 (GH;US)

**The Indian in North America** (3) A survey of the American Indian from prehistory to the present.

Effective: Summer 2005

HIST 153Y (GH;US)

**The Indian in North America** (3) A survey of the American Indian from prehistory to the present.

Effective: Summer 2005

HIST 154 (GH;US)

**History of Welfare and Poverty in the United States** (3) History of care of the impoverished (emphasis on gender, race, nationality, age of poor, and welfare givers), 18th century to present.

Effective: Summer 2005

HIST 155 (GH;US)

**American Business History** (3) Major developments in the history of business and industry from the colonial period to the present.

Effective: Spring 2006

HIST 156 (US)

**History of the American Worker** (3) A study of the American worker from the preindustrial era to the present.

Effective: Spring 2006

HIST 158 (US;IL)

**History of American Immigration** (3) The waves of migration to America and an analysis of the resulting minority groups, their reception, assimilation, and persisting identity.

Effective: Spring 2006

HIST 159 (CRIMJ 159) (GH;US)

**History of the FBI** (3) Survey of the FBI's history with special emphasis on civil rights and liberties and bureaucratic development.

Effective: Spring 2014

HIST 160 (US)

**American Naval History** (3) Introduction to the role of the United States Navy in the defense, diplomacy, commerce, and scientific development of the nation.

Effective: Spring 2006

HIST 161 (US)

**The Battle of Gettysburg in American Historical Memory** (3) Examines factors shaping understanding of the Civil War's decisive battle and its meanings as a national symbol.

Effective: Spring 2006

HIST 165 (ARAB 165, RL ST 165) (IL)

**Introduction to Islamic Civilization** (3) Islamic history, culture, and religious life c.600-1500 C.E.

Effective: Spring 2006

HIST 166 (WMNST 166) (GH;US)

**History of Sexuality** (3) Discusses the ideas, practices, and identities surrounding sexuality over several centuries in a variety of contexts, focusing primarily on the US.

Effective: Summer 2012

Prerequisite: one introductory level course in History or Women's Studies

HIST 172 (IL)

**Survey of Japanese Civilization** (3) Survey of social, institutional, cultural, and religious developments from ancient times to the present.

Effective: Summer 2005

HIST 173 (GH;IL)

**Vietnam in War and Peace** (3) Rise of nationalism and communism; origins of conflict; United States involvement; impact on postwar regional and international politics; contemporary Vietnam.

Effective: Spring 2006

HIST 174 (GH;IL)

**The History of Traditional East Asia** (3) Comparative cultural, institutional, and social history of traditional China and Japan to their contact with the industrialized West.

Effective: Summer 2005

HIST 175 (GH;IL)

**The History of Modern East Asia** (3) Comparative survey of the internal developments and external relations of China and Japan since their contact with the industrialized West.

Effective: Summer 2005

HIST 176 (GH;IL)

**Survey of Indian History** (3) Survey of cultural, institutional, and political history from ancient times to the present.

Effective: Summer 2005

HIST 177 (ASIA 177) (GH;IL)

**The Rise of Modern Southeast Asia** (3) Study of Southeast Asia from the rise of early empires to the present.

Effective: Summer 2014

HIST 178 (GH;IL)

**Latin-American History to 1820** (3) Conquest of the New World, development of colonial institutions, impact on native cultures, and origins of independence movements.

Effective: Summer 2005

HIST 179 (GH;IL)

**Latin-American History Since 1820** (3) Origin, political growth, international relations, and economic status of the Latin-American republics, with emphasis upon present-day conditions.

Effective: Summer 2005

HIST 180 (CAMS 180) (GH;IL)

**Ancient Warfare** (3) Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire.

Effective: Summer 2006

HIST 181 (GH;IL)

**Introduction to the Middle East** (3) Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.

Effective: Summer 2005

HIST 181U (GH;IL)

**Introduction to the Middle East** (3) Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 182 (ASIA 182) (GH;IL)

**Asian Trade: Economy, Industrialization and Capitalism in Asia** (3) An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present.

Effective: Summer 2014

HIST 183 (ASIA 183) (GH;IL)

**Gender, Family, and Society in East Asia** (3) Investigates the history of gender, family, love, and sex in East Asia.

Effective: Summer 2012

HIST 184 (ASIA 184) (GH;IL)

**Society and Culture in the Pacific War** (3) Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.

Effective: Summer 2012

HIST 185 (ASIA 185) (GH;IL)

**Asian Pop: The History of Popular Culture in Asia** (3) A history of popular culture from the early modern period to the present.

Effective: Summer 2014

HIST 188 (ASIA 188) (GH;IL)

**Tibet: People, Places and Space** (3) This course examines the historical, cultural, and ethnic dimensions of Tibet from the seventh century to the present.

Effective: Summer 2012

HIST 189 (ASIA 189) (GH;IL)

**Illicit Asia: An Alternative Introduction to Asia** (3) A historical introduction to unlawful, illegitimate and forbidden ideas, goods people and places in modern Asia.

Effective: Summer 2014

HIST 191 (AFR 191) (GH;IL)

**Early African History** (3) Explores important economic and cultural transformations in the making of early African empires from 1 MBC to 1750.

Effective: Fall 2012

HIST 192 (AFR 192) (GH;IL)

**Modern African History** (3) Impact of the slave trade, expansion of Islam, colonial conquest, social and cultural transformations, resistance, nationalism, and independence.

Effective: Fall 2012

HIST 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

HIST 200 (US)

**American Local History** (3 per semester/maximum of 6) Topics in American local history relating local to national developments and studying the historical method by using primary source material.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021

HIST 205 (J ST 205) (GH;US)

**American Antisemitism** (3) The Phenomenon of antisemitism in American history from Peter Stuyvesant to the present.

Effective: Summer 2011

HIST 210 (AF AM 210) (GH;US)

**Between Accommodation and Alienation: African Americans in a Jim Crow Nation, 1896-1932** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: AF AM 100 three credits of American history or permission of the instructor

HIST 210 (AF AM 210) (GH;US)

**Freedom's First Generation: African American Life and Work, 1865 to World War II** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 three credits of American history or permission of the instructor

HIST 211 (AF AM 211) (GH;US;IL)

**The Emergence and Evolution of the Black Diaspora in the Atlantic World** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

HIST 211 (AF AM 211) (GH;US;IL)

**Slavery and Freedom in the Black Atlantic** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152



HIST 220 (J ST 220) (GH;IL)

**The Jewish and Other Diasporas** (3) Introduction to and survey of the Jewish and other Diasporas around the world.  
Effective: Spring 2012

HIST 235 (J ST 235, RL ST 235) (US;IL)

**The Church and the Jews** (3) Examination of the relationship between Western church and the Jews from the First Century to Enlightenment.  
Effective: Spring 2006

HIST 250 (AF AM 250) (GH;IL)

**Introduction to the Modern Caribbean** (3) A survey course which explores the historical evolution and emergence of the modern Caribbean.  
Effective: Fall 2012

HIST 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

HIST 399 (IL)

**Foreign Study--History** (1-12) Study in selected foreign countries of various periods and topics in history.  
Effective: Summer 2005

HIST 401 (J ST 401) (IL)

**Ancient Technologies and Socio-cultural History in the Ancient Levant** (3) Social and intellectual development in the Ancient Levant as they affected and were affected by technological development.  
Effective: Spring 2006  
Prerequisite: RL ST 110

HIST 402 (IL)

**The Rise of the Greek Polis** (3) Development of the Greek city-state from Homeric times to the fifth century B.C.; special references to Athenian society.  
Effective: Spring 2006  
Prerequisite: HIST 100

HIST 403 (IL)

**Alexander the Great and the Hellenistic World** (3) The career of Alexander, his impact on his own time, and the Hellenistic legacy.  
Effective: Spring 2006  
Prerequisite: HIST 100

HIST 405Y (IL)

**The Roman Empire** (3) The political and social history of the Roman empire; economic institutions and religious groups which influenced Roman administration.  
Effective: Spring 2006  
Prerequisite: HIST 001 HIST 101 or 3 credits in classical studies

HIST 407 (IL)

**Early Medieval Society** (3) Rise of European nations and evolution of their social and political institutions from the time of Constantine to the Crusades.  
Effective: Spring 2006  
Prerequisite: HIST 107

HIST 408 (IL)

**Church and State in the High Middle Ages** (3) European political, institutional, and social history in light of church-state tensions from the Crusades to the Renaissance.  
Effective: Spring 2006  
Prerequisite: HIST 107

HIST 409Y (J ST 409Y, RL ST 407Y) (IL)

**European Anti-Semitism from Antiquity to the Present** (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.  
Effective: Summer 2005

HIST 410 (J ST 410, RL ST 410) (US;IL)

**Jews in the Medieval World** (3) Trends in medieval Jewish society under Islam and Western Christendom.  
Effective: Spring 2006

HIST 411 (MEDVL 411) (IL)

**Medieval Britain** (3) Political, cultural, and economic history of Britain from circa 400 to 1485 with an emphasis on the kingdom of England.  
Effective: Spring 2006  
Prerequisite: 6 credits in European history or medieval studies

HIST 412 (IL)

**Intellectual History of the Middle Ages** (3) Intensive study of selected topics, such as philosophy, mysticism, heresy, the church, literary and artistic expression, and science.  
Effective: Spring 2006  
Prerequisite: HIST 107

HIST 413 (MEDVL 413) (IL)

**Medieval Celtic Studies** (3) Celtic civilization from antiquity to the end of the middle ages.

Effective: Spring 2006

Prerequisite: 3 credits in medieval studies or in language literature or European history of the medieval period

HIST 414 (IL)

**Renaissance and Reformation** (3) The transformation of consciousness from medieval to modern times, with special emphasis on Renaissance Italy and Reformation Germany.

Effective: Spring 2006

Prerequisite: HIST 001

HIST 415 (US;IL)

**Race, Gender, and Politics in the United States and South Africa** (3) This thematic course will compare key issues, figures, and events in the historical development of the United States and South Africa.

Effective: Spring 2013

Prerequisite: AF AM 100 AF AM 102 AFR 110 AFR 192 or HIST 152

HIST 417 (IL)

**The Age of Absolutism** (3) Seventeenth- and eighteenth-century royal absolutism in France, Prussia, and Austria; concurrent economic, social, and scientific developments; the Enlightenment.

Effective: Spring 2006

Prerequisite: HIST 001

HIST 418 (IL)

**The French Revolution and the Napoleonic Era** (3) Development of revolutionary France and the First French Empire and their impact on Europe from 1789 to the Vienna settlement.

Effective: Spring 2006

Prerequisite: HIST 002

HIST 418W (IL)

**The French Revolution and the Napoleonic Era** (3) Developments of revolutionary France and the First French Empire and their impact on Europe from 1789 to the Vienna settlement.

Effective: Spring 2008

Prerequisite: HIST 002

HIST 419 (US;IL)

**The History of Feminist Thought** (3) A critical analysis of European and United States feminist thought from the renaissance to the present.

Effective: Spring 2013

Prerequisite: HIST 116 HIST 117 WMNST 100 or WMNST 106

HIST 420 (IL)

**Recent European History** (3) Impact of two World Wars in twentieth century; social conflict and economic catastrophe; political radicalism; post-1945 recovery and cooperation.

Effective: Spring 2006

Prerequisite: 3 credits in European history

HIST 421 (WMNST 421) (IL)

**The History of European Women** (3) European women's lives from the Middle Ages to the present.

Effective: Spring 2013

Prerequisite: HIST 116 HIST 117 WMNST 100 or WMNST 106

HIST 427 (IL)

**Germany Since 1860** (3) Bismarckian power-state; rise to economic dominance; welfare and warfare under Weimar republic and Hitler; post-1945 reconstruction and democracy.

Effective: Spring 2006

Prerequisite: 3 credits in European history

HIST 428 (S T S 428) (IL)

**The Darwinian Revolution** (3) The origins and implications of evolutionary theory.

Effective: Spring 2006

Prerequisite: an introductory science course and a history course

HIST 430 (IL)

**Eastern Europe in Modern Times** (3) Influence of geography, economic conditions, and nationalism upon the Eastern European and Balkan peoples; Pan-Slavism, conflicting interests of the great powers.

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

HIST 431 (AF AM 431) (US;IL)

**Black Liberation and American Foreign Policy** (3) This course deals with American foreign policy and Black liberation in Africa since 1945.

Effective: Fall 2012

Prerequisite: 3 credits in African history; 3 credits in African political science; or 3 credits in American political science

HIST 432 (AF AM 432) (IL)

**Between Nation and Empire: The Caribbean in the 20th Century** (3) An exploration of the political evolution of the Caribbean Region over the course of the 20th Century.

Effective: Fall 2012

Prerequisite: HIST 250

HIST 433 (IL)

**Imperial Russia, 1700-1917** (3) Enlightened absolutism, mercantilism, westernization; economic progress, liberal reforms, and revolutionary movement; major intellectual and cultural trends; Russia as great power.

Effective: Spring 2006

Prerequisite: HIST 141

HIST 434 (IL)

**History of the Soviet Union** (3) Revolution; social, political, economic, and cultural continuity and change in the U.S.S.R. since 1917.

Effective: Spring 2006

Prerequisite: HIST 141 or HIST 142

HIST 436 (IL)

**Great Britain Under the Tudors and Stuarts, 1485-1688** (3) Religious, political, and constitutional developments in the British Isles.

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

HIST 437 (IL)

**Great Britain 1688-1867** (3) Social, economic, and political history of Great Britain from late Stuart times until the mid-Victorian era.

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

HIST 438 (IL)

**Great Britain 1867-Present** (3) Social, economic, and political history of Great Britain from the mid-Victorian era to the present.

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

HIST 440 (US)

**Colonial America to 1753** (3) Background, establishment, and growth of the American colonies, including economic, political, social, religious, and intellectual developments.

Effective: Spring 2006

Prerequisite: HIST 020 3 additional credits in history

HIST 441 (US)

**Revolutionary America, 1753-1783** (3) Forces in Great Britain and America causing withdrawal of thirteen colonies from the British Empire and the Revolutionary War.

Effective: Spring 2006

Prerequisite: HIST 020 3 additional credits in history

HIST 442 (US)

**The Early American Republic, 1783-1850** (3) Confederation and Constitution; the Federalist and Jeffersonian periods; "the Era of Good Feelings"; "the Age of Jackson."

Effective: Spring 2006

Prerequisite: 3 credits in American history

HIST 444 (US)

**The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

Effective: Spring 2006

Prerequisite: HIST 130

HIST 444U (US)

**The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: HIST 130

HIST 444U (US)

**The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: HIST 130

HIST 444W (US)

**The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of reconstruction.

Effective: Spring 2008

Prerequisite: HIST 130 or HIST 020

HIST 445 (US)

**The Emergence of Modern America** (3) Economic, social, political history of the United States, 1877-1919, emphasizing growth of industrialism and development as a modern nation.

Effective: Spring 2006

Prerequisite: HIST 021 3 additional credits in history economics or political science

HIST 446 (US)

**America Between the Wars** (3) The Roaring Twenties, the Great Crash, Depression, and New Deal; war debts, reparations, isolationism, and World War II.

Effective: Spring 2006

HIST 447 (AM ST 447) (US)

**Recent American History** (3) Contemporary economic, social, and political aspects of the United States and its role as a world power since 1945.

Effective: Spring 2014

Prerequisite: HIST 021 3 additional credits in history economics or political science

HIST 448 (US)

**America in the 1960s** (3) Social, political, and cultural themes in the United States in the 1960s.

Effective: Spring 2006

Prerequisite: HIST 021

HIST 449 (US)

**Constitutional History of the United States to 1877** (3) Colonial background; framing and adoption of the constitution; development of the court under Marshall and Taney; sectionalism, Civil War, Reconstruction.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021 3 additional credits in history or political science

HIST 450 (US)

**Constitutional History of the United States Since 1877** (3) Constitutional developments from laissez-faire to the welfare state; imperialism, war, internationalism; the contemporary court, civil liberties, and civil rights.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021 3 additional credits in history or political science

HIST 451 (US)

**The Consumer Revolution** (3) The origins and impact of American consumer society since 1870.

Effective: Spring 2006

Prerequisite: three credits in history marketing or advertising

HIST 452 (US;IL)

**History of U.S. Foreign Relations** (3) History of U.S. foreign relations since 1789; emphasis on twentieth century.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021

HIST 454 (US)

**American Military History** (3) Development of U.S. military policy, 1776 to the present, emphasizing the conduct of our wars, interrelationship of civil and military authority.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021

HIST 456Y (US)

**The Social History of American Vernacular Building, 1607-1980** (3) Social, historical, and cultural context of American building including settlements, housing, workplaces, stores, recreational facilities; changes over time.

Effective: Spring 2006

Prerequisite: 3 credits in American history

HIST 457 (S T S 457, WMNST 457) (US;IL)

**The History of Women in Science** (3) Critical analysis of the roles women, gender, and minorities have played in natural sciences.

Effective: Spring 2013

Prerequisite: HIST 116 HIST 117 WMNST 100 WMNST 106 or WMNST 157

HIST 458Y (LER 458Y) (US)

**History of Work in America** (3) A study of selected problems in the history of work in the United States, especially since 1877.

Effective: Spring 2008

Prerequisite: HIST 021 HIST 156 or LER 100

HIST 459Y (US)

**Social and Cultural History of the United States Since 1783** (3) Role of immigration, social reform movements, religion, education, science, literature, and the arts in American history.

Effective: Spring 2006

HIST 460 (US;IL)

**United States Foreign Intelligence** (3) Aims, methods, and organization of U.S. foreign intelligence from the American Revolution to the Cold War and beyond.

Effective: Spring 2006

HIST 461 (US;IL)

**The Emergence of the American City: 1100-1880** (3) The growth of American cities from their urban origins in Europe and the Native-American Southwest to 1880.

Effective: Spring 2006

HIST 462 (US;IL)

**The Twentieth Century City** (3) Political, economic, social, and cultural transformations in American cities from 1880 to 2000.

Effective: Spring 2006

HIST 463 (US)

**American Thought to 1865** (3) Introduction to, scholarly commentary on, major documents of American Intellectual

history, early colonial period to end of the Civil War.

Effective: Spring 2006

Prerequisite: any American history course at the college freshman level

HIST 464 (US)

**American Thought from 1865** (3) Introduction to, scholarly commentary on, major documents of American Intellectual history from end of the Civil War to the present.

Effective: Spring 2006

Prerequisite: any American history course at the college freshman level

HIST 465 (AF AM 465) (US)

**Civil Rights and American Politics 1933-1968** (3) The civil rights struggle and its impact upon American politics.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: AF AM 100 HIST 021 HIST 152 PL SC 001 or PL SC 002

HIST 465 (AF AM 465) (US)

**The Post-World War II Civil Rights Movement** (3) The civil rights struggle and its impact upon American politics.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 HIST 021 HIST 152 PL SC 001 or PL SC 002

HIST 466 (WMNST 466) (US;IL)

**Lesbian and Gay History** (3) Critical exploration of the history of sexuality, focusing especially on the emergence of modern lesbian and gay identities.

Effective: Spring 2013

Prerequisite: HIST 117 WMNST 100

HIST 467 (LTNST 467) (US;IL)

**Latin America and the United States** (3) Historical development of policies of the United States with regard to Latin-American affairs from colonial times to the present.

Effective: Fall 2008

HIST 468 (IL)

**Mexico and the Caribbean Nations in the Twentieth Century** (3) Political, economic, and social development in Mexico and the Caribbean since 1900. Emphasis on Mexican, Guatemalan, and Cuban revolutions.

Effective: Spring 2006

HIST 471Y (RL ST 471Y) (IL)

**Classical Islamic Civilization, 600-1258** (3) Pre-Islamic Arabia; Muhammad; Arab conquests; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.

Effective: Fall 2006

HIST 472 (IL)

**The Ottoman Empire and Other Muslim States** (3) Turkish and Mongol invasions; Mamluks; Ottoman expansion and institutions; Safavid Persia; disintegration and reform; emergence of modern Turkey and Iran.

Effective: Spring 2006

Prerequisite: HIST 181

HIST 473 (IL)

**The Contemporary Middle East** (3) Political, economic, and social changes in Turkey, Iran, Israel, and the Arab countries in the twentieth century; Arab-Israeli conflict.

Effective: Spring 2006

HIST 475Y (IL)

**The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

Effective: Spring 2006 Ending: Fall 2014

Prerequisite: HIST 010 HIST 011 HIST 172 HIST 175 HIST 176 HIST 181 or HIST 191

HIST 475Y (ASIA 475Y) (IL)

**The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 010 HIST 011 HIST 172 HIST 175 HIST 176 HIST 181 or HIST 191

HIST 476 (ASIA 476) (IL)

**Technology & Society in Modern Asia** (3) Role of technology in modernization, national identity, and foreign relations of an Asian country from 19th century to present day.

Effective: Summer 2014

Prerequisite: ASIA 100 HIST 172 HIST 173 HIST 174 HIST 175 HIST 176 HIST 183 HIST 184 HIST 188

HIST 479 (IL)

**History of Imperialism and Nationalism in Africa** (3) Theories and types of imperialism; varied patterns of colonial administration; initial African responses; nationalism; decolonization and independence.

Effective: Spring 2006

Prerequisite: HIST 191

HIST 480 (IL)

**Medieval Japan** (3) An overview of Japan between 1150-1550, a period of political decentralization, cultural efflorescence, and social change.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 107 HIST 172 HIST 174 or HIST 407

HIST 480 (ASIA 480) (IL)

**Japan in the Age of Warriors** (3) An overview of Japan the 10th to 17th century, a period of political decentralization, cultural efflorescence, and social change.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 107 HIST 172 HIST 174 or HIST 407

HIST 481 (IL)

**Modern Japan Since 1800** (3) The transformation of Japan from a pre-modern, isolated, and agricultural nation into a highly industrialized world power.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 172 HIST 174 or HIST 175

HIST 481 (ASIA 481) (IL)

**Modern Japan Since 1800** (3) The transformation of Japan from a relatively isolated, agricultural nation into a highly industrialized world power.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172 HIST 174 or HIST 175

HIST 483 (IL)

**Chinese Society and Culture to 1800** (3) The social, political, and cultural issues and developments from ancient to the late-imperial times.

Effective: Spring 2006 Ending: Fall 2014

Prerequisite: HIST 174

HIST 483 (ASIA 483) (IL)

**Middle China** (3) The social, political, and cultural issues and developments from the 8th to 16th century.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 174

HIST 484Y (IL)

**History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 174 or HIST 175

HIST 484Y (ASIA 484Y) (IL)

**History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 174 or HIST 175

HIST 485Y (IL)

**Nineteenth-Century China** (3) Ch'ing society and institutions; "opening" to the west; imperialism; domestic upheaval and its effect upon Chinese society; reform movements.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian history)

HIST 485Y (ASIA 485Y) (IL)

**China's Last Empire: The Qing Dynasty, 1644-1911** (3) China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian history)

HIST 486 (IL)

**Twentieth-Century China** (3) China from the Republican Revolution of 1911 to the present; nationalism, cultural change; development of communism.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian History)

HIST 486 (ASIA 486) (IL)

**China in Revolution** (3) China from 1900 to the present; nationalism, cultural change; development of communism.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian History)

HIST 489 (PL SC 486, ASIA 489) (IL)

**International Culture in East Asia** (3) Study of the role of culture in East Asian regional and East-West international relations.

Effective: Summer 2013

Prerequisite: any one of the following: HIST 172 HIST 174 HIST 175 HIST 480 HIST 481 HIST 483 HIST 484 HIST 485 HIST 486

HIST 491 (IL)

**British Civil Wars and Revolutions, 1639-1651** (3) This is an advanced course on the history of the general crisis in the British Isles, from the outbreak of war between England and Scotland in 1639 to the securing of the Commonwealth regime following the destruction of the last major royalist army in 1651.

Effective: Fall 2009

Prerequisite: HIST 002 HIST 134 or HIST 436

HIST 492 (IL)

**Witchcraft in Early Modern Europe** (3) Survey of the social, economic, political, and religious conditions of accusations and prosecutions of witchcraft in western Europe and north America, from 1500 to 1700.

Effective: Fall 2009

Prerequisite: HIST 002

HIST 493 (JAPNS 427) (IL)

**Japan in the World** (3) Study of Japan's foreign relations and position in the international community from the early 19th century to the present.

Effective: Spring 2014 Ending: Fall 2014

Prerequisite: ASIA 100 HIST 172 HIST 175 or HIST 481

HIST 493 (ASIA 493) (IL)

**Japan in the World** (3) Study of Japan's foreign relations and position in the international community from the early 19th century to the present.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ASIA 100 HIST 172 HIST 175 or HIST 481

HIST 499 (IL)

**Foreign Study--History** (1-6) Study in selected foreign countries of various periods and topics in history.

Effective: Summer 2005

Prerequisite: 3 credits in the appropriate introductory history course for the geographic location specified

HM 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2014 Future: Fall 2014

HM 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2014 Future: Fall 2014

HM 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2014 Future: Fall 2014

HM 365 (IL)

**Organizational Behavior in the Hospitality Industry** (3) Study of individual satisfaction and performance in hospitality organizations. Topics include cultural diversity, motivation, communication, group behavior, and leadership.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 201

HM 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2014 Future: Fall 2014

HM 466 (US)

**Human Resource Management in the Hospitality Industry** (3) Recruitment, selection, training, performance appraisal, and compensation of hospitality human resources in today's culturally diverse work force.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required in HM 201 HM 365

HM 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2014 Future: Fall 2014

HORT 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

HORT 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

HORT 499A (IL)

**Landscape in Italy** (0.5) Traveling with students that took HORT 499 to Italy to look at various real-life examples of landscape.

Effective: Summer 2014 Ending: Summer 2014

HRIM 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007 Ending: Summer 2014

HRIM 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007 Ending: Summer 2014

HRIM 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007 Ending: Summer 2014

HRIM 365 (IL)

**Organizational Behavior in the Hospitality Industry** (3) Study of individual satisfaction and performance in hospitality organizations. Topics include cultural diversity, motivation, communication, group behavior, and leadership.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: HRIM 201

HRIM 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007 Ending: Summer 2014

HRIM 466 (US)

**Human Resource Management in the Hospitality Industry** (3) Recruitment, selection, training, performance appraisal, and compensation of hospitality human resources in today's culturally diverse work force.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 201 HRIM 365

HRIM 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007 Ending: Summer 2014

IB 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2011

IB 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2011

IB 303 (IL)

**International Business Operations** (3) A survey of the major aspects of international business environment and operations with an emphasis on the cultural dimension.

Effective: Summer 2011

Prerequisite: fifth-semester standing

IB 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2011

IB 440 (PL SC 440, AFR 440) (US;IL)

**Globalization and Its Implications** (3) This course explores the socioeconomic implications of globalization.

Effective: Spring 2013

Prerequisite: AF AM 100 or AFR 110 or PL SC 003 or PL SC 014 or PL SC 020 or PL SC 022

IB 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2011

IE 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

IE 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

IE 399 (IL)

**Foreign Studies--Industrial Engineering** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

IE 499 (IL)

**Foreign Studies--Industrial Engineering** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

I HUM 150 (GH;IL)

**World Mythologies in the Arts** (3) Interdisciplinary, cross cultural, historical, and contemporary study of world mythologies as represented in the visual arts, literature, and film.

Effective: Spring 2009

I HUM 311 (GH;IL)

**The Western Tradition I** (3) From prehistory through the Roman world.

Effective: Summer 2005

Prerequisite: fifth-semester standing

I HUM 410 (IL)

**Religion and Culture** (3) A comparative examination of several world religions in their social and cultural contexts.

Effective: Summer 2005

Prerequisite: sixth-semester standing

I HUM 461 (IL)

**Selected Periods in the Humanities** (3) Interdisciplinary studies dealing with selected periods of world culture. (May be repeated for credit.)

Effective: Summer 2005



Prerequisite: fifth-semester standing

I HUM 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

INART 062 (GA;US;IL)

**West African and African American Arts: from the 1960s to the present** (3) An introduction to West African and African American Arts from the 1960s to the present.

Effective: Summer 2014

INART 062U (GA;US;IL)

**West African and African American Arts: from the 1960s to the present** (3) An introduction to West African and African American Arts from the 1960s to the present.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

INART 115 (GA;US)

**The Popular Arts in America: Popular Music** (3) An examination of the roots, development, and significance of popular music in our culture.

Effective: Summer 2013

INART 116 (GA;US)

**The Popular Arts in America: The History of Rock and Roll-The 1950s** (3) This course examines the roots, development, and significance of rock and roll music in its first decade.

Effective: Summer 2012

INART 125 (GA;US;IL)

**The Popular Arts in America: The History of Rock and Roll - Punk Rock** (3) An examination of the roots, development, and significance of punk rock in our culture.

Effective: Summer 2012

INART 126 (AF AM 126) (GA;US)

**The Popular Arts in America: The History of Rock and Roll - Hip-Hop** (3) An examination of the roots, development, and significance of hip-hop in our culture.

Effective: Spring 2014

INART 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

INART 220 (GA;US)

**Stand-Up Comedy: A Cultural History** (3) An American cultural history from mid-19th through mid-20th Century as seen through the prism of stand-up comedy.

Effective: Summer 2013

Prerequisite: sophomore standing

INART 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

INART 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

INART 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2012

INSYS 100 (GS;IL)

**World Technologies and Learning** (3) This course examines the impact of learning technologies from email to online learning on world cultures from a socio-technical perspective.

Effective: Spring 2006

INTAG 100 (GS;IL)

**Introduction to International Agriculture** (3) Ag in developing countries; contemporary crucial issues in global agriculture; emphasizing hunger and food security.

Effective: Summer 2013

INTAG 300 (IL)

**Agricultural Production and Farming Systems in the Tropics** (3) This course focuses on contemporary issues in tropical agriculture and the production of crops, livestock and forestry within tropical agroecosystems.

Effective: Summer 2013

INTAG 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

INTAG 499I (AG BM 499I) (IL)

**Exploring Greek Food Systems** (0.5) Travel to Thessaloniki and surrounding sites. Learn about food systems in Greece, how economic issues are affecting agriculture, and the history and culture of the country. The trip concludes in Athens.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: INTAG 499G or AG BM 499G

INTAG 499K (IL)

**Travel Exploring Turfgrass Management in the United Kingdom** (0.5) Travel to the United Kingdom to explore differences in turfgrass management between the United States and the United Kingdom.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: INTAG 499J

INTAG 499L (IL)

**Exploring Contemporary Issues in the Caribbean: A Journey Through Trinidad and Tobago** (3) Exploring cultural history and social policy which influences societal issues on the islands of Trinidad and Tobago.

Effective: Summer 2014 Ending: Summer 2014

INTST 100 (GS;IL)

**Introduction to International Studies** (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.

Effective: Summer 2005

INTST 100S (GS;IL)

**Introduction to International Studies** (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.

Effective: Summer 2005

INTST 100U (GS;IL)

**Introduction to International Studies** (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

INTST 400 (IL)

**Seminar in International Studies** (3) An upper-division seminar focusing on one or two critical international issues from an interdisciplinary perspective; individual projects.

Effective: Spring 2007

Prerequisite: INTST 100

IST 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

IST 235 (WMNST 235) (US)

**Gender and the Global Information Technology Sector** (3) Integrates information technology and gender studies. Overview issues and socio-cultural shaping of gender in the IT field.

Effective: Summer 2013

IST 341 (US;IL)

**Human Diversity in the Global Information Economy** (3) Globalization, human diversity and their impacts on IT products, work, workforce, and the knowledge economy and social inclusion in general.

Effective: Fall 2010

Prerequisite: IST 110

IST 442 (IL)

**Information Technology in an International Context** (3) International concepts to improve strategies for the design, dissemination, and use of information technology.

Effective: Summer 2006

Prerequisite: IST 110

IT 083S (GH;IL)

**First-Year Seminar in Italian Literature, Film, and Culture** (3) Introduction to the study of Italian literature, film, and culture.

Effective: Summer 2005

IT 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

IT 130 (GH;IL)

**Italian Culture and Civilization** (3) Italian life from antiquity to the present; literature, film, the arts, and contemporary problems in historical perspective.

Effective: Summer 2005

IT 131 (GH;US)

**Italian American Culture and Civilization** (3) Italian-American experience from the late 19th century to present. Socio-political issues seen through cinema and through literary and other readings.

Effective: Summer 2005

IT 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

IT 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

IT 399 (IL)

**Foreign Study--Italian** (1-12) Advanced training in Italian language skills.

Effective: Summer 2005

Prerequisite: IT 003

J ST 004 (CAMS 004, RL ST 004) (GH;US;IL)

**Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationship to culture.

Effective: Summer 2005

J ST 010 (HEBR 010) (GH;IL)

**Jewish Civilization** (3) Life of the Jewish people from biblical times; emphasizing cultural, religious, and institutional developments.

Effective: Summer 2005

J ST 012 (CAMS 012, RL ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

J ST 012U (CAMS 012U, RL ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 060 (ANTH 060, PL SC 060, SOC 060) (GS;IL)

**Society and Cultures in Modern Israel** (3) An introduction to the society and cultures of the State of Israel from 1948 to the present.

Effective: Summer 2006

J ST 070 (CAMS 070, RL ST 070) (GH;IL)

**Prophecy: The Near East Then and Now** (3) Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.

Effective: Summer 2007

J ST 083S (GH;IL)

**First-Year Seminar in Jewish Studies** (3) Critical approaches to the history, sociology, and literature of Jewish Studies.

Effective: Summer 2005

J ST 090 (CAMS 090, RL ST 090) (GH;IL)

**Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

Effective: Summer 2005

J ST 102 (CAMS 102, HIST 102, RL ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

J ST 106 (RL ST 106) (GH;IL)

**Mysticism** (3) A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

Effective: Spring 2012

J ST 110 (CAMS 110, RL ST 110) (GH;US;IL)

**Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.

Effective: Summer 2005

J ST 111 (CAMS 111, RL ST 111) (GH;IL)

**Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

Effective: Summer 2005

J ST 114 (RL ST 114) (GH;US;IL)

**Modern Judaism** (3) Trends in Jewish life and thought since the French revolution; Judaism's responses to the challenge of modernity.

Effective: Summer 2005

J ST 115 (HIST 115, RL ST 115) (GH;US)

**American Jewish History and Culture** (3) Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.

Effective: Summer 2006

J ST 118 (HIST 118) (US;IL)

**Modern Jewish History: 1492 to Present** (3) Jewish social and political history from 1492 to the present.

Effective: Spring 2006

J ST 121 (HIST 121) (GH;IL)

**History of the Holocaust 1933-1945** (3) Historical analysis of holocaust themes.

Effective: Summer 2005

J ST 122 (CAMS 122, RL ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

Effective: Summer 2014

J ST 123 (CAMS 123, RL ST 123) (GH;IL)

**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of the ancient Near East: Judaism, Christianity, and Islam.

Effective: Summer 2014

J ST 124 (CAMS 124, RL ST 124) (GH;US;IL)

**Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.

Effective: Summer 2005

J ST 131 (CMLIT 110) (GH;US;IL)

**Jewish Literature: An International Perspective** (3) Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas.

Effective: Spring 2011

J ST 132 (ENGL 132) (GH;US)

**Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.

Effective: Spring 2009

J ST 132U (ENGL 132U) (GH;US)

**Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 134 (CAMS 134, RL ST 134) (GH;IL)

**Archaeology of Biblical Israel** (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.

Effective: Summer 2005

J ST 137 (RL ST 137, WMNST 137) (GH;US;IL)

**Women and Religion** (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.

Effective: Fall 2012

Prerequisite: third-semester standing

J ST 153 (CAMS 153, RL ST 153) (GH;IL)

**Dead Sea Scroll** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scroll, Jewish texts from approximately 225 B.C.E. to 68 C.E.

Effective: Summer 2014

J ST 160 (CAMS 160, RL ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.

Effective: Summer 2014

J ST 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

J ST 205 (HIST 205) (GH;US)

**American Antisemitism** (3) The Phenomenon of antisemitism in American history from Peter Stuyvesant to the present.

Effective: Summer 2011

J ST 210 (CAMS 210) (GH;IL)

**Numismatics and the Historian** (3) Numismatics--the scholarly study of coins and medals--is a major tool in the study of Classical history and archaeology.

Effective: Summer 2012

J ST 220 (HIST 220) (GH;IL)

**The Jewish and Other Diasporas** (3) Introduction to and survey of the Jewish and other Diasporas around the world.

Effective: Spring 2012

J ST 235 (HIST 235, RL ST 235) (US;IL)

**The Church and the Jews** (3) Examination of the relationship between Western church and the Jews from the First Century to Enlightenment.

Effective: Spring 2006

J ST 280 (WMNST 280, RL ST 280) (GH;IL)

**Women and Judaism** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.

Effective: Fall 2006

J ST 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

J ST 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

J ST 401 (HIST 401) (IL)

**Ancient Technologies and Socio-cultural History in the Ancient Levant** (3) Social and intellectual development in the Ancient Levant as they affected and were affected by technological development.

Effective: Spring 2006

Prerequisite: RL ST 110

J ST 405 (RL ST 405) (IL)

**Ancient Jewish Traditions and Modern Food Movements** (3) Jewish laws, customs and attitudes with regard to food production, agricultural policy and eating from biblical to modern times.

Effective: Spring 2012

J ST 409Y (HIST 409Y, RL ST 407Y) (IL)

**European Anti-Semitism from Antiquity to the Present** (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.

Effective: Summer 2005

J ST 410 (HIST 410, RL ST 410) (US;IL)

**Jews in the Medieval World** (3) Trends in medieval Jewish society under Islam and Western Christendom.

Effective: Spring 2006

J ST 411 (RL ST 411) (US;IL)

**Jewish Studies** (3) Study of the life and thought of a particular period or movement in the history of Judaism.

Effective: Spring 2006

Prerequisite: 3 credits in religious studies

J ST 457 (ANTH 457, SOC 457) (US;IL)

**Jewish Communities: Identity, Survival, and Transformation in Unexpected Places** (3) Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement.

Effective: Summer 2006

Prerequisite: ANTH 001 or ANTH 045 HEBR 010 J ST 010 SOC 001 SOC 005 SOC 007 SOC 015

J ST 499 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

JAPNS 099 (IL)

**Foreign Study** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

JAPNS 110 (IL)

**Level Two Japanese B** (4) Intermediate Japanese - Continued study of modern Japanese at intermediate level; extensive audio-lingual practice for conversational fluency; reading/writing original scripts.

Effective: Spring 2011

Prerequisite: JAPNS 003

JAPNS 120 (GH;IL)

**Japanese Literature in Its Cultural Context** (3) Japanese literature and film from classical through contemporary times, with attention to changing cultural settings. Taught in English.

Effective: Spring 2010

JAPNS 120W (GH;IL)

**Japanese Literature in its Cultural Context** (3) Japanese Literature in its Cultural Context: Japanese literature and Culture from Classical through contemporary times; writing intensive.

Effective: Summer 2013

JAPNS 121 (GH;IL)

**Japanese Film and New Media** (3) Survey of Japanese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English.

Effective: Spring 2010

JAPNS 199 (IL)

**Foreign Study--Basic Japanese** (1-8) Small group instruction in spoken and written modern Japanese at the introductory level.

Effective: Spring 2010

JAPNS 299 (IL)

**Foreign Study--Intermediate Japanese** (1-12) Small group instruction in spoken and written modern Japanese at the intermediate level.

Effective: Spring 2010

Prerequisite: JAPNS 002

JAPNS 399 (IL)

**Foreign Study** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

JAPNS 401 (IL)

**Level Three Japanese A** (4) Further acquisition of the four language skills in Japanese--reading, writing, speaking and listening comprehension.

Effective: Spring 2011  
Prerequisite: JAPNS 110

JAPNS 402 (IL)

**Level Three Japanese B** (4) Exclusively for study abroad returnees. To further develop Japanese proficiency in speaking, listening, reading, and writing.

Effective: Spring 2011  
Prerequisite: JAPNS 401

JAPNS 403Y (IL)

**Level Four Japanese A** (4) Continuation of JAPNS 402. Aims to improve students' proficiency in all four language skills, with a special emphasis on writing.

Effective: Fall 2012  
Prerequisite: JAPNS 402

JAPNS 404 (IL)

**Level Four Japanese B** (4) Continuation of JAPNS 403Y. Aims to improve students' proficiency in all four language skills through content-based language learning.

Effective: Fall 2013  
Prerequisite: JAPNS 403Y

JAPNS 410 (IL)

**Japanese Through Manga** (3) The course aims to expand students' knowledge and application of Japanese language beyond elementary and intermediate textbooks through the use of manga (graphic novels).

Effective: Summer 2013  
Prerequisite: JAPNS 110 or equivalent

JAPNS 421 (IL)

**Courtly Japan** (3) Focused study of aristocratic society and culture of Heian period Japan.

Effective: Spring 2012  
Prerequisite: JAPNS 120 JAPNS 121 or HIST 172

JAPNS 422 (IL)

**War and the Warrior in Japan** (3) Survey of the role of warfare and the warrior in Japan, with attention to changing cultural settings. Taught in English.

Effective: Summer 2011  
Prerequisite: JAPNS 120 or JAPNS 121 or HIST 172

JAPNS 423 (IL)

**Men, Women, and Animals** (3) Japanese history and culture through the lens of relations between men and women and between humans and animals.

Effective: Summer 2011  
Prerequisite: HIST 172 JAPNS 120 or JAPNS 121

JAPNS 424 (IL)

**Traveling Voices** (3) Transnational Writings of Japan: from Modern to Contemporary Eras .

Effective: Spring 2012  
Prerequisite: JAPNS 120 JAPNS 121 or HIST 172

JAPNS 450 (IL)

**Introduction to Classical Japanese** (3) Basic patterns and structures of Classical Japanese from its development in the 6th century through usage in the 20th century.

Effective: Summer 2013  
Prerequisite: JAPNS 402 or equivalent

JAPNS 452 (IL)

**Contemporary Japan: Cultures, Lifestyles, Trends** (3 per semester/maximum of 6) Survey of aspects of modern Japanese society; includes readings from Japanese newspapers, magazines, and fiction; topics may vary each semester.

Effective: Spring 2010  
Prerequisite: JAPNS 401

JAPNS 453 (IL)

**Japanese Film** (3 per semester/maximum of 6) Selected films and directors representing various aspects of Japanese culture and cinema; topics may vary each semester.

Effective: Spring 2010  
Prerequisite: JAPNS 401

JAPNS 454 (IL)

**Japanese Literature** (3 per semester/maximum of 6) Selected works from important Japanese texts representing genres such as autobiography, poetry, fiction, and drama; topics may vary each semester.

Effective: Spring 2010  
Prerequisite: JAPNS 401

JAPNS 499 (IL)

**Foreign Study--Advanced Japanese** (1-15) Small group instruction in spoken and written modern Japanese at the advanced level.

Effective: Spring 2010  
Prerequisite: JAPNS 110 or JAPNS 299

KINES 141 (US;IL)

**The Socio-Cultural Dynamics of Kinesiology** (3) Evolution of cultural values in physical activity from antiquity to the present.

Effective: Spring 2014

KINES 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2011

KINES 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2011

KINES 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2011

KINES 424 (WMNST 424) (US)

**Women and Sport** (3) An interdisciplinary approach to contemporary issues related to women and sport from historical, physiological, psychological, and sociological perspectives.

Effective: Spring 2013

Prerequisite: PSYCH 100 PSYCH 231 PSYCH 479 SOC 001 or WMNST 100

KINES 441 (AM ST 441) (US)

**History of Sport in American Society** (3) Background, establishment, and growth of sport in America from colonial times to the present.

Effective: Fall 2007

Prerequisite: KINES 141 or 3 credits of United States history

KINES 442 (CAMS 442) (IL)

**Sport in Ancient Greece and Rome** (3) An examination of the continuity of sport in ancient Greek and Roman societies.

Effective: Spring 2008

Prerequisite: CAMS 025 CAMS 033 CAMS 140 CAMS 150 CAMS 100 CAMS 101 or KINES 141

KINES 443 (IL)

**The Modern Olympic Games** (3) An analysis of the modern Olympic Games from their inception through the current festival.

Effective: Spring 2006

Prerequisite: KINES 141 or 3 credits of history or philosophy

KINES 444 (US)

**History of Athletics in Higher Education** (3) Origin and development of athletics in American higher education from colonial times to the present.

Effective: Spring 2006

Prerequisite: KINES 141 or 3 credits of American history

KINES 446 (IL)

**History of Sport in the Modern World** (3) History of sport in modern world, ca. A.D. 1500 to present; concentrates on role of sport in societies outside United States.

Effective: Summer 2005

Prerequisite: KINES 141 or 3 credits of non-United States history

KINES 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2011

KOR 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

KOR 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

KOR 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

KOR 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

KOR 401 (IL)

**Level 3 Korean A** (4) KOR 401 is the first semester of third-year Korean, which is equivalent to Advanced-Intermediate Korean I.

Effective: Summer 2014

Prerequisite: KOR 110 or equivalent

KOR 402 (IL)

**Level 3 Korean B** (4) KOR 402 is the second semester of third-year Korean, which is equivalent to Advanced-Intermediate Korean II.

Effective: Summer 2014

Prerequisite: KOR 401 or equivalent

KOR 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

L A 199 (IL)

**Foreign Study--Liberal Arts** (1-9) Study in selected foreign countries of the cultural, institutional, and/or social development of the host country.

Effective: Summer 2005

L A 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

L A 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

L A 499 (IL)

**Foreign Study--Liberal Arts** (1-9) Study in selected foreign countries of the cultural, institutional, and/or social development of the host country.

Effective: Summer 2005

LANG 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

LANG 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

LANG 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

LANG 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

LANG 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

LARCH 060 (GA;US;IL)

**History of Design on the Land** (3) A survey of the historical development of outdoor space in relationship to allied arts from early beginnings to this century. Students may take only one course for General Education credit from LARCH 003 GA or 060 GA.

Effective: Fall 2010

LARCH 065 (GA;US;IL)

**Built Environment and Culture** (3) Investigates the relationship between socio-cultural practices and the development and organization of contemporary built environments.

Effective: Summer 2005

LARCH 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2006

LARCH 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2006

LARCH 331 (IL)

**Landscape Architectural Design Implementation I** (3) Introduction to landscape construction materials and their use in design; includes principles and techniques for detailed design of site elements. For Landscape Architecture majors only.

Effective: Spring 2012

Prerequisite: LARCH 231

LARCH 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2006

LARCH 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

LARCH 499A (IL)

**Design Theory Seminar** (1) Inquiry-based reading and discussion of design theory literature relevant to the focus and content of the associated design studio course, LARCH 499B. LARCH majors only.

Effective: Spring 2007

Prerequisite: LARCH 361W



## LARCH 499B (IL)

**Design and Theory VI: Contemporary/International Landscape Architectural Design Issues** (5) Study of and design for sites, programs, and social groups associated with ongoing contemporary landscape architectural concerns. LARCH majors only.

Effective: Spring 2012

Prerequisite: LARCH 312 LARCH 361W

## LARCH 499D (IL)

**Contemporary/International Special Topics** (3) Special topics related to, and study in conjunction with 499B. Landscape Architecture majors only.

Effective: Spring 2012

Prerequisite: LARCH 361W

## LARCH 499E (IL)

**People and Protected Areas** (3) LARCH 499E is a three-credit seminar that aims to introduce students to key issues associated with communities, community design, biodiversity conservation, and the interface of people and conservation in the vicinity of Udzungwa Mountains National Park in south-central Tanzania. The format of the course is reading and discussion, where students read assigned literature and then contribute to discussions led by faculty, both to demonstrate their understanding of the reading assignments and to begin to explore key issues introduced by those readings. Students also write two papers, the first examining the interface of rural land use planning, community design, and biodiversity conservation; and the second focusing on biodiversity conservation in the context of human settlement near Udzungwa Mountains National Park. Student evaluation is based on seminar participation and the two papers.

Effective: Summer 2014 Ending: Summer 2014

## LARCH 499F (IL)

**Community Design in the Vicinity of Udzungwa Mountains** (5) LARCH 499F is a five-credit course that focuses on student research projects associated with communities along the eastern boundary of Udzungwa Mountains National Park. We have purposefully maintained a general definition for the course to allow students to design projects that best suit their interests and skills. For example, some students may focus on evaluating existing village configurations and propose new designs that help villagers better meet their daily needs. Other students, in turn, may focus on developing a more marketable park that attracts larger numbers of visitors who stay in or near the park for longer periods of time - generating more income that ultimately will find its way, in part, to local communities.

Effective: Summer 2014 Ending: Summer 2014

## LARCH 499G (IL)

**The Contribution of Service-Learning to Students and Community** (1) LARCH 499G is a one-credit course designed to enable students to reflect on what for most will be their first opportunity to visit and work in rural East Africa. It involves the development of daily journals to record reflections on their evolving awareness of Tanzania and the challenges that people and conservation face in this less-developed country. The journals provide a foundation of reflections about one or more issues that interest each - maybe (though not necessarily) something close to the focus of the specific education abroad experience involved (e.g., the relationship between people and protected areas in south-central Tanzania), maybe international development in general, or maybe another topic. The journals also should be important personally: In all likelihood, this six-week period will expose students to places, people, and challenges that they have never seen in person.

Effective: Summer 2014 Ending: Summer 2014

## LATIN 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## LATIN 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## LATIN 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## LATIN 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## LATIN 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## LER 136 (WMNST 136) (US)

**Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

Effective: Spring 2008

## LER 136U (WMNST 136U) (US)

**Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## LER 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2008

LER 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2008

LER 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2008

LER 400 (IL)

**Comparative Employment Relations Systems** (3) Analysis of structure and elements of employment relations systems in developed and developing areas.

Effective: Spring 2008

Prerequisite: 3 credits in Labor and Employment Relations

LER 445Y (AF AM 445Y, PL SC 445Y) (US)

**Politics of Affirmative Action** (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

LER 458Y (HIST 458Y) (US)

**History of Work in America** (3) A study of selected problems in the history of work in the United States, especially since 1877.

Effective: Spring 2008

Prerequisite: HIST 021 HIST 156 or LER 100

LER 499 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2008

LING 001 (GS;US;IL)

**The Study of Language** (3) A non-technical introduction to the study of human language, and its role in human interaction. Students who have successfully completed LING 100 may not enroll in LING 001.

Effective: Summer 2005

LING 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

LING 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

LING 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

LING 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

LTNST 100 (GH;US)

**Introduction to Latina/s Studies** (3) This course provides an interdisciplinary introduction to the study of Latinas/os in the U.S.

Effective: Fall 2012

LTNST 127 (HIST 127) (US)

**Introduction to U.S. Latina/o History** (3) This course introduces students to the history of U.S. Latina/os, including Puerto Ricans, Dominicans, Chicanos, Cubans, and Central Americans.

Effective: Fall 2012

LTNST 226 (ENGL 226) (GH;US;IL)

**Latina and Latino Border Theories** (3) English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture.

Effective: Fall 2012

LTNST 300 (WMNST 300) (US)

**Latinas in the US: Gender Culture and Society** (3) This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latina feminisms in the United States.

Effective: Spring 2013

Prerequisite: LTNST 100 or WMNST 100

LTNST 315 (SPAN 315) (GH;US)

**Spanish and Spanish-speakers in the U.S.** (3) In this course, we investigate various aspects of the language(s) and language behaviors of U.S. Latinos.

Effective: Fall 2012

LTNST 403 (CMLIT 403) (US)

**Latina/o Literature and Culture** (3) Literary and other forms of cultural expression (film, music, art, and theater) are compared across different Latina/o communities.

Effective: Fall 2012

Prerequisite: 3 credits in the humanities or in any LTNST course or 4th-semester proficiency in Spanish

LTNST 426 (ENGL 426) (US)

**Chicana and Chicano Cultural Production: Literature, Film, Music** (3) An in-depth study of Chicana/Chicano literature, film, and music from the inception of the Chicano Movement (1965-1975) to the present.

Effective: Fall 2012

Prerequisite: 3 credits in English

LTNST 467 (HIST 467) (US;IL)

**Latin America and the United States** (3) Historical development of policies of the United States with regard to Latin-American affairs from colonial times to the present.

Effective: Fall 2012

LTNST 479 (LTNST 479) (GH;US)

**U.S. Latina/o Culture en Espanol** (3) The history, culture, art, and social issues of Latinos in the United States.

Effective: Summer 2014

Prerequisite: SPAN 253W

M E 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

M E 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

M E 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

M E 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

MATH 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MATH 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MATH 475W (US;IL)

**History of Mathematics** (3) A global survey of the history of mathematics as viewed as a human response to cultural, political, economic, and societal pressures.

Effective: Spring 2012

Prerequisite: MATH 315 or MATH 311W

MATH 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MATH 499A (IL)

**Geometry and Mathematical Physics** (2) PSU-PKU International Undergraduate Summer School, 2014 in Beijing, China.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: MATH 220 MATH 230 MATH 250 MATH 312

MATSE 081 (GN;IL)

**Materials in Today's World** (3) A survey of the properties, manufacture, and uses of polymers, ceramics and metals in today's world with emphasis on modern developments and new materials.

Effective: Summer 2005

MATSE 101A (EGEE 101A) (GN;IL)

**Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Fall 2007

MATSE 404 (BIOE 444) (IL)

**Surfaces and the Biological Response to Materials** (3) Focus is on the special properties of surfaces as an important causative and mediating agent in the biological response to materials.

Effective: Summer 2007 Ending: Fall 2014

Prerequisite: CHEM 111 CHEM 113

MATSE 404 (BME 444) (IL)

**Surfaces and the Biological Response to Materials** (3) Focus is on the special properties of surfaces as an important causative and mediating agent in the biological response to materials.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: CHEM 112 or MATSE 112

MATSE 484W (IL)

**International Internship in Materials: Research Definition and Methodology** (3) A course focused on international research, specific design and methodology, facilitated through the International Internship in Materials and Program.  
Effective: Summer 2006

Prerequisite: Sixth-semester standing in Materials Science and Engineering; MATSE 201 MATSE 460 MATSE 492W  
satisfactory completion of cultural class from Office of Education Abroad

MATSE 485W (IL)

**International Internship in Materials: Experimentation and Documentation** (3) A course focused on international research, specifically experimentation and documentation, facilitated through the International Internship in Materials Program.

Effective: Summer 2006

Prerequisite: Seventh-semester standing in Materials Science and Engineering; MATSE 484W ; satisfactory completion of cultural class from Office of Education Abroad

MEDVL 107 (HIST 107) (GH;IL)

**Medieval Europe** (3) Rise and development of the civilization of medieval Europe from the decline of Rome to 1500.

Effective: Spring 2006

MEDVL 108 (GH;IL)

**Medieval Civilization** (3) An interdisciplinary introduction to literature, art, and thought of the Middle Ages.

Effective: Spring 2006

MEDVL 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MEDVL 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MEDVL 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MEDVL 411 (HIST 411) (IL)

**Medieval Britain** (3) Political, cultural, and economic history of Britain from circa 400 to 1485 with an emphasis on the kingdom of England.

Effective: Spring 2006

Prerequisite: 6 credits in European history or medieval studies

MEDVL 413 (HIST 413) (IL)

**Medieval Celtic Studies** (3) Celtic civilization from antiquity to the end of the middle ages.

Effective: Spring 2006

Prerequisite: 3 credits in medieval studies or in language literature or European history of the medieval period

MEDVL 499 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MGMT 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MGMT 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MGMT 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MGMT 445 (US)

**Managing Differences in Organizations** (3) This course focuses on developing knowledge and skills for dealing with demographic, functional, occupational and identity-based differences within and among organizations.

Effective: Spring 2008 Ending: Fall 2014

Prerequisite: B A 304 or MGMT 301 ; MGMT 341

MGMT 445 (US)

**Managing a Diverse Workforce** (3) This course focuses on developing knowledge and skills for managing demographic, functional, occupational and identity-based differences within and among organizations.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: B A 304 or MGMT 301 ; MGMT 341

MGMT 461 (IL)

**International Management** (3) Examines issues of nations and cultures including motivation, communication, negotiation, leadership, ethics and social responsibility, and women in management.

Effective: Spring 2008

Prerequisite: B A 304 or MGMT 301

MGMT 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MICRB 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MICRB 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MICRB 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

MIS 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MIS 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MIS 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MIS 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MKTG 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MKTG 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MKTG 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MKTG 445 (IL)

**Global Marketing** (3) Role of international marketing in the global environment; political, economic, geographic, historical, cultural conditions; developing and implementing international marketing strategies.

Effective: Spring 2008

Prerequisite: B A 303 or MKTG 301

MKTG 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

MUSIC 007 (GA;US)

**Evolution of Jazz** (3) Study of the origins and development of jazz as an art form.

Effective: Summer 2005

MUSIC 009 (GA;IL)

**Introduction to World Musics** (3) An overview of the music of India, China, Japan, Indonesia, Africa, and the Middle East.

Effective: Summer 2005

MUSIC 093 (GA;US;IL)

**Essence of Joy** (1 per semester, maximum of 8) Rehearsal and performance of choral repertoire from the African/American tradition.

Effective: Spring 2006

Prerequisite: audition

MUSIC 162 (IL)

**Introduction to Music History** (2) An introduction to Western music history and world music of selected cultures through the study of representative works.

Effective: Spring 2006

MUSIC 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

MUSIC 261 (GA;IL)

**Survey of Music History I** (3) A survey of music history to 1750, with readings, listening, and lecture.

Effective: Spring 2012

Prerequisite: MUSIC 131 MUSIC 162

MUSIC 262 (GA;IL)

**Survey of Music History II** (3) A survey of music history from 1750 to the present, with readings, listening, and lecture.

Effective: Spring 2012

Prerequisite: MUSIC 132 MUSIC 162

MUSIC 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

MUSIC 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

MUSIC 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

NUC E 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

NUC E 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

NUC E 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

NUC E 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

NURS 111S (US;IL)

**Nursing Roles** (4) Introduction to nursing roles/process with emphasis on societal norms and multicultural influences on health care needs.

Effective: Spring 2011

Prerequisite: admission to 2NURS major

NURS 250 (US)

**Professional Role Dev I: Intro to Professional Issues in Nursing Practice and Nursing Informatics** (2) Introduction to professional nursing practice and health-related issues emphasizing application of nursing informatics.

Effective: Spring 2011

Prerequisite: BIOL 129 BIOL 141

NURS 390 (US)

**Transition and the Professional Nursing Role** (3) Transition to baccalaureate education and professional nursing practice, emphasizing leadership, management, and issues influencing nursing education and practice.

Effective: Fall 2008

Prerequisite: eligibility for NURN major

NURS 401 (IL)

**Concepts of Health** (3) Exploration of current and ancient concepts of health and their respective modes of intervention.

Effective: Fall 2008

Prerequisite: PSYCH 100 or SOC 001

NURS 402 (US;IL)

**Holistic Health** (3) Examination of emerging conceptualizations of health and therapy based on a holistic view of human beings.

Effective: Fall 2008

Prerequisite: NURS 401

NURS 415 (US;IL)

**Community and Family Health Nursing** (4) Therapeutic nursing care and health promotion concepts to families, groups and populations in the community.

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

NURS 417 (US;IL)

**Family and Community Health Concepts** (4) Study of the concepts of family and community based nursing care emphasizing multicultural influences on health practices.

Effective: Fall 2008

Prerequisite: NURS 390 and current and valid RN license; Prerequisite or concurrent: NURS 357

NURS 452 (BB H 452, WMNST 452) (US)

**Women's Health Issues** (3) Exploration of major health issues concerning women today, with an emphasis on social, cultural, and medical influences.

Effective: Fall 2013

Prerequisite: BIOL 141 or PSYCH 100 or WMNST 100

NURS 464 (US;IL)

**Dying and Death** (3) Explores attitudes toward death and dying; concept of grief; responsibilities to the dying person and the family.

Effective: Fall 2008

Prerequisite: PSYCH 100 or SOC 001

NURS 499 (IL)

**Foreign Study--Nursing (1-9)** Study of nursing issues in a foreign country.

Effective: Fall 2008

NUTR 111 (HIST 111) (GH;US)

**American Food System: History, Technology and Culture (3)** A cultural analysis of the evolution of U.S. agricultural production and food consumption patterns, the food industry and food marketing.

Effective: Fall 2013

NUTR 199 (IL)

**Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

NUTR 299 (IL)

**Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

NUTR 399 (IL)

**Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

NUTR 421 (US;IL)

**Food Culture and Health Trends (3)** Social-political, historic, and geographic roots of food patterns, featuring specific cuisine areas and nutritional disease patterns; includes foods laboratory.

Effective: Summer 2005

Prerequisite: NUTR 119 or NUTR 120 ; NUTR 151 or NUTR 251

NUTR 425 (IL)

**Global Nutrition Problems: Health, Science, and Ethics (3)** Examines causes of malnutrition and health problems in low-income countries; explores international cultures and ethical issues related to hunger.

Effective: Spring 2013

Prerequisite: NUTR 251

NUTR 430 (S T S 430) (IL)

**Global Food Strategies: Problems and Prospects for Reducing World Hunger (3)** Technological, social, and political solutions to providing basic food needs; food resources, population, and the environment; current issues.

Effective: Summer 2005

NUTR 456 (US)

**Community Nutrition (3)** Programs and policies of nutrition-related activities of community agencies; factors pertinent to nutrition education; relationship of cultural and social identity to foods and nutrition.

Effective: Fall 2012

Prerequisite: NUTR 251

NUTR 499 (IL)

**Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

O T 103 (US)

**Occupational Performance Across the Life Span (3)** Analysis of occupations from birth to death including descriptions of occupational performance and factors which influence performance.

Effective: Spring 2011

Prerequisite: O T 100S O T 101

P T 270A (IL)

**Pathophysiology (3)** Introduction to medical and post-operative conditions and/or disease states most frequently treated by physical therapy modalities.

Effective: Fall 2005

Prerequisite: a grade of C or better in BIOL 141 BIOL 142 P T 100 P T 384

PHIL 006 (CMLIT 006) (GH;IL)

**Philosophy and Literature in Western Culture (3)** Explores fundamental issues of human existence through the traditions of western literature and philosophy.

Effective: Spring 2006

PHIL 007 (GH;IL)

**Asian Philosophy (3)** Introduction to philosophical, moral, and aesthetic teachings of Asian traditions such as Hinduism, Buddhism (including Zen), Taoism, Confucianism, and Shintoism.

Effective: Summer 2005

PHIL 009 (GH;US)

**Philosophy, Race, and Diversity (3)** Critically examines the significance of race and cultural diversity for, and in, understandings of reality, knowledge, truth, morality, and justice.

Effective: Summer 2005

PHIL 009U (GH;US)

**Philosophy, Race, and Diversity (3)** Critically examines the significance of race and cultural diversity for, and in, understandings of reality, knowledge, truth, morality, and justice.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PHIL 014 (GH;US)

**Philosophy of Love and Sex** (3) Explores Western theories and attitudes concerning intimacy and examines various ethical issues involving love and sex.

Effective: Summer 2005

PHIL 199 (IL)

**Foreign Study--Philosophy** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PHIL 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PHIL 399 (IL)

**Foreign Study--Philosophy** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PHIL 437 (IL)

**World Philosophies and Cultures** (3) Philosophical traditions, problems, and authors in African, Asian, Middle- Eastern, Native American, or other non-Western cultures and intellectual traditions.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including 6 credits of philosophy at the 200 level or 5th semester standing

PHIL 439 (IL)

**Asian Philosophies and Issues** (3) Exploration of the traditions, problems, and authors of one or more of the philosophical systems of Buddhism, Hinduism, Taoism, and Confucianism.

Effective: Fall 2007

Prerequisite: PHIL 007 9 credits in philosophy including PHIL 007 or 5th semester standing

PHIL 460 (AF AM 460) (US;IL)

**African American Philosophy** (3) Major works by African American Philosophers, on topics of race, freedom, citizenship, nationhood, law and society.

Effective: Spring 2013

Prerequisite: AF AM 100 or PHIL 009 and 5th semester standing

PHIL 499 (IL)

**Foreign Study--Philosophy** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PHOTO 099 (IL)

**Foreign Studies--Photo** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

PHOTO 199 (IL)

**Foreign Studies--Photo** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

PHOTO 299 (IL)

**Foreign Studies--Photo** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

PHOTO 399 (IL)

**Foreign Studies--Photo** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

PHOTO 499 (IL)

**Foreign Studies--Photo** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

PHYS 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PHYS 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PHYS 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PL ET 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2010

PL SC 003 (GS;IL)

**Introduction to Comparative Politics** (3) Introduction to study of comparative government and politics: normative/ empirical theories; government functions in modern societies; representative structures and processes.

Effective: Fall 2007



PL SC 003U (GS;IL)

**Introduction to Comparative Politics** (3) Introduction to study of comparative government and politics: normative/empirical theories; government functions in modern societies; representative structures and processes.

Effective: Summer 2012

PL SC 014 (GS;IL)

**International Relations** (3) Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200.

Effective: Fall 2007

PL SC 014U (GS;IL)

**International Relations** (3) Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

PL SC 014U (GS;IL)

**International Relations** (3) Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

PL SC 020 (GS;IL)

**Comparative Politics--Western Europe** (3) Comparative analysis of political cultures, interest groups, parties, and decision-making processes in principal Western European political systems.

Effective: Fall 2007

PL SC 022 (GS;IL)

**Politics of the Developing Areas** (3) The impact of colonialism, nationalism, and development policy on the political culture, structure, and transformation of post-colonial regimes.

Effective: Spring 2010

PL SC 060 (ANTH 060, J ST 060, SOC 060) (GS;IL)

**Society and Cultures in Modern Israel** (3) An introduction to the society and cultures of the State of Israel from 1948 to the present.

Effective: Summer 2006

PL SC 110 (GS;US)

**Rights in America** (3) This course explores the historical and contemporary struggles of particular groups within American society to expand their rights.

Effective: Summer 2006

PL SC 123 (GS;US;IL)

**Ethnic and Racial Politics** (3) Political movements among United States ethnic and racial groups; government policies on race and ethnicity; comparison to other culturally diverse countries.

Effective: Fall 2007

Prerequisite: PL SC 001 or PL SC 003

PL SC 130 (GS;US)

**American Political Campaigns and Elections** (3) Methods and strategies of American political campaigns: polls, political consultants, parties, and the media.

Effective: Fall 2007

PL SC 132 (GS;IL)

**The Politics of International Intolerance** (3) Introductory course emphasizing psychological, historical, and political aspects of global intolerance towards minorities.

Effective: Fall 2007

PL SC 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PL SC 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PL SC 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PL SC 428 (WMNST 428) (US;IL)

**Gender and Politics** (3) Gender in politics in the United States and around the world; major areas of women and politics research.

Effective: Fall 2007

Prerequisite: 3 credits in political science or women's studies

PL SC 434 (AFR 434) (IL)

**War and Development in Africa** (3) This course will examine the relationship between war and development in sub-Saharan Africa in the post colonial era.

Effective: Fall 2012

Prerequisite: PL SC 014 PL SC 003 AFR 110

PL SC 440 (AFR 440, I B 440) (US;IL)

**Globalization and Its Implications** (3) This course explores the socioeconomic implications of globalization.

Effective: Spring 2013

Prerequisite: AF AM 100 or AFR 110 or PL SC 003 or PL SC 014 or PL SC 020 or PL SC 022

PL SC 443 (AFR 443) (IL)

**Ethnic Conflict in Africa** (3) This course explores the various causes and impacts of ethnic conflicts in the African context.

Effective: Spring 2013

Prerequisite: AF AM 100 AFR 110 PL SC 001 PL SC 003 PL SC 007 PL SC 014 PL SC 017 PL SC 020 or AFRAS 301

PL SC 445Y (AF AM 445Y, LER 445Y) (US)

**Politics of Affirmative Action** (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

PL SC 453 (IL)

**Political Processes in Underdeveloped Systems** (3) Comparative analysis of the political, social, and economic problems characteristic of underdeveloped systems.

Effective: Fall 2007

Prerequisite: PL SC 003 PL SC 020 or PL SC 022

PL SC 454 (AFR 454) (IL)

**Government and Politics of Africa** (3) Contemporary African politics, institutions, and ideologies; patterns of change, social forces, and nation building in selected African states.

Effective: Fall 2012

Prerequisite: 3 credits from: AFR 110 PL SC 003 PL SC 020 or PL SC 022

PL SC 459 (AFR 459) (IL)

**Culture and World Politics** (3) Role of culture in world politics.

Effective: Spring 2013

PL SC 461 (IL)

**Politics of the European Union** (3) This course introduces students to the history, institutions and politics of the European Union.

Effective: Spring 2011

Prerequisite: PL SC 003 or PL SC 020

PL SC 464 (AFR 464) (IL)

**Globalization, Extractive Industries, and Conflict in Africa** (3) Socioeconomic and environmental impacts of extractive industries in Africa.

Effective: Fall 2012

Prerequisite: AFR 110 or at least one of the following: PL SC 003 or PL SC 014 or PL SC 022

PL SC 469 (ASIA 469) (IL)

**Government and Politics of South Asia** (3) This course offers an overview of the politics of modern South Asia with specific focus on Afghanistan, India and Pakistan.

Effective: Summer 2014

Prerequisite: PL SC 003 PL SC 014 PL SC 022 or ASIA 100

PL SC 486 (HIST 489, ASIA 489) (IL)

**International Culture in East Asia** (3) Study of the role of culture in East Asian regional and East-West international relations.

Effective: Summer 2013

Prerequisite: any one of the following: HIST 172 HIST 174 HIST 175 HIST 480 HIST 481 HIST 483 HIST 484 HIST 485 HIST 486

PL SC 499 (IL)

**Foreign Study--Government** (1-12) Study, in selected foreign countries, of political institutions.

Effective: Summer 2005

Prerequisite: PL SC 003 3 credits in economics history political science or sociology

POL 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

POL 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

POL 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

POL 499 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

PORT 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PORT 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PORT 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PORT 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PSYCH 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

PSYCH 231 (GS;US)

**Introduction to the Psychology of Gender** (3) Psychological study of gender in historical and contemporary perspective. Role of gender in development, self-concept, social relations, and mental health.  
Effective: Spring 2007  
Prerequisite: PSYCH 100

PSYCH 232 (GS;US;IL)

**Cross-Cultural Psychology** (3) This course examines how ethnic and cultural background influences patterns of human thought and behavior.  
Effective: Spring 2007  
Prerequisite: PSYCH 100

PSYCH 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

PSYCH 370 (US)

**Psychology of the Differently-Abled** (3) This course familiarizes students with the needs and abilities of people with varying physical challenges through academic and experimental exercises.  
Effective: Spring 2007  
Prerequisite: PSYCH 100

PSYCH 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

PSYCH 432 (US)

**Multicultural Psychology in America** (3) This course focuses on the central role of culture, race, and ethnicity in the human condition.  
Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH

PSYCH 479 (WMNST 471) (US)

**The Psychology of Gender** (3) Theories and research on gender differences and gender roles. Emphasis on women's and men's current positions in society.  
Effective: Spring 2007  
Prerequisite: PSYCH 100 PSYCH 221

PSYCH 499 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

R M 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2012

R M 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2012

R M 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2012

R M 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2012

R SOC 011 (GS;US)

**Introductory Rural Sociology** (3) Basic sociological concepts applied to rural societal institutions and rural communities; causes and consequences of rural social change. Students may take only one course for General Education credit from R

SOC 011 GS or SOC 001 GS.

Effective: Summer 2013

R SOC 420 (CED 420, WMNST 420) (US;IL)

**Women in Developing Countries** (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

Effective: Summer 2013 Ending: Summer 2014

R SOC 499 (IL)

**Foreign Study--Rural Sociology** (1-12) Study in selected countries of rural social institutions and current rural sociological problems.

Effective: Summer 2013

RHS 100 (GS;US;IL)

**Introduction to Disability Culture** (3) Social and cultural contexts of disability on both a micro and macro levels will be examined.

Effective: Fall 2011

RL ST 001 (GH;US;IL)

**Introduction to World Religions** (3) An historical and comparative survey of the principal beliefs and practices of the world's major religions.

Effective: Summer 2005

RL ST 003 (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

Effective: Summer 2005 Ending: Fall 2014

RL ST 003 (ASIA 003) (GH;US;IL)

**Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

Effective: Spring 2015 Future: Spring 2015

RL ST 004 (CAMS 004, J ST 004) (GH;US;IL)

**Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationships to culture.

Effective: Summer 2005

RL ST 012 (CAMS 012, J ST 012) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

RL ST 012U (CAMS 012U, J ST 012U) (GH;IL)

**Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

RL ST 044 (CAMS 044) (GH;IL)

**Ancient Near Eastern and Egyptian Mythology** (3) Survey of major ancient Mediterranean myths, gods, and goddesses in their cultural contexts; influence on later cultures.

Effective: Summer 2005

RL ST 070 (CAMS 070, J ST 070) (GH;IL)

**Prophecy: The Near East Then and Now** (3) Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.

Effective: Summer 2007

RL ST 090 (CAMS 090, J ST 090) (GH;IL)

**Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

Effective: Summer 2005

RL ST 101 (GH;IL)

**Comparative Religion** (3) Comparative or historical analysis of religious factors--worship, theology, ethics, scriptures, etc., in two or more religious traditions.

Effective: Summer 2005

RL ST 102 (CAMS 102, HIST 102, J ST 102) (GH;IL)

**Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

RL ST 103 (GH;US;IL)

**Introduction to Hinduism** (3) Historical development of Hinduism to the present.

Effective: Summer 2005 Ending: Fall 2014

RL ST 103 (ASIA 103) (GH;US;IL)

**Introduction to Hinduism** (3) Historical development of Hinduism to the present.

Effective: Spring 2015 Future: Spring 2015

RL ST 104 (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

Effective: Summer 2005 Ending: Fall 2014

RL ST 104 (ASIA 104) (GH;US;IL)

**Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

Effective: Spring 2015 Future: Spring 2015

RL ST 105 (GH;US;IL)

**Buddhism in the Western World** (3) A general survey of the development of Buddhism as a religious tradition in the West, focusing especially on America.

Effective: Summer 2005

RL ST 106 (J ST 106) (GH;IL)

**Mysticism** (3) A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

Effective: Spring 2012

RL ST 107 (GH;US;IL)

**Introduction to Islam** (3) Community and message of the early movement; development of authoritative structures and traditions; proliferation of sects; theology and creeds; mysticism.

Effective: Spring 2006

RL ST 108 (GH;IL)

**Muhammad and the Qur'an** (3) History of the Qur'an and its interpretation by the early Muslim community; life of Muhammad and his role within Islam.

Effective: Fall 2010

RL ST 110 (CAMS 110, J ST 110) (GH;US;IL)

**Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.

Effective: Summer 2005

RL ST 111 (CAMS 111, J ST 111) (GH;IL)

**Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

Effective: Summer 2005

RL ST 114 (J ST 114) (GH;US;IL)

**Modern Judaism** (3) Trends in Jewish life and thought since the French revolution; Judaism's responses to the challenge of modernity.

Effective: Summer 2005

RL ST 115 (HIST 115, J ST 115) (GH;US)

**American Jewish History and Culture** (3) Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.

Effective: Summer 2006

RL ST 116 (GH;IL)

**Muslims in America** (3) This course is a study of Muslims from multiple racial, cultural, and national perspectives; it explores what it means to be a Muslim in America.

Effective: Summer 2010

RL ST 122 (CAMS 122, J ST 122) (GH;IL)

**Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

Effective: Summer 2014

RL ST 123 (CAMS 123, J ST 123) (GH;IL)

**Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of ancient Near East: Judaism, Christianity, and Islam.

Effective: Summer 2014

RL ST 124 (CAMS 124, J ST 124) (GH;US;IL)

**Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.

Effective: Summer 2005

RL ST 134 (CAMS 134, J ST 134) (GH;IL)

**Archaeology of Biblical Israel** (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.

Effective: Summer 2005

RL ST 137 (WMNST 137, J ST 137) (GH;US;IL)

**Women and Religion** (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.

Effective: Fall 2012

Prerequisite: third-semester standing

RL ST 140Y (AM ST 140Y) (GH;US)

**Religion in American Life and Thought** (3) The function, contributions, tensions, and perspectives of religion in American culture.  
Effective: Summer 2005

RL ST 145 (AF AM 145) (GH;US;IL)

**African American Religion** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2013 Ending: Fall 2014

RL ST 145 (AF AM 145) (GH;US;IL)

**African American Religions and Spirituality** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2015 Future: Spring 2015

RL ST 146 (AF AM 146) (GH;US)

**The Life and Thought of Martin Luther King, Jr.** (3) A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.  
Effective: Spring 2013

RL ST 147 (AF AM 147) (GH;US)

**The Life and Thought of Malcolm X** (3) The life of Malcolm X/El Hajj Malik El Shabazz (1925-1965) and his social, political, economic, and moral thought.  
Effective: Fall 2013

RL ST 153 (CAMS 153, J ST 153) (GH;IL)

**Dead Sea Scrolls** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.  
Effective: Summer 2014

RL ST 160 (CAMS 160, J ST 160) (GH;IL)

**Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.  
Effective: Summer 2014

RL ST 165 (ARAB 165, HIST 165) (IL)

**Introduction to Islamic Civilization** (3) Islamic history, culture, religious life c.600-1500 C.E.  
Effective: Spring 2006

RL ST 181 (IL)

**Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.  
Effective: Spring 2006 Ending: Fall 2014

RL ST 181 (ASIA 181) (IL)

**Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.  
Effective: Spring 2015 Future: Spring 2015

RL ST 235 (HIST 235, J ST 235) (US;IL)

**The Church and the Jews** (3) Examination of the relationship between Western church and the Jews from the First Century to Enlightenment.  
Effective: Spring 2006

RL ST 280 (WMNST 280, J ST 280) (GH;IL)

**WOMEN AND JUDAISM** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.  
Effective: Spring 2006

RL ST 405 (J ST 405) (IL)

**Ancient Jewish Traditions and Modern Food Movements** (3) Jewish laws, customs and attitudes with regard to food production, agricultural policy and eating from biblical to modern times.  
Effective: Spring 2012

RL ST 407Y (HIST 409Y, J ST 409Y) (IL)

**European Anti-Semitism from Antiquity to the Present** (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.  
Effective: Summer 2005

RL ST 408 (US;IL)

**Hindu Studies** (3) Special topics in Hindu studies.  
Effective: Summer 2005  
Prerequisite: 3 credits in religious studies

RL ST 409 (US;IL)

**Buddhist Studies** (3) Special topics in Buddhist studies.  
Effective: Spring 2006  
Prerequisite: 3 credits in religious studies

RL ST 410 (HIST 410, J ST 410) (US;IL)

**Jews in the Medieval World** (3) Trends in medieval Jewish society under Islam and Western Christendom.  
Effective: Spring 2006

RL ST 411 (J ST 411) (US;IL)

**Jewish Studies** (3) Study of the life and thought of a particular period or movement in the history of Judaism.

Effective: Spring 2006

Prerequisite: 3 credits in religious studies

RL ST 440Y (US;IL)

**The Orthodox Christian Tradition** (3) History, culture, and beliefs of the Eastern Orthodox religious tradition with special reference to Russia.

Effective: Summer 2011

Prerequisite: RL ST 004 RL ST 124 RL ST 125 RUS 100 or RUS 110

RL ST 461 (SOC 461) (US;IL)

**Sociology of Religion** (3) Contemporary religion in the global perspectives: beliefs, structure, and function of major religious traditions, denominations, and cults.

Effective: Fall 2013

Prerequisite: 3 credits of sociology or religious studies

RL ST 471Y (HIST 471Y) (IL)

**Classical Islamic Civilization, 600-1258** (3) Pre-Islamic Arabia; Muhammad; Arab conquest; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.

Effective: Spring 2006

RL ST 483 (IL)

**Zen Buddhism** (3) The development and current state of Zen Buddhist thought and practice.

Effective: Spring 2006

Prerequisite: HIST 172 HIST 173 HIST 174 HIST 175 PHIL 111 RL ST 003 RL ST 104 or RL ST 181

RL ST 499 (IL)

**Foreign Study--Religious Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

RPTM 120 (GS;US;IL)

**Leisure and Human Behavior** (3) Leisure from historical and contemporary perspectives, including forces shaping leisure behavior, and relationships among leisure, the environment, and social institutions.

Effective: Spring 2010

RPTM 199 (IL)

**Foreign Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2013

RPTM 277 (US)

**Inclusive Leisure Services** (3) Review of leisure services and programs designed to be inclusive of individuals from underrepresented groups and overview of professional, legal, and ethical issues.

Effective: Fall 2013

RPTM 299 (IL)

**Foreign Studies** (1-12 per semester/maximum of 12) Foreign Studies in RPTM.

Effective: Summer 2012

Prerequisite: RPTM 199

RPTM 300Y (IL)

**Tourism and Leisure Behavior** (3) Examination of the impact of recreational sociocultural, governmental, economic, and physical environment on the leisure traveler within the tourism industry.

Effective: Summer 2005

RPTM 399 (IL)

**Foreign Studies** (1-12 per semester/maximum of 12) Foreign Studies in RPTM.

Effective: Summer 2012

Prerequisite: RPTM 199

RPTM 499 (IL)

**Foreign Studies** (1-12 per semester/maximum of 12) Foreign Studies in RPTM.

Effective: Summer 2012

Prerequisite: RPTM 199

RTE 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2011

RTE 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2011

RTE 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2011

RUS 083S (GH;US;IL)

**First-Year Seminar in Russian** (3) Russia's cultural past and present.

Effective: Summer 2005

RUS 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

RUS 100 (GH;IL)

**Russian Culture and Civilization** (3) The Russian people from the tenth century to present times; their literature, arts, music, science, and philosophy. In English.

Effective: Summer 2005

RUS 110 (GH;IL)

**Russian Folklore** (3) Study of byliny, lyrical and historical songs, folktales, drama, ceremonial poetry, chants, charms, proverbs, and mythology of Russia. In English.

Effective: Summer 2005

RUS 141Y (IL)

**Russian Literature in English Translation: 1800-1870** (3) Pushkin, Lermontov, Gogol, the critics, Turgenev, Dostoevsky, Tolstoy. Writing assignments will serve as a major way of exploring subject matter.

Effective: Spring 2006

RUS 142Y (IL)

**Russian Literature in English Translation: 1870 to Present** (3) Dostoevsky, Tolstoy, Chekhov, Gorky, symbolists, selected Soviet authors. Writing assignments will serve as a major way of exploring subject matter.

Effective: Spring 2006

RUS 143 (GER 143) (GH;IL)

**The Culture of Stalinism and Nazism** (3) The culture of Stalinist Russia and Nazi Germany in comparative perspective.

Effective: Summer 2005

RUS 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

RUS 200 (IL)

**Intermediate Russian II** (4) A continuation of intermediate Russian with a comprehensive grammar review and focus on reading, writing and speaking Russian.

Effective: Spring 2013

Prerequisite: RUS 003 or permission of program

RUS 204 (IL)

**Intermediate Russian II** (4) Intensive practice of Russian reading, writing, listening and speaking; review of Russian grammar.

Effective: Summer 2011

Prerequisite: RUS 003

RUS 214 (IL)

**Intermediate Russian III** (4) Intensive practice of Russian reading, writing, listening and speaking; review of Russian grammar.

Effective: Summer 2011

Prerequisite: RUS 003

RUS 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

RUS 304 (IL)

**Readings in Russian III** (3) Extensive reading of contemporary Russian texts, including articles from Soviet press and short fiction.

Effective: Spring 2006

Prerequisite: 6 credits of Russian at the 200 level

RUS 305 (IL)

**Advanced Russian Conversation** (3) Discussion and role-playing based on real-life situations and current events; supervised by a native speaker.

Effective: Spring 2006

Prerequisite: RUS 204 RUS 214

RUS 360 (IL)

**Advanced Russian Grammar** (3) Russian morphology and syntax on an advanced level.

Effective: Spring 2006

Prerequisite: 6 credits of Russian at the 200 level

RUS 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

RUS 400 (IL)

**Senior Seminar in Russian Culture** (3) Senior seminar devoted to topics in Russian culture; conducted in Russian.

Effective: Spring 2006

Prerequisite: RUS 204 RUS 214 RUS 304



RUS 405 (IL)

**Seminar in Russian Literature** (3-6 per semester/maximum of 6) Readings in classical Russian literature; Topics vary.  
Effective: Summer 2012

Prerequisite: RUS 401 RUS 402 or RUS 403

RUS 406 (IL)

**Russian Film** (3) Conversation and Composition based on classical Russian films.

Effective: Summer 2012

Prerequisite: RUS 401 RUS 402 or RUS 403

RUS 410 (IL)

**Heritage Russian 1** (3) Introductory course for heritage speakers of limited linguistic proficiency aiming at teaching basic reading, writing, and grammar skills in Russian.

Effective: Summer 2014

Prerequisite: basic speaking proficiency in Russian; placement test and consent of instructor

RUS 412 (IL)

**Russian Translation** (3 per semester/maximum of 6) Translation from Russian into English of complex texts from the humanities, social sciences, and technical fields.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 426 (IL)

**Dostoevsky** (3) Study of representative works by Dostoevsky in the original Russian.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 427 (IL)

**Tolstoy** (3) Study of representative works by Tolstoy in the original Russian.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 460 (IL)

**Linguistic Analysis of Contemporary Russian** (3) Detailed study of the phonology, morphology, and syntax of Modern Standard Russian and the major dialects.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

S CR 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

S CR 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

S CR 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

S CR 499 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

S T S 124 (HIST 124) (GH;US;IL)

**History of Western Medicine** (3) This course explores the history of health, illness, and medicine in western society.

Effective: Summer 2008

S T S 150 (EM SC 150) (GN;IL)

**Out of the Fiery Furnace** (3) A history of materials, energy, and humans, with emphasis on their interrelationships. For nontechnical students.

Effective: Spring 2006

S T S 151 (HIST 151) (GS;US)

**Technology and Society in American History** (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.

Effective: Spring 2006

S T S 151S (HIST 151S) (GS;US)

**Technology and Society in American History** (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.

Effective: Spring 2006

S T S 157 (WMNST 157) (US)

**Science, Technology, and Gender** (3) The role of women and gender in science, technology, and engineering.

Effective: Fall 2011

S T S 245 (GS;IL)

**Globalization, Technology, and Ethics** (3) An investigation of technology and ethics in the globalized world from contemporary, socio-cultural, and historical perspectives.  
Effective: Summer 2008

S T S 416 (AF AM 416, WMNST 416) (US;IL)

**Race, Gender and Science** (3) The class will focus on race and gender as products of science, and how societal values shape scientific activity.

Effective: Spring 2013

Prerequisite: 6 credits in S T S WMNST or AAA S

S T S 428 (HIST 428) (IL)

**The Darwinian Revolution** (3) The origins and implications of evolutionary theory.

Effective: Spring 2006

Prerequisite: An introductory Science course and a history course.

S T S 430 (NUTR 430) (IL)

**Global Food Strategies: Problems and Prospects for Reducing World Hunger** (3) Technological, social, and political solutions to providing basic food needs; food resources, population, and the environment; current issues.

Effective: Summer 2005

S T S 457 (HIST 457, WMNST 457) (US;IL)

**The History of Women in Science** (3) Critical analysis of the role women, gender, and minorities have played in the natural sciences.

Effective: Spring 2013

Prerequisite: HIST 116 HIST 117 WMNST 100 WMNST 106 or WMNST 157

SCM 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

SCM 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

SCM 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

SCM 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

SLAV 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

SLAV 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

SLAV 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

SLAV 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

SLAV 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

SOC 060 (ANTH 060, J ST 060, PL SC 060) (GS;IL)

**Society and Cultures in Modern Israel** (3) An introduction to the society and cultures of the State of Israel from 1948 to the present.

Effective: Summer 2006

SOC 103 (AF AM 103, WMNST 103) (US)

**Racism and Sexism** (3) Critical analysis of the structure of race and gender inequality in the contemporary United States.

Effective: Spring 2013

SOC 110 (WMNST 110) (GS;US)

**Sociology of Gender** (3) Changing sex role expectations and behavior for men and women in contemporary society.

Effective: Summer 2005

SOC 119 (GS;US)

**Race and Ethnic Relations** (4) Historical patterns and current status of racial and ethnic groups; inequality, competition, and conflict; social movements; government policy.

Effective: Summer 2005

SOC 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2010

SOC 209 (AFR 209) (GS;IL)

**Poverty in Africa** (3) The course examines the causes, consequences, and dynamics of poverty in African countries.  
Effective: Fall 2013

SOC 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

SOC 409 (AF AM 409) (US)

**Racial and Ethnic Inequality in America** (3) The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.  
Effective: Fall 2012

Prerequisite: 3 credits in Sociology

SOC 411 (HD FS 416) (US)

**Racial and Ethnic Diversity and the American Family** (3) This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States.

Effective: Spring 2005

Prerequisite: 3 credits in sociology

SOC 416 (EDTHP 416) (US)

**Sociology of Education** (3) The theoretical, conceptual, and descriptive contributions of sociology to education.

Effective: Spring 2006

Prerequisite: 3 credits in Sociology

SOC 419 (US)

**Race and Public Policy** (3) Seminar format course in which sociological theory and research are applied to current race policy issues.

Effective: Spring 2006

Prerequisite: 3 credits in Sociology

SOC 454 (US)

**The City in Postindustrial Society** (3) Postindustrial social organization in the United States and Europe; consequences for metropolitan social stratification, community power, and environmental quality.

Effective: Spring 2006

Prerequisite: 3 credits in Sociology

SOC 457 (ANTH 457, J ST 457) (US;IL)

**Jewish Communities: Identity, Survival, and Transformation in Unexpected Places** (3) Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement.

Effective: Summer 2006

Prerequisite: ANTH 001 or ANTH 045 HEBR 010 J ST 010 SOC 001 SOC 005 SOC 007 SOC 015

SOC 461 (RL ST 461) (US;IL)

**Sociology of Religion** (3) Contemporary religion in the global perspective: beliefs, structure, and function of major religious traditions, denominations, and cults.

Effective: Fall 2013

Prerequisite: 3 credits in sociology or religious studies

SOC 499 (IL)

**Foreign Study--Sociology** (2-6) Study, in selected foreign countries, of groups, institutions, and social problems.

Effective: Summer 2005

Prerequisite: 3 credits in Sociology

SOILS 071 (GN;IL)

**Environmental Sustainability** (3) An introduction to environmental science, exploring sustainable human- environment interactions with examples from environmental soil science.

Effective: Summer 2013

SOILS 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

SPAN 083S (GH;IL)

**First-Year Seminar in Hispanic Literatures and Cultures** (3) Introduction to the study of Hispanic literatures and cultures.

Effective: Summer 2005

SPAN 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

SPAN 130 (GH;IL)

**Iberian Civilization** (3) Spanish and Portuguese life from the medieval period to the present; literature, the arts, and contemporary problems in historical perspective.

Effective: Spring 2006

SPAN 131 (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.  
Effective: Summer 2005

SPAN 131U (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

SPAN 131Y (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.  
Effective: Summer 2005

SPAN 132 (AF AM 132, AFR 132) (IL)

**Afro-Hispanic Civilization** (3) A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America.  
Effective: Spring 2013

SPAN 199 (IL)

**Foreign Study--Beginning Conversational Spanish** (3) Grammar review and practice in oral expression and aural comprehension.  
Effective: Summer 2005

SPAN 299 (IL)

**Foreign Study--Intermediate Conversational Spanish** (3) Grammar review and practice in oral expression and aural comprehension.  
Effective: Summer 2005

SPAN 315 (LTNST 315) (GH;US)

**Spanish and Spanish-speakers in the U.S.** (3) In this course, we investigate various aspects of the language(s) and language behaviors of U.S. Latinos.  
Effective: Summer 2006

SPAN 326 (GH;US)

**Reading the Border/Lands** (3) This course examines representations of the U.S.-Mexico border in relation to the actual geographic space.  
Effective: Summer 2011

SPAN 399 (IL)

**Foreign Study--Spanish** (1-12) Advanced training in Spanish language skills.  
Effective: Summer 2005  
Prerequisite: SPAN 003

SPAN 479 (LTNST 479) (GH;US)

**U.S. Latina/o Culture en Espanol** (3) The history, culture, art, and social issues of Latinos in the United States.  
Effective: Summer 2014  
Prerequisite: SPAN 253W

SPAN 499 (IL)

**Foreign Study--Spanish** (1-12) Contemporary Spanish life and civilization. Emphasis on post-Civil War period: literature, arts, and sociopolitical problems.  
Effective: Summer 2005  
Prerequisite: SPAN 100 SPAN 110 or SPAN 120

SRA 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2011

SS ED 200 (US)

**American Heritage** (3) Essentials of American Heritage for heritage interpretative education applications.  
Effective: Spring 2012  
Prerequisite: any U.S. History selection (3 credits) suggested HIST 020

STAT 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

STAT 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

STAT 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SWA 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SWA 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SWA 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SWA 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SWA 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SWENG 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2010

SWENG 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2010

THEA 100 (GA;US;IL)

**The Art of the Theatre** (3) An experiential survey of all aspects of the living theatre, as presented by a resident company of theatre artists.  
Effective: Spring 2006

THEA 199 (IL)

**Foreign Studies--Theatre Arts** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005  
Prerequisite: approval by department

THEA 207 (GA;US)

**Gender and Theatre** (3) A study of theatre and drama literature as formed by issues of gender, race, and ethnic background.  
Effective: Summer 2005

THEA 208 (AF AM 208) (GA;US;IL)

**Workshop: Theatre in Diverse Cultures** (3) A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples.  
Effective: Spring 2013

THEA 208S (GA;US;IL)

**Workshop: Theatre in Diverse Cultures** (3) A performance-oriented class, which explores the historic and contemporary theatrical works of various culturally diverse peoples.  
Effective: Summer 2005

THEA 299 (IL)

**Foreign Studies--Theatre Arts** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2014

THEA 399 (IL)

**Foreign Studies--Theatre Arts** (1-12) Courses offered in foreign countries by individuals or group instruction.  
Effective: Summer 2014

THEA 401Y (IL)

**Theatre History I: Ancient to 1700** (3) Survey of drama and theatre from primitive rites through the Renaissance.  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

THEA 405 (US)

**Theatre History: American Theatre** (3) Survey of American drama and theatre from the colonial period to the present.  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

THEA 407 (WMNST 407) (US)

**Women and Theatre** (3) A study of theatre practice and dramatic literature as informed by issues of gender, race, and ethnic background.  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

THEA 408 (US)

**History of American Musical Theatre** (3) A survey of the history of American musical theatre presented in a social, cultural, and aesthetic prospective.  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

THEA 412 (AF AM 412) (US;IL)

**African American Theatre** (3) Exploration of the development of African American theatre from its roots in Africa through the diaspora, to the present time.

Effective: Spring 2013

Prerequisite: THEA 100 or THEA 105

THEA 499 (IL)

**Foreign Studies--Theatre Arts** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

Prerequisite: approval by department

UKR 099 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

UKR 100 (GH;IL)

**Ukrainian Culture and Civilization** (3) Survey of Ukrainian culture and civilization from the Middle Ages to the present.

Effective: Summer 2005

UKR 199 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

UKR 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

UKR 399 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

UKR 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

W F S 299 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2014

W F S 499 (IL)

**Foreign Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

W P 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

WF ED 450 (US;IL)

**Cultural Diversity in the Workplace** (3) Provides opportunities for students to explore different cultures and mores that are changing the dynamics of the workplace.

Effective: Fall 2006

WMNST 001S (GS;US;IL)

**Introduction to Women's Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

Effective: Fall 2009

WMNST 083S (GH;US;IL)

**First-Year Seminar in Women's Studies** (3) Critical approaches to the dimensions and directions in Women's Studies.

Effective: Summer 2005

WMNST 100 (GS;US;IL)

**Introduction to Women's and Gender Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

Effective: Spring 2013

WMNST 100U (GS;US;IL)

**Introduction to Women's and Gender Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

WMNST 100U (GS;US;IL)

**Introduction to Women's and Gender Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

WMNST 101 (AF AM 101) (GH;US)

**The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.

Effective: Spring 2013

WMNST 101U (AF AM 101U) (GH;US)

**The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

WMNST 101U (AF AM 101U) (GH;US)

**The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

WMNST 102 (AF AM 102) (GH;IL)

**Women of Color: Cross-Cultural Perspective** (3) Global examination of value systems of women of color; attention to minority ethnic groups in the United States and developing countries.

Effective: Spring 2013

WMNST 103 (AF AM 103, SOC 103) (US)

**Racism and Sexism** (3) Critical analysis of the structure of race and gender inequality in the contemporary United States.

Effective: Spring 2013

WMNST 104 (AM ST 104) (GH;US)

**Women and the American Experience** (3) Selected aspects of the role of women in United States history and culture from colonial to modern times.

Effective: Summer 2005

WMNST 106 (GH;US;IL)

**Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.

Effective: Spring 2013

WMNST 106U (GH;US;IL)

**Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

WMNST 106U (GH;US;IL)

**Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

WMNST 110 (SOC 110) (GS;US)

**Sociology of Gender** (3) Changing sex role expectations and behavior for men and women in contemporary society.

Effective: Summer 2005

WMNST 116 (HIST 116) (GS;US;IL)

**Family and Sex Roles in Modern History** (3) Historical perspectives on the Western family since 1500: gender roles, marriage, sexuality, child rearing, and old age; emphasis on United States.

Effective: Spring 2006

WMNST 117 (HIST 117) (GH;US;IL)

**Women in Modern History** (3) Modernization and women: changing images and roles since mid-eighteenth century in the family, workshop, politics, society. Cross-cultural comparisons.

Effective: Summer 2005

WMNST 136 (LER 136) (US)

**Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

Effective: Spring 2008

WMNST 136U (LER 136U) (US)

**Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

WMNST 137 (RL ST 137, J ST 137) (GH;US;IL)

**Women and Religion** (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.

Effective: Fall 2012

Prerequisite: third-semester standing

WMNST 157 (S T S 157) (US)

**Science, Technology, and Gender** (3) The role of women and gender in science, technology, and engineering.

Effective: Fall 2011

WMNST 166 (HIST 166) (GH;US)

**History of Sexuality** (3) Discusses the ideas, practices, and identities surrounding sexuality over several centuries in a variety of contexts, focusing primarily on the US.

Effective: Summer 2012

Prerequisite: one introductory level course in History or Women's Studies

WMNST 194 (ENGL 194) (GH;US;IL)

**Women Writers** (3) Short stories, novels, poetry, drama, and essays by British, American, and other English-speaking women writers.

Effective: Summer 2005

WMNST 199 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

WMNST 200 (GS;IL)

**Global Feminisms** (3) This course examines the diverse contents and forms of "feminism" worldwide, emphasizing women's engagement with unequal, unjust, impacts of globalization.

Effective: Summer 2012

WMNST 202 (AFR 202) (GS;IL)

**Gender Dynamics in Africa** (3) Critical analysis of multidisciplinary research on relations between men and women in Africa and critique of Western feminist theories.

Effective: Fall 2012

WMNST 205 (COMM 205) (US)

**Women, Minorities, and the Media** (3) Analysis of historical, economic, legal, political, and social implications of the relationship between women, minorities, and the mass media.

Effective: Summer 2005 Ending: Fall 2014

WMNST 205 (COMM 205) (GS;US)

**Gender, Diversity and the Media** (3) Explores the relationship between media and society through critical analysis of its role in social reality.

Effective: Spring 2015 Future: Spring 2015

WMNST 227 (ENGL 227) (GH;US;IL)

**Introduction to Culture and Sexuality** (3) A course addressing the relationships between sexuality, literature, and culture.

Effective: Spring 2013

Prerequisite: ENGL 015 or ENGL 030

WMNST 235 (IST 235) (US)

**Gender and the Global Information Technology Sector** (3) Integrates information technology and gender studies. Overview issues and socio-cultural shaping of gender in the IT field.

Effective: Summer 2013

WMNST 245 (ENGL 245) (GH;US)

**Introduction to Lesbian and Gay Studies** (3) An introduction to the study of sex and (homo) sexual identity across a wide range of disciplines and methodologies.

Effective: Spring 2013

WMNST 250 (HD FS 250) (US)

**Sexual Identity Over the Lifespan** (3) Concepts of affectional and sexual orientation over lifespan, with emphasis on lesbian and gay male personal, family, and community adaptation.

Effective: Summer 2005

Prerequisite: 3 credits in Hd FS or 3 credits in behavioral sciences

WMNST 280 (J ST 280, RL ST 280) (GH;IL)

**Women and Judaism** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.

Effective: Fall 2006

WMNST 299 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

WMNST 300 (LTNST 300) (US)

**Latinas in the US: Gender Culture and Society** (3) This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latina feminisms in the United States.

Effective: Spring 2013

Prerequisite: LTNST 100 or WMNST 100

WMNST 301 (GH;US;IL)

**Sexualities, Gender and Power: Feminist Thought and Politics** (3) An interdisciplinary survey of historical and contemporary feminist theories in both the United States and international contexts.

Effective: Spring 2013

Prerequisite: WMNST 100 or WMNST 106

WMNST 364 (AF AM 364) (GS;US)

**Black & White Sexuality** (3) This course explains how narrow ways of thinking limit our understanding of the diverse expressions of human sexuality.

Effective: Fall 2012

WMNST 399 (IL)

**Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

WMNST 400 (US;IL)

**Debates in Contemporary Feminism** (3) Consideration of feminist theories of women's experience in transforming understanding, reconceptualizing old problems, raising new ones, and expanding traditional disciplines.

Effective: Spring 2013

Prerequisite: WMNST 301



WMNST 407 (THEA 407) (US)

**Women and Theatre** (3) A study of theatre practice and dramatic literature as informed by issues of gender, race, and ethnic background.

Effective: Summer 2005

Prerequisite: THEA 100

WMNST 416 (AF AM 416, S T S 416) (US;IL)

**Race, Gender and Science** (3) The class will focus on race and gender as products of science, and how societal values shape scientific activity.

Effective: Spring 2013

Prerequisite: 6 credits in S T S WMNST or AAA S

WMNST 420 (CED 420, R SOC 420) (US;IL)

**Women in Developing Countries** (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

Effective: Fall 2009 Ending: Summer 2014

WMNST 420 (CED 420) (US;IL)

**Women in Developing Countries** (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

Effective: Fall 2014 Future: Fall 2014

WMNST 421 (HIST 421) (IL)

**The History of European Women** (3) European women's lives from the Middle Ages to the present.

Effective: Spring 2013

Prerequisite: WMNST 100 WMNST 106 WMNST 116 or WMNST 117

WMNST 423 (CRIMJ 423, CRIM 423) (US)

**Sexual and Domestic Violence** (3) Legal, sociological, and psychological perspectives of sexual and domestic violence.

Effective: Spring 2008

Prerequisite: CRIM 100

WMNST 424 (KINES 424) (US)

**Women and Sport** (3) An interdisciplinary approach to contemporary issues related to women and sport from historical, physiological, psychological, and sociological perspectives.

Effective: Spring 2013

Prerequisite: PSYCH 100 PSYCH 231 PSYCH 479 SOC 001 or WMNST 100

WMNST 426Y (GEOG 426Y) (US;IL)

**Gender Geographies** (3) Description and explanation of the links between gender relations and spatial structures; gender and work, social services, and neighborhood activism.

Effective: Fall 2013

Prerequisite: GEOG 020 GEOG 126 GEOG 120 WMNST 100

WMNST 428 (PL SC 428) (US;IL)

**Gender and Politics** (3) Gender in politics in the United States and around the world; major areas of women and politics research.

Effective: Fall 2007

Prerequisite: 3 credits in political science or women's studies

WMNST 430 (AM ST 430) (US)

**Women in American Society** (3) A historical study of women's roles and experiences in the United States.

Effective: Spring 2008

Prerequisite: 6 credits of American Studies Sociology or Women's Studies

WMNST 452 (BB H 452, NURS 452) (US)

**Women's Health Issues** (3) Exploration of major health issues concerning women today, with an emphasis on social, cultural, and medical influences.

Effective: Fall 2013

Prerequisite: BIOL 141 or PSYCH 100 or WMNST 100

WMNST 453 (CRIMJ 453, CRIM 453) (US)

**Women and the Criminal Justice System** (3) This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system.

Effective: Spring 2013

Prerequisite: CRIMJ 100 or WMNST 100

WMNST 455 (CAS 455) (US)

**Gender Roles in Communication** (3) Explores the literature on gender research in the discipline of human communication.

Effective: Summer 2005

Prerequisite: CAS 202

WMNST 457 (HIST 457, S T S 457) (US;IL)

**The History of Women in Science** (3) Critical analysis of the roles women, gender, and minorities have played in the natural sciences.

Effective: Spring 2013

Prerequisite: WMNST 100 WMNST 106 WMNST 157 WMNST 116 or WMNST 117

WMNST 462 (ENGL 462) (US)

**Reading Black, Reading Feminist** (3) Female identity and its construction in textual representations of gender, class, color, and cultural difference in English-language literatures.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

WMNST 464 (BE SC 464) (US)

**Feminine/Masculine** (3) Study of sex role learning; investigating feminine/masculine labeling; implications for contemporary society.

Effective: Spring 2008

Prerequisite: general psychology or general sociology

WMNST 466 (HIST 466) (US;IL)

**Lesbian and Gay History** (3) Critical exploration of the history of sexuality, focusing especially on the emergence of modern lesbian and gay identities.

Effective: Spring 2013

Prerequisite: WMNST 100 WMNST 117

WMNST 471 (PSYCH 479) (US)

**The Psychology of Gender** (3) Theories and research on gender differences and gender roles. Emphasis on women's and men's current positions in society.

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 221

WMNST 490 (ENGL 490) (US;IL)

**Women Writers and Their Worlds** (3) American and British literature written from the perspective of women.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

WMNST 499 (IL)

**Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

## Writing Across the Curriculum

All course descriptions are updated periodically.

429 courses.

A E 481W

**Comprehensive Architectural Engineering Senior Project I** (4) Building project selection and preparation of overall plan; preliminary investigation of building design and construction issues; creation of individual Capstone Project Electronic Portfolio (CPEP) and project proposal required.

Effective: Fall 2005

Prerequisite: ARCH 441 fifth-year architectural engineering standing in major area of emphasis

A ED 201W

**History and Philosophy of Art Education in Schools and Cultural Institutions** (3) Introduction to historical, philosophical, and sociological foundations art education in schools and cultural institutions, museums, and community organizations.

Effective: Spring 2003

ACCTG 403W

**Auditing** (3) Financial, compliance, internal, and operational audits; standards and procedures; sampling; EDP auditing; professional issues; application of concepts through written responses.

Effective: Spring 2008

Prerequisite: ACCTG 371 or ACCTG 471

AE T 210W

**Architectural Engineering Office Practice Using Writing Skills** (3) Concepts, procedures, and writing-intensive activities to properly prepare site observation reports, cost estimates, contractual conditions, and outline and technical specification.

Effective: Spring 1994

Prerequisite: fourth-semester standing

AEE 330W

**Communication in Agricultural and Natural Resource Careers** (3) The course explores the conventions of writing and speaking found in agricultural professions through the use of case studies.

Effective: Summer 2013

Prerequisite: ENGL 015

AERSP 305W

**Aerospace Technology Laboratory** (3) Experiments in measurement systems, aerodynamics, aerospace structures, dynamics and control, and propulsion, technical report writing and presentations.

Effective: Spring 2007

Prerequisite: Prerequisite or concurrent: AERSP 301 AERSP 311 ENGL 202C

AF AM 445Y (LER 445Y, PL SC 445Y) (US)

**Politics of Affirmative Action** (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

AG 301W

**Introduction to Agricultural Law** (3) A survey of the legal system and legal issues that typically arise in agricultural and agribusiness situations.

Effective: Fall 1987

AG BM 308W

**Strategic Decision Making in Agribusiness** (3) Utilize case studies to investigate strategic decision making among agribusiness firms, highlighting how information and market power shape strategies.

Effective: Summer 2013

Prerequisite: AG BM 101 AG BM 102 AG BM 106

AGCOM 462W

**Advanced Agricultural Writing** (3) Practice in journalistic writing strategies to report scientific and technical information in the agricultural/environmental sciences to general audiences.

Effective: Summer 2013

Prerequisite: a grade of C or better required in COMM 260W or equivalent coursework

AGRO 410W

**Physiology of Agricultural Crops** (4) Study of the relation of plants to their environment and the physiology of crop plant growth.

Effective: Summer 2013

Prerequisite: AGRO 028

AM ST 100Y (GH;US)

**Introduction to American Studies** (3) A study of selected attempts to identify and interpret movements and patterns in American culture.

Effective: Spring 2006

Prerequisite: third-semester standing

AM ST 140Y (RL ST 140Y) (GH;US)

**Religion in American Life and Thought** (3) The function, contributions, tensions, and perspectives of religion in American culture.

Effective: Summer 2005

AM ST 491W

**American Themes, American Eras** (3-6) Interdisciplinary American culture course on major themes and eras such as the American Revolutionary Era or the 1930s.

Effective: Fall 2007

Prerequisite: seventh-semester standing

AN SC 290W

**Careers in Animal Agriculture** (1) A description and analysis of career opportunities in the animal sciences and allied industries.

Effective: Summer 2013

AN SC 419W

**Applied Animal Welfare** (3) Assessment of management practices impacting animal welfare; devoted to livestock species, companion animals, captive exotic species, and animals in research.

Effective: Summer 2013

Prerequisite: AN SC 201 or 6 credits of biology

AN SC 431W

**Physiology of Mammalian Reproduction** (4) Physiological processes of reproduction in animals, including the use of current and emerging technologies.

Effective: Summer 2013

Prerequisite: 3 credits in animal physiology

AN SC 467W

**Equine Nutrition and Feeding** (3) Equine gastrointestinal anatomy and physiology; energy and nutrient requirements for body functions; applied interrelationships between nutrition, health, and performance.

Effective: Summer 2013

Prerequisite: AN SC 301

ANTH 321W

**Intellectual Background of Archaeology** (3) Introduction to primary sources on the development of archaeology as a scientific discipline.

Effective: Spring 1995

Prerequisite: ANTH 002 ANTH 045

ANTH 426W

**Archaeological Laboratory Analysis** (3) Scientific laboratory methods used in the analysis of ceramic and lithic artifacts.

Effective: Summer 2004

Prerequisite: ANTH 007 ANTH 008 ANTH 009 or ANTH 011

ANTH 427W

**Forensic Archaeology** (3) Application of archaeological techniques to crime scene investigations, with practical experience in field and laboratory contexts.

Effective: Summer 2007

Prerequisite: ANTH 002

ANTH 445W

**Ethnographic Film** (3) Comparisons of written and visual ethnography; critical assessment of ethnographic film; cross-cultural variation.

Effective: Summer 2000

Prerequisite: ANTH 001 or ANTH 045

ANTH 450W

**Comparative Social Organization** (3) Social structure and cultural change among nonliterate societies.

Effective: Summer 1996

Prerequisite: ANTH 045

ANTH 476W

**Anthropology of Gender** (3) Cross-cultural construction of gender and sex roles; theories of gender construction; case studies and practical effects.

Effective: Summer 2011

Prerequisite: 3 credits in women's studies or anthropology

APLNG 482Y (IL)

**Introduction to Applied Linguistics** (3) Application of theories of language to psycholinguistics, philosophy of language, anthropological linguistics, sociolinguistics, bi/multilingualism, second language acquisition and teaching.

Effective: Spring 2006

ARCH 311W

**Architectural and Planning Theories** (3) Architectural theory course with a strong focus on the reading and writing of essays about architecture and related fields.

Effective: Fall 2011

Prerequisite: ENGL 015 or ENGL 030 ; Students must also earn a C or better in: ARCH 210 and ART H 201 and ART H 202

ART 122Y (US)

**Commentary on Art** (3) An introduction to verbal commentary, both oral and written, about art. The development of critical and expressive skills given emphasis.

Effective: Spring 2006

ART 211Y (US)

**Introduction to Digital Art and Design Criticism** (3) An introduction to the language, aesthetics, and cultural impacts of digital art and design in contemporary society.

Effective: Spring 2010

ART 466W

**Individual Approaches II** (6) An advance studio/lecture addressing the preparation for potential employment and/or entrance into graduate studies.

Effective: Summer 2007

Prerequisite: ART 165 ART 166 ART 265 ART 266 ART 365 ART 366 ART 465

ART H 350W

**Undergraduate Seminar in the History of Art** (3-6) An introduction to original research, methodology, analysis, and writing on a scholarly level.

Effective: Summer 1992

Prerequisite: fifth-semester standing 6 credits in art history at the 300 level or above

ARTSA 402W

**Strategic Management and Planning for the Arts** (3) Study of strategic planning for commercial and non-profit arts organizations.

Effective: Summer 2012

Prerequisite: 7th semester standing and ARTSA 301 ARTSA 401 MKTG 301 ACCTG 211

ASIA 120Y (GH;IL)

**South Asia: A Literary History** (3) The course traces the cultural history of South Asia by studying its literary tradition from ancient to modern times.

Effective: Summer 2014

ASIA 404Y (IL)

**Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan, taught with focus on written analysis and interpretation.

Effective: Summer 2013

ASIA 405Y (IL)

**Seminar in Asian Studies** (3-6 per semester/maximum of 6) An advanced, writing-focused seminar in Asian Studies.

Effective: Fall 2009

Prerequisite: ASIA 100

ASIA 475Y (HIST 475Y) (IL)

**The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 010 HIST 011 HIST 172 HIST 175 HIST 176 HIST 181 or HIST 191

ASIA 484Y (HIST 484Y) (IL)

**History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 174 or HIST 175

ASIA 485Y (HIST 485Y) (IL)

**China's Last Empire: The Qing Dynasty, 1644-1911** (3) China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H

ASTRO 420W

**Planets and Planetary System Formation** (3) Solar system properties, star formation, protoplanetary disks and planet formation, solar system model, extrasolar planets, and astrobiology.

Effective: Summer 2004

Prerequisite: ASTRO 292

ASTRO 475W

**Stars and Galaxies** (3) Astronomical studies concerning the distribution and evolution of stars and gas in our and other galaxies.

Effective: Fall 1993

Prerequisite: ASTRO 292

B A 364Y (US;IL)

**International Business and Society** (3) Business organizations and the sociocultural environment; current issues; corporate responsibility; international and multinational business environments.

Effective: Spring 2008

Prerequisite: ENGL 202D MGMT 301

B A 422W

**Strategic Business Planning** (3) Study of strategic planning and implementation in multi-industry, multi-cultural, and multi-national settings with emphasis on sustaining competitive advantages.

Effective: Fall 2012

Prerequisite: B A 321 ; B A 322 ; B A 421 ; FIN 301 ; MGMT 301 ; MKTG 301 ; SCM 301

B E 466W

**Biological Engineering Design** (3) This course focuses on a industry sponsored design project offered in conjunction with the College of Engineering Learning Factory.

Effective: Summer 2010

Prerequisite: B E 391 ; senior level standing in B E

B E 469W

**Optimization of Biological Production and Processing Systems** (3) Engineering and biological principles combined with economics and mathematical techniques to evaluate and optimize biological production and processing systems.

Effective: Fall 2008

Prerequisite: B E 302 and one B E 460 level course

B M B 443W

**Laboratory in Protein Purification and Enzymology** (3) Laboratory in protein isolation methodology, enzyme kinetics, and physico- chemical properties of proteins.

Effective: Spring 2009

Prerequisite: B M B 442 B M B 401

B M B 445W

**Laboratory in Molecular Genetics I** (2) Laboratory in molecular techniques in gene analysis and microbial genetics, emphasizing in vitro methodologies.

Effective: Spring 2009

Prerequisite: B M B 442 B M B 400 MICRB 202

BB H 411W

**Research and Applications in Biobehavioral Health** (3) Research methods, multi-level analyses, and applications in biobehavioral health.

Effective: Spring 2011

Prerequisite: BB H 101 BB H 310 STAT 200

BE T 204W

**Medical Equipment and Systems II** (5) Principles of medical equipment: operation, application; circuit and block diagrams; preventive maintenance inspections; and troubleshooting with report writing and presentations.

Effective: Fall 2008

Prerequisite: BE T 201 BE T 205

BIOE 450W

**Bioengineering Senior Design** (3) Application of engineering and physiological principles to design of artificial organs and life supportive devices.

Effective: Spring 2009 Ending: Summer 2014

Prerequisite: BIOE 403 BIOE 440 ENGL 202C senior standing

BIOL 220M (GN)

**Honors Biology: Populations and Communities** (4) Honors study of the major physical, chemical, and biological factors constituting environment and their dynamic interaction with organisms forming ecosystems.

Effective: Summer 2005

Prerequisite: BIOL 110

BIOL 220W (GN)

**Biology: Populations and Communities** (4) A study of the structures and functions of organismic interactions from simple populations to complex ecosystems. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement.

Effective: Fall 2004

Prerequisite: BIOL 110

BIOL 230M (GN)

**Honors Biology: Molecules and Cells** (4) Honors study of cellular phenomena including molecular genetics and metabolic interactions.

Effective: Summer 2007

Prerequisite: BIOL 110 CHEM 110

BIOL 230W (GN)

**Biology: Molecules and Cells** (4) A study of cellular phenomena including molecular genetics and metabolic interactions. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement.

Effective: Summer 2007

Prerequisite: BIOL 110 CHEM 110

BIOL 240M (GN)

**Honors Biology: Function and Development of Organisms** (4) Honors study of development and physiological processes at the organismic level. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.)

Effective: Summer 2007

Prerequisite: BIOL 110 CHEM 110

BIOL 240W (GN)

**Biology: Function and Development of Organisms** (4) A study of development and physiological processes at the organismic level. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement.

Effective: Summer 2007

Prerequisite: BIOL 110 CHEM 110

BIOL 402W

**Biological Experimental Design** (3) Discussion of experimental design, analysis and presentation, with a practicum providing for student design, analysis and presentation of biological experiments. Students may not take this course if they have taken BIOBD 350W.

Effective: Fall 2007

Prerequisite: at least two of the following three courses: BIOL 220W BIOL 230W BIOL 240W ; STAT 250

BIOL 450W

**Experimental Field Biology** (3-5) A practical introduction to modern experimental techniques for ecological study of terrestrial, marine, and fresh water habitats.

Effective: Fall 2007

Prerequisite: BIOL 220W BIOL 240W

BME 450W

**Biomedical Senior Design** (3) Team based capstone design course with open ended project for industry or clinical applications related to Biomedical Engineering.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BME 401 BME 403 BME 440 ENGL 202C 7th semester standing

BRS 429W

**Biorenewable Systems Analysis and Management** (3) Theory of systems thinking; optimization and quantitative techniques for analysis of agricultural production and other biorenewable systems.

Effective: Spring 2014

Prerequisite: BRS 422 ; or concurrent A S M 425 or W P 417

C E 333W

**Construction Management I** (3) Components of a construction organization, managerial terminology and documents, labor laws and relations, insurance and safety.

Effective: Spring 2008

C E 410W

**Sustainable Residential Subdivision Design** (3) Residential subdivision process; site selection; conservation and neo-traditional design; utility design and layout; best management practices for erosion and stormwater.

Effective: Fall 2001

Prerequisite: A E 372 or C E 332 ; seventh-semester standing in Architectural or Civil Engineering

C E 421W

**Transportation Design** (3) Design of streets and highway facilities; emphasis on geometric elements, intersections and interchanges, roadway drainage, and pavement design.

Effective: Spring 2002

Prerequisite: C E 321

C E 438W

**Construction Engineering Capstone Design** (3) Construction project integrating geotechnical reports; materials specifications; quality control; equipment; estimation; scheduling; design details: excavations, foundations, retaining walls, formwork, pavements.

Effective: Fall 2007

Prerequisite: C E 432 and C E 435 or C E 436

C E 439W

**Geotechnical and Materials Engineering Design Capstone** (3) Subsurface site evaluation; integrated design of retaining walls, foundations, pavements, and materials for airports, highways, dams, or other facilities.

Effective: Spring 2013

Prerequisite: C E 435 and either C E 436 or C E 437

C E 448W

**Advanced Structural Design** (3) Wind, snow, seismic, bridge loads; building design using steel, concrete, and prestressed concrete; advanced steel connections; capstone project; computer applications.

Effective: Spring 2013

Prerequisite: C E 342 C E 441 ; Prerequisite or concurrent: ENGL 202C

C E 465W

**Water Resources Capstone Course** (3) Hydraulic design of river structures and open channels including supercritical and spatially varied flow; hydrologic/hydraulic computer modeling; design project.

Effective: Spring 2010

Prerequisite: C E 461 . Prerequisite or concurrent: C E 462

C E 472W

**Environmental Engineering Capstone Design** (3) Principles and design of unit operations for water; domestic and industrial wastewater treatment; equipment selection and application.

Effective: Spring 2002  
Prerequisite: C E 370 C E 371

C I 412W

**Secondary Teaching** (3) Study of the teacher's responsibilities, steps in planning instruction, and various strategies for implementing and assessing teaching.

Effective: Spring 2007  
Prerequisite: C I 295 EDPSY 014 EDTHP 115

CAMS 109Y (GH;IL)

**Writing Systems of the World** (3) Writing intensive overview of the world's writing systems throughout history.  
Effective: Spring 2007

CAMS 400W

**Comparative Study of the Ancient Mediterranean World** (3) Comparative study of ancient Mediterranean civilizations.

Effective: Spring 2001  
Prerequisite: 3 credits in Classics and Ancient Mediterranean Studies

CAMS 411W

**Classical Drama** (3) Masterpieces of Greek tragedy (Aeschylus, Sophocles, Euripides) and comedy (Aristophanes, Menander); their influence on Roman writers.

Effective: Spring 2001

CAMS 440W

**Studies in Classical and Ancient Mediterranean Archaeology** (3-6) Selected topics in the literary sources and material evidence for classical and ancient Mediterranean society.

Effective: Summer 2000  
Prerequisite: 3 credits from: ANTH 002 ART H 311 CAMS 010 CAMS 020 CAMS 025 CAMS 033 CAMS 140 CAMS 150 HIST 100 HIST 101

CAS 214W

**Speech Writing** (3) Writing speeches for delivery in political, professional, and ceremonial settings; emphasis on composition and language for oral presentation.

Effective: Spring 2003  
Prerequisite: CAS 100

CAS 280W

**Storytelling and Speaking** (3) Principles of oral performance from storytelling to the printed page; includes oral performance of stories, speeches, prose, drama, and poetry.

Effective: Spring 2003

CAS 410W

**Mother-Daughter Communication** (3) Explores the mother-daughter relationship with an emphasis on understanding mother-daughter communication.

Effective: Summer 2010  
Prerequisite: CAS 202

CAS 426W

**Communication Ethics** (3) Ethical issues in public and private communication; role of communication in expressing and realizing individual and social values.

Effective: Spring 2003  
Prerequisite: CAS 100

CAS 450W

**Group Communication Theory and Research** (3) Selected theories of problem solving through group discussion emphasizing participation and leadership.

Effective: Spring 2003  
Prerequisite: CAS 100 or CAS 250

CAS 452W

**Organizational Communication Theory and Research** (3) Explores the nature and functions of communication in organizations; emphasis on writing and exploring concepts, tools, and skills for effective management of communication.

Effective: Spring 2004  
Prerequisite: CAS 202 or CAS 252

CC 403W

**Studies in Public Relations** (3) Capstone course for the major in Corporate Communication; focuses on case studies in public relations: problems and solutions.

Effective: Summer 2002  
Prerequisite: MKTG 310 and sixth-semester standing

CED 427W (S T S 427W)

**Society and Natural Resource** (3) Analysis of the relationships between societal development and enhancement and natural resources.

Effective: Fall 2013  
Prerequisite: R SOC 011 or SOC 001

CED 431W

**Economic Analysis of Environmental and Resource Policies** (3) Economic analysis of environmental and natural resource policies, benefit-cost analysis, non-market valuation techniques; resource damage assessment.



Effective: Summer 2013

Prerequisite: ECON 302

CH E 480M

**Chemical Engineering Laboratory (Honors)** (3) Data interpretation and analysis from student-operated experiments on pilot-plant equipment. Individual written and oral technical reports.

Effective: Fall 2013

Prerequisite: ENGL 202C CH E 320 CH E 330 CH E 350

CH E 480W

**Chemical Engineering Laboratory** (3) Data interpretation and correlation from student-operated experiments on pilot-plant equipment. Individual written and oral technical reports.

Effective: Fall 2013

Prerequisite: ENGL 202C CH E 320 CH E 330 CH E 350

CHEM 423W

**Chemical Spectroscopy** (4) Modern methods and instruments of spectroscopy and their applications to problems of chemical structure and analysis.

Effective: Spring 2013 Ending: Summer 2014

Prerequisite: CHEM 227 or CHEM 221 CHEM 452 CHEM 457

CHEM 423W

**Chemical Spectroscopy** (4) Modern methods and instruments of spectroscopy and their applications to problems of chemical structure and analysis.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 227 or CHEM 221 CHEM 450 or prerequisite or concurrent: CHEM 452

CHEM 427W (FRNSC 427W)

**Forensic Chemistry** (4) Analytical and instrumental methods used in the forensic sciences with special emphasis on the analysis and characterization of trace evidence.

Effective: Fall 2012

Prerequisite: CHEM 213 CHEM 227 and FRNSC 411 or CHEM 431W

CHEM 431W

**Organic and Inorganic Preparations** (4) Preparation, purification, and characterization of both organic and inorganic compounds by modern methods.

Effective: Fall 2010

Prerequisite: CHEM 213

CHEM 459W

**Advanced Experimental Physical Chemistry** (4) Laboratory experiments and projects for students interested in advanced study in physical chemistry.

Effective: Summer 2010

Prerequisite: CHEM 450 CHEM 457 Prerequisite or concurrent: CHEM 452

CHNS 120W (GH)

**Introduction to Chinese Literature and Culture** (3) An introduction to Chinese histories and societies through literature and visual culture. Readings drawn from both classical and modern traditions, covering the period from the 11th century B.C. to the contemporary era.

Effective: Summer 2013

CHNS 403W

**Level Four Chinese A** (4) Continuation of CHNS 402. Aims to improve students' proficiency in all four language skills, with a special emphasis on writing.

Effective: Fall 2012

Prerequisite: CHNS 402

CMLIT 400Y (US;IL)

**Senior Seminar in Literary Criticism and Theory** (3) Discussions of theories of literature, of literary criticism, and particularly of the distinct methods of comparative study; individual projects.

Effective: Spring 2006

Prerequisite: seventh-semester standing; 18 credits in literature

CMLIT 401Y (IL)

**The Western Literary Heritage I** (3) Major literary movements and authors in the literature of the Western world from the beginnings through the early Renaissance.

Effective: Spring 2006

Prerequisite: 3 credits in literature or history

CMLIT 402Y (US;IL)

**The Western Literary Heritage II** (3) Major literary movements and authors in the literature of the Western world from the late Renaissance to the present time.

Effective: Spring 2006

Prerequisite: 3 credits in literature or history

CMLIT 404Y (ASIA 404Y) (IL)

**Topics in Studies of Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan, taught with focus on written analysis and interpretation.

Effective: Summer 2013

Prerequisite: 3 credits in literature or related field appropriate to this course

## CMPEN 352W

**Embedded Systems Design** (3) Design/development of embedded systems for data acquisition, process control, and special-purpose computing systems; peripheral interfacing, serial/parallel communications and bus systems.

Effective: Spring 2012

Prerequisite: CMPEN 351 or CMPEN 472 ; E E 210

## CMPEN 482W

**Computer Engineering Project Design** (3) Computer engineering design project, project management, documentation, reporting, and group and individual communication skills.

Effective: Spring 2008

Prerequisite: E E 310 ; E E 353 ; CMPSC 473 ; ENGL 202C

## CMPSC 431W

**Database Management Systems** (3) Topics include: conceptual data modeling, relational data model, relational query languages, schema normalization, database/Internet applications, and database system issues.

Effective: Fall 2013

Prerequisite: CMPSC 221 ; ENGL 202C

## CMPSC 483W

**Software Design Methods** (3) Applications of scientific knowledge and methods in the design and construction of computer software using engineering concepts.

Effective: Spring 2008

Prerequisite: CMPSC 221 ; CMPSC 465 ; ENGL 202C

## CMPSC 485W

**Computer Science Senior Project II** (3) Computer science capstone project with documentation emphasis.

Effective: Spring 2008

Prerequisite: CMPSC 484

## CMPSC 487W

**Software Engineering and Design** (3) Software development process, life cycle; requirements analysis, specification, design, prototyping, testing, project management, and documentation.

Effective: Spring 2014

Prerequisite: ENGL 202C CMPSC 221 CMPSC 462

## COMM 230W

**Writing for Media** (3) The application of creativity to the practical concerns of narrative script and radio/television spot writing.

Effective: Spring 2008

Prerequisite: ENGL 015 and ENGL 202

## COMM 260W

**News Writing and Reporting** (3) News and news values; legal and ethical problems of reporting; writing and reporting news for the mass media.

Effective: Spring 2004

Prerequisite: ENGL 015 or ENGL 030 ; COMM 160 ; third-semester standing and typing proficiency

## COMM 283W

**Television Studio Production** (3) Students will learn the technical aspects of multi-camera studio television production.

Effective: Spring 2012

Prerequisite: COMM 282 or COMM 242

## COMM 337W

**Intermediate Documentary Production** (3) Writing-intensive exploration of documentary video techniques and aesthetics through the completion of short exercises.

Effective: Spring 2012

Prerequisite: COMM 242 and Film-Video major

## COMM 342W

**Idea Development and Media Writing** (3) Introduction to various modalities of idea development and written expression for media production.

Effective: Spring 2011

Prerequisite: COMM 242 and Film-Video Major

## COMM 413W

**The Mass Media and the Public** (3) Social-level and political theories of the relationships between media and public; media influences on public opinion; social pressure on the media; political communications.

Effective: Spring 2011

Prerequisite: select 3 credits from the following COMM 100 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260W COMM 320 or COMM 370 and select 3 credits from the following: COMM 304 COMM 420

## COMM 421W

**Advertising Creative Strategies** (3) Planning, designing, writing advertisements; introduction to graphics and production techniques and processes; layout and copywriting practice and critiques.

Effective: Spring 2004

Prerequisite: COMM 320

## COMM 460W

**Reporting Methods** (3) Techniques in reporting news and trends at the local, regional, and county levels. Emphasis on

both deadline and interpretive reporting.

Effective: Fall 1990

Prerequisite: COMM 260W

COMM 464W

**Editorial, Opinion and Commentary Writing** (3) Introduces techniques of editorial, opinion and commentary writing.

Effective: Spring 2008

Prerequisite: COMM 260W

COMM 489W

**Media and Information Industries** (3) The structure, conduct and performance of firms and industries in the electronic media and information sectors.

Effective: Spring 2004

Prerequisite: COMM 387 or equivalent

CRIM 250W (CRIMJ 250W)

**Research Methods in Criminal Justice** (3) Fundamental concepts of social science research including design, measurement, sampling, and interpretation of the study of crime, law, and justice.

Effective: Fall 2011

Prerequisite: CRIM 012

CRIMJ 240W

**Field Research in the Criminal Justice** (4) Field research and observational strategies appropriate to the identification, investigation, and analysis of research questions in criminal justice.

Effective: Spring 2008

Prerequisite: CRIMJ 100

CRIMJ 250W (CRIM 250W)

**Research Methods in Criminal Justice** (3) Fundamental concepts of social science research including design, measurement, sampling, and interpretation of the study of crime, law, and justice.

Effective: Fall 2011

Prerequisite: CRIMJ 012

CRIMJ 424W

**Drugs and Crime** (3) Analysis of international narcotics trafficking in the twentieth century.

Effective: Spring 2008

Prerequisite: CRIMJ 100

CRIMJ 441W

**The Juvenile Justice System** (3) Historical and contemporary view of the juvenile justice system. Focus on analyzing components of the system, their interactions, processing, and handling of youths.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or permission of program

CRIMJ 450W

**Senior Seminar** (3 per semester/maximum of 6) Capstone course exploring past, current and future developments in criminal justice.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or CRIM 100 and sixth semester standing or permission of program.

CRIMJ 489W

**Victimology: Predatory Crime** (3) This course uses medical, social scientific and legal research to study the complexities of predatory crime.

Effective: Spring 2004

Prerequisite: CRIMJ 407

CSD 459W

**Principles of Clinical Management in Communication Disorders** (3) Survey of principles and practices for diagnosing, interviewing, counseling, treating, reporting, and programming in Communication Disorders.

Effective: Fall 2010

Prerequisite: CSD 300 CSD 230 plus 3 additional credits in CSD at the 300-level

D S M 295W

**Professional Staff Field Experience** (4) Methods of, and practice in, the client-oriented dietetic systems.

Effective: Summer 2011

Prerequisite: D S M 195 ; NUTR 251

E B F 304W

**Global Management for the Earth, Energy, and Materials Industries** (3) This class is designed to introduce students to modern management and organization strategies for resource businesses.

Effective: Fall 2010

Prerequisite: E B F 200

E E 300W

**Design Process** (3) Introduction to the electrical engineering design process, project teaming and management, and technical communication.

Effective: Summer 2012

Prerequisite: E E 200

E E 313W

**Electronic Circuit Design II** (4) Design/analysis of electronics circuits including: single/multistage transistor amplifiers, op amp circuits, feedback amplifiers, filters, A/D and D/A converters.

Effective: Spring 2008

Prerequisite: E E 310

E E 403M

**Senior Project Design** (3) Project designs of electrical engineering systems, encompassing various subdisciplines within Electrical Engineering, with an emphasis on technical communications skills.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: E E 330 ; E E 350 ; E E 316 ; and the completion of two Electrical Engineering technical electives

E E 403W

**Senior Project Design** (3) Project designs of electrical engineering systems, encompassing various subdisciplines within Electrical Engineering, with an emphasis on technical communications skills.

Effective: Spring 2008

Prerequisite: E E 330 ; E E 350 ; E E 316 ; and the completion of two Electrical Engineering technical electives

E E 406W

**Electrical Engineering Capstone Design** (3) Project designs of analog and digital systems, interfacing, and relevant electronic circuits, with an emphasis on technical communications skills.

Effective: Fall 2012

Prerequisite: E E 405

E R M 413W

**Case Studies in Ecosystem Management** (3) Application of biological, physical, and social science principles to ecosystem management problems; introduction to environmental impact analysis and review.

Effective: Spring 2010

Prerequisite: BIOL 220W SOILS 101 . Prerequisite or concurrent: E R M 412

E SC 261M

**Computational Methods in Engineering** (3) Computational methods for solving engineering problems using C++ and MATLAB. Reports on root finding, systems of algebraic equations.

Effective: Spring 2014

Prerequisite: or concurrent: MATH 141

E SC 414M

**Elements of Material Engineering** (3) Structure and imperfections in engineered materials; their influence on properties, behavior, and processing. Applications of metals, ceramics, polymers, and composites.

Effective: Spring 2008

Prerequisite: E MCH 213 E MCH 210H or E MCH 210 . Prerequisite or concurrent: E SC 312 or PHYS 237

ECON 400M

**Honors Seminar in Economics** (3-12) Readings, discussion, and oral and written reports on selected topics in economics.

Effective: Spring 1993

Prerequisite: ECON 302 ECON 304 fifth-semester standing admission into Honors program

ECON 404W

**Current Economic Issues** (3) An analytical survey of significant problems of current economic policy and the application of economic analysis to important social issues.

Effective: Spring 1993

Prerequisite: ECON 302 or ECON 304

ECON 406W

**The Economics of Social Conflict** (3) Economic theory of the resolution of social conflicts: social choice theory, voting, noncooperative games, voluntary trade, and allocation by force.

Effective: Summer 2008

Prerequisite: ECON 402 and MATH 110 or MATH 140

ECON 407W

**Political Economy** (3) Applications of the tools of game theory to analyze topics in collective decision making.

Effective: Summer 2008

Prerequisite: ECON 402

ECON 408W

**Intellectual Property** (3) A comparative and cost-benefit analysis of intellectual property that examines patents, copyrights, government supported research, and prizes.

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 444

ECON 409W

**Economics of Terrorism** (3) Terrorism throughout history; economic causes, costs, sources, and consequences.

Effective: Summer 2008

Prerequisite: ECON 402

ECON 411W

**Behavioral Economics** (3) Topics in behavioral economics; selected games; evolutionary models of social behavior; culture and social behavior; herding; overconfidence.

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 444

ECON 413W

**Economic Growth and the Challenge of World Poverty** (3) Economic prosperity in historical perspective; recent successes (East Asia, China, India); ongoing challenges (the bottom billion; sub-Saharan Africa).

Effective: Summer 2008

Prerequisite: ECON 471

ECON 415W

**The Economics of Global Climate Change** (3) Evidence on climate change; economic models of the environment and market failure; cost-benefit analysis of policy options; carbon markets.

Effective: Summer 2008

Prerequisite: ECON 428

ECON 417W

**The Economics of Uncertainty** (3) Uncertainty is examined in contracts, with an emphasis on limited liability. Asymmetric information and economic puzzles are also considered.

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 444

ECON 418W

**A Comparative and Cost-Benefit Analysis of State Government Activities** (3) This course examines federalism with a particular focus on the activities undertaken by the state of Pennsylvania.

Effective: Summer 2008

Prerequisite: ECON 490

ECON 422W

**Applying Monetary Theory to Monetary History** (3) Monetary history is examined. Special attention is paid to commodity-based systems, private money, and government monopolies on currency.

Effective: Summer 2008

Prerequisite: ECON 451

ECON 436W (US)

**Economics of Discrimination** (3) Analysis of the economic characteristics of women and minorities, with examination of race and sex discrimination and related government policies.

Effective: Fall 2007

Prerequisite: ECON 302 or ECON 315

ECON 437W

**Multinationals and the Globalization of Production** (3) This course will focus on trade, multinationals and offshoring, and explore their implications for the U.S. and developing countries.

Effective: Summer 2008

Prerequisite: ECON 433

ECON 438W

**Winners and Losers from Globalization** (3) The economic effects of globalization on individuals, governments, nation-states and business.

Effective: Summer 2008

Prerequisite: ECON 433 and ECON 490

ECON 445W (H P A 445W)

**Health Economics** (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.

Effective: Spring 2008

Prerequisite: ECON 302 ECON 315 or ECON 323

ECON 446W

**Economics of Industry Evolution** (3) Dynamics of industry evolution; empirical evidence and theoretical modeling of firm entry, growth, and exit; entrepreneurship; investment and strategic behavior.

Effective: Summer 2008

Prerequisite: ECON 444 and ECON 490

ECON 447W

**Economics of Sports** (3) Examination of economic issues pertaining to professional and collegiate sports, including analysis of industrial organization, labor markets, and local economies.

Effective: Spring 2009

Prerequisite: ECON 302 and ECON 490

ECON 448W

**Economics of Auctions and Procurements** (3) Theoretical and empirical analyses of auctions and procurements; different modeling environments; econometric analysis of auction and procurement data.

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 444 and ECON 490

ECON 449W

**Economics of Collusion** (3) Theoretical and empirical analysis of collusion among firms, case studies of cartel behavior, bidding behavior at auctions and procurements.

Effective: Spring 2008

Prerequisite: ECON 302 or ECON 342 and ECON 490 or permission of instructor

ECON 452W

**Financial Crises** (3) Examination of causes and consequences of financial crises; asset pricing theory, market efficiency,

speculative bubbles; policy considerations.

Effective: Summer 2008

Prerequisite: ECON 451

ECON 455W

**Economics of the Internet** (3) Economics of the Internet; electronic commerce and network economics; pricing issues; intellectual property.

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 444

ECON 457W

**Economics of Organizations** (3) An advanced course in the economics of organizations. The focus is on coordination, incentives, contracts, and information in corporations.

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 444

ECON 463W

**Economic Demography** (3) Microeconomics of demographic behavior; interrelationships between demographic and economic factors, in developing and industrialized economies; economic welfare and policy implications.

Effective: Summer 2008

Prerequisite: ECON 412 or ECON 471 or 9 credits in demography

ECON 465W

**Cross Sectional Econometrics** (3) Discrete choice models, censored and truncated regression models, longitudinal models, applications.

Effective: Summer 2008

Prerequisite: ECON 302 and ECON 490

ECON 466W

**Panel Data Models** (3) Random and fixed effects, endogeneity, balanced and unbalanced panels, censoring of spells, differences in differences, applications.

Effective: Summer 2008

Prerequisite: ECON 302 and ECON 490

ECON 475W

**Migration and Development** (3) Human Capital Approach to Migration; Economics of Family Migration; Evidence: Micro and Macro Perspectives; Migration Policies.

Effective: Summer 2008

Prerequisite: ECON 471 or ECON 412 ; ECON 490

ECON 476W

**The Economics of Fertility in the Developing World** (3) Demand for children, supply of children, and costs of fertility regulation; fertility transition; public policies to affect fertility.

Effective: Summer 2008

Prerequisite: ECON 471 and ECON 490

ECON 479W

**Economics of Matching** (3) Economic application of matching to employment, marriage, organ markets, and medical residents.

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 412 or ECON 444

ECON 489M

**Honors Thesis** (1-6) No description.

Effective: Spring 1993

Prerequisite: ECON 302 ECON 304 and admission into the departmental honors program

EDSGN 460W

**Multidisciplinary Capstone Design Project** (3 per semester/maximum of 6) Course provides multidisciplinary industry-sponsored and service-based senior design projects in conjunction with the Learning Factory.

Effective: Summer 2013 Ending: Summer 2014

Prerequisite: BIO E CH E CMPEN E E I E or M E; BIOE 440 or E E 300W or I E 302 I E 305 I E 323 I E 327 I E 330 I E 405 or M E 340

EDSGN 460W

**Multidisciplinary Capstone Design Project** (3 per semester/maximum of 6) Course provides multidisciplinary industry-sponsored and service-based senior design projects in conjunction with the Learning Factory.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIO E CH E CMPEN E E I E or M E; BME 440 or E E 300W or I E 302 I E 305 I E 323 I E 327 I E 330 I E 405 or M E 340

EDUC 315W (US)

**Social and Cultural Factors in Education** (3) Critical examination of how different experiences linked to race, ethnicity, religion, gender, and sexual orientation influence education.

Effective: Spring 2011

Prerequisite: admission into Elementary Education Major or Secondary Teacher Certification Program

EDUC 470W

**Higher-Order Thinking for Educators** (3) Presentation of strategies, techniques, and principles of higher-order thinking which are grounded in relevant research and practice will be presented.

Effective: Fall 2006

Prerequisite: admission into Elementary Education Major

EET 212W

**Op Amp and Integrated Circuit Electronics** (4) Analysis and design of amplifier, rectifier, filter, comparator, oscillator, and other practical circuits using op amps and integrated circuit devices.

Effective: Fall 2012

Prerequisite: EET 114 ENGL 015 MATH 022 or MATH 040 or MATH 082

EET 213W

**Fundamentals of Electrical Machines Using Writing Skills** (5) AC and DC machinery principles and applications; introduction to magnetic circuits, transformers, and electrical machines including laboratory applications.

Effective: Fall 2007

Prerequisite: EET 114 EET 118 ENGL 015

EET 420W

**Electrical Design Project** (3) Design, construction, and testing of a project either selected by the students with approval or assigned by the instructor.

Effective: Spring 2008

Prerequisite: EET 312 EET 331 EET 419 ENGL 202C

EET 490W

**Electrical/Computer Senior Design Project** (3) Individual or group design projects in electrical and computer engineering technology.

Effective: Fall 2007

Prerequisite: EET 480 . Prerequisite or concurrent: EET 450

EGEE 411W

**Energy Science and Engineering Lab** (3) A comprehensive introduction to classic and modern laboratory skills and experimentation of relevance to energy science and engineering practice.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: F SC 401 or EGEE 302 or permission of program

EGEE 464W

**Energy Design Project** (3) A team and capstone design project on an industrial energy-related problem.

Effective: Spring 2008

Prerequisite: seventh-semester standing in energy engineering or chemical engineering ENGL 202C

ELEDM 395W

**Field Experience for Urban Teacher Preparation** (2 per semester, maximum of 6) Structured opportunities for investigating and understanding the work of teachers within urban schools and communities.

Effective: Spring 2005

Prerequisite: C I 295 EDPSY 014 EDTHP 115

EM SC 470W

**Undergraduate Collaborative Research in Earth and Materials Sciences** (1-6 per semester/maximum of 6)

Interdisciplinary research seminar involving students in the process of discovery, writing, and debate on issues of broad interest to Earth and Materials Sciences.

Effective: Spring 2013

ENGL 001W (GH)

**Understanding Literature** (3) Studies the various critical ways of reading, understanding, and writing about fiction, poetry, and drama.

Effective: Spring 1999

ENGL 200W

**Introduction to Critical Reading** (3) Responses to a variety of literary texts written in English that evoke different approaches.

Effective: Fall 2001

Prerequisite: 6 credits of ENGL ENLSH or LIT

ENGL 211W

**Introduction to Writing Studies** (3) This course introduces students to the most salient issues and theories in writing studies. Students explore contemporary theories and issues about writing in order to understand writing as a skill and a complex object of study in various professional contexts.

Effective: Summer 2010

Prerequisite: ENGL 015 or ENGL 030 ; third semester standing

ENGL 221W

**British Literature to 1798** (3) Introduction to literary history and analysis. Beowulf and writers such as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, and Fielding.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

ENGL 222W

**British Literature from 1798** (3) Introduction to literary history and analysis. Writers such as Austen, Wordsworth, Keats, Browning, Dickens, the Brontes, Yeats, Joyce, and Woolf.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

## ENGL 231W

**American Literature to 1865** (3) Introduction to literary history and analysis. Writers such as Bradstreet, Franklin, Emerson, Hawthorne, Douglass, Thoreau, Fuller, Melville, Whitman, and Dickinson.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

## ENGL 232W

**American Literature from 1865** (3) Introduction to literary history and analysis. Writers such as Mark Twain, James, Cather, Frost, O'Neill, Faulkner, Hemingway, Hughes, and Morrison.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

## ENGL 300M

**Honors Course in English** (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

## ENGL 301M

**Honors Seminar in English: Literature Before 1800** (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

Effective: Fall 2005

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

## ENGL 302M

**Honors Seminar in English: Literature After 1800** (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

Effective: Fall 2005

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

## ENGL 303M

**Honors Seminar in English: American Literature & Culture** (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

Effective: Fall 2005

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

## ENGL 304M

**Honors Seminar in English: Creative Writing** (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

Effective: Fall 2005

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

## ENGL 401W

**Creative Writing Theory** (3) Theories of art and creativity which inform the making of literary works.

Effective: Fall 2007

Prerequisite: ENGL 200 ; ELISH 201 ELISH 209 ENGL 212 or ENGL 213

## ENGL 482W

**Contemporary Literary and Cultural Theory** (3) Contemporary literary and cultural theories and their implication for critical practice as applies to a variety of texts, e.g. literary, linguistic, visual, multimedia, and/or popular.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030H ; ENGL 200

## ENGL 487W

**Senior Seminar** (3) Issues, themes, periods, critical theories, etc., that invite students to use prior English studies, limited to seniors majoring in English.

Effective: Summer 1997

Prerequisite: six credits of 400-level courses in English

## ENGR 320Y (GS;US;IL)

**Design for Global Society** (3) An interdisciplinary study of the engineering design process and the influence of society and culture on design.

Effective: Spring 2012

Prerequisite: ENGL 202

## ENGR 490W

**Senior Design I** (1) Analysis of environmental impacts on a design, designing products for the global environment and discussion on engineering ethics and professionalism.

Effective: Fall 2012

Prerequisite: Prerequisite or concurrent: ENGR 350 E MCH 407 E MCH 461 or M E 461

## ENGR 491W

**Senior Design II** (3) Capstone of research projects from conception to prototype through industry sponsored collaboration on common technical interests between faculty and student.

Effective: Summer 2010

Prerequisite: ENGR 490W

## ENT 402W (VB SC 402W)

**Biology of Animal Parasites** (3) An introduction to animal parasitology. Emphasizes placed on host/parasite interactions, parasites of zoonotic importance, control programs and taxonomy.



Effective: Spring 2010

Prerequisite: BIOL 110

ENVE 301W

**Environmental Microbiology** (3) Fundamentals of microbial ecology and environmental microbiology with an emphasis on aspects of these fields important to environmental engineers.

Effective: Fall 2011

Prerequisite: CHEM 110 and CHEM 111

ENVE 413W

**Operation and Control of Treatment Systems** (3) Wastewater treatment, water treatment, solids handling, hazardous waste site control and operations, operator certification, report writing.

Effective: Fall 2011

Prerequisite: ENVE 411

ENVSC 400W

**Case Studies in Environmental Analysis and Problem-Solving** (3) A writing-intensive environmental science course comprising review and analysis of field, lab, policy, and management aspects; investigative methods; and projects.

Effective: Summer 2014

Prerequisite: BIOL 402W ; CHEM 202 ; GEOSC 300/400 level; ENGL 202C ; any PL SC or ECON

ENVSE 404W

**Surface and Interfacial Phenomena in Environmental Systems** (3) Principles underlying surface and interfacial phenomena with application to mineral processing and environmental systems.

Effective: Spring 2012

Prerequisite: or concurrent: CHEM 110 MATH 141 PHYS 212 EME 301

ENVST 400W

**Senior Seminar in Environmental Studies** (3) Writing-intensive study of a specified topic in environmental studies integrating approaches and research from a variety of disciplines.

Effective: Spring 2000

Prerequisite: ENVST 200

FD SC 409W

**Laboratory in Food Microbiology** (3) Methods of isolation, detection of spoilage, pathogenic microorganisms in foods; effects of processing and preservation on survival of food microorganisms.

Effective: Fall 2009

Prerequisite: MICRB 202 . Prerequisite or concurrent: FD SC 408

FIN 305M

**Financial Management of the Business Enterprise (Honors)** (3) Development of advanced practices of financial management and their application to decision making in a business firm.

Effective: Spring 2012

Prerequisite: B A 301 or FIN 301

FIN 305W

**Financial Management of the Business Enterprise** (3) Development of advanced practices of financial management and their application to decision making in a business firm.

Effective: Spring 2011

Prerequisite: B A 301 or FIN 301

FIN 306W

**Investment Valuation** (3) Approaches to investment strategy, investment decisions; valuation of corporate securities, including the impact of dividend policy and capital structure.

Effective: Spring 2001

Prerequisite: FIN 301

FOR 450W

**Human Dimensions of Natural Resources** (3) Addresses human needs and desires, from individuals to nations, for social, ecological, and economic benefits derived from natural resource decisions.

Effective: Spring 2014

Prerequisite: 6 credits of social and behavioral sciences

FOR 466W

**Forest Management and Planning** (3) Rationale, process, and tools for forest management decision-making and planning. Developing and communicating forest plans for forested properties.

Effective: Spring 2014

Prerequisite: FOR 255 FOR 421 and FOR 440

FOR 488Y (IL)

**Global Forest Conservation** (3) Ecological, economic, technological, and political aspects of forested ecosystems in a global context, emphasizing tropical and developing countries.

Effective: Spring 2013

Prerequisite: 3 credits in natural sciences and 3 credits in social and behavioral sciences

FR 402Y (IL)

**Advanced Grammar and Writing** (3) Advanced study of the structure of the French language. Intensive essay writing.

Effective: Spring 2006

Prerequisite: FR 201 FR 202

FR 426Y (IL)

**French Literature of the Renaissance** (3) Survey of key texts from sixteenth century France, with attention to historical and philosophical currents of French social thought.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 436Y (IL)

**Readings in Seventeenth-Century French Literature** (3) Baroque and classicism: reappraisal of major and lesser-known 17th-century texts and theories.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 445Y (IL)

**Self and Society in Eighteenth-Century France** (3) The changing relationship of the individual to society in pre-Revolutionary France will be explored in texts by major writers.

Effective: Spring 2006

Prerequisite: FR 351 . Prerequisite or concurrent: FR 352

FR 452Y (IL)

**Nineteenth-Century French Literature** (3) Selected readings in romanticism, realism, and symbolism, including Balzac, Stendhal, Sand, Baudelaire, and others, with emphasis on cultural issues.

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

FR 453Y (IL)

**La Belle Epoque: Politics, Society, and Culture in France, 1880-1914** (3) Interdisciplinary perspectives on the politics, society, and culture of France, 1880-1914.

Effective: Summer 2013

Prerequisite: FR 351 or FR 352

FRNSC 415W

**Laboratory in Crime Scene Investigation** (2) Laboratory course covering crime scene investigation with emphasis on scientific philosophy, concepts, procedures, problem solving, and hands-on activities.

Effective: Summer 2012

Prerequisite: FRNSC 410

FRNSC 421W

**Forensic Molecular Biology** (4) Concepts and application of serology of molecular biology techniques to analyze biological evidence collected at crime scenes.

Effective: Fall 2012

Prerequisite: B M B 442 B M B 400 B M B 401 and FRNSC 413 prerequisite or concurrent FRNSC 400

FRNSC 427W (CHEM 427W)

**Forensic Chemistry** (4) Analytical and instrumental methods used in the forensic sciences with special emphasis on the analysis and characterization of trace evidence.

Effective: Fall 2012

Prerequisite: CHEM 213 CHEM 227 and FRNSC 411 or CHEM 431W

FRNSC 485W

**Coalescence of Forensic Science Concepts.** (4) Advanced concepts in criminalistics as they apply to criminal and civil investigations.

Effective: Spring 2013

Prerequisite: FRNSC 411 FRNSC 413 FRNSC 415W

GD 202W

**The History of Graphic Design** (3) A survey of graphic design, especially emphasizing influential movements, innovative designers and technological advances relevant to contemporary visual communication.

Effective: Summer 2011

Prerequisite: GD 001S GD 100 GD 101

GD 403W

**Graphic Design Seminar** (3) A seminar on subjects which relate to the field of graphic design.

Effective: Fall 2007

Prerequisite: GD 302

GEOG 310W

**Introduction to Global Climatic Systems** (3) Introduction to global atmospheric circulation, including tropical, midlatitude and polar subsystems; ocean, land, cryospheric and urban climatic systems and interactions.

Effective: Spring 2007

Prerequisite: GEOG 010 or METEO 003

GEOG 411W

**Forest Geography** (3) This course studies processes that control spatial and temporal change in forests.

Effective: Fall 2007

Prerequisite: GEOG 010 GEOG 111 ; or BIOL 220W

GEOG 412W

**Climatic Change and Variability** (3) Theories and observations of past, present, and future climatic change and variability; introduction to techniques used in climatic change research.

Effective: Spring 2007

Prerequisite: GEOG 110 or METEO 003

GEOG 420Y (US;IL)

**Comparative Urbanism** (3) This course investigates selected urban issues through the lens of comparative urbanism.

Effective: Fall 2011

Prerequisite: GEOG 120 GEOG 160

GEOG 423Y (US)

**Historical Geography of North America** (3) Exploration, settlement, and changing patterns of human occupancy from the seventeenth century to the 1930s.

Effective: Fall 2011

Prerequisite: GEOG 122 3 additional credits in geography or 6 credits American history

GEOG 426Y (WMNST 426Y) (US;IL)

**Gender Geographies** (3) Description and explanation of the links between gender relations and spatial structures.

Effective: Fall 2013

Prerequisite: GEOG 020 or GEOG 126 or GEOG 120 or WMNST 100

GEOG 428Y (US;IL)

**Political Geography** (3) Geographical foundations of political phenomena; significant geographic factors in growth and development of states, boundary problems, population distribution, colonies, and internal and international regional problems.

Effective: Spring 2012

Prerequisite: 3 credits human geography (GEOG 020 or 120 or 122 or 123 or 124 or 126 or 128)

GEOG 438W

**Human Dimensions of Global Warming** (3) Human dimensions of climate change: human causes, human consequences, and policy implications of global warming.

Effective: Spring 2012

Prerequisite: EARTH 002 GEOG 010 or METEO 003 ; GEOG 030

GEOG 461W

**Dynamic Cartographic Representation** (3) Theory and practice of mapping and geo-representation in a dynamic media context. Applications in science, policy, travel, and education.

Effective: Spring 2010

Prerequisite: GEOG 361 or GEOG 362 or GEOG 363

GEOSC 402Y (IL)

**Natural Disasters** (3) Case studies of the causes and consequences of natural disasters; analysis of disaster impact in different economic, cultural, and social conditions.

Effective: Summer 2005

Prerequisite: fourth-semester standing

GEOSC 409W

**Geomicrobiology** (3) Investigation of modern and ancient microbial interactions with soils, sediments, the atmosphere, minerals, rocks, nutrients, and pollutants.

Effective: Summer 2008

Prerequisite: CHEM 112 ; GEOSC 001 GEOSC 020 GEOSC 040 EARTH 002 BIOL 110 or MICRB 201

GEOSC 413W

**Techniques in Environmental Geochemistry** (3) This course teaches techniques needed for the collection, chemical analysis, and data analysis of environmental geochemical measurements. This course has one or more required field trips for which a fee is charged to the student.

Effective: Spring 2002

Prerequisite: one of the following: C E 475 CHEM 402 GEOSC 202 GEOSC 412 SOILS 419

GEOSC 470W

**Introduction to Field Geology** (3) Field interpretation of geologic features; principles and techniques of geologic mapping; interpretation of geologic maps and diagrams. This course has one or more required field trips for which a fee is charged to the student.

Effective: Spring 2002

Prerequisite: GEOSC 001 ; fifth-semester standing

GEOSC 494M

**Senior Thesis** (1-4) Supervised student activities on research projects identified on an individual or small group basis.

Effective: Fall 2007

Prerequisite: seventh-semester standing

GEOSC 494W

**Senior Thesis** (1-4) Supervised student activities on research projects identified on an individual or small group basis.

Effective: Spring 2001

Prerequisite: seventh-semester standing

GER 208Y (IL)

**Business German** (4) Intermediate Business German.

Effective: Fall 2006

Prerequisite: GER 003 or GER 008

GER 302W

**Intermediate Composition and Grammar** (3) Continuation of oral and written practice in German with extensive work in

composition.

Effective: Spring 2012

Prerequisite: GER 201 or GER 208

GER 308Y (IL)

**German Business Communication** (3) Development of German commerce and industry; extensive practice in the major forms of business communications such as business correspondence.

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

GER 401Y (IL)

**Advanced Composition** (3) Intensive practice in writing different text types in German.

Effective: Spring 2012

Prerequisite: GER 301 and GER 302W

H P A 301W

**Health Services Policy Issues** (3) Analysis of major issues in health services delivery in hospitals, medical practice, public health, mental health, and health professional education.

Effective: Spring 2011

Prerequisite: ECON 102 H P A 101 PL SC 001

H P A 445W (ECON 445W)

**Health Economics** (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.

Effective: Spring 2008

Prerequisite: ECON 302 ECON 315 or ECON 323

HD FS 287W (GS;US)

**Intercultural Community-Building** (3) An experiential introduction to negotiating differences in small groups, families, institutions, and communities.

Effective: Summer 2005

HD FS 287X (GS;US)

**Intercultural Community-Building** (3) An experiential introduction to negotiating differences in small groups, families, institutions, and communities.

Effective: Summer 2005

HD FS 287Y (GS;US)

**Intercultural Community-Building** (3) An experiential introduction to negotiating differences in small groups, families, institutions, and communities.

Effective: Summer 2005

HD FS 310M

**Seminar in Honors--Research Methods** (4) Overview of research and methods issues tailored around development of honors thesis proposals.

Effective: Spring 2014

Prerequisite: permission of Human Development and Family Studies honors adviser

HD FS 312W

**Empirical Inquiry in Human Development** (3) Introduction to the skills involved in critical thinking in general and the methods of empirical inquiry in particular. Open to HD FS majors only.

Effective: Spring 2001

Prerequisite: a grade of C or better required in EDPSY 101 or STAT 200

HD FS 315Y (US)

**Family Development** (3) Family functions over the life course; family from a multidisciplinary perspective, emphasizing adaptation and change.

Effective: Summer 2005

Prerequisite: HD FS 129 ; 3 credits of social behavioral or human biological sciences

HIST 020Y (GH;US)

**American Civilization to 1877** (3) An historical survey of the American experience from its colonial beginnings through the Civil War and Reconstruction.

Effective: Spring 2006

HIST 021Y (GH;US)

**American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

Effective: Spring 2006

HIST 153Y (GH;US)

**The Indian in North America** (3) A survey of the American Indian from prehistory to the present.

Effective: Summer 2005

HIST 301W

**Scope and Methods of History** (3) A course designed to introduce students to the analysis, methods, and practices of historical writing and research.

Effective: Spring 2008

Prerequisite: 3 credits in history

HIST 302M

**American Indian History** (3) Thematic or topical investigation; emphasis on historical criticism and analysis.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 4th semester standing

HIST 302W

**Undergraduate Seminar** (3) Thematic or topical investigation; emphasis on historical criticism and analysis.

Effective: Spring 2014

Prerequisite: 4th semester standing

HIST 320W

**Contemporary World History and Issues** (3) Aspects of global history in 20th and 21st centuries and study of selected trends and controversies.

Effective: Spring 2008

HIST 405Y (IL)

**The Roman Empire** (3) The political and social history of the Roman empire; economic institutions and religious groups which influenced Roman administration.

Effective: Spring 2006

Prerequisite: HIST 001 HIST 101 or 3 credits in classical studies

HIST 406W

**Research in Medieval Sources** (3) Guided research in the literature of medieval Europe.

Effective: Spring 2008

Prerequisite: HIST 001

HIST 409Y (J ST 409Y, RL ST 407Y) (IL)

**European Anti-Semitism from Antiquity to the Present** (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.

Effective: Summer 2005

HIST 418W (IL)

**The French Revolution and the Napoleonic Era** (3) Developments of revolutionary France and the First French Empire and their impact on Europe from 1789 to the Vienna settlement.

Effective: Spring 2008

Prerequisite: HIST 002

HIST 444W (US)

**The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of reconstruction.

Effective: Spring 2008

Prerequisite: HIST 130 or HIST 020

HIST 456Y (US)

**The Social History of American Vernacular Building, 1607-1980** (3) Social, historical, and cultural context of American building including settlements, housing, workplaces, stores, recreational facilities; changes over time.

Effective: Spring 2006

Prerequisite: 3 credits in American history

HIST 458Y (LER 458Y) (US)

**History of Work in America** (3) A study of selected problems in the history of work in the United States, especially since 1877.

Effective: Spring 2008

Prerequisite: HIST 021 HIST 156 or LER 100

HIST 459Y (US)

**Social and Cultural History of the United States Since 1783** (3) Role of immigration, social reform movements, religion, education, science, literature, and the arts in American history.

Effective: Spring 2006

HIST 471Y (RL ST 471Y) (IL)

**Classical Islamic Civilization, 600-1258** (3) Pre-Islamic Arabia; Muhammad; Arab conquests; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.

Effective: Fall 2006

HIST 475Y (IL)

**The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

Effective: Spring 2006 Ending: Fall 2014

Prerequisite: HIST 010 HIST 011 HIST 172 HIST 175 HIST 176 HIST 181 or HIST 191

HIST 475Y (ASIA 475Y) (IL)

**The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 010 HIST 011 HIST 172 HIST 175 HIST 176 HIST 181 or HIST 191

HIST 484Y (IL)

**History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 174 or HIST 175

HIST 484Y (ASIA 484Y) (IL)

**History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 174 or HIST 175

HIST 485Y (IL)

**Nineteenth-Century China** (3) Ch'ing society and institutions; "opening" to the west; imperialism; domestic upheaval and its effect upon Chinese society; reform movements.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian history)

HIST 485Y (ASIA 485Y) (IL)

**China's Last Empire: The Qing Dynasty, 1644-1911** (3) China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian history)

HM 395W

**Practicum Analysis** (3) Written analysis comparing and contrasting conceptual issues in the hospitality industry.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 201 1000 hours of adviser-approved professional hospitality experience

HM 490W

**Strategic Hospitality Management** (3) This capstone writing-intensive class integrates content from throughout the previous curriculum, focusing on strategic application to current industry issues.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better for HM 365 HM 435 HM 442

HONOR 494M

**Interdisciplinary Writing and Thesis Formulation** (2) Seminar to help students with interdisciplinary analysis, writing, and formulation of honors projects and proposals.

Effective: Fall 2010

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium

HORT 402W

**Plant Nutrition** (3) Mineral nutrition of higher plants, including nutrient acquisition, transport, metabolism, and practical implications.

Effective: Summer 2013

Prerequisite: HORT 315 or BIOL 441 SOILS 101

HORT 410W

**Issues in Landscape Contracting** (3) This will be a survey of business management, regulatory, and environmental issues facing the landscape contracting profession. Laboratory.

Effective: Summer 2013

Prerequisite: HORT 408

HORT 412W

**Post-Harvest Physiology** (3) Harvesting, handling, storage, and transportation of horticultural crops; primary emphasis on physiological response to pre- and post-harvest environmental factors.

Effective: Summer 2013

Prerequisite: 6 credits in horticulture or other plant sciences

HRIM 295W

**Analysis of Field Experience I** (3) Capstone class integrating content from throughout the previous curriculum, including directed written analysis of the 500-hour hospitality working experience.

Effective: Spring 2008 Ending: Summer 2014

Prerequisite: HRIM 201 HRIM 204 HRIM 250 HRIM 335 and HRIM 380

HRIM 295W

**Analysis of Field Experience I** (3) Capstone class integrating content from throughout the previous curriculum, including directed written analysis of the 500-hour hospitality working experience.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 201 HM 204 HM 250 HM 335 and HM 380

HRIM 395W

**Practicum Analysis** (3) Written analysis comparing and contrasting conceptual issues in the hospitality industry.

Effective: Spring 2004 Ending: Summer 2014

Prerequisite: HRIM 201 1000 hours of adviser-approved professional hospitality experience

HRIM 490W

**Strategic Hospitality Management** (3) This capstone writing-intensive class integrates content from throughout the previous curriculum, focusing on strategic application to current industry issues.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better for HRIM 365 HRIM 435 HRIM 442

I E 480W

**Capstone Design Project** (3) Industry-based senior capstone design project emphasizing manufacturing systems, service

systems, and information systems in an interdisciplinary setting.

Effective: Spring 2009

Prerequisite: I E 302 I E 327 I E 323 I E 305 I E 330 I E 405

I HUM 300W

**Interpretations in the Humanities** (3) A study of selected themes, topics, or periods that introduces students to interdisciplinary approaches to knowledge, interpretation, and creative expression.

Effective: Fall 2001

Prerequisite: ENGL 015 ENGL 202 and at least 30 credits

INART 100W (GA)

**Seminar in Integrative Arts** (3) A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester.

Effective: Summer 2012

IST 260W

**Introduction to Systems Analysis and Design** (3) Introduction to systems analysis and design, stressing the process of requirements acquisition, specification, design, and implementation.

Effective: Spring 2010

Prerequisite: IST 110 IST 210 IST 220 and ENGL 015

IST 440W

**Information Sciences and Technology Integration and Problem Solving** (3) Problem-based approach to technology integration by focusing on real-life problems faced by an organization.

Effective: Fall 2002

Prerequisite: ENGL 202C or ENGL 202D seventh-semester standing (this course is intended for seniors) and the five common course requirements plus at least three of the required courses in an option

IT 330W

**Greatest Books of Italian Literature** (3) A survey of the greatest books of Italian literature (prose, poetry, drama). Time period varies each semester. In Italian.

Effective: Summer 2006

Prerequisite: IT 003 IT 020 or permission of program

J ST 409Y (HIST 409Y, RL ST 407Y) (IL)

**European Anti-Semitism from Antiquity to the Present** (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.

Effective: Summer 2005

JAPNS 120W (GH;IL)

**Japanese Literature in its Cultural Context** (3) Japanese Literature in its Cultural Context: Japanese literature and Culture from Classical through contemporary times; writing intensive.

Effective: Summer 2013

JAPNS 403Y (IL)

**Level Four Japanese A** (4) Continuation of JAPNS 402. Aims to improve students' proficiency in all four language skills, with a special emphasis on writing.

Effective: Fall 2012

Prerequisite: JAPNS 402

KINES 425W

**Physical Activity in Diverse Populations** (3) An examination of the social, cultural, political, and environmental influences on health and physical activity promotion among diverse populations.

Effective: Summer 2013

Prerequisite: KINES 321

KINES 438W

**Administration and Issues in Athletic Training** (3) Theoretical and practical aspects for management of an Athletic Training professional practice and identifying contemporary issues related to the profession.

Effective: Fall 2006

Prerequisite: KINES 436

KINES 439W

**Ethics in Sport and Sport Management** (3) Analysis of moral dilemmas in sport and sport management utilizing the tools of ethics.

Effective: Spring 2001

Prerequisite: KINES 345 or 3 credits in humanities

KINES 447W

**Representing Sport in Popular Film** (3) Critical, contextual, and theoretical analyses of sport films focusing on popular narratives of social inequalities.

Effective: Spring 2013

Prerequisite: KINES 141 KINES 345

KINES 461W

**Preparation for Research Project** (2) Planning and preparation for research project.

Effective: Fall 2006

Prerequisite: KINES 180 KINES 260 STAT 200 KINES 321 KINES 345 KINES 350 KINES 360 KINES 384

KINES 462W

**Research Project (2)** Completion of research topic.

Effective: Fall 2006

Prerequisite: KINES 461W

KINES 469W

**Curriculum Development in Health and Physical Education (3)** The content and process of K-12 school health and physical education curriculum development for public school students.

Effective: Fall 2006

Prerequisite: KINES 362 KINES 364 KINES 366

KINES 481W

**Scientific Basis of Exercise for Older Adults (3)** Study of age-associated physical changes and the effects of exercise on the aging process.

Effective: Spring 2001

Prerequisite: KINES 350

KINES 492W

**Programming for Business and Agencies (3)** Fundamentals of program development applied to corporate and private physical fitness businesses.

Effective: Fall 2006

Prerequisite: KINES 395B

L A 201W

**Experiential Learning Portfolio (3)** Students will learn how to assemble a portfolio that reflects their progress, knowledge, and insight into college-level study.

Effective: Summer 2014

LARCH 361W

**Historic Issues in Landscape Architecture (3)** A review of design history (precedent studies), an introduction to historic method, history as an informant to design, reading the historic landscape, and issues of preservation and restoration.

Landscape Architecture majors only.

Effective: Spring 2012

Prerequisite: LARCH 311

LATIN 450W

**History of Latin (3)** History of the Latin language and its speakers, from their origins to the 2nd century C.E.

Effective: Summer 1994

Prerequisite: LING 102 ; LATIN 401 LATIN 402 or LATIN 403

LER 414W

**Labor and Employment Relations Theory (3)** Content and implications of major and minor theories of Labor and Employment Relations.

Effective: Spring 2008

Prerequisite: 6 credits in Labor and Employment Relations

LER 445Y (AF AM 445Y, PL SC 445Y) (US)

**Politics of Affirmative Action (3)** Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

LER 458Y (HIST 458Y) (US)

**History of Work in America (3)** A study of selected problems in the history of work in the United States, especially since 1877.

Effective: Spring 2008

Prerequisite: HIST 021 HIST 156 or LER 100

LL ED 412W

**Teaching Language Arts in Secondary Schools II (3)** Exploration of language, literacy, and culture and development of curricular designs for teaching language arts in secondary schools.

Effective: Spring 2014

Prerequisite: LL ED 411 or LL ED 400

M E 345W

**Instrumentation, Measurements, and Statistics (4)** Measurement concepts, probability and statistics, error analysis; electro- mechanical transducers, applied electrical and mechanical measurements, electrical and electronics instruments, data acquisition and instrumentation systems.

Effective: Spring 2008

Prerequisite: Prerequisite or concurrent: E E 212 or E E 211 or equivalent

M E 440W

**Mechanical Systems Design Project (3)** Design and analysis of mechanical components and systems. Application of fundamental design and analysis methods to open ended engineering problems.

Effective: Fall 2007 Ending: Fall 2014

Prerequisite: ENGL 202C I E 312 M E 360 M E 370 M E 340

M E 440W

**Mechanical Systems Design Project (3)** Design and analysis of mechanical components and systems. Application of fundamental design and analysis methods to open ended engineering problems.

Effective: Spring 2015 Future: Spring 2015



Prerequisite: M E 340 ; M E 360 ; M E 370

M E 441W

**Thermal Systems Design Project** (3) Design of thermal systems through component design and/or selection, system simulation and optimization. Assessment of system economics and energy efficiency.

Effective: Fall 2007 Ending: Fall 2014

Prerequisite: ENGL 202C M E 340 M E 410

M E 441W

**Thermal Systems Design Project** (3) Design of thermal systems through component design and/or selection, system simulation and optimization. Assessment of system economics and energy efficiency.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: M E 340 ; M E 410

M E 442W

**Advanced Vehicle Design I** (2) Part one of a two course sequence; applications of design and analysis methods to open-ended advanced transportation vehicles. Two semester course; satisfies Senior Design or ME Technical Elective requirements (when combined with M E 443W).

Effective: Summer 2010 Ending: Fall 2014

Prerequisite: ENGL 202C I E 312 M E 340 M E 360 M E 370

M E 442W

**Advanced Vehicle Design I** (2) Part one of a two course sequence; applications of design and analysis methods to open-ended advanced transportation vehicles. Two semester course; satisfies Senior Design or ME Technical Elective requirements (when combined with M E 443W).

Effective: Spring 2015 Future: Spring 2015

Prerequisite: M E 340C ; M E 360 ; M E 370

M E 443W

**Advanced Vehicle Design II** (1) Part two of a two course sequence; applications of design and analysis methods to open-ended advanced transportation vehicles. Two semester course; satisfies Senior Design or ME Technical Elective requirements (when combined with M E 442W).

Effective: Summer 2010

Prerequisite: M E 442W

MAE T 204W

**Structure Characterization Laboratory** (3) A hands-on experience course with emphasis on equipment and lab techniques used for microstructural evaluation of metals.

Effective: Summer 2007

Prerequisite: MAE T 201 CHEM 111 PHYS 150

MATH 311M

**Honors Concepts of Discrete Mathematics** (3) Basic methods of mathematical thinking and fundamental mathematical structures, primarily in the context of numbers, groups, and symmetries.

Effective: Spring 2006

Prerequisite: MATH 141

MATH 311W

**Concepts of Discrete Mathematics** (3-4) Introduction to mathematical proofs; elementary number theory and group theory. Students who have passed CMPSC 360 may not schedule this course for credit.

Effective: Spring 2007

Prerequisite: MATH 141

MATH 475W (US;IL)

**History of Mathematics** (3) A global survey of the history of mathematics as viewed as a human response to cultural, political, economic, and societal pressures.

Effective: Spring 2012

Prerequisite: MATH 315 or MATH 311W

MATSE 484W (IL)

**International Internship in Materials: Research Definition and Methodology** (3) A course focused on international research, specific design and methodology, facilitated through the International Internship in Materials and Program.

Effective: Summer 2006

Prerequisite: Sixth-semester standing in Materials Science and Engineering; MATSE 201 MATSE 460 MATSE 492W

satisfactory completion of cultural class from Office of Education Abroad

MATSE 485W (IL)

**International Internship in Materials: Experimentation and Documentation** (3) A course focused on international research, specifically experimentation and documentation, facilitated through the International Internship in Materials Program.

Effective: Summer 2006

Prerequisite: Seventh-semester standing in Materials Science and Engineering; MATSE 484W ; satisfactory completion of cultural class from Office of Education Abroad

MATSE 492W

**Materials Engineering Methodology and Design** (3) Designed to familiarize students with the literature and technology developments in the use of, and design with, materials in industrial applications.

Effective: Fall 2005 Ending: Summer 2014

Prerequisite: sixth semester standing in Materials Science and Engineering

## MATSE 492W

**Materials Engineering Methodology and Design** (3) Designed to familiarize students with the literature and technology developments in the use of, and design with, materials in industrial applications.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201 MATSE 202 MATSE 436 sixth semester standing in Materials Science and Engineering

## MATSE 493W

**Materials Science and Engineering Multidisciplinary Capstone Design Project** (3) This course focuses on multidisciplinary industry-sponsored and community service-based design projects offered in conjunction with the College of Engineering's Learning Factory.

Effective: Summer 2012

Prerequisite: MATSE 492W

## MATSE 494M

**Research and Design Senior Project** (1-3) Continuation of a research problem in materials culminating in a bound thesis describing the work.

Effective: Fall 2007

## MATSE 494W

**Research and Design Senior Project** (1-3) Continuation of a research problem in materials culminating in a bound thesis describing the work.

Effective: Spring 2006

## MET 210W

**Machine Design** (3) Design machine elements including bearings, springs, levers, shafts, gears, belts, and small mechanical devices; writing skills and computer applications.

Effective: Spring 2008 Ending: Summer 2014

Prerequisite: MET 206 or E MCH 212 ; MCH T 213 or E MCH 213 or ET 322 or EMET 322

## MET 210W

**Machine Design** (3) Design machine elements including bearings, springs, levers, shafts, gears, belts, and small mechanical devices; writing skills and computer applications.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MET 206 or E MCH 212 or PHYS 150 or PHYS 250 or PHYS 211 ; MCH T 213 or E MCH 213 or ET 322 or EMET 322

## MET 331W

**Heat Transfer** (4) Introduction for technologists to the basic concepts and applications of heat transfer. Includes a thermodynamics and heat transfer laboratory.

Effective: Fall 2007

Prerequisite: M E 300 or MET 330 . Prerequisite or concurrent: MET 341

## METEO 418W

**Topics in Mesoscale Meteorology** (3) Topics in mesoscale meteorology will be investigated in an independent study environment through computer-based modules, papers, and semester project.

Effective: Fall 1995

Prerequisite: METEO 414

## METEO 440W

**Principles of Atmospheric Measurements** (3) Theory and practices used in measurement and analysis of meteorological variables.

Effective: Fall 2010

Prerequisite: METEO 300 METEO 431 STAT 301 or STAT 401 or E B F 472

## METEO 471W

**Observing Meteorological Phenomena** (3) Teaching the observational and interpretative skills needed to read the sky.

Effective: Spring 1999

Prerequisite: METEO 421 . Prerequisite or concurrent: METEO 436

## METEO 480M

**Undergraduate Research** (3) A research thesis will be prepared. A written and oral presentation required.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: junior or senior standing as a Meteorology Major

## METEO 480W

**Undergraduate Research** (3) A research thesis will be prepared. A written and oral presentation required.

Effective: Summer 1991

Prerequisite: junior or senior standing as a Meteorology Major

## MGMT 100W

**Survey of Management** (3) Introduction to organizational factors relevant to management processes, including leadership, motivation, job design, technology, organizational design and environments, systems, change. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 304 or MGMT 301.

Effective: Summer 1993

## MGMT 301W

**Basic Management Concepts** (3) Examination of fundamental principles and processes applicable to the study of management. Not available to students who have taken B A 304.

Effective: Summer 2013

Prerequisite: ENGL 015 or ENGL 030 ; ECON 102 or ECON 104 ; MATH 021 or higher or satisfactory score on the mathematics placement examination

**MGMT 451W**

**Business, Ethics, and Society** (3) Advanced examination of social, ethical, legal, economic, equity, environmental, public policy, and political influences on managerial decisions and strategies.

Effective: Spring 2004 Ending: Fall 2014

Prerequisite: B A 241 and B A 242 or B A 243

**MGMT 451W**

**Business, Ethics, and Society** (3) Advanced examination of social, ethical, legal, economic, equity, environmental, public policy, and political influences on managerial decisions and strategies.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: B A 241 and B A 242 or B A 243 or B A 342

**MGMT 471W**

**Strategic Management and Business Policy** (3) Study of strategic management and business policy formulation and implementation processes.

Effective: Spring 2008

Prerequisite: MGMT 301 MKTG 301 FIN 301 SCM 301

**MGMT 475W**

**Strategic Product Development** (3) Study of an organization, industry, and evaluation of the introduction to a new product. Preparation of proposal for industry product.

Effective: Summer 2008

Prerequisite: 7th semester standing; MGMT 300 ; FIN 301 ; SCM 310 ; MKTG 301 ; M E 300 or MET 330 ; MCH T 213 or E MCH 213 ; EET 101 or E E 211

**MICRB 151W**

**Seminar and Practicum for Medical Laboratory Technicians--Clinical Microbiology** (6) Properties of normal and abnormal human microbial flora and procedures for their identification.

Effective: Summer 2007 Ending: Summer 2014

Prerequisite: BIOL 141 CHEM 202 MICRB 150 MICRB 201 MICRB 202

**MICRB 151W**

**Clinical Microbiology and Body Fluid Analysis for Medical Laboratory Technicians** (5) Properties of normal and abnormal microbial flora and procedures for their identification. Analysis of urine and other body fluids.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141 CHEM 202 MICRB 150 MICRB 201 MICRB 202

**MICRB 421W**

**Laboratory of General and Applied Microbiology** (3) Laboratory exercises demonstrating fundamental techniques and principles of experimentation of general and applied microbiology.

Effective: Spring 2001

Prerequisite: MICRB 201 MICRB 202

**MIS 479W**

**Management of Operations Information/ERP** (3) Management and implementation of enterprise information systems for business integration and supply chain management.

Effective: Spring 2008 Ending: Fall 2014

Prerequisite: MIS 390 or MIS 431

**MIS 479W**

**Enterprise Information Systems** (3) Management and implementation of enterprise information systems for business integration and supply chain management.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MIS 434

**MKTG 221W**

**Contemporary American Marketing** (3) Social and economic aspects; movement of goods and services from producers to consumers; analysis of marketing functions, systems, and institutions. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 303 or MKTG 301.

Effective: Spring 1993

Prerequisite: 3 credits in economics

**MKTG 301W**

**Principles of Marketing** (3) Focuses on customer behavior, product, channels of distribution, promotion, and pricing with emphasis on a culturally diverse environment. Not available to students who have taken BA 303.

Effective: Summer 2013

Prerequisite: ENGL 015 or ENGL 030 ; ECON 102 or ECON 104 ; MATH 021 or higher or satisfactory score on the mathematics placement examination

**MKTG 450W**

**Marketing Strategy** (3) Market-oriented problems of the firm; identification and selection of market opportunities; formulation of competitive strategies; marketing policies and programs.

Effective: Spring 2008

Prerequisite: MKTG 330 MKTG 342

**MNG 451W**

**Mining Engineering Project** (1-5) Independent and integrative design and report of specific mine evaluation, layout,

equipment selection, environmental control, permitting, and financial analysis.

Effective: Spring 1999

Prerequisite: seventh-semester standing in mining engineering plus six months of mining work experience

MNG T 205W

**Mining Systems Technology** (3) Comparison of mining methods with focus on preventative maintenance, coal transport, and estimating production and manpower needs.

Effective: Summer 2006

Prerequisite: MNG T 030

MTHED 412W

**Teaching Secondary Mathematics II** (3) Assessing learning and instruction; methods of evaluation and grading; long-term planning; accommodating needs of diverse learners; connecting theory and practice.

Effective: Summer 2010

Prerequisite: a grade of C or better in MTHED 411

MUSIC 441W

**Emphasis in Elementary General and Choral Music** (3) Selection and application of materials, methods, teaching and assessment strategies for elementary general and choral music settings.

Effective: Spring 2011

Prerequisite: MUSIC 345 MUSIC 395B

MUSIC 442W

**Emphasis in Secondary General Music** (3) Emphasis in teaching in secondary general music settings.

Effective: Fall 2013

Prerequisite: Limited to Music Education Majors. MUSIC 345 MUSIC 395B

MUSIC 444W

**Emphasis in Elementary and Intermediate Band** (3) Examination and application of teaching strategies and materials for students planning to teach band in the elementary and middle schools.

Effective: Spring 2011

Prerequisite: MUSIC 345 MUSIC 395A MUSIC 366 piano proficiency passes

MUSIC 445W

**Emphasis in High School Band** (3) Examination and application of teaching strategies and materials for students planning to teach high school bands.

Effective: Spring 2011

Prerequisite: MUSIC 345 MUSIC 395B

MUSIC 446W

**Emphasis in Strings and Orchestra** (3) Development of teaching techniques for instructing elementary and secondary string/orchestra student musicians for music education majors.

Effective: Spring 2011

Prerequisite: MUSIC 345 MUSIC 395B

MUSIC 461W

**Studies in Music History: Antiquity to 1600** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from antiquity to 1600, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 261 MUSIC 331

MUSIC 462W

**Studies in Music History: 1550-1750** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1550-1750, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 261 MUSIC 331

MUSIC 463W

**Studies in Music History: 1700-1900** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1700-1900, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 262 MUSIC 331

MUSIC 464W

**Studies in Music History: 1850-Present** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1850 to the present, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 262 MUSIC 332

MUSIC 476W

**B.A. Senior Project** (3) A semester project appropriate to student's option in B.A. program (e.g., research paper, performance with program notes, or related paper).

Effective: Spring 1992

Prerequisite: seventh-semester standing

NMT 210W

**Introduction to Nanofabrication Manufacturing Technology** (3) This course provides an overview of basic Nanofabrication Manufacturing Technology for Engineering and Technology students. The course will give the student an overview of atomic physics and the use of atoms to build devices and machines.

Effective: Fall 2003

Prerequisite: E E T 101

NUC E 310W

**Issues in Nuclear Engineering** (2) Societal and technical issues facing nuclear engineers, including safety, operations, waste, regulation, public acceptance, economics, ethics, and radiation.

Effective: Fall 2001

Prerequisite: fifth-semester standing

NUC E 431W

**Nuclear Reactor Core Design Synthesis** (4) Technical and economic optimization of nuclear systems.

Effective: Spring 1994

Prerequisite: ENGL 202C ; NUC E 403 NUC E 430

NURS 200M

**Understanding and Applying Nursing Research** (3) Introduction to methods and philosophy of empirical inquiry as applied to research in nursing and application to practice.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: STAT 200 or STAT 250 NURS 225 ; or STAT 250 and NURS 390 for NURN major

NURS 200W

**Understanding and Applying Nursing Research** (3) Introduction to methods and philosophy of empirical inquiry as applied to research in nursing and application to practice.

Effective: Spring 2011

Prerequisite: STAT 200 or STAT 250 NURS 225 ; or STAT 250 and NURS 390 for NURN major

NURS 214W

**Nursing Care of Clients with Psychiatric/Mental Health Disorders** (3) Emphasis on care of adults with emotional or dysfunctional mental health patterns.

Effective: Spring 2013

Prerequisite: NURS 211 NURS 212 PSYCH 100

NUTR 490W

**Nutrition Seminar** (3) Use of selected materials from the scientific literature to prepare a term paper and an oral report.

Effective: Spring 1995

Prerequisite: or concurrent: NUTR 452

O T 105W

**Group Process Across The Lifespan** (3) Group dynamics and interactions analyzed across the lifespan and practice settings. Interventions designed and facilitated by students.

Effective: Fall 2013

Prerequisite: O T 103

O T 412W

**Introduction to Research** (3) Introduction to quantitative and qualitative research process relative to occupational therapy.

Effective: Summer 2011

Prerequisite: STAT 200 or STAT 250

P N G 440W

**Formation Evaluation** (3) Study of those methods used to evaluate the engineering properties of oil and gas bearing reservoir formations.

Effective: Spring 1999

Prerequisite: P N G 405 P N G 406

P T 270W

**Pathophysiology** (3) Introduction to the study of disease and those conditions most often treated by physical therapy methods; basic signs, symptoms, and causes of disease and conditions will be covered.

Effective: Fall 2004

Prerequisite: a grade of C or better in BIOL 141 BIOL 142 P T 100 P T 384

P T 280W

**Rehabilitation** (4) Examination of techniques and laboratory experiences in rehabilitation techniques for the physically challenged.

Effective: Fall 2004

Prerequisite: a grade of C or better in BIOL 141 BIOL 142 P T 150 P T 160 P T 270 P T 384 P T 395E

P T 395W

**Physical Therapist Assistant--Practicum I** (4) The practice of physical therapist assistant skills in a clinical setting under the direct supervision of a physical therapist.

Effective: Fall 2004 Ending: Fall 2014

Prerequisite: a grade of C or better in BIOL 141 BIOL 142 P T 384

PHIL 103W (GH)

**Introduction to Ethics** (3) Ethical theory about virtue, duty, autonomy, and life quality applied to moral problems, including character, violence, oppression, abortion, and suicide.

Effective: Fall 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 108W (GH)

**Introduction to Social and Political Philosophy** (3) Critical introduction to political authority, rights, justice, community,

inequality, power, pluralism, and other contemporary, social, and political issues.

Effective: Summer 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 125W (GH)

**Introduction to Theories of Knowledge** (3) Historical and contemporary views on the foundations and conditions of knowledge, belief, justification, and truth, conception, perception, and interpretation.

Effective: Summer 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 126W (GH)

**Introduction to Metaphysics** (3) Explores the nature of being and reality, the problem of free will and the mind/body problem, identity, and causality.

Effective: Summer 1998

Prerequisite: ENGL 015 or ENGL 030

PHIL 408W

**Social and Political Philosophy** (3) Historical and philosophical foundations of political organization, authority, and justice, and contemporary issues of rights, community, and culture.

Effective: Fall 1998

Prerequisite: 9 credits in philosophy including PHIL 108 or 6 credits at the 200 level

PHIL 418W

**Ethics** (3) Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level

PHIL 425W

**Epistemology** (3) The nature of cognition and perception, the conditions of experience, and the justification and truth of belief.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 125 or 6 credits of philosophy at the 200 level; in addition to ENGL 015 or ENGL 030

PHIL 426W

**Metaphysics** (3) Examines the nature of reality, the existence of freedom, and the nature of matter, mind, and values.

Effective: Summer 1998

Prerequisite: 9 credits in philosophy including PHIL 126 or 6 credits of philosophy at the 200 level

PHYS 421W

**Research Methods in Physics** (3) Methodology focusing on the theory of measurement and experiment design.

Effective: Spring 2007

Prerequisite: PHYS 237

PHYS 457W

**Experimental Physics** (3) Selected experiments in various fields in physics.

Effective: Spring 2007

Prerequisite: PHYS 212 PHYS 213 PHYS 214 and PHYS 237

PL ET 206W

**Plastic Materials and Properties** (3) Coverage of the most common commercial plastics including their additives, fillers, and fibers; includes common physical tests used to determine material characteristics; writing intensive.

Effective: Spring 2011

Prerequisite: PL ET 205

PL SC 017W (GS)

**Introduction to Political Theory** (3) Introduction to basic issues in political theory through analysis of selected major political thinkers.

Effective: Spring 2001

PL SC 411W

**Principles of International Cooperation** (3) An exploration of the forces that make conflict, or cooperation, more likely in international relations.

Effective: Summer 2006

Prerequisite: PL SC 014

PL SC 418W

**International Relations Theory** (3) A survey of traditional and contemporary conceptual frameworks and theoretical approaches for the analysis of international relations.

Effective: Spring 1999

Prerequisite: PL SC 014

PL SC 430W

**Selected Works in the History of Political Theory** (3) Detailed examination and analysis of a selected major work, thinker, or tradition in the history of political theory.

Effective: Spring 2008

Prerequisite: PL SC 017 or PL SC 007

PL SC 435W

**Foundations of American Political Theory** (3) Political theories of the revolutionary and constitutional periods presented through works of selected political thinkers and political issues.

Effective: Spring 2001

Prerequisite: PL SC 001 PL SC 017 or PL SC 007

PL SC 445Y (AF AM 445Y, LER 445Y) (US)

**Politics of Affirmative Action** (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

PL SC 470W

**Legal Brief Writing** (3) Writing of legal briefs as practiced in American courts.

Effective: Spring 1998

Prerequisite: PL SC 001

PL SC 480W

**Congress and the Presidency** (3) Basic characteristics and processes of the national legislature and executive; roles and interaction of these institutions in the policy process.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 484W

**The Foreign Policy of Soviet Successor States** (3) Relations between Russia and The Newly Independent States (NIS); Russia's relations with selected foreign states and political Institutions; regional impact of the NIS in Baltic, Asian, and Central Asian areas.

Effective: Fall 2007

Prerequisite: PL SC 003

PSYCH 301W

**Basic Research Methods in Psychology** (4) Introduction to methods of psychological research, with special attention to hypothesis formation and testing, threats to validity, and data presentation.

Effective: Spring 2007

Prerequisite: PSYCH 100 ; PSYCH 200 or STAT 200

PSYCH 406W

**Advanced Research Projects in Psychology** (4) Advanced methodology focusing on the logic and practice of research culminating in the completion of a student designed research project.

Effective: Spring 2007

Prerequisite: PSYCH 301W

PUBPL 304W

**Public Policy Analysis** (3) The use of analytic models for describing and explaining the forces shaping policy and the consequence of policy decisions.

Effective: Spring 2004

R M 320W

**Risk Management and Insurance** (3) Goals and methods of risk management. Commercial insurance and alternative risk transfer (ART) methods in addition to the characteristics of insurance markets and intermediaries used by risk managers.

Effective: Summer 2011

Prerequisite: R M 301

R M 330W

**Real Estate Risk Analysis** (3) Risk and value associated with real estate decision making, which includes purchasing, leasing renovation, financing, and investing.

Effective: Summer 2011

Prerequisite: R M 301

RADSC 210W

**Radiographic Pathology** (3) Writing intensive study of theories of disease causation and the pathophysiology disorders compromising health systems with emphasis on radiographic presentation.

Effective: Fall 2002

Prerequisite: BIOL 129 BIOL 141

RHS 400W

**Case Management and Communication Skills** (3) Principles and practices of obtaining, recording, evaluating, and utilizing case data in rehabilitation planning; implementation of rehabilitation plans.

Effective: Summer 2011

Prerequisite: RHS 300

RL ST 125W (GH)

**Modern Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the sixteenth century to the present.

Effective: Summer 1995

RL ST 132W

**Sects and Cults** (3) The origins, beliefs, and practices of new or dissenting religious groups and their relationship to the dominant religious culture.

Effective: Spring 1994

RL ST 140Y (AM ST 140Y) (GH;US)

**Religion in American Life and Thought** (3) The function, contributions, tensions, and perspectives of religion in American culture.

Effective: Summer 2005

RL ST 407Y (HIST 409Y, J ST 409Y) (IL)

**European Anti-Semitism from Antiquity to the Present** (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.

Effective: Summer 2005

RL ST 440Y (US;IL)

**The Orthodox Christian Tradition** (3) History, culture, and beliefs of the Eastern Orthodox religious tradition with special reference to Russia.

Effective: Summer 2011

Prerequisite: RL ST 004 RL ST 124 RL ST 125 RUS 100 or RUS 110

RL ST 471Y (HIST 471Y) (IL)

**Classical Islamic Civilization, 600-1258** (3) Pre-Islamic Arabia; Muhammad; Arab conquest; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.

Effective: Spring 2006

RPTM 300Y (IL)

**Tourism and Leisure Behavior** (3) Examination of the impact of recreational sociocultural, governmental, economic, and physical environment on the leisure traveler within the tourism industry.

Effective: Summer 2005

RPTM 433W

**Program Evaluation and Research in Recreation Services** (3) Systematic, structured problem-solving process for decision making in recreation and parks. Research techniques/evaluation procedures; quantitative, qualitative methodologies; deductive, inductive reasoning.

Effective: Spring 2005

Prerequisite: RPTM 356 3 credits in statistics

RUS 141Y (IL)

**Russian Literature in English Translation: 1800-1870** (3) Pushkin, Lermontov, Gogol, the critics, Turgenev, Dostoevsky, Tolstoy. Writing assignments will serve as a major way of exploring subject matter.

Effective: Spring 2006

RUS 142Y (IL)

**Russian Literature in English Translation: 1870 to Present** (3) Dostoevsky, Tolstoy, Chekhov, Gorky, symbolists, selected Soviet authors. Writing assignments will serve as a major way of exploring subject matter.

Effective: Spring 2006

S T S 427W (CED 427W)

**Society and Natural Resources** (3) Analysis of the relationship between societal development and enhancement and natural resources.

Effective: Fall 2013

Prerequisite: R SOC 011 or SOC 001

SCM 450W

**Strategic Design and Management of Supply Chains** (3) Strategic design and management of supply chains.

Effective: Fall 2011

Prerequisite: SCM 421

SO SC 480W

**Quantitative Methods in the Social Sciences** (4) Students will learn to conduct, analyze and write up quantitative social scientific research according to appropriate professional standards.

Effective: Spring 2008

Prerequisite: permission of program

SOC 001W (GS)

**Introductory Sociology** (3) The nature and characteristics of human societies and social life.

Effective: Fall 1998

SOC 400W

**Senior Research Seminar** (3) Major concepts and principles of sociology through reading, data analysis, and writing. Capstone course for senior Sociology majors.

Effective: Fall 2001

Prerequisite: SOC 470

SOILS 412W

**Soil Ecology** (3) Introduction to soil organisms; includes interactions between organisms, their processes, and metabolism with a major focus on microorganisms.

Effective: Summer 2013

Prerequisite: BIOL 011 BIOL 127 or BIOL 110

SPAN 131Y (GH;US;IL)

**Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

Effective: Summer 2005



## SPAN 253W

**Introduction to Hispanic Literature** (3) Introduction to generic distinctions, critical methods, and approaches to Hispanic literature.

Effective: Spring 2008

Prerequisite: SPAN 100 and SPAN 110

## SPLED 395W

**Observing in Exceptional Settings** (3) Observations of exceptional persons and techniques used by their teachers in a variety of settings, e.g., school, day care, vocational.

Effective: Summer 2011

Prerequisite: EDPSY 101 . PA Act 34 clearance required. In addition non-Pennsylvania residents must provide evidence of an FBI background information check. (Forms: 228 Chambers)

## SRA 440W

**Security and Risk Analysis Capstone Course** (3) The Security and Risk Analysis Capstone course is designed to provide IST students enrolled in the SRA major to experience a semester-long security and risk problem-solving experience, providing realistic security dilemmas requiring a solution process that is well suited for teamwork and collaboration.

Effective: Spring 2014

Prerequisite: SRA 221 and SRA 311 ; ENGL 202C or ENGL 202D seventh-semester standing (this course is intended for seniors) and the five common course requirements plus at least three of the required courses in an option

## SS ED 412W

**Teaching Secondary Social Studies II** (3) Writing-intensive course focusing on study of the social studies teacher's role in planning instruction; strategies for teaching.

Effective: Summer 2010

Prerequisite: SS ED 411

## SS ED 430W

**Teaching Social Studies in the Elementary Grades** (3) Principles underlying use of social studies in the elementary school; practical demonstration of desirable methods.

Effective: Spring 2014

Prerequisite: LL ED 400 LL ED 401 LL ED 402 nine credits in history and the social sciences

## STAT 470W

**Problem Solving and Communication in Applied Statistics** (3) Provide problem solving and communication skills through development of writing ability, interaction with peers and the SCC, and oral presentations.

Effective: Spring 2000

Prerequisite: STAT 460 STAT 462 STAT 480

## SUR 372W

**Legal Aspects of Land Surveying** (3) Legal research; rules of evidence including classification and evaluation; unwritten rights; land description composition; easements.

Effective: Spring 1994

Prerequisite: SUR 272

## SWENG 452W

**Embedded Real Time Systems** (3) The design and implementation of real time systems.

Effective: Summer 2008

Prerequisite: CMPSC 472 or CMPSC 473 or CMPEN 441

## THEA 401Y (IL)

**Theatre History I: Ancient to 1700** (3) Survey of drama and theatre from primitive rites through the Renaissance.

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

## TURF 436W

**Case Studies in Turfgrass Management** (3) Case study and discussion considering integrated management of selected turfgrass sites; emphasis on problem analysis, principle application, and decision making.

Effective: Spring 2014

Prerequisite: TURF 238 TURF 425

## VB SC 402W (ENT 402W)

**Biology of Animal Parasites** (3) An introduction to animal parasitology. Emphasis placed on host/parasite interactions, parasites of zoonotic importance, control programs and taxonomy.

Effective: Spring 2010

Prerequisite: BIOL 110

## VB SC 423W

**Pathology of Nutritional and Metabolic Diseases** (3) Overview of nutritional and metabolic diseases of animals integrating concepts from biochemical and physiologic aberrations to clinical applications.

Effective: Spring 2008

Prerequisite: B M B 211 or B M B 401 AN SC 301 or equivalent nutrition course

## VB SC 448W

**Current Topics in Immunology** (3) Study of current approaches and questions driving research in immunology and infectious diseases.

Effective: Fall 2007

Prerequisite: MICRB 410 B M B 400

## W F S 447W

**Wildlife Management** (3) Management of renewable wildlife resources by applying ecological concepts, habitat evaluation, and decision-making; writing and editing reports are emphasized.

Effective: Summer 2013

Prerequisite: W F S 209 or W F S 309

W F S 463W

**Fishery Management** (3) Management of sport and commercial fisheries, including biological, political, social, and economic factors; regulations and other management techniques.

Effective: Summer 2013

Prerequisite: W F S 209 W F S 300 W F S 301 W F S 310

W P 200W

**Professional Careers in Forest Resources** (3) Introduction to managing forests for products and services to meet human needs; developing career goals and an academic plan.

Effective: Spring 2014

WF ED 207W

**Assessment Techniques** (3) Assessment, recording, and reporting of learning in an integrated competency based vocational education system.

Effective: Summer 1996

Prerequisite: WF ED 105

WILDL 208M

**Terrestrial Wildlife Management** (3) Ecological characteristics and manipulation of terrestrial habitats; control of wildlife populations.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: FORT 150 FORT 160 WILDL 101 WILDL 103 WILDL 106 WILDL 204

WILDL 208W

**Terrestrial Wildlife Management** (3) Ecological characteristics and manipulation of terrestrial habitats; control of wildlife populations.

Effective: Summer 2013

Prerequisite: FORT 150 FORT 160 WILDL 101 WILDL 103 WILDL 106 WILDL 204

WL ED 412W

**Methods of Teaching World Languages in Grades 6-12** (3) Exploring the complexity of teaching World Languages and development of curricular designs for teaching World Languages in grades 6-12.

Effective: Spring 2010

Prerequisite: WL ED 411 WL ED 495B

WMNST 426Y (GEOG 426Y) (US;IL)

**Gender Geographies** (3) Description and explanation of the links between gender relations and spatial structures; gender and work, social services, and neighborhood activism.

Effective: Fall 2013

Prerequisite: GEOG 020 GEOG 126 GEOG 120 WMNST 100

WMNST 492W

**Current Feminist Issues** (3) Critical analysis of major contemporary feminist research and writing in the arts, humanities, social and natural sciences.

Effective: Spring 2002

Prerequisite: WMNST 301 WMNST 302

## First-Year Seminar

All course descriptions are updated periodically.

141 courses.

A E 124S

**Architectural Engineering Orientation** (1) Introduction to architectural engineering; lectures and discussions with special reference to the relation of architectural engineering to the building industry.

Effective: Fall 1999

A ED 101S

**Introduction to Art Education** (3) This course introduces students to issues, concepts, and ideas in Art Education.

Effective: Summer 2002

ADTED 100S

**Adult Learners in the University** (1) Opportunity to develop effective learning strategies while exploring critical issues related to adults entering or returning to higher education.

Effective: Spring 2001

AERSP 001S

**Aerospace Explorer--First-Year Seminar** (1) First-Year Seminar explores aerodynamics, structural mechanics, flight mechanics, rotorcraft systems, high performance computers, air/space propulsion, and space systems.

Effective: Fall 1999

AERSP 097S

**First Year Seminar - Hands on Helicopter** (1) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AF AM 083S (GH;US;IL)

**First-Year Seminar in African American Studies** (3) Cultural, philosophical, economic, political, and global dynamics of the Black experience in the United States and the Diaspora.

Effective: Fall 2013

AG 150S

**Be a Master Student!** (2) Students explore agricultural issues and research methodologies through literature review, library searches, field studies, and critical thinking.

Effective: Summer 1999

Prerequisite: first- or second-semester standing

AG 160S (GH)

**Introduction to Ethics and Issues in Agriculture** (3) Introduce students to the University and College of Ag Sciences preparing them to succeed. Review ethical theories and issues in American agriculture.

Effective: Summer 2012

Prerequisite: fifth- or second semester standing

AM ST 083S (GH)

**First-Year Seminar in American Studies** (3) Critical approaches to the interdisciplinary study of American culture.

Effective: Summer 1999

AN SC 110S

**Contemporary Issues in Animal Biotechnology and Society** (1) An introductory survey of animal biotechnology in society, the role for biotechnology and how it will benefit society.

Effective: Summer 2013

ANTH 083S (GS)

**First-Year Seminar in Anthropology** (3) This seminar introduces students to anthropology as a scientific discipline with ties to other social and natural sciences.

Effective: Summer 1999

APLNG 083S (GS;US;IL)

**First-Year Seminar in Applied Linguistics** (3) Introduction to the application of theories of language to cognition, culture, gender, society, and second language acquisition.

Effective: Summer 2005

ARCH 131S

**Basic Design Studio I** (4) An introduction to the basic concepts, methods, and skills of architectural design in a project-based, active learning, studio environment.

Effective: Summer 2008

Prerequisite: or concurrent ARCH 121

ART 110S

**Ideas as Visual Images** (3) Introduction to the ideational relationships among subject, form, and content in visual images.

Effective: Fall 2002

Prerequisite: portfolio review

ART H 001S (GA)

**First-Year Seminar** (3) An introduction to the field of art history, through an examination of a selected issue in a seminar setting.

Effective: Fall 2000

ASIA 083S

**Asian Studies First Year Seminar** (3) The meaning and advantages of a Liberal Arts education in context of a specific discipline.

Effective: Spring 2010

ASTRO 020S

**First-Year Astronomy Seminar** (2) Introduction to the study of modern astronomy through discussions, activities, and writing.

Effective: Summer 1999

AYFCE 211S (GS;US;IL)

**Foundations: Civic and Community Engagement** (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.

Effective: Spring 2011

B A 100S (GS)

**Introduction to Business** (3) A comprehensive view of the contemporary environment of business.

Effective: Fall 2009

B E 001S

**Growing Your Future--First-Year Seminar** (1) Introduce students to University life, the agricultural/biological/engineering program and profession; prepare them to succeed in academic life at Penn State.

Effective: Fall 2008

Prerequisite: first-year status

B M B 001S (GN)

**Understanding the Bases of Human Disease** (3) A broad survey of the molecular and cellular factors that provide an explanation for an understanding of human disease.

Effective: Spring 2001

BB H 019S

**Health and Disease** (1) Essentials of communicable and chronic disease control.

Effective: Spring 2005

BB H 148S

**Coping with College: A First Year Transition Seminar** (2) Exploration of effective learning strategies, university resources, academic requirements and planning, career development issues in discussion-centered environment.

Effective: Summer 1999

BIOE 100S

**Bioengineering Seminar** (1) First-year seminar to introduce the role of engineering in biomedical research and in instrument development for the medical device industry.

Effective: Fall 2001 Ending: Summer 2014

BIOL 110S (GN)

**Biology: Basic Concepts and Biodiversity** (4) A study of the evolution of the major groups of organisms including the fundamental concepts of biology. This course also fulfills the First-Year Seminar requirements.

Effective: Summer 1999

BME 100S

**Biomedical Engineering Seminar** (1) First-year seminar to introduce the students to the field of biomedical engineering, and related opportunities in research, and industry.

Effective: Fall 2014 Future: Fall 2014

C E 100S

**Topics and Contemporary Issues in Civil and Environmental Engineering: First-Year Seminar** (1) First-Year Seminar exploring a specific topic or contemporary issue in civil and environmental engineering.

Effective: Fall 1999

CAMS 083S (GH;IL)

**First-Year Seminar in Classics and Ancient Mediterranean Studies** (3) Critical approach to the study of ancient Mediterranean languages, literatures, and/or material cultures.

Effective: Summer 2005

CAP 100S

**Orientation to the Undergraduate Experience** (1) To facilitate transition of new students through active engagement and introduction to university and campus resources.

Effective: Fall 2004

CAP 110S

**First-Year Seminar for Capital College, The School of Behavioral Sciences and Education** (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.

Effective: Spring 2003

CAP 120S

**First-Year Seminar for Business** (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.  
Effective: Spring 2003

CAP 140S

**First-Year Seminar for Humanities** (1) Introduction to the discipline including: ethics, research methods, communications, career opportunities/issues and applied technology.  
Effective: Summer 1999  
Prerequisite: or concurrent: CAP 100S

CAP 150S

**First-Year Seminar for Capital College, The School of Public Affairs** (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.  
Effective: Spring 2003

CAP 160S

**First-Year Seminar for Capital College, The School of Science, Engineering and Technology** (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.  
Effective: Spring 2004

CAS 083S (GS)

**First-Year Seminar in Speech Communication** (3) Introduction to major theoretical, critical, research and pedagogical issues in human communication.  
Effective: Fall 2003

CAS 084S (GH)

**First-Year Seminar in Communication Arts and Sciences** (3) Introduction to significant issues surrounding effective human communication; humanities emphasis.  
Effective: Summer 2002

CAS 100S (GWS)

**Effective Speech** (3) Principles of communication, implemented through presentation of speeches, with some attention to group discussion and message evaluation.  
Effective: Fall 2003

CH E 097S

**Introduction to Chemical Energy Technology** (1) This CH E FYS will overview the CH E field and curriculum with a concentration on Chemical Engineering in energy technology.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CH E 100S

**Exploring Chemical Engineering First-Year Seminar** (1) The exploration of Chemical Engineering and available career opportunities.  
Effective: Summer 2007

CMLIT 083S (GH;IL)

**First-Year Seminar in Comparative Literature** (3) International topics in literature and culture; each seminar will have a specific topic as announced (see the Comparative Literature Web site).  
Effective: Summer 2005

COMPEN 111S

**Computers and Computer Hardware** (1) A brief orientation to University life and resources and an introduction to computers and computer hardware.  
Effective: Spring 2009

COMPSC 111S

**Logic for Computer Science** (1) An introduction to logic and its application to problem solving and computer science.  
Effective: Spring 2009

COMM 100S (GS)

**The Mass Media and Society** (3) Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films.  
Effective: Fall 2005

COMM 150S (GA)

**The Art of the Cinema** (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.  
Effective: Fall 2005

CRIM 083S (CRIMJ 083S)

**First-Year Seminar in Criminal Justice** (3) Critical approaches to issues in criminal justice and criminology.  
Effective: Spring 2008

CRIMJ 083S (CRIM 083S) (GS)

**First-Year Seminar in Criminal Justice** (3) Critical approaches to issues in criminal justice and criminology.  
Effective: Spring 2008

E E 007S

**Adventures in Electrical Engineering** (1) Exploration of electrical engineering through several hands-on activities that cover a broad spectrum of applications and fundamental concepts.

Effective: Fall 1999

E E 008S

**Introduction to Digital Music** (1) First-year seminar that discusses digital music from an electrical engineering perspective; topics include sampling, digital filtering, compression, and music synthesis.

Effective: Fall 2001

E E 009S

**First-Year Seminar in Electrical Engineering** (1) First-year seminar covering a variety of Electrical Engineering topics that vary from year to year.

Effective: Spring 2008

E SC 097S

**Respect the Environment: Designing New, Bioabsorbable Medical Implants and New Green Energy Storage Devices**

(1) Environment is: the surroundings or conditions in which a person, animal, or plant lives or operates. Our task as modern engineers is to make it clean, free of debris and highly effective in providing and maintaining productive advancements focused on limiting amount of 'waste left behind' in two very different fields: the human body and nature. We will be analyzing a new field of bioabsorbable, not-toxic biomedical implants and development of environmentally respectful energy storage devices. Both new bioimplants and new energy sources are expected to disappear at the end of their designed life. We will learn (in the lab!) how to evaluate bioimplants and how to build efficient batteries. The FYS will serve as a good introduction to modern engineering and its spectrum of interconnected fields and show how an engineering problem and its solution have important implications in meeting societal needs.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

E SC 120S

**Design for Failure--First-Year Seminar** (1) This seminar, through the utilization of commonly used examples, discusses the engineering principles which are exploited by such designs.

Effective: Summer 2000

E SC 121S

**Science/Engineering Fiction and the Engineering Sciences--First-Year Seminar** (1) Examines the technology predictions of authors in view of the engineering sciences on which the underlying devices of their stories are based.

Effective: Summer 2000

E SC 122S

**Weird, Wild, and Wonderful Materials and Devices--First-Year Seminar** (1) First-year seminar that surveys the use of novel materials and material systems to create practical devices.

Effective: Summer 2000

E SC 123S

**Catastrophic Failures--First-Year Seminar** (1) First-year seminar that explores design deficiencies through the study of case histories of a number of famous failures.

Effective: Summer 2000

ECON 083S (GS)

**First-Year Seminar in Economics** (3) Experiments in microeconomic principles.

Effective: Summer 1999

EDSGN 011S

**Explorations in Design First-Year Seminar** (1) Students explore topical issues in engineering design.

Effective: Spring 2007

EDSGN 012S

**Solar Racers First-Year Seminar** (1) Students explore solar energy engineering by designing, building, testing, and racing a model car powered by a photovoltaic panel.

Effective: Spring 2007

EDSGN 013S

**Ethics of Star Trek First-Year Seminar** (1) The Star Trek television series is used as an introduction to ethics, with application to student life and engineering practice.

Effective: Spring 2007

EDSGN 015S

**Transformations by Design: First-Year Seminar** (1) Examination of the social and environmental transformations that follow engineering design, and of the transformations of students by higher education.

Effective: Spring 2007

EDSGN 100S

**Introduction to Engineering Design** (3) Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal, and written.

Effective: Fall 2007

EDTHP 115S (GS;US)

**Competing Rights: Issues in American Education** (3) An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society.

Effective: Spring 2006

EDUC 100S

**First-Year Seminar in Education** (3) Learning about a scholarly community through the development of knowledge and skills needed for successful participation in higher education.

Effective: Fall 2007

## EET 002S

**Introduction to Engineering Technology** (1) Introduction to engineering technology and the use of computer methods for analyzing and solving engineering technology problems; microcomputer fundamentals, word processing, spreadsheet, and database software packages.

Effective: Fall 2007

## EM SC 100S (GWS)

**Earth and Mineral Sciences First-Year Seminar** (3) Writing, speaking, and critical thinking skills applied to topics of general interest in Environmental and Materials Science.

Effective: Spring 2001

## ENGL 003S (GH)

**The Great Traditions in American Literature** (3) Major works of fiction, drama, and poetry from the colonial to the modern periods expressing enduring issues and values.

Effective: Fall 2002

## ENGL 015S (GWS)

**Rhetoric and Composition** (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.

Effective: Summer 1999

Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

## ENGL 030S (GWS)

**Honors Freshman Composition** (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.

Effective: Spring 2003

## ENGL 083S (GH)

**First-Year Seminar in English** (3) Critical approaches to the dimensions and directions in English/American literature and rhetoric.

Effective: Summer 1999

## ENGL 135S (GH;US)

**Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

Effective: Summer 2005

## ENGL 139S (GH;US)

**Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

Effective: Fall 2006

## ENGL 184S (GH;IL)

**The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.

Effective: Spring 2006

## ENGL 194S (GH;US;IL)

**Women Writers** (3) Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers.

Effective: Summer 2005

## ENGR 097S

**1st Year Seminar Engineering** (1-2) This First Year Seminar is designed to introduce first year students to the academic and social culture of Penn State University. The objective of the class is to help you engage with academic, social, and personal resources available at Penn State and in the community and to facilitate your transition to college life.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: must be engineering student

## ENGR 100S

**Introduction to Engineering** (1) A seminar providing information about different engineering majors, coping with college life, and exploring educational and career goals.

Effective: Fall 1999

## FORT 100S

**Introduction to Forestry** (1) A general introduction to forest ecology, history, management, and practices.

Effective: Summer 2013

## FR 083S (GH;IL)

**First-Year Seminar in French** (3) Critical approaches to the dimensions and directions in French/Francophone literatures and cultures.

Effective: Summer 2005

## GD 001S

**First-Year Seminar in Graphic Design** (1) An orientation to the historical, social, and professional context of design and an exposure to a variety of ethical, philosophical, and topical ideas from the world of design.

Effective: Summer 2007

Prerequisite: admission to the AADES program

## GEOG 010S (GN)

**Physical Geography: An Introduction** (3) Survey and synthesis of processes creating geographical patterns of natural resources, with application of basic environmental processes in resource management.  
Effective: Spring 2006

GER 083S (GH;US;IL)

**First-Year Seminar in German** (3) Germany's cultural past and present.  
Effective: Summer 2005

H&HD 297S

**Jumpstart** (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HD FS 129S (GS)

**Introduction to Human Development and Family Studies** (3) Introduction to psychosocial and family development at all stages of the individual and family life cycle.  
Effective: Summer 2006

HIST 083S (GH)

**First-Year Seminar in History** (3) Critical approaches to the dimensions and directions in History.  
Effective: Summer 1999

IE 100S

**Discover Industrial Engineering: First-Year Seminar** (1) Informational First-year on Industrial Engineering as a career choice and profession; lab exercises; guest speakers; real world problems.  
Effective: Fall 1999

IE 101S

**Build Your Own Robot--First-Year Seminar** (1) The objective of this first-year seminar course is to provide students hands-on experience with robotics and automation devices.  
Effective: Summer 2000

INTST 100S (GS;IL)

**Introduction to International Studies** (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.  
Effective: Summer 2005

IST 110S (GS)

**Information, People and Technology** (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

IST 110S (GS)

**Information, People and Technology** (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

IST 111S

**Seminar in Information Sciences and Technology** (1) Introduction to academic requirements, career planning, and information literacy for students majoring in the College of Information Sciences and Technology.  
Effective: Spring 2001

IT 083S (GH;IL)

**First-Year Seminar in Italian Literature, Film, and Culture** (3) Introduction to the study of Italian literature, film, and culture.  
Effective: Summer 2005

J ST 083S (GH;IL)

**First-Year Seminar in Jewish Studies** (3) Critical approaches to the history, sociology, and literature of Jewish Studies.  
Effective: Summer 2005

KINES 017S (GHA)

**Ballroom Dance** (1.5) A course designed to provide students with basic dance skills and an understanding and appreciation of ballroom dance.  
Effective: Fall 2007

KINES 061S (GHA)

**Fitness Theory and Practice** (3) Students will learn about the science of fitness/wellness; evaluate their present fitness levels and create a personal fitness plan.  
Effective: Summer 2005

L A 083S

**First Year Seminar in the Liberal Arts** (1) An exploration of a theme through the lens of the humanities, social sciences and diverse cultural perspectives.  
Effective: Summer 2013  
Prerequisite: open only to DUS students

L A 100S

**Contemporary Legal Issues** (3) An introduction to law-related issues with a focus on current legal topics viewed from an across discipline perspective.  
Effective: Summer 2013



## L ST 083S

**The Twenty-First Century Researcher** (1) Students learn to use technology and Libraries resources to access and cite relevant information into academic research projects.

Effective: Fall 2009

## LARCH 121S

**Landscape Architecture Orientation Seminar** (1) Introductory seminar involving readings on significant issues in landscape architecture. LARCH majors only.

Effective: Spring 2007

## LER 083S (GS)

**First-Year Seminar in Labor Studies and Employment Relations** (3) Critical approaches to the dimensions and direction in Labor and Employment Relations.

Effective: Spring 2008

## M E 097S

**First Year Seminar** (1) This 1-credit first-year seminar course is offered concurrently with M E 443W. The course involves a hands-on laboratory with integrated discussions regarding the hybrid electric vehicle.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

## M E 101S

**Toy Fundamentals: First-Year Seminar** (1) First-Year Seminar focusing on toy design and manufacture.

Effective: Fall 1999

## M E 102S

**Smart Lego Robots & Design** (1) First-Year Seminar focusing on the development of technology exploration kits for middle-school-aged children.

Effective: Fall 2004

## M E 105S

**Product Dissection A: Bicycles--First-Year Seminar** (1) A First-Year Seminar in which students analyze and disassemble a multi-speed bicycle.

Effective: Fall 1999

## M E 106S

**Product Dissection B: Household Appliances--First-Year Seminar** (1) A First-Year Seminar in which students analyze and disassemble household appliances.

Effective: Fall 1999

## M E 107S

**Product Dissection C: The Enigmatic Engine--First-Year Seminar** (1) A First-Year Seminar in which students analyze and disassemble a single-cylinder lawnmower engine.

Effective: Fall 1999

## M E 190S

**Special Topics in Mechanical Engineering: First-Year Seminar** (1) A First-Year Seminar focusing on issues related to Mechanical Engineering.

Effective: Fall 1999

## MGMT 001S

**Business Leadership** (3) The aim of this course is to introduce fundamental concepts of business management and leadership.

Effective: Spring 2000

## MUSIC 005S (GA)

**An Introduction to Western Music** (3) A general survey of art music in western society, highlighting important composers and stylistic developments.

Effective: Summer 2006

## MUSIC 040S

**First-Year Seminar in Music Education** (1) Introduction to the University, the School of Music, the music education degree program, and the music teaching profession.

Effective: Fall 2006

## MUSIC 119S

**First-Year Music Seminar** (2) Individual applied instruction and group activities; orientation, area recitals, and studio classes as required by instructor.

Effective: Summer 1999

Prerequisite: permission of instructor

## MUSIC 129S

**First-Year Performance Seminar** (3) Individual applied instruction and group activities; orientation, area recitals, and studio classes as required by instructor.

Effective: Summer 1999

Prerequisite: permission of instructor

## MUSIC 173S

**First-Year Composition Seminar** (2) Individual composition instruction for freshman composition majors (Fall semester) and group activities.

Effective: Summer 1999

Prerequisite: admission to the BM degree in Composition

NUC E 001S

**Atomic Adventures: First-Year Seminar** (1) First-year seminar exploring the interesting and exciting world of nuclear science and its applications.

Effective: Fall 1999

NURS 111S (US;IL)

**Nursing Roles** (4) Introduction to nursing roles/process with emphasis on societal norms and multicultural influences on health care needs.

Effective: Spring 2011

Prerequisite: admission to 2NURS major

O T 100S

**Structural Foundations of Occupational Therapy** (1) An overview of the structural foundations of the occupational therapy profession.

Effective: Spring 2011

P T 100S

**Physical Therapist Assistant-Introduction** (3) Orientation to the field of physical therapy, historical background of the profession, professional ethics, medical terminology, and patient care techniques with First Year Seminar requirements.

Effective: Spring 2012

Prerequisite: a grade of C or better in BIOL 129

P T 101S

**Introduction to Computer Skills for the PTA** (1) Introduction to basic computer skills for the physical therapist assistant.

Effective: Fall 2011

PHIL 010S (GH)

**Critical Thinking** (3) Discussion of the validity, soundness, and fallacies of everyday language use and reasoning; informal logic; and manipulative arguments and propaganda.

Effective: Spring 2005

PHIL 083S (GH)

**First-Year Seminar in Philosophy** (3) Critical introduction to philosophical issues in ethics, social and political theory, religion, art, metaphysics, and epistemology.

Effective: Summer 1999

PL SC 001S (GS)

**Introduction to American National Government** (3) Introduction to development and nature of American political culture, constitutional/structural arrangements, electoral/policy processes; sources of conflict and consensus.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PL SC 083S (GS)

**First-Year Seminar in Political Science** (3) Exploration of current topics of interest in political science, international relations, and/or political theory.

Effective: Summer 1999

PSU 008S

**First-Year Seminar University College** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

Effective: Spring 2000 Ending: Fall 2014

PSU 008S

**First-Year Seminar University College** (1-3) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

Effective: Spring 2015 Future: Spring 2015

PSYCH 083S (GS)

**First-Year Seminar in Psychology** (3) Scientific, societal, and individual implications of contemporary psychological theory.

Effective: Spring 2007

PSYCH 100S (GS)

**Introductory Psychology** (3) Introduction to general psychology; principles of human behavior and their applications.

Effective: Spring 2007

RL ST 083S (GH)

**First-Year Seminar in Religious Studies** (3) Critical approaches to the dimensions and directions in Religious Studies.

Effective: Summer 1999

RPTM 100S

**Introduction to Golf Management** (2) First year seminar for students enrolled in the Professional Golf Management option of RPTM.

Effective: Summer 2014

RPTM 297S

**RPTM 297S - First Year Seminar** (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

RPTM 397S

**First Year Seminar** (1) This First Year Seminar is designed to introduce first year students who have participated in AURORA programs to the academic and social culture of Penn State University. The objective of the class is to help you engage with academic, social, and personal resources available at Penn State and in the community and to facilitate your transition to college life.

Effective: Summer 2014 Ending: Summer 2014

RPTM 397S

**AURORA First Year Seminar** (1) This First Year Seminar is designed to introduce first year students who have participated in ORION or USE to the academic and social culture of Penn State University. The objective of the class is to help you engage with academic, social, and personal resources available to Penn State and in the community and to facilitate your transition to college life. (limited to ORION and USRA participants)

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

RUS 083S (GH;US;IL)

**First-Year Seminar in Russian** (3) Russia's cultural past and present.

Effective: Summer 2005

S T S 151S (HIST 151S) (GS;US)

**Technology and Society in American History** (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.

Effective: Spring 2006

S T S 200S (GS)

**Critical Issues in Science, Technology, and Society** (3) An overview of interactions between science, technology, and society from social sciences and humanities perspectives.

Effective: Summer 1999

SOC 001S (GS)

**Introductory Sociology** (3) The nature and characteristics of human societies and social life.

Effective: Spring 2006

SOC 083S (GS)

**First-Year Seminar in Sociology** (3) Critical approaches to issues in the structure of society.

Effective: Summer 1999

SPAN 083S (GH;IL)

**First-Year Seminar in Hispanic Literatures and Cultures** (3) Introduction to the study of Hispanic literatures and cultures.

Effective: Summer 2005

SRA 001S

**First-Year Seminar in Security and Risk Analysis** (1) Provides introduction to the field of Security and Risk Analysis and assessments of key skills.

Effective: Summer 2006

THEA 001S

**First-Year Seminar: Theatre Production Practices** (1) An orientation to the School of Theatre production practices, resources, faculty, and practicum.

Effective: Spring 2006

Prerequisite: admission into Theatre Program

THEA 208S (GA;US;IL)

**Workshop: Theatre in Diverse Cultures** (3) A performance-oriented class, which explores the historic and contemporary theatrical works of various culturally diverse peoples.

Effective: Summer 2005

VB SC 050S

**Mechanisms of Disease** (3) Introduction to the study of disease pathogenesis and careers in Animal Health Research and Service.

Effective: Fall 2007

WILDL 106S

**Wildlife Management Techniques** (4) Overview of laboratory and field techniques for natural resource research and management.

Effective: Summer 2013

Prerequisite: WILDL 101

WMNST 001S (GS;US;IL)

**Introduction to Women's Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

Effective: Fall 2009

WMNST 083S (GH;US;IL)

**First-Year Seminar in Women's Studies** (3) Critical approaches to the dimensions and directions in Women's Studies.

Effective: Summer 2005

## Writing/Speaking

All course descriptions are updated periodically.

31 courses.

A S M 391 (B E 391) (GWS)

**Contextual Integration of Communication Skills for the Technical Workplace** (2) To develop corporate communication skills in technically focused students in a contextual manner.

Effective: Fall 2008

Prerequisite: Junior level standing in B E or A S M

A S M 392 (B E 392) (GWS)

**Contextual Integration of Leadership Skills for the Technical Workplace** (2) To develop corporate leadership skills in technically focused students in a contextual manner.

Effective: Fall 2008

Prerequisite: A S M 391 junior level standing in B E or A S M

B E 391 (A S M 391) (GWS)

**Contextual Integration of Communication Skills for the Technical Workplace** (2) To develop corporate communication skills in technically focused students in a contextual manner.

Effective: Fall 2008

Prerequisite: Junior level standing in B E or A S M

B E 392 (A S M 392) (GWS)

**Contextual Integration of Leadership Skills for the Technical Workplace** (2) To develop corporate leadership skills in technically focused students in a contextual manner.

Effective: Fall 2008

Prerequisite: B E 391 junior level standing in B E or A S M

CAS 100 (GWS)

**Effective Speech** (3) Introduction to speech communication: formal speaking, group discussion, analysis and evaluation of messages.

Effective: Fall 2003

CAS 100A (GWS)

**Effective Speech** (3) Principles of communication, implemented through presentation of speeches, with some attention to group discussion and message evaluation.

Effective: Fall 2003

CAS 100B (GWS)

**Effective Speech** (3) Principles of communication, implemented through group problem solving, with some attention to formal speaking and message evaluation.

Effective: Fall 2003

CAS 100C (GWS)

**Effective Speech** (3) Principles of communication, implemented through analysis and evaluation of messages, with some attention to formal speaking and group discussion.

Effective: Fall 2003

CAS 100H (GWS)

**Effective Speech** (3) Introduction to speech communication: formal speaking, group discussion, analysis and evaluation of messages.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

CAS 100S (GWS)

**Effective Speech** (3) Principles of communication, implemented through presentation of speeches, with some attention to group discussion and message evaluation.

Effective: Fall 2003

CAS 137H (ENGL 137H) (GWS)

**Rhetoric and Civic Life I** (3) Within a liberal arts framework and with attention to public discourse-- speaking, writing, online communication, and visual presentation--this course instructs students in the arts, practices, and principles of rhetoric.

Effective: Summer 2012

CAS 138T (ENGL 138T) (GWS)

**Rhetoric and Civic Life II** (3) This course builds rhetorical skills in oral, written, visual, and digital contexts and introduces deliberation and advocacy in civic and disciplinary spheres.

Effective: Summer 2012

Prerequisite: ENGL 137H or CAS 137H

EM SC 100S (GWS)

**Earth and Mineral Sciences First-Year Seminar** (3) Writing, speaking, and critical thinking skills applied to topics of general interest in Environmental and Materials Science.

Effective: Spring 2001

ENGL 015 (GWS)

**Rhetoric and Composition** (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.

Effective: Fall 1991

Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

ENGL 015A (GWS;US)

**Rhetoric and Composition** (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.

Effective: Summer 2005

Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

ENGL 015H (GWS)

**Rhetoric and Composition** (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

ENGL 015S (GWS)

**Rhetoric and Composition** (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.

Effective: Summer 1999

Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

ENGL 030 (GWS)

**Honors Freshman Composition** (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.

Effective: Fall 1991

ENGL 030H (GWS)

**Honors Freshman Composition** (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

ENGL 030S (GWS)

**Honors Freshman Composition** (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.

Effective: Spring 2003

ENGL 030T (GWS)

**Honors Freshman Composition** (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.

Effective: Spring 2003

ENGL 137H (CAS 137H) (GWS)

**Rhetoric and Civic Life I** (3) Within a liberal arts framework and with attention to public discourse-- speaking, writing, online communication, and visual presentation--this course instructs students in the arts, practices, and principles of rhetoric.

Effective: Summer 2012

ENGL 138T (CAS 138T) (GWS)

**Rhetoric and Civic Life II** (3) This course builds rhetorical skills in oral, written, visual, and digital contexts and introduces deliberation and advocacy in civic and disciplinary spheres.

Effective: Summer 2012

Prerequisite: ENGL 137H or CAS 137H

ENGL 202A (GWS)

**Effective Writing: Writing in the Social Sciences** (3) Instruction in writing persuasive arguments about significant issues in the social sciences. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

ENGL 202B (GWS)

**Effective Writing: Writing in the Humanities** (3) Instruction in writing persuasive arguments about significant issues in the humanities. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

ENGL 202C (GWS)

**Effective Writing: Technical Writing** (3) Writing for students in scientific and technical disciplines. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

ENGL 202D (GWS)

**Effective Writing: Business Writing** (3) Writing reports and other common forms of business communication. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

ENGL 202H (GWS)

**Writing in the Humanities: Adult Literacy** (3) Instruction in writing persuasive arguments about significant issues in the humanities. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Fall 2014 Ending: Fall 2014Future: Fall 2014

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

ENGL 202H (GWS)

**Writing in the Humanities: Adult Literacy** (3) Instruction in writing persuasive arguments about significant issues in the humanities. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Spring 2015 Ending: Spring 2015Future: Spring 2015

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

ESL 015 (GWS)

**ESL Composition for American Academic Communication II** (3) For undergraduate students who are intermediate/advanced level non-native speakers of English to develop strategies for reading and writing American academic discourse.

Effective: Fall 2011

Prerequisite: a grade of C or higher required in ESL 004

L A 101H (GWS)

**Honors Rhetoric and Civic Life** (4) Within a liberal arts framework and with attention to public discourse-- speaking, writing, online communication, and visual presentation--this course instructs students in the arts, practices, and principles of rhetoric.

Effective: Fall 2009

## Quantification

All course descriptions are updated periodically.

60 courses.

CMPSC 101 (GQ)

**Introduction to C++ Programming** (3) Properties of algorithms, languages, and notations for describing algorithms, applications of a procedure-oriented language to problem solving. A student may receive credit for only one of the following courses: CMPSC 101, 200, 201, 202, 121.

Effective: Fall 2010

Prerequisite: 2 entrance units in mathematics

CMPSC 121 (GQ)

**Introduction to Programming Techniques** (3) Design and implementation of algorithms. Structured programming. Problem solving techniques. Introduction to a high-level language, including arrays, procedures, and recursion.

Effective: Fall 2010

Prerequisite: MATH 110 or prerequisite or concurrent MATH 140

CMPSC 200 (GQ)

**Programming for Engineers with MATLAB** (3) Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, 102, 200, 201, or 202.

Effective: Spring 2008

Prerequisite: MATH 140

CMPSC 201 (GQ)

**Programming for Engineers with C++** (3) Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, 102, 200, 201, or 202.

Effective: Spring 2008

Prerequisite: MATH 140

CMPSC 202 (GQ)

**Programming for Engineers with FORTRAN** (3) Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, 102, 200, 201, or 202.

Effective: Spring 2008

Prerequisite: MATH 140

CMPSC 203 (GQ)

**Introduction to Spreadsheets and Databases** (4) Design, use, and programming of spreadsheets and data bases with applications from a range of disciplines.

Effective: Spring 2008

Prerequisite: 2 entrance units in mathematics

CMPSC 208 (GQ)

**Technical Game Development** (3) Introduction to the tools and techniques required to implement games in a virtual environment.

Effective: Summer 2013 Ending: Fall 2014

Prerequisite: MATH 021

CMPSC 208 (GAME 250) (GQ)

**Technical Game Development** (3) Introduction to the tools and techniques required to implement games in a virtual environment.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MATH 021

CRIMJ 260 (GQ)

**Statistical Analysis for the Social Sciences** (3) Methods of collection, presentation, and analysis of quantitative data in the social science; procedures, interpretation, and application.

Effective: Spring 2011

Prerequisite: 2 units of High School Algebra and CRIMJ 100 or permission of the program

EDPSY 101 (GQ)

**Analysis and Interpretation of Statistical Data in Education** (3) An introduction to quantitative methods in educational research emphasizing the interpretation of frequently encountered statistical procedures.

Effective: Summer 2011

GAME 250 (CMPSC 208) (GQ)

**Technical Game Development** (3) Introduction to the tools and techniques required to implement games in a virtual environment.

Effective: Summer 2014

Prerequisite: MATH 021

HM 350 (GQ)

**Hospitality Decision Making and Information Systems** (3) Application of decision theory and models to solve qualitative

and quantitative problems using Hospitality Information Systems and Computer Applications.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: A grade of "C" or better required for HM 271 STAT 200

MATH 017 (GQ)

**Finite Mathematics** (3) Introduction to logic, sets, probability.

Effective: Summer 1988

Prerequisite: 2 units of high school mathematics

MATH 018 (GQ)

**Elementary Linear Algebra** (3) Linear functions; systems of equations; matrices; linear programming.

Effective: Fall 1999

Prerequisite: 2 units of high school mathematics

MATH 021 (GQ)

**College Algebra I** (3) Quadratic equations; equations in quadratic form; word problems; graphing; algebraic fractions; negative and rational exponents; radicals.

Effective: Summer 2013

Prerequisite: MATH 004 or satisfactory performance on the mathematics placement examination

MATH 022 (GQ)

**College Algebra II and Analytic Geometry** (3) Relations, functions, graphs; polynomial, rational functions, graphs; word problems; nonlinear inequalities; inverse functions; exponential, logarithmic functions; conic sections; simultaneous equations.

Effective: Summer 2013

Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination

MATH 026 (GQ)

**Plane Trigonometry** (3) Trigonometric functions; solutions of triangles; trigonometric equations; identities.

Effective: Summer 2013

Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination; 1 unit of geometry

MATH 030 (GQ)

**Problem Solving** (3) Concepts in problem solving; reducing new problems to old ones; techniques for attacking problems; building mathematical models.

Effective: Spring 1994

MATH 033 (GQ)

**Mathematics for Sustainability** (3) Mathematical analysis of sustainability; measurement, rates of change, risk and probability, networks; examples.

Effective: Spring 2014

Prerequisite: one unit of algebra or MATH 004

MATH 034 (GQ)

**The Mathematics of Money** (3) Simple interest, simple discount, compound interest, annuities, investments, retirement plans, taxes, credit cards, and mortgages.

Effective: Summer 2009

Prerequisite: one unit of algebra or MATH 004

MATH 035 (GQ)

**General View of Mathematics** (3) Survey of mathematical thought in logic, geometry, combinatorics, and chance.

Effective: Summer 1992

MATH 036 (GQ)

**Insights Into Mathematics** (3) Examples of mathematical applications in many areas including voting theory, fair division, apportionment, and Euler and Hamilton circuits.

Effective: Fall 2008

Prerequisite: one unit of algebra or MATH 004

MATH 040 GQ covers all the topics in MATH 004, 021 GQ, 022 GQ, and 026 GQ in one semester, MATH 041 GQ covers the same topics in trigonometry and analytic geometry as MATH 040 GQ. These courses are designed to prepare students for MATH 140 GQ. Students are placed in the appropriate course depending upon the results of the mathematics placement examinations.

MATH 040 (GQ)

**Algebra, Trigonometry, and Analytic Geometry** (5) Concepts of algebra; equations; inequalities; functions; graphs; polynomial and rational functions; exponential and logarithmic functions; trigonometry; analytic geometry; complex numbers.

Effective: Summer 2013

Prerequisite: satisfactory performance on the mathematics placement examination

MATH 041 (GQ)

**Trigonometry and Analytic Geometry** (3-4) Straight lines; circles; functions and graphs; graphs of polynomial and rational functions; exponential and logarithmic functions; trigonometry; conic sections.

Effective: Summer 2013

Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination

MATH 081 (GQ)

**Technical Mathematics I** (3) Algebraic expressions, equations, systems of equations, trigonometric functions, graphs, solution of triangles, vectors.



Effective: Summer 2013

Prerequisite: MATH 004 or satisfactory performance on the mathematics placement examination

MATH 082 (GQ)

**Technical Mathematics II** (3) Exponents, radicals, complex numbers, theory of equations, inequalities, half angle and double angle formulas, inverse trigonometric functions, exponential, logarithm, conic sections.

Effective: Summer 1995

Prerequisite: MATH 081

MATH 083 (GQ)

**Technical Calculus** (4) Limits, derivatives of algebraic functions, implicit differentiation, related rates, applied extrema problems, curve sketching, integration, numerical integration, applications of integration, integration techniques, differential equations.

Effective: Summer 1995

Prerequisite: MATH 082

MATH 110 GQ and MATH 140 GQ, 141 GQ are two sequences that discuss differential and integral calculus. They differ in the areas where calculus is applied. The MATH 110 GQ, 111 GQ sequence includes applications from business; the engineering sciences. A student who wants to change from one sequence to another should consult with the chair of the mathematics department.

MATH 110 (GQ)

**Techniques of Calculus I** (4) Functions, graphs, derivatives, integrals, techniques of differentiation and integration, exponentials, improper integrals, applications. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

Effective: Summer 2013

Prerequisite: MATH 022 or satisfactory performance on the mathematics placement examination

MATH 111 (GQ)

**Techniques of Calculus II** (2) Analytic geometry, partial differentiation, maxima and minima, differential equations.

Effective: Summer 1988

Prerequisite: MATH 110

MATH 140 (GQ)

**Calculus With Analytic Geometry I** (4) Functions, limits; analytic geometry; derivatives, differentials, applications; integrals, applications. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

Effective: Summer 2013

Prerequisite: MATH 022 MATH 026 ; or MATH 040 or MATH 041 or satisfactory performance on the mathematics placement examination

MATH 140A (GQ)

**Calculus, Analytic Geometry, Algebra, and Trigonometry** (6) Review of algebra and trigonometry; analytic geometry; functions; limits; derivatives, differentials, applications; integrals, applications. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

Effective: Summer 2013

Prerequisite: satisfactory performance on the mathematics placement examination

MATH 140B (GQ)

**Calculus and Biology I** (4) Functions, limits, analytic geometry; derivatives, differentials, applications from biology; integrals, applications from biology. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

Effective: Summer 2013

Prerequisite: MATH 022 MATH 026 ; or MATH 040 or MATH 041 or satisfactory performance on mathematics placement examination

MATH 140E (GQ)

**Calculus with Engineering Applications I** (4) Functions; limits; analytic geometry; derivatives; differentials, applications; integrals, applications.

Effective: Summer 2013

Prerequisite: MATH 022 MATH 026 ; or MATH 040 or MATH 041 or satisfactory performance in the mathematics placement examination

MATH 140G (GQ)

**Calculus with Earth and Mineral Sciences Applications I** (4) Functions, limits, analytic geometry; derivatives, differentials, applications from the earth and mineral sciences; integrals, applications from the earth and mineral sciences. Students may only take one course for credit from MATH 110, 140, 140A, 140B, 140E, and 140G.

Effective: Summer 2013

Prerequisite: MATH 022 MATH 026 ; or MATH 040 or MATH 041 or satisfactory performance on the mathematics placement examination

MATH 140H (GQ)

**Honors Calculus with Analytic Geometry I** (4) Honors course in functions, limits; analytic geometry; derivatives, differentials, applications; integrals, applications. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

Effective: Summer 2013

Prerequisite: MATH 022 MATH 026 ; or MATH 040 or MATH 041 or satisfactory performance on the mathematics placement examination

MATH 141 (GQ)

**Calculus with Analytic Geometry II** (4) Derivatives, integrals, applications; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, and 141H.

Effective: Spring 1996

Prerequisite: MATH 140 MATH 140A MATH 140B or MATH 140H

MATH 141B (GQ)

**Calculus and Biology II** (4) Derivatives, integrals, applications from biology; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141 and 141B.

Effective: Spring 1996

Prerequisite: MATH 140B

MATH 141E (GQ)

**Calculus with Engineering Applications II** (4) Integration, applications; sequences and series; parametric equations, application.

Effective: Fall 2001

Prerequisite: MATH 140 MATH 140A MATH 140B or MATH 140E

MATH 141G (GQ)

**Calculus with Earth and Mineral Sciences Applications II** (4) Derivatives, integrals, applications from the earth and mineral sciences; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, 141E, and 141G.

Effective: Summer 2005

Prerequisite: MATH 140 MATH 140A MATH 140B MATH 140E or MATH 140G

MATH 141H (GQ)

**Honors Calculus with Analytic Geometry II** (4) Honors course in derivatives, integrals, applications; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, and 141H.

Effective: Summer 2006

Prerequisite: MATH 140 MATH 140A MATH 140B or MATH 140H

MATH 200 (GQ)

**Problem Solving in Mathematics** (3) Fundamental concepts of arithmetic and geometry, including problem solving, number systems, and elementary number theory. For elementary and special education teacher certification candidates only. A student who has passed EDMTH 444 may not take MATH 200 for credit.

Effective: Summer 2009

MATH 201 (GQ)

**Problem Solving in Mathematics II** (3) A continuation of MATH 200, this course studies the foundations of elementary school mathematics with an emphasis on problem solving.

Effective: Spring 2012

Prerequisite: completion of MATH 200 is suggested

MATH 210 (GQ)

**Calculus with Engineering Technology Applications** (3) Topics in calculus with an emphasis on applications in engineering technology.

Effective: Spring 2013

Prerequisite: trigonometry and an introductory course in calculus

MATH 211 (GQ)

**Intermediate Calculus and Differential Equations with Applications** (3) Topics in ordinary differential equations, linear algebra, complex numbers, Eigenvalue solutions and Laplace transform methods.

Effective: Spring 2013

Prerequisite: MATH 210

MATH 220 (GQ)

**Matrices** (2-3) Systems of linear equations; matrix algebra; eigenvalues and eigenvectors; linear systems of differential equations.

Effective: Spring 2009

Prerequisite: MATH 110 MATH 140 or MATH 140H

MATH 220H (GQ)

**Honors Matrices** (2-3) Honors course in systems of linear equations; matrix algebra; eigenvalues and eigenvectors; linear systems of differential equations.

Effective: Spring 2009

Prerequisite: MATH 110 MATH 140 or MATH 140H

PHIL 012 (GQ)

**Symbolic Logic** (3) Formal logical structures of propositions and arguments; mechanical tests and proof techniques for logically necessary truth and deductive validity.

Effective: Fall 1998

PSYCH 200 (GQ)

**Elementary Statistics in Psychology** (4) Frequency distributions and graphs; measures of central tendency and variability; normal probability curve; elementary sampling and reliability; correlations; simple regression equations.

Effective: Spring 2011

Prerequisite: PSYCH 100 ; MATH 021

SCM 200 (GQ)

**Introduction to Statistics for Business** (4) Topics include descriptive statistics, probability distributions, statistical inference, regression and correlation, and forecasting.

Effective: Summer 2013

Prerequisite: MATH 021 or higher or satisfactory score on the mathematics placement examination

SCM 200H (GQ)

**Honors Introduction to Statistics for Business** (4) Topics include descriptive statistics, probability distributions, statistical inference, regression and correlation, and forecasting.

Effective: Spring 2011

Prerequisite: MATH 021 or higher or satisfactory score on the mathematics FTCAP examination

SCM 200H (GQ)

**Honors Introduction to Statistics for Business** (4) Topics include descriptive statistics, probability distributions, statistical inference, regression and correlation, and forecasting.

Effective: Summer 2013

Prerequisite: MATH 021 or higher or satisfactory score on the mathematics placement examination

STAT 100 (GQ)

**Statistical Concepts and Reasoning** (3) Introduction to the art and science of decision making in the presence of uncertainty.

Effective: Summer 1988

STAT 200 (GQ)

**Elementary Statistics** (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.

Effective: Summer 1988 Ending: Summer 2014

Prerequisite: 2 units in algebra

STAT 200 (GQ)

**Elementary Statistics** (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Placement into MATH 021 or higher

STAT 200H (GQ)

**Elementary Statistics** (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: Placement into MATH 021 or higher

STAT 240 (GQ)

**Introduction to Biometry** (3) Statistical analysis, sampling, and experimentation in the agricultural sciences; data collection, descriptive statistics, statistical inference, regression, one factor AOV, probability. Students may take only one course from STAT 200, 220, 240, 250 for credit.

Effective: Spring 2005 Ending: Summer 2014

Prerequisite: 3 credits in mathematics

STAT 240 (GQ)

**Introduction to Biometry** (3) Statistical analysis, sampling, and experimentation in the agricultural sciences; data collection, descriptive statistics, statistical inference, regression, one factor AOV, probability. Students may take only one course from STAT 200, 220, 240, 250 for credit.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Placement into MATH 021 or higher

STAT 250 (GQ)

**Introduction to Biostatistics** (3) Statistical analysis and interpretation of data in the biological sciences; probability; distributions; statistical inference for one- and two-sample problems.

Effective: Spring 2001 Ending: Summer 2014

Prerequisite: 3 credits in mathematics

STAT 250 (GQ)

**Introduction to Biostatistics** (3) Statistical analysis and interpretation of data in the biological sciences; probability; distributions; statistical inference for one- and two-sample problems.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Placement into MATH 021 or higher

STAT 301 (GQ)

**Statistical Analysis I** (3) Probability concepts; nature of statistical methods; elementary distribution and sampling theory; fundamental ideas relative to estimation and testing hypotheses.

Effective: Summer 1988

Prerequisite: 3 credits of calculus



## University Course Descriptions

### COURSE-NUMBERING SYSTEM

These course descriptions are arranged alphabetically. If any course cannot be located readily, refer to the index. Multiple offerings may be accommodated by the use of suffixes A, B, etc. Courses are numbered as follows:

**UNDERGRADUATE COURSES (1 to 399):** General courses accepted in fulfillment of requirements for the bachelor's degrees.

**ADVANCED UNDERGRADUATE COURSES (400 to 499):** Courses open to graduate students and to juniors and seniors and, with the special written permission of the head of the department or the chair of the program sponsoring the course, to qualified students in earlier semesters.

**GRADUATE COURSES (500 to 699; 800 to 899):** Courses restricted to students registered in the Graduate School, seniors with an average of at least 3.50, and other students who have been granted permission to enroll by the dean of the Graduate School. These courses are described in the Penn State Graduate Degree Programs Bulletin.

**MEDICAL COURSES (700-799):** Courses restricted to students registered in the College of Medicine.

**LAW COURSES (900-999):** Courses restricted to students registered in The Dickinson School of Law.

### COMMON COURSE NUMBERS

The following course numbers for which students may register have been set up for common use by major programs, with University Senate approval, to encourage innovation and provide flexibility in designing programs, but in no case may a course be scheduled for 0 credits. Multiple offerings may be accommodated by the use of suffixes A, B, etc.

097, 197, 297, 397, 497; 098, 198, 298, 398, 498. **SPECIAL TOPICS (1-9)** (Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.) Several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript. Multiple offerings may be accommodated by the use of suffixes A, B, etc.

099, 199, 299, 399, 499. **(IL) FOREIGN STUDIES (1-12)** (Courses offered in foreign countries by individual or group instruction.) A specific title may be used in each instance and will be entered on the student's transcript. Multiple offerings may be accommodated by the use of suffixes A, B, etc.

187 **FIRST-YEAR SEMINAR** Listed under some liberal art-related academic headings, this course has prerequisites of first-semester standing and enrollment in the College of the Liberal Arts. Multiple offerings may be accommodated by the use of suffixes A, B, etc.

294, 494. **RESEARCH PROJECT COURSES (1-12)** (Supervised student activities on research projects identified on an individual or small-group basis.) A specific title may be used in each instance and will be entered on the student's transcript. Multiple offerings may be accommodated by the use of suffixes A, B, etc.

295, 395, 495. **INTERNSHIP (1-18)** (Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.) A specific title may be used in each instance and will be entered on the student's transcript. Multiple offerings may be accommodated by the use of suffixes A, B, etc. Prerequisite: prior approval of proposed assignment by instructor.

296, 496. **INDEPENDENT STUDIES (1-18)** (Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.) A specific title may be used in each instance and will be entered on the student's transcript. Multiple offerings may be accommodated by the use of suffixes A, B, etc. Students may not register for these courses without prior written approval of a faculty member in the department in which the courses are listed.

### GENERAL EDUCATION COURSE DESIGNATIONS

Courses that appear in this bulletin with the following designations have been approved for General Education. See [http://bulletins.psu.edu/bulletins/bluebook/general\\_education.cfm](http://bulletins.psu.edu/bulletins/bluebook/general_education.cfm) for further information.

- **Skills Courses**
  - Writing/Speaking — GWS
  - Quantification — GQ
- **Knowledge Domains Courses**
  - Health and Physical Activity — GHA (formerly Health Sciences--GHS and Physical Education--GPE)
  - Natural Sciences — GN
  - Arts — GA
  - Humanities--GH
  - Social and Behavioral Sciences — GS

### DESIGNATIONS FOR ADDITIONAL REQUIREMENTS

In addition to the General Education degree requirements, every baccalaureate degree student will also complete the United State Cultures (US) and International Cultures (IL), Writing Across the Curriculum (M, W, Y, and X), and First-Year Seminar (S, T, X, or PSU designation) requirements.

Courses that appear in this bulletin with an H, M, or T suffix following the course number are identified as honors courses. University Scholars Program students may participate in honors courses. In addition, any University Senate approved course may be offered with the honors suffix identification with the approval of the University Scholars Program. The honors identification will be entered on the student's transcript.

## **CREDITS AND HOURS**

Credits are awarded on the semester-hour basis. According to Senate Policy 42-23, a total of at least forty hours of work planned and arranged by the University faculty is required for the average student to gain 1 credit. While the distribution of time varies from course to course, generally one-third of the time is devoted to formal instruction, such as lecture, recitation, laboratory, field trips, etc., and two-thirds of the time to outside preparation.

### **Credits, classroom work, and practicum work**

The number of credits for each course is indicated in parentheses and can be earned with classroom, practicum, or laboratory work as designated in the Schedule of Courses, accessible through the Registrar's home page at [www.psu.edu/registrar](http://www.psu.edu/registrar).

A typical period is fifty minutes.

A department may schedule an entire section in an undergraduate course for fewer credits than the maximum authorized. In 400-level courses, a department may schedule an individual student for fewer credits than the maximum authorized. In no case, however, may the course be scheduled for 0 credit, or may the total credits scheduled for any student exceed the maximum number authorized for the course.

### **Courses that may be repeated and variable credit courses**

If a course may be repeated, the words "per semester" follow the number of credits--for example (3 credits per semester). These courses may be repeated indefinitely unless the credits are followed by the maximum number of credits allowed, such as (3 per semester, maximum of 12).

Courses may have variable credits, such as (1-3), (2-6), or (3-10). Here, the larger number signifies the total credits that can be accumulated for the course over an indefinite number of semesters, unless otherwise specified. For example, a course listed with (1-6) could be taken six semesters for 1 credit each semester, or two semesters for 3 credits each semester, or once for 6 credits, etc.

In some courses with variable credits, students may be permitted to accumulate more than the larger number shown. Such courses will be listed as, for example, (1-3 per semester, maximum of 12).

Any special departmental limitations are indicated by footnotes.

## **PREREQUISITE AND CONCURRENT COURSES**

Prerequisites are approximations of the necessary prior specific or general academic knowledge, background, or semester standing required in order to succeed academically in a specific course. Concurrent courses are to be taken in the same semester. The course instructor has the right to limit the students in the course to those who have the stated prerequisites. If this limitation is exercised, it must occur before the end of the course add period.

## Accounting (ACCTG)

**ACCTG 151 Introductory Financial Accounting I** (3) Basic concepts, principles, and practices for the recording, summarizing, and interpreting of accounting data.  
Effective: Summer 1995

**ACCTG 152 Introductory Financial Accounting II** (3) Accounting for partnerships, corporations, cash flows, certain liabilities and assets, and the analysis of financial statements.  
Effective: Summer 1995  
Prerequisite: ACCTG 151

**ACCTG 160 Cost Accounting** (3) Use of standard cost accounting procedures to present cost and budget statements as a means of providing managerial control. Students may not receive credit for both ACCTG 160 and ACCTG 404.  
Effective: Spring 2008  
Prerequisite: ACCTG 151ACCTG 152

**ACCTG 197 Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2008

**ACCTG 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**ACCTG 201 Introductory Financial Accounting** (3) Fundamentals of the collection, recording summarization, and interpretation of accounting data.  
Effective: Summer 2004

**ACCTG 211 Financial and Managerial Accounting for Decision Making** (4) Introduction to the role of accounting numbers in the process of managing a business and in investor decision making.  
Effective: Spring 2008  
Prerequisite: MATH 021 or 1.5 units of high school algebra

**ACCTG 211H Financial and Managerial Accounting for Decision Making** (4) Introduction to the role of accounting numbers in the process of managing a business and in investor decision making.  
Effective: Spring 2008  
Prerequisite: MATH 021 or 1.5 units of high school algebra

**ACCTG 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small group basis.  
Effective: Spring 2008

**ACCTG 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1992

**ACCTG 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**ACCTG 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**ACCTG 305 Financial Statements and Management Decisions** (4) Impact of management's financing, investing, and operating decisions on GAAP- based financial statements. Students who have passed ACNTG 310 or 311 may not take this course for credit.  
Effective: Spring 2008  
Prerequisite: ACCTG 211FIN 301

**ACCTG 310 Federal Taxation I** (3) Study of income determination concepts for individuals and corporations, impact of taxation on decisions, elementary research techniques, and ethical standards.  
Effective: Spring 2008  
Prerequisite: ACCTG 211 orFIN 301

**ACCTG 311 Accounting Systems and Control** (3) Introduction to accounting procedures to gather, to aggregate, and to report accounting data to managers and to external readers.  
Effective: Spring 1995  
Prerequisite: ACCTG 211

**ACCTG 312 Accounting Technology Lab** (3) Hands-on course to teach accounting software, applications of spreadsheets and databases in accounting, and surveying of underlying database theory.

Effective: Spring 2008

Prerequisite: ACCTG 305 or ACCTG 371

**ACCTG 340 Cost Accounting** (3) Accounting for manufacturing concerns; actual and standard cost systems, and managerial uses of cost data.

Effective: Spring 2008

Prerequisite: ACCTG 211 or ACCTG 311

**ACCTG 371 Intermediate Accounting I** (4) Financial accounting methods, theory and concepts; analysis of problems in applying concepts to financial statements and asset accounts.

Effective: Spring 2008

Prerequisite: ACCTG 211

**ACCTG 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2003

**ACCTG 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2003

**ACCTG 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

**ACCTG 403 Auditing** (3) Financial compliance, internal, and operational audits; standards and procedures; sampling; EDP auditing; professional issues; application of concepts through written responses.

Effective: Spring 2008

Prerequisite: ACCTG 371 or ACCTG 471

**ACCTG 403W Auditing** (3) Financial, compliance, internal, and operational audits; standards and procedures; sampling; EDP auditing; professional issues; application of concepts through written responses.

Effective: Spring 2008

Prerequisite: ACCTG 371 or ACCTG 471

**ACCTG 404 Managerial Accounting: Economic Perspective** (3) Accounting techniques as planning, control, and motivating devices in business and other organizations; accounting data for decision making and performance evaluation.

Effective: Spring 2011

Prerequisite: ACCTG 211SCM 200 or STAT 200ECON 102

**ACCTG 405 Principles of Taxation I** (3) Elements of tax policy and tax-planning concepts for personal and business decision making; with emphasis on taxation of individuals.

Effective: Spring 2008

Prerequisite: ACCTG 211; B A 301 or FIN 301

**ACCTG 406 Principles of Taxation II** (3) Impact of federal tax structure on business decisions, research methodology, tax planning; ethical considerations of tax practice.

Effective: Spring 2008

Prerequisite: ACCTG 405

**ACCTG 410 Federal Taxation II** (3) An examination of the rules and forms used to compute the federal tax liability of corporations and partners.

Effective: Spring 2008

Prerequisite: ACCTG 310

**ACCTG 411 Accounting Practicum: VITA** (3) Introduces students to practical aspects of tax preparation through the IRS' VITA program and completion of a tax research project.

Effective: Spring 2008

Prerequisite: ACCTG 310

**ACCTG 422 Accounting Systems** (3) Understanding flow and documentation of accounting information and internal controls in the context of accounting cycles.

Effective: Spring 2008

Prerequisite: ACCTG 312

**ACCTG 426 Financial Statement Analysis** (3) The exploration of conventional and advanced methods of analyzing financial statements, including the assessment of earnings quality.

Effective: Spring 2008

Prerequisite: FIN 301

**ACCTG 431 Advanced Auditing** (3) Examination of legal liability, EDP, statistical sampling, SEC reporting, internal control, and financial reporting in specialized industries.

Effective: Spring 2008

Prerequisite: ACCTG 403 or ACCTG 403W

**ACCTG 432 Accounting Information Systems** (3) Systems analysis tools and techniques; internal control concepts; development of computer control procedures.

Effective: Spring 2008

Prerequisite: ACCTG 371 or ACCTG 471MIS 204



**ACCTG 440 Advanced Management Accounting** (3) Management accounting topics such as decision models, quantitative techniques, variance analysis, and their use in accounting.

Effective: Spring 2014

Prerequisite: ACCTG 340 or ACCTG 404

**ACCTG 450 Advanced Accounting** (3) Accounting theory and practice for business combinations, branches, international operations, partnerships, consolidated financial statements, corporate liquidations, nonprofit organizations, estates, and trusts.

Effective: Spring 2008

Prerequisite: ACCTG 472

**ACCTG 461 (IL) International Accounting** (3) Study of international accounting issues with emphasis on need, use, and interpretation of financial accounting required in global business environment.

Effective: Fall 2012

Prerequisite: ACCTG 471 and ACCTG 472

**ACCTG 462 Governmental and Not-for-Profit Accounting** (3) Provides an understanding of governmental and not-for-profit accounting theory, procedures, and financial statements.

Effective: Spring 2010

Prerequisite: ACCTG 311 or ACCTG 471

**ACCTG 463 Accounting Theory** (3) An analysis of the development of accounting theory and its current and future impact on accounting.

Effective: Spring 2008

Prerequisite: ACCTG 471

**ACCTG 471 Intermediate Financial Accounting I** (3) Theory and practice issues in income concepts and value measurement; GAAP; revenues, costs, assets, liabilities, and equities.

Effective: Spring 2008

Prerequisite: ACCTG 211 or ACCTG 311

**ACCTG 472 Intermediate Financial Accounting II** (3) Off-balance-sheet financing; special issues in cost capitalization, liabilities, and equities; matching; funds flow statements; statement analysis; inflation accounting.

Effective: Spring 2008

Prerequisite: ACCTG 371 or ACCTG 471

**ACCTG 473 Advanced Financial Accounting** (3) Reporting for multi-corporate enterprises, business combinations, quasi-reorganizations, and selected contemporary reporting problems.

Effective: Spring 2010

Prerequisite: ACCTG 472

**ACCTG 481 Financial Statement Analysis: Accounting Based Evaluation and Decision Making** (3) An accounting based evaluation and decision making approach to analyzing financial statements by studying business and firm valuation.

Effective: Spring 2008

Prerequisite: or concurrent: ACCTG 472

**ACCTG 483 Forensic Accounting** (3) Study of investigative accounting, consulting and litigation support activities undertaken in forensic accounting engagements.

Effective: Spring 2011

Prerequisite: or concurrent: ACCTG 472; ACCTG 403 or ACCTG 403W

**ACCTG 489 Seminar in Accounting** (3) New trends and concepts in accounting; applications and impact on problem solving and decision making.

Effective: Spring 2008

Prerequisite: permission of program

**ACCTG 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2003

**ACCTG 494H Research Project** (1-3 per semester/maximum of 6) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2005

**ACCTG 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**ACCTG 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1992

**ACCTG 496A Advanced Accounting** (1-6) Accounting theory and practice for business combinations, branches, international ops, partnerships, corporate liquidations, non-profits, estates, and trusts.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: ACCTG 472

ACCTG 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ACCTG 497A **Hot Tax Topics** (3) The course will highlight principles and concepts in US international tax, trusts, and estates, and estate planning.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ACCTG 497B **Financial Reporting in Special Industries** (3) Covers definitions, measurements and disclosures for revenues, expenses, assets, and liabilities not traditionally covered by financial accounting courses.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: ACCTG 471

ACCTG 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. .  
Effective: Summer 2003

ACCTG 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

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## Acoustics (ACS)

ACS 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

ACS 402 **Introduction to Acoustics** (3) Basic principles of acoustics and perception of sound; fundamentals of applications: electroacoustic transducers, noise measurement and control, architectural and building acoustics, underwater sound. Offered for science and engineering majors.  
Effective: Fall 1983  
Prerequisite: PHYS 203

ACS 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

ACS 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

ACS 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1996

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## Adult Education (ADTED)

**ADTED 100S Adult Learners in the University** (1) Opportunity to develop effective learning strategies while exploring critical issues related to adults entering or returning to higher education.  
Effective: Spring 2001

**ADTED 297 Special Topics** (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently.  
Effective: Summer 2000

**ADTED 456 Introduction to Family Literacy** (3) Explores comprehensive family literacy models, focusing upon families, services, outcomes, and roles and responsibilities of individuals, organizations, and communities.  
Effective: Spring 2008 Ending: Summer 2014  
Prerequisite: Associate Degree or 60 undergraduate credits

**ADTED 456 Introduction to Family Literacy** (3) Introduces family literacy concepts, models, and components supporting families; adult, child, and parent education, interactive literacy activities, and case management.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Associate Degree or 60 undergraduate credits

**ADTED 457 Adult Literacy** (3) Surveys adult basic and literacy education programs and best practices; applies recent research on adult and family literacy.  
Effective: Spring 2008 Ending: Summer 2014  
Prerequisite: Associate Degree or 60 undergraduate credits

**ADTED 457 Adult Literacy** (3) Surveys adult basic and literacy education research, theory, programming, and instruction; highlights learners' roles as parents, workers, and community members.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Associate Degree or 60 undergraduate credits

**ADTED 458 Early Literacy Development and Parental Involvement** (3) Focuses on young children's language and literacy development, including parental and staff support, grounded in scientifically based reading research.  
Effective: Spring 2008 Ending: Summer 2014  
Prerequisite: Associate degree or 60 undergraduate credits

**ADTED 458 Early Literacy Development** (3) Focuses on young children's language and literacy development, including parental and staff support, grounded in scientifically based reading research.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Associate degree or 60 undergraduate credits

**ADTED 459 Interactive Literacy: Parents and Children** (3) Focuses on literacy and language interactions between parents and their young children (including English language learners), implementing intentional/planned learning.  
Effective: Spring 2008 Ending: Summer 2014  
Prerequisite: Associate Degree or 60 undergraduate credits

**ADTED 459 Interactive Literacy and Parental Involvement: Supporting Academic Success** (3) Explores parental involvement in education and parent-child literacy activities that support children's language and literacy development, especially among diverse families.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Associate Degree or 60 undergraduate credits

**ADTED 460 Introduction to Adult Education** (3) History, methods, agencies, program areas, and problems of adult education in the United States.  
Effective: Fall 2001

**ADTED 470 (CI ED 470) Introduction to Distance Education** (3) An introduction to the history, philosophy, organizations, learning theories, and instructional procedures used in American and foreign distance education.  
Effective: Summer 1996

**ADTED 496 Independent Studies** (1-18) Creative projects supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1996

**ADTED 497 Special Topics** (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently.  
Effective: Summer 1996

**ADTED 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1996



## Aerospace Engineering (AERSP)

AERSP 001S **Aerospace Explorer--First-Year Seminar** (1) First-Year Seminar explores aerodynamics, structural mechanics, flight mechanics, rotorcraft systems, high performance computers, air/space propulsion, and space systems. Effective: Fall 1999

AERSP 055 (GN) (S T S 055) **Space Science and Technology** (3) The science and technology of space exploration and exploitation; physical principles; research and development; history, space policy, and social implications. Effective: Spring 1994

AERSP 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest. Effective: Summer 1998

AERSP 097S **First Year Seminar - Hands on Helicopter** (1) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest. Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AERSP 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction. Effective: Summer 2008

AERSP 204H **Flight Vehicle Design and Fabrication I** (2 per semester/maximum of 8) Integrated project management, design, fabrication, testing, and flight evaluation of an advanced composite flight vehicle. Effective: Spring 2000

AERSP 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction. Effective: Summer 2008

AERSP 301 **Aerospace Structures** (3) Aerospace structural design concepts, flight safety. Stiffness, strength, stability of thin-walled structures under combined loads. Energy methods, finite element analysis. Effective: Spring 2008  
Prerequisite: E MCH 210 or E MCH 213 . Prerequisite or concurrent: AERSP 313

AERSP 304 **Dynamics and Control of Aerospace Systems** (3) Vibrations of single, multiple, and infinite degree-of-freedom systems; operational methods applied to aerospace vehicles; design of controllers. Effective: Spring 2008  
Prerequisite: AERSP 313 E MCH 212

AERSP 305W **Aerospace Technology Laboratory** (3) Experiments in measurement systems, aerodynamics, aerospace structures, dynamics and control, and propulsion, technical report writing and presentations. Effective: Spring 2007  
Prerequisite: Prerequisite or concurrent: AERSP 301 AERSP 311 ENGL 202C

AERSP 306 **Aeronautics** (3) Lift and drag characteristics of aircraft; propulsion systems; airplane performance; introduction to stability and control. Effective: Fall 1989  
Prerequisite: AERSP 311 AERSP 313

AERSP 308 **Mechanics of Fluids** (3) Kinetics and dynamics of fluids; perfect fluid theory using complex variables; introduction to viscous flow theory; fundamentals of compressible flow. Effective: Spring 2008  
Prerequisite: E MCH 212 or E MCH 212H; MATH 251

AERSP 309 **Astronautics** (3) Introduction to space and space flight; laws of particle mechanics; orbits and trajectories; space vehicles and propulsion. Effective: Spring 2012  
Prerequisite: E MCH 212 MATH 250; CMPSC 201 or CMPSC 202

AERSP 311 **Aerodynamics I** (3) Fluid statics and kinematics; fluid dynamics of inviscid and viscous flows; Navier-Stokes equations; introduction to boundary layers. Effective: Spring 2008  
Prerequisite: E MCH 212 MATH 250 CMPSC 201 or CMPSC 202

AERSP 312 **Aerodynamics II** (3) Fluid mechanics of viscous and compressible flows, laminar boundary layers, turbulent flows, isentropic flows, shock waves, supersonic life and drag. Effective: Fall 2007  
Prerequisite: AERSP 311 AERSP 313 M E 201

AERSP 313 **Aerospace Analysis** (3) Mathematical methods applied to aerospace engineering: Fourier series, ordinary and partial differential equations, complex variables, numerical methods, data analysis. Effective: Spring 2008

Prerequisite: MATH 220MATH 230MATH 250;CMPSC 201 orCMPSC 202

**AERSP 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2008

**AERSP 401A Spacecraft Design--Preliminary** (3) Conceptual and preliminary design of a spacecraft, its constituent subsystems, and related systems, to satisfy a given set of specifications.

Effective: Spring 2007

Prerequisite: AERSP 309 . Prerequisite or concurrent:AERSP 450

**AERSP 401B Spacecraft Design--Detailed** (2) Detailed design of the constituent subsystems and related support systems for a spacecraft.

Effective: Spring 2007

Prerequisite: AERSP 301AERSP 401A

**AERSP 402A Aircraft Design--Preliminary** (3) Conceptual and preliminary design of an aircraft, its constituent subsystems, and related systems, to satisfy a given set of specifications.

Effective: Spring 2007

Prerequisite: AERSP 306 . Prerequisite or concurrent:AERSP 413

**AERSP 402B Aircraft Design--Detailed** (2) Detailed design of the constituent subsystems and related support systems for an aircraft.

Effective: Spring 2007

Prerequisite: AERSP 301AERSP 402A

**AERSP 404H Flight Vehicle Design and Fabrication II** (3 per semester/maximum of 12) Project management, design, fabrication, aerodynamic and structural testing, and flight evaluation of an advanced composite flight vehicle.

Effective: Spring 2000

Prerequisite: AERSP 204H

**AERSP 405 Experimental Methods and Projects** (3) Experimental methods involving a variety of aerospace engineering topics; teams of students focus on advanced measurement techniques and project engineering.

Effective: Summer 2012

Prerequisite: AERSP 305W

**AERSP 407 Aerodynamics of V/STOL Aircraft** (3) Rotary wing aircraft; VTOL and STOL performance; propeller-wing combinations; jet flap; high lift devices.

Effective: Fall 1984

Prerequisite: AERSP 312

**AERSP 410 Aerospace Propulsion** (3) Analysis and performance characteristics of reciprocating engine, turbo-jet, turbo-prop, turbo-fan, ram-jets, and chemical rockets. Aerothermodynamics of inlets, combustors, and turbomachinery.

Effective: Fall 1983

Prerequisite: AERSP 312

**AERSP 412 Turbulent Flow** (3) Homogeneous turbulence; spectral transfer of energy, viscous dissipation; turbulent shear flow: mixing-length theory, eddy viscosity, scaling laws, energy budget.

Effective: Winter 1978

Prerequisite: one course in fluid mechanics

**AERSP 413 Stability and Control of Aircraft** (3) Static and dynamic stability and control of aircraft; open and closed loop systems.

Effective: Fall 1989

Prerequisite: AERSP 304AERSP 306

**AERSP 420 Principles of Flight Testing** (3) In-flight and analytical studies of airplane performance, stability, and control; reduction of data; instrumentation; flight test techniques.

Effective: Fall 1983

Prerequisite: AERSP 306

**AERSP 423 Introduction to Numerical Methods in Fluid Dynamics** (3) Finite difference methods applied to solving viscous/inviscid fluid dynamics problems, error control, numerical stability.

Effective: Spring 2008

Prerequisite: AERSP 312 orM E 320;MATH 250 orMATH 251;CMPSC 201 orCMPSC 202

**AERSP 424 Advanced Computer Programming** (3) Engineering and scientific programming topics: object oriented programming, parallel programming, and various modern languages (e.g. C++, Java, and Ada).

Effective: Spring 2008

Prerequisite: CMPSC 201 orCMPSC 202;MATH 220

**AERSP 425 Theory of Flight** (3) Advanced wing and airfoil theory, conformal mapping, slender body theory.

Effective: Spring 2001

Prerequisite: AERSP 306

**AERSP 430 Space Propulsion and Power Systems** (3) Analysis and performance of chemical and nuclear rockets, electric propulsion systems. Introduction to solar, chemical, thermoelectric, and nuclear power sources.

Effective: Fall 2007

Prerequisite: AERSP 410 orM E 432

**AERSP 440 Introduction to Software Engineering for Aerospace Engineers** (3) Software engineering for safety- and

mission-critical systems, including requirements, management, processes, designs, programming, validation/ verification, and other aspects of software development.

Effective: Spring 2008

Prerequisite: CMPSC 201 or CMPSC 202

**AERSP 450 Orbit and Attitude Control of Spacecraft** (3) Principles of mechanics and vector analysis applied to basic concepts of satellite motion and control, rocket ballistics, and gyroscopic instruments.

Effective: Fall 1987

Prerequisite: AERSP 304AERSP 309

**AERSP 460 Aerospace Control Systems** (3) Design and analysis of feedback control systems for aerospace applications; stability, root locus, time- and frequency-domain, state-space methods.

Effective: Summer 2006

Prerequisite: AERSP 304

**AERSP 470 Advanced Aerospace Structures** (3) Design and analysis of aerospace structures. Plates and sandwich panels; composite materials; structural dynamics; aeroelasticity; damage tolerance.

Effective: Spring 2008

Prerequisite: AERSP 301 . Prerequisite or concurrent: AERSP 304E MCH 315

**AERSP 473 (E MCH 473) Composites Processing** (3) An introduction to the principles of mechanics governing manufacturing, computer-aided design, and testing of composite materials and structures.

Effective: Summer 1988

Prerequisite: E MCH 471

**AERSP 490 (E E 471, NUC E 490) Introduction to Plasmas** (3) Plasma oscillations; collisional phenomena; transport properties; orbit theory; typical electric discharge phenomena.

Effective: Spring 2008

Prerequisite: E E 330 or PHYS 467

**AERSP 492 (E E 472) Space Astronomy and Introduction to Space Science** (3) The physical nature of the objects in the solar system; the earth's atmosphere, ionosphere, radiation belts, magnetosphere, and orbital mechanics.

Effective: Spring 2008

Prerequisite: E E 330 or PHYS 400

**AERSP 494 Aerospace Undergraduate Thesis** (1-3 per semester/maximum of 6) Individual problem investigations reported in written thesis and seminar lectures. Cooperative research with faculty guidance on topics of current interest.

Effective: Fall 1992

Prerequisite: seventh-semester standing

**AERSP 494H Aerospace Undergraduate Thesis** (1-3 per semester/maximum of 6) Individual problem investigations reported in written thesis and seminar lectures. Cooperative research with faculty guidance on topics of current interest.

Effective: Fall 2007

Prerequisite: seventh-semester standing

**AERSP 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1992

**AERSP 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1983

**AERSP 497D Autonomous Underwater Vehicle (AUV) Design** (1.5) Students taking this course will design and build an autonomous underwater vehicle (AUV) capable of carrying out simple tasks (e.g. find and mark or retrieve small objects) in water depths less than 30'. Component technologies include underwater proposers, vehicle attitude control, acoustic and optical sensing, ballast control for vehicle stability, beacon-based position estimation, simple manipulators, power system design and control.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: permission of instructor

**AERSP 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2006

**AERSP 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

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## Afr Amer Studies (AF AM)

AF AM 083S (GH;US;IL) **First-Year Seminar in African American Studies** (3) Cultural, philosophical, economic, political, and global dynamics of the Black experience in the United States and the Diaspora.  
Effective: Fall 2013

AF AM 100 (GS;US) **Evolving Status of Blacks in the Twentieth Century: Interdisciplinary Perspectives** (3) An interdisciplinary, team-taught exploration of the evolving status of Black Americans in the twentieth century. Emphasis on the civil rights movement.  
Effective: Spring 2013 Ending: Fall 2014

AF AM 100 (GS;US) **Living While Black: Themes in African American Thought and Experience** (3) What it means to be Black in America by engaging with questions about identity and authenticity, freedom and unfreedom, radicalism and reform, gender and sexuality, and the role of music in African American life.  
Effective: Spring 2015 Future: Spring 2015

AF AM 101 (GH;US) (WMNST 101) **The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.  
Effective: Spring 2013

AF AM 101U (GH;US) (WMNST 101U) **The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AF AM 101U (GH;US) (WMNST 101U) **The African American Woman** (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

AF AM 102 (GH;IL) (WMNST 102) **Women of Color: Cross-Cultural Perspective** (3) Global examination of value systems of women of color; attention to minority ethnic groups in the United States and developing countries.  
Effective: Spring 2013

AF AM 103 (US) (SOC 103, WMNST 103) **Racism and Sexism** (3) Critical analysis of the structure of race and gender in the contemporary United States.  
Effective: Spring 2013

AF AM 110 (GH;US) **Introduction to African American Studies** (3) An introductory survey of African American Studies practice and scholarship, focused on the major methods, figures, texts, and debates that define the field.  
Effective: Spring 2013

AF AM 110U (GH;US) **Introduction to African American Studies** (3) An introductory survey of African American Studies practice and scholarship, focused on the major methods, figures, texts, and debates that define the field.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AF AM 126 (GA;US) (INART 126) **The Popular Arts in America: The History of Hip-Hop** (3) An examination of the roots, development, and significance of hip-hop in our culture.  
Effective: Summer 2014

AF AM 132 (IL) (SPAN 132, AFR 132) **Afro-Hispanic Civilization** (3) A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America.  
Effective: Spring 2013

AF AM 139 (GH;US) (ENGL 139) **Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.  
Effective: Fall 2013

AF AM 145 (GH;US;IL) (RL ST 145) **African American Religion** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2013

AF AM 146 (GH;US) (RL ST 146) **The Life and Thought of Martin Luther King, Jr.** (3) A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.  
Effective: Spring 2013

AF AM 147 (GH;US) (RL ST 147) **The Life and Thought of Malcolm X** (3) The life of Malcolm X/EI Hajj Malik EI Shabazz (1925-1965) and his social, political, economic, and moral thought.  
Effective: Fall 2013

AF AM 152 (GH;US;IL) (HIST 152) **African American History** (3) African roots; colonial and revolutionary experiences; slavery and abolitionism; civil war and reconstruction; accommodation and protest; the new militancy.  
Effective: Fall 2013

AF AM 197 **Special Topics** (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2012

AF AM 199 **Foreign Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012

AF AM 208 (GA;US;IL) (THEA 208) **Theatre Workshop in Diverse Cultures** (3) A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples.  
Effective: Spring 2013

AF AM 210 (GH;US) (HIST 210) **Between Accommodation and Alienation: African Americans in a Jim Crow Nation, 1896-1932** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100/HIST 021

AF AM 210 (GH;US) (HIST 210) **Freedom's First Generation: African American Life and Work, 1865 to World War II** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: AF AM 100/HIST 021

AF AM 211 (GH;US;IL) (HIST 211) **The Emergence and Evolution of the Black Diaspora in the Atlantic World** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

AF AM 211 (GH;US;IL) (HIST 211) **Slavery and Freedom in the Black Atlantic** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

AF AM 212 (US) **Black History to the Twentieth Century** (3) An examination of Black political, economic, social, and cultural life in America from the era of colonization to 1905.  
Effective: Fall 2012 Ending: Fall 2014

AF AM 212 (US) **African Americans in the New Jim Crow Era, 1968-present** (3) An examination of Black political, economic, social, and cultural life in America from the era of colonization to 1905.  
Effective: Spring 2015 Future: Spring 2015

AF AM 235 (US) (ENGL 235) **African-American Oral Folk Tradition** (3) The origins, forms, and function of the oral folk tradition of African Americans.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: ENGL 015 or ENGL 030

AF AM 235 (US) (ENGL 235) **From Folk Shouts and Work Songs to Hip Hop Poetry** (3) The origins, forms, and function of the oral folk tradition of African Americans.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: ENGL 015 or ENGL 030

AF AM 250 (GH;IL) (HIST 250) **Introduction to the Modern Caribbean** (3) A survey course which, explores the historical evolution and emergence of the modern Caribbean.  
Effective: Fall 2012

AF AM 280 (GH;US) **Historical Ethnography of Freedom** (3) Studies the Underground Railroad movement to guide slaves to freedom, and public heritage surrounding this institution. Students use ethnographic approaches.  
Effective: Summer 2014

AF AM 294 **Research Project** (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 2012

AF AM 297 **Special Topics** (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2012

AF AM 297A **From Harlem to Hip-Hop: The Meanings of Black Music** (1 per semester/maximum of 9) This course is a survey of the evolution of Black American music from the Harlem renaissance to Hip-Hop in the 21st century.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AF AM 299 **Foreign Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012

AF AM 302 (US) (BB H 302) **Diversity and Health** (3) Exam the relationship of diverse personal and sociocultural factors to health, like socioeconomic class, race-ethnicity, gender, age, and sexual orientation.  
Effective: Spring 2013  
Prerequisite: PSYCH 100 or SOC 001

AF AM 364 (GS;US) (WMNST 364) **Black & White Sexuality** (3) This course explains how narrow ways of thinking limit our understanding of the diverse expressions of human sexuality.  
Effective: Fall 2012

AF AM 395 **Internship** (1-18 per semester/maximum of 18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships.  
Effective: Summer 2012

AF AM 397 **Special Topics** (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2012

AF AM 399 **Foreign Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012

AF AM 401 **Afro-American Studies Seminar** (3) A seminar examining theoretical and methodological issues in Afro-American Studies.  
Effective: Spring 2013  
Prerequisite: AF AM 100AF AM 101

AF AM 409 (US) (SOC 409) **Racial and Ethnic Inequality in America** (3) The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.  
Effective: Spring 2013  
Prerequisite: SOC 001

AF AM 409U (US) **Racial and Ethnic Inequality in America** (3) The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: SOC 001

AF AM 410 **Spirit, Space, Survival: Contemporary Black Women** (3) How recent Black women have used spirit and space to survive.  
Effective: Fall 2012  
Prerequisite: AF AM 101

AF AM 412 (US;IL) (THEA 412) **African American Theatre** (3) Exploration of the development of African American theatre from its roots in Africa through the Diaspora to the present time.  
Effective: Spring 2013  
Prerequisite: THEA 100

AF AM 416 (US;IL) (S T S 416, WMNST 416) **Race, Gender and Science** (3) The class will focus on race and gender as products of science, and how societal values shape scientific activity.  
Effective: Spring 2013  
Prerequisite: 6 credits in S T S WMNST or AAA S

AF AM 422 (US) (CAS 422) **Contemporary African American Communication** (3) A focused study on the continuities between African and African American culture and communication.  
Effective: Spring 2013  
Prerequisite: CAS 100

AF AM 431 (US;IL) (HIST 431) **Black Liberation and American Foreign Policy** (3) This course deals with American foreign policy and Black liberation in Africa since 1945.  
Effective: Spring 2013  
Prerequisite: AF AM 100AFR 192;PL SC 001 or PL SC 014

AF AM 432 (IL) (HIST 432) **Between Nation and Empire: The Caribbean in the 20th Century** (3) An exploration of the political evolution of the Caribbean Region over the course of the 20th Century.

Effective: Fall 2012

Prerequisite: AF AM 250

AF AM 445Y (US) (LER 445Y, PL SC 445Y) **Politics of Affirmative Action** (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

AF AM 460 (US;IL) (PHIL 460) **African American Philosophy** (3) Major works by African American Philosophers, on topics of race, freedom, citizenship, nationhood, law and society.

Effective: Spring 2013

Prerequisite: AF AM 100 or PHIL 009 and 5th semester standing

AF AM 465 (US) (HIST 465) **Civil Rights and American Politics 1933-1968** (3) The civil rights struggle and its impact upon American politics.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: AF AM 100 HIST 021 HIST 152 PL SC 001 or PL SC 002

AF AM 465 (US) (HIST 465) **The Post-World War II Civil Rights Movement** (3) The civil rights struggle and its impact upon American politics.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 HIST 021 HIST 152 PL SC 001 or PL SC 002

AF AM 469 (US) (ENGL 469) **Slavery and the Literary Imagination** (3) The impact of slavery on the petitions, poetry, slave narratives, autobiographies, and novels of African Americans.

Effective: Fall 2012

Prerequisite: ENGL 015 or ENGL 030

AF AM 494 **Research Project** (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2012

AF AM 494H **Research Project** (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2012

AF AM 495 **Internship** (1-18 per semester/maximum of 18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships.

Effective: Summer 2012

AF AM 496 **Independent Studies** (1-18 per semester/maximum of 18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2012

AF AM 497 **Special Topics** (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2012

AF AM 497A **Hurricane Katrina: Lessons & Legacy** (3) This course covers the influence of Hurricane Katrina disaster and New Orleans to US culture, public life, race relations, and history.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AF AM 499 **Foreign Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

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## African Studies (AFR)

AFR 105 (GN;IL) (EARTH 105) **Environments of Africa: Geology and Climate Change** (3) Significant natural features of Africa as related to human endeavor; case studies include the Nile, climate change, natural resources.  
Effective: Spring 2013

AFR 110 (GS;IL) **Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.  
Effective: Fall 2012

AFR 110U (GS;IL) **Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AFR 110U (GS;IL) **Introduction to Contemporary Africa** (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

AFR 132 (IL) (SPAN 132, AF AM 132) **Afro-Hispanic Civilization** (3) A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America.  
Effective: Spring 2013

AFR 150 (GH;IL) **Africa in Cinema** (3) The study of the image of Africa as seen in fiction and non-fictional feature length films, ethnographic and documentary films.  
Effective: Fall 2012

AFR 191 (GH;IL) (HIST 191) **Early African History** (3) Explores important economic and cultural transformations in the making of early African empires from 1 MBC to 1750.  
Effective: Fall 2012

AFR 192 (GH;IL) (HIST 192) **Modern African History** (3) Impact of the slave trade, expansion of Islam, colonial conquest, social and cultural transformations, resistance, nationalism, and independence.  
Effective: Fall 2012

AFR 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2012

AFR 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2012

AFR 202 (GS;IL) (WMNST 202) **Gender Dynamics in Africa** (3) Critical analysis of multidisciplinary research on relations between men and women in Africa and critique of Western feminist theories.  
Effective: Fall 2012

AFR 209 (GS;IL) (SOC 209) **Poverty in Africa** (3) The course examines the causes, consequences, and dynamics of poverty in African countries.  
Effective: Fall 2013

AFR 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2012

AFR 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2012

AFR 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2012

AFR 306 (IL) **Health and Illness in African and Black Diaspora: Cultural Anthropology** (3) The course explores anthropological approaches to health, mental and physical illness, in African Worlds and Black Diaspora.  
Effective: Summer 2013

Prerequisite: AFR 110 Concurrent: Poverty in Africa

AFR 335 (IL) (ART H 335) **African Art** (3) Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa.  
Effective: Fall 2013

AFR 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Fall 2012

Prerequisite: prior approval of proposed assignment by instructor

AFR 397 **Special Topics** (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2012

AFR 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2012

AFR 403 **South Africa Today** (3) A course examining the South African government's policy of apartheid: its history, why it exists, how it works, and the prospects for change.

Effective: Spring 2014

Prerequisite: AAA S 110

AFR 405 **African Studies Methodologies** (3) Multidisciplinary research techniques for studying in and about Africa.  
Effective: Fall 2012

AFR 434 (IL) (PL SC 434) **War and Development in Africa** (3) This course will examine the relationship between war and development in sub-Saharan Africa in the post colonial era.

Effective: Fall 2012

Prerequisite: PL SC 014 or PL SC 003 or AFR 110

AFR 440 (US;IL) (I B 440, PL SC 440) **Globalization and Its Implications** (3) This course explores the socioeconomic implications of globalization.

Effective: Spring 2013

Prerequisite: AF AM 100 or AFR 110 or PL SC 003 or PL SC 014 or PL SC 020 or PL SC 022

AFR 443 (IL) (PL SC 443) **Ethnic Conflict in Africa** (3) This course explores the various causes and impacts of ethnic conflicts in the African context.

Effective: Spring 2013

Prerequisite: AF AM 100 AFR 110 PL SC 001 PL SC 003 PL SC 007 PL SC 014 PL SC 017 PL SC 020 or AFRAS 301

AFR 446 (IL) (ART H 446) **Topics in African Art** (3 per semester/maximum of 9) Topics vary from "Arts of Eastern and Southern Africa" to "Art of West Africa."

Effective: Spring 2014

Prerequisite: 3 credits of Art History

AFR 447 (IL) (ART H 447) **Topics in the Art of the African Diaspora** (3 per semester/maximum of 6) Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

Effective: Spring 2014

Prerequisite: 3 credits of Art History

AFR 454 (IL) (PL SC 454) **Government and Politics of Africa** (3) Contemporary African Politics, institutions, and ideologies; patterns of change, social forces, and nation building in selected African states.

Effective: Fall 2012

Prerequisite: 3 credits from: AFR 110 PL SC 003 PL SC 020 or PL SC 022

AFR 459 (IL) (PL SC 459) **Culture and World Politics** (3) Role of culture in world politics.

Effective: Spring 2013

Prerequisite: PL SC 014

AFR 464 (IL) (PL SC 464) **Globalization, Extractive Industries, and Conflict in Africa** (3) Socioeconomic and environmental impacts of extractive industries in Africa.

Effective: Fall 2012

Prerequisite: AFR 110 or at least one of the following: PL SC 003 or PL SC 014 or PL SC 022

AFR 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2012

AFR 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Fall 2012

Prerequisite: prior approval of proposed assignment by instructor

AFR 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an

individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2012

AFR 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2012

AFR 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2012

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## African and African American Studies (AAA S)

AAA S 003 **Scholarship and Community** (1) Introduction to college life for new students in a designated residential community to help them optimize their Penn State experience.

Effective: Spring 1999

Prerequisite: students must be participating in the Pennypacker Experience to take this course

AAA S 297C (DANCE 297C) **Introduction to Afro-Brazilian, Afro-Caribbean and West African Dances** (3) Movement of the Orixas, Afro Brazilian dance, movements of the Caribbean, and contemporary West African dances.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AAA S 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2003

AAA S 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

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## Agribusiness Management (AG BM)

AG BM 101 (GS) **Economic Principles of Agribusiness Decision Making** (3) Introduction to economic principles and their application to real world examples of agribusiness management issues.  
Effective: Summer 2013

AG BM 102 **Economics of the Food System** (3) Introduction to topics designed to develop an understanding of how the food production, processing, and marketing system works and evolves.  
Effective: Summer 2013

AG BM 106 **Agribusiness Problem Solving** (3) Development of quantitative problem solving skills applied to specific examples of agribusiness management problems, using EXCEL spreadsheets.  
Effective: Summer 2013  
Prerequisite: AG BM 101

AG BM 200 **Introduction to Agricultural Business Management** (3) Application of management principles and processes to agricultural business firms in their planning and operating in domestic and international markets.  
Effective: Summer 2013

AG BM 220 **Agribusiness Sales and Marketing** (3) Principles underlying the sales process and practical application for selling situations in agribusiness. Role of selling in the total marketing process.  
Effective: Summer 2013

AG BM 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

AG BM 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

AG BM 302 **Food Product Marketing** (3) Analysis of economic and psychological determinants of the demand for food; marketing decisions in an increasingly consumer-driven food system.  
Effective: Summer 2013  
Prerequisite: AG BM 101AG BM 102AG BM 106

AG BM 308W **Strategic Decision Making in Agribusiness** (3) Utilize case studies to investigate strategic decision making among agribusiness firms, highlighting how information and market power shape strategies.  
Effective: Summer 2013  
Prerequisite: AG BM 101AG BM 102AG BM 106

AG BM 320 **Markets and Prices: Analysis and Forecasting** (3) Understand how prices are determined; develop the skill to analyze and forecast how prices change as the underlying conditions change.  
Effective: Summer 2013  
Prerequisite: AG BM 101AG BM 102 andAG BM 106;SCM 200 orSTAT 200

AG BM 338 (IL) **Agribusiness in the Global Economy** (3) Managing agribusinesses in the global food industry, international food product marketing, key public institution and policies affecting food trade.  
Effective: Summer 2013  
Prerequisite: AG BM 101AG BM 102AG BM 106

AG BM 407 **Farm Planning and Financial Management** (3) Economic principles applied to the management of farms, with particular emphasis on the financial aspects of management.  
Effective: Summer 2013  
Prerequisite: AG BM 101AG BM 106

AG BM 408 **Financial Decision Making for Agribusiness** (3) Develop financial management and business analysis skills, integrating previous course work and finance training; principles of financial management, planning, control.  
Effective: Summer 2013  
Prerequisite: AG BM 308WB A 301

AG BM 420 **Agribusiness Markets & Prices** (3) Understand and forecast price level and volatility for commodities, differentiated products, services. Why markets work and why they may not.  
Effective: Summer 2013  
Prerequisite: 6 credits in Agribusiness Management Business Administration Agricultural Economics and/or Economics

AG BM 440 **Food Product Innovation Management** (3) A problem-based course designed to enhance decision-making skills in the context of industry's approach to developing new food products.  
Effective: Summer 2013  
Prerequisite: AG BM 302 or junior/senior standing in Food Science

AG BM 460 **Managing the Food System** (3) Firm management in the food system; coordination with suppliers and

customers, including supply chain management, strategic thinking, risk management.

Effective: Summer 2013

Prerequisite: AG BM 320AG BM 338

AG BM 470A (INTAG 470A) **Comparing Agricultural and Food Systems in the US and France: Lecture** (2.5) Explore key differences and similarities in the food and agricultural systems of the United States and France.

Effective: Spring 2014

Prerequisite: INTAG 100 or 3 credits in social or behavioral sciences

AG BM 470B (INTAG 470B) **Comparing Agricultural and Food Systems in the US and France: Travel** (0.5) Explore key differences and similarities in the food and agricultural systems of the United States and France.

Effective: Spring 2014

Prerequisite: INTAG 470A or AG BM 470A

AG BM 495A **Internship in Agribusiness and Rural Development** (1-6) Supervised field experience in an agribusiness or rural development setting.

Effective: Summer 2013

Prerequisite: prior approval by department

AG BM 495B **Internship in International Agribusiness** (6) Supervised field experience related to student's major, minor, or option.

Effective: Summer 2013

Prerequisite: prior approval by department

AG BM 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2013

AG BM 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

AG BM 499 (IL) **Foreign Studies - Agribusiness Management** (1-12) Study in selected countries of agricultural economic institutions and current agricultural economic problems.

Effective: Summer 2013

AG BM 499I (IL) (INTAG 499I) **Exploring Greek Food Systems** (0.5) Travel to Thessaloniki and surrounding sites. Learn about food systems in Greece, how economic issues are affecting agriculture, and the history and culture of the country. The trip concludes in Athens.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: INTAG 499G or AG BM 499G

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## **Agricultural Communications (AGCOM)**

AGCOM 462W **Advanced Agricultural Writing** (3) Practice in journalistic writing strategies to report scientific and technical information in the agricultural/environmental sciences to general audiences.

Effective: Summer 2013

Prerequisite: a grade of C or better required in COMM 260W or equivalent coursework

AGCOM 495 **Internship** (1-3) Supervised field experiences related to student's professional interest in agricultural communications; limited to minors in agricultural communications.

Effective: Summer 2013

Prerequisite: a grade of C or better required in COMM 260W ; and prior approval of the professor-in-charge of Minor

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## **Agricultural Economics (AG EC)**

AG EC 430 **Principles of Community Economic Development** (3) Concepts, strategies and techniques of local economic analysis, planning and development; case studies and decision-making exercises.

Effective: Summer 2013 Ending: Summer 2014

Prerequisite: introductory course in economics

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## Agricultural Science (AG SC)

AG SC 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

AG SC 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AG SC 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AG SC 299 (IL) **Foreign Studies** (1-12 per semester/maximum of 24) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2014

AG SC 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AG SC 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AG SC 495 **Internship** (1-10) Independent study and supervised field experience related to the student's professional interest. Intended for Agricultural Science majors.  
Effective: Summer 2013  
Prerequisite: fifth-semester standing in the Agricultural Science major with a G.P.A. of 2.00 or greater and prior approval of proposed plan before registration

AG SC 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

AG SC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AG SC 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AG SC 499 (IL) **Foreign Studies** (1-12 per semester/maximum of 24) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2014

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## Agricultural Systems Management (A S M)

**A S M 101 Mechanization Principles for Production Agriculture** (3) Applying engineering and mechanization principles for selection and application of agricultural equipment, structural environmental control, and soil and water conservation.  
Effective: Summer 1994

**A S M 210 Turfgrass and Outdoor Power Equipment Systems Management** (2) Management of turfgrass and outdoor power equipment (OPE) systems. Application of mechanical systems in the turfgrass and OPE industry.  
Effective: Summer 2005  
Prerequisite: MATH 021 or equivalent

**A S M 217 Landscape Soil and Water Management** (3) Landscape soil and water management and practices including irrigation, hydrology, erosion, open channel, drainage, and impoundments.  
Effective: Spring 2001

**A S M 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1994

**A S M 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1994

**A S M 307 Golf Course Irrigation and Drainage** (3) Golf course irrigation systems; including sprinkler selection; piping; control systems; scheduling. Surface and subsurface drainage topics. Note: Students may not take both A S M 217 and A S M 307 for credit.  
Effective: Spring 2006  
Prerequisite: MATH 021/SOILS 101

**A S M 309 (E R M 309) Measurement & Monitoring of Hydrologic Systems** (3) Introduction to measurement and monitoring equipment/techniques commonly used in analyses and design of hydrologic systems.  
Effective: Spring 2010  
Prerequisite: PHYS 211 or PHYS 250/CHEM 110

**A S M 310 Power Transmission in Agriculture** (3) Selection and maintenance of mechanical, hydraulic, and pneumatic power transmission components and systems. Electric motor principles and controls.  
Effective: Spring 2014  
Prerequisite: BRS 221

**A S M 320 Combustion Engines for Mobile Equipment** (3) Operating principles of internal combustion engines; performance, selection, and maintenance aspects of engine systems in mobile equipment.  
Effective: Spring 2004  
Prerequisite: A S M 310

**A S M 327 Soil and Water Resource Management** (3) Soil and water management systems and practices including hydrology, surface drainage, open channels, and erosion, subsurface drainage, impoundments and irrigation.  
Effective: Summer 1994  
Prerequisite: PHYS 250

**A S M 391 (GWS) (B E 391) Contextual Integration of Communication Skills for the Technical Workplace** (2) To develop corporate communication skills in technically focused students in a contextual manner.  
Effective: Fall 2008  
Prerequisite: Junior level standing in B E or A S M

**A S M 392 (GWS) (B E 392) Contextual Integration of Leadership Skills for the Technical Workplace** (2) To develop corporate leadership skills in technically focused students in a contextual manner.  
Effective: Fall 2008  
Prerequisite: A S M 391 junior level standing in B E or A S M

**A S M 420 Off-Road Power Units** (3) Cabs, traction, power allocation, and electronic systems for tractors and other off-road vehicles; requirements for production agriculture, logging, and construction.  
Effective: Fall 2008  
Prerequisite: or concurrent: B E 306 or A S M 320

**A S M 424 Selection and Management of Agricultural Machinery** (3) Function and operation of field and farmstead machines; energy, quality, and loss considerations; selection and utilization; precision agriculture technology.  
Effective: Fall 2008  
Prerequisite: or concurrent: B E 306 or A S M 320

**A S M 425 Physical Principles in Agricultural Processing** (3) Dimensions and units, mass and energy balances, fluid flow, heat transfer in the context of specific agricultural process applications.  
Effective: Spring 2014  
Prerequisite: BRS 221

A S M 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1994

Prerequisite: prior approval of proposed assignment by instructor

A S M 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1994

A S M 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1994

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## Agricultural and Extension Education (AEE)

**AEE 100 Agricultural Education Orientation** (3) Examination of agricultural and extension education; exploration of aptitude and interest in teaching, including early clinical practicum.  
Effective: Summer 2013

**AEE 201 (GS) Interpersonal Skills for Tomorrow's Leaders** (3) Study of concepts of self identity, values and interpersonal relations as related to professional and personal life.  
Effective: Summer 2013

**AEE 295 Observation of Teaching in Agriculture and Environmental Science** (1-3) Supervised observation of teacher and student activities in a selected high school; appraisal of related responsibilities of teachers of agriculture.  
Effective: Summer 2013

**AEE 296 Independent Studies** (1-12) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

**AEE 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

**AEE 297A National Curricula Workshop** (1 per semester/maximum of 3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**AEE 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

**AEE 299 (IL) Foreign Studies** (1-12 per semester/maximum of 24) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2014

**AEE 311 Developing Youth Leadership through Organization and Program Structure** (3) An orientation on how adolescents develop and emerge as leaders in their families, schools, organizations, and communities.  
Effective: Summer 2013

**AEE 313 School-Based Program Planning and Instructional Development** (2) Planning and developing courses of study, summer programs, advisory committees, and facilities for vocational agriculture.  
Effective: Summer 2013  
Prerequisite: AEE 100AEE 295AEE 311

**AEE 330W Communication in Agricultural and Natural Resource Careers** (3) The course explores the conventions of writing and speaking found in agricultural professions through the use of case studies.  
Effective: Summer 2013  
Prerequisite: ENGL 015

**AEE 349 Shop Processes for Agricultural Educators** (3) Instruction in agricultural mechanics processes for teacher preparation in high school settings.  
Effective: Summer 2014

**AEE 350 Teaching Methods for Agricultural and Environmental Laboratories** (3) An introductory course that prepares students to instruct and manage students in laboratory settings.  
Effective: Summer 2013

**AEE 360 Leadership Development for Small Groups** (3) Students will learn about leadership dynamics in small groups and how to be more influential in work settings.  
Effective: Summer 2013

**AEE 395 Internship** (1-13) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.  
Effective: Summer 2013  
Prerequisite: prior approval of proposed assignment by instructor

**AEE 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that



may be topical or of special interest.  
Effective: Summer 2013

**AEE 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

**AEE 400 Educational Programs in Agriculture for Developing Countries** (3) Development and implementation of educational programs in agriculture in developing countries.  
Effective: Summer 2013  
Prerequisite: INTAG 100 or INTAG 481

**AEE 412 Methods of Teaching Agriculture and Environmental Science** (4) Instructional strategies and media; directing individual and group learning activities; assessing student performance and quality of instruction in vocational agriculture.  
Effective: Summer 2013

**AEE 413 Program Planning and Instructional Development** (3-4) A course in planning, developing, and organizing school-based curriculum, summer programs, advisory councils, and facilities for environmental/ agricultural education.  
Effective: Summer 2013

**AEE 434 Agricultural and Environmental Development** (1-6) Intensive professional and technical treatment of various subject-matter fields to aid teachers in maintaining competence.  
Effective: Summer 2013  
Prerequisite: senior-year standing or experience as a teacher or extension agent

**AEE 437 (AN SC 437) Equine Facilitated Therapy** (3) Equine Facilitated Therapy uses equine-related activities to contribute positively to the wellbeing of people with disabilities.  
Effective: Fall 2013  
Prerequisite: AN SC 327

**AEE 440 Communication Methods and Media** (3) Mass media techniques for reporting and promoting extension and related programs, including message preparation, presentation, and strategy development.  
Effective: Summer 2013  
Prerequisite: 3 credits in communication

**AEE 450 Program Design and Delivery** (3) Principles, methods, and practices of extension education in agriculture, community resource development, family living, environmental affairs, 4-H, and youth programs.  
Effective: Summer 2013  
Prerequisite: 6 credits in social or behavioral sciences

**AEE 460 Foundations in Leadership Development** (3) This course explores historical and contemporary leadership theories, models and perspectives within social, cross-cultural, and political contexts.  
Effective: Summer 2013  
Prerequisite: AEE 360

**AEE 465 Leadership Practices: Power, Influences, and Impact** (3) Explores the leader role as it relates to issues of purpose, social responsibility, political influences, and legal constraints.  
Effective: Summer 2013

**AEE 490 Colloquium** (1-3) Seminars consisting of a series of individual lectures by faculty, students, or outside speakers.  
Effective: Summer 2013

**AEE 494 Undergraduate Research** (1-12) Supervised student activities on research projects identified on an individual or small group basis.  
Effective: Summer 2013

**AEE 495 Internship in Agricultural and Extension Education** (1-15) Participation in the total program of instruction in agriculture in a selected high school.  
Effective: Summer 2013  
Prerequisite: AEE 412/AEE 413

**AEE 495D Leadership Development Minor Internship** (3) Participation in the total program of instruction in agriculture in a selected high school.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: AEE 412/AEE 413

**AEE 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

**AEE 497 Special Topics** (1-9) Formal courses given on topical or special interest subjects which may be offered infrequently.  
Effective: Summer 2013

AEE 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AEE 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2013

AEE 499B (IL) **School-Based Agricultural Education in South Korea** (0.5) Travel component of AEE 499A.  
Effective: Summer 2014 Ending: Summer 2014

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## Agriculture (AG)

AG 100 (SC 101) **Job Placement Skills and Strategies** (1) Strategies and skills designed to identify career/life goals and implement career decisions.  
Effective: Fall 2010

AG 113 **Exploring Careers in Agriculture** (1) Examination of career opportunities in agriculture with an exploration of the relationship between student interest and career decisions.  
Effective: Spring 1984

AG 150S **Be a Master Student!** (2) Students explore agricultural issues and research methodologies through literature review, library searches, field studies, and critical thinking.  
Effective: Summer 1999  
Prerequisite: first- or second-semester standing

AG 160 (GH) **Introduction into Ethics and Issues in Agriculture** (3) The course explores ethical theories, concepts of critical thinking, and major ethical issues related to American agriculture.  
Effective: Summer 1999

AG 160S (GH) **Introduction to Ethics and Issues in Agriculture** (3) Introduce students to the University and College of Ag Sciences preparing them to succeed. Review ethical theories and issues in American agriculture.  
Effective: Summer 2012  
Prerequisite: fifth- or second semester standing

AG 294 **Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1994

AG 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1998

AG 301W **Introduction to Agricultural Law** (3) A survey of the legal system and legal issues that typically arise in agricultural and agribusiness situations.  
Effective: Fall 1987

AG 400 **Biometry/Statistics in the Life Sciences** (4) Application of statistical techniques to experimental and survey research in the life sciences.  
Effective: Fall 1986  
Prerequisite: 6 credits in the natural sciences

AG 494 **Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1994

AG 494H **Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

AG 495 **Internship** (1-18) Independent study and supervised field experience related to the student's major. Written and oral critique of activity required.  
Effective: Spring 1993  
Prerequisite: approval of proposed assignment by instructor prior to advance registration deadline in semester preceding that semester in which the assignment is to be carried out

AG 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1991

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## Agroecology (AGECO)

AGECO 121 (GN) **Plant Stress: It's Not Easy Being Green** (3) The many hazards faced by plants and the dynamic ways that plants respond to these problems are examined.  
Effective: Summer 2013

AGECO 122 (GN) (METEO 122) **Atmospheric Environment: Growing in the Wind** (3) Dynamic effects of weather on ecosystems and habitation of Earth.  
Effective: Summer 2013

AGECO 134 (GN) (R SOC 134) **Sustainable Agriculture Science and Policy** (3) The science, socio-economics, and politics of managing food and fiber production systems. Sustainability implications of current practices and future options.  
Effective: Summer 2013

AGECO 144 (GN) **Principles and Practices of Organic Agriculture** (3) An introduction to the science, principles and practices of organic agricultural systems for food production.  
Effective: Summer 2013

AGECO 154 **Principles of Agronomic Field Operations** (2) Introduction to the cultural methods and equipment used in agronomic crop production.  
Effective: Spring 2013

AGECO 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AGECO 201 **Introductory Agroecology** (3) Introduction to the processes and considerations that lead to the development of integrated solutions to crop production problem solving.  
Effective: Summer 2013

AGECO 295 **Agroecology Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2013

AGECO 418 (AN SC 418, SOILS 418) **Nutrient Management in Agricultural Systems** (3) Comprehensive review of nutrient flow in animal agricultural systems, environmental regulations, and environmental stewardship practices.  
Effective: Summer 2013

AGECO 427 **Certification and License Preparation** (1-3 per semester/maximum of 3) Review and preparation for licenses and certifications commonly needed by Crop Production professionals.  
Effective: Spring 2013  
Prerequisite: AGRO 028

AGECO 429 **Crop Scouting** (2) This course will teach proper crop scouting techniques and provide reference material to aid in identification of crop pests and determination of pest economic threshold levels.  
Effective: Summer 2013  
Prerequisite: AGRO 028 or HORT 101

AGECO 438 (AGRO 438) **Principles of Weed Management** (4) Weedy plant taxonomy, biology and ecology of weedy plant populations, and integration of biological, chemical, cultural and biological controls.  
Effective: Summer 2013  
Prerequisite: 6 credits in plant sciences

AGECO 457 (CI ED 457) **Principles of Integrated Pest Management** (3) Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester students and graduate students.  
Effective: Spring 2014 Ending: Summer 2014  
Prerequisite: Must take two or more of the following: ENT 313 and/or HORT 238

AGECO 457 (ENT 457) **Principles of Integrated Pest Management** (3) Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester students and graduate students.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Must take two or more of the following: ENT 313 PPEM 405 PPEM 318 or HORT 238

AGECO 490 **Agroecology Colloquium** (3) Students will be discussing topics related to the major and develop presentations in consultation with the course instructor.  
Effective: Summer 2013

Prerequisite: 3 credits in agroecosystems science

AGECO 495 **Agroecology Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2013

AGECO 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2013

AGECO 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AGECO 499 (IL) **Foreign Studies** (1-2 per semester/maximum of 4) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2013

AGECO 499B (IL) (CED 499B) **Issues in Economic, Community and Agricultural Development in Kenya Practicum** (0.5) Implement and assess viable economic and youth development options for vulnerable youth in Kenya.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: AGECO 499A or CED 499A

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## **Agroecosystems Science (AGESS)**

AGESS 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

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## Agronomy (AGRO)

**AGRO 028 Principles of Crop Management** (3) Biological and agronomic principles applied to production and management of major feed and forage crops of the northeastern United States.

Effective: Summer 2013

Prerequisite: 6 credits in biological science

**AGRO 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

**AGRO 410W Physiology of Agricultural Crops** (4) Study of the relation of plants to their environment and the physiology of crop plant growth.

Effective: Summer 2013

Prerequisite: AGRO 028

**AGRO 423 Forage Crop Management** (3) Application of agronomic, ecological, and physiological principles to the production and management of pasture and forage crops.

Effective: Summer 2013

Prerequisite: AGRO 028

**AGRO 425 Field Crop Management** (3) Application of agronomic, ecological, and physiological principles to management systems for the efficient production of the major field crops.

Effective: Summer 2013

Prerequisite: AGRO 028

**AGRO 438 (AGECO 438) Principles of Weed Management** (4) Weedy plant taxonomy, biology and ecology of weedy plant populations, and integration of biological, chemical, cultural and biological controls.

Effective: Summer 2013

Prerequisite: 6 credits in plant sciences

**AGRO 460 (BIOTC 460) Advances and Applications of Plant Biotechnology** (3) This course provides a comprehensive overview and current status of plant biotech research. The course provides knowledge of plant systems that fall in the category of GMOs.

Effective: Summer 2013

Prerequisite: BIOL 230W or B M B 251

**AGRO 489 Supervised Experience in College Teaching** (1-3) Participate with instructors in teaching an undergraduate agronomy course; assist with teaching, evaluation, and development of instructional materials.

Effective: Summer 2013

Prerequisite: AGRO 028 approval of instructor

**AGRO 490 (SOILS 490) Colloquium** (1) Continuing written and oral presentations developed by students in consultation with the course instructor.

Effective: Summer 2013

Prerequisite: seventh-semester standing

**AGRO 495 Internship** (1-5) Supervised field experience related to the student's major.

Effective: Summer 2013

Prerequisite: approval of proposed assignment by instructor prior to registration.

**AGRO 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2013

**AGRO 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

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## Air Force (AIR)

### GENERAL MILITARY COURSE

**AIR 151 The Foundations of the United States Air Force I** (2) Survey course designed to introduce students to Air Force opportunities, officership, professionalism, and military customs and courtesies, and communication skills.  
Effective: Spring 2000

**AIR 152 The Foundations of the United States Air Force II** (2) Continued study of officership and leadership. Mission and organization of today's Air Force are discussed.  
Effective: Spring 2000

**AIR 251 The Evolution of USAF Air and Space Power I** (2) Examines aspects of air and space power from the first balloons to the beginning of the Cold War era.  
Effective: Spring 2000

**AIR 252 The Evolution of USAF Air and Space Power II** (2) Continued examination of air and space power from the Cold War era to the Persian Gulf War and beyond.  
Effective: Spring 2000

### PROFESSIONAL OFFICER COURSE

**AIR 351 Leadership Studies I** (3) Study of leadership, management fundamentals, and communication skills required of Air Force officers. Students apply these concepts using case studies.  
Effective: Spring 2000

**AIR 352 Leadership Studies II** (3) Continued study of leadership includes professional knowledge, AF personnel evaluation systems, and leadership ethics. Students apply concepts using case studies.  
Effective: Spring 2000

**AIR 451 National Security Affairs/Preparation for Active Duty I** (3) This course examines the national security process, regional studies, advanced leadership ethics, and Air Force doctrine.  
Effective: Spring 2000

**AIR 452 National Security Affairs/Preparation for Active Duty II** (3) Topics focus on preparation for military service after commissioning and current issues affecting the Air Force way of life.  
Effective: Spring 2000

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## American Studies (AM ST)

AM ST 050 (GH) **The Literature and Lore of Mining** (3) Experience and values of mining tradition: survey of the literature and lore, including field research.  
Effective: Spring 2004

AM ST 083S (GH) **First-Year Seminar in American Studies** (3) Critical approaches to the interdisciplinary study of American culture.  
Effective: Summer 1999

AM ST 100 (GH;US) **Introduction to American Studies** (3) A study of selected attempts to identify and interpret movements and patterns in American culture.  
Effective: Spring 2006  
Prerequisite: third-semester standing

AM ST 100Y (GH;US) **Introduction to American Studies** (3) A study of selected attempts to identify and interpret movements and patterns in American culture.  
Effective: Spring 2006  
Prerequisite: third-semester standing

AM ST 103 (GH;US) **American Masculinities** (3) Introduction to aspects of masculinities and manhood in America.  
Effective: Summer 2008

AM ST 104 (GH;US) (WMNST 104) **Women and the American Experience** (3) Selected aspects of the role of women in United States history and culture from colonial to modern times.  
Effective: Summer 2005

AM ST 105 (GH;US) (ENGL 105) **American Popular Culture and Folklife** (3) Survey of popular culture, folklife, and ethnicity, synthesizing material from such areas as literature, media, entertainment, print, music, and film.  
Effective: Fall 2008

AM ST 106 (GS) (COMM 100) **The Mass Media and Society** (3) Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films.  
Effective: Fall 2013

AM ST 135 (GH;US) (ENGL 135) **Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.  
Effective: Fall 2013

AM ST 140Y (GH;US) (RL ST 140Y) **Religion in American Life and Thought** (3) The function, contributions, tensions, and perspectives of religion in American culture.  
Effective: Summer 2005

AM ST 160 (GH;US) (AAS 100) **Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.  
Effective: Fall 2013

AM ST 160U (GH;US) **Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

AM ST 196 (GH;US) (ENGL 196, AMSTD 196) **Introduction to American Folklore** (3) A basic introduction to verbal and non-verbal folklore stressing the basic procedures of collection, classification, and analysis.  
Effective: Summer 2005

AM ST 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

AM ST 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

AM ST 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

AM ST 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Fall 2007

Prerequisite: prior approval of proposed assignment by instructor

AM ST 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

AM ST 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

AM ST 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

AM ST 301 (GH) **American Civilization** (3) An interdisciplinary overview of major themes, works, and events, in American history and culture.

Effective: Fall 2007

Prerequisite: HIST 020 or HIST 021 or 3 credits in American Studies

AM ST 302 **Approaches to American Studies** (3) A survey of the American Studies movement and its scholarship, emphasizing changes in theories, methods, and topics.

Effective: Fall 2007

Prerequisite: AMSTD major or permission of program

AM ST 307 (GA;US) (ART H 307) **American Art** (3) History of art in the English colonies and the United States from the seventeenth century to the present.

Effective: Spring 2008

AM ST 308 (GA;US) (ART H 308) **American Architecture** (3) History of the architecture of the United States, as well as its Native American and colonial antecedents.

Effective: Summer 2013

AM ST 320 **Pennsylvania Studies** (3) Study of selected topics on the history, society, and culture of Pennsylvania (May be repeated for credit).

Effective: Fall 2007

Prerequisite: HIST 012 or 3 credits of American Studies

AM ST 321 (US) **American Indian Studies** (3 per semester, maximum of 99) A study of American Indian history, societies and cultures (may be repeated for credit).

Effective: Fall 2007

Prerequisite: 3 credits of American Studies or ANTH 146 or HIST 153

AM ST 322 (US) **Ethnic America** (3) A study of the sources, contributions, and conflicts of ethnic groups in the American experience.

Effective: Fall 2007

Prerequisite: 3 credits of American Studies or HIST 158 or SOC 119.

AM ST 324 **Popular Culture** (3) An examination of mass media and society and the impact of popular culture.

Effective: Fall 2007

Prerequisite: AM ST 105 or 3 credits of American Studies

AM ST 325 (PUBPL 325) **American Political Culture** (3) Study of political culture in the United States.

Effective: Fall 2007

Prerequisite: 3 credits of American Studies Political Science Public Policy or Sociology

AM ST 363 **American Music** (3) A survey of all styles and types of American music from 1620 to the present.

Effective: Fall 2007

Prerequisite: 3 credits of AMSTD and MUSIC

AM ST 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

AM ST 400 **Early America to 1765** (3) American society and culture in the colonial period.

Effective: Fall 2007

Prerequisite: 6 credits in American Studies or History

AM ST 401 **Revolution and Early Republic, 1765-1815** (3) American society and culture during the period of the Revolution and the Early Republic.

Effective: Fall 2007

Prerequisite: 6 credits of American Studies or History or 5th semester standing

AM ST 402 **Antebellum and Civil War Era, 1815-1876** (3) Social and cultural conditions, sectional rivalry, political crises,

warfare, and Reconstruction from 1815 to 1876.

Effective: Fall 2007

Prerequisite: 6 credits in American Studies or History

AM ST 404 **Industrial America** (3) An analysis of American politics, literature, society, and economics from the 1870s to World War II.

Effective: Fall 2007

Prerequisite: 6 credits of American Studies or History

AM ST 405 **Cold War** (3) Examination of social and cultural currents in American life from World War II to 1990.

Effective: Fall 2007

Prerequisite: 6 credits of American Studies or History

AM ST 406 **Contemporary America** (3) A study of the historic and cultural currents of life in the United States during the recent past.

Effective: Fall 2007

Prerequisite: HIST 021 or 6 credits of American Studies

AM ST 412 **American Eras** (3) Examination in depth of various and distinctive American time periods; subtitle expresses specific content. (May be repeated for credit.)

Effective: Fall 2007

Prerequisite: 6 credits of American Studies or History

AM ST 417 **American Beliefs and Myths** (3) A study of symbols, beliefs, and myths in the American experience; subtitles express specific content. (May be repeated for credit.)

Effective: Fall 2007

Prerequisite: 6 credits of American Studies

AM ST 421 (PHIL 401) **American Philosophy** (3) Survey of key figures and movements in American thought, including the Transcendentalists, the Pragmatists, and contemporary developments.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy or 6 credits of philosophy at the 200-level or 5th semester standing

AM ST 422 (RL ST 422) **Religion and American Culture** (3 per semester, maximum of 6) Selected topics, problems, or historical movements in American religion; relation between religion and American culture.

Effective: Summer 1996

AM ST 430 (US) (WOMST 430) **Women in American Society** (3) A historical study of women's roles and experiences in the United States.

Effective: Fall 2007

Prerequisite: 6 credits of American Studies Sociology or Women's Studies

AM ST 431 **National Character** (3) An examination of the characteristics of the American people and other national groups.

Effective: Fall 2007

Prerequisite: AM ST 301 or 6 credits in American Studies

AM ST 432 **Ethnicity and the American Experience** (3) Theoretical and conceptual framework of ethnic studies: examination of specific issues related to major American ethnic and racial groups.

Effective: Fall 2007

AM ST 435 **Americans at Work** (3) A study of occupational and organizational cultures in America.

Effective: Fall 2007

Prerequisite: 6 credits in American Studies or Labor and Industrial Relations or Sociology

AM ST 439 **American Regional Cultures** (3-6) An interdisciplinary study of the culture of a region of the United States, such as the south or the west.

Effective: Fall 2007

Prerequisite: seventh-semester standing

AM ST 441 (US) (KINES 441) **History of Sport in American Society** (3) Background, establishment, and growth of sport in America from colonial times to the present.

Effective: Fall 2007

Prerequisite: KINES 141 or 3 credits of United States history

AM ST 447 (US) (HIST 447) **Recent American History** (3) Contemporary economic, social, and political aspects of the United States and its role as a world power since 1945.

Effective: Spring 2014

Prerequisite: HIST 021 3 additional credits in history economics or political science

AM ST 448 (ANTH 448) **Ethnography of the United States** (3) Ethnographic descriptions of various dimensions of life in the United States.

Effective: Fall 2007

Prerequisite: ANTH 045

AM ST 451 (COMM 451) **Topics in American Film** (3 per semester/maximum of 6) Critical and historical studies of American films. Analysis of directing, cinematography, editing, screenwriting, and acting.

Effective: Fall 2013

Prerequisite: COMM 250

AM ST 462 **American Art and Architecture of the 20th Century** (3) A survey of American painting, sculpture, decorative arts, and architecture of the twentieth century.  
Effective: Fall 2007

AM ST 472 (ENGL 434) **Topics in American Literature** (3) Focused study of a particular genre, theme, or problem in American literature. (May be repeated for credit.)  
Effective: Fall 2007  
Prerequisite: 6 credits of ENGL ENLSH or LIT

AM ST 475 (US) (ENGL 431) **Black American Writers** (3 per semester, maximum of 6) A particular genre or historical period in the development of Black American literature.  
Effective: Fall 2007  
Prerequisite: ENGL 015 or ENGL 030

AM ST 476 (ENGL 492, WMNST 491) **American Women Writers** (3) A study of selected American women writers.  
Effective: Spring 2008  
Prerequisite: 6 credits of ENGL

AM ST 479 **American Expressive Forms** (3) Examination in depth of various and distinctive American expressive forms; subtitle expresses specific content. (May be repeated for credit.)  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies

AM ST 480 **Museum Studies** (3) An introduction to the basic purposes, philosophies, and functions of a museum, with emphasis on the problems of museum administration. (May be repeated for credit.)  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies

AM ST 481 **Historic Preservation** (3) A study of preservation practices and programs in America.  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies

AM ST 482 **Public Heritage** (3) A study of public heritage practices and programs in America. (May be repeated for credit.)  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies

AM ST 483 **Oral History** (3) A study of oral history techniques and issues in America.  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies

AM ST 491W **American Themes, American Eras** (3-6) Interdisciplinary American culture course on major themes and eras such as the American Revolutionary Era or the 1930s.  
Effective: Fall 2007  
Prerequisite: seventh-semester standing

AM ST 493 (ENGL 493) **The Folktale in American Literature** (3) A survey of the literary uses of the folktale and legendary materials, with particular concentration on the literature of America.  
Effective: Spring 1986  
Prerequisite: ENGL 015 or ENGL 030

AM ST 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

AM ST 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

AM ST 495 **Internship** (1-6) Supervised internship for undergraduate or graduate American Studies majors at a museum or another cultural, historical, or arts agency.  
Effective: Fall 2007  
Prerequisite: senior-level status for undergraduate students; 18 credits of course work in major for graduate students; approval of program required

AM ST 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

AM ST 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

AM ST 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005



## Animal Science (AN SC)

AN SC 037 **Horse and Man** (2) Relationship of horse and man; development of breeds; use, adaptability, and economic importance of the horse in today's society.  
Effective: Summer 2013

AN SC 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

AN SC 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

AN SC 100 (GN) **Introduction to Animal Industries** (3) Students will study the biology, production systems, terminology, and emerging issues of the N. American animal industries.  
Effective: Summer 2013

AN SC 107 **Introduction to Equine Science and the Equine Industry** (2) Prepare students to proceed into further studies in equine science by providing background to communicate effectively with educators and industry.  
Effective: Summer 2013

AN SC 110S **Contemporary Issues in Animal Biotechnology and Society** (1) An introductory survey of animal biotechnology in society, the role for biotechnology and how it will benefit society.  
Effective: Summer 2013

AN SC 117 **Equine Marketing** (2) Principles of marketing and event planning including marketing systems, advertising, management systems, team building and other aspects of conducting a purebred livestock sale. Students learn through the planning and conducting of the annual Penn State Equine Science Showcase and Registered Quarter Horse Sale.  
Effective: Summer 2013

AN SC 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

AN SC 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

AN SC 201 **Animal Science** (4) Scope of animal and poultry science; genetic, physiological, nutritional, and health factors in food production.  
Effective: Summer 2013

AN SC 207 (FD SC 207) **Animal Products Technology** (2) Composition, safety, palatability, preservation, and processing of foods from animals, impact of animal production, and handling practices on product properties.  
Effective: Summer 2013

AN SC 208 (FD SC 208) **Animal Products Technology Laboratory** (1) Harvesting and processing of foods from animals; hands-on and demonstration exercises; industry procedures for processing meat, milk, and egg products.  
Effective: Summer 2013  
Prerequisite: or concurrent: AN SC 207

AN SC 211 **Introduction to Avian Biology** (3) Introduces the biology of birds; lectures, laboratories on anatomy and function, incubation, breeding, disease control, management techniques, and student projects.  
Effective: Fall 2013  
Prerequisite: BIOL 110

AN SC 213 **Introduction to Animal Biotechnology** (3) An introduction to the multidisciplinary area of animal biotechnology: from molecular, genetic, genomics and development issues to their technological applications.  
Effective: Summer 2013  
Prerequisite: AN SC 201BIOL 110CHEM 110CHEM 112

AN SC 215 (GS) **Pets in Society** (3) Introduction to the varied roles that companion animals play in human society and their impact on human activity and well-being.  
Effective: Summer 2013

**AN SC 217 Introduction to Horse Judging** (2) Introductory analysis of halter and performance classes of stock-type horses, with emphasis on conformation, gaits, patterns, and oral reasons.  
Effective: Summer 2013

**AN SC 225 Introduction to Dairy Judging** (1) Training in the visual evaluation of dairy cattle and practice in defending decisions through oral reasons.  
Effective: Summer 2013

**AN SC 226 Meat Selection and Grading** (2) Training in identifying, grading, and judging carcasses and wholesale cuts of meat and in selection and identification of specification cuts.  
Effective: Summer 2013  
Prerequisite: AN SC 201

**AN SC 290W Careers in Animal Agriculture** (1) A description and analysis of career opportunities in the animal sciences and allied industries.  
Effective: Summer 2013

**AN SC 291 Externship with Animal Science Business** (1-2 per semester/maximum of 4) Students will obtain a one-week on site work experience with an animal-related agribusiness.  
Effective: Summer 2013

**AN SC 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

**AN SC 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

**AN SC 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

**AN SC 300 (GN) Integrated Animal Biology** (3) An integrated study of the biology of domestic animal growth and the underlying cellular, endocrine and immune systems involved.  
Effective: Summer 2013  
Prerequisite: BIOL 011 and BIOL 012 or BIOL 110 ; at least third-semester standing

**AN SC 301 Principles of Animal Nutrition** (3) Nutrients and their metabolism; the nutritional requirements of livestock; the nutritional value of various feeds; principles of ration formulation.  
Effective: Fall 2013  
Prerequisite: CHEM 202;CHEM 210

**AN SC 305 Companion Animal Nutrition** (3) Principles of care and nutrition and contemporary importance of companion animals with emphasis on canine and feline species.  
Effective: Summer 2013  
Prerequisite: AN SC 201

**AN SC 306 Swine Production and Management** (3) Application of the principles of enterprise and facility development, operations management, quality control, public relations, marketing for the efficient operation of a swine production business.  
Effective: Summer 2013  
Prerequisite: AN SC 201

**AN SC 308 Sheep and Goat Production and Management** (4) Application of principles of nutrition, breeding, physiology, health, facilities, marketing, and product development, to animal production agriculture.  
Effective: Summer 2013  
Prerequisite: AN SC 201

**AN SC 309 Beef Cattle Production and Management** (4) Application of principles of nutrition, breeding, physiology, health, facilities, and marketing to produce and manage beef efficiently.  
Effective: Summer 2013  
Prerequisite: AN SC 201

**AN SC 310 Dairy Cattle Production and Management** (3) Principles of dairy management including the dairy industry and control points associated with nutrition, genetics, lactation, reproduction, and housing.  
Effective: Summer 2013  
Prerequisite: AN SC 201

**AN SC 311 Poultry Production and Management** (4) The application of fundamental concepts and preparation for careers in the economically integrated commercial poultry industry.  
Effective: Summer 2013 Ending: Summer 2014  
Prerequisite: AN SC 201

**AN SC 311 Poultry Production and Management** (3) The application of fundamental concepts and preparation for careers in the economically integrated commercial poultry industry.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: AN SC 201

**AN SC 315 Small Animal Health and Disease** (3) Introduction to the principles of small animal health, including the recognition, prevention and control of common small animal diseases.

Effective: Summer 2013

Prerequisite: MICRB 106 or MICRB 201 or permission of program

**AN SC 317 Horse Handling and Training** (3) Responses of horses to various stimuli during the training period.

Laboratory exercises involve extensive practice with young horses.

Effective: Summer 2013

Prerequisite: AN SC 327 and approved level of horsemanship

**AN SC 322 Principles of Animal Breeding** (3) The fundamental principles of genetics as applied to breeding farm animals.

Effective: Summer 2013

**AN SC 322H Principles of Animal Breeding** (3) The fundamental principles of genetics as applied to breeding farm animals.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**AN SC 324 Value Determination of Meat Animals** (3) Live animal and carcass evaluation of cattle, sheep, and swine to determine value of market animals and meat products.

Effective: Summer 2013

**AN SC 327 Horse Production and Management** (3) Principles of selection, breeding, feeding, management, and marketing of horses; emphasis on light horses.

Effective: Summer 2013

Prerequisite: AN SC 201

**AN SC 350 Dairy Problem Solving** (2) Students will use dairy records to analyze herd performance in order to identify bottlenecks for higher productivity.

Effective: Summer 2013

Prerequisite: or concurrent: AN SC 310

**AN SC 395 Animal Science Internship** (1-12) Supervised field experience and study related to the student's major professional interest. Written and oral critique of activity required.

Effective: Summer 2013

Prerequisite: Animal Sciences majors; 6 credits in major plus approval of proposed assignment by instructor prior to advance registration deadline in semester preceding the semester in which the assignment is to be completed

**AN SC 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

**AN SC 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

**AN SC 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2014

**AN SC 405 Advanced Canine Nutrition and Management** (3) Application of biological principles to the care and nutrition of dogs; interactive discussions of contemporary nutrition and management issues.

Effective: Fall 2013

Prerequisite: AN SC 305 or permission of the program

**AN SC 407 Advanced Horse Management** (3) Detailed study of anatomy and physiology of the horse as related to nutrition, reproduction, athletic ability, unsoundness and control of diseases and parasites. Detailed discussion of management practices, facility design and contemporary issues.

Effective: Fall 2013

Prerequisite: AN SC 327

**AN SC 410 Advanced Dairy Herd Management** (4) Application of dairy herd management principles using case studies and actual dairy farm situations.

Effective: Fall 2013

Prerequisite: AN SC 310

**AN SC 413 Transgenic Biology** (3) The principles and concepts used to generate genetically engineered animals by pronuclear, knockout, and cloning methods; and applied biotechnology applications.

Effective: Fall 2013

Prerequisite: B M B 211 or BIOL 230W and AN SC 322 or BIOL 222



AN SC 415 **Companion Animal Behavior** (3) Detailed study of companion animal behavior; including individual, developmental, and environmental bases of behavior with applied demonstration and discussion.

Effective: Spring 2013

Prerequisite: BIOL 110

AN SC 417 **Horse Judging** (2) Evaluation and selection of halter and performance horses, and presentation of oral reasons.

Effective: Fall 2013

Prerequisite: AN SC 217

AN SC 418 (AGECO 418, SOILS 418) **Nutrient Management in Agricultural Systems** (3) Comprehensive review of nutrient flow in animal agricultural systems, environmental regulations, and environmental stewardship practices.

Effective: Summer 2013

AN SC 419W **Applied Animal Welfare** (3) Assessment of management practices impacting animal welfare; devoted to livestock species, companion animals, captive exotic species, and animals in research.

Effective: Summer 2013

Prerequisite: AN SC 201 or 6 credits of biology

AN SC 420 **Animal Nutrition and Feed Technology** (4) Feedstuff evaluation, quality control, handling, storage: life cycle feeding of beef cattle, dairy cattle, sheep, swine, horses, and poultry.

Effective: Summer 2013

Prerequisite: AN SC 301

AN SC 421 **Poultry Evaluation and Selection** (2) Introduction and application of standards and principles used to evaluate live poultry and poultry products.

Effective: Summer 2013

Prerequisite: permission of program

AN SC 422 **Dairy Cattle Evaluation and Selection** (3) Methods used in evaluation of production and type traits and their role in selecting dairy breeding stock domestically and internationally.

Effective: Summer 2013

Prerequisite: AN SC 322

AN SC 423 **Comparative Physiology of Domestic Animals** (3) A comparative approach to understanding body function in domesticated avian and mammalian species.

Effective: Summer 2013

Prerequisite: BIOL 110

AN SC 424 **Livestock Breeding Evaluation and Selection** (3) Evaluation and selection of beef cattle, sheep, swine, and horses; critical analysis of performance records and genetic evaluations.

Effective: Summer 2013

Prerequisite: AN SC 324

AN SC 425 (VB SC 425) **Principles of Avian Diseases** (3) Principles of pathogenesis and control of diseases in poultry and other avian populations. Case material used where appropriate.

Effective: Summer 2013

Prerequisite: AN SC 201BIOL 110 4 credits in microbiology and 3 credits of anatomy and/or physiology

AN SC 426 **Advanced Judging and Selection** (2 per semester, maximum of 4) Development of critical thinking and communication skills through evaluation and selection of animals and animal products.

Effective: Summer 2013

Prerequisite: AN SC 322

AN SC 427 **Milk Secretion** (3) Development and physiology of the mammary gland and factors which affect the amount and composition of milk produced.

Effective: Fall 2013

Prerequisite: AN SC 201

AN SC 429 **Advanced Beef Cattle Production** (3) Application of scientific and business principles to practical production and management issues using case studies or selected live settings.

Effective: Summer 2013

Prerequisite: AN SC 309

AN SC 431W **Physiology of Mammalian Reproduction** (4) Physiological processes of reproduction in animals, including the use of current and emerging technologies.

Effective: Summer 2013

Prerequisite: 3 credits in animal physiology

AN SC 432 **Techniques in Livestock Reproduction** (2) Demonstration and practice in estrus detection, inseminating techniques, pregnancy detection, embryo recovery and transfer methods.

Effective: Summer 2013 Ending: Summer 2014

Prerequisite: AN SC 431W

AN SC 432 **Techniques in Cattle Reproduction** (1) Demonstration and practice in cattle artificial insemination technique and semen handling. Instruction in reproductive systems anatomy, estrous cycle and estrus synchronization programs.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: AN SC 309 or AN SC 310

AN SC 437 (AEE 437) **Equine Facilitated Therapy** (3) Equine Facilitated Therapy uses equine-related activities to

contribute positively to the wellbeing of people with disabilities.

Effective: Fall 2013

Prerequisite: AN SC 327

**AN SC 447 Applied Equine Behavior (3)** Theory and application of behavior principles as they apply to horses in free-running and domestic situations.

Effective: Summer 2013

Prerequisite: AN SC 201AN SC 327 and fifth-semester standing; or fifth-semester standing and six credits in biology; or permission of the instructor

**AN SC 450 Dairy Farm Management Systems (3)** Capstone course emphasizing integration of dairy farm management principles into whole farm systems.

Effective: Fall 2013

Prerequisite: AN SC 310AN SC 350AN SC 410 ; or permission of program

**AN SC 451 Dairy Systems Analysis (1-2 per semester/maximum of 2)** Students will evaluate all systems of a working dairy farm business.

Effective: Summer 2013

Prerequisite: AN SC 310 prerequisite or concurrent:AN SC 410 Concurrent: AN SC 450 prerequisite or concurrent: AN SC 410

**AN SC 457 Equine Reproduction and Breeding Farm Management (3)** Advanced aspects of equine reproduction will be covered, including collection of semen, processing it for shipment, and insemination of mares.

Effective: Fall 2013

Prerequisite: AN SC 327

**AN SC 467W Equine Nutrition and Feeding (3)** Equine gastrointestinal anatomy and physiology; energy and nutrient requirements for body functions; applied interrelationships between nutrition, health, and performance.

Effective: Summer 2013

Prerequisite: AN SC 301

**AN SC 477 Riding Instructor Training (1)** Management of equestrian riding lessons, teaching techniques, lesson plans, program planning, time management, and handling of mounted groups.

Effective: Summer 2013

Prerequisite: AN SC 327 ; a demonstrable level of horsemanship

**AN SC 479 (BIOL 479) General Endocrinology (3)** Endocrine mechanisms regulating the morphogenesis, homeostasis, and functional integration of animals.

Effective: Summer 2013

Prerequisite: BIOL 141 orBIOL 472

**AN SC 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2013

**AN SC 496A Animal Science Teaching Assistant (2)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**AN SC 496A Animal Science Training Assistant (2)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**AN SC 496H Animal Science Honors Independent Study (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**AN SC 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

**AN SC 497A Natural Toxicants in Feedstuffs and Poisonous Plants: Effects on Animal Health and Productivity (3)** An overview of plant toxicants and mycotoxins in cereal grains, roots and tubers, protein supplements, grain legumes, and forages, and the adverse effects that they cause when consumed by animals. Emphasis will be placed on the occurrence and chemical nature of plant and fungal toxins, their mechanism of action and metabolism, the pathological effects that they produce in livestock, poultry, and companion animals, and strategies to overcome their toxicity.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 202

**AN SC 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

**AN SC 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

AN SC 499C (IL) **Normandy France Equine Industry Studies** (0.5) Students will explore/compare United States and French Equine Industry. Topics will include breeding, training, trade issues, agricultural trade policy, animal welfare, animal health and research, marketing equestrian event management, and farm management.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: AN SC 499B

NOTE: Also see course listed under Animal Nutrition, Poultry Science, and Veterinary Science.

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## Anthropology (ANTH)

ANTH 001 (GS;US;IL) **Introductory Anthropology** (3) Prehistoric and traditional peoples and cultures; traditional customs and institutions compared with those of modern society.  
Effective: Summer 2005

ANTH 002 (GS) **Introduction to Archaeology** (3) Survey of basic approaches used by archaeologists to interpret basic prehistoric human cultural patterns.  
Effective: Spring 2000

ANTH 008 (GS;IL) **Aztecs, Mayas, and Incas** (3) Comparative survey of the development of the pre-Columbian Latin American civilizations.  
Effective: Summer 2005

ANTH 009 (GS;IL) **Rise of Civilization in the Old World** (3) Evolution of Old World complex societies, especially the first great civilizations of Mesopotamia, Egypt, China, and the Indus Valley.  
Effective: Spring 2006

ANTH 011 (GS;IL) **Introductory North American Archaeology** (3) Introduction to archaeology of the North American Indians; sites, methods, and results of research interpreted in cultural history.  
Effective: Summer 2005

ANTH 021 (GN) **Introductory Biological Anthropology** (3) The role of human biology and evolution in culture, society, and behavior.  
Effective: Spring 2001

ANTH 022 (GN) **Humans as Primates** (3) The biological basis of human behavior within the context of primate biology, behavior, and evolution.  
Effective: Spring 2009

ANTH 040 **Biocultural Evolution** (3) Examination of evolutionary models of the development of the human capacity for culture, and of culture as an adaptive mechanism.  
Effective: Fall 1986

ANTH 040H **Biocultural Evolution** (3) Examination of evolutionary models of the development of the human capacity for culture, and of culture as an adaptive mechanism.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ANTH 045 (GS;US;IL) **Cultural Anthropology** (3) Beginnings of human culture; economic life, society, government, religion, and art among traditional peoples.  
Effective: Summer 2005

ANTH 045U (GS;US;IL) **Cultural Anthropology** (3) Beginnings of human culture; economic life, society, government, religion, and art among traditional peoples.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ANTH 060 (GS;IL) (J ST 060, PL SC 060, SOC 060) **Society and Cultures in Modern Israel** (3) An introduction to the society and cultures of the State of Israel from 1948 to the present.  
Effective: Summer 2006

ANTH 083S (GS) **First-Year Seminar in Anthropology** (3) This seminar introduces students to anthropology as a scientific discipline with ties to other social and natural sciences.  
Effective: Summer 1999

ANTH 120 (GS;IL) **First Farmers** (3) Cross-cultural comparison of the origins of plant and animal domestication and the earliest farming societies.  
Effective: Summer 2013

ANTH 146 (GS;US) **North American Indians** (3) An introduction to the cultures of the indigenous peoples of North America, north of Mexico, and the effect of contact.  
Effective: Spring 2006

ANTH 152 **Hunters and Gatherers** (3) A comparative study of hunter/gatherer societies using both archaeological and

ethnographic evidence.  
Effective: Fall 1986

ANTH 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

ANTH 197H (RL ST 197H, HIST 197H) **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ANTH 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ANTH 216 (GN;GS) **Sex and Evolution** (3) Introduction to evolutionary theory and its application to understanding human sexuality and sex differences.  
Effective: Summer 2009

ANTH 218 (GN) **Genes, Evolution and Behavior** (4) This course explores how genes influence our traits and how our traits evolve, with special emphasis on behavior.  
Effective: Summer 2013

ANTH 220 (GA;GH;IL) **Anthropology and Art/ifacts** (3) This course examines anthropological approaches to the study of art works, their production, and function in diverse human societies, both past and present.  
Effective: Summer 2012

ANTH 221 (GS;IL) **The Ancient Maya** (3) The Maya and their neighbors: Origin and Evolution of Classic Maya civilization.  
Effective: Spring 2012  
Prerequisite: any anthropology course on 100 level or below

ANTH 222 (GS;IL) **Archaeology of Domesticated Animals** (3) Biological, ecological and cultural history of animal domestication.  
Effective: Summer 2013

ANTH 223 (GS;IL) **European Prehistory** (3) The prehistory of European societies from the Upper Palaeolithic to the Iron Age.  
Effective: Summer 2013  
Prerequisite: 3 credits in 100 level or below ANTH course

ANTH 241 (IL) **Peoples and Cultures of Highland New Guinea** (3) History, ecology, social, economic, religious, and political systems of the aboriginal peoples and cultures of highland New Guinea.  
Effective: Spring 2007  
Prerequisite: ANTH 001 or ANTH 045

ANTH 260H (GN) **Building the Human Animal** (3) An exploration of how the same genetic and developmental properties that shape animal evolution produced the unique human form.  
Effective: Summer 2014

ANTH 271H (GN) **Parasites and Human Evolution** (3) Advance our understanding of human evolution by studying the ecologies and evolutionary histories of our parasites.  
Effective: Spring 2014  
Prerequisite: one introductory course that covers some aspects of evolutionary biology or parasitology for example: ANTH 021 BIOL 110 ENT 202 MICRB 106 or MICRB 201.

ANTH 285 (GS;IL) **Culture Contact** (3) Survey of changes in indigenous societies following contact with colonial powers.  
Effective: Summer 2005  
Prerequisite: ANTH 002 ANTH 045

ANTH 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

ANTH 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1987

ANTH 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1986

**ANTH 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**ANTH 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**ANTH 321W Intellectual Background of Archaeology** (3) Introduction to primary sources on the development of archaeology as a scientific discipline.  
Effective: Spring 1995  
Prerequisite: ANTH 002/ANTH 045

**ANTH 380 Anthropology Museum Studies** (3) Introduction to the history, significance, and operation of anthropology museums.  
Effective: Spring 2002

**ANTH 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996

**ANTH 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**ANTH 401 Human Evolution: The Material Evidence** (3) Human origins as seen in the fossil record and comparative biology of humans and their primate relatives.  
Effective: Fall 1986  
Prerequisite: ANTH 021

**ANTH 403 Evolution of Human Walking** (3) An in depth analysis of the biology, biomechanics, evolutionary history of human walking and running.  
Effective: Spring 2013  
Prerequisite: ANTH 021

**ANTH 403H Evolution of Human Walking** (3) An in depth analysis of the biology, biomechanics, evolutionary history of human walking and running.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: ANTH 021

**ANTH 405 Primatology** (3) Nonhuman primate origins, evolution, comparative physical and behavioral characteristics, ecological context, phylogeny and taxonomy; and their importance in anthropology.  
Effective: Spring 2001  
Prerequisite: ANTH 021

**ANTH 408 Anthropological Demography** (3) Analysis of demographic studies in traditional and very small populations.  
Effective: Fall 2003  
Prerequisite: 3 credits in anthropology

**ANTH 410 Osteology** (4) Introduction to the systematic study of the human skeleton from an evolutionary developmental biological perspective.  
Effective: Spring 2007  
Prerequisite: 3 credits in anthropology 3 credits in the biological sciences or concurrent enrollment in ANTH 401 or ANTH 501

**ANTH 411 Skeletal Forensic Anthropology** (3) An introduction to anthropological forensic science with an emphasis on what can be learned from human skeletons and archaeological recovery methods.  
Effective: Spring 2007  
Prerequisite: ANTH 021 or ANTH 410 or Forensic Science major

**ANTH 412 Settlement Demography** (3) Examination of the demography and ecology of human settlement systems in the preindustrial past.  
Effective: Summer 2008  
Prerequisite: ANTH 408

**ANTH 413 Molecular Forensic Anthropology** (3) An introduction to the field of the application of DNA methods to estimating forensically useful phenotypes.  
Effective: Summer 2006  
Prerequisite: ANTH 021 or Forensic Science major

**ANTH 416 The Evolution of Human Mating** (3) The Evolution of Human Mating is a science course designed to familiarize students with the primary literature on the evolution and development of human mating behavior and sex differences.  
Effective: Spring 2013  
Prerequisite: C in ANTH 216 or permission of program

**ANTH 420 (J ST 420) Archaeology of the Near East** (3) Culture of the Near East and India from Paleolithic times through

the Bronze Age.

Effective: Summer 1999

Prerequisite: ANTH 008ANTH 009ANTH 011 orANTH 012

**ANTH 421 Intro to Geospatial Science in Anthropology and Archaeology** (3) This course is a practical, data driven, introduction to applications of Geospatial tools in anthropological and archaeological research.

Effective: Summer 2009

Prerequisite: ANTH 001 orANTH 002

**ANTH 422 Meso-American Archaeology and Ethnography** (3) Survey of ethnohistorical and ethnographic patterns of Meso-American society; origin and development of ancient civilization in Mexico, Guatemala, and Honduras.

Effective: Spring 1999

Prerequisite: ANTH 008ANTH 009ANTH 011 orANTH 012

**ANTH 423 The Evolution of American Indian Culture** (3) Historic and archaeological sources used to trace American Indian lifestyles from the first immigrants to the period of Euro-American contact.

Effective: Spring 1999

Prerequisite: 3 credits in anthropology

**ANTH 424 Andean Ethnology and Archaeology** (3) Cultures of the Andes from earliest settlements to Inka Empire; includes discussion of life in modern Andean communities.

Effective: Spring 2002

Prerequisite: ANTH 002ANTH 045

**ANTH 425 Zooarchaeology** (3) Introduction to the systematic study of animal skeletal remains from archaeological sites.

Effective: Summer 2013

Prerequisite: ANTH 002 orANTH 021

**ANTH 426W Archaeological Laboratory Analysis** (3) Scientific laboratory methods used in the analysis of ceramic and lithic artifacts.

Effective: Summer 2004

Prerequisite: ANTH 007ANTH 008ANTH 009 orANTH 011

**ANTH 427W Forensic Archaeology** (3) Application of archaeological techniques to crime scene investigations, with practical experience in field and laboratory contexts.

Effective: Summer 2007

Prerequisite: ANTH 002

**ANTH 428 Archaeological Methods and Theory** (3) Scientific methods as applied to archaeological data: evolution, ecology, diffusion, and cycicism theory.

Effective: Spring 1999

Prerequisite: ANTH 007ANTH 008ANTH 009ANTH 011 orANTH 012

**ANTH 429 Paleoethnobotany** (3) Introductory course in paleoethnobotany, the study of the interrelationships between people of the past, natural environment, and plant resources.

Effective: Spring 2010

Prerequisite: ANTH 002

**ANTH 430 The Aztecs** (3) This course examines the development and organization of the great Aztec culture of highland Mexico.

Effective: Summer 2013

Prerequisite: ANTH 002ANTH 008ANTH 009 or permission of the program

**ANTH 431 Advanced Geospatial Science for Anthropologists and Archaeologists** (3) This course is an intensive, data driven, treatment of the use of geographic information systems in anthropological and archaeological research.

Effective: Summer 2009

Prerequisite: ANTH 421

**ANTH 432 Environmental Archaeology** (3) Introductory course in Environmental Archaeology, with empahsis on method and theory in the subfields archaeobotany, pedomarchaeology, and zooarchaeology.

Effective: Spring 2010

Prerequisite: ANTH 002

**ANTH 433 Archaeological Ethics and Law** (3) Introductory course that examines prominent ethical and legal issues in archaeology integral to modern applied research and practice.

Effective: Spring 2010

Prerequisite: ANTH 002

**ANTH 435 (IL) Ancient Economy** (3) The course examines the comparative organization and development of ancient economies in both the Old and New Worlds.

Effective: Summer 2013

**ANTH 440 South American Tribal Societies** (3) Ethnographic survey of tribal societies in South America. Special emphasis on non-Andean area.

Effective: Fall 1986

**ANTH 441 (IL) From Stone Ax to Uzi: Tradition and Change in the New Guinea Highlands** (3) This course explores cultural change and innovation among tribal peoples of Highland New Guinea from stone tool technology to globalization.

Effective: Fall 2009

Prerequisite: ANTH 045

ANTH 444 **Primitive Warfare** (3) Critical overview of the ethnography and theory of primitive warfare.

Effective: Summer 2002

Prerequisite: ANTH 045 ; and ANTH 002 or ANTH 021

ANTH 445W **Ethnographic Film** (3) Comparisons of written and visual ethnography; critical assessment of ethnographic film; cross-cultural variation.

Effective: Summer 2000

Prerequisite: ANTH 001 or ANTH 045

ANTH 446 **Mating and Marriage** (3) An examination of human mating mainly from the viewpoint of behavioral ecology, centering on the species-typical institution of marriage.

Effective: Summer 2006

Prerequisite: ANTH 045 ANTH 021

ANTH 448 (AM ST 448) **Ethnography of the United States** (3) Ethnographic descriptions of various dimensions of life in the United States.

Effective: Fall 2007

Prerequisite: ANTH 045

ANTH 450 **Comparative Social Organization** (3) Social structure and cultural change among nonliterate societies.

Effective: Fall 1986

Prerequisite: ANTH 045

ANTH 450W **Comparative Social Organization** (3) Social structure and cultural change among nonliterate societies.

Effective: Summer 1996

Prerequisite: ANTH 045

ANTH 451 **Economic Anthropology** (3) Different approaches to the study of the economics of non-Western societies, emphasizing the interrelationships between noneconomic factors and economic behavior.

Effective: Fall 1986

Prerequisite: ANTH 045

ANTH 453 **Anthropology of Religion** (3) Traditional and modern religions and historical and contemporary religious movements from an anthropological perspective.

Effective: Fall 2003

Prerequisite: ANTH 001 or ANTH 045

ANTH 455 **Global Processes and Local Systems** (3) Ethnographic, comparative, historic, evolutionary treatment of global economic, political, and cultural processes and their consequences for local systems.

Effective: Fall 2001

Prerequisite: ANTH 045

ANTH 456 **Cultural Ecology** (3) Survey of the methods and concepts of cultural ecology, focusing on the interaction between cultural and geographical systems.

Effective: Fall 1986

Prerequisite: 3 credits in anthropology

ANTH 457 (US;IL) (J ST 457, SOC 457) **Jewish Communities: Identity, Survival, and Transformation in Unexpected Places** (3) Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement.

Effective: Summer 2006

Prerequisite: ANTH 001 or ANTH 045 HEBR 010J ST 010SOC 001SOC 005SOC 007SOC 015

ANTH 458 **Ethnographic Field Methods** (3) Course introduces students to ethnographic field methods, includes student projects and simple analyses that don't require statistical sophistication.

Effective: Spring 2009

Prerequisite: ANTH 045

ANTH 459 **Applied Anthropology** (3) A survey of the development of applied anthropology and the current issues facing anthropologists working in non-academic settings.

Effective: Summer 2002

Prerequisite: ANTH 045

ANTH 460 (BIOL 460) **Human Genetics** (3) The human genome, its variation, origins, and relation to disease and other traits.

Effective: Fall 2012

Prerequisite: BIOL 230W or 3 credits in genetics (BIOL 133 or BIOL 222 or BIOL 322)

ANTH 460H (BIOL 460H) **Human Genetics** (4) Gene mapping in humans; molecular basis of genetic disease; genomic structure; immunogenetics; and genetic evidence for human evolutionary history.

Effective: Fall 2001

Prerequisite: 3 credits in genetics or ANTH 021 or BIOL 222 or BIOL 230W ; and 3 credits in statistics

ANTH 461 **Molecular Anthropology** (3) Provides framework to understand current issues in biology, genetics, and anthropology as they relate to the evolution of our species.

Effective: Spring 2005

Prerequisite: 3 credits in biological anthropology or 3 credits in biology

ANTH 465H **Fifteen Great Biology Papers** (3) Reading and discussion of the most influential papers in the history of



biology that illustrate exceptional insight and elegant reasoning.

Effective: Spring 2003

Prerequisite: ANTH 021 or 3 credits in evolutionary biology or genetics and 3 credits in statistics

ANTH 466 **The Skull** (3) Survey of the mammalian skull from many perspectives including evolution, development, anatomy, function, and variability of the skull.

Effective: Spring 2003

Prerequisite: ANTH 021

ANTH 468 **Evolution and Development of Human Origins** (3) In depth analysis of the genetic and developmental basis for phenotypic variation and evolution of humans and primates.

Effective: Summer 2013

Prerequisite: ANTH 021

ANTH 470H **Our Place in Nature** (3) An evolutionary and genetic consideration of our understanding of human beings as a part of the natural world.

Effective: Fall 2001

Prerequisite: 3 credits each in genetics evolutionary biology and statistics

ANTH 471H **Biology, Evolution, and Society** (3) Exploration of the genetic theory of evolution and development, its history and application within Biology and beyond.

Effective: Spring 2008

Prerequisite: ANTH 021BIOL 222BIOL 230BIOL 322 orBIOL 460 ; 3 credits in statistics

ANTH 472 **The Ecology of Traditional Farming** (3) This course will examine the ecology of traditional farming, focusing on the farming household, its farm, and its subsistence needs.

Effective: Summer 2013

Prerequisite: ANTH 045 or equivalent

ANTH 476W **Anthropology of Gender** (3) Cross-cultural construction of gender and sex roles; theories of gender construction; case studies and practical effects.

Effective: Summer 2011

Prerequisite: 3 credits in women's studies or anthropology

ANTH 477 (US;IL) **Language, Culture, and Society** (3) Relationships among language, culture and society, with an anthropological emphasis.

Effective: Spring 2007

Prerequisite: ANTH 045 orANTH 001

ANTH 478 (IL) **Cannibalism** (3) Explores the cultural institution of cannibalism, uses of the "cannibal" label, and cannibalism's meaning among those who practiced it.

Effective: Spring 2010

Prerequisite: ANTH 045

ANTH 492 **Intermediate Field Methods** (3-6) On-site experience in collecting archaeological, behavioral, or biological data.

Effective: Spring 2001

Prerequisite: ANTH 002

ANTH 493 **Field Techniques** (3-6) Training in techniques involving analyses of archaeological, behavioral, or biological data.

Effective: Spring 2001

Prerequisite: ANTH 002

ANTH 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

ANTH 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

ANTH 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2000

Prerequisite: prior approval of proposed assignment by instructor

ANTH 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1986

ANTH 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1986

ANTH 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ANTH 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Applied Linguistics (APLNG)

APLNG 083S (GS;US;IL) **First-Year Seminar in Applied Linguistics** (3) Introduction to the application of theories of language to cognition, culture, gender, society, and second language acquisition.  
Effective: Summer 2005

APLNG 200 (GH;IL) **Introduction to Language, Culture, and Social Interaction** (3) Introduction to the interrelationships among language, culture, and social interaction and their fundamental links to social identities and discourse communities.  
Effective: Spring 2009

APLNG 210 (GH;IL) **The Ecology of Global English** (3) This course explores how English language enables globalization processes and how globalization changes the structure, norms, and usage of English.  
Effective: Spring 2009

APLNG 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2004

APLNG 410 **Teaching American English Pronunciation** (3) Study and application of principles of North American English phonetics and theories of teaching pronunciation.  
Effective: Fall 2001

APLNG 412 **Teaching Second Language Writing** (3) This course provides opportunities for exploring various perspectives on theory, research, and pedagogical applications in second language writing.  
Effective: Summer 2003

APLNG 482Y (IL) **Introduction to Applied Linguistics** (3) Application of theories of language to psycholinguistics, philosophy of language, anthropological linguistics, sociolinguistics, bi/multilingualism, second language acquisition and teaching.  
Effective: Spring 2006

APLNG 484 **Discourse-Functional Grammar** (3) Develop a working knowledge of the structure of English and apply such knowledge to research and/or classroom situations.  
Effective: Fall 2004

APLNG 491 **Theory: Second Language Acquisition** (3) An investigation into current issues in the theoretical bases of second language acquisition.  
Effective: Fall 2006

APLNG 493 (IL) **Teaching English as a Second Language** (3) Theory, research, and pedagogy that focus on the teaching of English to speakers of other languages in varied contexts.  
Effective: Spring 2006

APLNG 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2001

APLNG 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2002

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## Applied Youth, Family and Community Education (AYFCE)

AYFCE 211 (GS;US;IL) (CAS 222, CIVCM 211) **Foundations: Civic and Community Engagement** (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.  
Effective: Summer 2013

AYFCE 211S (GS;US;IL) **Foundations: Civic and Community Engagement** (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.  
Effective: Spring 2011

AYFCE 270 (GS) **Consumer and Financial Skills** (3) Introduces consumer and financial concepts and skills needed to function in society; increases financial security today and in the future.  
Effective: Summer 2013  
Prerequisite: semester standing of 3rd or higher

AYFCE 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2013  
Prerequisite: prior approval of proposed assignment by instructor

AYFCE 295A **Observation of Cooperative Extension Service Programs** (1-2) Supervised observation of extension education in agriculture, community resource development; family living, 4-H programs; appraisal of responsibilities of extension professionals.  
Effective: Summer 2013

AYFCE 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AYFCE 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AYFCE 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AYFCE 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AYFCE 438 (US) **Living in an Increasingly Diverse Society** (1-3) Students in this course will explore selected dimensions of diversity through lecture, discussion, speakers, active participation, and experiential learning.  
Effective: Summer 2013

AYFCE 455 **Extension Youth Development Programs and Volunteer Management** (3) A study of 4-H/Extension youth programs and the variety of roles played by volunteer leaders.  
Effective: Summer 2013  
Prerequisite: 6 credits of social or behavioral sciences

AYFCE 495 **Internship in Youth and Family Education Programs** (6-18) Supervised off-campus, nongroup instruction including field experiences, practicums, or internships.  
Effective: Summer 2013  
Prerequisite: prior approval of proposed assignment by instructor

AYFCE 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

AYFCE 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

AYFCE 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

AYFCE 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2013

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## Arabic (ARAB)

ARAB 001 **Elementary Modern Standard Arabic I** (4) Introduction to reading, writing, pronunciation, and aural comprehension of modern standard Arabic; simple grammatical forms; basic vocabulary.  
Effective: Summer 2010

ARAB 002 **Elementary Modern Standard Arabic II** (4) Continuation of ARAB 001; development of additional skills in conversation, reading, and writing; grammar and vocabulary building; cultural components.  
Effective: Summer 2010  
Prerequisite: ARAB 001

ARAB 003 **Intermediate Modern Standard Arabic** (4) More complex grammatical forms; vocabulary building principles; continued development of skills in conversation, reading, writing; culturally-oriented readings and films.  
Effective: Summer 2010  
Prerequisite: ARAB 002

ARAB 051 **Elementary Intensive Arabic for Graduate Students I** (3) Intensive introduction to Modern Standard or Colloquial Arabic: first half of graduate sequence in elementary reading, writing, listening, cultures.  
Effective: Summer 2008  
Prerequisite: graduate standing

ARAB 052 **Elementary Intensive Arabic for Graduate Students II** (3) Intensive introduction to Modern Standard or Colloquial Arabic: second half of graduate sequence in elementary reading, writing, speaking, listening, cultures.  
Effective: Summer 2008  
Prerequisite: ARAB 051 and graduate standing

ARAB 053 **Intermediate Intensive Arabic for Graduate Students** (3) Continued intensive study of Modern Standard or Colloquial Arabic at the intermediate level: reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: ARAB 052 or equivalent and graduate standing

ARAB 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ARAB 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ARAB 110 (GH;IL) **Arab Language, Cultures, and Current Topics** (3) Fourth-semester Modern Standard Arabic: study of cultures through authentic discourse, texts, film; development of reading, writing, listening, speaking skills.  
Effective: Summer 2010  
Prerequisite: ARAB 003 or permission of program

ARAB 165 (IL) (HIST 165, RL ST 165) **Introduction to Islamic Civilization** (3) Islamic history, culture, and religious life c.600-1500 C.E.  
Effective: Spring 2006

ARAB 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ARAB 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ARAB 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

ARAB 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 1995  
Prerequisite: prior approval of proposed assignment by instructor

ARAB 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1986

ARAB 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1986

ARAB 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ARAB 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

ARAB 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ARAB 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ARAB 401 (IL) **Advanced Language & Cultures I** (3) Fifth-semester Modern Standard Arabic: reading more complex texts, films, further development of conversation, composition skills, Arab cultures, current issues.

Effective: Spring 2008

Prerequisite: ARAB 110 or approval of program

ARAB 402 (IL) **Advanced Language & Cultures II** (3) Sixth-semester Modern Standard Arabic: reading more complex texts, films, further development of conversation, composition skills, Arab cultures, current issues.

Effective: Spring 2008

Prerequisite: ARAB 401 or approval of program

ARAB 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

ARAB 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

ARAB 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1986

ARAB 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1986

ARAB 497G **Professional Development for Teachers of Arabic** (1-3) Professional development workshop designed for current and prospective teachers of Arabic. The workshop provides participants with information about current teaching methodologies for Modern Standard Arabic.

Effective: Summer 2014 Ending: Summer 2014

ARAB 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ARAB 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Architectural Engineering (A E)

**A E 097 Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**A E 124S Architectural Engineering Orientation** (1) Introduction to architectural engineering; lectures and discussions with special reference to the relation of architectural engineering to the building industry.  
Effective: Fall 1999

**A E 197 Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**A E 202 Introduction to Architectural Engineering Concepts** (3) Introduction to profession of architectural engineering, building envelope systems, sustainable design, fire protection systems, and engineering economics.  
Effective: Spring 2007

**A E 210 Introduction to Architectural Structural Systems** (3) Qualitative study of architectural structural systems; historical development of structures; insights of structural analysis and synthesis; comparative structural types. This course is intended for Architecture students.  
Effective: Fall 2005  
Prerequisite: algebra trigonometry

**A E 211 Introduction to Environmental Control Systems** (3) Qualitative study of humans in macro- and micro-architectural environmental systems. This course is intended for Architecture students.  
Effective: Fall 2005

**A E 221 Architectural Building Materials** (3) The structural and architectural use of building materials; commercial standardization, classification, and description as encountered in the building trades.  
Effective: Fall 2005  
Concurrent: A E 222

**A E 222 Working Drawings** (3) Materials and methods of construction used in residences, and preparation of working drawings for a small building.  
Effective: Fall 2007  
Prerequisite: EDSGN 130 or EDSGN 100 Concurrent: A E 221

**A E 296 Independent Studies** (1-18) Creative projects including research and design that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2009

**A E 297 Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1985

**A E 308 Introduction to Structural Analysis** (4) Algebraic and graphical methods of analysis of determinate members, deflections; introduction to indeterminate analysis methods. Course includes practicums.  
Effective: Spring 2008  
Prerequisite: E MCH 211E MCH 213

**A E 309 Architectural Acoustics** (3) Acoustical design for good hearing conditions and noise control; construction details, materials, acoustical properties of room shapes; sound absorption, transmission. Course includes practicums.  
Effective: Fall 2005  
Prerequisite: A E 221A E 222PHYS 213

**A E 310 Fundamentals of Heating, Ventilating, and Air Conditioning** (3) Fundamental principles and engineering procedures for the design of heating, ventilating, and air-conditioning systems, including energy utilization and constraints.  
Effective: Fall 2007  
Prerequisite: M E 201 ; Prerequisite or concurrent: A E 202

**A E 311 Fundamentals of Electrical and Illumination Systems for Building** (3) Fundamental principles, systems, and planning concepts for electrical and illumination systems in modern buildings.  
Effective: Spring 2008  
Prerequisite: or concurrent: E E 211PHYS 212

**A E 372 Introduction to the Building Industry** (3) Introduction to the building industry; owner, designer responsibilities; documents, bidding procedures; design-construct contracts; project management; insurance, labor relations.  
Effective: Fall 1983



Prerequisite: sixth-semester standing in Architectural Engineering

A E 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

A E 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

A E 401 **Design of Steel and Wood Structures for Buildings** (3) Application of principles of engineering mechanics to layout, analysis, design, and detailing of structural elements in steel and wood of simple buildings.  
Effective: Fall 2005  
Prerequisite: A E 221A E 222A E 308

A E 402 **Design of Concrete Structures for Buildings** (3) Application of principles of engineering mechanics to layout, analysis, design, and detailing of structural elements in concrete of simple buildings.  
Effective: Fall 2005  
Prerequisite: A E 221A E 222A E 308

A E 403 **Advanced Steel Design for Buildings** (3) Continuation of A.E. 401. Advanced analysis, design, and detail of the structural elements in wood and steel.  
Effective: Fall 2005  
Prerequisite: A E 401A E 430

A E 404 **Building Structural Systems in Steel and Concrete** (3) Basic analysis, design, and detailing of steel and concrete structural elements for buildings, emphasizing systems design and comparisons. A E 404 is not permitted for AE Structural Option students or for Architecture students.  
Effective: Summer 2006  
Prerequisite: A E 221A E 222A E 308

A E 421 **Architectural Structural Systems I** (3) Qualitative and quantitative analysis and design of architectural structures, force flow; structure configurations; measurement and experiments; design studio critique.  
Effective: Spring 1990  
Prerequisite: A E 210 3 credits in mathematics

A E 422 **Architectural Structural Systems II** (3) Continuation of A E 421, with emphasis on structural configuration and construction assemblies.  
Effective: Spring 1990  
Prerequisite: A E 421

A E 424 **Environmental Control Systems I** (3) Fundamental principles and applications of environmental systems in buildings. This course is intended for Architecture students.  
Effective: Fall 2005  
Prerequisite: A E 211

A E 430 **Indeterminate Structures** (3) Classical methods of analysis for beams, frames, arches, and secondary stresses as applied to buildings; introduction to modern methods.  
Effective: Summer 1984  
Prerequisite: A E 308

A E 431 **Advanced Concrete Design for Buildings** (3) Continuation of A.E. 402. Advanced analysis, design, and detail of concrete masonry, prestressed and reinforced concrete.  
Effective: Fall 2005  
Prerequisite: A E 402A E 430

A E 432 **Design of Masonry Structures** (3) Analysis and design of unreinforced and reinforced masonry: non-bearing walls, bearing walls, shear walls, masonry building systems.  
Effective: Spring 2005  
Prerequisite: A E 402 orC E 341

A E 439 **Modern Structural Systems** (3) Analysis and design of building structures of unusual types.  
Effective: Summer 1981  
Prerequisite: A E 401A E 402A E 430

A E 444 **Micro CADD Applications for Buildings** (3) Application of microcomputer based CADD systems to architectural engineering problems including graphics, system customization, and AI programming techniques.  
Effective: Spring 2008  
Prerequisite: A E 222;CMPSC 201 orCMPSC 202

A E 454 **Advanced Heating, Ventilating, and Air Conditioning** (3) Engineering design and performance analysis procedures for complex commercial building systems, including energy conservation techniques; design project.  
Effective: Fall 1986  
Prerequisite: A E 310

A E 455 **Advanced Heating, Ventilating, and Air Conditioning System Design** (3) Design of several different systems for a course project building; control strategy; economic comparisons using life-cycle cost techniques.  
Effective: Fall 1983  
Prerequisite: A E 454

**A E 456 Solar Energy Building System Design** (3) Solar radiation, collectors, and thermal storage; design and analysis of a heating system using system-simulation computer program.

Effective: Summer 1984

Prerequisite: seventh-semester standing in Engineering

**A E 457 HVAC Control Systems** (3) Theory of automatic control. HVAC control applications. Control system components, control loops, development and documentation of control logic, control commissioning.

Effective: Summer 2006

Prerequisite: A E 454

**A E 458 Advanced Architectural Acoustics and Noise Control** (3) Advanced consideration of noise control in buildings; ventilating system noise and vibration; acoustic design variables.

Effective: Fall 1983

Prerequisite: A E 309

**A E 461 Architectural Illumination Systems & Design** (3) Lighting units & photometry; lighting equipment; design criteria, calculation methods; the design process; energy codes.

Effective: Fall 2005

Prerequisite: A E 311

**A E 464 Advanced Architectural Illumination Systems & Design** (3) Flux transfer theory; advanced lighting and control systems; emergency lighting; daylighting; visual performance issues; psychological aspects of lighting.

Effective: Fall 2005

Prerequisite: A E 461

**A E 466 Computer Aided Lighting Design** (3) Design and analysis for outdoor area; floodlighting; and interior applications, including design criteria; economic analysis; modeling algorithms; and visualization.

Effective: Fall 2005

Prerequisite: A E 444A E 461

**A E 467 Advanced Building Electrical System Design** (3) Design of electrical systems for commercial and industrial facilities emphasizing design practice and integration with codes and standards.

Effective: Spring 2008

Prerequisite: A E 311E E 211

**A E 469 Photovoltaic Systems Design and Construction** (3) Criteria and analysis methods pertaining to the design and construction of photovoltaic (PV) systems and their integration with buildings.

Effective: Spring 2014

Prerequisite: E E 210 or E E 211

**A E 470 Residential Building Design and Construction** (3) Managerial aspects; architectural and code considerations; cost estimating, design, and construction of structural, plumbing, HVAC, and electrical systems.

Effective: Spring 1994

Prerequisite: A E 372 or C E 332 ; seventh-semester standing in Architectural Engineering or Civil Engineering

**A E 472 Building Construction Planning and Management** (3) Construction organization and contracts; preconstruction services; estimating; scheduling; cash flow; site planning and preparation; building construction sequences; construction business presentations; value engineering.

Effective: Fall 2005

Prerequisite: seventh-semester standing in Architectural Engineering

**A E 473 Building Construction Management and Control** (3) Building construction project planning; construction cost, schedule, quality and safety control systems; project cost accounting; change management; construction company management.

Effective: Fall 2005

Prerequisite: A E 472

**A E 474 Building Construction Estimating** (3) Construction estimating and cost engineering fundamentals; quantity take off; pricing, bid preparation; estimating, cost accounting by computer.

Effective: Spring 2001

Prerequisite: A E 372

**A E 475 Building Construction Engineering I** (3) Project planning, supervision, inspection of architectural and structural operations in major buildings; mobilization, coordination of trades; offsite testing and fabrication.

Effective: Fall 2012

Prerequisite: A E 372

**A E 476 Building Construction Engineering II** (3) Construction of mechanical and electrical systems in major buildings; fire protection, sound control, elevating; trade coordination; manufacturers' developments; computer application.

Effective: Fall 1983

Prerequisite: A E 309A E 475

**A E 481W Comprehensive Architectural Engineering Senior Project I** (4) Building project selection and preparation of overall plan; preliminary investigation of building design and construction issues; creation of individual Capstone Project Electronic Portfolio (CPEP) and project proposal required.

Effective: Fall 2005

Prerequisite: ARCH 441 fifth-year architectural engineering standing in major area of emphasis

**A E 482 Comprehensive Architectural Engineering Senior Project II** (4) Continuation of A E 481W. Engineering analysis of building systems; emphasis on analysis and design of building structural, mechanical, lighting/electrical, and

construction related systems. Final written report, web-based project portfolio and verbal presentation are required.

Effective: Fall 2005

Prerequisite: A E 481W

**A E 486 Professional Engineering Practice (3)** A study of the influences which affect the practice of architectural engineering, particularly codes, ethics, legal considerations, and contract documents.

Effective: Fall 1983

Prerequisite: seventh-semester standing

**A E 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**A E 496E Building Electrical and Communication Systems (3)** This course addresses specialized topics in building electrical and communications systems that are typically the responsibility of the electrical engineer in a building design firm, including emergency power, coordinator and fault studies, alternate and sustainable power sources, fire alarm systems, voice, video, and data communication systems, and HVAC control systems.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**A E 496F Study of Urbanization in China (3)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**A E 496G Building Case Studies (3)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**A E 496K International Construction (3)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**A E 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**A E 497D Daylight Analysis of Roman Architecture (3)** Developing models of the time dependent loads on building system on the basis of fundamental conservation of energy and heat transfer relationships; energy utilization modeling skills that allow alternative building system designs to be explored.

Effective: Summer 2014 Ending: Summer 2014

**A E 497E Building Electrical and Communication Systems (3)** This course addresses specialized topics in building electrical and communications systems that are typically the responsibility of the electrical engineer in a building design firm, including: emergency power, coordination and fault studies, alternate and sustainable power sources, fire alarm systems, voice, video, and data communication systems, and HVAC control systems.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**A E 497F Load/Energy Simulation (3)** Developing models of the time dependent loads on building system on the basis of fundamental conservation of energy and heat transfer relationships; energy utilization modeling skills that allow alternative building system designs to be explored.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**A E 497G BAE/MAE Capstone Management (1)** Project Management for capstone project for students in BAE/MAE integrated program.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**A E 497K International Construction and Real Estate (3)** Management theories and practice in international construction and real estate. Contract strategies.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**A E 498 Special Topics (1-9)** Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

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## Architectural Engineering Technology (AE T)

**AE T 101 Building Materials** (3) Structural and architectural use of building materials and construction assemblies.  
Effective: Fall 1992

**AE T 102 Methods of Construction** (3) Materials and methods of construction used in buildings, as expressed in drawings.  
Effective: Fall 1992  
Prerequisite: AE T 101EG T 101EG T 102

**AE T 103 Plumbing and Fire Protection** (3) Layout of plumbing and fire protection in buildings to meet code and usage requirements.  
Effective: Fall 1992  
Prerequisite: or concurrent:AE T 102

**AE T 113 Site Planning** (2) Energy conservation through optimum site utilization, contours, cut and fill calculations, storm drainage, spot grading, and finish grading.  
Effective: Fall 1992

**AE T 121 Introduction to Building Environmental Systems** (2) Introduction to building environmental systems technology terminology, concepts, and the design process.  
Effective: Spring 1994

**AE T 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**AE T 204 Heating, Ventilating, and Air Conditioning Layout** (3) Fundamental calculations and layout of systems in buildings.  
Effective: Fall 1992  
Prerequisite: AE T 103 . Prerequisite or concurrent:AE T 102

**AE T 206 Architectural Presentation** (2) Visual communication through architectural presentation drawings. Line, value, color, and composition.  
Effective: Fall 1992  
Prerequisite: E G 001 orE G 003

**AE T 207 Advanced Construction Methods** (3) Integration of materials and systems in working drawings.  
Effective: Fall 1992  
Prerequisite: fourth-semester standing

**AE T 210W Architectural Engineering Office Practice Using Writing Skills** (3) Concepts, procedures, and writing-intensive activities to properly prepare site observation reports, cost estimates, contractual conditions, and outline and technical specification.  
Effective: Spring 1994  
Prerequisite: fourth-semester standing

**AE T 212 Building Lighting and Electrical Layout** (3) Layout of lighting and electrical distribution in buildings.  
Effective: Fall 1992

**AE T 214 Steel Construction** (3) Strength of materials as applied to the design of simple steel structures.  
Effective: Fall 1992  
Prerequisite: AE T 102MCH T 111

**AE T 215 Concrete Construction** (3) Fundamentals of design and construction of reinforced concrete structures.  
Effective: Fall 1992  
Prerequisite: AE T 102MCH T 111

**AE T 227 Liquid Heating and Cooling Systems** (3) Water, steam, and refrigerant systems and components; pumps and piping; heat exchangers; fluid and component selection; power and controls.  
Effective: Spring 2007  
Prerequisite: AE T 121MET 281

**AE T 228 Air Heating, Cooling, and Ventilating Systems** (3) Air systems and distribution components; fans and ductwork; heat exchange coils; dampers and controls; residential fired equipment operation.  
Effective: Spring 1994  
Concurrent: AE T 227

**AE T 229 Analysis of Building Environmental Systems** (3) Comprehensive analysis and application of building environmental systems with focus on selected areas; calculation and layout; computer modeling of systems.  
Effective: Spring 1994  
Prerequisite: fourth-semester standing

AE T 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 1997

AE T 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

AE T 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

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## Architecture (ARCH)

ARCH 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

ARCH 098 **Special Topics** (1-15) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2001

ARCH 099 (IL) **Foreign Studies--Architecture** (1-15) Individual or group instruction conducted in a foreign country.  
Effective: Summer 2005

ARCH 100 (GA) **Architecture and Ideas** (3) General introduction to world architecture, emphasizing the relationship between concepts, philosophies, values and ideologies in shaping the built environment.  
Effective: Summer 2011

ARCH 121 **Visual Communications I** (2) Development of two and three-dimensional graphic communications skills and techniques required for the practice of architecture.  
Effective: Fall 2008

ARCH 122 **Visual Communications II** (2) Development of two-dimensional digital graphic communications skills and techniques required for the practice of architecture.  
Effective: Fall 2011  
Prerequisite: Students must earn a C or better in: ARCH 131S and ARCH 121 Concurrent: ARCH 132

ARCH 130A **Basic Design and Research I** (3-6) Multidimensional design and perceptual development. Formulation of abstracted concepts and logical visual models.  
Effective: Spring 1996  
Prerequisite: Architectural Engineering majors only

ARCH 131S **Basic Design Studio I** (4) An introduction to the basic concepts, methods, and skills of architectural design in a project-based, active learning, studio environment.  
Effective: Summer 2008  
Prerequisite: or concurrent ARCH 121

ARCH 132 **Basic Design Studio II** (4) Continuation of ARCH 131S which further explores basic concepts, methods, and skills of architectural design with an emphasis on craftsmanship.  
Effective: Fall 2011  
Prerequisite: Students must earn a C or better in: ARCH 131S and ARCH 121 Concurrent: ARCH 122

ARCH 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

ARCH 198 **Special Topics** (1-15) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2001

ARCH 199 (IL) **Foreign Studies--Architecture** (1-15) Individual or group instruction conducted in a foreign country.  
Effective: Summer 2005

ARCH 203 **Materials and Building Construction I** (3) Instruction in the design and construction of buildings utilizing wood and steel.  
Effective: Fall 2011  
Prerequisite: Students must earn a C or better in: A E 210 Concurrent: ARCH 231 and A E 421

ARCH 204 **Materials and Building Construction II** (3) This course will continue the presentations of ARCH 203, with a focus on concrete and masonry materials.  
Effective: Fall 2011  
Prerequisite: Students must earn a C or better in: ARCH 203 Concurrent: ARCH 232 and A E 422

ARCH 210 (GA) **Introduction to Architecture and Planning Theories** (3) The course introduces architectural and urban theory by presenting and exploring key concepts through major texts from the Western tradition.  
Effective: Spring 2009

ARCH 211 (GA) **Contemporary Design and Planning Theories II** (3) Continuation of ARCH 210, with an in-depth analysis and study of significant and current environmental constructs and issues.  
Effective: Summer 1995

Prerequisite: ARCH 210

**ARCH 231 Architectural Design I** (6) Design of limited environments within defined constraints.

Effective: Fall 2011

Prerequisite: Students must earn a C or better in:ARCH 132 andARCH 122 Concurrent: ARCH 203 and A E 421

**ARCH 232 Architectural Design II** (6) Design of limited environments within defined constraints.

Effective: Fall 2011

Prerequisite: Students must earn a C or better in:ARCH 231 andARCH 203 andA E 421 Concurrent: ARCH 204 and A E 422

**ARCH 295 Advanced Architectural and Related Design/Construction Work Experience I** (1-3 per semester/maximum of 6) Supervised off-campus, nongroup instruction including field experiences, practica, or architectural and related design/construction work experience.

Effective: Fall 2011

Prerequisite: grade of C or higher in:ARCH 132ARCH 121 andARCH 122 ; Instructor approval of a proposal for work experience including employment agreement with an approved supervisor

**ARCH 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**ARCH 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**ARCH 297A Introductory Seminar in Historic Architecture I** (3) In-depth analysis of selected works from antiquity to modernity will explore the fundamental issues, movements, methods of inquiry, and cultural meaning embodied by works of historic architecture.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ARCH 297A Introductory Seminar in Historic Architecture II** (3) Examination of the origins, dissemination, transformations and legacy of modern architecture since 1900 through analysis of the key works, architects, and ideas of a specific period, movement, and/or region.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**ARCH 298 Special Topics** (1-15) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2001

**ARCH 299 (IL) Foreign Studies--Architecture** (1-15) Individual or group instruction conducted in a foreign country.

Effective: Summer 2005

**ARCH 311W Architectural and Planning Theories** (3) Architectural theory course with a strong focus on the reading and writing of essays about architecture and related fields.

Effective: Fall 2011

Prerequisite: ENGL 015 orENGL 030 ; Students must also earn a C or better in:ARCH 210 andART H 201 andART H 202

**ARCH 312 Critical Postcolonial and Contemporary Perspectives in South Asian Architecture** (3) This course will examine critical postcolonial and contemporary architectural issues in South Asia in the context of cultural globalization today.

Effective: Summer 2008

**ARCH 316 (GA) Analysis of Human Settlements: Cities** (3) Analysis of the interrelated factors which determined and shaped the various types of early cities through the nineteenth century.

Effective: Summer 1989

**ARCH 317 Theory of Modern Japanese Architecture** (3) Introduction to the development of modern Japanese architecture from the Meiji Restoration of 1868 to the present day.

Effective: Summer 2008

**ARCH 331 Architectural Design III** (6) Development of the design process through organizational methodologies, based on physical, functional, and social-behavioral determinants.

Effective: Fall 2011

Prerequisite: Students must earn a C or better in:ARCH 232 andARCH 204 andA E 422 Concurrent: A E 211

**ARCH 332 Architectural Design IV** (6) Development of the design process through organizational methodologies, based on physical, functional, and social-behavioral determinants.

Effective: Fall 2011

Prerequisite: Students must earn a C or better in:ARCH 331 andA E 211 Concurrent: A E 424

**ARCH 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.  
Effective: Fall 2007

ARCH 398 **Special Topics** (1-15) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2001

ARCH 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

ARCH 412 **Integrative Energy and Environmental Design** (3) Concepts and strategies for the environmentally conscious design of the built environment.  
Effective: Spring 2013

ARCH 417 **The Language of Boundaries in Architecture and the Landscape** (3) This course examines the development and significance of boundaries in the construction of human space and time. Students who have taken other courses from Architecture Visual Arts, Geography, or Philosophy that treat some aspect of spatial perception, conception, construction, or visualization, or who have completed equivalent study independently, may enroll with the permission of the program.  
Effective: Summer 2009  
Prerequisite: Students should have taken at least one of the following courses: ARCH 210 ARCH 130A ARCH 131SLARCH 060LARCH 065GEOG 020 or INART 003 or permission of program

ARCH 431 **Architectural Design V** (6) Continuation of ARCH 331 and 332, with design and research in program option areas.  
Effective: Fall 2011  
Prerequisite: Students must earn a C or better in: ARCH 332 and A E 424

ARCH 431A (IL) **Architectural Design V--Foreign Study** (6) A studio offered in Rome, Italy, which emphasizes urban planning and architectural design in an urban context.  
Effective: Fall 2011  
Prerequisite: Students must earn a C or better in: ARCH 332 and A E 424 Concurrent: ARCH 499B and ARCH 499C

ARCH 432 **Architectural Design VI** (6) A continuation of ARCH 431, this course explores in greater depth urban planning and architectural design in an urban context.  
Effective: Fall 2011  
Prerequisite: Students must earn a C or better in: ARCH 431 or ARCH 431A

ARCH 432A (IL) **Architectural Design VI--Foreign Study** (6) A continuation of ARCH 431, this course explores urban planning and architectural design in an urban context in Rome, Italy.  
Effective: Fall 2011  
Prerequisite: Students must earn a C or better in: ARCH 431 Concurrent: ARCH 499B and ARCH 499C

ARCH 441 **Architectural Design Analysis** (3) Studies in principles and elements of design; planning for human use; the relationship of space to physical and social environment. Architectural Engineering majors only.  
Effective: Spring 2008  
Prerequisite: ARCH 130A

ARCH 442 **Architectural Design Analysis** (3) Continuation of ARCH 441, with emphasis on functional relationship of space, form, structure, and building groups. Architectural Engineering majors only.  
Effective: Spring 2008  
Prerequisite: ARCH 441

ARCH 443 **Architectural Design Analysis Inspection Trip** (1) Faculty guided trip to metropolitan areas to investigate noteworthy architecture and building construction and to visit professional offices.  
Effective: Spring 2001  
Prerequisite: fourth-year architectural engineering majors first priority others by faculty approval

ARCH 451 **Architectural Professional Practice** (3) A study of architectural practice in today's society: education, registration, office practice, codes, standards, construction industry, contracts, and legal documents.  
Effective: Fall 2011  
Concurrent: ARCH 491

ARCH 480 **Technical Systems Integration** (3) Presentations of buildings' analyses from a multiplicity of viewpoints: architectural, spatial, environmental, mechanical, construction assembly.  
Effective: Fall 2013  
Prerequisite: ARCH 203ARCH 204ARCH 332A E 422 and A E 424 with a grade of C or better in each Concurrent: ARCH 431

ARCH 481 **Digital Design Media** (3) Advanced course in digital modeling, rendering, animation and non-linear video for architectural investigations.  
Effective: Summer 2006  
Prerequisite: approval by instructor

ARCH 491 **Architectural Design VII-Thesis** (6) Problems in architectural planning and design; programming and/or implementation methodologies and applications for various environmental design scales.  
Effective: Fall 2011 Ending: Fall 2014  
Prerequisite: Students must earn a C or better in: ARCH 432 or ARCH 432A and ARCH 311W Concurrent: ARCH 451



**ARCH 491 Architectural Design Studio** (6-12 per semester/maximum of 12) Problems in architectural planning and design; and/or programming, implementation methodologies and applications for various environmental design scales.  
Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must earn a C or better in:ARCH 431ARCH 499A andARCH 311W Concurrent: ARCH 451

**ARCH 492H Architectural Design VIII-Thesis** (6) Continuation of ARCH 491 with concentration and specialization options.

Effective: Summer 2012 Ending: Fall 2014

Prerequisite: Students must earn a C or better in:ARCH 491 Concurrent: ARCH 480

**ARCH 492H Architectural Design Studio** (6) Continuation of select ARCH 491 sections with concentration and specialization options.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must earn a C or better in:ARCH 491 Concurrent: ARCH 480

**ARCH 495 Advanced Architectural and Related Design/Construction Work Experience II** (1-3 per semester/maximum of 6) Supervised off-campus, nongroup instruction including field experiences, practica, or architectural and related design/construction work experience.

Effective: Fall 2011

Prerequisite: Grade of C or higher in:ARCH 332 ; instructor approval of work experience proposal including employment agreement with an approved supervisor.

**ARCH 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 1986

**ARCH 496H Independent Study - Honors** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2011

**ARCH 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1986

**ARCH 497B PARTI\*** (3) You will be working on your own projects, thinking architecture through germinal drawings and study models, long before form is defined. Monday evenings will be a time for speculation: the hand, the sketch, the diagram, the abstract model, the graphic function, montage & display, layers & series.. In addressing your current proposals, you will blur the boundaries between ideas and objects. Our objective: to shorten the distance between thought and the documents that produce and reflect it, an iterative transformation that is a continuum, ideas into things, things into ideas.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ARCH 497C Building Material Reclamation and Recycling** (3) This course is a very hands-on, project-based seminar focusing on the theory and practice of building material salvage and recycling. Through active and applied learning, students will gain experience in handling, preserving and adding value to salvaged materials. The course will consist of a variety of small-scale design-build projects, where students will learn and practice the methods and techniques of reclamation and explore the design possibilities of reused material.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ARCH 497D Master Planning** (3) Architects, landscape architects, and graphic designers will collaboratively design master plans to examine each discipline's construction of identity and time.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ARCH 497G Algorithmic Tectonics** (3) This course is an introduction to advanced computational techniques for design. Students will learn to write their own computer code for creating and manipulating data, images, and artifacts, extending or bypassing existing software environments. By the end of the course, students will be able to formulate and pursue computational approaches to design exploration, visualization, and fabrication.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ARCH 497G Technology and the Imagination of Design** (3) The subject of this seminar is the emergence of technology as a pivotal concept in contemporary design discourses. Through weekly reading, writing, and discussion, we will examine architectural responses - chiefly in technological discourses, design theories, and film - to the so-called computer revolution, cybernetics, information theory, and the linked transformations to the conceptions of nature, work, authorship, and the human. This course is recommended for research students preparing a thesis in Design Computing, or undergraduate students interested in developing a critical understanding of design technologies.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**ARCH 498 Special Topics** (1-15) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2001

**ARCH 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006  
Prerequisite: seventh-semester standing

**ARCH 499A (IL) Foreign Study--Architectural Design VI** (6) Individual or group instruction conducted in a foreign country.  
Effective: Spring 2007 Ending: Fall 2014  
Prerequisite: ARCH 332 fourth-year standing in the architecture curriculum

**ARCH 499A (IL) Rome Study--Architectural Design** (6) Individual or group instruction conducted in Rome, Italy.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Students must earn a C or better in:ARCH 332 andA E 424 Concurrent: ARCH 499B and ARCH 499C

**ARCH 499B (IL) Architectural Analysis** (3) Comparative study of architectural elements and building types through on-site drawing, recording, measurement, sketching and decomposition activity.  
Effective: Fall 2011  
Prerequisite: Students must earn a C or better in:ART H 201 andART H 202 Concurrent: ARCH 431A or ARCH 432A and ARCH 499C

**ARCH 499C (IL) Urban Studies Topics** (3) A presentation of the history of Rome through the medium of its maps and walking tours of the city.  
Effective: Fall 2011  
Prerequisite: Students must earn a C or better in:ART H 201 andART H 202 Concurrent: ARCH 431A or ARCH 432A and ARCH 499B

**ARCH 499D (IL) Studio** (4) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: seventh-semester standing

**ARCH 499E (IL) Cartography** (2) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: seventh-semester standing

**ARCH 499F (IL) Architectural Design--Foreign Study** (6) Group instruction conducted in a foreign country.  
Effective: Summer 2014  
Prerequisite: Students must earn a C or better in:ARCH 431ARCH 480ARCH 499A andARCH 311W

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## Army (ARMY)

GENERAL MILITARY SCIENCE COURSE (NO OBLIGATION)

ARMY 101 **U.S. Army Organization and Functions** (2) Introduction to U.S. Army and ROTC: their organization, missions and functions; customs and traditions; leadership laboratory.  
Effective: Summer 1996

ARMY 102 **The Military Profession: Leadership and Management Theory** (2) Introduction to leadership techniques and basic management skills; leadership laboratory.  
Effective: Summer 1996

ARMY 203 **Army Operations: Tactics and the Principles of War** (2) Organization and operation of Army units; fundamentals of unit tactics; leadership laboratory.  
Effective: Fall 1992

ARMY 204 **Land Navigation: Topographic Maps and Orienteering** (2) Military and topographic maps; methods of orienteering and land navigation; leadership laboratory.  
Effective: Fall 1992

### OFFICER PREPARATORY COURSE

ARMY 301 **Advanced Principles of Leadership and Management** (3) Principles of military leadership; military skills development; land navigation; physical fitness; leadership laboratory.  
Effective: Fall 1992

ARMY 302 **Advanced Principles of Military Leadership and Combat Operations** (3) Leadership in the field; principles of offense, defense, and patrolling; physical fitness, leadership laboratory.  
Effective: Fall 1992  
Prerequisite: ARMY 301

ARMY 304 **Advanced Camp** (0) Six weeks of Army field training to prepare cadets for commissioning as second lieutenants.  
Effective: Fall 1985  
Prerequisite: ARMY 301 ARMY 302

ARMY 401 **Organizational Behaviors: Interrelationships of Directing Staffs and Staff Functions** (3) Leadership; command and staff functions; ethics and professionalism; military writing; leadership laboratory.  
Effective: Fall 1992  
Prerequisite: ARMY 302

ARMY 402 **Army Personnel Management and Logistics** (3) Leadership; army personnel management; logistics system; personnel counseling; military justice; Soviet military; personal affairs; training management; army life; leadership laboratory.  
Effective: Fall 1992  
Prerequisite: ARMY 302

ARMY 496 **Independent Studies** (1-9) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1988

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## Art (ART)

**ART 001 (GA) Introduction to the Visual Arts (3)** Introduction to the media, elements, function, making, and meaning of visual arts today and in diverse historical and cultural contexts.  
Effective: Spring 2004

**ART 002 (GA) Interactive Learning and Web-Design (3)** Introduce students to research on-line, preparing verbal, visual and other elements for presentation of outcomes and posting them to the Internet.  
Effective: Fall 2001

**ART 003 (GA) Visual Images on the Web (3)** Introduce students to using visual images for communication on the World Wide Web.  
Effective: Fall 2001

**ART 010 (GA) Introduction to Visual Studies (3)** Introduction to visual studies; pictorial space and the principles of visual organization.  
Effective: Fall 2004

**ART 017 (GA) Introduction to Metal Arts (3)** Introduction for non-art majors to fundamental jewelry making and small-scale metalsmithing processes including fabrication, surface treatment, and finishing of metalwork.  
Effective: Spring 2004

**ART 020 (GA) Introduction to Drawing (3)** Introductory experience in making of art through drawing media; designed for non-majors seeking general overview of studio practice.  
Effective: Spring 2004

**ART 030 (GA) Introduction to Sculpture (3)** Introduction to sculpture for non-art majors consisting of lectures/basic studio work coordinated to cover broad range of processes.  
Effective: Fall 2004

**ART 040 (GA) Introduction to Printmaking (3)** Instruction and practice in elementary printmaking and papermaking processes.  
Effective: Fall 2004

**ART 050 (GA) Introduction to Painting (3)** Introductory experience in making of art through painting media; designed for non-majors seeking a general overview of studio practice.  
Effective: Fall 2004

**ART 080 (GA) Introduction to Ceramics (3)** Introduction to the concepts and techniques fundamental to the making of pottery and ceramic sculpture.  
Effective: Spring 2004

**ART 097 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

**ART 098 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1994

**ART 100 (GA) Concepts and Creation in the Visual Arts (3)** A study of the personal and cultural foundations of artistic creation and practice of creative production in the art studio.  
Effective: Spring 2004

**ART 101 (GA) Introduction to Web Design (3)** A beginning level course in Web Design, with emphasis on designing with standards to assure accessibility and effective communication.  
Effective: Spring 2008

**ART 102 (GA) Beginning Computer Aided Design for Artists (3)** ART 102 explores the computer as artistic media. Student creations are realized through 3D printing, vinyl cutting, and laser engraving.  
Effective: Summer 2014

**ART 110S Ideas as Visual Images (3)** Introduction to the ideational relationships among subject, form, and content in

visual images.

Effective: Fall 2002

Prerequisite: portfolio review

**ART 111 Ideas as Objects (3)** An introduction to the relationship between ideas and the creation of three-dimensional objects.

Effective: Fall 2002

Prerequisite: portfolio review

**ART 122Y (US) Commentary on Art (3)** An introduction to verbal commentary, both oral and written, about art. The development of critical and expressive skills given emphasis.

Effective: Spring 2006

**ART 165 (GA) Artistic Concepts of Space (3)** A studio course that utilizes lecture and varied media experiences to investigate space as artistic expression.

Effective: Fall 2012

**ART 166 (GA) Artistic Concepts of Form (3)** A studio course that utilizes lecture and varied media experiences to investigate form in artistic expression.

Effective: Fall 2012

**ART 168 (GA) The Digital Medium (3)** A studio course where the computer is introduced as an artistic media.

Effective: Fall 2012

**ART 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2007

**ART 198 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1994

**ART 199 (IL) Foreign Studies--Art (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**ART 201 Intro to Digital Arts: Computer Graphics (3)** Art 201 is a course introducing digital art, design, and new media concepts using graphic applications on the computer.

Effective: Spring 2008

**ART 203 The Art of Web Design (3)** This course will focus on utilizing graphic formats ideal for web-based work and designing with web standards.

Effective: Spring 2011

**ART 211 (US) Introduction to Digital Art and Design Criticism (3)** An introduction to the language, aesthetics and cultural impacts of digital art and design in contemporary society.

Effective: Fall 2007

**ART 211Y (US) Introduction to Digital Art and Design Criticism (3)** An introduction to the language, aesthetics, and cultural impacts of digital art and design in contemporary society.

Effective: Spring 2010

**ART 217 Metal Art/Technology I (3)** Introduction to current and emerging metal art technologies and processes as medium for conceptual, aesthetic, and functional artworks.

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**ART 220 Figure Drawing (3)** Drawing from life. Emphasis on developing the ability to comprehend and record the human figure.

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**ART 223 Drawing: Techniques, Materials, and Tools (3)** Drawing with an emphasis on organization and the development of drawing skills through a variety of techniques, materials, and tools.

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**ART 230 Beginning Sculpture (3)** An introduction to sculpture consisting of lectures, demonstrations, and basic studio

work coordinated to cover a broad range of processes.

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**ART 240 Beginning Printmaking (3)** An introduction to printmaking consisting of lectures, demonstrations, and studio work to cover a broad range of processes.

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**ART 250 Beginning Oil Painting (3)** The materials and techniques of painting in oil and their uses in creative painting on panels and canvas.

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**ART 265 Artistic Concepts of Color (3)** A studio course that utilizes lecture and various media to investigate color as artistic expression.

Effective: Spring 2007

Prerequisite: ART 165ART 166

**ART 266 Artistic Concepts of Light (3)** A studio course that utilizes lecture and varied media experiences to investigate light as artistic expression.

Effective: Spring 2007

Prerequisite: ART 165ART 166

**ART 269 Methods and Materials I (3 per semester/maximum of 9)** A studio course that focuses on specific media or techniques reflecting varied faculty expertise.

Effective: Spring 2007

Prerequisite: ART 165ART 166

**ART 280 Beginning Ceramics (3)** The fundamentals of ceramics, throwing, hand-building, and glazing; acquainting the student with ceramic materials, techniques, and philosophy.

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**ART 290 Beginning Photography (3)** Fundamental techniques and approaches to the art of photography utilizing digital photographic technologies; digital camera required.

Effective: Spring 2003

**ART 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**ART 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**ART 297A Introduction to Scripting (3)** Students are introduced to object-oriented programming fundamentals for production of expressive, interactive experiences such as animations, interfaces and games.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ART 297A Introduction to Scripting (3)** Students are introduced to object-oriented programming fundamentals for the production of expressive, interactive experiences such as animations, interfaces and games.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**ART 298 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1994

**ART 299 (IL) Foreign Study--Art (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**ART 300 Studio Apprenticeship (1-4 per semester/maximum of 8)** Direct involvement in the creative process of the artist-teacher in the studio environment.

Effective: Fall 1993

Prerequisite: fifth-semester standing

**ART 302 Digital Portfolio Elements (3)** The creation of more involved digital projects that may ultimately be included in the students' digital portfolio.

Effective: Summer 2010

Prerequisite: ART 201 orART 203

**ART 314 Computer 3-D: Modeling, Rendering, and Animation** (4 per semester/maximum of 12) A studio course introducing 3-d computer generated artwork and content creation using modeling, rendering, and animation applications on the computer.

Effective: Spring 2008

Prerequisite: ART 201 and enrollment in the ART BA ART BFA Art Education Interdisciplinary Digital Studio (IDS) or Integrative Arts degree program

**ART 315 New Media Art: New Media Studio** (4) A studio course concentrating on digital art and new media authoring practices.

Effective: Spring 2008

Prerequisite: ART 201 and enrollment in the ART BA ART BFA Art Education Interdisciplinary Digital Studio (IDS) or Integrative Arts degree program

**ART 316 Video Art and Time-Based Media** (4 per semester/maximum of 8) A studio course concentrating on video art, new media, and experimental time based work.

Effective: Spring 2008

Prerequisite: ART 315

**ART 317 Metal Art/Technology II** (4 per semester/maximum of 8) Further exploration of current and emerging metal art technologies and processes as medium for conceptual, aesthetic, and functional artworks.

Effective: Fall 2006

Prerequisite: ART 217ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**ART 318 New Media Art: Game Art** (4 per semester/maximum of 8) A studio course concentrating on game art and new media authoring practices.

Effective: Summer 2007

Prerequisite: ART 314ART 315

**ART 319 Physical Computing** (4 per semester/maximum of 8) A studio course concentrating on interactive physical systems using software/sensors that can sense and respond to the analog world.

Effective: Summer 2007

Prerequisite: ART 201 and enrollment in the ART BA ART BFA Art Education Interdisciplinary Digital Studio or Integrative Arts degree programs

**ART 320 Advanced Drawing** (4 per semester/maximum of 8) Drawing for art majors; emphasis on sustained individual approaches based on figurative and nonfigurative sources.

Effective: Fall 2006

Prerequisite: ART 220ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

**ART 330 Intermediate Sculpture: Metal Fabrication and Mixed-media** (4 per semester/maximum of 8) Development of technical and conceptual skills through metal fabrication, welding, and mixed-media processes.

Effective: Fall 2006

Prerequisite: ART 230ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

**ART 331 Intermediate Sculpture: Metal Casting and Mold-Making** (4 per semester/maximum of 8) Development of technical and conceptual skills through metal casting and mold-making processes.

Effective: Fall 2006

Prerequisite: ART 230ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**ART 338 The Body: Issues and Objects** (4 per semester/maximum of 8) Creating representations of the human body and related objects as a means of sculptural expression.

Effective: Fall 2006

Prerequisite: ART 230ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**ART 340 Printmaking** (4 per semester/maximum of 8) Development of technical and expressive skills through selected problems in one or more of the print processes.

Effective: Fall 2006

Prerequisite: ART 240ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**ART 341 Intermediate Printmaking: Intaglio/Relief** (4) Instruction and practice in the fundamentals of intaglio and relief printmaking processes in their relation to the fine arts.

Effective: Spring 2008

Prerequisite: ART 240ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**ART 342 Intermediate Printmaking: Lithography/Serigraphy** (4) Instruction and practice in the fundamentals of the lithographic and serigraphic processes and their relationship to the meaning of the print.

Effective: Spring 2008

Prerequisite: ART 240ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**ART 343 New Media Printmaking** (4 per semester/maximum of 8) A studio course concentrating on the integration of new media and traditional printmaking processes.

Effective: Fall 2006

Prerequisite: ART 201 or ART 240 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

**ART 350 Intermediate Painting** (4 per semester/maximum of 8) A variable offering in painting; course conditions defined on a rotating basis according to needs of individuals and groups.

Effective: Fall 2006

Prerequisite: ART 250 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**ART 365 Themes and Issues I** (3) An advanced studio course that emphasizes individual approach to theme oriented problem solving through traditional and non-traditional multi-media explorations.

Effective: Spring 2007

Prerequisite: ART 165 ART 166 ART 265 ART 266

**ART 366 Themes and Issues II** (3) An advanced studio course that emphasizes individual approach to theme oriented problem solving through traditional and non-traditional multi-media explorations.

Effective: Spring 2007

Prerequisite: ART 165 ART 166 ART 265 ART 266 ART 365

**ART 380 Intermediate Throwing** (4 per semester, maximum of 12) Intermediate ceramics course with focus on using wheel and throwing skills leading to personal expression in form, glazing, and firing.

Effective: Fall 2006

Prerequisite: ART 280 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

**ART 381 Intermediate Handbuilding** (4 per semester, maximum of 12) An intermediate ceramics course with a focus on handbuilding techniques, leading to personal expression in forming, glazing, and firing.

Effective: Fall 2006

Prerequisite: ART 280 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**ART 390 Introduction to Photochemical Photography** (4) Introduction to the fundamentals of black and white photochemical photography.

Effective: Fall 2012

Prerequisite: ART 110S ART 111 ART 290 and successful portfolio review

**ART 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**ART 397A Kiln Construction** (4) Hands-on experience designing, building and firing ceramic kilns. Participants work together to construct a salt kiln and several test kilns. The history and evolution of firing techniques are explored.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ART 399 (IL) Foreign Study--Art** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**ART 402 Portfolio Design and Professional Practices** (3) This course emphasizes the development of presentation skills for digital artists in audience/client interactions.

Effective: Summer 2010

Prerequisite: ART 302

**ART 405 Advanced Studio Art** (3 per semester/maximum of 9) Advanced work in drawing and painting, with an emphasis on individual development.

Effective: Spring 2008

Prerequisite: 6 credits of ART or A ED or graduate level status or permission of program

**ART 409 (ART H 409) Museum Studies** (3) An introduction to the professional activities that occur in art museums.

Effective: Summer 2004

Prerequisite: 6 credits of ART H ART and/or A ED

**ART 411 (US) Seminar in Contemporary Art** (3 per semester/maximum of 6) Trends in contemporary art investigated within the framework of studio visitations, museum tours, and through other related avenues of encounter.

Effective: Fall 2006

Prerequisite: ART 122Y ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**ART 413 Performance Art** (3) The development, production, and presentation of performance art works, and the study of performance art theory and history.

Effective: Spring 2000

Prerequisite: 4 credits of 300-level art or graduate level status or permission of instructor

**ART 415 Integrating Media: Convergence in Practice** (4 per semester/maximum of 12) A studio course concentrating on the integration of new media technologies in contemporary art practice.

Effective: Fall 2006

Prerequisite: ART 315



**ART 416 Advanced Web and Net Art: Multimedia Publishing** (4 per semester/maximum of 12) A studio course concentrating on multimedia online "net art" practice and Web publishing.

Effective: Spring 2008

Prerequisite: ART 203ART 315 and 8 credits of 300-level new media

**ART 417 Metal Art/Technology III** (4 per semester/maximum of 12) Advanced exploration of current and emerging metal art technologies and processes as medium for conceptual, aesthetic, and functional artworks.

Effective: Spring 2005

Prerequisite: ART 317

**ART 419 Advanced New Media: Capstone** (4 per semester/maximum of 8) A new media and digital arts capstone course concentrating on the integration of art and technology in advanced thesis projects.

Effective: Summer 2007

Prerequisite: ART 315ART 203 orART 416 and 12 credits of 300/400-level new media senior or graduate standing

**ART 421 Drawing** (4 per semester/maximum of 12) Drawing for advanced students, with total emphasis on sustained individual approaches.

Effective: Summer 1992

Prerequisite: ART 320

**ART 422 Advanced Figure Drawing** (4 per semester/maximum of 8) Concentrated work in recording and understanding the human figure.

Effective: Fall 1998

Prerequisite: ART 220 8 credits of 300-level art courses

**ART 430 Advanced Sculpture** (4 per semester/maximum of 12) Advanced work in sculpture, with an emphasis on individual development.

Effective: Summer 1992

Prerequisite: ART 330ART 331 12 credits of 300-level sculpture

**ART 431 Installation Art** (4) Study and production of original visual statements through installation work as an art form.

Effective: Spring 1998

Prerequisite: 4 credits of 300-level art or graduate level status

**ART 440 Advanced Printmaking** (4 per semester/maximum of 12) Individual projects in one or more of the printmaking processes. Emphasis is on developing a portfolio of prints.

Effective: Fall 1998

Prerequisite: 4 credits of 300-level printmaking courses 8 credits total of 300-level art courses

**ART 446 Artists Books** (4) Study and production of original visual statements through the book as an art form.

Effective: Spring 2009

Prerequisite: ART 110SART 111ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

**ART 447 Photo Based Printmaking** (4) Study and production of original visual statements through photographic based printmaking as an art form.

Effective: Spring 2000

Prerequisite: ART 240 4 credits of 300-level Art courses or graduate level status

**ART 450 Advanced Painting** (4 per semester/maximum of 12) Development of the artist through a series of commitments; each semester serves as a contractual agreement along professional lines.

Effective: Summer 1992

Prerequisite: ART 350

**ART 455 Advanced Painting Critique** (4 per semester/maximum of 8) The painter in relation to his peers and his profession.

Effective: Fall 1983

Prerequisite: senior or graduate standing

**ART 465 Individual Approaches I** (3) An advance studio where students are expected to explore personal themes and individual concepts in their art work.

Effective: Spring 2007

Prerequisite: ART 165ART 166ART 265ART 266ART 365ART 366

**ART 466W Individual Approaches II** (6) An advance studio/lecture addressing the preparation for potential employment and/or entrance into graduate studies.

Effective: Summer 2007

Prerequisite: ART 165ART 166ART 265ART 266ART 365ART 366ART 465

**ART 468 The Intermediate Digital Medium** (3) An advanced studio course using the computer as an artistic media.

Effective: Spring 2007

Prerequisite: ART 165ART 166ART 168

**ART 469 Methods and Materials II** (3 per semester/maximum of 9) A studio course that focuses on specific media or techniques reflecting varied faculty expertise.

Effective: Spring 2007

Prerequisite: ART 165ART 166ART 265ART 269

**ART 475 (US) (ART H 475) Contemporary Women Artists** (3) An interdisciplinary course that investigates women artists who were integral to the production of contemporary art primarily in the Americas, Europe, and Asia.

Effective: Spring 2009

Prerequisite: fifth-semester standing ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**ART 476 (ART H 476) History and Theory of Digital Art (3)** History and theories of contemporary digital art emphasizing humanistic approaches to technology.

Effective: Spring 2007

Prerequisite: ART H 100 or ART H 112 or ART H 307 or ART H 325 or ART H 326 or ART 211

**ART 480 Advanced Ceramic Arts (4 per semester/maximum of 12)** Individual exploration of ceramic materials and construction leading to graduate study or career development as a professional potter.

Effective: Summer 1992

Prerequisite: ART 380

**ART 481 Ceramic Materials and Glaze Calculation (3)** The study of raw materials and their use in formulating clays and glazes.

Effective: Fall 2006

Prerequisite: ART 280 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**ART 490 View Camera Photography (4)** Experience with diverse camera formats and applications; particular emphasis on view camera.

Effective: Summer 2002

Prerequisite: ART 390

**ART 494H Research Projects Courses (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2012

**ART 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1995

Prerequisite: prior approval of proposed assignment by instructor

**ART 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**ART 496H Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

**ART 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**ART 497A 3D Digital Arts II (4)** This studio course provides advanced students with an environment within which to work on computer animated projects using 3D software.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ART 497B Ceramic Sculpture (4)** Explore the inexhaustible expressive potential of clay as a contemporary sculptural medium. The porous boundary between Sculpture and Ceramics is articulated and challenged via discussion and production.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ART 497B Compositing in 3D (4)** This course covers intermediate to advanced 3D compositing techniques like color correction, render pass and post effects for 3D video.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**ART 497C Functional Pottery (4)** Designed to address the potential for handmade pottery to define culture. Food, readings and pottery making set the stage where theoretical dissection and informed hands-on making of dishes will take place.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ART 497D Art & Life: Where They Intersect (3)** The connection between life and art will be explored from both a personal and cultural perspective. Taking risks is expected.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ART 497E Advanced Metal Casting and Mold Making (4)** Advanced development of technical and conceptual skills through casting and mold making processes.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ART 497F D.I.Y. Digital Fabrication** (4) Participants in this course will work collaboratively to build and utilize robust Digital Fabrication tools from open source hardware plans. Laser cutting and 3D printing will be explored in depth.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ART 497G Words and Images: Artists and Writers Collaborate** (3) This collaborative course is designed for visual arts and creative writing students. The student will consider the artist's book as a form and locate it within the broader context of contemporary writing and visual art. Students will collaborate with others outside of their home college, through the process of combining text and image to construct an artist's book. A broad range of historical, conceptual and theoretical approaches to the artist's book as a genre will be explored.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ART 499 (IL) Foreign Studies--Art** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Art Education (A ED)

A ED 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

A ED 101S **Introduction to Art Education** (3) This course introduces students to issues, concepts, and ideas in Art Education.  
Effective: Summer 2002

A ED 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

A ED 201W **History and Philosophy of Art Education in Schools and Cultural Institutions** (3) Introduction to historical, philosophical, and sociological foundations art education in schools and cultural institutions, museums, and community organizations.  
Effective: Spring 2003

A ED 211 (GA) **Interpreting Art Experience: Social and Behavioral Perspectives** (3) Examination of psychological, cultural, aesthetic, philosophical and educational perspectives on creation and response to art in children, adolescents and adults.  
Effective: Summer 2002

A ED 212 **Interpreting Art Experience: Educational Implications** (1) In-depth study of the educational implications of the information on art making and response introduced in A ED 211.  
Effective: Summer 2002  
Prerequisite: A ED 101SA ED 201W Concurrent: A ED 211

A ED 225 (GA;US) **Diversity, Pedagogy, and Visual Culture** (3) Issues of diversity in art, education, visual culture, and pedagogy.  
Effective: Summer 2005

A ED 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

A ED 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

A ED 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

A ED 303 **The Visual Arts in the Elementary School** (3) Basic concepts of current art education theory and practice for the elementary teacher.  
Effective: Spring 1993

A ED 322 **Visual Culture and Educational Technologies** (3) The course provides a foundation for innovative integration of digital technologies in art making, viewing, and teaching.  
Effective: Spring 2009  
Prerequisite: A ED majors only

A ED 323 **Visual Culture and Art Education** (3) The study and creation of contemporary art forms as visual culture critiques provide curricular and pedagogical approaches to art education.  
Effective: Spring 2009  
Prerequisite: A ED majors only

A ED 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

A ED 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

A ED 401 **Curricula, Pedagogy, and Assessment in Art Education** (3) Preparation of curricula, pedagogical, and assessment strategies for elementary/secondary school and museum art education programs.  
Effective: Summer 2002

Prerequisite: A ED 101SA ED 201WA ED 211A ED 212A ED 225A ED 322A ED 323

A ED 440 **Cultural Institutions** (3) Role of the educator and educational programming in museums and other cultural institutions.

Effective: Spring 2003

Prerequisite: ANTH 100 or 3 credits of Art History courses from department list;A ED 401

A ED 488 **Cultural Institutions Practicum** (1-3) Supervised field experience in a museum or other cultural institution, including planning, implementation, and evaluation of an educational project.

Effective: Summer 2002

Prerequisite: ANTH 100 or 3 credits of art history courses from department list;A ED 401 Concurrent: A ED 490

A ED 489 **Advanced Practicum** (3) Supervised observation, unit planning, and teaching in Saturday Morning Arts School: analysis of creative expressions and art programs for learners.

Effective: Spring 2003

Prerequisite: A ED 401 Concurrent: A ED 490

A ED 490 **Capstone Course in Art Education** (3) Synthesis of preservice art education coursework; introduction to professional practices and standards; completion of teaching and learning portfolio.

Effective: Spring 2009

Prerequisite: admission to Teacher Preparation Program and successful completion of all required courses in the major except Student Teaching or final internship. Prerequisite or concurrent:A ED 488 for majors in the Museums and Cultural Institutions option Concurrent: A ED 489 majors in the Schools option

A ED 494 **Schools and Museums** (3) Museum education: issues, theories of aesthetic education and practices in schools, museums, and community art centers.

Effective: Winter 1978

Prerequisite: 12 credits in art education art art history or education

A ED 494H **Schools and Museums** (3) Museum education: issues, theories of aesthetic education and practices in schools, museums, and community art centers.

Effective: Fall 2007

Prerequisite: 12 credits in art education art art history or education

A ED 495 **Internship in Art Experiences** (15) Comprehensive instruction in craft, health, cultural, museum, studio, gallery or social agency. Students supervised by University personnel and arts personnel.

Effective: Spring 1989

Prerequisite: A ED 440 ; seventh- or eighth-semester standing

A ED 495A **Art Education Student Teaching Practicum** (7) The elementary student teaching practicum fulfills requirements for Pennsylvania certification to teach Art in both elementary and secondary schools.

Effective: Summer 2006

Prerequisite: A ED 489 ; eighth- or ninth-semester standing Concurrent: A ED 495B

A ED 495B **Art Education Student Teaching Practicum** (8) The secondary student teaching practicum fulfills requirements for Pennsylvania certification to teach Art in both elementary and secondary schools.

Effective: Summer 2006

Prerequisite: A ED 489 ; eighth- or ninth-semester standing Concurrent: A ED 495A

A ED 495C **Art Education Student Teaching Practicum** (7) The elementary student teaching practicum fulfills requirements for Pennsylvania certification to teach Art in both elementary and secondary schools.

Effective: Summer 2006

Prerequisite: A ED 489 ; eighth- or ninth-semester standing; Concurrent: A ED 495D

A ED 495D **Art Education Student Teaching Practicum** (8) The secondary student teaching practicum fulfills requirements for Pennsylvania certification to teach Art in both elementary and secondary schools.

Effective: Summer 2006

Prerequisite: A ED 489 ; eighth- or ninth-semester standing Concurrent: A ED 495A

A ED 495E **Internship in Museums and Cultural Institutions** (15) Twelve week, full time supervised internship in education in museums or other cultural institutions.

Effective: Summer 2006

Prerequisite: A ED 440 seventh- or eighth-semester standing.

A ED 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

A ED 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

A ED 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2006

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## Art History (ART H)

ART H 001S (GA) **First-Year Seminar** (3) An introduction to the field of art history, through an examination of a selected issue in a seminar setting.  
Effective: Fall 2000

ART H 100 (GA;IL) **Introduction to Art** (3) An approach to the understanding of art through a critical analysis of selected works of architecture, painting, and sculpture. Students who have passed ART H 110 may not schedule this course.  
Effective: Spring 2006

ART H 111 (GA;IL) **Ancient to Medieval Art** (3) Survey of Ancient Egyptian, Greek, Roman, Byzantine, Early Medieval, Romanesque, and Gothic art, with an emphasis on sculpture and painting.  
Effective: Spring 2006

ART H 112 (GA;IL) **Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.  
Effective: Spring 2006

ART H 112U (GA;IL) **Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ART H 112U (GA;IL) **Renaissance to Modern Art** (3) Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

ART H 120 (GA;IL) **Asian Art and Architecture** (3) A selective overview of the art and architecture of India, Southeast Asia, China, Korea, and Japan.  
Effective: Summer 2005

ART H 130 (GA;US;IL) **Art of Africa, Oceania, and the Americas** (3) A selective overview of the indigenous art of Africa, Oceania and the Americas.  
Effective: Spring 2013

ART H 140 (GA;IL) **Introduction to Pre-Columbian Art and Architecture** (3) This course examines the artistic and architectural production of Pre-Columbian Mesoamerica and the Andes.  
Effective: Summer 2011

ART H 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ART H 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ART H 199 (IL) **Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ART H 201 (GA;IL) **Ancient to Medieval Architecture** (3) A survey of Prehistoric, Ancient Near Eastern Egyptian, Greek, Roman, Early Christian, Byzantine, Early Medieval, Romanesque, and Gothic architecture.  
Effective: Spring 2006

ART H 202 (GA;US;IL) **Renaissance to Modern Architecture** (3) A survey of Renaissance, Baroque, Rococo, Romantic, Victorian, Modern, Post-Modern, and Contemporary architecture in Europe and America.  
Effective: Spring 2006

ART H 225 (GA;GH) (ENGL 225, WMNST 225) **Sexuality and Modern Visual Culture** (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.  
Effective: Summer 2009

ART H 225H (GA;GH) **Sexuality and Modern Visual Culture** (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ART H 226 (GA) **The Comic Book: A History of Sequential Art** (3) An overview and examination of the history of sequential art with a focus on comic books and graphic novels.  
Effective: Summer 2012

ART H 250 (PHOTO 201) **A Chronological Survey of Photography** (3) A survey of photography's place and influence in a social, cultural, and historical context.  
Effective: Spring 2006

ART H 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

ART H 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

ART H 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ART H 299 (IL) **Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ART H 301 (GA;IL) **Egyptian and Mesopotamian Art** (3) Art of the Ancient Near East, including Egypt, Mesopotamia, and neighboring civilizations.  
Effective: Spring 2006

ART H 302 (GA;IL) **Art of the Early Middle Ages** (3) A survey of the art of Western Europe from the Early Christian era through the Ottonian Empire, c.300-1050 A.D.  
Effective: Spring 2006

ART H 303 (GA;IL) **Italian Renaissance Art** (3) The major arts in Italy from the thirteenth century A.D. through the Renaissance; emphasis on sculpture and painting.  
Effective: Spring 2006

ART H 304 (GA;IL) **Italian, Spanish, and Spanish Colonial Baroque Art and Architecture** (3) A survey of painting, sculpture, and architecture in Italy, Spain, and the Spanish Americas from 1600-1750.  
Effective: Fall 2010

ART H 305 (GA;IL) **Romanticism and Revolution** (3) A survey of painting and sculpture in Europe 1780-1860, from the origins of Neoclassicism through Romanticism and Realism.  
Effective: Fall 2012

ART H 307 (GA;US) (AM ST 307) **American Art** (3) History of art in the English colonies and the United States from the seventeenth century to the present.  
Effective: Spring 2008

ART H 308 (GA;US) (AM ST 308) **American Architecture** (3) History of the architecture of the United States, as well as its Native American and colonial antecedents.  
Effective: Summer 2013

ART H 311 (GA;IL) **Greek and Roman Art** (3) Greek and Roman art, with emphasis on painting and sculpture.  
Effective: Spring 2006

ART H 312 (GA;IL) **Romanesque and Gothic Art** (3) Survey of the architecture, sculpture, and painting of the Christian church in western Europe from 1000 to 1500.  
Effective: Spring 2006

ART H 313 (GA;IL) **Northern Renaissance Art** (3) Art in northern Europe in the fifteenth and sixteenth centuries, emphasizing painters such as Van Eyck, Durer, and Bruegel.  
Effective: Spring 2006

ART H 314 (GA;IL) **Art in the Age of Rembrandt** (3) Dutch and Flemish painting in the seventeenth century.  
Effective: Spring 2006

ART H 315 (GA;IL) (ASIA 315) **Architecture and Art of South and Southeast Asia** (3) Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.  
Effective: Summer 2010

ART H 320 (GA;IL) **Chinese Art** (3) A general survey of the great periods of Chinese art from the Shang dynasty until the modern period.  
Effective: Summer 2005

ART H 325 (GA;IL) **Impressionism to Surrealism** (3) A survey of European painting and sculpture from ca. 1850 to ca. 1940.  
Effective: Spring 2006

ART H 326 (GA;US;IL) **Art Since 1940** (3) An international survey of painting, sculpture, photography and other media since 1940.  
Effective: Summer 2012

ART H 330 (GA;IL) **Islamic Architecture and Art** (3) Survey of the art and architecture of Islamic lands from the late seventh century until the eighteenth century.  
Effective: Summer 2005

ART H 335 (GA;IL) (AFR 335) **African Art** (3) Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa.  
Effective: Fall 2013

ART H 350W **Undergraduate Seminar in the History of Art** (3-6) An introduction to original research, methodology, analysis, and writing on a scholarly level.  
Effective: Summer 1992  
Prerequisite: fifth-semester standing 6 credits in art history at the 300 level or above

ART H 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ART H 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ART H 399 (IL) **Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005  
Prerequisite: ART H 100 or ART H 110 or ART H 111 or ART H 112

ART H 401 (IL) **Greek Art and Architecture** (3-9) Developments in Greek art and architecture, tenth century B.C. to first century B.C.; emphasis on the importance of Greek sanctuaries.  
Effective: Spring 2006  
Prerequisite: ART H 100 ART H 111 ART H 201 or ART H 311

ART H 402 (IL) **The Illuminated Manuscript** (3) Specific stylistic periods in manuscript painting from A.D. 500-1500 in Western Europe and Byzantium.  
Effective: Spring 2006  
Prerequisite: ART H 100 ART H 111 ART H 302 or ART H 312

ART H 405 (US;IL) **Pioneers of Modern Architecture** (3 per semester/maximum of 6) Selected period or theme in the development of modern architecture during the nineteenth and/or early twentieth centuries.  
Effective: Spring 2006  
Prerequisite: ART H 100 ART H 112 ART H 202 or ART H 307

ART H 409 (ART 409) **Museum Studies** (3) An introduction to the professional activities that occur in art museums.  
Effective: Summer 2004  
Prerequisite: 6 credits of ART H ART and/or A ED

ART H 410 **Taste and Criticism in Art** (3) History and literature of art criticism demonstrating the varied philosophic, cultural, iconographic, technical, and visual approaches.  
Effective: Summer 1999  
Prerequisite: 6 credits of art history

ART H 411 (IL) **Roman Art** (3-9) Roman sculpture and painting from Augustus to Constantine.  
Effective: Spring 2006  
Prerequisite: ART H 100 ART H 111 ART H 201 or ART H 311



ART H 412 (IL) **The Gothic Cathedral** (3) Specific aspects of Romanesque and Gothic church architecture of western Europe, especially France and England, between 1000-1500.

Effective: Spring 2006

Prerequisite: ART H 100ART H 111ART H 201ART H 302 orART H 312

ART H 413 **Architecture of the Medieval Monastery** (3) This course will examine design, construction, function and symbolism in the monastic architecture of Western Europe during the Middle Ages.

Effective: Spring 2013

Prerequisite: 3 credits of Art History

ART H 414 (IL) **Italian Baroque Painting** (3) Survey of Italian Baroque painting from sixteenth-century proto-Baroque masters to painters of the late Baroque and Rococo periods.

Effective: Spring 2006

Prerequisite: ART H 100ART H 112 orART H 304

ART H 415 (US) **The Skyscraper** (3) Origin and evolution of the skyscraper as seen against the background of cultural conditions and technological factors.

Effective: Spring 2006

Prerequisite: ART H 100ART H 112ART H 202 orART H 307

ART H 416 (US) **Studies in American Art** (3 per semester/maximum of 6) Selected time periods and/or issues in the art of the United States.

Effective: Fall 2013

Prerequisite: 3 credits of ART H

ART H 420 (IL) **Russian Architecture** (3) Russian architecture from the first Orthodox churches of the late tenth century to the end of the Soviet Union.

Effective: Spring 2006

Prerequisite: ART H 100ART H 111ART H 112ART H 201 orART H 202

ART H 422 (IL) **Studies in Medieval Sculpture** (3-9) Specific studies of western European sculpture, 300-1500, with attention to sources, styles, type, and iconography.

Effective: Spring 2006

Prerequisite: ART H 100ART H 111ART H 201ART H 302 orART H 312

ART H 423 (IL) **Studies in Italian Renaissance Art** (3-9) Specific studies of Italian Renaissance art, including the work of artists such as Leonardo da Vinci, Michaelangelo, and Raphael.

Effective: Spring 2006

Prerequisite: ART H 100ART H 112ART H 202 orART H 303

ART H 424 (IL) **Masters of Northern Baroque Art** (3) Seventeenth-century painters in Flanders and Holland, including the works of artists such as Rubens, Rembrandt, and Vermeer.

Effective: Spring 2006

Prerequisite: ART H 100ART H 112 orART H 314

ART H 425 (IL) **Topics in Northern Renaissance Art** (3 per semester/maximum of 6) Focuses on a topic of interest in Netherlandish and/or German art between 1300 and 1600.

Effective: Spring 2014

Prerequisite: 3 credits of Art History

ART H 426 (US;IL) **Iconoclasm: Powerful Images and their Destruction** (3) Iconoclasm: exploring the political, religious, and social motivations behind the destruction of powerful imagery throughout history.

Effective: Summer 2009

Prerequisite: 3 credits of Art History in any area

ART H 427 (IL) **Topics in Global Artistic Communication** (3 per semester/maximum of 6) Explores a specific time period in art history cross-culturally in Europe, Asia, Africa, and/or the Americas.

Effective: Summer 2014

Prerequisite: 3 credits in Art History

ART H 429 (IL) **Studies in Baroque Art** (3) Selected topics in the painting, sculpture, and architecture of seventeenth-century Italy, France, Flanders, Holland, and Spain.

Effective: Spring 2009

Prerequisite: 6 credits in art history (ART H)

ART H 435 (IL) **Studies in Modern Art** (3-6) Lectures focusing on a selected movement of nineteenth- or twentieth-century art.

Effective: Spring 2006

Prerequisite: ART H 100ART H 112ART H 305ART H 307 orART H 325

ART H 440 (IL) (ASIA 440) **Monuments of Asia** (3-9 per semester/maximum of 9) An exploration of major Asian sites and monuments through a focus on their historical and cultural significance.

Effective: Summer 2012

Prerequisite: ART H 100 orART H 120 orART H 315 orART H 320 orART H 330

ART H 442 (IL) **Late Antique and Early Christian Art** (3) Survey of the architecture, painting, and minor arts of Christian society from the beginning to the mid-sixth century.

Effective: Spring 2006

Prerequisite: ART H 100ART H 111ART H 201 orART H 302

ART H 445 (IL) **Oceanic Art** (3) Survey of the arts of Oceania (Polynesia, Micronesia, Melanesia), including masks,

sculpture, textiles, architecture and other art forms.

Effective: Summer 2012

Prerequisite: 3 credits of Art History

ART H 446 (IL) (AFR 446) **Topics in African Art** (3 per semester/maximum of 9) Topics vary from "Arts of Eastern and Southern Africa" to "Arts of West Africa."

Effective: Spring 2014

Prerequisite: 3 credits of Art History

ART H 447 (IL) (AFR 447) **Topics in the Art of the African Diaspora** (3 per semester/maximum of 6) Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

Effective: Spring 2014

Prerequisite: 3 credits of Art History

ART H 450 (US;IL) **The History of Photography** (3) The history of photography from 1839, with particular emphasis on the relationship with the plastic arts.

Effective: Spring 2006

Prerequisite: ART H 100ART H 112ART H 305ART H 307 orART H 325

ART H 452 (IL) **Byzantine Art** (3) Monumental and minor arts of Byzantium and related areas from the reign of Justinian to the Turkish conquest of Constantinople.

Effective: Spring 2006

Prerequisite: ART H 100ART H 111ART H 201 orART H 302

ART H 456 (IL) **Renaissance and Baroque Palaces** (3) This course examines palace architecture and decoration in Italy, France, England, and Germany from 1450-1700.

Effective: Spring 2011

Prerequisite: ART H 100 orART H 112 orART H 202 orART H 303 orART H 304

ART H 458 (IL) **Baroque Capitals of Europe** (3) This course examines the architecture and urbanism of European capital cities from 1600-1800.

Effective: Spring 2010

Prerequisite: ART H 100 orART H 112 orART H 202 orART H 304 orART H 314

ART H 460 (IL) **Art and Empire: Aztec, Inca and Spanish** (3) This course is a comparative study of the artistic production used in Aztec, Inca and Spanish empires.

Effective: Summer 2012

Prerequisite: 3 credits of ART H

ART H 462 (IL) **Studies in Latin American Art** (3 per semester/maximum of 6) Specific studies of the visual and material culture created in Latin America from the colonial through the modern era.

Effective: Summer 2012

Prerequisite: 3 credits of Art History

ART H 464 (IL) **French Baroque Painting** (3) Examination of seventeenth-century French painting, including Italian influences; the provincial, Classical, and official styles in France.

Effective: Spring 2006

Prerequisite: ART H 100ART H 112 orART H 304

ART H 470 **Contemporary Art** (3 per semester/maximum of 9) A focused investigation of a special topic relating to art made after 1940.

Effective: Fall 2013

Prerequisite: 3 credits of ART H

ART H 475 (US) (ART 475) **Contemporary Women Artists** (3) An interdisciplinary course that investigates women artists who are integral to the production of contemporary art primarily in the Americas, Europe, and Asia.

Effective: Spring 2009

Prerequisite: Fifth semester standingART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

ART H 476 (ART 476) **History and Theory of Digital Art** (3) History and theories of contemporary digital art emphasizing humanistic approaches to technology.

Effective: Spring 2007

Prerequisite: ART H 100 orART H 112 orART H 307 orART H 325 orART H 326 orART 211

ART H 494H **Research Projects - Honors** (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small group basis.

Effective: Spring 2012

ART H 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.

Effective: Fall 2012

ART H 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

ART H 496A **Pop Art and Its Legacies** (1-6) This course examines the origins of pop art, its international reception, and its legacies in contemporary art.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: ART H 326

ART H 496H **Independent Studies - Honors** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

ART H 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

ART H 497A **Italian Renaissance Architecture** (3) This course provides a survey of architecture in Italy during the Renaissance (1400-1600). It will examine the work of major figures, such as Brunelleschi, Alberti, Bramante, Michelangelo, and Palladio. The urbanism of Rome, Florence, Venice, and Naples will also be examined.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: ART H 112 or ART H 202

ART H 497B **History of Prints and Printmaking** (3) This course examines the history of prints and printmaking, focusing primarily, but not exclusively, on the development and significance of various print mediums in Europe and the United States from the fifteenth through the twentieth centuries. Class lectures are supported by numerous visits to the Palmer Museum of Art's print room to view first hand many of the objects discussed in the course.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: ART H 112

ART H 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ART H 499 (IL) **Foreign Study--Art History** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Arts Administration (ARTSA)

**ARTSA 301 Introduction to Arts Administration** (3) This course provides students with a survey of the major concepts and practices of arts administration.  
Effective: Summer 2012

**ARTSA 401 Arts Event Planning and Project Management** (3) Planning and managing an event for an arts organization.  
Effective: Summer 2012  
Prerequisite: ARTSA 301ARTSA 495AMKTG 310

**ARTSA 402W Strategic Management and Planning for the Arts** (3) Study of strategic planning for commercial and non-profit arts organizations.  
Effective: Summer 2012  
Prerequisite: 7th semester standing andARTSA 301ARTSA 401MKTG 301ACCTG 211

**ARTSA 495A Arts Administration Off Campus Internship** (3) A professional internship experience with an established arts agency or organization outside of the university.  
Effective: Summer 2012  
Prerequisite: ARTSA 301

**ARTSA 495B On Campus Internship in Arts Administration** (3) An internship with an on-campus arts organization or program.  
Effective: Summer 2012  
Prerequisite: ARTSA 301ARTSA 401ARTSA 495A

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## Arts and Architecture (A&A)

A&A 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

A&A 100 (GA;IL) **Introduction to International Arts** (3) An interdisciplinary, multicultural introduction to the arts of the world.  
Effective: Summer 2005

A&A 105 **Interdisciplinary Digital Studio (IDS) Seminar I** (3) This course will consist of 5 modules that will introduce students to emerging technologies that are applicable to interdisciplinary electronic design study.  
Effective: Summer 2012  
Prerequisite: School of Visual Arts Admissions Portfolio

A&A 106 **Interdisciplinary Digital Studio (IDS) Seminar II** (3) This course will consist of 5 modules that will introduce students to emerging technologies that are applicable to interdisciplinary electronic design study.  
Effective: Summer 2012  
Prerequisite: School of Visual Arts Admissions Portfolio and completion of A&A 105

A&A 110 **Interdisciplinary Digital Media Studio I** (3) Provides arts and design students an interdisciplinary studio-based exploration of critical, theoretical, and historical understandings of digital media.  
Effective: Summer 2006  
Prerequisite: Prerequisite or concurrent: A&A 101 A&A 102S Concurrent: or A&A 103 A&A 104

A&A 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2004

A&A 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

A&A 210 **Focused Realization Studio** (3) Provides students the opportunity for the realization of more focused interdisciplinary studio explorations in the digital arts and design disciplines.  
Effective: Spring 2011  
Prerequisite: A&A 110

A&A 294 **Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1994

A&A 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2004

A&A 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2004

A&A 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

A&A 310 **Creative Collaboration Studio** (3) Provides students with an advanced studio exploration of interdisciplinary collaborative projects in the digital arts and design disciplines.  
Effective: Summer 2006  
Prerequisite: A&A 210 ART 211W

A&A 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2004

A&A 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

A&A 401 **International Arts Minor Final Project** (1-3) The final project required for the International Arts Minor.  
Effective: Summer 2004  
Prerequisite: A&A 100 and completion of at least 12 credits toward the International Arts Minor

A&A 410 **Interdisciplinary Digital Studio Capstone I** (4) Provides arts and design students an opportunity to

conceptualize a digital arts and design undergraduate thesis.

Effective: Summer 2006

Prerequisite: A&A 310 Prerequisite or concurrent: ART H 476

A&A 411 **Interdisciplinary Digital Studio Capstone II** (4) Provides arts and design students an opportunity to implement a digital art and design undergraduate thesis.

Effective: Summer 2006

Prerequisite: A&A 410

A&A 494 **Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 1994

A&A 494H **Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

A&A 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2004

A&A 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2004

A&A 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Asian American Studi (AAS)

AAS 100 (GH;US) (AM ST 160) **Introduction to Asian American Studies** (3) An introduction to the history, literature, and culture of Asian America.  
Effective: Fall 2013

AAS 428 (US) (ENGL 428) **Asian American Literatures** (3 per semester/maximum of 6) A seminar on the literatures and cultures of Asian America, with attention to forms of geographic, historical, and ethnic diversity.  
Effective: Summer 2010

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## Asian Studies (ASIA)

ASIA 003 (GH;US;IL) (RL ST 003) **Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.  
Effective: Spring 2015 Future: Spring 2015

ASIA 004 (GH;IL) (CMLIT 004) **Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.  
Effective: Fall 2010

ASIA 083S **Asian Studies First Year Seminar** (3) The meaning and advantages of a Liberal Arts education in context of a specific discipline.  
Effective: Spring 2010

ASIA 100 (GH;IL) **What is Asia?** (3) An introduction to the history, literatures, politics, and cultures of Asia.  
Effective: Fall 2012

ASIA 103 (GH;US;IL) (RL ST 103) **Introduction to Hinduism** (3) Historical development of Hinduism to the present.  
Effective: Spring 2015 Future: Spring 2015

ASIA 104 (GH;US;IL) (RL ST 104) **Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.  
Effective: Spring 2015 Future: Spring 2015

ASIA 120Y (GH;IL) **South Asia: A Literary History** (3) The course traces the cultural history of South Asia by studying its literary tradition from ancient to modern times.  
Effective: Summer 2014

ASIA 177 (GH;IL) (HIST 177) **The Rise of Modern Southeast Asia** (3) Study of Southeast Asia from the rise of early empires to the present.  
Effective: Summer 2014

ASIA 181 (IL) (RL ST 181) **Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.  
Effective: Spring 2015 Future: Spring 2015

ASIA 182 (GH;IL) (HIST 182) **Asian Trade: Economy, Industrialization and Capitalism in Asia** (3) An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present.  
Effective: Summer 2014

ASIA 183 (GH;IL) (HIST 183) **Gender, Family, and Society in East Asia** (3) Investigates the history of gender, family, love, and sex in East Asia.  
Effective: Summer 2012

ASIA 184 (GH;IL) (HIST 184) **Society and Culture in the Pacific War** (3) Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.  
Effective: Summer 2012

ASIA 185 (GH;IL) (HIST 185) **Asian Pop: The History of Popular Culture in Asia** (3) A history of popular culture from the early modern period to the present.  
Effective: Summer 2014

ASIA 188 (GH;IL) (HIST 188) **Tibet: People, Places and Spaces** (3) This course examines the historical, cultural, and ethnic dimensions of Tibet from the seventh century to the present.  
Effective: Summer 2012

ASIA 189 (GH;IL) (HIST 189) **Illicit Asia: An Alternative Introduction to Asia** (3) A historical introduction to unlawful, illegitimate and forbidden ideas, goods, people and places in modern Asia.  
Effective: Summer 2014

ASIA 197 **Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2010



**ASIA 197A India's Culture, Agricultural and Economic Diversity** (2) Students will have the opportunity to expand their understanding of the cultural diversity of India respective to their courses of study by exploring the customs, agriculture, industry, religions, history, food and education.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ASIA 199 (IL) Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

**ASIA 199A (IL) India's Culture, Agricultural and Economic Diversity** (2) Students will participate in volunteerism in sustainability, organic farming and humanitarian projects from helping in orphanages to spearheading a project to provide housing for homeless which they initiated during the ASIA 197A course.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: ASIA 197A

**ASIA 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2010

**ASIA 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2010

**ASIA 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

**ASIA 300H Honors Thesis** (3) Individual projects involving research, reading, and writing; preparation of a thesis in Asian Studies.  
Effective: Summer 2010  
Prerequisite: Participation in the Schreyer Honors College

**ASIA 315 (GA;IL) (ART H 315) Architecture and Art of South and Southeast Asia** (3) Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.  
Effective: Summer 2010

**ASIA 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2010  
Prerequisite: prior approval of proposed assignment by instructor

**ASIA 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

**ASIA 401 East Asian Studies** (3-6) An interdisciplinary, variable content, lecture-discussion course on the history, culture, politics, and international relations of China, Japan, and Korea.  
Effective: Spring 2010  
Prerequisite: 6 credits from courses in the East Asian Studies program

**ASIA 404 (IL) (CMLIT 404) Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan.  
Effective: Fall 2010  
Prerequisite: 3 credits in literature or related field appropriate to this course

**ASIA 404Y (IL) Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan, taught with focus on written analysis and interpretation.  
Effective: Summer 2013

**ASIA 405 Seminar in Asian Studies** (3-6 per semester/maximum of 6) Advanced seminar in Asian Studies  
Effective: Summer 2013  
Prerequisite: ASIA 100

**ASIA 405Y (IL) Seminar in Asian Studies** (3-6 per semester/maximum of 6) An advanced, writing-focused seminar in Asian Studies.  
Effective: Fall 2009  
Prerequisite: ASIA 100

**ASIA 440 (IL) (ART H 440) Monuments of Asia** (3-9 per semester/maximum of 9) An exploration of major Asian sites and monuments through a focus on their historical and cultural significance.  
Effective: Summer 2012  
Prerequisite: ART H 100 or ART H 120 or ART H 315 or ART H 320 or ART H 330

**ASIA 469 (IL) (PL SC 469) Government and Politics of South Asia** (3) This course offers an overview of the politics of

modern South Asia with specific focus on Afghanistan, India and Pakistan.

Effective: Summer 2014

Prerequisite: PL SC 003PL SC 014PL SC 022 orASIA 100

ASIA 474 (HIST 474, JAPNS 426) **Early Modern Japan** (3) Japanese history from 1580-1880.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172HIST 174JAPNS 120 orJAPNS 121

ASIA 475Y (IL) (HIST 475Y) **The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 010HIST 011HIST 172HIST 175HIST 176HIST 181 orHIST 191

ASIA 476 (IL) (HIST 476) **Technology & Society in Modern Asia** (3) Role of technology in modernization, national identity, and foreign relations of an Asian country from 19th century to present day.

Effective: Summer 2014

Prerequisite: ASIA 100HIST 172HIST 173HIST 174HIST 175HIST 176HIST 183HIST 184HIST 188

ASIA 480 (IL) (HIST 480) **Japan in the Age of Warriors** (3) An overview of Japan from the 10th to 17th century, a period of political decentralization, cultural efflorescence, and social change.

Effective: Fall 2014 Future: Fall 2014

ASIA 481 (IL) (HIST 481) **Modern Japan Since 1800** (3) The transformation of Japan from a relatively isolated, agricultural nation into a highly industrialized world power.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172HIST 174 orHIST 175

ASIA 482 (CHNS 424, HIST 482) **Confucius and the Great Books of Early China** (3) This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: fifth semester standing

ASIA 483 (IL) (HIST 483) **Middle China** (3) The social, political, and cultural issues and developments from the 8th to 16th century.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 174

ASIA 484Y (IL) (HIST 484Y) **History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 174 orHIST 175

ASIA 485Y (IL) (HIST 485Y) **China's Last Empire: The Qing Dynasty, 1644-1911** (3) China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 orHIST 300H

ASIA 486 (IL) (HIST 486) **China in Revolution** (3) China from 1900 to the present; nationalism, cultural change; development of communism.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 orHIST 300H

ASIA 489 (IL) (HIST 489, PL SC 486) **International Culture in East Asia** (3) Study of the role of culture in East Asian regional and East-West international relations.

Effective: Summer 2013

Prerequisite: any one of the following:HIST 172HIST 174HIST 175HIST 480HIST 481HIST 483HIST 484HIST 485HIST 486

ASIA 493 (IL) (HIST 493) **Japan in the World** (3) Study of Japan's foreign relations and position in the international community from the early 19th century to the present.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ASIA 100HIST 172HIST 175 orHIST 481

ASIA 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2010

ASIA 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2010

ASIA 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

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## Astronomy and Astrophysics (ASTRO)

ASTRO 001 (GN) **Astronomical Universe** (3) The development of modern understanding of the astronomical universe from planets and stars to galaxies and cosmology. Student who have passed ASTRO 005, ASTRO 006, or ASTRO 010 may not take this course for credit.  
Effective: Fall 2009

ASTRO 001H (GN) **Astronomical Universe** (3) The development of modern understanding of the astronomical universe from planets and stars to galaxies and cosmology. Students who have passed ASTRO 005, ASTRO 006, or ASTRO 010 may not take this course for credit.  
Effective: Fall 2009

ASTRO 005 (GN) **The Sky and Planets** (3) The development of our modern understanding of the visible sky and planetary systems. Students who have passed ASTRO 001 or ASTRO 010 may not take this course for credit.  
Effective: Summer 2008  
Prerequisite: Students who have passed ASTRO 001 or ASTRO 010 may not take this course.

ASTRO 006 (GN) **Stars, Galaxies, and the Universe** (3) The development of our modern understanding of stars, galaxies, and the astronomical universe. Students who have passed ASTRO 001 or ASTRO 010 may not take this course for credit.  
Effective: Summer 2008  
Prerequisite: Students who have passed ASTRO 001 and ASTRO 010 may not take this course.

ASTRO 010 (GN) **Elementary Astronomy** (2) Introductory survey of modern astronomy from planets and stars to galaxies and the universe. Students who have passed ASTRO 001, ASTRO 005, or ASTRO 006 may not take this course for credit. Students may not receive General Education credit for ASTRO 010 unless they also take ASTRO 011.  
Effective: Fall 2009

ASTRO 011 (GN) **Elementary Astronomy Laboratory** (1) Selected experiments and explorations to illustrate major astronomical principles and techniques. Telescopes observations of planets, stars and nebulae.  
Effective: Fall 2004  
Prerequisite: or concurrent:ASTRO 001 orASTRO 010

ASTRO 020S **First-Year Astronomy Seminar** (2) Introduction to the study of modern astronomy through discussions, activities, and writing.  
Effective: Summer 1999

ASTRO 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ASTRO 120 (GN) **The Big Bang Universe** (3) Exploration of cosmology, birth, and ultimate fate of the universe; origin of galaxies, quasars, and dark matter. For non-science majors.  
Effective: Fall 2012  
Prerequisite: ASTRO 001ASTRO 006 orASTRO 010

ASTRO 130 (GN) **Black Holes in the Universe** (3) The predicted properties of black holes and the astronomical evidence for their existence are investigated in the context of modern ideas about space, time, and gravity.  
Effective: Spring 2004  
Prerequisite: ASTRO 001 orASTRO 010

ASTRO 140 (GN) **Life in the Universe** (3) The problem of the existence of life beyond Earth is investigated, drawing from recent research in astronomy and other fields. For non-science majors.  
Effective: Fall 2012  
Prerequisite: ASTRO 001ASTRO 005 orASTRO 010

ASTRO 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

ASTRO 291 (GN) **Astronomical Methods and the Solar System** (3) Physical processes and observational techniques in astronomical systems, characteristics of the sun, planets, and moons.  
Effective: Spring 2002  
Prerequisite: PHYS 211

ASTRO 292 (GN) **Astronomy of the Distant Universe** (3) Observed properties and astrophysical understanding of stars, stellar evolution, galaxies, the large-scale universe, and cosmology.  
Effective: Spring 2002  
Prerequisite: ASTRO 291

ASTRO 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1991

**ASTRO 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1991

**ASTRO 320 (GN) Observational Astronomy Laboratory** (2) Basic observational astronomy techniques introduced through observational exercises, lab experiments, and lectures on relevant statistical techniques.  
Effective: Fall 2012  
Prerequisite: ASTRO 291

**ASTRO 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**ASTRO 400H Honors Seminar** (1 per semester, maximum of 2) Presentations of various branches and modes of modern astrophysical research, based on lectures, visits to telescopes and facilities, and discussions.  
Effective: Spring 2003  
Prerequisite: ASTRO 292

**ASTRO 401 Fundamentals of Planetary Science and Astronomy** (4) Overview of the techniques used and results from studies of the Solar System, stars, and galaxies.  
Effective: Summer 2013  
Prerequisite: ASTRO 001ASTRO 005ASTRO 006 orASTRO 010;MATH 140

**ASTRO 402 Astronomical Telescopes, Techniques, and Data Analysis** (3) Properties and use of optical telescopes, imaging and spectroscopy, multi-wavelength techniques, data analysis and statistics, practical research methods.  
Effective: Summer 2013  
Prerequisite: ASTRO 001 orASTRO 005 orASTRO 006 orASTRO 010 andASTRO 011 orASTRO 291;MATH 140

**ASTRO 410 Computational Astrophysics** (3) Applications of numerical methods and computer programming to astrophysics, including stellar physics and cosmology.  
Effective: Spring 2008  
Prerequisite: CMPSC 201 orCMPSC 121;PHYS 212PHYS 213 andPHYS 214

**ASTRO 414 Stellar Structure and Evolution** (3) Theory of Stellar structure and evolution including energy generation and transport and an examination of stellar models.  
Effective: Summer 2010  
Prerequisite: ASTRO 292MATH 230PHYS 212PHYS 213PHYS 214PHYS 237

**ASTRO 420W Planets and Planetary System Formation** (3) Solar system properties, star formation, protoplanetary disks and planet formation, solar system model, extrasolar planets, and astrobiology.  
Effective: Summer 2004  
Prerequisite: ASTRO 292

**ASTRO 440 Introduction to Astrophysics** (3) Theoretical investigation of physical processes in astronomical objects and systems; modern physical interpretation of astronomical phenomena.  
Effective: Spring 1994  
Prerequisite: MATH 230PHYS 237

**ASTRO 451 Astronomical Techniques** (3) Practical methods of modern observational astronomy, detectors, filters, instrumentation for both ground-based and space observations, and data analysis.  
Effective: Fall 2008  
Prerequisite: PHYS 212PHYS 213PHYS 214

**ASTRO 475W Stars and Galaxies** (3) Astronomical studies concerning the distribution and evolution of stars and gas in our and other galaxies.  
Effective: Fall 1993  
Prerequisite: ASTRO 292

**ASTRO 480 Nebulae, Galaxies, and Cosmology** (3) Emission-line spectroscopy, structure and evolution of galaxies, physics of galactic nuclei and quasars, observational cosmology.  
Effective: Spring 2002  
Prerequisite: ASTRO 292PHYS 212PHYS 213PHYS 214

**ASTRO 485 Introduction to High-Energy Astronomy** (3) The study of black holes, neutron stars, white dwarfs, supernova remnants, and extragalactic objects through x-ray and gamma ray observations.  
Effective: Spring 1994  
Prerequisite: PHYS 237

**ASTRO 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1991

**ASTRO 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1991

ASTRO 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Behavioral Sciences (BE SC)

BE SC 370 **Community Psychology** (3) Introduction to concepts and terminology of community psychology with discussion of historical development. Community mental health issues will be analyzed.  
Effective: Fall 1983

BE SC 376 **Introduction to Human Service Organizations** (3) A course designed to acquaint the student with the role of various social agencies.  
Effective: Fall 1983

BE SC 395 **Behavioral Science Internship** (3-12) Internship in human service organizations providing for application of academic knowledge, reading, and discussion.  
Effective: Spring 2001  
Prerequisite: 90 credits with at least 16 credits in the major

BE SC 407 **Small Groups Counseling** (3) Intensive survey of research and theory on behavior in small groups, with emphasis on interdependence, cooperation, and attitude change.  
Effective: Spring 2001  
Prerequisite: general psychology general sociology or general behavioral science

BE SC 408 **Group Facilitation and Leadership Skills** (3) Skill training in group facilitation and leadership based on analyses of roles and interpersonal dynamics plus differences among impact population.  
Effective: Spring 2001  
Prerequisite: general psychology general sociology or general behavioral science

BE SC 459 **BASIC COUNSELING SKILLS** (3) Behavioral, cognitive, and expressive methods of assessing and enhancing life-coping skills.  
Effective: Spring 2001  
Prerequisite: general psychology general sociology or general behavioral science

BE SC 464 (US) (WMNST 464) **Feminine/Masculine** (3) Study of sex role learning; investigating feminine/masculine labeling; implications for contemporary society.  
Effective: Spring 2008  
Prerequisite: general psychology or general sociology

BE SC 494 **Senior Thesis** (3-9) Problem formulation, literature search, research design, data collection, analysis of results, and final write-up of a substantial research project.  
Effective: Spring 2001  
Prerequisite: permission of program

BE SC 494H **Senior Thesis** (3-9) Problem formulation, literature search, research design, data collection, analysis of results, and final write-up of a substantial research project.  
Effective: Fall 2007  
Prerequisite: permission of program

BE SC 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 1983

BE SC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1983

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## Berks-Lehigh Valley (BKLV)

BKLV 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

BKLV 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

BKLV 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

BKLV 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

BKLV 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

BKLV 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

BKLV 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2001

BKLV 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Fall 2001  
Prerequisite: prior approval of proposed assignment by instructor

BKLV 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2001

BKLV 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

BKLV 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

BKLV 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

BKLV 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Fall 2001  
Prerequisite: prior approval of proposed assignment by instructor

BKLV 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

BKLV 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

BKLV 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**BKLV 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2001

**BKLV 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

**BKLV 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Fall 2001  
Prerequisite: prior approval of proposed assignment by instructor

**BKLV 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2001

**BKLV 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

**BKLV 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

**BKLV 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Biobehavioral Health (BB H)

**BB H 019S Health and Disease** (1) Essentials of communicable and chronic disease control.  
Effective: Spring 2005

**BB H 045 Alcohol Awareness Education** (1) A course designed to raise awareness relative to the use and abuse of beverage alcohol.  
Effective: Spring 2005

**BB H 046 Introduction to Health Aspects of Human Sexuality** (1) An examination of health concerns related to sexuality and sexual behavior.  
Effective: Spring 2005

**BB H 048 (GHA) Values and Health Behavior** (1.5) Examination of issues that impact the social, emotional, and physical well-being of college students through a values and decision-making process.  
Effective: Fall 2003

**BB H 101 (GHA) Introduction to Biobehavioral Health** (3) Introduction to an interdisciplinary study of health, examining the interaction of biological processes and behavior on health.  
Effective: Spring 2000

**BB H 101H (GHA) Introduction to Biobehavioral Health** (3) Introduction to interdisciplinary study of health, examining the interaction of biological processes and behavior on health.  
Effective: Summer 1998

**BB H 119 (GHA) Behavior, Health, and Disease** (3) Principles of health promotion, disease prevention, and treatment of acute and chronic illness. This course is designed for non-BB H majors.  
Effective: Spring 2002

**BB H 130 (GHA) Strategies for Addressing the Obesity and Diabetes Epidemics** (3) Strategies for understanding and modifying the factors underlying weight, health, and the current U.S. and worldwide obesity/diabetes epidemics.  
Effective: Spring 2011

**BB H 143 (GHA) Drugs, Behavior, and Health** (3) Health aspects of use and abuse of licit and illicit drugs; related social problems and prevention. Designed for non-BB H majors.  
Effective: Spring 2002

**BB H 146 (GHA) Introduction to Health and Human Sexuality** (3) An examination of human sexuality as it relates to health.  
Effective: Summer 2002

**BB H 148S Coping with College: A First Year Transition Seminar** (2) Exploration of effective learning strategies, university resources, academic requirements and planning, career development issues in discussion-centered environment.  
Effective: Summer 1999

**BB H 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2010

**BB H 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2009

**BB H 203 (PSYCH 260) Neurological Bases of Human Behavior** (3) An introduction to biopsychology, emphasizing the structure and function of the human brain.  
Effective: Spring 2007

**BB H 251 (US) Straight Talks I: Advanced Sexual Orientation/Gender Identity Peer Education** (3) Exploration of social justice issues, diversity leadership, and group facilitation skills related to lesbian, gay, bisexual, transgender, and ally issues.  
Effective: Summer 2005

**BB H 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an

individual basis and that fall outside the scope of formal courses.  
Effective: Summer 1996

**BB H 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1997

**BB H 297A Straight Talks II** (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**BB H 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2009

**BB H 301 Values and Ethics in Human Development Professions** (3) Examines bases for choices among values in personal and professional relations in human development processes and supporting services.  
Effective: Spring 1998

**BB H 302 (US) (AF AM 302) Diversity and Health** (3) Examine the relationship of diverse personal and sociocultural factors to health, like socioeconomic class, race-ethnicity, gender, age, and sexual orientation.  
Effective: Spring 2013  
Prerequisite: PSYCH 100 or SOC 001

**BB H 305 (IL) Introduction to Global Health Issues** (3) Course will develop awareness of contemporary issues in global health.  
Effective: Spring 2014  
Prerequisite: BB H 101

**BB H 310 Research Strategies for Studying Biobehavioral Health** (3) Surveys the various research methodologies used in biomedical research, including case, epidemiological, quasiexperimental and experimental approaches.  
Effective: Fall 2010  
Prerequisite: BB H 101 STAT 200

**BB H 311 Interdisciplinary Integration in Biobehavioral Health** (3) A review of literature relevant to the concepts and findings of different scientific domains as they apply to biobehavioral health.  
Effective: Spring 2007  
Prerequisite: BB H 101 BIOL 110 PSYCH 100

**BB H 315 (US) Gender and Biobehavioral Health** (3) Interdisciplinary study of gender, examining the interaction of biological, behavioral, and sociocultural factors on health differentials throughout the lifespan.  
Effective: Summer 2005  
Prerequisite: BB H 101

**BB H 316 Foundations and Principles of Health Promotion** (3) Basic exposure and skills development in theory and practice in health promotion.  
Effective: Fall 2002  
Prerequisite: BB H 101

**BB H 324 HealthWorks Peer Education Training** (3) Designed to train new HealthWorks peer educators, this course addresses behavior theories, promotion strategies, and college health issues.  
Effective: Spring 2010

**BB H 368 Neuroanatomy, Behavior, and Health** (3) The neuroanatomical bases of behavior, health, and disease.  
Effective: Fall 2013  
Prerequisite: BB H 101; BI SC 004 or BIOL 141 or PSYCH 260

**BB H 390A Preparation for Global Health Field Experience** (3) Designed to help students prepare for the required field experience in the Global Health minor.  
Effective: Spring 2014  
Prerequisite: BB H 305 BB H 440 or H P A 440 and admission to the Global Health minor

**BB H 390B Global Health Field Experience** (6) Field experience in a global health setting.  
Effective: Spring 2014  
Prerequisite: BB H 390A and admission to the Global Health minor

**BB H 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2010

**BB H 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2009

**BB H 402 (IL) African Health & Development** (3) Course will address African health and development strategies in the

context of health promotion programs.

Effective: Summer 2010

Prerequisite: BB H 305

**BB H 407 (IL) Global Health Equity (3)** Health, social disparities, and equity in the global environment.

Effective: Summer 2010 Ending: Fall 2014

**BB H 407 (IL) Global Health Equity (3)** Health, social disparities, and equity in the global environment.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: BB H 101 or 3 credits of SOC

**BB H 410 Developmental and Health Genetics (3)** Discussion of genetic influences on development and the interrelationships between genetics and health.

Effective: Spring 2008

Prerequisite: BIOL 133 orBIOL 222;STAT 200STAT 220 orSTAT 250

**BB H 411W Research and Applications in Biobehavioral Health (3)** Research methods, multi-level analyses, and applications in biobehavioral health.

Effective: Spring 2011

Prerequisite: BB H 101BB H 310STAT 200

**BB H 416 Health Promotion II: Planning, Implementation, and Evaluation (3)** Planning, implementation, and evaluation of health promotion, prevention, and intervention programs; emphasizing evaluation.

Effective: Fall 2010

Prerequisite: BB H 310BB H 316

**BB H 417 Advanced Applications in Health Promotion (3)** Advanced learning experience in health promotion applications in which students will actively participate in planning, implementing, evaluating health programs.

Effective: Spring 2000

Prerequisite: BB H 416

**BB H 420 Developing Stress Management Programs (3)** Planning, developing, and implementing strategies for stress management programs for health education professionals in school, community, and corporate settings.

Effective: Spring 1998

**BB H 432 Biobehavioral Aspects of Stress (3)** Comprehensive discussion on the mechanisms of stress-induced diseases.

Effective: Fall 2010

Prerequisite: BB H 101BIOL 141BB H 310 or equivalent

**BB H 440 (US;IL) (H P A 440) Principles of Epidemiology (3)** Theory of epidemiology and significant case studies; potential applications to health care.

Effective: Fall 2008

Prerequisite: BB H 101 orBIOL 110 orH P A 310;STAT 200 orSTAT 250

**BB H 446 Human Sexuality as a Health Concern (3)** Examination of human sexuality as a integral part of basic health education and health care for persons of all ages.

Effective: Fall 2001

Prerequisite: BB H 101

**BB H 451 Pharmacological Influences on Health (3)** Biological and behavioral aspects of therapeutic and recreational drug use and misuse, and their relationships to health.

Effective: Fall 2001 Ending: Fall 2014

Prerequisite: BB H 101

**BB H 451 Pharmacological Influences on Health (3)** Biological and behavioral aspects of therapeutic and recreational drug use and misuse, and their relationships to health.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: BB H 101BIOL 141PSYCH 100

**BB H 452 (US) (NURS 452, WMNST 452) Women's Health Issues (3)** Exploration of major health issues concerning women today, with an emphasis on social, cultural, and medical influences.

Effective: Fall 2013

Prerequisite: BIOL 141 orPSYCH 100 orWMNST 100

**BB H 458 (GS) (WMNST 458) Critical Issues in Reproduction (3)** Examination and analysis of the new reproductive technologies from the standpoint of medical ethics, feminism, and sociocultural influences.

Effective: Fall 2013

Prerequisite: BIOL 141 orPSYCH 100 orWMNST 100

**BB H 468 Neuroanatomical Bases for Disorders of Behavior and Health (3)** An examination of the anatomical/cellular/molecular bases for human central nervous system disorders and their impacts on victims/families/caregivers.

Effective: Spring 2007

Prerequisite: BB H 368BB H 469 orPSYCH 260

**BB H 469 (BIOL 469) Neurobiology (3)** Comprehensive examination of neuroanatomy and physiology designed to integrate the principles of neurochemistry, neuroendocrinology and molecular biology.

Effective: Fall 1994

Prerequisite: BIOL 240W

**BB H 470 (BIOL 470) Functional and Integrative Neuroscience (3)** Neurobiological function in motivated behaviors, motor and sensory function, learning and memory, development, sexual differentiation, and pathology.  
Effective: Summer 1995  
Prerequisite: BIOL 469

**BB H 490 Introduction to Internship Experience (3)** Provide an integrative learning experience to develop professional skills encountered in an internship experience and future careers in biobehavioral health.  
Effective: Summer 2014  
Prerequisite: at least 9 credits from 300-level BB H

**BB H 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1995

**BB H 494H Senior Honors Thesis (1-6)** Independent study related to a student's interests directed by a faculty supervisor and culminating in the production of a thesis.  
Effective: Summer 2005  
Prerequisite: approval of honors thesis advisor

**BB H 495 Internship Experience in Biobehavioral Health (6-12)** This course provides experiential learning in the field. Internship Supervision and support will be provided by site and university personnel.  
Effective: Summer 2014  
Prerequisite: BB H 490

**BB H 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 1995

**BB H 496H Independent Honors Study in BB H (1-3 per semester/maximum of 6)** For non-thesis independent study/research by Schreyer Honors College scholars.  
Effective: Summer 2011

**BB H 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1995

**BB H 497A Clinical Volunteer Training (3)** Course offered through continuing education.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**BB H 497B Health Works (2)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**BB H 497D Internship Experience in Biobehavioral Health (3-6)** This course will be scheduled by appointment and is part of the new internship program in Biobehavioral Health. Instruction provided by the internship coordinator.  
Effective: Summer 2014 Ending: Summer 2014

**BB H 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2009

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## Biochemistry and Molecular Biology (B M B)

**B M B 001 (GN) Understanding the Bases of Human Disease** (3) A broad survey of the molecular and cellular factors that contribute to an understanding of selected human diseases.  
Effective: Fall 2004

**B M B 001S (GN) Understanding the Bases of Human Disease** (3) A broad survey of the molecular and cellular factors that provide an explanation for an understanding of human disease.  
Effective: Spring 2001

**B M B 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**B M B 211 Elementary Biochemistry** (3) An overview of biochemistry that includes properties of biomolecules, bioenergetics, metabolism, nutrition, genetics, and molecular biology.  
Effective: Summer 2007  
Prerequisite: CHEM 110;CHEM 202 orCHEM 210

**B M B 212 Elementary Biochemistry Laboratory** (1) Selected experiments to illustrate major biochemical principles and techniques.  
Effective: Summer 2000  
Prerequisite: or concurrent: B M B 211

**B M B 221 Applied Biochemistry** (2) Application and correlation of biochemical events to physiological-nutritional processes in specialized cells, fluids, and whole animals. Students may not receive credit for both B M B 221 and 401.  
Effective: Summer 2000  
Prerequisite: B M B 211

**B M B 251 (MICRB 251) Molecular and Cell Biology I** (3) Biomolecules, genetic mechanisms, organization of cells and their organelles, DNA replication, protein synthesis, membranes, the cell nucleus, energy conversion.  
Effective: Summer 2007  
Prerequisite: CHEM 112

**B M B 251H Molecular and Cell Biology I** (3) Biomolecules, genetic mechanisms, organization of cells and their organelles, DNA replication, protein synthesis, membranes, the cell nucleus, energy conversion.  
Effective: Summer 2007  
Prerequisite: CHEM 112

**B M B 252 (MICRB 252) Molecular and Cell Biology II** (3) Continuation of B M B/MICRB 251; cytoskeleton, cell growth, division, adhesion, signalling, germ cells, differentiation, immune system, nervous system, plant cells.  
Effective: Spring 1995  
Prerequisite: B M B 251

**B M B 252H Molecular and Cell Biology II** (3) Continuation of B M B 251H; cytoskeleton, cell growth, division, adhesion, signaling, germ cells, differentiation, immune system, nervous system, plant cells.  
Effective: Summer 2005  
Prerequisite: B M B 251H

**B M B 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2009

**B M B 398A Majors Colloquium: Molecular Mechanisms and Human Consequences** (2) An introduction to the majors in Biochemistry and Molecular Biology, Microbiology, and Biotechnology. The course will include guest lectures from department faculty, student presentations, electronic readings and discussion outside of class, and extensive participation in classroom discussions.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**B M B 398B Problem Solving in Biochemistry, Molecular Biology and Microbiology** (1) The B M B 398D is a course designed to use collaborative learning techniques to improve student skills in problem solving and application. Each section of B M B 398B is paired with another B M B/MICRB course, and the B M B 398B course will provide students with the opportunity to work together with their peers to solve problems with the guidance and facilitation of a course learning assistant. A variety of exercise (i.e. quantitative and qualitative worksheet problems, concept mapping, and diagrammatic reasoning) may be used, with the common goal being to help students understand and apply the core principles covered in the paired B M B or MICRB course.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**B M B 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**B M B 400 Molecular Biology of the Gene** (2-3) Biochemistry of genetic phenomena, including the structure, replication and dynamics of genes and chromosomes, their expression and regulation.

Effective: Fall 2008

Prerequisite: BIOL 222 orBIOL 322;BIOL 230W orB M B 251;CHEM 212

**B M B 401 General Biochemistry** (3) Principles of the structure and function of biological molecules, including carbohydrates, lipids, membranes, proteins, and enzymes. Students may not receive credit for both CHEM 476 and B M B 401.

Effective: Fall 2009

Prerequisite: CHEM 212;B M B 251 orBIOL 230

**B M B 401H General Biochemistry** (3) Principles of the structure and function of biological molecules, including carbohydrates, lipids, membranes, proteins, and enzymes. Students may not receive credit for both CHEM 476 and B M B 401H.

Effective: Fall 2009

Prerequisite: CHEM 212;B M B 251 orBIOL 230W

**B M B 402 General Biochemistry** (3) Comprehensive survey of the pathways and regulation of intermediary metabolism.

Effective: Fall 2007

Prerequisite: B M B 401 orCHEM 476

**B M B 402H General Biochemistry** (3) Comprehensive survey of the pathways and regulation of intermediary metabolism.

Effective: Summer 2005

Prerequisite: B M B 401H

**B M B 403 Biochemistry Laboratory** (1) An introduction to techniques of experimental biochemistry, illustrating principles covered in B M B 402.

Effective: Spring 2010

Prerequisite: or concurrent:B M B 402

**B M B 406 Molecular Biology** (3) A discussion of current aspects of cell molecular biology with a laboratory emphasizing current biotechnology techniques.

Effective: Fall 2007

Prerequisite: BIOL 222 orBIOL 322;BIOL 230W orB M B 251;CHEM 039

**B M B 408 Instructional Practice** (1-2) Participation in the instruction of undergraduate laboratory and lecture courses, including classroom preparation; discussion of principles and objectives of each exercise.

Effective: Spring 2014

Prerequisite: 10 credits in biochemistry and molecular biology and permission of the department

**B M B 411 Survey of Biochemistry and Molecular Biology Literature** (1) An introduction to readings and oral presentations in biochemistry and molecular biology.

Effective: Spring 1995

Prerequisite: B M B 401;B M B 400 orB M B 402

**B M B 428 Physical Chemistry with Biological Applications** (3) Chemical thermodynamics and kinetics with applications to biological problems.

Effective: Summer 2007

Prerequisite: CHEM 203 orCHEM 212;PHYS 203 orPHYS 251 ; 3 credits in cell biology

**B M B 430 (BIOL 430, ENT 430) Developmental Biology** (3) Molecular and genetic analyses of mechanisms involved in differentiation and determination in biological systems.

Effective: Summer 1994

Prerequisite: BIOL 222;B M B 252 orBIOL 230

**B M B 432 (MICRB 432, VB SC 432) Advanced Immunology: Signaling in the Immune System** (3) The study of signaling pathways that regulate the immune response.

Effective: Fall 2007

Prerequisite: B M B 400MICRB 410

**B M B 433 (VB SC 433) Molecular and Cellular Toxicology** (3) In-depth coverage of processes by which drugs/chemicals interact with biological systems and the experimental approaches used to study these interactions.

Effective: Fall 2007

Prerequisite: B M B 401

**B M B 435 (MICRB 435, VB SC 435) Viral Pathogenesis** (2) A study of the molecular, immunological and pathological aspects of viral diseases as well as laboratory methods of diagnosis.

Effective: Fall 2007

Prerequisite: MICRB 201;B M B 251 andB M B 252 orBIOL 110 andBIOL 230W

**B M B 437 Physiological Biochemistry** (2) Physiological aspects of biochemistry, with emphasis on mammalian metabolism, specialized tissue and fluid functions, detoxification mechanisms, energetics, and physiological interrelationships.

Effective: Spring 1995

Prerequisite: B M B 402

**B M B 442 Laboratory in Proteins, Nucleic Acids, and Molecular Cloning** (3) Laboratory in enzyme purifications and assay techniques; nucleic acid isolation and characterization, including plasmid preparation.

Effective: Summer 2012

Prerequisite: B M B 251BIOL 230W orMICRB 201;CHEM 202 orCHEM 210 . Prerequisite or concurrent:B M B 211 orB M B 401

**B M B 443W Laboratory in Protein Purification and Enzymology** (3) Laboratory in protein isolation methodology, enzyme kinetics, and physico- chemical properties of proteins.

Effective: Spring 2009

Prerequisite: B M B 442B M B 401

**B M B 445W Laboratory in Molecular Genetics I** (2) Laboratory in molecular techniques in gene analysis and microbial genetics, emphasizing in vitro methodologies.

Effective: Spring 2009

Prerequisite: B M B 442B M B 400MICRB 202

**B M B 448 Model Systems and Approaches in Cell Biology Inquiry** (2) Advanced laboratory that uses inquiry-based approaches to the analysis of organelles, genetic mechanisms, and metabolic processes in eukaryotic organisms.

Effective: Spring 2013

Prerequisite: MICRB 202B M B 442 orMICRB 442 andB M B 251 orMICRB 251 orBIOL 230

**B M B 450 (MICRB 450) Microbial/Molecular Genetics** (2) Genetic phenomena, with emphasis on molecular mechanisms: gene transfer, recombination, gene conversion, gene fusion, suppression, transposons.

Effective: Fall 2010

Prerequisite: BIOL 222 orBIOL 322MICRB 201

**B M B 460 (MICRB 460) Cell Growth and Differentiation** (3) Mechanisms and regulation of protein trafficking, organelle biosynthesis, cell development, signaling and cell cycle control. Emphasizes experimental design and analysis.

Effective: Spring 2006

Prerequisite: B M B 252

**B M B 464 Molecular Medicine** (3) An exploration of the impact of advances in molecular biology on understanding disease mechanisms, medical diagnosis, and therapeutics.

Effective: Spring 1999

Prerequisite: B M B 251

**B M B 465 Protein Structure and Function** (3) A study of the relationship between structure and function of proteins; internet analysis to predict structure and function is included.

Effective: Fall 2007

Prerequisite: BIOL 230W

**B M B 474 Analytical Biochemistry** (3) Physical/chemical theory and techniques that emphasize purification and characterization of biological macromolecules, including proteins, lipids and nucleic acids.

Effective: Fall 2008

Prerequisite: Prerequisite or concurrent:B M B 428 orCHEM 450

**B M B 480 (MICRB 480) Tumor Viruses and Oncogenes** (3) Oncogenes, DNA and RNA tumor viruses, and relevant experimental techniques with emphasis on molecular basis of carcinogenesis and gene regulation.

Effective: Spring 2001

Prerequisite: or concurrent:MICRB 415MICRB 435 orMICRB 460

**B M B 484 Functional Genomics** (3) Biochemical, genetic and evolutionary approaches to comprehensive discovery of functional DNA segments in genomes, including genes and regulatory sequences.

Effective: Spring 2014

Prerequisite: B M B 251 orBIOL 230WBIOL 222 orBIOL 322

**B M B 485 Human Genomics and Biomedical Informatics** (3) This course covers the basics of measuring genomic variation and exploring how variation in DNA is related to common, complex disease.

Effective: Summer 2013

Prerequisite: BIOL 322B M B 400STAT 301 orSTAT 401

**B M B 488 Communities of Practice in Biochemistry and Molecular Biology** (2 per semester/maximum of 16) The course combines laboratory research in a community of practice and a seminar on topics in science, ethics, and society.

Effective: Spring 2013

Prerequisite: MICRB 202

**B M B 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 1995

**B M B 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1995

**B M B 497F Introduction to Bioinformatics** (3) Introduction to the biological problems and computational solutions that motivate current applications in computational biology. Topics will be organized around three main themes: 1) Genomes, including assembly and annotation of genomic sequences; 2) Evolution, including sequence comparison, reconstruction of evolutionary relationships, and detection of disease associated traits; and 3) Function, including analysis of functional genomics experiments and characterization of regulatory relationships between genes.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: basic understanding of molecular cell biology (e.g. B M B 251 or similar) and statistics (e.g. STAT 200 301 318) recommended

**B M B 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.  
Effective: Spring 1995

B M B 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Bioengineering (BIOE)

**BIOE 100S Bioengineering Seminar** (1) First-year seminar to introduce the role of engineering in biomedical research and in instrument development for the medical device industry.  
Effective: Fall 2001 Ending: Summer 2014

**BIOE 199 Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2008 Ending: Summer 2014

**BIOE 201 Cell and Molecular Bioengineering** (3) An analytical study of molecular and cellular phenomena including functional and metabolic interactions.  
Effective: Spring 2009 Ending: Summer 2014  
Prerequisite: BIOL 141CHEM 112MATH 141 . Prerequisite or concurrent:PHYS 212

**BIOE 299 Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2008 Ending: Summer 2014

**BIOE 301 Analysis of Physiological Systems** (3) Linear systems analysis applied to electrical networks and lumped parameter models of physiological control systems.  
Effective: Spring 2007 Ending: Summer 2014  
Prerequisite: BIOL 141PHYS 212MATH 250 orMATH 251 Concurrent: BIOE 302

**BIOE 302 Physiological Simulation Laboratory** (1) Computer laboratory designed to illustrate applications of control systems theory to physiological systems.  
Effective: Spring 2009 Ending: Fall 2014  
Prerequisite: CMPSC 200 orCMPSC 201 ; Prerequisite or concurrent:BIOE 301

**BIOE 303 Bio-continuum Mechanics** (3) Mechanical properties of fluids and solids with applications to tissue mechanics and vascular system.  
Effective: Spring 2007 Ending: Summer 2014  
Prerequisite: BIOL 141E MCH 210MATH 230MATH 251

**BIOE 313 Bioengineering Thermodynamics** (3) Chemical processes, including material and energy balances and phase equilibria, with emphasis on biological applications.  
Effective: Summer 2007 Ending: Summer 2014  
Prerequisite: BIOL 141CHEM 112MATH 230MATH 251

**BIOE 399 Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2008 Ending: Summer 2014

**BIOE 401 Introduction to Bioengineering Research and Design** (3) Challenges and constraints of bioengineering research and design. Emphasis on immunoresponse, tissue mechanics, biological transport phenomena, and biomaterials.  
Effective: Spring 2007 Ending: Summer 2014  
Prerequisite: BIOE 201BIOE 303 Concurrent: BIOE 404

**BIOE 402 Biomedical Instrumentation and Measurements** (3) Biomedical measurements, including consideration of techniques, equipment, and safety.  
Effective: Spring 2008 Ending: Summer 2014  
Prerequisite: MATH 250 orMATH 251;BIOE 301 orE E 210 orE E 212 orPHYS 402

**BIOE 403 Biomedical Instrumentation Laboratory** (1) Biomedical measurements laboratory including measurement of biopotentials, experiments in medical imaging techniques, and use of cardiovascular and pulmonary system instrumentation.  
Effective: Spring 2007 Ending: Summer 2014  
Prerequisite: Prerequisite or concurrent:BIOE 402

**BIOE 404 Data Analysis and Experiment Design** (1) Statistical measures of data, and selection of experiment sample size to meet criteria.  
Effective: Summer 2006 Ending: Fall 2014  
Prerequisite: BIOE 302 Concurrent: BIOE 401

**BIOE 406 Medical Imaging** (3) Physical principles and clinical applications of medical imaging methods.  
Effective: Summer 2000 Ending: Summer 2014  
Prerequisite: PHYS 212

**BIOE 409 Biofluid Mechanics** (3) The fundamental relations in fluid mechanics and their application to biofluids including steady/unsteady flows, diseased states, devices and biorheology.  
Effective: Summer 2006 Ending: Summer 2014  
Prerequisite: MATH 230MATH 251BIOE 303

**BIOE 410 Biomedical Applications of Microfluidics** (3) Study of fluid mechanics at small length scales. Low Reynolds number flow, electrokinetic flows, bioseparations in microfluidic devices.  
Effective: Fall 2007 Ending: Summer 2014  
Prerequisite: BIOE 303 orM E 320

**BIOE 413 Bioengineering Transport Phenomena (3)** An integrated study of the fundamentals of mass transport processes with emphasis on the analysis of physiological systems.  
Effective: Summer 2007 Ending: Summer 2014  
Prerequisite: BIOE 303BIOE 313 orCHEM 450

**BIOE 419 Artificial Organs and Prosthetic Devices (3)** Analysis of function and consideration of design concerns for biomedical implants, including prosthetic joints, electrical stimulators, and cardiovascular pumps.  
Effective: Fall 2007 Ending: Summer 2014  
Prerequisite: MATH 250 orMATH 251 . Prerequisite or concurrent:BIOL 141 orBIOL 472

**BIOE 423 Reaction Kinetics of Biological Systems (3)** Chemical kinetics and reaction equilibria with applications to the analysis of physiological function and the design of synthetic organs.  
Effective: Spring 2007 Ending: Summer 2014  
Prerequisite: BIOL 141BIOE 313 orCH E 210 . Prerequisite or concurrent:BIOE 413 orCH E 302 andCH E 413

**BIOE 440 Clinical Corelations (1)** Engineering analysis applied to common disease states and therapies.  
Effective: Summer 2000 Ending: Summer 2014  
Prerequisite: BIOE 402

**BIOE 443 (MATSE 403) Biomedical Materials (3)** Describe properties of materials and composites and their in vivo interactions.  
Effective: Spring 2007 Ending: Summer 2014  
Prerequisite: MATSE 201

**BIOE 444 (IL) (MATSE 404) Surfaces and the Biological Response to Materials (3)** Focus is on special properties of surface as an important causative and mediating agent in the biological response to materials.  
Effective: Summer 2007 Ending: Fall 2014  
Prerequisite: CHEM 111CHEM 113

**BIOE 445 Tissue Engineering: Concepts, Calculations and Applications (3)** Introduction to interdisciplinary tissue engineering concepts, associated biochemical and biomechanical engineering calculations, and cardiovascular, musculoskeletal, and other tissue application examples.  
Effective: Spring 2011 Ending: Summer 2014  
Prerequisite: BIOE 201BIOE 303

**BIOE 450W Bioengineering Senior Design (3)** Application of engineering and physiological principles to design of artificial organs and life supportive devices.  
Effective: Spring 2009 Ending: Summer 2014  
Prerequisite: BIOE 403BIOE 440ENGL 202C senior standing

**BIOE 494H Honors Thesis (1-3 per semester/maximum of 6)** Independent study research and design, leading towards honors thesis.  
Effective: Spring 2013 Ending: Summer 2014  
Prerequisite: Permission of program.

**BIOE 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983 Ending: Summer 2014

**BIOE 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983 Ending: Summer 2014

**BIOE 499 Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2008 Ending: Summer 2014

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## **Bioethics and Medical Humanities (BMH)**

BMH 490 **Bioethics and Medical Humanities Capstone Course** (3) Students will integrate knowledge from their BMH minor through discussion and writing a paper on some aspect of medical humanities.

Effective: Spring 2012

Prerequisite: PHIL 132

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## Bioinformatics (BIIFM)

BIIFM 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2004

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## Biological Engineering (B E)

**B E 001S Growing Your Future--First-Year Seminar** (1) Introduce students to University life, the agricultural/biological/engineering program and profession; prepare them to succeed in academic life at Penn State.  
Effective: Fall 2008  
Prerequisite: first-year status

**B E 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2008

**B E 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2008

**B E 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2008

**B E 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2010

**B E 300 Biological Systems** (3) Structure, function, and energy transformation of biological systems that affect solutions to engineering problems. Effects of engineering activities on ecosystems.  
Effective: Fall 2012  
Prerequisite: CHEM 110PHYS 211 Concurrent: M E 300

**B E 301 Mathematical Modeling of Biological and Physical Systems** (3) Modeling tools, quantification of processes, linear and non-linear systems of equations, numerical methods, matrix operations, applied to biological and physical systems.  
Effective: Fall 2008  
Prerequisite: or concurrent:MATH 251

**B E 302 Transport Processes for Biological Systems** (3) Engineering applications of the fundamentals of fluid mechanics, heat transfer, and diffusion, to biological systems at scales ranging from microbial to ecological.  
Effective: Fall 2012  
Prerequisite: MATH 231MATH 251B E 300B E 301M E 300 Concurrent: C E 360 or M E 320

**B E 303 Structural Systems in Agriculture** (3) Engineering analysis and design of structural systems in agriculture; topics: loads, connectors, analysis and design of structural members and systems.  
Effective: Spring 2011  
Prerequisite: B E 301E MCH 213

**B E 304 Engineering Properties of Food and Biological Materials** (3) Composition, structure, and properties relationships. Measurement of mechanical thermal, chemical and biological properties, their variability, and use in engineering calculations.  
Effective: Fall 2008  
Prerequisite: E MCH 213 . Prerequisite or concurrent:B E 300;C E 360 orM E 320;MATH 251

**B E 305 Agricultural Measurements and Control Systems** (3) Principles of measurements, instruments, controls, and data acquisition systems, with emphasis on agricultural applications.  
Effective: Fall 2008  
Prerequisite: PHYS 212

**B E 306 Machines for Agricultural and Biological Processing** (3) Application of machine systems to agricultural production and biological processing machinery. Functional design and analysis of equipment.  
Effective: Spring 2011  
Prerequisite: B E 301E MCH 212E MCH 213

**B E 307 Principles of Soil and Water Engineering** (3) Utilization and engineering of soil-water resources; including rainfall- runoff, soil-water movement, erosion/sediment transport and flow processes.  
Effective: Spring 2012  
Prerequisite: C E 360 orM E 320 Concurrent: C E 360 or M E 320

**B E 308 Engineering Elements of Biochemistry and Microbiology** (3) Introduction to basic biochemistry and microbiology as well as industrial and environmental applications.  
Effective: Fall 2008  
Prerequisite: CHEM 110

**B E 391 (GWS) (A S M 391) Contextual Integration of Communication Skills for the Technical Workplace** (2) To develop corporate communication skills in technically focused students in a contextual manner.  
Effective: Fall 2008  
Prerequisite: Junior level standing in B E or A S M

**B E 392 (GWS) (A S M 392) Contextual Integration of Leadership Skills for the Technical Workplace (2)** To develop corporate leadership skills in technically focused students in a contextual manner.

Effective: Fall 2008

Prerequisite: B E 391 junior level standing in B E or A S M

**B E 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2010

**B E 461 Design of Fluid Power Systems (3)** Hydraulic systems, hydrostatic transmissions, electro-hydraulic systems in application to agricultural production and processing systems.

Effective: Fall 2008

Prerequisite: B E 306 orM E 360;C E 360 orM E 320

**B E 462 Design of Wood Structures (3)** Structural properties of wood; design of wood structural elements; design of wood structural systems; design of post-frame buildings.

Effective: Fall 2008

Prerequisite: B E 303A E 308 orC E 340

**B E 464 Bioenergy Systems Engineering (3)** Fundamental theories and applied technologies for production and conversion of biomass into energy and co-products. Students may take only one course from B E 464 and A B E 884 for credit.

Effective: Summer 2013

Prerequisite: EME 301 orM E 201 orM E 300 orCH E 220 ; Prerequisite or concurrent: B E 308 orCH E 340 orC E 479

**B E 465 Food and Biological Process Engineering (3)** Reactor design, kinetics, fluid flow, thermal processes, and other topics applied to the design of systems for the food and biological process industry.

Effective: Fall 2008

Prerequisite: B E 302

**B E 466W Biological Engineering Design (3)** This course focuses on a industry sponsored design project offered in conjunction with the College of Engineering Learning Factory.

Effective: Summer 2010

Prerequisite: B E 391 ; senior level standing in B E

**B E 467 Design of Stormwater and Erosion Control Facilities (3)** Design of best management practices for stormwater management, erosion and sediment control as applied to the agriculture-urban interface.

Effective: Spring 2010

Prerequisite: B E 307 orC E 461

**B E 468 Microbiological Engineering (3)** Application of basic engineering principles and designs in biochemical and biological processes.

Effective: Fall 2012

Prerequisite: B E 302;B E 308 or bothMICRB 201 andB M B 211;PHYS 211

**B E 469W Optimization of Biological Production and Processing Systems (3)** Engineering and biological principles combined with economics and mathematical techniques to evaluate and optimize biological production and processing systems.

Effective: Fall 2008

Prerequisite: B E 302 and one B E 460 level course

**B E 477 Land-Based Waste Disposal (3)** Analysis, design, and management of land-based systems for recycling and disposal of municipal, industrial, and agricultural wastes.

Effective: Fall 2008

Prerequisite: B E 307 orC E 370 orA S M 327

**B E 487 Watershed Modeling for Water Quality Design (3)** Application of common watershed models used to investigate design alternatives for flow and quality effects.

Effective: Summer 2010

Prerequisite: B E 307 orC E 461

**B E 494 Senior Thesis (1-9)** Students must have approval of a thesis adviser before scheduling this course.

Effective: Fall 2008

**B E 494H Senior Honors Thesis (1-6)** Senior honors thesis.

Effective: Fall 2008

Prerequisite: junior or senior status in the University Scholar's program

**B E 495 Agricultural Engineering Internship (1-6)** Independent study and supervised cooperative education experience related to the student's career objective.

Effective: Fall 2008

**B E 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 2008

**B E 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2008

B E 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2010

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## Biological Science (BI SC)

BI SC 001 (GN) **Structure and Function of Organisms** (3) An exploration of how cellular structures and processes contribute to life and how life displays unity even in its diversity. Students who have passed BIOL 027, 110, or 141 may not schedule this course.  
Effective: Fall 2004

BI SC 001H (GN) **Structure and Function of Organisms** (3) An exploration of how cellular structures and processes contribute to life and how life displays unity even in its diversity. Students who have passed BIOL 027, 110, or 141 may not schedule this course.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

BI SC 002 (GN) **Genetics, Ecology, and Evolution** (3) The study of how living organisms inherit their traits, how plants and animals evolved, and how they now interact. Students who have passed BIOL 033, 133, 110, 220W, or 222 may not schedule this course.  
Effective: Spring 2003

BI SC 003 (GN) **Environmental Science** (3) Kinds of environments; past and present uses and abuses of natural resources; disposal of human wastes; prospects for the future. Students who have passed BIOL 220 or any other upper-level ecology course in biology may not schedule this course.  
Effective: Fall 2003

BI SC 004 (GN) **Human Body: Form and Function** (3) A general survey of structure and function--from conception, through growth and reproduction, to death. Students who have passed BIOL 129 and 141 may not schedule this course.  
Effective: Spring 2002

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## Biology (BIOL)

**BIOL 001 Preparation Skills for Success in Biology and Life Sciences** (1) A foundation course that emphasizes study skills and reviews basic biological, chemistry and mathematical principles.

Effective: Spring 2012

Prerequisite: Enrollment in the course requires permission of the program

**BIOL 003 Peer Learning in Biology** (1) Group and learning skills to facilitate the understanding of complex biological processes.

Effective: Spring 2006

Prerequisite: Concurrent enrollment in biology or life science course and permission of program.

**BIOL 011 (GN) Introductory Biology I** (3) An introduction to fundamental biological topics (including cells, energy transduction, genetics, evolution, organismal structure/function, ecology) for non-majors biology-related fields.

Effective: Fall 2003

**BIOL 012 (GN) Introductory Biology II** (1) Laboratory exercises demonstrating principles of biology.

Effective: Summer 1992

Prerequisite: or concurrent:BIOL 011

**BIOL 110 (GN) Biology: Basic Concepts and Biodiversity** (4) A study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Fall 2003

**BIOL 110H (GN) Honors Biology: Basic Concepts and Biodiversity** (4) Honors study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Spring 2006

**BIOL 110L (GN) Biology: Basic Concepts and Biodiversity** (4) A study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Summer 1994

**BIOL 110P (GN) Biology: Basic Concepts and Biodiversity** A study of the evolution of the major groups of organisms including the fundamental concepts of biology.

Effective: Summer 1994

**BIOL 110S (GN) Biology: Basic Concepts and Biodiversity** (4) A study of the evolution of the major groups of organisms including the fundamental concepts of biology. This course also fulfills the First-Year Seminar requirements.

Effective: Summer 1999

**BIOL 120A (GN;US;IL) Plants, Places, and People** (3) Useful and dangerous plants; historical (archaeological), cultural (ethnological), and economic (anthropocentric) aspects, including structural and chemical characteristics of botanical importance. Students who have passed BIOL (PPATH;S T S) 424 may not schedule this course.

Effective: Spring 2008

**BIOL 127 (GN) Introduction to Plant Biology** (3) Cellular structure and organization; physiological processes; classification; reproduction and development; relationship of plant groups. Students who have passed BIOL 240W may not schedule this course.

Effective: Spring 2008

**BIOL 129 (GN) Mammalian Anatomy** (4) Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.

Effective: Fall 2003

**BIOL 129L (GN) Mammalian Anatomy** (4) Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.

Effective: Fall 2003

**BIOL 129P (GN) Mammalian Anatomy** Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.

Effective: Fall 1998

**BIOL 133 (GN) Genetics and Evolution of the Human Species** (3) Human heredity and evolution, individual and social implications. The course is for non-majors; students who have passed BIOL 222, 230W, B M B 251 or any upper-division biology course may not schedule this course.

Effective: Spring 2008

**BIOL 141 (GN) Introductory Physiology (3)** Explanation of the normal structure and function of the animal body, with special emphasis on human body systems. Students who have passed BIOL 472 may not schedule this course.  
Effective: Fall 2003

**BIOL 142 Physiology Laboratory (1)** Experiments demonstrating basic physiological principles, with special reference to man.  
Effective: Fall 1998  
Prerequisite: or concurrent:BIOL 141

**BIOL 155 (GN) Introduction to the Biology of Aging (3)** Examination of human aging from a biological perspective. Population demographics, physiological and pathological changes, and healthy lifestyles are discussed. Students who have passed BIOL 409 may not schedule this course.  
Effective: Spring 2008

**BIOL 177 (GN) Biology of Sex (3)** Basic structure and function of the human reproductive system. Physiology of gametogenesis, fertilization, contraception, gestation, parturition, lactation, and sexual behavior.  
Effective: Spring 2008

**BIOL 199 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**BIOL 200 Introduction to Pharmacological Concepts (3)** Presents basic concepts of pharmacology; includes major drug classifications, pharmaceutical preparations, and biological implications relevant to these therapeutic agents.  
Effective: Spring 1995

**BIOL 220M (GN) Honors Biology: Populations and Communities (4)** Honors study of the major physical, chemical, and biological factors constituting environment and their dynamic interaction with organisms forming ecosystems.  
Effective: Summer 2005  
Prerequisite: BIOL 110

**BIOL 220W (GN) Biology: Populations and Communities (4)** A study of the structures and functions of organismic interactions from simple populations to complex ecosystems. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.)  
BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement. Effective: Fall 2004  
Prerequisite: BIOL 110

**BIOL 222 Genetics (3)** Variation and heredity in plants and animals, including man; relationships of genetical knowledge to evolution and breeding practices.  
Effective: Spring 1995  
Prerequisite: 3 credits in biological sciences

**BIOL 223 Laboratory in Genetics (1)** Principles of genetics illustrated with *Drosophila* breeding experiments and with demonstrations of plant and animal materials.  
Effective: Spring 2008  
Prerequisite: BIOL 133 orBIOL 222

**BIOL 230M (GN) Honors Biology: Molecules and Cells (4)** Honors study of cellular phenomena including molecular genetics and metabolic interactions.  
Effective: Summer 2007  
Prerequisite: BIOL 110CHEM 110

**BIOL 230W (GN) Biology: Molecules and Cells (4)** A study of cellular phenomena including molecular genetics and metabolic interactions. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.)  
BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement. Effective: Summer 2007  
Prerequisite: BIOL 110CHEM 110

**BIOL 240M (GN) Honors Biology: Function and Development of Organisms (4)** Honors study of development and physiological processes at the organismic level. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.)  
Effective: Summer 2007  
Prerequisite: BIOL 110CHEM 110

**BIOL 240W (GN) Biology: Function and Development of Organisms (4)** A study of development and physiological processes at the organismic level. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.)  
BIOL 220W GN, 230W GN, and 240W GN each carry only 1 credit to "Writing"; all three courses must be taken to meet the W requirement. Effective: Summer 2007  
Prerequisite: BIOL 110CHEM 110

**BIOL 251 Peer Leadership in Biology (1)** Leadership training in guiding others to learn, communicate, and apply biological principles.

Effective: Spring 2006

Prerequisite: 8 credits in biology or life science courses and permission of program

**BIOL 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**BIOL 296A A Field Practicum in Costa Rica and Panama** (1) Field-based trip experience of two and one-half weeks that includes hands-on conservation experience, journal keeping, inquiry-based research on real-world environmental issues, participation in group forums/panel discussions and assignments.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: BIOL 296D

**BIOL 296A Laboratory Teaching Experience in Biology** (1-6) This course concentrates on the various philosophies and methods of teaching anatomy at the college level. Special emphasis is placed on inquiry learning and diversity of classroom environments. Techniques of preparing student objectives will be discussed. The course is designed to give the student practice in planning and presenting lectures, lecture demonstrations, and lab investigations.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**BIOL 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**BIOL 297B Integrative Pharmacology** (3) Review the basic concepts of pharmacology and relate these concepts to the pathophysiological changes associated with the disease state.

Effective: Summer 2014 Ending: Summer 2014

**BIOL 297C Intro to Pathophysiological Concepts** (3) Covers the alteration of basic physiological processes associated with the disease state.

Effective: Summer 2014 Ending: Summer 2014

**BIOL 322 Genetic Analysis** (3) A discussion of the mechanisms of heredity in prokaryotes and eukaryotes with emphasis on analysis and modes of inference.

Effective: Fall 2007

Prerequisite: at least two of the following courses: BIOL 220W BIOL 230W BIOL 240W or MICRB 201

**BIOL 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**BIOL 400 Teaching in Biology** (1-3) This course will train biology teaching assistants to teach in the laboratory/ recitation setting with emphasis on critical thinking skills. Enrollment will be limited to students of at least fifth semester standing that have been accepted as teaching assistants for biology.

Effective: Fall 2006

Prerequisite: Enrollment will be limited to students of at least fifth semester standing who are or have been accepted as teaching assistants in a life science course.

**BIOL 402W Biological Experimental Design** (3) Discussion of experimental design, analysis and presentation, with a practicum providing for student design, analysis and presentation of biological experiments. Students may not take this course if they have taken BIOBD 350W.

Effective: Fall 2007

Prerequisite: at least two of the following three courses: BIOL 220W BIOL 230W BIOL 240W; STAT 250

**BIOL 404 Cellular Mechanisms in Vertebrate Physiology** (3) This course considers cellular mechanisms governing physiological aspects of vertebrate cell signaling and their adaptation to particular organismal functions.

Effective: Spring 2001

Prerequisite: BMB 251 or BIOL 230W

**BIOL 405 Molecular Evolution** (3) Introduction to concepts and techniques of analysis of molecular sequence data from an evolutionary point of view.

Effective: Fall 1994

Prerequisite: BIOL 222 or BIOL 230W

**BIOL 406 Symbiosis** (3) This course covers a variety of different types of symbiotic relationships between unicellular symbionts and plants, fungi, or animals.

Effective: Summer 1998

Prerequisite: BIOL 110; BIOL 220W BIOL 230W or BIOL 240W

**BIOL 407 Plant Developmental Anatomy** (3) This course will examine the development of basic vascular plant anatomical structures including leaves, stems, roots, and flowers.

Effective: Fall 2005

Prerequisite: BIOL 240W

**BIOL 409 Biology of Aging** (3) Mechanisms of the aging process, with special reference to man. Unfavorable progressive changes in molecules, cells, systems, and organisms.

Effective: Summer 1984

Prerequisite: 6 credits in biology

**BIOL 411 Medical Embryology (3)** Develops an understanding of human reproductive physiology, embryological processes, their time frames, and the development of major human body systems. The course emphasizes clinical correlations and the medical consequences of developmental abnormalities.

Effective: Summer 1998

Prerequisite: 6 credits of biology

**BIOL 412 Ecology of Infectious Diseases (3)** This course examines how ecological processes impact upon the epidemiology of infectious diseases.

Effective: Fall 2004

Prerequisite: BIOL 220W orH P A 440

**BIOL 413 Cell Signaling and Regulation (3)** Introduction to the themes of cellular signaling and regulation through critical review of primary literature.

Effective: Spring 1998

Prerequisite: BIOL 240W

**BIOL 414 Taxonomy of Seed Plants (3)** Basic principles and procedures in the practice of angiosperm systematics.

Effective: Fall 1994

Prerequisite: BIOL 240W

**BIOL 415 Ecotoxicology (3)** Major concepts and controversies in the interdisciplinary field of ecological toxicology; toxicity analysis, remediation, and case studies of environmental pollution.

Effective: Spring 1995

Prerequisite: BIOL 110BIOL 220W;FOR 308 orW F S 209

**BIOL 416 Biology of Cancer (3)** This course intends to illustrate biological basis of cancer development, and discusses aspects on prevention, detection, and treatment of cancer.

Effective: Spring 1999

Prerequisite: BIOL 222 orBIOL 230W

**BIOL 417 Invertebrate Zoology (4)** Function and form of major invertebrate phyla.

Effective: Fall 1994

Prerequisite: BIOL 110

**BIOL 419 Ecological and Environmental Problem Solving (3)** Overview of processes involved in solving environmental problems. Provides students with toolkit for understanding ecological and environmental problems.

Effective: Spring 2004

Prerequisite: BIOL 220W

**BIOL 420 (GEOSC 420) Paleobotany (3)** Classification, morphology, phylogeny, and stratigraphic occurrence of fossil plants; practicum includes field trips and study of paleobotanical techniques and specimens.

Effective: Spring 2005

Prerequisite: any 3 credit introductory course in historical geology or plant biology

**BIOL 421 (VB SC 421) Comparative Anatomy of Vertebrates (4)** The comparative anatomy of representative vertebrate animals discussed from a descriptive and an evolutionary viewpoint.

Effective: Spring 2008

Prerequisite: BIOL 240W

**BIOL 422 Advanced Genetics (3)** Chromosomal mechanism of heredity; cytoplasmic and polygenic inheritance, chemical genetics, genomics, and experimental evolution.

Effective: Fall 2010

Prerequisite: one genetics or genetic based course includingBIOL 133BIOL 222BIOL 322 orBIOL 230W

**BIOL 424 Seeds of Change: The Uses of Plants (3)** Interdisciplinary approach to the biology, chemistry, history, and culture of the interactions between plants and people.

Effective: Spring 2009

Prerequisite: BIOL 110;BIOL 220WBIOL 230W orBIOL 240W

**BIOL 425 (PPEM 425) Biology of Fungi (4)** A survey of the biological diversity of fungi, stressing evolution, ecology, disease, morphology, life histories, and importance to human affairs.

Effective: Spring 2014

Prerequisite: fifth-semester or graduate standing in a biological sciences major with six credits completed in the major

**BIOL 426 Developmental Neurobiology (3)** Overview of basic developmental processes as they apply to the central nervous system.

Effective: Spring 2004

Prerequisite: BIOL 141 orBIOL 240

**BIOL 427 Evolution (3)** Selected topics on the evolution of life.

Effective: Spring 1995

Prerequisite: BIOL 220WBIOL 230W

**BIOL 428 Population Genetics (3)** Mathematical formulation of evolution by natural selection, genetic equilibrium under selection, mutation, migration, random drift.

Effective: Spring 2001

Prerequisite: BIOL 220WSTAT 250;MATH 111 orMATH 141

**BIOL 429 Animal Behavior (3)** Physiological mechanisms, ecological relevance, and adaptive significance of animal

behavior.

Effective: Spring 1999

Prerequisite: BIOL 110BIOL 220W

**BIOL 430 (B M B 430, ENT 430) Developmental Biology** (3) Molecular and genetic analyses of mechanisms involved in differentiation and determination in biological systems.

Effective: Summer 1994

Prerequisite: B M B 252 ; orBIOL 222BIOL 230W

**BIOL 431 Reproductive Biology** (3) Reproduction is essential to all life and the course will explore development, physiology, cell biology, genetic and evolutionary aspects of this area.

Effective: Summer 2013

Prerequisite: BIOL 110 andBIOL 230 orB M B 251 orMICRO 251 orBIOL 240

**BIOL 432 Developmental Genetics** (3) An advanced course in developmental biology, focusing on the use of genetics techniques to study fundamental questions of animal development.

Effective: Summer 1998

Prerequisite: BIOL 230W ; orB M B 251B M B 252

**BIOL 433 Evolution of Vertebrates** (3) Evolution of vertebrate animals, including classification systems based upon morphology and genetics, insights for special adaptations.

Effective: Spring 2014

Prerequisite: BIOL 110 andBIOL 220W andBIOL 240W

**BIOL 434 Pathobiology of Emerging Infectious Disease** (3) The course will analyze the pathology, immunology, microbiology, evolutionary biology, and policy of important emerging and reemerging infectious diseases.

Effective: Summer 2013

Prerequisite: BIOL 110 andBIOL 230 orMICRO 251 orB M B 251 orMICRO 201

**BIOL 435 Ecology of Lakes and Streams** (3-4) Physical, chemical, and biological characteristics of freshwater environments, with special emphasis on factors regulating productivity in freshwater ecosystems.

Effective: Fall 2011

Prerequisite: BIOL 220W

**BIOL 436 Population Ecology and Global Climate Change** (3) Ecological responses of individuals, populations, and communities to environmental variation, with emphasis on climate change.

Effective: Spring 2004

Prerequisite: BIOL 220

**BIOL 437 Histology** (4) Microscopic structure of the tissue of the animal body.

Effective: Fall 1994

Prerequisite: BIOL 230W

**BIOL 438 Theoretical Population Ecology** (3) Theoretical discussions of demographics, population and metapopulation growth models, life histories, and species interactions such as competition, predation, host-parasitoid relationships.

Effective: Fall 2007

Prerequisite: BIOL 220WMATH 140STAT 250

**BIOL 439 Practical Bioinformatics** (3) Practical aspects of retrieving and analyzing biological information residing in common databases.

Effective: Spring 2004

Prerequisite: BIOL 230 orB M B 251

**BIOL 441 Plant Physiology** (3) Classical and current concepts in plant constituents, mineral nutrition, water relations, respiration, photosynthesis, photoperiodism, plant hormones, growth, and development.

Effective: Spring 1995

Prerequisite: BIOL 230WBIOL 240W

**BIOL 443 Evo-devo: Evolution of Developmental Mechanisms** (3) How evolution of animals and plants can be traced to changes in the regulation and/or interactions of genes controlling development.

Effective: Spring 2004

Prerequisite: BIOL 240

**BIOL 444 Field Ecology** (3) This field course will explore the flora and fauna of the mid-Atlantic area.

Effective: Fall 2007

Prerequisite: BIOL 220W

**BIOL 446 Physiological Ecology** (3) The physiological abilities of plants and animals to adapt to their abiotic environment.

Effective: Fall 1994

Prerequisite: BIOL 220WBIOL 240W

**BIOL 448 Ecology of Plant Reproduction** (3) Analysis of the ecology, evolution, and natural history of angiosperm reproduction, including pollination, fruit-set, dispersal, and relevant plant- animal interactions.

Effective: Fall 1994

Prerequisite: BIOL 220W

**BIOL 450W Experimental Field Biology** (3-5) A practical introduction to modern experimental techniques for ecological study of terrestrial, marine, and fresh water habitats.

Effective: Fall 2007

Prerequisite: BIOL 220WBIOL 240W

**BIOL 451 Biology of RNA** (3) Survey of the roles of RNA in biology, emphasizing evolutionary relationships and relevance to human health.

Effective: Spring 2014

Prerequisite: BIOL 230 or B M B 251 or MICRB 251

**BIOL 459 (BIOTC 459, HORT 459) Plant Tissue Culture and Biotechnology** (3) Principles and techniques for the in vitro culture, propagation, and genetic manipulations of plant cells.

Effective: Fall 1999

Prerequisite: BIOL 230W ; or B M B 251B M B 252

**BIOL 460 (ANTH 460) Human Genetics** (3) The human genome, its variation, origins, and relation to disease and other traits.

Effective: Fall 2011

Prerequisite: ANTH 021BIOL 133BIOL 222BIOL 322 or equivalent. A course in statistics. Contact instructor if in doubt.

**BIOL 460H (ANTH 460H) Human Genetics** (4) Gene mapping in humans; molecular basis of genetic disease; genomic structure; immunogenetics; and genetic evidence for human evolutionary history.

Effective: Fall 2001

Prerequisite: 3 credits in genetics or ANTH 021 or BIOL 222 or BIOL 230W ; and 3 credits in statistics

**BIOL 461 Contemporary Issues in Science and Medicine** (3) Current/classical issues relating to health, research, agriculture, environment, and biotechnology. Active exploration of the impact of science on society.

Effective: Spring 2003

Prerequisite: A 400-level Biology course.

**BIOL 463 General Ecology** (3) Illustrates science of ecology, from individual, population, and community- level perspectives, discusses applications of this science to issues of conservation of biodiversity.

Effective: Spring 2002

Prerequisite: BIOL 220

**BIOL 464 Sociobiology** (3) The study of the adaptive function of social behavior, the comparative analysis of social organization, and the ecology of sociality.

Effective: Summer 2012

Prerequisite: 6 credits in biology or anthropology

**BIOL 467 Molecular Basis of Neurological Diseases** (3) Students taking this course will learn about neurological diseases in a biological molecular context.

Effective: Summer 2013

Prerequisite: BIOL 110 and BIOL 230 or B M B 251 or MICRO 251 or BIOL 240

**BIOL 469 (BB H 469) Neurobiology** (3) Comprehensive examination of neuroanatomy and physiology designed to integrate the principles of neurochemistry, neuroendocrinology, and molecular biology.

Effective: Spring 1995

Prerequisite: BIOL 240W

**BIOL 470 (BB H 470) Functional and Integrative Neurosciences** (3) Neurobiological function in motivated behaviors, motor and sensory functions, learning and memory development, sexual differentiation, and pathology.

Effective: Summer 1995

Prerequisite: BIOL 469

**BIOL 472 Mammalian Physiology** (3) Mechanisms concerned with normal animal function, with special emphasis on humans.

Effective: Summer 2007

Prerequisite: BIOL 240WCHEM 203

**BIOL 473 Laboratory in Mammalian Physiology** (2) Laboratory experiments demonstrating fundamentals in physiology.

Effective: Summer 1985

Prerequisite: or concurrent: BIOL 472

**BIOL 474 (GEOSC 474) Astrobiology** (3) In depth treatment of principles/concepts of biochemical evolution, the origin/evolution of life; evaluation of distribution of life in the universe.

Effective: Summer 2007

Prerequisite: BIOL 110CHEM 110

**BIOL 479 (AN SC 479) General Endocrinology** (3) Endocrine mechanisms regulating the morphogenesis, homeostasis, and functional integration of animals.

Effective: Fall 2009

Prerequisite: BIOL 141 or BIOL 472

**BIOL 482 Coastal Biology** (3-4) Marine organisms, their interactions with each other, and their relationships with several coastal habitats.

Effective: Spring 2010

Prerequisite: BIOL 220W

**BIOL 492 Senior Seminar in Biology** (1) Discussion of selected topics from recent biological literature; reports on current research or internship experiences.

Effective: Fall 2007

Prerequisite: 18 credits in Biology; seventh-semester standing

**BIOL 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2010

**BIOL 495 Internship in Biology** (1-12) Practical off-campus experience in Biology under the supervision of a professional and a faculty member.  
Effective: Spring 2013

**BIOL 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**BIOL 496A Ecology of Infectious Disease Curriculum Development** (3) This course focuses on curriculum development for the Ecology of Infectious Disease.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**BIOL 496C Field Practicum in Costa Rica and Panama** (1) Two and a half week field summer practicum that will provide real-world research and conservation experiences.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: entrance to major and 5th semester standing

**BIOL 496D Summer Independent Research for Undergraduates - C-Fern Mutations** (3) Analysis of C-Fern Mutations.  
Effective: Summer 2014 Ending: Summer 2014

**BIOL 496E Summer Independent Research for Undergraduates - Creek Character** (3) Characterization of Poor House Creek.  
Effective: Summer 2014 Ending: Summer 2014

**BIOL 496F Seed Germination** (3) An analysis of differential gene expression during seed germination of tomato.  
Effective: Summer 2014 Ending: Summer 2014

**BIOL 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**BIOL 497A History of Biology** (3) History of Biology is a 3 credit lecture course designed to introduce students to the long history that led to our current biological knowledge. The course is organized around themes representing some of the most important concepts in biology, such as macromolecules, the cell, inheritance, evolution, metabolism, biodiversity, and ecosystems. Lectures illustrate the interplay between observations, theories, experiments, and techniques. The history of biology is placed within a broader historical and cultural context (scientists and institutions from many different periods and countries are studied).  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: BIOL 110 and BIOL 220W or BIOL 230W or BIOL 240W or permission of program

**BIOL 498 (ENT 498) Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1993

**BIOL 498A Biology of Eco-Health** (3) This three-week summer session course is taught entirely in Tanzania during the first summer session at Penn State. Students will examine topics related to human health, human-environment interactions, and conservation of natural resources. In addition to lectures and discussions, this exceptional opportunity allows students to participate in guided field studies contributing to long term datasets and research projects in both pastoral and agricultural ecosystems. The course will include guest lectures by local experts in biology, conservation, and health as well as visits to research institutions, national parks and a medical clinic/lab.  
Effective: Summer 2014 Ending: Summer 2014

**BIOL 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**BIOL 499A (IL) Tropical Field Ecology** (3) An intensive introduction to tropical biodiversity to be taught in Belize, Central America.  
Effective: Summer 2005  
Prerequisite: BIOL 220W

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## Biomedical Engineering (BME)

**BME 100S Biomedical Engineering Seminar** (1) First-year seminar to introduce the students to the field of biomedical engineering, and related opportunities in research, and industry.  
Effective: Fall 2014 Future: Fall 2014

**BME 199 Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2014 Future: Fall 2014

**BME 201 Fundamentals of Cells and Molecules** (3) Cell and molecular biology taught from an engineering perspective. Includes biochemistry, recombinant DNA, and cell structure/function.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: BIOL 141 orBIOL 240WCHEM 112MATH 141 Prerequisite or concurrent:PHYS 212 andCMPSC 200

**BME 299 Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2014 Future: Fall 2014

**BME 301 Analysis of Physiological Systems** (4) Analysis of physiological signals and modeling of physiological systems by electrical and mechanical analogs in the context of continuous linear systems.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: BIOL 141 orBIOL 240WPHYS 212MATH 250 orMATH 251CMPSC 200

**BME 303 Bio-continuum Mechanics** (3) Mechanical properties of fluids and solids with applications to tissue mechanics and vascular system.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: BIOL 141 orBIOL 240WE MCH 210 orE MCH 211 andE MCH 213MATH 230 orMATH 231 andMATH 232MATH 251

**BME 313 Thermodynamics for Biomedical Engineering** (3) Chemical processes, including material and energy balances and heat transfer with emphasis on biological and biomedical applications.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: BIOL 141 orBIOL 240WCHEM 112MATH 230 orMATH 231 andMATH 232MATH 251

**BME 399 Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2014 Future: Fall 2014

**BME 401 Numerical Simulations in Biomedical Engineering** (3) Integration of design theory and finite element analyses for the development of solutions to problems in biomedical engineering.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: BME 301BME 303BME 313 Prerequisite or concurrent:BME 201

**BME 402 Biomedical Instrumentation and Measurements** (3) Biomedical measurements, including consideration of techniques, equipment, and safety.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MATH 250 orMATH 251;BME 301 orE E 210 orE E 212 orPHYS 402

**BME 403 Biomedical Instrumentation Laboratory** (1) Building basic biomedical signal processing circuits and biomedical measurement systems, experiments in medical imaging techniques, and measurement of bio-potentials.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Prerequisite or concurrent:BME 402

**BME 406 Medical Imaging** (3) Physical principles and clinical applications of medical imaging methods.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: PHYS 212 andCMPSC 200 orCMPSC 201

**BME 409 Biofluid Mechanics** (3) The fundamental relations in fluid mechanics and their application to biofluids including steady/unsteady flows, diseased states, devices and biorheology.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MATH 230MATH 251BIOL 141 orBIOL 240W

**BME 410 Biomedical Applications of Microfluidics** (3) Study of fluid mechanics at small length scales including fabrication of microfluidic devices and microfluidic components, lab-on-chip concept and applications.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: CHEM 112 andPHYS 211 Prerequisite or concurrent:BME 303 orM E 320 orCH E 330 orAERSP 308 orPHYS 213

**BME 413 Mass Transport in Biological Systems** (3) An integrated study of the fundamentals of mass transport processes with emphasis on the analysis of physiological systems.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: BME 313 orM E 300 orM E 302 orCH E 220 orPHYS 213 andMATH 250 orMATH 251 andBIOL 141 orBIOL 240W

**BME 419 Artificial Organs and Prosthetic Devices** (3) Analysis of function and consideration of design concerns for biomedical implants, including prosthetic joints, electrical stimulators, and cardiovascular pumps.



Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141 orBIOL 240W orBIOL 472 andCMPSC 200 orCMPSC 201 orCMPSC 121

**BME 423 Reaction Kinetics of Biological Systems** (3) Chemical kinetics and reaction equilibria with applications to the analysis of physiological function and the design of synthetic organs.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141 orBIOL 240WCHEM 112MATH 250 orMATH 251BME 313 orCH E 210 orM E 300 Concurrent or prerequisite:BME 413 orCH E 410 orB E 302

**BME 429 Biomedical Mechanics and Techniques Laboratory** (2) Experimental laboratory that includes hands-on measurement, computational simulations, and statistical analysis of biofluids, biosolids, and biomaterial phenomena.

Effective: Spring 2014

Prerequisite: BME 201BME 303BME 401

**BME 433 Drug Delivery** (3) Engineering and biological principles as applied to pharmaceutical transport and designing drug carriers.

Effective: Spring 2014

Prerequisite: CHEM 112 andBME 201BIOL 230W orB M B 251 andBME 413 orB E 302 orCH E 410

**BME 435 Micro/Nano-Scale Systems for Biomedical Engineering** (3) Simple and low-cost micro/nanofabrication techniques and their impact on the fields of the Biomedical Sciences and Biomedical Engineering.

Effective: Spring 2014

Prerequisite: CHEM 112 andBME 201 orBIOL 230W orB M B 251

**BME 440 Biomedical Engineering Professional Seminar** (1) Seminar giving students exposure to professionals who apply engineering and related fields to biology and medicine.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: 7th semester standing in BME program

**BME 443 (MATSE 403) Biomedical Materials** (3) Describe properties of materials and composites and their in vivo interactions.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201 orCHEM 112 andMATH 230 orMATH 231

**BME 444 (IL) (MATSE 404) Surfaces and the Biological Response to Materials** (3) Focus is on special properties of surface as an important causative and mediating agent in the biological response to materials.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: CHEM 112 orMATSE 112

**BME 445 Tissue Engineering: Concepts, Calculations and Applications** (3) Introduction to interdisciplinary tissue engineering concepts, associated biochemical and biomechanical engineering calculations, and cardiovascular, musculoskeletal, and other tissue application examples.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 112 andBME 201 orBIOL 230W orB M B 251 andPHYS 211

**BME 446 Polymers in Biomedical Engineering** (3) Foundations in polymer chemistry and physics, polymer design, characterization, and processing with a focus on biomedical applications.

Effective: Summer 2014

Prerequisite: CHEM 112CHEM 113CHEM 202 orCHEM 210E MCH 210 orE MCH 211 andE MCH 213

**BME 450W Biomedical Senior Design** (3) Team based capstone design course with open ended project for industry or clinical applications related to Biomedical Engineering.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BME 401BME 403BME 440ENGL 202C 7th semester standing

**BME 494H Honors Thesis** (1-3 per semester/maximum of 6) Independent study research and design, leading towards honors thesis.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Permission of program.

**BME 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 2014 Future: Fall 2014

**BME 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Future: Fall 2014

**BME 497D Polymers in Bioengineering** (3) A foundational course in biomedical polymer design, synthesis, characterization, and processing with application such as devices, therapeutics, and regenerative medicine.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 112BIOE 201 orBIOL 230W orB M B 251

**BME 499 Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2014 Future: Fall 2014

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## Biomedical Engineering Technology (BE T)

**BE T 101 Introduction to Medical Equipment Maintenance** (1) Introduction to the field of clinical engineering and the management of medical equipment and systems.  
Effective: Spring 2008

**BE T 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**BE T 201 Medical Equipment & Systems I** (5) Introduction to the field of biomedical engineering technology, electrical wiring devices, theories of measurement, cardiovascular systems and ECG monitor operation.  
Effective: Fall 2008  
Prerequisite: EET 105

**BE T 203 Biomedical Equipment Laboratory (Internship)** (4) Practical experience, within or related to the hospital environment, on a variety of biomedical instruments.  
Effective: Fall 2012  
Prerequisite: BE T 204WBE T 206BI SC 004 orBIOL 141 ; must be the last class taken for the degree

**BE T 204W Medical Equipment and Systems II** (5) Principles of medical equipment: operation, application; circuit and block diagrams; preventive maintenance inspections; and troubleshooting with report writing and presentations.  
Effective: Fall 2008  
Prerequisite: BE T 201BE T 205

**BE T 205 Medical Electronics** (4) Solid state devices, diodes, power supplies, operational amplifiers, transistors, timing circuits, high power devices, circuits as applied to medical devices.  
Effective: Fall 2012  
Prerequisite: EET 105

**BE T 206 Medical Computers and Networks** (4) Introduction to computer hardware, software and networks for medical equipment; PC and medical equipment hardware; networking fundamentals.  
Effective: Spring 2012  
Prerequisite: BE T 201IST 220

**BE T 210 Troubleshooting Medical Equipment** (3) Methods and strategies for troubleshooting medical equipment, systems and electronics components.  
Effective: Fall 2012  
Prerequisite: BE T 201

**BE T 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 1997

**BE T 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**BE T 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

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## Biorenewable Systems (BRS)

**BRS 221 Engineering Principles of Biorenewable Systems** (3) Application of engineering principles critical to agricultural and biorenewable systems.

Effective: Spring 2014

Prerequisite: MATH 110 or MATH 140; PHYS 250 or PHYS 211

**BRS 300 Introduction to Biorenewable Products** (3) Overview of bioproducts and their related industry sectors, including forest products, biocomposites, biofuels, bioenergy, bio-based adhesives, biochemicals, and bioplastics.

Effective: Spring 2014

Prerequisite: W P 200W

**BRS 393 Bioresources Industry Tour** (1) A week-long tour of bioproducts and agricultural systems industries.

Effective: Summer 2013

Prerequisite: senior standing in BRS or B E

**BRS 411 Biobased Fiber Science** (4) Theoretical and practical aspects of structure-property relationships for biobased industrial fibers, including fiber biological and chemical constitution and fiber-water relationships.

Effective: Spring 2014

Prerequisite: CHEM 110 BRS 300

**BRS 422 Energy Analysis in Biorenewable Systems** (3) Energy management, energy conversions, renewable energy alternatives, engineering economic analyses, national and international perspectives on energy resources.

Effective: Spring 2014

Prerequisite: BRS 221

**BRS 423 Deterioration and Protection of Bioproducts** (3) Timber, wood, and bioproduct deterioration from fungi, insects, fire; treatment of bioproducts for in-service protection.

Effective: Spring 2014

Prerequisite: BRS 300 Concurrent: BRS 411

**BRS 426 Safety and Health in Agriculture and Biorenewable Industries** (3) Managing occupational safety and health in production agriculture, bioproducts and related operations.

Effective: Spring 2014

Prerequisite: BRS 393

**BRS 428 Electric Power and Instrumentation** (3) Principles and application of electric circuits for power distribution, motors, automatic controls, and instrumentation used in agricultural and biorenewable industries.

Effective: Spring 2014

Prerequisite: BRS 221

**BRS 429W Biorenewable Systems Analysis and Management** (3) Theory of systems thinking; optimization and quantitative techniques for analysis of agricultural production and other biorenewable systems.

Effective: Spring 2014

Prerequisite: BRS 422 ; or concurrent A S M 425 or W P 417

**BRS 437 Bioproduct Marketing and Sales** (4) Business-to-business bioproduct sales and marketing fundamentals and market overview of key forest industry sectors including biorefinery value chain outputs.

Effective: Spring 2014

Prerequisite: BRS 300 AG BM 101 or ECON 102

**BRS 490 BioRenewable Systems Colloquium** (1) Presentations and discussions of solutions to problems within the biorenewable systems industries.

Effective: Spring 2014

Prerequisite: seventh-semester standing

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## Biotechnology (BIOTC)

BIOTC 416 (MICRB 416) **Microbial Biotechnology** (2) Fundamentals of applied biotechnology; the use of microorganisms in the synthesis of biologically-important and industrially-useful products.

Effective: Summer 2012

Prerequisite: MICRB 201MICRB 202;B M B 442

BIOTC 459 (BIOL 459, HORT 459) **Plant Tissue Culture and Biotechnology** (3) Principles and techniques for the in vitro culture, propagation, and genetic manipulations of plant cells.

Effective: Spring 2003

Prerequisite: BIOL 230W ; orB M B 251B M B 252

BIOTC 460 (AGRO 460) **Advances and Applications of Plant Biotechnology** (3) This course provides a comprehensive overview and current status of plant biotech research. The course provides knowledge of plant systems that fall in the category of GMOs.

Effective: Spring 2009

Prerequisite: BIOL 230WB M B 251 or equivalent

BIOTC 479 **Methods in Biofermentations** (3) Bioprocessing principles and development; uses and operation of biofermentors; determination of biomass; problems of scale-up.

Effective: Spring 2009

Prerequisite: MICRB 201MICRB 202;B M B 251B M B 252B M B 442

BIOTC 489 **Animal Cell Culture Methods** (3) An overview of animal cell culture methodology and its practical application in bioprocess technology.

Effective: Summer 2013

Prerequisite: MICRB 201MICRB 202;BIOL 230W orB M B 251

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## Business Administration (B A)

**B A 100 (GS) Introduction to Business** (3) A comprehensive view of the contemporary environment of business.  
Effective: Summer 2008

**B A 100S (GS) Introduction to Business** (3) A comprehensive view of the contemporary environment of business.  
Effective: Fall 2009

**B A 195 Cooperative Practicum with Business Offices** (3-6) Cooperative practical work with business offices under the supervision of the instructor.  
Effective: Summer 1990

**B A 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2003

**B A 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**B A 241 Legal Environment of Business** (2) Examines the legal system's role and impact regarding business transactions, liability issues, and ownership of intellectual property. Students earning credit for B A 241 may not earn credit toward Smeal College baccalaureate degree for B Law 243 and/or B A 243.  
Effective: Summer 2011

**B A 242 Social and Ethical Environment of Business** (2) Explores the social and ethical environment of business and ethical decision making in a business context.  
Effective: Summer 2003

**B A 243 Social, Legal, and Ethical Environment of Business** (4) Explores the ethical, political, social, legal and regulatory, technological, and demographic diversity environment of business. A student may not receive credit toward graduation for both B LAW 243 and B A 243.  
Effective: Fall 1994

**B A 250 Small Business Management** (3) Analysis of problems of the small firm, particularly for the student who wishes to venture into business.  
Effective: Summer 2011  
Prerequisite: 3 credits in economics

**B A 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**B A 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**B A 297A Career Planning Strategies** (1) This course attempts to determine if the students' personal interests, values, skills and goals are consistent with their chosen career. Activities include, resumes, mock interviews, and networking.  
Effective: Summer 2014 Ending: Summer 2014

**B A 297A Career Planning Strategies** (1) This course attempts to determine if the students' personal interests, values, skills and goals are consistent with their chosen career. Activities include, resumes, mock interviews and networking.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**B A 297A Career Planning Strategies** (1) This course attempts to determine if the students' personal interests, values, skills and goals are consistent with their chosen career. Activities include, resumes, mock interviews and networking.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**B A 297B Introduction to Social Entrepreneurship** (3) This course introduces students of any major to social entrepreneurship principles through a multidisciplinary and integrated learning, research, and outreach experience. The examination of case studies will provide examples of both successful and failed social ventures and stimulate discussion about the challenges and issues related to creating sustainable projects that address local and global problems. Emphasis will also be placed on the leadership and professional development of students through involvement in research, project design, implementation, and assessment.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**B A 297C Project Risk and Change Management (1)** This last course in the series introduces the student to risk and change management; team responsibilities, conflicts; quality; ethics; and closeout.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**B A 297D Project Initiation and Planning (1)** Introduces the student to the project management process; the role of the Project Manager; project communications, and project leadership. It begins the planning process covering topics such as the objectives, scope, and success criteria.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**B A 297E Project Scheduling and Integration (1)** This course continues to build upon the lessons learned in "Project Initiation and Planning". Content covers the work between breakdown structure, project schedule, PERT/GANTT/CPM methods, and project integration.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**B A 297F MS Project Overview (1)** Companies large and small require project plans developed in MS Project to track the status of their projects. Learn the proper methods for using MS Project 2010. You will learn the #1 and #2 mistakes even seasoned users make. Explore how to build project plans properly for effective project management.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**B A 297I Business Ethics (1)** Course designed to give students a set of tools to examine and analyze ethical business decisions and to evaluate their own ethical principles.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**B A 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**B A 301 Finance (2)** This course provides an overview of finance. The primary focus is on financial decision making in organizations - also known as corporate finance. In addition to corporate finance, the course also covers the two other primary areas of finance: financial markets and institutions, and investments.  
Effective: Spring 2011 Ending: Fall 2014  
Prerequisite: ACCTG 211ECON 102ECON 104;MIS 204 orIST 110;SCM 200 orSTAT 200

**B A 301 Finance (3)** An overview of finance for non-business majors. Topics include financial markets and institutions, investments, and financial decision making in organizations.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: ACCTG 211;ECON 102 ; 3 credits of 200-level statistics

**B A 302 Supply Chains (2)** Introduction to key elements and strategic importance of supply chain networks.  
Effective: Spring 2011 Ending: Fall 2014  
Prerequisite: ACCTG 211ECON 102ECON 104MIS 204;SCM 200 orSTAT 200

**B A 302 Supply Chains (3)** An overview of supply chain management for non-business majors focusing on the strategic importance of source, make and deliver processes.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: ACCTG 211;ECON 102 ; 3 credits of 200-level statistics

**B A 303 Marketing (2)** Introduction to customer behavior and research, service/product development, pricing and promotion in diverse and international marketing contexts.  
Effective: Spring 2011 Ending: Fall 2014  
Prerequisite: ACCTG 211ECON 102ECON 104;MIS 204 orIST 110;SCM 200 orSTAT 200;B A 241 andB A 242 orB A 243

**B A 303 Marketing (3)** An overview of marketing for non-business majors. Topics include customer behavior, service/product development, pricing, and promotion in diverse markets.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: ECON 102

**B A 303H Honors Core Marketing (2)** Junior Core Marketing - Honors Section.  
Effective: Spring 2011  
Prerequisite: ACCTG 211B A 243 orB A 241 andB A 242ECON 102ECON 104ENGL 015MATH 110 orMATH 140MIS 204SCM 200 orSTAT 200

**B A 304 Management and Organization (2)** Introduction to key concepts for the design and management of organizations.  
Effective: Spring 2011 Ending: Fall 2014  
Prerequisite: ACCTG 211ECON 102ECON 104;MIS 204 orIST 110;SCM 200 orSTAT 200

**B A 304 Management and Organization (3)** This course provides an overview of management for students not enrolling in a Penn State business program. Topics include differences in organizations, decision making, motivation, team effectiveness, corporate strategy and competitor analysis, and implementation in a global context.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: ECON 102

**B A 304H Honors Core Management** (2) Junior Core Business Management - Honors Section.

Effective: Spring 2011

Prerequisite: ACCTG 211B A 243 orB A 241B A 242ECON 102ECON 104ENGL 015MATH 110 orMATH 140MIS 204SCM 200 orSTAT 200

**B A 321 Contemporary Skills for Business Professionals** (3) Emphasizes the development of individual, group, critical thinking, and presentation skills, through the application of modern method and business technology.

Effective: Fall 2012

Prerequisite: ACCTG 211;ECON 102 orECON 104;ENGL 015 Concurrent: SCM 200 or STAT 200 MIS 204

**B A 322 Negotiation Skills for Business Professionals** (3) Emphasizes the preparation and conduct of business negotiations in a range of situations.

Effective: Fall 2012

Prerequisite: ACCTG 211;ECON 102 orECON 104;ENGL 015 Concurrent: SCM 200 or STAT 200 ; MIS 204

**B A 342 Socially Responsible, Sustainable and Ethical Business Practice** (3) Course examines actions taken by corporations that impact global citizenship, environmental sustainability, and the economic stability of international societies. It further looks at relationships, rights, and responsibilities between businesses, business decision-makers and their stakeholders.

Effective: Summer 2010

Prerequisite: MGMT 301MGMT 301W orB A 304 ; Prerequisite or concurrent:FIN 301 orB A 301;MKTG 301 orB A 303;SCM 301 orB A 302

**B A 364Y (US;IL) International Business and Society** (3) Business organizations and the sociocultural environment; current issues; corporate responsibility; international and multinational business environments.

Effective: Spring 2008

Prerequisite: ENGL 202DMGMT 301

**B A 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**B A 395A Practicum in Business Administration** (1) Professional and guided work experience in business administration with private or public organizations. May be taken only as an elective.

Effective: Spring 1990

Prerequisite: fifth-semester standing

**B A 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2008

**B A 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**B A 411 Analyzing Business and Industry** (3) Prepares students to obtain an enterprise-wide view of business and industry by integrating operational and financial decisions in a team and learning environment.

Effective: Fall 2011

Prerequisite: ACCTG 211;B A 301 orFIN 301;B A 302 orSCM 301;B A 303 orMKTG 301;B A 304 orMGMT 301

**B A 412H Honors Integration and Research** (2-3) The integration of the business core into a detailed financial, strategy and market analysis of actual companies selected by student teams.

Effective: Spring 2011

Prerequisite: ACCTG 211;FIN 301 orB A 301;SCM 301 orB A 302;MKTG 301 orB A 303;MGMT 301 orB A 304

**B A 420 Preparation for Career Management** (1) This course emphasizes effective career planning by closely examining oneself, the business world, communication styles and strategies.

Effective: Fall 2012

Prerequisite: B A 321 orB A 322

**B A 421 Project Management** (3) Introduction to Project Management covering all phases of a project including proposal development, planning, execution, and closing.

Effective: Fall 2012

Prerequisite: B A 321 orB A 322

**B A 422W Strategic Business Planning** (3) Study of strategic planning and implementation in multi-industry, multi-cultural, and multi-national settings with emphasis on sustaining competitive advantages.

Effective: Fall 2012

Prerequisite: B A 321;B A 322;B A 421;FIN 301;MGMT 301;MKTG 301;SCM 301

**B A 441 Strategies for Enterprise Sustainability** (3) An understanding and analysis of how environmental and sustainability issues are impacting business strategies and ultimately profits.

Effective: Spring 2014

Prerequisite: B A 342

**B A 442 Sustainable Behavior of Consumers, Firms, and Societies** (3) Strategies to influence sustainable behavior considering consumer response and marketing communications.

Effective: Spring 2014



**B A 462 Business Strategy** (3) Interpretation of business concept in the analysis of problems related to the successful management of a company, institution, or organization.

Effective: Spring 2008

Prerequisite: FIN 301MGMT 301MKTG 301

**B A 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

**B A 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

**B A 495A Business Internship** (3-6 per semester/maximum of 6) Guided professional practicum in business consisting of 3 or 6 credits of supervised fieldwork in business.

Effective: Fall 2012

Prerequisite: B A 321B A 322B A 420 and completion of 6 credits at the 300- or 400-level in the student's option

**B A 495B Undergraduate Research in Business** (3-6 per semester/maximum of 6) Guided student research in business, culminating in the presentation of the research project at a professional conference.

Effective: Fall 2012

Prerequisite: B A 321B A 322B A 420 and completion of 6 credits at the 300- and 400- level in the student's option

**B A 495C Undergraduate Research in Business** (3-9) Guided student research in business administration; application of analytical or research techniques to business problems.

Effective: Spring 2003

Prerequisite: B A 322B A 420

**B A 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**B A 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**B A 497B Sustainable Marketing Strategy for Consumers, Firms, and Societies** (3) Sustainability is a broad domain concerning the extent to which environmental, economic, and social practices are viable for current and future generations. Consumer awareness of sustainability issues has evolved from an emerging social movement to mainstream values, and marketing strategy plays an important role in a business' ability to respond to these issues in a genuine manner. This course focuses on the role of sustainability in the marketplace and marketing strategies to effectively engage customers and stakeholders around sustainable issues.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: B A 342 andB A 497A

**B A 499 (IL) Foreign Study--Business Administration** (1-18) Study in selected countries of business institutions, functions, and current business problems.

Effective: Spring 2011

Prerequisite: ACCTG 211;ECON 102ECON 104;SCM 200

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## Business Law (B LAW)

B LAW 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2011

B LAW 243 **Legal Environment of Business** (3) Social control through law: courts, basic policies underlying individual and contractual rights in everyday society. May not be used to satisfy Smeal College baccalaureate degree requirements. Not available to students who have taken B A 243.  
Effective: Summer 2011  
Prerequisite: third-semester standing

B LAW 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2011

B LAW 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

B LAW 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

B LAW 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2011

B LAW 340 **Business Law** (3) Course examines topics such as commercial paper, secured transactions, bankruptcy, suretyship, professionals' liability, malpractice, and related topics.  
Effective: Spring 2008

B LAW 341 **Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property** (3) An introduction to the business environment emphasizing business contracts, liability issues arising from business relations, including those in the internet realm and intellectual property issues. Alternative dispute resolution and global perspectives will be integrated throughout.  
Effective: Summer 2011  
Prerequisite: MGMT 301MGMT 301W orB A 304 ; Prerequisite or concurrent:FIN 301 orB A 301;MKTG 301MKTG 301W orB A 303;SCM 301 orB A 302

B LAW 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

B LAW 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

B LAW 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2011

B LAW 424 (R M 424) **Real Estate Law** (3) Analyze contemporary law applicable to various types of ownership interests and rights, methods of transferring ownership, and use of real property.  
Effective: Spring 2012  
Prerequisite: B LAW 341 orB LAW 243

B LAW 425 (R M 425) **Business and Environmental Regulation** (3) Examines the interplay between environmental regulation and commercial activities, including property interests.  
Effective: Spring 2012  
Prerequisite: B LAW 341 orB LAW 243

B LAW 441 **Business Law II: Agency, Employment and Business Structure** (3) An examination of the laws governing agency relationships, employment, and the various structures of commercial enterprises.  
Effective: Fall 2011  
Prerequisite: B LAW 341;FIN 301 orB A 301

B LAW 444 **Advanced UCC and Commercial Transactions** (3) All articles of the Uniform Commercial Code, banking relationships, debtor- creditor law, and bankruptcy law.  
Effective: Fall 2011  
Prerequisite: B LAW 341B A 241 orB A 243;ACCTG 211 ; andFIN 301 orB A 301

B LAW 445 **Advanced Intellectual Property and Competition Law** (3) Copyrights, trademarks, patents, and trade secrets followed by related topics in the regulation of competition.

Effective: Fall 2011

Prerequisite: B LAW 441

B LAW 446 **Employment Law** (3) Examines the legal and regulatory environment of employment relationships. Topics include anti-discrimination; worker health and safety; and labor relations laws.

Effective: Summer 2012

Prerequisite: B LAW 441

B LAW 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2011

B LAW 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2011

B LAW 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2011

B LAW 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2011

B LAW 497A (R M 497B) **Entertainment Law** (3) Provide students with an understanding of fundamental issues in entertainment law that arise in a business context.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

B LAW 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2011

B LAW 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2011

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## Chemical Engineering (CH E)

**CH E 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1998

**CH E 097S Introduction to Chemical Energy Technology** (1) This CH E FYS will overview the CH E field and curriculum with a concentration on Chemical Engineering in energy technology.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**CH E 100S Exploring Chemical Engineering First-Year Seminar** (1) The exploration of Chemical Engineering and available career opportunities.  
Effective: Summer 2007

**CH E 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2007

**CH E 210 Introduction to Material Balances** (3) An integrated approach to the study of material balances and industrial chemical processes important in chemical engineering.  
Effective: Spring 2009  
Prerequisite: or concurrent:MATH 251

**CH E 210H Introduction to Material Balances (Honors)** (3) An integrated approach to honor-level study of material balances and industrial chemical processes important in chemical engineering.  
Effective: Spring 2009  
Prerequisite: or concurrent:MATH 251

**CH E 220 Introduction to Chemical Engineering Thermodynamics** (3) Chemical process applications of energy balances, equations of state, thermodynamic properties of real fluids, second law of thermodynamics, cycles.  
Effective: Spring 2009  
Prerequisite: or concurrent:MATH 230

**CH E 220H Introduction to Chemical Engineering Thermodynamics (Honors)** (3) Chemical process applications of energy balances, equations of state, thermodynamic properties of real fluids, second law of thermodynamics, cycles.  
Effective: Spring 2009  
Prerequisite: or concurrent:MATH 230

**CH E 294 Research Project** (1-12) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996

**CH E 294H Research Project - Honors** (1-12) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**CH E 294H Research Projects (Honors)** (1-12) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**CH E 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 1996

**CH E 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1998

**CH E 297A Computational Tools** (1) This 1-credit course will cover the key computational tools needed by Chemical Engineering students, including Excel, Mathematica.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: MATH 251

**CH E 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2007

**CH E 300 Professional Development Seminar** (1) Lectures and discussion by visiting engineers and faculty on chemical engineering, job selection, patents, licensing, ethics, and other professional problems.  
Effective: Spring 2006

Prerequisite: fifth-semester standing

**CH E 320 Phase and Chemical Equilibria** (3) Pure component phase properties, solution properties, equilibria among phases, equilibrium stage separations, chemical reaction equilibria.

Effective: Fall 2013

Prerequisite: CH E 210 with minimum grade of "C" CH E 220 with minimum grade of "C"

**CH E 330 Process Fluid Mechanics** (3) An integrated study of the fundamentals and the quantitative design techniques involving flow of fluids in chemical processes.

Effective: Fall 2013

Prerequisite: CH E 210 with a minimum grade of "C"

**CH E 330H Process Fluid Mechanics (Honors)** (3) An integrated study of the fundamentals and the quantitative design techniques involving flow of fluids in chemical processes.

Effective: Fall 2013

Prerequisite: CH E 210 with minimum grade of "C"

**CH E 340 Introduction to Biomolecular Engineering** (3) Introduction to concepts and principles of biomolecular engineering, with emphasis on biotechnology and pharmaceutical industries.

Effective: Fall 2013

Prerequisite: CH E 210 with "C" or better B M B 251 CHEM 212

**CH E 350 Process Heat Transfer** (3) An integrated study of the fundamentals and the quantitative design techniques involving heat transfer in chemical processes.

Effective: Fall 2013

Prerequisite: CH E 210 with minimum grade of "C"

**CH E 360 Mathematical Modeling in Chemical Engineering** (3) Mathematical model formulation for chemical and physical processes, including applications of ordinary differential equations and numerical methods.

Effective: Fall 2013

Prerequisite: CH E 210 with minimum grade of "C" MATH 230 MATH 251

**CH E 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2004

**CH E 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007

**CH E 410 Mass Transfer Operations** (3) Introduction to principles and applications of mass transfer, with focus on the design of equilibrium stage and continuous contacting separation processes.

Effective: Fall 2013

Prerequisite: CH E 320 and either CH E 330 or CH E 350

**CH E 423 Chemical Energy Technology** (3) This course provides an overview of current and prospective chemical energy storage and conversion technologies.

Effective: Spring 2013

Prerequisite: CH E 210 with a minimum grade of "C"; prerequisite or concurrent: CH E 320

**CH E 430 Chemical Reaction Engineering** (3) Chemical reaction rates and equilibria, reactors, reactor design; emphasis on industrial chemical processes.

Effective: Fall 2013

Prerequisite: CH E 320

**CH E 432 (F SC 432) Petroleum Processing** (3) A study of physical and chemical processes to convert crude oil into desired products with an outlook from present to future.

Effective: Summer 2007

Prerequisite: CHEM 210

**CH E 438 Bioprocess Engineering** (3) Introduction to the biotechnology field including consideration of upstream and downstream processing of biochemicals.

Effective: Summer 2007

Prerequisite: CHEM 212

**CH E 442 (MATSE 448) Polymer Processing Technology** (3) Basic principles of polymer melt processing are reviewed and subsequently applied to the most important industrial processing operations.

Effective: Fall 2006

Prerequisite: MATSE 447 or CH E 330

**CH E 446 Transport Phenomena** (3) Fundamental treatment of mass, heat, and momentum transfer; emphasis on transport properties and mathematical models of chemical engineering transport processes.

Effective: Spring 2006

Prerequisite: CH E 330 CH E 350 CH E 360 ; prerequisite or concurrent: CH E 410

**CH E 446H Transport Phenomena** (3) Fundamental treatment of mass, heat, and momentum transfer; emphasis on transport properties and mathematical models of chemical engineering transport processes.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CH E 330 CH E 350 CH E 360 ; prerequisite or concurrent: CH E 410

**CH E 448 Advanced Mass Transfer Operations** (3) Diffusion and mass transfer as applied to stagewise and continuous contact operations, including equipment design.

Effective: Spring 2006

Prerequisite: CH E 410

**CH E 449 Bioseparations** (3) Analysis and design of separation processes for the purification of biological molecules.

Effective: Spring 2006

Prerequisite: CH E 410

**CH E 450 Process Dynamics and Control** (3) Analysis of time-dependent variables in chemical process plants; reactor design and control; computer applications.

Effective: Spring 2006

Prerequisite: Prerequisite or concurrent:CH E 410CH E 430

**CH E 452 Chemical Process Safety** (3) This course provides an overview of Process Safety in the Chemical Industry, focusing on the nature of chemical plant additents.

Effective: Spring 2007

Prerequisite: Prerequisite or concurrent:CH E 410CH E 430

**CH E 470 Design of Chemical Plants** (3) Lectures and practicum on methods and calculations, including economic evaluations for the design of chemical plants; formal technical report required.

Effective: Spring 2006

Prerequisite: CH E 410CH E 430

**CH E 480M Chemical Engineering Laboratory (Honors)** (3) Data interpretation and analysis from student-operated experiments on pilot-plant equipment. Individual written and oral technical reports.

Effective: Fall 2013

Prerequisite: ENGL 202CCH E 320CH E 330CH E 350

**CH E 480W Chemical Engineering Laboratory** (3) Data interpretation and correlation from student-operated experiments on pilot-plant equipment. Individual written and oral technical reports.

Effective: Fall 2013

Prerequisite: ENGL 202CCH E 320CH E 330CH E 350

**CH E 494 Research Projects in Chemical Engineering** (1-6) An original problem, including a search of the literature, experimental investigation, and preparation in formal thesis form.

Effective: Fall 2007

Prerequisite: Permission of program

**CH E 494H Research Projects in Chemical Engineering (Honors)** (1-6) An original problem, including a search of the literature, experimental investigation, and preparation in formal thesis form.

Effective: Spring 2008

Prerequisite: Permission of program

**CH E 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 1996

**CH E 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**CH E 497B Physics of Community** (3) Students will examine decision-making processes for social systems, using principles of Chemical Engineering, including reactions, transport, and separations.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CH E 320

**CH E 497B Bioremediation and Green Chemistry** (3) Application of engineering and biological principles toward remediation of hazardous wastes. Degradation and synthesis of chemicals using genetically engineered microorganisms.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: CH E 340

**CH E 497C Polymers** (3) Introduction to synthesis, structure, characterization and processing of polymers. Single molecule properties, polymer solutions, glasses, crystals and blends.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: CH E 320

**CH E 497D Engineering Product Design** (3) Students develop skills and techniques for managing and executing engineering design projects that are applied to projects sponsored by industry.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CH E 330CH E 350

**CH E 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007

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## Chemistry (CHEM)

**CHEM 001 (GN) Molecular Science (3)** Selected concepts and topics designed to give non-science majors an appreciation for how chemistry impacts everyday life. Students who have received credit for CHEM 003, 101, or 110 may not schedule this course.

Effective: Summer 2007

**CHEM 003 (GN) Molecular Science With Laboratory (3)** Selected concepts and topics designed to give non-science majors an appreciation for how chemistry impacts everyday life. Students who have received credit for CHEM 001, 101, or 110 may not schedule this course.

Effective: Summer 2007

**CHEM 005 (GN) Kitchen Chemistry (3)** An elementary discussion of the chemistry associated with foods and cooking.

Effective: Summer 2014

**CHEM 020 Environmental Chemistry (3)** Applications of chemistry to environmental problems, including air, water, thermal pollution; pesticides; drugs and birth control agents; food additives; etc. For non-chemistry majors; chemistry majors will not receive credit.

Effective: Summer 2007

**CHEM 021 Environmental Chemistry Laboratory (1)** Introduction of basic laboratory techniques and data analysis used in environmental chemistry.

Effective: Summer 2007

Concurrent: CHEM 020

**CHEM 101 (GN) Introductory Chemistry (2-3)** Selected principles and applications of chemistry. Prior study of chemistry is not assumed. Students may take only one course for General Education credit from CHEM 101 or CHEM 110.

Students may take only one course for General Education credit from CHEM 101 GN or CHEM 110 GN. Effective: Summer 2013

Prerequisite: MATH 021 ; or satisfactory performance on the MATH placement examination-- i.e. placement beyond the level of MATH 021

**CHEM 106 (GN) Introductory and General Chemistry (5)** Introductory chemistry and chemical principles for students who are required to take additional chemistry, e.g., CHEM 112, but are unprepared for CHEM 110.

GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). Effective: Summer 2013

Prerequisite: satisfactory performance on the Math placement test--i.e. placement beyond the level of MATH 022; or MATH 022 or MATH 041

**CHEM 108 Problem Solving in Chemistry (1)** Techniques, strategies, and skills for solving problems in general chemistry for students potentially at risk in CHEM 110.

Effective: Summer 2013

Prerequisite: recommendation by placement exam an advisor or the program Concurrent: CHEM 110

**CHEM 110 (GN) Chemical Principles I (3)** Basic concepts and quantitative relations. Students may take only one course for General Education credit from CHEM 110 or CHEM 101.

GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). Students may take only one course for General Education credit from CHEM 101 GN or CHEM 110 GN. Effective: Summer 2013

Prerequisite: satisfactory performance on the Math placement tests -- i.e. placement beyond the level of MATH 022 ; or CHEM 101 and MATH 022 or MATH 041

**CHEM 110H (GN) Chemical Principles I - Honors (3)** Basic concepts and quantitative relations of chemistry at a level appropriate for students with advanced backgrounds and talents. Students may take only one course for General Education credit from CHEM 110 or CHEM 101. GN to receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).

GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). Effective: Spring 2013

Prerequisite: satisfactory performance on the Chemistry and Math FTCP tests-- i.e. placement beyond the level of CHEM 101 and MATH 022; or CHEM 101 and MATH 022 or MATH 041

**CHEM 111 (GN) Experimental Chemistry I (1)** Introduction to quantitative experimentation in chemistry.

GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). Effective: Summer 2007

Prerequisite: or concurrent: CHEM 110 or CHEM 106

**CHEM 111H (GN) Experimental Chemistry I (1)** Introduction to quantitative experimentation in chemistry.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: or concurrent:CHEM 110 orCHEM 106

**CHEM 112 (GN) Chemical Principles II (3)** Continuation of CHEM 110, including an introduction to the chemistry of the elements.

GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). Effective: Spring 2009

Prerequisite: CHEM 110 orCHEM 106

**CHEM 112H (GN) Chemical Principles II - Honors (3)** Continuation of CHEM 110, including an introduction to the chemistry of the elements. GN to receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and (CHEM 111; CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).

GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). Effective: Summer 2013

Prerequisite: CHEM 110 orCHEM 106

**CHEM 113 (GN) Experimental Chemistry II (1)** Continuation of CHEM 111, with emphasis on topics related to CHEM 112.

GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). Effective: Summer 2007

Prerequisite: CHEM 111 . Prerequisite or concurrent:CHEM 112

**CHEM 113B (GN) Experimental Chemistry II--Bioscience (1)** A continuation of CHEM 111 with emphasis on topics related to CHEM 112 in the context of bioscience.

GN To receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B). Effective: Summer 2007

Prerequisite: CHEM 111 . Prerequisite or Concurrent:CHEM 112

**CHEM 199 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**CHEM 202 Fundamentals of Organic Chemistry I (3)** Introduction to organic chemistry, with emphasis on the properties of organic compounds of biochemical importance. Because of duplication of subject matter, students may not receive credit for both CHEM 202 and CHEM 210.

Effective: Summer 2007

Prerequisite: CHEM 101 orCHEM 110 orCHEM 106

**CHEM 203 Fundamentals of Organic Chemistry II (3)** Introduction to organic chemistry, with emphasis on the identification of organic compounds by characteristic chemical reactions and by spectroscopy. The course involves both lecture and laboratory. Because of duplication of subject matter, students may not receive credit for both CHEM 203 and CHEM 213.

Effective: Summer 2007

Prerequisite: CHEM 202

**CHEM 210 Organic Chemistry I (3)** Principles and theories; nomenclature; chemistry of the functional groups; applications of spectroscopy. Because of duplication of material, students may not receive credit for both CHEM 210 and 202.

Effective: Summer 2007 Ending: Summer 2014

Prerequisite: CHEM 112

**CHEM 210 Organic Chemistry I (3)** Bonding theories for organic molecules; stereochemistry and conformational analysis; reactions (and mechanisms) of alkyl halides, alkenes, alkynes, aromatics, and alcohols.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 112

**CHEM 210H Organic Chemistry I - Honors (4)** Principles and theories; nomenclature; chemistry of the functional groups; applications of spectroscopy. Because of duplication of material, students may not receive credit for both CHEM 210 and 202.

Effective: Summer 2012

Prerequisite: CHEM 112

**CHEM 212 Organic Chemistry II (3)** Continuation of CHEM 210. Emphasis is placed on the role of organic reactions in biological chemistry.

Effective: Summer 2007

Prerequisite: CHEM 210

**CHEM 212H Organic Chemistry II - Honors (3)** Continuation of CHEM 210(H). Emphasis is on the chemistry of carbonyl compounds, spectroscopic analysis and pericyclic reactions.

Effective: Summer 2013

Prerequisite: CHEM 210

**CHEM 213 Laboratory in Organic Chemistry (2)** Basic laboratory operations; synthesis and chemical or instrumental analysis. Because of duplication of subject matter, students may not receive credit for both CHEM 203 and CHEM 213.

Effective: Summer 2007

Prerequisite: CHEM 210 . Prerequisite or concurrent:CHEM 212



**CHEM 213B Laboratory in Organic Chemistry--Bioscience** (2) Basic laboratory operations; synthesis and chemical or instrumental analysis of materials of biological significance. Because of duplication of subject matter, students may not receive credit for both CHEM 203 and CHEM 213.

Effective: Summer 2007

Prerequisite: CHEM 210 . Prerequisite or concurrent:CHEM 212

**CHEM 213H Laboratory in Organic Chemistry - Honors** (2) Basic laboratory techniques learned in context via theme-based modules, spectral analysis, multi-step synthesis, and professional scientific writing. Because of similarity of subject matter, students may not receive credit for both CHEM 203 and CHEM 213.

Effective: Summer 2012

Prerequisite: CHEM 210 andCHEM 212 Concurrent: CHEM 212

**CHEM 221 Quantitative Analysis** (4) Traditional methods of gravimetric, volumetric, and electrochemical analysis, emphasizing acid-base, solubility, and oxidation-reduction equilibria.

Effective: Summer 2007

Prerequisite: CHEM 112 andCHEM 113

**CHEM 227 Analytical Chemistry** (4) Analytical methods used in the biological and physical sciences with special emphasis on acid-base and complexation equilibria, electrochemistry, and the fundamental principles of spectroscopy and separations.

Effective: Summer 2007

Prerequisite: CHEM 113 andMATH 140

**CHEM 233 (GH;GN) (ENGL 233) Chemistry and Literature** (3) Exploration of key concepts of chemistry, the reciprocal influence of chemistry and literature throughout history, and the relationship of science to society, culture, and values.

Effective: Summer 2007

**CHEM 294 Special Problems and Research** (1-4 per semester, maximum of 12) Designed for freshman or sophomore students who are prepared to undertake special problems and research by arrangement with a faculty member.

Effective: Summer 2007

**CHEM 294H Special Problems and Research - Honors** (1-4 per semester, maximum of 12) Designed for freshman or sophomore students who are prepared to undertake special problems and research by arrangement with a faculty member.

Effective: Summer 2008

Prerequisite: permission of instructor

**CHEM 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1991

**CHEM 301 Environmental Chemistry and Analysis** (3) Chemical principles, interpretation, and methods of analysis for groundwater, water supply, wastewater treatment, stream pollution.

Effective: Summer 2007

Prerequisite: CHEM 112 andCHEM 113

**CHEM 310 Introductory Inorganic Chemistry** (3) Conceptual and descriptive aspects of inorganic chemistry, focusing on structures, bonding, and properties.

Effective: Spring 2010

Prerequisite: CHEM 112

**CHEM 316 The Professional Chemist** (1) Industrial employment opportunities and challenges; graduate and professional school opportunities; tailoring the chemistry curriculum to career goals.

Effective: Summer 2007

Prerequisite: fourth-semester standing in chemistry

**CHEM 395 Chemistry Teacher Assistant Training** (1-2) Instruction and practice in the role of the teaching assistant in the undergraduate chemistry laboratory.

Effective: Fall 1981

**CHEM 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**CHEM 400 Chemical Literature** (1) Instruction in use of the library and of the literature of chemistry.

Effective: Summer 2007

Prerequisite: 12 credits of chemistry

**CHEM 402 Chemistry in the Environment** (3) Chemistry of the atmosphere, natural waters, and the land surface with particular focus on human influence on processes occurring therein.

Effective: Summer 2007

Prerequisite: CHEM 212 . Prerequisite or concurrent:CHEM 450 orCH E 320

**CHEM 406 (NUC E 405) Nuclear and Radiochemistry** (3) Theory of radioactive decay processes, nuclear properties and structure, nuclear reactions, interactions of radiation with matter, biological effects of radiation.

Effective: Summer 2007

Prerequisite: CHEM 452 or PHYS 237 or NUC E 301

**CHEM 408 Computational Chemistry** (3) Introduction to numerical and nonnumerical computer uses in physical science.  
Effective: Summer 2007

Prerequisite: Prerequisite or concurrent: CHEM 452

**CHEM 410 Inorganic Chemistry** (3) Conceptual and descriptive aspects of nontransition elements, covering structural, thermodynamic, and kinetic features.

Effective: Summer 2007

Prerequisite: CHEM 112 and CHEM 202 or CHEM 210 . Prerequisite or concurrent: CHEM 450 or CHEM 452

**CHEM 412 Transition Metal Chemistry** (3) Structure and bonding of compounds containing transition metals.

Effective: Summer 2007 Ending: Summer 2014

Prerequisite: CHEM 112 and CHEM 202 or CHEM 210 . Prerequisite or concurrent: CHEM 450 or CHEM 452

**CHEM 412 Transition Metal Chemistry** (3) Structure and bonding of compounds containing transition metals.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 202 or CHEM 210 and CHEM 310 . Prerequisite or concurrent: CHEM 450 or CHEM 452

**CHEM 413 Chemistry of the Elements** (4) Theoretical and descriptive chemistry of the elements; laboratory synthesis and measurements in inorganic, coordination, and transition metal chemistry.

Effective: Fall 2012

Prerequisite: CHEM 213

**CHEM 423W Chemical Spectroscopy** (4) Modern methods and instruments of spectroscopy and their applications to problems of chemical structure and analysis.

Effective: Spring 2013 Ending: Summer 2014

Prerequisite: CHEM 227 or CHEM 221 CHEM 452 CHEM 457

**CHEM 423W Chemical Spectroscopy** (4) Modern methods and instruments of spectroscopy and their applications to problems of chemical structure and analysis.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 227 or CHEM 221 CHEM 450 or prerequisite or concurrent: CHEM 452

**CHEM 425 Chromatography and Electrochemistry** (3) Gas, liquid, and other forms of chromatography; important techniques of electrochemistry.

Effective: Spring 2013

Prerequisite: CHEM 227 or CHEM 221 CHEM 450

**CHEM 427W (FRNSC 427W) Forensic Chemistry** (4) Analytical and instrumental methods used in the forensic sciences with special emphasis on the analysis and characterization of trace evidence.

Effective: Fall 2012

Prerequisite: CHEM 213 CHEM 227 and FRNSC 411 or CHEM 431W

**CHEM 430 Structural Analysis of Organic Compounds** (3) Spectroscopic methods as tools in gross and detailed structural analysis and interpretation within the framework of modern theory.

Effective: Fall 2010

Prerequisite: CHEM 210 and CHEM 213 Concurrent: CHEM 213

**CHEM 431W Organic and Inorganic Preparations** (4) Preparation, purification, and characterization of both organic and inorganic compounds by modern methods.

Effective: Fall 2010

Prerequisite: CHEM 213

**CHEM 432 Organic Reaction Mechanisms** (3) The study, evaluation, and discussion of the mechanisms of selected organic reactions.

Effective: Summer 2012

Prerequisite: CHEM 212

**CHEM 440 Instrumental Analysis** (3) General instrumental theory and methods used in common atomic and molecular analyses.

Effective: Summer 2007

Prerequisite: CHEM 450 and CHEM 221

**CHEM 441 Elemental Analysis and Instrumental Design Laboratory** (1) An introduction to the use of modern instruments for problems in chemical structure and analysis.

Effective: Summer 2007

Prerequisite: or concurrent: CHEM 440

**CHEM 443 Electrochemistry and Chromatography Laboratory** (1) An introduction to the use of modern instruments for problems in chemical structure and analysis.

Effective: Summer 2007

Prerequisite: or concurrent: CHEM 440

**CHEM 445 Atomic and Molecular Spectroscopy Laboratory** (1) An introduction to the use of modern instruments for problems in chemical structure and analysis.

Effective: Summer 2007

Prerequisite: or concurrent: CHEM 440

**CHEM 446 X-Ray Crystallography** (3) Theoretical and practical aspects of structure determination using x-ray diffraction, from crystal growth to structure solution.

Effective: Summer 2007

Prerequisite: CHEM 210

**CHEM 448 Surface Chemistry** (3) Surface chemistry, emphasizing the physical and chemical aspects of surfaces important for applications in colloids, catalysis, microelectronics and biocompatibility.

Effective: Summer 2007

Prerequisite: CHEM 450 and CHEM 452

**CHEM 450 Physical Chemistry - Thermodynamics** (3) Introduction to physical chemistry with primary emphasis on chemical thermodynamics and its molecular interpretation. (Graduate credit not allowed for students majoring in Biochemistry and Molecular Biology, Chemistry, or Chemical Engineering.)

Effective: Summer 2007

Prerequisite: CHEM 112 and MATH 141; PHYS 211 or PHYS 212

**CHEM 452 Physical Chemistry - Quantum Chemistry** (3) Introduction to physical chemistry with primary emphasis on molecular structure, spectroscopy, and chemical kinetics. (Graduate credit not allowed for students majoring in Biochemistry and Molecular Biology, Chemistry, or Chemical Engineering.)

Graduate credit not allowed for student majoring in Biochemistry, Chemistry, or Chemical Engineering. Effective: Summer 2007

Prerequisite: CHEM 112 and MATH 141 and PHYS 211 or PHYS 212

**CHEM 457 Experimental Physical Chemistry** (1-2 per semester/maximum of 2) Laboratory experiments designed to illustrate the principles of physical chemistry and teach techniques of error analysis and the presentation of quantitative data. (Graduate credit not allowed for students majoring in Biochemistry and Molecular Biology, Chemistry, or Chemical Engineering.)

Graduate credit not allowed for student majoring in Biochemistry, Chemistry, or Chemical Engineering. Effective: Fall 2012

Prerequisite: or concurrent: CHEM 450 or CH E 320

**CHEM 459W Advanced Experimental Physical Chemistry** (4) Laboratory experiments and projects for students interested in advanced study in physical chemistry.

Effective: Summer 2010

Prerequisite: CHEM 450 CHEM 457 Prerequisite or concurrent: CHEM 452

**CHEM 464 Chemical Kinetics and Dynamics** (3) Introduction to chemical kinetics and molecular dynamics.

Effective: Spring 2009

Prerequisite: CHEM 450 or CH E 220 and CHEM 452

**CHEM 466 Molecular Thermodynamics** (3) Introduction to physical chemistry with a primary emphasis on the statistical and molecular interpretation of thermodynamics.

Effective: Summer 2007

Prerequisite: CHEM 450 or CH E 220

**CHEM 472 General Biochemistry I** (3) Basic structure and function of cellular components; principles of enzyme kinetics and regulation.

Effective: Summer 2007

Prerequisite: CHEM 212

**CHEM 474 Organic Synthesis** (3) Theory and methodology of organic synthesis applied to complex organic molecules.

Effective: Spring 2007

Prerequisite: CHEM 212

**CHEM 476 Biological Chemistry** (3) Fundamentals of Biochemistry for Chemists. Students cannot receive credit for both CHEM 476 and B M B 401.

Effective: Fall 2009 Ending: Summer 2014

Prerequisite: CHEM 212 and CHEM 450 Concurrent: CHEM 452

**CHEM 476 Biological Chemistry** (3) Fundamentals of Biochemistry for Chemists. Students cannot receive credit for both CHEM 476 and B M B 401.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 212 and CHEM 450

**CHEM 494 Chemical Research** (1-10 per semester/maximum of 20) Experimental investigation of an original research problem. Preparation of a formal thesis is optional. (Credit not allowed for graduate students in Biochemistry, Chemistry or Chemical Engineering.)

Effective: Summer 2007

**CHEM 494H Chemical Research** (1-10 per semester/maximum of 20) Experimental investigation of an original research problem. Preparation of a formal thesis is optional. (Credit not allowed for graduate students in Biochemistry, Chemistry or Chemical Engineering.)

Effective: Fall 2007

**CHEM 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 2007

Prerequisite: prior approval of proposed assignment by instructor

**CHEM 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 1988

CHEM 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1982

CHEM 497A **Biological Chemistry** (3) The subject of this course is biological chemistry, or the molecular logic of the chemistry of life. This course presents the nomenclature, structure, synthesis, and reactivity of organic molecules with an emphasis upon reaction mechanisms and topics of relevance to biochemistry. This knowledge will then be applied to the understanding of the design and function of common pharmaceutical products.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: CHEM 212

CHEM 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Chinese (CHNS)

**CHNS 001 Level One Chinese A** (4) Introductory study of Chinese language, with audio-lingual practice of Mandarin Chinese and attention to structure and the writing system.  
Effective: Spring 2011

**CHNS 002 Level One Chinese B** (4) Continued audio-lingual practice of Mandarin Chinese, further study of structure, practice in reading and writing Chinese.  
Effective: Spring 2011  
Prerequisite: CHNS 001

**CHNS 003 Level Two Chinese A** (4) Continued audio-lingual practice of Mandarin Chinese, more extensive practice in reading and writing; study of Chinese culture.  
Effective: Spring 2011  
Prerequisite: CHNS 002

**CHNS 051 Elementary Intensive Chinese for Graduate Students I** (3) Intensive introduction to Mandarin Chinese: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Spring 2010  
Prerequisite: graduate standing

**CHNS 052 Elementary Intensive Chinese for Graduate Students II** (3) Intensive introduction to Mandarin Chinese: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Spring 2010  
Prerequisite: CHNS 051 and graduate standing

**CHNS 053 Intermediate Intensive Chinese for Graduate Students** (3) Continued intensive study of Mandarin Chinese at the intermediate level: reading, writing, speaking, listening, cultural contexts.  
Effective: Spring 2010  
Prerequisite: CHNS 052 or equivalent and graduate standing

**CHNS 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2010

**CHNS 099 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

**CHNS 110 (IL) Level Two Chinese B** (4) Readings in selected modern Chinese literature (short stories, plays, essays, poems) and other texts; practice in conversation and simple composition.  
Effective: Spring 2011  
Prerequisite: CHNS 003

**CHNS 120 (GH;IL) Introduction to Chinese Literature and Culture** (3) Chinese cultural productions, classical through contemporary; literature and film; changing cultural settings in multiple Chinese-speaking locations. Taught in English.  
Effective: Spring 2010

**CHNS 120W (GH) Introduction to Chinese Literature and Culture** (3) An introduction to Chinese histories and societies through literature and visual culture. Readings drawn from both classical and modern traditions, covering the period from the 11th century B.C. to the contemporary era.  
Effective: Summer 2013

**CHNS 121 (GH;IL) Chinese Film and New Media** (3) Survey of Chinese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English.  
Effective: Spring 2010

**CHNS 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2010

**CHNS 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

**CHNS 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2010

**CHNS 295 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2010

Prerequisite: prior approval of proposed assignment by instructor

**CHNS 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2010

**CHNS 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2010

**CHNS 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

**CHNS 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2010

Prerequisite: prior approval of proposed assignment by instructor

**CHNS 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2010

**CHNS 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

**CHNS 401 (IL) Level Three Chinese A (4)** Emphasis on oral proficiency through discussions of aspects of contemporary Chinese culture.

Effective: Spring 2011

Prerequisite: CHNS 110

**CHNS 402 (IL) Level Three Chinese B (4)** Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Chinese culture.

Effective: Spring 2011

Prerequisite: CHNS 401 OR EQUIVALENT

**CHNS 403W Level Four Chinese A (4)** Continuation of CHNS 402. Aims to improve students' proficiency in all four language skills, with a special emphasis on writing.

Effective: Fall 2012

Prerequisite: CHNS 402

**CHNS 404 Level Four Chinese B (4)** Continuation of CHNS 403W. Aims to improve students' proficiency in all four language skills through content-based language learning.

Effective: Spring 2012

Prerequisite: CHNS 403W

**CHNS 410 (IL) Chinese Through Film (3)** This course is designed for students who finish Level Two Chinese or higher and aims to help them develop Chinese proficiency through movies.

Effective: Summer 2013

Prerequisite: CHNS 110 or equivalent

**CHNS 411 (IL) Chinese Written Characters (3)** This course aims to establish a solid foundation of students' Chinese orthography and prepare students for continuing study in subsequent Chinese courses.

Effective: Summer 2013

Prerequisite: CHNS 110 or the equivalent

**CHNS 421 (IL) China Beyond China (3)** Study of modern and contemporary Chinese culture in its diversity and its intercultural contexts.

Effective: Summer 2011

Prerequisite: 3 credits in literature or other fields relevant to this course

**CHNS 422 (IL) Gender and Sexuality in China (3)** Study of gender roles and the imaginary of sexuality in the literary, filmic, and artistic production of modern China.

Effective: Summer 2011

Prerequisite: 3 credits in literature or other fields relevant to this course

**CHNS 423 (IL) The Warrior, the Courtesan and the Ghost in Classical Chinese Novels (3)** This course provides an introduction to major classical Chinese novels by focusing on three character types: the warrior, the courtesan, and the ghost.

Effective: Spring 2012

Prerequisite: 3 credits in literature or other fields relevant to this course

**CHNS 424 (HIST 482) Confucius and the Great Books of Early China (3)** This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China.

Effective: Spring 2013 Ending: Summer 2014

**CHNS 424 (HIST 482, ASIA 482) Confucius and the Great Books of Early China (3)** This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China.  
Effective: Fall 2014 Future: Fall 2014

**CHNS 426 (IL) The Chinese Rhetorical Tradition (3 per semester/maximum of 6)** Study of the rhetorical works in ancient China as well as multiple facets of modern Chinese rhetoric.  
Effective: Summer 2011  
Prerequisite: 3 credits in ENGL 015 Concurrent: ENGL 471

**CHNS 452 (IL) Contemporary China: Culture and Trends (3 per semester/maximum of 6)** Survey of aspects of the contemporary Chinese-speaking world. Includes readings from Chinese newspapers, magazines, and fiction. Topics may vary each semester.  
Effective: Spring 2010  
Prerequisite: CHNS 401

**CHNS 453 (IL) Chinese Film (3 per semester/maximum of 6)** Selected films and directors representing various aspects of Chinese culture and cinema. Topics may vary each semester. Taught in Chinese.  
Effective: Spring 2010  
Prerequisite: CHNS 401

**CHNS 454 (IL) Introduction to Classical Chinese (3 per semester/maximum of 6)** Basic patterns and structures of Classical Chinese to the first millennium B.C. to the 19th century.  
Effective: Spring 2010  
Prerequisite: CHNS 401 or equivalent (such as study abroad credit)

**CHNS 455 (IL) Masterpieces of Traditional Chinese Literature (3)** Survey of traditional Chinese literature, including poetry, historical narratives, philosophical texts, and drama and novel.  
Effective: Spring 2010  
Prerequisite: CHNS 401 or equivalent

**CHNS 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2010

**CHNS 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2010

**CHNS 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2010

**CHNS 496A Level Two Chinese (1-6)** Continued audio-lingual practice of Mandarin Chinese, more extensive practice in reading and writing; study of Chinese culture.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: CHNS 002

**CHNS 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2010

**CHNS 497A Essentials of Chinese Grammar (3)** Equip intermediate learners of Chinese with a comprehensive and profound understanding of the form, meaning and use of essential grammatical structures in Chinese.  
Effective: Summer 2014 Ending: Summer 2014

**CHNS 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2010

**CHNS 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

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## **Civic and Community Engagement (CIVCM)**

CIVCM 211 (GS;US;IL) (CAS 222, AYFCE 211) **Foundations: Civic and Community Engagement** (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.  
Effective: Spring 2011

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## Civil Engineering (C E)

**C E 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1998

**C E 100S Topics and Contemporary Issues in Civil and Environmental Engineering: First-Year Seminar** (1) First-Year Seminar exploring a specific topic or contemporary issue in civil and environmental engineering.  
Effective: Fall 1999

**C E 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1994

**C E 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**C E 209 Fundamentals of Surveying** (2) Fundamental surveying measurements, traverse computations, coordinate geometry, mapping, CAD applications. Intended for architectural engineering students. (The lecture will be taught concurrently with C E 211.)  
Effective: Summer 1996  
Prerequisite: E G 130MATH 141

**C E 254 (GHA;US) Personal & Occupational Safety** (3) Students will learn about principles of safety in work and personal settings.  
Effective: Spring 2008

**C E 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1992

**C E 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**C E 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**C E 310 Surveying** (3) Fundamental surveying measurements, traverse computations, coordinate geometry, mapping, GPS and GIS, circular and parabolic curves, earthwork, boundary surveys, CAD applications.  
Effective: Fall 2007  
Prerequisite: EDSGN 100MATH 141

**C E 321 Highway Engineering** (3) Highway engineering principles, vehicle and driver characteristics; geometric and pavement design; highway drainage; traffic engineering, capacity analysis, and signal timing.  
Effective: Fall 2001  
Prerequisite: C E 310

**C E 332 Professionalism, Economics & Construction Project Delivery** (3) Introduction to engineering management process; economic analysis; pricing; contract documents; estimating; ethics; professional practice and engineering economy.  
Effective: Fall 2007

**C E 333W Construction Management I** (3) Components of a construction organization, managerial terminology and documents, labor laws and relations, insurance and safety.  
Effective: Spring 2008

**C E 335 Engineering Mechanics of Soils** (3) Soil compositions, classification, subsurface exploration, ground water flow, stress analysis, compaction, soil behavior, bearing capacity, lateral earth pressure, slope stability.  
Effective: Fall 2012  
Prerequisite: E MCH 213 ; Prerequisite or concurrent:GEOSC 001

**C E 336 Materials Science for Civil Engineers** (3) Introduction to civil engineering materials; their structure and behavior; relationship between structure and behavior.  
Effective: Fall 2012  
Prerequisite: E MCH 213 ; Prerequisite or concurrent:STAT 401

**C E 337 Civil Engineering Materials Laboratory** (1) Laboratory investigating the physical and mechanical properties of

civil engineering materials; soils, aggregates, concrete; steel; wood; and polymers.

Effective: Spring 2007

Prerequisite: C E 335 or C E 336 or concurrent

**C E 340 Structural Analysis** (3) Analysis of statically determinate and indeterminate trusses, beams, and frames; reactions, axial forces, shears, moments, deflections. Introduction to influence lines.

Effective: Spring 2008

Prerequisite: E MCH 213 . Prerequisite or concurrent: CMPSC 201 or CMPSC 202

**C E 341 Design of Concrete Structures** (3) Design of reinforced concrete beams, slabs, and columns, with emphasis on ultimate-strength methods; prestressed concrete; building and bridge applications.

Effective: Fall 2001

Prerequisite: C E 340 . Prerequisite or concurrent: C E 336

**C E 342 Design of Steel Structures** (3) Design of steel tension members, beams, columns, beam-columns, and connections; elastic and plastic methods; design applications.

Effective: Fall 2001

Prerequisite: C E 336 C E 340

**C E 360 Fluid Mechanics** (3) Mechanics of fluids; flow in conduits and around bodies, friction and energy loss, fluid measurements.

Effective: Spring 2008

Prerequisite: E MCH 212

**C E 370 Introduction to Environmental Engineering** (3) Nature and scope of environmental issues; air, water, land impacts; fundamentals and processes of pollution control.

Effective: Summer 2007

Prerequisite: CHEM 110; MATH 111 or MATH 141

**C E 371 Water and Wastewater Treatment** (3) Water treatment; water storage; design of water distribution and wastewater systems; pumping stations.

Effective: Spring 2002

Prerequisite: C E 360 C E 370

**C E 396 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1993

**C E 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2004

**C E 397A Geotechnical Engineering for A E Majors** (4) Soils, soils stresses, consolidation and settlement, strength and groundwater flow.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**C E 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

**C E 410W Sustainable Residential Subdivision Design** (3) Residential subdivision process; site selection; conservation and neo- traditional design; utility design and layout; best management practices for erosion and stormwater.

Effective: Fall 2001

Prerequisite: A E 372 or C E 332 ; seventh-semester standing in Architectural or Civil Engineering

**C E 421W Transportation Design** (3) Design of streets and highway facilities; emphasis on geometric elements, intersections and interchanges, roadway drainage, and pavement design.

Effective: Spring 2002

Prerequisite: C E 321

**C E 422 Transportation Planning** (3) Transportation systems planning, programming, and management; modeling and simulation, data collection, analysis, and forecasting.

Effective: Spring 2002

Prerequisite: 3 credits in probability or statistics

**C E 423 Traffic Operations** (3) The highway capacity manual, concepts and analyses, freeway operations, signalized and unsignalized intersections, signal coordination, traffic impact studies.

Effective: Spring 1997

Prerequisite: C E 321

**C E 432 Construction Project Management** (3) Fundamentals of project management, construction scheduling using the CPM technique, construction project preplanning, and control of quality, safety, and costs.

Effective: Fall 2007

Prerequisite: C E 332

**C E 435 Foundation Engineering** (3) Bearing capacity, settlement, and structural design of shallow foundations; lateral earth pressure; retaining and sheet-pile walls; introduction to deep foundations

Effective: Fall 2001

Prerequisite: C E 335 . Prerequisite or concurrent: C E 341

**C E 436 Construction Engineering Materials (3)** Design, production, application, specification, and quality control of construction materials unique to civil engineering.

Effective: Fall 2001

Prerequisite: C E 336/STAT 401

**C E 437 Engineering Materials for Sustainability (3)** Environmental impact of materials; life-cycle assessment; material selection to optimize performance; design, evaluation, and production of green construction materials.

Effective: Spring 2013

Prerequisite: C E 336 or equivalent

**C E 438W Construction Engineering Capstone Design (3)** Construction project integrating geotechnical reports; materials specifications; quality control; equipment; estimation; scheduling; design details: excavations, foundations, retaining walls, formwork, pavements.

Effective: Fall 2007

Prerequisite: C E 432 and C E 435 or C E 436

**C E 439W Geotechnical and Materials Engineering Design Capstone (3)** Subsurface site evaluation; integrated design of retaining walls, foundations, pavements, and materials for airports, highways, dams, or other facilities.

Effective: Spring 2013

Prerequisite: C E 435 and either C E 436 or C E 437

**C E 441 Structural Design of Foundations (3)** Design of concentrically and eccentrically loaded square, rectangular, and combined footings; analysis and design of mat foundations; retaining walls; piles caps; flexible retaining design, and caissons.

Effective: Spring 2013

Prerequisite: C E 341 Concurrent: C E 342

**C E 445 Advanced Structural Analysis (3)** Analysis of trusses and frame stiffness matrix method of analysis. Analysis of indeterminate beams, trusses, and frames using classical methods.

Effective: Spring 2008

Prerequisite: CET 430

**C E 447 Structural Analysis by Matrix Methods (3)** Analysis of truss and frame structures using flexibility and stiffness methods of matrix analysis. Computer applications.

Effective: Fall 1992

Prerequisite: C E 340

**C E 448W Advanced Structural Design (3)** Wind, snow, seismic, bridge loads; building design using steel, concrete, and prestressed concrete; advanced steel connections; capstone project; computer applications.

Effective: Spring 2013

Prerequisite: C E 342/C E 441 ; Prerequisite or concurrent: ENGL 202C

**C E 449 Advanced Structural Design (3)** Special systems, frames and bracing in steel, wood and reinforced or precast concrete. Introduction to composite construction.

Effective: Spring 2008

Prerequisite: CET 430/CET 431/CET 432

**C E 454 Safety (3)** This course will focus on safety issues as they relate to OSHA.

Effective: Spring 2008

Prerequisite: permission of program

**C E 456 Planning and Scheduling (3)** Theory and practice used in planning and scheduling projects; defining task and resources, creating logic diagrams, and monitoring the projects.

Effective: Spring 2008

Prerequisite: C E 333/WCET 435/ E 303

**C E 458 Construction Management II (3)** Procedures in construction organization including procurement, ethics, field supervision, legal and managerial problems, personnel, cost accounting, and construction business practices.

Effective: Spring 2008

Prerequisite: C E 333/WC E 456

**C E 461 Water-resource Engineering (3)** Qualitative and quantitative description of the hydrologic cycle, flood and drought frequency analysis, climate and land use change impacts, risk analysis and uncertainty, water resource management at regional, national and global scale.

Effective: Spring 2010

Prerequisite: C E 360

**C E 462 Open Channel Hydraulics (3)** Free surface flow in rivers, canals, steep chutes, stilling basins, and transitions.

Effective: Spring 2002

Prerequisite: C E 360

**C E 465W Water Resources Capstone Course (3)** Hydraulic design of river structures and open channels including supercritical and spatially varied flow; hydrologic/hydraulic computer modeling; design project.

Effective: Spring 2010

Prerequisite: C E 461 . Prerequisite or concurrent: C E 462

**C E 472W Environmental Engineering Capstone Design (3)** Principles and design of unit operations for water; domestic and industrial wastewater treatment; equipment selection and application.

Effective: Spring 2002

Prerequisite: C E 370C E 371

**C E 475 Water Quality Chemistry (4)** Chemistry applicable to the understanding and analysis of water quality, pollution, and treatment.

Effective: Spring 2011

Prerequisite: C E 370CHEM 110CHEM 111

**C E 476 Solid and Hazardous Wastes (3)** Characteristics and treatment of solid wastes and hazardous wastes.

Effective: Spring 2002

Prerequisite: C E 370C E 371

**C E 479 Environmental Microbiology for Engineers (3)** Intro microbiology for engineers; microbe structure, function, and diversity; environmental ecosystems; diagnostic labs.

Effective: Spring 2011

Prerequisite: CHEM 111C E 370

**C E 488C Capstone Project - Construction (4)** This course consists of a project either selected by the students with approval or assigned by the instructor.

Effective: Spring 2008

Prerequisite: eighth-semester Structural Design and Construction Engineering Technology student. Previous or concurrent: CET 430CET 431CET 432CET 435C E 456

**C E 488D Capstone Project - Structural Design (4)** This course consists of a structural design project either selected by the students with approval or assigned by the instructor.

Effective: Spring 2008

Prerequisite: eighth-semester Structural Design and Construction Engineering Technology student. Previous or concurrent: CET 430CET 431CET 432 and CET 435

**C E 494 Senior Thesis (1-9)** Students must have approval of a thesis adviser before scheduling this course.

Effective: Fall 1992

**C E 494H Honors Senior Thesis (1-6)** Investigation of an original project in the area of Civil Engineering.

Effective: Summer 2006

**C E 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1992

**C E 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**C E 497A Building Information Modeling (3)** Building Information Modeling (BIM) is a centralized data-rich virtual project model that facilitates documentation, design exploration, model-based quantity take off and estimating, interference checking, construction coordination and sequencing, digital fabrication and 3D building information capture and visualization.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: EDSGN 100; C E 332 or C E 333W

**C E 497B Ecological Engineering (3)** Design, construction, and operation of wetland systems for water pollution control.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: C E 370

**C E 497C Residential Construction Design Project (1)** Designed for students who have an interest in residential or real estate development. Interdisciplinary teams will develop a complete design and investment package for a real life new residential or real estate development.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 5th semester standing or higher

**C E 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

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## Civil Engineering Technology (CET)

**CET 308 Construction Methods and Materials** (3) The study of the methods and materials used in the construction industry.

Effective: Spring 2008

Prerequisite: MATH 022MATH 026ED&G 100 orEG T 101 andEG T 102

**CET 342 Civil Engineering Materials - Concrete and Bituminous** (3) Properties and tests for aggregates, portland cement, fresh and hardened concrete, concrete mix designs. Bituminous Materials: properties, mixtures and tests.

Effective: Fall 2013

Prerequisite: MATH 022MATH 026

**CET 343 Soils Mechanics** (3) This course presents the fundamentals of engineering soil mechanics related to civil engineering.

Effective: Fall 2013

Prerequisite: MATH 140 Statics Concurrent: ET 322 or E MCH 213 or MCH T 213

**CET 361 Fluid Flow** (3) Fluid flow theory; hydrostatics; dimensional analysis and similitude; pipe flow; flow measurement; open channels; flow forces; fluid machinery.

Effective: Spring 2008

Prerequisite: MATH 140 Statics Dynamics

**CET 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2008

**CET 430 Structural Analysis** (3) Analysis of determinate structures; use of influence lines; deflection of structures; classical methods of analysis of statically indeterminate structures.

Effective: Spring 2008

Prerequisite: Statics Strength of MaterialsMATH 140

**CET 431 Structural Design-Steel** (3) Design of steel beams, columns, truss members, decks, bar joists and selected connections.

Effective: Spring 2008

Prerequisite: Statics Strength of MaterialsMATH 140 Concurrent: CET 430

**CET 432 Structural Design-Reinforced Concrete** (3) Design of reinforced concrete beams, columns, slabs, and selected framing systems for bending and shear. Introduction to formwork design.

Effective: Spring 2008

Prerequisite: Statics Strength of MaterialsMATH 140 Concurrent: CET 430

**CET 434 Foundations** (3) Analysis and design of footings, piling, retaining walls; consideration of construction problems involving soils and foundations of structures.

Effective: Spring 2008

Prerequisite: CET 343CET 430CET 432

**CET 435 Construction Estimating** (3) Methods and techniques used in estimating construction cost; practice in takeoffs, costing and final bid preparation; microcomputer applications/class projects.

Effective: Spring 2008

Prerequisite: ED&G 100ET 200C E 333W

**CET 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2008

**CET 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2008

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## Classics and Ancient Mediterranean Studies (CAMS)

CAMS 001 (GH) **Greek and Roman Literature** (3) Selected readings within a chronological and thematic context of significant and influential masterworks of Greece and Rome.  
Effective: Spring 2004

CAMS 004 (GH;US;IL) (J ST 004, RL ST 004) **Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationships to culture.  
Effective: Summer 2005

CAMS 005 (GH;IL) (HIST 005) **Ancient Mediterranean Civilizations** (3) Survey of the history and cultures of ancient Mediterranean civilizations in Mesopotamia, Egypt, Syro-Levant, Anatolia, Greece, and Rome.  
Effective: Spring 2008

CAMS 010 (GH;IL) **Mesopotamian Civilization** (3) Cultural, technological, literary, political, and economic achievements of peoples who occupied the region of Mesopotamia (4,000-331 B.C.E.), in historical context.  
Effective: Spring 2006

CAMS 012 (GH;IL) (J ST 012, RL ST 012) **Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.  
Effective: Summer 2005

CAMS 012U (GH;IL) (J ST 012U, RL ST 012U) **Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CAMS 015 (GH) **Wonders of the Ancient World** (3) Overview of ancient world by focusing on the famed "Seven Wonders" and similar achievements from 3000 B.C.E.-1st Century C.E.  
Effective: Spring 2003

CAMS 020 (GH) **Egyptian Civilization** (3) The culture, history, literature, and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.  
Effective: Fall 2005

CAMS 025 (GH;IL) **Greek Civilization** (3) The origin and development of the ancient Greek people; their political and social institutions, public and private life.  
Effective: Summer 2005

CAMS 033 (GH;IL) **Roman Civilization** (3) Origin of the Romans; sociopolitical development; food, homes, education, marriage, family life, amusements, private and public worship.  
Effective: Summer 2005

CAMS 044 (GH;IL) (RL ST 044) **Ancient Near Eastern and Egyptian Mythology** (3) Survey of major ancient Mediterranean myths, gods, and goddesses in their cultural contexts; influence on later cultures.  
Effective: Summer 2005

CAMS 045 (GH;IL) **Classical Mythology** (3) Introduction to Greek and Roman divinities, heroes and heroines; survey of the major myths and their influence on Western culture.  
Effective: Summer 2005

CAMS 050 (GH) **Words: Classical Sources of English Vocabulary** (3) An introduction to English word forms stressing the most frequently occurring Latin and Greek elements and their derivatives.  
Effective: Fall 2004

CAMS 070 (GH;IL) (J ST 070, RL ST 070) **Prophecy: The Near East Then and Now** (3) Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.  
Effective: Summer 2007

CAMS 083S (GH;IL) **First-Year Seminar in Classics and Ancient Mediterranean Studies** (3) Critical approach to the study of ancient Mediterranean languages, literatures, and/or material cultures.  
Effective: Summer 2005

CAMS 090 (GH;IL) (J ST 090, RL ST 090) **Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.  
Effective: Summer 2005

CAMS 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CAMS 100 (GH;IL) (HIST 100) **Ancient Greece** (3) Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization.  
Effective: Spring 2006

CAMS 101 (GH;IL) (HIST 101) **The Roman Republic and Empire** (3) History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire.  
Effective: Spring 2006

CAMS 102 (GH;IL) (HIST 102, J ST 102, RL ST 102) **Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.  
Effective: Summer 2005

CAMS 104 (GH) (HIST 104) **Ancient Egypt** (3) The history and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.  
Effective: Summer 2002

CAMS 105 (GH;IL) **History of the Ancient Near East** (3) History of the Ancient Near East from the end of the Neolithic to the Hellenistic period.  
Effective: Summer 2005

CAMS 109Y (GH;IL) **Writing Systems of the World** (3) Writing intensive overview of the world's writing systems throughout history.  
Effective: Spring 2007

CAMS 110 (GH;US;IL) (J ST 110, RL ST 110) **Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.  
Effective: Summer 2005

CAMS 111 (GH;IL) (J ST 111, RL ST 111) **Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.  
Effective: Summer 2005

CAMS 115 (GH;IL) **Literature of the Ancient Near East** (3) Reading and study of literary works from the Ancient Near East, especially from Mesopotamia and Ancient Egypt.  
Effective: Fall 2012  
Prerequisite: 3 credits from the following list: CAMS 005 CAMS 010 CAMS 020 CAMS 105

CAMS 120 (GH) (J ST 120, RL ST 120) **New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.  
Effective: Spring 2004

CAMS 120H (GH) (J ST 120H, RL ST 120H) **New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CAMS 121 (RL ST 121, J ST 112) **Jesus the Jew** (3) A historical critical examination of the life of Jesus of Nazareth within the context of first century Palestinian Judaism.  
Effective: Fall 2013

CAMS 122 (GH;IL) (J ST 122, RL ST 122) **Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.  
Effective: Summer 2014

CAMS 123 (GH;IL) (J ST 123, RL ST 123) **Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of ancient Near East: Judaism, Christianity, and Islam.  
Effective: Summer 2014

CAMS 124 (GH;US;IL) (J ST 124, RL ST 124) **Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.

Effective: Summer 2005

CAMS 133 (GH) **Archaeology of the Levant and Ancient Israel** (3) Archaeology of the Levant and Ancient Israel to c. 1000 B.C.E.; relationship between archaeological and textual evidence.  
Effective: Summer 2013

CAMS 134 (GH;IL) (J ST 134, RL ST 134) **Archaeology of Biblical Israel** (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.  
Effective: Summer 2005

CAMS 140 (GH;IL) **Classical Archaeology--Ancient Greece** (3) Literary sources and material evidence for society; culture of the inhabitants of Greece in ancient times.  
Effective: Summer 2005

CAMS 150 (GH;IL) **Classical Archaeology--Ancient Rome** (3) Literary sources for the development of Roman civilization in relation to the relevant archaeological discoveries.  
Effective: Summer 2005

CAMS 151 (HEBR 151, J ST 151) **Introductory Biblical Hebrew** (3) Fundamentals of Biblical Hebrew grammar, syntax, and vocabulary.  
Effective: Summer 2005

CAMS 152 (HEBR 152, J ST 152) **Intermediate Biblical Hebrew** (3) Intermediate study of Biblical Hebrew grammar, syntax, and vocabulary.  
Effective: Summer 2011

CAMS 153 (GH;IL) (J ST 153, RL ST 153) **Dead Sea Scrolls** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.  
Effective: Summer 2014

CAMS 160 (GH;IL) (J ST 160, RL ST 160) **Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.  
Effective: Summer 2014

CAMS 180 (GH;IL) (HIST 180) **Ancient Warfare** (3) Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire.  
Effective: Summer 2006

CAMS 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1997

CAMS 197A (WMNST 197A) **Women in Greece and Rome** (3) This course is an introductory survey of the life and status of women in the Classical world as represented in literature, art, and historical sources. Through the analysis of Greek and Roman textual, visual, and archaeological evidence we will examine the domestic, sexual, social, legal, and religious roles of women in these cultures. We will also consider current debates concerning women in ancient Greece and Rome while we discuss and acknowledge the contemporary filters through which we view the ancient evidence.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CAMS 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2005

CAMS 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CAMS 200 (GH) (PHIL 200) **Ancient Philosophy** (3) Examines the thought and influence of major Western thinkers from the pre-Socratics to the neo-Platonists, emphasizing Plato and Aristotle.  
Effective: Fall 2003

CAMS 210 (GH;IL) (J ST 210) **Numismatics and the Historian** (3) Numismatics--the scholarly study of coins and medals--is a major tool in the study of Classical history and archaeology.  
Effective: Summer 2012

CAMS 250U (GH;IL) **Honors Classics in Literature and Film** (3) This honors course explores the Classical Tradition as it



thrives in the literature of later epochs and film.  
Effective: Summer 2010

**CAMS 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1997

**CAMS 295 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2001  
Prerequisite: prior approval of proposed assignment by instructor

**CAMS 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 1997

**CAMS 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1996

**CAMS 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2005

**CAMS 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**CAMS 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**CAMS 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2005

**CAMS 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2005

**CAMS 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**CAMS 400W Comparative Study of the Ancient Mediterranean World** (3) Comparative study of ancient Mediterranean civilizations.  
Effective: Spring 2001  
Prerequisite: 3 credits in Classics and Ancient Mediterranean Studies

**CAMS 405 (IL) Law & Economy in the Ancient Near East** (3) This course is an overview of the legal and economic texts and institutions in the Ancient Near East.  
Effective: Spring 2009  
Prerequisite: 6 credits in any undergraduate CAMS courses.

**CAMS 410 Classical Epic** (3) Homer, Hellenistic Epic, and Vergil; influences on later epic.  
Effective: Spring 1998

**CAMS 411W Classical Drama** (3) Masterpieces of Greek tragedy (Aeschylus, Sophocles, Euripides) and comedy (Aristophanes, Menander); their influence on Roman writers.  
Effective: Spring 2001

**CAMS 420 Introductory Targumic Aramaic** (3) Fundamentals of Aramaic grammar, syntax, and vocabulary.  
Effective: Spring 2007

**CAMS 440W Studies in Classical and Ancient Mediterranean Archaeology** (3-6) Selected topics in the literary sources and material evidence for classical and ancient Mediterranean society.  
Effective: Summer 2000  
Prerequisite: 3 credits from: ANTH 002 ART H 311 CAMS 010 CAMS 020 CAMS 025 CAMS 033 CAMS 140 CAMS 150 HIST 100 HIST 101

CAMS 442 (IL) (KINES 442) **Sport in Ancient Greece and Rome** (3) An examination of the continuity of sport in Greek and Roman societies.

Effective: Spring 2008

Prerequisite: CAMS 025CAMS 033CAMS 140CAMS 150CAMS 100CAMS 101 orKINES 141

CAMS 470 (IL) **Languages and Cultures of the Ancient Near East** (3) This course is an overview of the languages and cultures that populated the Ancient Near East.

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS courses.

CAMS 471 **Sumerian** (3) Introduction to the Sumerian language and the cuneiform writing system.

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS course.

CAMS 472 **Akkadian** (3) Introduction to the Akkadian language (Babylonian & Assyrian) and the cuneiform writing system.

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS courses

CAMS 480 (J ST 480) **Greeks and Persians** (3) Development and achievements of the Achaemenid kingdom; relationships between Persians and Greeks.

Effective: Spring 2001

Prerequisite: CAMS 010CAMS 025 orCAMS 100

CAMS 481 (IL) **Introduction to Middle Egyptian & Hieroglyphics** (3) An introduction to the language and script of Ancient Egypt, familiarizing the student with grammar, syntax and lexicon.

Effective: Summer 2012

Prerequisite: 6 credits of any CAMS course

CAMS 490 **Ancient Mediterranean Languages** (3-6) Variable topic study of an ancient language of the Mediterranean basin and related areas, other than Greek, Latin, or Hebrew.

Effective: Summer 2011

Prerequisite: LATIN 003

CAMS 492 **Intermediate Field Methods** (3-6) On-site experience in archaeological fieldwork in the ancient Mediterranean region.

Effective: Spring 2000

Prerequisite: approval by field school director

CAMS 493 **Intermediate Field Analysis** (3-6) On-site experience in archaeological analysis in the ancient Mediterranean region.

Effective: Spring 2000

Prerequisite: approval by field school director

CAMS 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 1997

CAMS 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2001

CAMS 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1999

CAMS 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 1996

CAMS 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1997

CAMS 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## College Student Affs (CSA)

CSA 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2009

CSA 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2009

CSA 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2009

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## Commonwealth College (CWC)

CWC 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2000

CWC 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2000

CWC 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CWC 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2000

CWC 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2000

CWC 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CWC 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small group basis.  
Effective: Summer 2000

CWC 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2000  
Prerequisite: prior approval of proposed assignment by instructor

CWC 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2000

CWC 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2000

CWC 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2000

CWC 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CWC 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2000  
Prerequisite: prior approval of proposed assignment by instructor

CWC 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2000

CWC 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2000

CWC 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CWC 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small group basis.  
Effective: Summer 2000

CWC 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small group basis.  
Effective: Fall 2007

CWC 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2000  
Prerequisite: prior approval of proposed assignment by instructor

CWC 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2000

CWC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2000

CWC 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2000

CWC 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Communication Arts and Sciences (CAS)

CAS 083S (GS) **First-Year Seminar in Speech Communication** (3) Introduction to major theoretical, critical, research and pedagogical issues in human communication.  
Effective: Fall 2003

CAS 084S (GH) **First-Year Seminar in Communication Arts and Sciences** (3) Introduction to significant issues surrounding effective human communication; humanities emphasis.  
Effective: Summer 2002

CAS 100 (GWS) **Effective Speech** (3) Introduction to speech communication: formal speaking, group discussion, analysis and evaluation of messages.  
Effective: Fall 2003

CAS 100A (GWS) **Effective Speech** (3) Principles of communication, implemented through presentation of speeches, with some attention to group discussion and message evaluation.  
Effective: Fall 2003

CAS 100B (GWS) **Effective Speech** (3) Principles of communication, implemented through group problem solving, with some attention to formal speaking and message evaluation.  
Effective: Fall 2003

CAS 100C (GWS) **Effective Speech** (3) Principles of communication, implemented through analysis and evaluation of messages, with some attention to formal speaking and group discussion.  
Effective: Fall 2003

CAS 100H (GWS) **Effective Speech** (3) Introduction to speech communication: formal speaking, group discussion, analysis and evaluation of messages.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CAS 100S (GWS) **Effective Speech** (3) Principles of communication, implemented through presentation of speeches, with some attention to group discussion and message evaluation.  
Effective: Fall 2003

CAS 101 (GS) **Introduction to Human Communication** (3) Introduction to major theoretical, critical, research and pedagogical issues in human communication.  
Effective: Fall 2003

CAS 126 **Developmental Listening** (3) Introduction to effective strategies of listening, with an emphasis on studying, note taking, test taking, and research paper writing.  
Effective: Fall 2003

CAS 137H (GWS) (ENGL 137H) **Rhetoric and Civic Life I** (3) Within a liberal arts framework and with attention to public discourse-- speaking, writing, online communication, and visual presentation--this course instructs students in the arts, practices, and principles of rhetoric.  
Effective: Summer 2012

CAS 138T (GWS) (ENGL 138T) **Rhetoric and Civic Life II** (3) This course builds rhetorical skills in oral, written, visual, and digital contexts and introduces deliberation and advocacy in civic and disciplinary spheres.  
Effective: Summer 2012  
Prerequisite: ENGL 137H or CAS 137H

CAS 175 (GH) **Persuasion and Propaganda** (3) An introductory examination of how symbols have been used to create belief and action in revolutionary, totalitarian, and democratic settings.  
Effective: Spring 2003

CAS 195 **Careers in Communication** (1) An introduction to a variety of careers in the field of communication arts and sciences.  
Effective: Summer 2002

CAS 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2003

CAS 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

CAS 200 (US;IL) **Language, Culture, and Communication** (3) Introduction to language, language development, cultural literacy, culture, and intercultural communication.  
Effective: Summer 2005

CAS 201 (GH) **Rhetorical Theory** (3) History and theory of public advocacy and civic discourse.  
Effective: Spring 2003

CAS 202 (GS) **Introduction to Communication Theory** (3) Survey of human communication studies in relational, interpersonal, group, organization, intercultural, health, technology and communication systems.  
Effective: Spring 2003

CAS 203 (GS) **Interpersonal Communication** (3) Exploration of competent communication and the skills necessary to manage personal and professional relationships.  
Effective: Fall 2003

CAS 204 **Communication Research Methods** (3) Overview of the skills necessary to evaluate commonly reported communication research.  
Effective: Spring 2003

CAS 205 **The Voice and Its Use** (3) Emphasis on procedures to improve vocal effectiveness in personal and professional communication; not offered at University Park campus.  
Effective: Spring 2003

CAS 206 (GH) **Mediation and Communication** (3) Presentation of the history, theory, and practice of mediation as a means of resolving conflict through communication.  
Effective: Fall 2007

CAS 211 **Informative Speaking** (3) Planning, organizing, adapting, and presenting informative speeches and oral reports on technical/scholarly projects, both by manuscript reading and extemporaneously.  
Effective: Spring 2003  
Prerequisite: CAS 100

CAS 212 **Professional Public Speaking** (3) Organizing, adapting and presenting ideas in public informative, persuasive, technical and ceremonial speeches.  
Effective: Spring 2008  
Prerequisite: CAS 100

CAS 213 **Persuasive Speaking** (3) Planning, organizing, and adapting techniques of persuasion to achieve personal and public goals; engaging in critical assessment of persuasive messages.  
Effective: Spring 2003  
Prerequisite: CAS 100

CAS 214W **Speech Writing** (3) Writing speeches for delivery in political, professional, and ceremonial settings; emphasis on composition and language for oral presentation.  
Effective: Spring 2003  
Prerequisite: CAS 100

CAS 215 **Argumentation** (3) Theory of argument: gathering of evidence, analysis of proposition, case building, cross-examination, refutation, composition and delivery of argumentative speech.  
Effective: Spring 2003

CAS 216 **Parliamentary Procedure** (2) Practice in presiding over and participating in meetings conducted under rules of order.  
Effective: Spring 2003 Ending: Fall 2014

CAS 216 (AEE 216) **Practical Parliamentary Procedure** (3) Practice in presiding over and participating in meetings conducted under rules of order.  
Effective: Spring 2015 Future: Spring 2015

CAS 222 (GS;US;IL) (CIVCM 211, YFE 211) **Foundations: Civic and Community Engagement** (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.  
Effective: Fall 2010

CAS 250 **Small Group Communication** (3) Skill development in the areas of group discussion, leadership, and teamwork.  
Effective: Fall 2003

**CAS 252 Business and Professional Communication (3)** Interviewing, briefing, conferring, and decision making; analyzing and evaluating formal and informal patterns of communication in organizations.  
Effective: Spring 2003

**CAS 253 Health Communication (3)** To introduce students to principles of health message design and the general theories and models used to guide these efforts.  
Effective: Spring 2006

**CAS 255 Peer Tutoring for Public Speaking (3)** This course will prepare students to become peer tutors in public speaking.  
Effective: Summer 2013 Ending: Summer 2014  
Prerequisite: CAS 100A orCAS 137H orENGL 137H orCAS 138T orENGL 138T or approved higher level speaking course

**CAS 271 (US;IL) Intercultural Communication (3)** Introduction to intercultural communication. Focus on topics such as language, identity, prejudice, and intergroup relations on a domestic/ international level.  
Effective: Summer 2005

**CAS 272 (GH) Political Communication and Technology (3)** This course examines how interactive communication technologies reshape political rhetoric, discursive civic culture, deliberation, and participatory democracy.  
Effective: Spring 2014

**CAS 280W Storytelling and Speaking (3)** Principles of oral performance from storytelling to the printed page; includes oral performance of stories, speeches, prose, drama, and poetry.  
Effective: Spring 2003

**CAS 283 Communication and Information Technology I (3)** Introduction to communication technology and information management; intended for students in the Liberal Arts.  
Effective: Fall 2003

**CAS 294 Research Topics (1-12)** Supervised student activities on research projects identified on an individual or small group basis.  
Effective: Fall 2003  
Prerequisite: prior approval of assignment by instructor

**CAS 295 Internship (1-16)** Supervised nongroup instruction, including field experiences, practicums, or internships. Written and oral critique of activity required.  
Effective: Fall 2003  
Prerequisite: prior approval of proposed assignment by instructor

**CAS 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2003

**CAS 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2003

**CAS 297A Intercultural Communication in Action: The Case of Austria (1-3)** An optional embedded 12-day program offered with CAS 271. The course offers formal and informal opportunities for students to engage in dialogue with Austrians from a variety of backgrounds. The objective is for students to develop sensitivity and flexibility in intercultural communication settings to benefit their personal and professional lives.  
Effective: Summer 2014 Ending: Summer 2014  
Concurrent: CAS 271

**CAS 298 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2003

**CAS 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**CAS 302 Social Influence (3)** Explores how humans influence others through communication.  
Effective: Summer 2002

**CAS 311 Methods of Rhetorical Criticism (3)** Principles for the analysis and evaluation of public discourse.  
Effective: Summer 2002

**CAS 321 Rhetoric and Law (3)** A survey of the literature on the role of rhetoric in law, including trial advocacy, appellate



argument, and judicial reasoning.  
Effective: Spring 2008

**CAS 340 Communication and Civility (3)** Communication behaviors contributing to civil and uncivil discourse; their implications in business, public life, across cultures and in interpersonal relationships.  
Effective: Spring 2008

**CAS 352 Organizational Communication (3)** This course examines the function and structure of communication in both formal and informal situations.  
Effective: Spring 2003

**CAS 360 Communication for Teachers (3)** Analysis of dynamics of instructor-student communication implemented through structured exercises in instructor listening, verbal and nonverbal message-making.  
Effective: Spring 2008  
Prerequisite: CAS 100

**CAS 373 The Rhetorics of War and Peace (3)** This course explores how war and peace are advocated.  
Effective: Summer 2009

**CAS 375 Rhetoric and Public Controversy (3)** Survey of important events in the history of public address, including speeches, debates, and persuasive campaigns and movements.  
Effective: Summer 2002

**CAS 383 Culture and Technology (3)** This course will examine the area of cyberculture as it relates to communication studies.  
Effective: Summer 2002

**CAS 390 (GS) Qualitative Research Methods (3)** An overview of Qualitative Research Methods, including how to conceive, design and execute a research study.  
Effective: Summer 2014

**CAS 395 Forensics Practicum (1-2 per semester/maximum of 16)** Provides students in forensics the opportunity for supervised participation in the activity in class and in intercollegiate competition.  
Effective: Fall 2003

**CAS 398 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2002

**CAS 398A Public Relations (3)** Public understanding of organizations and institutions; identification and analysis of public; media relations; public relations practice.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**CAS 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**CAS 402 Speech and Human Behavior (3)** General semantics, thought, and human behavior; not offered at University Park campus.  
Effective: Spring 2003

**CAS 403 Interpersonal Communication Theory and Research (3)** Examining behavior within interpersonal encounters, with emphasis on both theoretical/applied explanations for how and why people act during such interactions.  
Effective: Spring 2003  
Prerequisite: CAS 203

**CAS 404 Conflict Resolution and Negotiation (3)** Theories and strategies important for conceptualizing, developing, and managing conflict negotiation, mediation, and third-party intervention.  
Effective: Spring 2003  
Prerequisite: CAS 100

**CAS 405 Family Communication Theory and Research (3)** Explores the nature and functions of communication in family life; emphasis on meaning, patterns, and styles of family communication.  
Effective: Summer 2002  
Prerequisite: CAS 101CAS 202

**CAS 406H Honors Course in Communication Arts and Sciences (3)** Individual study and seminar in selected areas or issues of speech communication.  
Effective: Spring 2003  
Prerequisite: an all-University average of B; approval of the departmental Honors Committee

**CAS 409 (PL SC 409) Democratic Deliberation (3)** Explores the theory and practice of democratic deliberation in elections, town meetings, juries, legislatures, and other public institutions.

Effective: Spring 2014

Prerequisite: CAS 137CAS 175CAS 201CAS 202CAS 216CAS 250CAS 272 orPL SC 001PL SC 017PL SC 112PL SC 130

**CAS 410W Mother-Daughter Communication (3)** Explores the mother-daughter relationship with an emphasis on understanding mother-daughter communication.

Effective: Summer 2010

Prerequisite: CAS 202

**CAS 411 Rhetorical Criticism (3)** Principles of rhetorical criticism examined through analysis of selected texts and critics.

Effective: Spring 2003

Prerequisite: CAS 201 orCAS 100

**CAS 415 Rhetoric of Film and Television (3)** Rhetorical analysis of the artistic forms and cultural structures of film and television; intensive study of selected examples.

Effective: Spring 2003

Prerequisite: CAS 100 orCOMM 150

**CAS 420 Rhetorical Theory (3)** Ancient, medieval, Renaissance, Enlightenment, and contemporary theories of rhetoric.

Effective: Spring 2003

Prerequisite: CAS 201

**CAS 421 Communication and Aging (3)** Concentrates on the pivotal role that communication plays in the social process of aging.

Effective: Summer 2007

Prerequisite: Three credits of CAS

**CAS 422 (US) (AF AM 422) Contemporary African American Communication (3)** A focused study on the continuities between African and African American culture and communication.

Effective: Spring 2013

Prerequisite: CAS 100

**CAS 426W Communication Ethics (3)** Ethical issues in public and private communication; role of communication in expressing and realizing individual and social values.

Effective: Spring 2003

Prerequisite: CAS 100

**CAS 438 Rhetoric of Documentary (3)** Rhetorical analysis of the documentary in film, television, and other media; historical and critical analysis of functions and form.

Effective: Spring 2003

Prerequisite: CAS 201

**CAS 450W Group Communication Theory and Research (3)** Selected theories of problem solving through group discussion emphasizing participation and leadership.

Effective: Spring 2003

Prerequisite: CAS 100 orCAS 250

**CAS 452 Organizational Communication Theory and Research (3)** Explores the nature and functions of communication in organizations; emphasis on concepts, tools, and skills for effective management of communication.

Effective: Spring 2003

Prerequisite: CAS 202 orCAS 252

**CAS 452W Organizational Communication Theory and Research (3)** Explores the nature and functions of communication in organizations; emphasis on writing and exploring concepts, tools, and skills for effective management of communication.

Effective: Spring 2004

Prerequisite: CAS 202 orCAS 252

**CAS 453 Health Communication Theory and Research (3)** Principles of communication about health across the lifespan and within health-care contexts.

Effective: Spring 2006

Prerequisite: CAS 100

**CAS 455 (US) (WMNST 455) Gender Roles in Communication (3)** Explores the literature on gender research in the discipline of human communication.

Effective: Summer 2005

Prerequisite: CAS 202

**CAS 460H Introduction to Honors Thesis (3)** This course will guide students through steps that result in Honors Thesis Proposal.

Effective: Summer 2013

Prerequisite: Student must be in good standing in Schreyer Honors College.CAS 201 orCAS 202;CAS 204

**CAS 470 Nonverbal Communication (3)** Examining ways nonverbal messages, such as gestures, posture, vocal intonation, and facial expressions, affect us on a daily basis.

Effective: Spring 2003

Prerequisite: 6 credits in Communication Arts and Sciences

**CAS 471 (US;IL) Intercultural Communication Theory and Research (3)** Intercultural and cross-cultural communication

research theory and practice as applied within and across national boundaries.

Effective: Summer 2005

Prerequisite: CAS 271

**CAS 475 Studies in Public Address** (3) History and criticism of public discourse; intensive analysis of selected public addresses and social movements.

Effective: Spring 2003

Prerequisite: CAS 100

**CAS 478 Contemporary American Political Rhetoric** (3) Analysis of selected speeches, debates, and persuasive campaigns and movements in recent American political history.

Effective: Spring 2003

Prerequisite: CAS 100

**CAS 480 Group Performance of Literature** (3) Applying storytelling skills and performance theory to the group presentation of literature; criticism of literature through group presentations.

Effective: Spring 2003

Prerequisite: CAS 100

**CAS 483 Communication and Information Technology II** (3) Theory and application of interactive internet-based communication and information management; for students who want a Liberal Arts approach.

Effective: Fall 2003

Prerequisite: CAS 283

**CAS 490 Peer Tutoring for Public Speaking** (3) This course will prepare students to become peer tutors in public speaking.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CAS 100A orCAS 137H orENGL 137H orCAS 138T orENGL 138T or approved higher level speaking course

**CAS 494 Research Topics** (1-12) Supervised student activities on research projects identified on an individual or small group basis.

Effective: Fall 2003

Prerequisite: prior approval of proposed assignment by instructor

**CAS 494H Research Topics** (1-12) Supervised student activities on research projects identified on an individual or small group basis.

Effective: Summer 2008

Prerequisite: prior approval of proposed assignment by instructor

**CAS 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2003

Prerequisite: prior approval of proposed assignment by instructor

**CAS 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 2002

**CAS 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2002

**CAS 497A Interpersonal Influence** (3) Examines how individuals in friend, family, and work relationships create and evaluate messages intended to change the behavior of others.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**CAS 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2002

**CAS 498A Lesbian and Gay History** (3) Critical exploration of the history of sexuality, focusing especially on the emergence of modern lesbian and gay identities.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**CAS 498A Communication, Training, and Development** (3) Instruction in the knowledge and skills needed to effectively design and deliver customized training programs; specific focus on the role of communication systems and rhetoric in the process.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**CAS 499 (IL) Foreign Studies** (1-9) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Communication Sciences and Disorders (CSD)

**CSD 100 (GHA;US) Preventing Vocal Abuse, Misuse, and Disorders (3)** Principles of the voice mechanisms, preventing vocal abuse, and promoting vocal health across the life span.  
Effective: Fall 2012

**CSD 101 (GHA;US) Preventing Hearing Loss (1.5)** Assessment, intervention, and prevention of hearing loss caused by loud music and recreational and industrial noise.  
Effective: Summer 2005

**CSD 146 (US;IL) Introduction to Communication Sciences and Disorders (3)** Classification of speech, language, and hearing disorders, diagnostic and treatment procedures; skills and responsibilities of the speech-language pathologist and audiologist.  
Effective: Summer 2005

**CSD 218 American Sign Language I (3)** Introduction to sign language; provides basic receptive and expressive skills; includes out-of-class practice.  
Effective: Fall 2003

**CSD 230 Introduction to Audiology (3)** Basic measurement procedures, evaluation, and screening of hearing loss using pure-tone and speech audiometry, immittance, and physiological measurements.  
Effective: Spring 2005

**CSD 269 (GS;US;IL) Deaf Culture (3)** Explores the economic, social, psychological, and political aspects of the deaf culture and its interaction with the majority hearing culture.  
Effective: Fall 2012

**CSD 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2003

**CSD 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2003

**CSD 300 (US;IL) Developmental Considerations in the Assessment and Treatment of Language Disorders (3)** Using a developmental framework to interpret problems in child language acquisition.  
Effective: Fall 2010  
Prerequisite: CSD 146

**CSD 301 Acoustic Principles in Communication Sciences and Disorders (3)** Explores the fundamental concepts of acoustics as applied to individuals with communicative disabilities; special emphasis is placed on the acoustic analysis of speech.  
Effective: Fall 2010  
Prerequisite: CSD 146

**CSD 311 Clinical Phonetics (3)** Introduction to phonetic transcription of speech emphasizing articulatory phonetics of American English, its dialects, and disordered speech; extensive transcription experiences.  
Effective: Fall 2003

**CSD 318 American Sign Language II (3)** Review of basic signing, plus continued development of signing skills.  
Effective: Fall 2003  
Prerequisite: CSD 218

**CSD 331 Anatomy and Physiology for Speech and Hearing (3)** Structure and function of the physical systems involved in speech and hearing, including respiration, phonation, articulation, perception, and neurology.  
Effective: Fall 2003

**CSD 433 Aural Rehabilitation (3)** Methods for improving receptive skills of persons with hearing impairments; clinical observation and practice.  
Effective: Fall 2003  
Prerequisite: CSD 230

**CSD 442 Introduction to Disorders of Articulation and Phonology (3)** Etiology, diagnosis, and treatment of articulation disorders.  
Effective: Fall 2010  
Prerequisite: CSD 300CSD 311 plus 3 additional CSD credits at the 300-level

**CSD 444 Introduction to Organic Disorders of Speech and Language** (3) Etiology, diagnosis, and principles of treatment of stuttering, and of speech- language disorders having organic bases.

Effective: Fall 2010

Prerequisite: CSD 301CSD 331 plus 3 additional credits in CSD at the 300-level

**CSD 451 An Introduction to Augmentative and Alternative Communication** (3) Examination of assessment and intervention issues in augmentative and alternative communication techniques with persons with severe communication disorders.

Effective: Fall 2010

Prerequisite: CSD 300 plus 6 additional CSD credits at the 300-level

**CSD 459W Principles of Clinical Management in Communication Disorders** (3) Survey of principles and practices for diagnosing, interviewing, counseling, treating, reporting, and programming in Communication Disorders.

Effective: Fall 2010

Prerequisite: CSD 300CSD 230 plus 3 additional credits in CSD at the 300-level

**CSD 462 (US;IL) Clinical Bases of Language Disorders** (3) Description of pathological language and cognitive development, and principles of assessment and remediation among individuals with communication disorders.

Effective: Fall 2010

Prerequisite: CSD 300 plus 6 additional credits in CSD at the 300-level

**CSD 494H Senior Honors Thesis** (1-6) Independent study related to a student's interests directed by a faculty supervisor and culminating in the production of a thesis.

Effective: Spring 2006

Prerequisite: Approval of honors thesis advisor.

**CSD 495A Speech Therapy Practicum** (1-6) Demonstration and practice in examination, diagnosis, and treatment of speech problems.

Effective: Spring 2013

Prerequisite: CSD 442

**CSD 495B Audiology Practicum** (1-5) Demonstration and practice in examination, diagnosis, and treatment of hearing impairment problems.

Effective: Spring 2013

Prerequisite: CSD 433

**CSD 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 2003

**CSD 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2003

**CSD 497H Neural Mechanisms of Speech and Language** (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

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## Communications (COMM)

COMM 001 **Newspaper Practicum** (1-3 per semester/maximum of 8) A newspaper/print media practicum. Credits do not fulfill Communication major credits in all programs.  
Effective: Fall 2012

COMM 002 **Newspaper Editorial Staff** (1-3 per semester, maximum of 8) A newspaper/print media practicum. Credits do not fulfill Communication major credits in all programs.  
Effective: Fall 2012  
Prerequisite: COMM 001

COMM 003 **Radio Practicum** (1-3 per semester/maximum of 8) A broadcast media practicum. Credits do not fulfill Communication major credits in all programs.  
Effective: Fall 2012

COMM 004 **Television Practicum** (1-3 per semester/maximum of 8) A broadcast media practicum designed to provide students experience with TV and video production in a variety of contexts.  
Effective: Spring 2013

COMM 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2008

COMM 100 (GS) (AM ST 106) **The Mass Media and Society** (3) Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films.  
Effective: Fall 2013

COMM 100S (GS) **The Mass Media and Society** (3) Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films.  
Effective: Fall 2005

COMM 110 (GH) **Media and Democracy** (3) This course considers the role of the mass media with regard to developing civic awareness and engagement in democratic societies.  
Effective: Spring 2009

COMM 118 (GS) **Introduction to Media Effects** (3) Examination of individuals' selection, uses and perceptions of media and the effects of media on individuals' attitudes, beliefs, and behaviors.  
Effective: Spring 2007

COMM 120 **Advertising and Society** (3) History and structure of advertising in American society; the role of advertising in the economic and communications systems; regulation. May not be used to fulfill requirements of any major in the School of Communications.  
Effective: Fall 1986

COMM 150 (GA) **The Art of the Cinema** (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.  
Effective: Spring 2007

COMM 150H (GA) **The Art of the Cinema** (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.  
Effective: Spring 2007

COMM 150S (GA) **The Art of the Cinema** (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.  
Effective: Fall 2005

COMM 160 **Basic News Writing Skills** (1) Grammar, punctuation, spelling, and word usage skills required of journalists.  
Effective: Summer 2003

COMM 168 (GH) **American Journalism: Values, Traditions, and Practices** (3) This course is designed to give students a broad overview of American journalism, its past, present and future; its traditions, principles and values.  
Effective: Summer 2011

COMM 170 **Introduction to the Sports Industry** (3) The course provides a basic understanding of how the principles of

business apply in the industry of sports.  
Effective: Spring 2009

COMM 180 (GS) **Survey of Electronic Media and Telecommunications** (3) The development of electronic media and telecommunications, emphasizing social, economic, political and global impact.  
Effective: Fall 2006

COMM 190 (GS) **Gaming and Interactive Media** (3) Introduction to business and social aspects of interactive media, videogame and simulations industries.  
Effective: Summer 2011 Ending: Fall 2014

COMM 190 (GS) (GAME 140) **Gaming and Interactive Media** (3) Introduction to business and social aspects of interactive media, videogame and simulations industries.  
Effective: Spring 2015 Future: Spring 2015

COMM 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1993

COMM 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2007

COMM 205 (US) (WMNST 205) **Women, Minorities, and the Media** (3) Analysis of historical, economic, legal, political, and social implications of the relationship between women, minorities, and the mass media.  
Effective: Summer 2005 Ending: Fall 2014

COMM 205 (GS;US) (WMNST 205) **Gender, Diversity and the Media** (3) Explores the relationship between media and society through critical analysis of its role in social reality.  
Effective: Spring 2015 Future: Spring 2015

COMM 215 **Basic Photography for Communications** (3) An introduction to photography, emphasizing both technical skills and aesthetics with both the camera and in the darkroom.  
Effective: Spring 2011

COMM 230W **Writing for Media** (3) The application of creativity to the practical concerns of narrative script and radio/television spot writing.  
Effective: Spring 2008  
Prerequisite: ENGL 015 and ENGL 202

COMM 241 **Graphic Design for Communications** (3) Introduction to basic design principles, critical analysis of visual material, and solving graphics problems utilizing traditional and digital production tools.  
Effective: Spring 2011

COMM 242 **Basic Video/Filmmaking** (3) Introduction to basic motion picture techniques, emphasizing practical experience in filmmaking.  
Effective: Fall 2005  
Prerequisite: COMM 150 and second third or fourth semester standing

COMM 250 (GA) **Film History and Theory** (3) Exploration of film theory and criticism in the context of aesthetic, technological, and economic evolution of film history.  
Effective: Spring 2004  
Prerequisite: COMM 150

COMM 251 **The Nature of Media** (3) A theoretical, cultural, and philosophical study of print and non-print media, including their histories, possibilities, limitations, and interrelationships.  
Effective: Spring 2008

COMM 260W **News Writing and Reporting** (3) News and news values; legal and ethical problems of reporting; writing and reporting news for the mass media.  
Effective: Spring 2004  
Prerequisite: ENGL 015 or ENGL 030; COMM 160 ; third-semester standing and typing proficiency

COMM 261 (GH) **The Literature of Journalism** (3) Representative nonfiction by writers such as Susan Sheehan, George Orwell, Joan Didion, Alice Walker, Truman Capote, C. D. B. Bryan, Russell Baker.  
Effective: Spring 2001

COMM 269 **Photojournalism** (3) Photography for communication in print and online; creating photographs for newspapers, magazines and the Web; digital camera and software skills.  
Effective: Fall 2010



Prerequisite: or concurrent: COMM 260W or COMM 320

**COMM 270 Introduction to Multimedia Production** (3) Introduction to multimedia project activities to explore image editing, layout, the integration of texts and images and web architecture.  
Effective: Summer 2002

**COMM 271 Principles of Multimedia Journalism** (3) The course introduces how journalists work with the tools of multimedia and how multimedia is changing journalism.  
Effective: Summer 2012 Ending: Summer 2014  
Prerequisite: COMM 160; COMM 260W

**COMM 271 Principles of Multimedia Journalism** (3) The course introduces how journalists work with the tools of multimedia and how multimedia is changing journalism.  
Effective: Fall 2014 Future: Fall 2014

**COMM 282 Television Field Production** (3) Explore the particularities of single camera pre-production and production and analog and digital videotape editing.  
Effective: Spring 2010

**COMM 283W Television Studio Production** (3) Students will learn the technical aspects of multi-camera studio television production.  
Effective: Spring 2012  
Prerequisite: COMM 282 or COMM 242

**COMM 292 (GH) Introduction to Media & Politics** (3) This course explores the intersection of media and politics, introducing students to the critical analysis of mediated political discourse.  
Effective: Spring 2008

**COMM 294 Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1994

**COMM 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1986

**COMM 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1986

**COMM 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**COMM 304 Mass Communication Research** (3) Introduction to research methods in mass communications.  
Effective: Spring 2013  
Prerequisite: 3 credits from STAT 200SCM 200 or PSYCH 200 ; and 3 credits from COMM 100COMM 110COMM 118COMM 150COMM 180COMM 260WCOMM 320 or COMM 370

**COMM 315 Applications for Media Writing** (3) Tutorial and practice in various kinds of journalistic and commercial writing, emphasizing basic skills.  
Effective: Fall 2012  
Prerequisite: COMM 160 and ENGL 202AENGL 202BENGL 202C or ENGL 202D

**COMM 320 Introduction to Advertising** (3) Advertising management in business, including communication theory; common industry practices; basics of copy, media, and budget decision; and environmental influences. A student may not receive credit for both COMM 320 and MKTG 322.  
Effective: Spring 1989  
Prerequisite: fourth-semester standing

**COMM 320H Introduction to Advertising** (3) Advertising management in business, including communication theory; common industry practices; basics of copy, media, and budget decision; and environmental influences.  
Effective: Summer 2012  
Prerequisite: fourth-semester standing; A student may not receive credit for both COMM 320H and MKTG 322.

**COMM 331 Visual Communication Theory and Analysis** (3) This course explores visual theory pertaining to movies, television production, and graphic design, emphasizing semiotics, the psychology of vision, and reception theory.  
Effective: Spring 2008  
Prerequisite: COMM 150

**COMM 332 Reporting** (3) Practice in researching and gathering material for and preparation of news stories for print media.  
Effective: Spring 2008  
Prerequisite: COMM 260W

**COMM 333 Film History for Filmmakers I: The Development of the Cinema to 1960** (3) History of the art, industry, economics, culture, and technology of cinema from its origins to 1960.

Effective: Summer 2010

Prerequisite: COMM 150 Film-Video major

**COMM 337W Intermediate Documentary Production** (3) Writing-intensive exploration of documentary video techniques and aesthetics through the completion of short exercises.

Effective: Spring 2012

Prerequisite: COMM 242 and Film-Video major

**COMM 338 Intermediate Narrative Production** (3) Exploration of narrative film or video techniques and aesthetics through the completion of short exercises and projects.

Effective: Summer 2010

Prerequisite: COMM 242 and Film-Video major

**COMM 339 Intermediate Alternative Production** (3) Exploration of alternative film or video production techniques and aesthetics through the completion of short exercises and projects.

Effective: Summer 2010

Prerequisite: COMM 242 and Film-Video major

**COMM 340 Intermediate Cinematography and Editing Techniques** (3) Exploration of film and video production techniques through the use of camera, lighting, audio and digital post-production equipment.

Effective: Spring 2011

Prerequisite: COMM 242 Film-Video major

**COMM 342W Idea Development and Media Writing** (3) Introduction to various modalities of idea development and written expression for media production.

Effective: Spring 2011

Prerequisite: COMM 242 and Film-Video Major

**COMM 346 Writing for the Screen I** (3) A beginning course in narrative Screenwriting emphasizing analysis, creativity, and critiquing skills necessary for the development of storytelling.

Effective: Spring 2011

Prerequisite: COMM 342W

**COMM 350 (IL) Comparative Media Cultures** (3) Intercultural examination of economic, political, philosophical, and historical forces that shape various societies' newsgathering routines and content.

Effective: Spring 2008

Prerequisite: COMM 251

**COMM 360 Radio Reporting** (3) Reporting, writing, producing, and presenting radio news programs, focusing on the development of news judgment and writing skills.

Effective: Fall 2010

Prerequisite: COMM 260W

**COMM 363 Desktop Publishing** (3) Practical and theoretical approach to visual communication production in newspaper journalism, advertising, public relations, and other communication industries.

Effective: Spring 2008

Prerequisite: COMM 215 or COMM 241

**COMM 370 Public Relations** (3) Public understanding of organizations and institutions; identification and analysis of public; media relations; public relations practice.

Effective: Spring 2001

Prerequisite: fourth-semester standing

**COMM 370H Public Relations** (3) Public understanding of organizations and institutions; identification and analysis of public; media relations; public relations practice.

Effective: Summer 2012

Prerequisite: fourth-semester standing

**COMM 371 Visual and Video Communication** (4) A study of the technical and aesthetic factors in visual production, including visualization, composition, lighting, sound, performance, and project management.

Effective: Spring 2008

Prerequisite: COMM 251

**COMM 372 Digital Public Relations** (3) This course discusses digital strategies and techniques for public relations.

Effective: Summer 2014

Prerequisite: COMM 370

**COMM 373 Crisis Communications in Public Relations** (3) The course is designed to introduce students to organizational risk assessment and protecting an organization's reputation in times of crisis.

Effective: Summer 2012

Prerequisite: COMM 260W and COMM 370 or COMM 320

**COMM 374 Audio Production** (3) Theory and practice in studio recording and broadcasting techniques, including continuity/news writing, control room operation and audio production.

Effective: Fall 2011

Prerequisite: COMMS 180 or COMM 251 or COMM 100 or permission of program

**COMM 381 Telecommunications Regulation** (3) Overview of the regulation of electronic media.

Effective: Spring 2011

Prerequisite: COMM 180;ECON 102 orECON 014

**COMM 383 Advanced Video Production** (1-3) Advanced video production techniques and production management issues.

Effective: Spring 2013

Prerequisite: COMM 283W and permission of program

**COMM 383A Webcast Production** (1.5) Explore all aspects of producing a live television show. Final project is streaming a live webcast online.

Effective: Summer 2011

Prerequisite: COMM 282 orCOMM 242

**COMM 384 Telecommunications Promotion and Sales** (3) Principles of marketing services applied to telecommunications and information products/services; models of customer-focused selling and their applications to media time sales.

Effective: Fall 2001

Prerequisite: COMM 180 orCOMM 320

**COMM 385 Media Programming Strategies** (3) Framework, principles, and strategies for media programming from perspective of content distributors and media outlets.

Effective: Fall 2011

Prerequisite: COMM 180

**COMM 386 Telecommunications History** (3) Historical development of telecommunications systems in the United States, including telegraph, telephone, radio, television, and the internet.

Effective: Fall 2001

**COMM 387 Telecommunications Management** (3) Introduction to basic principles of management as they apply in electronic media industries.

Effective: Fall 2011

Prerequisite: COMM 180;ECON 102 orECON 014

**COMM 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007

**COMM 400 In the Game: TV Sports Magazine** (3) Students will produce, report, anchor and direct half-hour sports magazine show.

Effective: Spring 2014

Prerequisite: COMM 465COMM 283W orCOMM 242 and permission of program

**COMM 401 Mass Media in History** (3) Relationship of news media to social, economic, and political developments in the Western world.

Effective: Fall 1986

**COMM 402 International Reporting** (3) International Reporting is an advanced level course in the College of Communications designed to give student journalists experience in reporting the news in a foreign country.

Effective: Summer 2011

Prerequisite: COMM 260WCOMM 360COMM 465 and permission of program

**COMM 403 Law of Mass Communications** (3) Nature and theories of law; the Supreme Court and press freedom; legal problems of the mass media.

Effective: Fall 1986

**COMM 403H Law of Mass Communications** (3) Nature and theories of law; the Supreme Court and press freedom; legal problems of the mass media.

Effective: Spring 2006

**COMM 405 Political Economy of Communications** (3) Structure and functions of American and other mass communications systems and their relationship to political and economic systems.

Effective: Spring 2011

Prerequisite: ECON 102

**COMM 405H Political Economy of Communications** (3) Structure and functions of American and other mass communications systems and their relationship to political and economic systems.

Effective: Spring 2011

Prerequisite: ECON 102

**COMM 406 Electronic News Gathering and Editing** (3) Intermediate level skills in creating and editing television news packages.

Effective: Spring 2008

Prerequisite: COMM 315 orCOMM 283W

**COMM 407A Media and Government** (3) This course examines the relationship between politics, governance, and news media, and provides a foundation for understanding media's role in public policy.

Effective: Summer 2012

Prerequisite: permission of program

**COMM 407B Perspectives on American Journalism (3)** The course examines a number of current issues and topics surrounding journalism including: ethics, state of the industry, and news vs. entertainment.

Effective: Summer 2012

Prerequisite: permission of the program

**COMM 407C Media and World Politics (3)** COMM 407C helps to make sense of the impact of media, public opinion and non-state actors shaping foreign policy.

Effective: Spring 2013

Prerequisite: permission of the program

**COMM 408 (S T S 408) Cultural Foundations of Communications (3)** Examination of oral, scribal, print, industrial, and electronic cultures; analysis of impact of technology on communications and social structure.

Effective: Spring 2009

Prerequisite: select 3 credits from COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 W COMM 320 COMM 370 ; or 3 credits of S T S

**COMM 409 News Media Ethics (3)** Ethical problems in the practice of journalism; principal public criticisms of news media; case study approach.

Effective: Fall 2006

**COMM 409H News Media Ethics (3)** Ethical problems in the practice of journalism; principal public criticisms of news media; case study approach.

Effective: Fall 2006

**COMM 410 (IL) International Mass Communications (3)** The role of international media in communication among and between nations and peoples.

Effective: Spring 2014

Prerequisite: select 3 credits from the following COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 W COMM 320 or COMM 370

**COMM 411 Cultural Aspects of the Mass Media (3)** The mass media as creators and critics of mass culture in American life; relationships between the media and mass culture.

Effective: Spring 2009

Prerequisite: 6 credits in the arts or the humanities; and 3 credits selected from the following COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 W COMM 320 or COMM 370

**COMM 411H Cultural Aspects of the Mass Media (3)** The mass media as creators and critics of mass culture in American life; relationships between the media and mass culture.

Effective: Spring 2009

Prerequisite: 6 credits in the arts or the humanities; and 3 credits selected from the following COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 260 W COMM 320 or COMM 370

**COMM 412 Sports, Media and Society (3)** Sport and media relationship in American culture.

Effective: Summer 2006

**COMM 413 The Mass Media and the Public (3)** Nature of mass communications, relationships between mass media and public, media influences on opinion; social pressures on the media.

Effective: Spring 2009

Prerequisite: 3 credits selected from the following: COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 W COMM 320 or COMM 370

**COMM 413W The Mass Media and the Public (3)** Social-level and political theories of the relationships between media and public; media influences on public opinion; social pressure on the media; political communications.

Effective: Spring 2011

Prerequisite: select 3 credits from the following COMM 100 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 W COMM 320 or COMM 370 and select 3 credits from the following: COMM 304 COMM 420

**COMM 414 Media Management (3)** Theoretical bases and practical approaches for management and administration of communications projects, organizations, and resources.

Effective: Spring 2008

Prerequisite: COMM 100 or COMM 251

**COMM 415 Advanced Photography for Communications (3)** Advanced applications in documentary photography emphasizing the narrative qualities of imagery, and utilizing digital technologies.

Effective: Fall 2010

Prerequisite: COMM 215 or COMM 269 and permission of program

**COMM 417 Ethics and Regulation in Advertising and Public Relations (3)** Ethical issues in practice of advertising and public relations; legal and regulatory issues; case studies.

Effective: Spring 2007

Prerequisite: COMM 320 or COMM 370

**COMM 418 Media Effects: Theory and Research (3)** Investigation of social and psychological effects of media messages and technologies via theories and empirical evidence pertaining to processes of effects.

Effective: Spring 2007

Prerequisite: COMM 118 and COMM 304 or equivalent

**COMM 419 (US;IL) World Media Systems (3)** Comparative study of modern mass systems and the evolution and structure of specific countries' systems.  
Effective: Spring 2014

Prerequisite: COMM 410 ; and select 6 credits in the arts or the humanities

**COMM 419H (US;IL) World Media Systems (3)** Comparative study of modern media systems of mass communications in selected foreign countries.

Effective: Spring 2009

Prerequisite: select 6 credits in the arts or the humanities; and 3 credits from the following: COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 W COMM 320 or COMM 370

**COMM 420 Research Methods in Advertising and Public Relations (3)** Primary and secondary research methods used in the development of solutions to advertising and public relations problems.

Effective: Summer 2002

Prerequisite: COMM 320 or COMM 370; STAT 200

**COMM 421W Advertising Creative Strategies (3)** Planning, designing, writing advertisements; introduction to graphics and production techniques and processes; layout and copywriting practice and critiques.

Effective: Spring 2004

Prerequisite: COMM 320

**COMM 422 Advertising Media Planning (3)** Analysis, selection, and scheduling of advertising media; examination of algorithms, technologies, and software used in media planning.

Effective: Fall 1986

Prerequisite: COMM 320

**COMM 424 Advertising Campaigns (3)** Advertising campaign problems from the viewpoint of the national advertiser and advertising agency; production of a complete advertising campaign.

Effective: Spring 2007

Prerequisite: COMM 420 or COMM 304; COMM 421 W COMM 422

**COMM 425 Advanced Advertising Campaigns (3)** An academic option for student AAF members who will develop an integrated advertising campaign to be presented in District competition.

Effective: Spring 2013

Prerequisite: COMM 420 COMM 421 W COMM 422 COMM 424 or COMM 471 and permission of the program

**COMM 426 International and Intercultural Strategic Communication (3)** Advertising and public relations in the international and intercultural arenas; multicultural strategic communications strategies.

Effective: Summer 2006

Prerequisite: COMM 320 or COMM 370

**COMM 427 Client/Agency Relations (3)** Building and maintaining client/agency relationships in advertising, public relations and direct response agency business functions.

Effective: Summer 2006

Prerequisite: Advertising Option - Prerequisite or concurrent - One can be taken concurrently: COMM 421 COMM 422 .

Public Relations Option - Prerequisite: COMM 471 Prerequisite or concurrent: COMM 473

**COMM 428A Principles of Strategic Communications (3)** Principles of Strategic Communications provides an overview of the various media and communications methods that comprise modern integrated marketing campaigns.

Effective: Summer 2012 Ending: Summer 2014

Prerequisite: permission of the program Concurrent: COMM 260W

**COMM 428A Principles of Strategic Communications (3)** Principles of Strategic Communications provides an overview of the various media and communications methods that comprise modern integrated marketing campaigns.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: COMM 230W and permission of program

**COMM 428B Strategic Communications Law (3)** Analysis of laws and regulations affecting online advertising and strategic communications.

Effective: Summer 2012

Prerequisite: COMM 428A and permission of the program

**COMM 428C Strategic Communications in a Global Environment (3)** Strategic Communications in a Global Environment will provide students with a framework for applying public relations and advertising tools across media platforms and across cultures.

Effective: Summer 2012

Prerequisite: COMM 428A and permission of the program

**COMM 428D Research & Analytics (3)** This course covers online research methods for strategic communication, including web analytics, online surveys, online interviews, and content analysis.

Effective: Summer 2012 Ending: Fall 2014

Prerequisite: COMM 428A and permission of the program

**COMM 428D Research & Analytics (3)** This course covers online research methods for strategic communication, including web analytics, online surveys, online interviews, and content analysis.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: COMM 428A STAT 200 and permission of program

**COMM 428E Social Media Strategies (3)** This course covers social media theory, tools and best practices to prepare students for current and future use of social media.

Effective: Summer 2012

Prerequisite: COMM 428A and permission of the program

**COMM 430 Mass Media and Politics** (3) Study of mass media as institutions and the effects of the mass media on politics, public policy, and citizens.

Effective: Spring 2008

Prerequisite: COMM 100 or COMM 251

**COMM 433 Film History for Filmmakers II: The Development of the Cinema from 1960 to the Present** (3) History of the art, industry, economics, culture, and technology of cinema from 1960 to the present.

Effective: Summer 2010

Prerequisite: COMM 333

**COMM 436 Advanced Audio Production** (3) Advanced concepts and techniques of audio production in analog and digital formats with hands-on experience in recording, mixing and editing.

Effective: Spring 2008

Prerequisite: COMM 374

**COMM 437 Advanced Documentary Production** (3 per semester/maximum of 6) Advanced exploration of documentary production techniques and aesthetics through the completion of a short video project.

Effective: Spring 2011

Prerequisite: COMM 337W COMM 340 COMM 342W

**COMM 438 Advanced Narrative Production** (3 per semester/maximum of 6) Advanced exploration of narrative production techniques and aesthetics through the completion of a short film or video project.

Effective: Spring 2011

Prerequisite: COMM 338 COMM 340 COMM 342W

**COMM 439 Advanced Alternative Production** (3 per semester/maximum of 6) Advanced exploration in experimental and animation forms through the production of a film or video project.

Effective: Spring 2011

Prerequisite: COMM 339 COMM 340 COMM 342W

**COMM 440 Advanced Cinematography and Lighting Techniques** (3) Advanced exploration in camera, lighting, audio, and color-grading techniques, emphasizing technical skills as well as aesthetics.

Effective: Spring 2011

Prerequisite: COMM 340 COMM 342W and two of the following: COMM 337 COMM 338 or COMM 339 or permission of program

**COMM 441 Advanced Graphic Design for Communications** (3) Theory and practice designing graphic visual communication in commercial, non-commercial, and fine art formats for print and on-line media.

Effective: Spring 2011

Prerequisite: COMM 241 or COMM 371

**COMM 443 Producing Workshop** (3) This course will immerse students in the language and practice of producing film and video projects.

Effective: Spring 2011

Prerequisite: COMM 340 COMM 342W and two of either: COMM 337W COMM 338 or COMM 339

**COMM 444 Advanced Post-Production Techniques** (3) This course offers intensive practical experience in editing, motion graphics and sound mixing techniques, emphasizing both technical skills and aesthetics.

Effective: Summer 2010

Prerequisite: COMM 340 COMM 342W and two of the following: COMM 337 COMM 338 or COMM 339

**COMM 445 Directing Workshop** (3) An advanced aesthetic and skill production course in directing for the screen.

Effective: Spring 2011

Prerequisite: COMM 340 COMM 342W and two of the following: COMM 337 COMM 338 or COMM 339

**COMM 446 Writing for the Screen II** (3) An advanced course in screenwriting that further develops elements of storytelling technique.

Effective: Spring 1994

Prerequisite: COMM 346

**COMM 448 Advanced Group Production I** (3) A two semester advanced production course emphasizing intensive collaborative film-video production from script through post-production.

Effective: Spring 2011

Prerequisite: COMM 340 COMM 342W and two of the following: COMM 337 COMM 338 or COMM 339 and permission of program

**COMM 449 Advanced Group Production II** (3) Continuation of advanced production course emphasizing intensive collaborative film-video production from script through post-production.

Effective: Spring 2011

Prerequisite: COMM 448

**COMM 451 (AM ST 451) Topics in American Film** (3 per semester, maximum of 6) Critical and historical studies of American films. Analysis of directing, cinematography, editing, screenwriting, and acting.

Effective: Fall 2013

Prerequisite: COMM 250

**COMM 452 Topics in International Cinema** (3 per semester, maximum of 6) Critical and historical studies of topics in non-American film. Analysis of theory, direction, cinematography, editing, and screenwriting.

Effective: Summer 1989  
Prerequisite: COMM 250

COMM 453 (IL) (CMLIT 453) **Narrative Theory: Film and Literature** (3) Comparative study of the aesthetics and techniques of film and literature; close analyses of masters of each art form.  
Effective: Fall 2006  
Prerequisite: COMM 150 or 3 credits in literature

COMM 454 **Documentary in Film and Television** (3 per semester, maximum of 6) Study of representative films from various documentary movements, examining form, technique, trends, and audience objectives.  
Effective: Spring 2001  
Prerequisite: fourth-semester standing

COMM 455 **Advanced Film Theory and Criticism** (3 per semester, maximum of 6) Close examination of classic and contemporary film theory and critical perspectives.  
Effective: Summer 1989  
Prerequisite: COMM 250

COMM 456 **Media Criticism and Theory** (3) Critical and theoretical approaches to the analysis of media and communication.  
Effective: Spring 2008  
Prerequisite: COMM 371

COMM 457 **Media Audiences and Contexts** (3) Survey of the ways media attempt to influence audience reception and how audiences hold sway over media content.  
Effective: Spring 2008  
Prerequisite: COMM 100 or COMM 251

COMM 458 **Media Law and Ethics** (3) The study and practice of key issues in media law and ethics, including libel law, conflict of interest, truth in advertising.  
Effective: Spring 2008  
Prerequisite: COMM 100 or COMM 251

COMM 459 **Cultural Effects of Interactive and Online Media** (3) Study of the global social impact and rhetorical limitations of converging media, emphasizing cross-cultural media influences.  
Effective: Spring 2008  
Prerequisite: COMMS 251

COMM 460W **Reporting Methods** (3) Techniques in reporting news and trends at the local, regional, and county levels. Emphasis on both deadline and interpretive reporting.  
Effective: Fall 1990  
Prerequisite: COMM 260W

COMM 461 **Magazine Writing** (3 per semester/maximum of 6) Students will learn about idea conception, writing, and editing of magazine stories.  
Effective: Spring 2013  
Prerequisite: COMM 260W

COMM 462 **Feature Writing** (3) Reporting and writing the human interest article for newspapers and magazines.  
Effective: Spring 2008  
Prerequisite: COMM 260W

COMM 463 **Newspaper Design** (3) This course will cover newspaper design. Students will learn to solve design problems, edit photos, and work with industry software.  
Effective: Spring 2009  
Prerequisite: COMM 160 COMM 260 COMM 467 or permission of program

COMM 464W **Editorial, Opinion and Commentary Writing** (3) Introduces techniques of editorial, opinion and commentary writing.  
Effective: Spring 2008  
Prerequisite: COMM 260W

COMM 465 **Television Reporting** (3) Television news reporting and production.  
Effective: Spring 2008  
Prerequisite: COMM 360

COMM 466 **Public Affairs Broadcasting** (3) Producing radio and television magazine programs featuring individually-produced mini-documentaries and public affairs interviews.  
Effective: Summer 1990 Ending: Summer 2014  
Prerequisite: COMM 383 or COMM 465

COMM 466 **Public Affairs Broadcasting** (3) Students research, write, produce and direct public affairs shows and in-depth reports.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: COMM 465 or COMM 283W

COMM 467 **News Editing and Evaluation** (3) Concepts and procedures involved in processing news for various news media, but with emphasis on print media editing.  
Effective: Spring 2001  
Prerequisite: COMM 260W

**COMM 468 Graphic Applications in Print Communications** (3) Issues, concepts, and practice identified with contemporary design strategies for print journalism, advertising, and public relations.

Effective: Summer 1988

Prerequisite: COMM 260W or COMM 320

**COMM 469 Photography for the Mass Media** (3) Development of an informed and critical approach to photocommunication; individual and team projects, seminars, and critiques.

Effective: Fall 1986

Prerequisite: COMM 269

**COMM 470A Convergent Media News Service: Newspaper Production** (3) Practicum emphasizing newsgathering and reporting for newspaper and for additional media formats.

Effective: Summer 2002

Prerequisite: COMM 260W

**COMM 470B Convergent Media News Service: TV** (3) Practicum emphasizing television news package production for periodic campus news program and for additional media formats.

Effective: Summer 2002

Prerequisite: COMM 260W

**COMM 470C Convergent Media News Service: Radio and Online Publications** (3) Practicum emphasizing streaming radio news package production or production of news pieces for online publications and for additional media formats.

Effective: Fall 2008

Prerequisite: COMM 242 or COMM 374 and COMM 260W

**COMM 471 Public Relations Media and Methods** (3) Analyzing media and audiences for public relations purposes; planning, designing, and writing public relations communications; press relations and publicity methods.

Effective: Spring 2004

Prerequisite: COMM 260W and COMM 370

**COMM 472 Public Relations Event Planning** (3) Effective planning, organization, implementation and evaluation of events planning.

Effective: Spring 2008

Prerequisite: COMM 370

**COMM 473 Public Relations Campaigns** (3) Case studies and problems in publicity and public relations in industry, government, and institutions.

Effective: Spring 2012

Prerequisite: COMM 370, COMM 420 or COMM 304 and COMM 471

**COMM 474 Depth Reporting** (3) Exploration of strategies for developing indepth newspaper or magazine articles, with an emphasis on gathering information and long-form writing.

Effective: Spring 2004

Prerequisite: COMM 260W

**COMM 475 Issues for Newsroom Managers** (3) Newspaper and television management, the state of the industry and topics that prospective employees should know about.

Effective: Spring 2004

Prerequisite: COMM 260W

**COMM 476 Sports Writing** (3) Techniques in sports reporting and writing for newspapers and magazines.

Effective: Summer 2005 Ending: Summer 2014

Prerequisite: COMM 260W, COMM 460

**COMM 476 Sports Writing** (3) Techniques in sports reporting and writing for media.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: COMM 260W

**COMM 477 Sports Broadcasting** (3) Techniques of sports broadcasting for radio and television.

Effective: Summer 2005

Prerequisite: COMM 260W, COMM 360

**COMM 478 Sports Information** (3) Techniques of effective media relations used in a sports information office.

Effective: Summer 2005

Prerequisite: COMM 260W

**COMM 479 Telecommunication Economics** (3) Economic, regulatory/business issues in the design/operation of large-scale telecommunication networks such as telephone, cable, wireless, and computer networks.

Effective: Fall 2011

Prerequisite: COMM 180 and ECON 102 or ECON 014

**COMM 480 Television News** (6) Produce a weekly television newscast.

Effective: Fall 2011

Prerequisite: COMM 360, COMM 465 permission of program

**COMM 481 Advanced Multimedia Production** (3) Advanced work in multimedia production using web authoring, video editing, audio editing, image editing and animation software.

Effective: Fall 2010

Prerequisite: COMM 270 or COMM 260W plus one of the following: COMM 269, COMM 360, COMM 460, COMM 462 or permission of program



- COMM 482 Advanced Communication Workshop** (4) Conceptualization, planning, and execution of a visual product on a selected topic utilizing an intensive group project-oriented laboratory approach.  
Effective: Spring 2008  
Prerequisite: COMM 371
- COMM 483 Wireless Communications Industry** (3) A broad examination of the wireless phone industry including its development, current structure and future.  
Effective: Spring 2011  
Prerequisite: COMM 381 and COMM 387
- COMM 484 Emerging Telecommunications Technologies** (3) Overview of technology of electronic media and related societal issues.  
Effective: Spring 1992  
Prerequisite: COMM 180
- COMM 484H Emerging Telecommunications Technologies** (3) Overview of technology of electronic media and related societal issues.  
Effective: Spring 2005  
Prerequisite: COMM 180
- COMM 485 Analysis of Broadcast-Cable Policy** (3) Analysis of current policy issues in Broadcast/Cable. Standards and methods for evaluating telecomm policy processes and outcomes.  
Effective: Fall 2001  
Prerequisite: COMM 381 or COMM 483
- COMM 486 Telecommunications Ethics** (3) Drawing on normative theory and political philosophy, this course explores problems in ethics and social responsibility in telecommunications.  
Effective: Summer 2011  
Prerequisite: COMM 180
- COMM 487 Advanced Telecommunications Management and Leadership** (3) Strategic management, leadership and ethics issues including marketing, financing, entrepreneurship, and innovation.  
Effective: Fall 2011  
Prerequisite: COMM 387
- COMM 488 Writers' Seminar** (3) Workshop designed for advanced students interested in professional writing, involving extensive mutual and self-criticism.  
Effective: Spring 2008  
Prerequisite: COMM 230W or COMM 260W
- COMM 489W Media and Information Industries** (3) The structure, conduct and performance of firms and industries in the electronic media and information sectors.  
Effective: Spring 2004  
Prerequisite: COMM 387 or equivalent
- COMM 490 Issues in Electronic Commerce: Policy and Implementation** (3) Analysis of policy, strategic issues, and implications raised by the rapid growth of electronic commerce over the Internet.  
Effective: Fall 2001  
Prerequisite: COMM 180 for telecom major; permission of instructor for non-telecom majors
- COMM 490A Convergent Media Seminar** (3) This seminar examines media convergence issues, trends, and effects on society through discussions, presentations, and creation of a capstone project.  
Effective: Summer 2002  
Prerequisite: seventh- or eighth-semester standing and 3 credits of COMM 470A COMM 470B or COMM 470C
- COMM 491 International Telecommunications and Trade Policy** (3) Development in the law, policy, and business of international telecommunications; emphasis on multilateral forums--International Telecommunications Union and World Trade Organization.  
Effective: Fall 2001  
Prerequisite: COMM 180
- COMM 492 Internet Law and Policy** (3) Development in the law, policy, and business of Internet-mediated communications and commerce; emphasis on impact on existing legal, regulatory, and economic models.  
Effective: Fall 2001  
Prerequisite: COMM 180
- COMM 493 Entrepreneurship in the Information Age: Senior Seminar** (3) Provides students with knowledge/tools to take their innovation/technology idea through the business planning, capital, and operations budgeting processes.  
Effective: Fall 2001  
Prerequisite: COMM 387
- COMM 494 Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1994
- COMM 494H Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

**COMM 495 Internship** (1-3 per semester/maximum of 6) Supervised practicum with newspapers, broadcasting stations, public relations, and advertising agencies.

Effective: Spring 2008

Prerequisite: continuing student majors in the College of Communications; departmental approval

**COMM 495A Internship** (1-6 per semester/maximum of 6) Supervised practicum with newspapers, broadcasting stations, public relations, and advertising agencies.

Effective: Spring 2008

Prerequisite: continuing student majors in the College of Communications; departmental approval

**COMM 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1986

**COMM 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1986

**COMM 497A Promotional Video Agency** (3) Advanced experience in a team environment producing strategic communication videos for campus clients, including those in athletics and academic units. Students will fill a variety of roles related to strategic marketing, including needs analysis, developing solutions, managing client relations and creating effective video.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**COMM 497B International Documentary Production** (3) UP classroom work will consist of research and proposal of a short personal observation film. Students will shoot their film during an 9 day trip to Ireland. Project will be edited upon return, and shown at final screening June 11.

Effective: Summer 2014 Ending: Summer 2014

**COMM 497F Sports Journalism Projects** (3) Students will travel to Ireland to cover the Croke Park Classic, with the stories, photos, and multimedia elements produced by the students distributed in real time to the commonwealth's newspaper through the Pennsylvania News Media Association. On their return, the team will produce a final round of stories to be packaged in the Lion's Roar, a College of Communications showcase.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**COMM 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2001

**COMM 498A In the Game** (3) Produce half-hour sports magazine style show to air on College HD channel and Web. Students will produce, report, anchor and direct the show. Registration by application.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**COMM 498B Wireless Devices and GLobal Markets** (3) Wireless Devices and Global Markets is a new course that examines the market for wireless devices, from Android smartphones to iPhones and iPads. Students will learn about next generation smartphones and get to develop a unique product design concept.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**COMM 498C Business Reporting** (3) Skills of business reporting and writing for the news media.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**COMM 498D Business of Sports Journalism** (3) Contemporary issues where business and sports intersect in the college and professional ranks.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**COMM 499 (IL) Foreign Study--Mass Communications** (1-12) Study of mass communication systems and practices in selected foreign countries.

Effective: Summer 2005

Prerequisite: departmental approval

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## **Communications-CI (COMMS)**

COMMS 438 **Magazine Editing** (3) Study and practice of the editing and design of magazines and newsletters.  
Effective: Spring 2008

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## Community and Economic Development (CEDEV)

CEDEV 430 **Principles of Local Economic Development** (3) Concepts, strategies, and techniques of local economic analysis, planning, and development; case studies and decision-making exercises.

Effective: Summer 2013

Prerequisite: introductory course in economics

CEDEV 452 **Community Structure, Processes and Capacity** (3) Social organization, processes and change in communities; use of sociological principles in analysis of community problems and development.

Effective: Spring 2012

Prerequisite: 6 credits in rural sociology sociology or psychology

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## Community, Environment and Development (CED)

**CED 152 Community Development Concepts and Practice** (3) Concepts and practice of community development.  
Effective: Summer 2013  
Prerequisite: R SOC 011 or SOC 001; ECON 104

**CED 155 (GS) Science, Technology and Public Policy** (3) This course will survey the main issues that relate science and technology to public policy.  
Effective: Summer 2013

**CED 201 Introductory Environmental and Resource Economics** (3) Apply principles of economics to analyze environmental protection policies and natural resource use decision. Examine contemporary policy issues.  
Effective: Summer 2013  
Prerequisite: AG BM 101 or ECON 102

**CED 230 Development Issues in the Global Context** (3) Exploration of issues related to economic development in national and international contexts, where key interrelationships between and among developed and developing regions are made explicit.  
Effective: Summer 2013  
Prerequisite: ECON 102; ECON 104; R SOC 011 or SOC 001

**CED 297 Special Topics** (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

**CED 309 Land Use Dynamics** (3) Theory of land use and land use decision-making.  
Effective: Summer 2013  
Prerequisite: ECON 102 or equivalent; GEOG 160

**CED 375H Community, Local Knowledge, and Democracy** (3) Understanding community decision-making, citizen-expert interactions and methods for resolving seemingly intractable conflicts associated with public issues.  
Effective: Summer 2013  
Prerequisite: Prerequisite or concurrent: CED 152

**CED 404 Survey Research Methods** (3) Students will learn empirical research methodology in the areas of environmental and natural resource economics.  
Effective: Summer 2013 Ending: Fall 2014  
Prerequisite: CED 201 or ECON 302; ECON 428

**CED 404 Community, Environment and Development Research Methods** (3) Students will learn empirical research methodology in the areas of community, environment and development.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: CED 201 or ECON 302; ECON 428

**CED 409 Land Use Planning and Procedure** (3) General land use planning laws and procedures.  
Effective: Summer 2013  
Prerequisite: 6 credits of B LAW CED ECON E R M E RRE PL SC R EST SOC S T S (any combination)

**CED 410 The Global Seminar** (3) Exploration of critical global issues relevant to sustainable development and the environment. Collaborative with other universities worldwide.  
Effective: Summer 2013  
Prerequisite: ECON 102 or ECON 104; R SOC 011 or SOC 001

**CED 417 (R SOC 417) Power, Conflict, and Community Decision Making** (3) Impact of institutions on human interdependence and behavior, the structure of power, and community decision making and public policy.  
Effective: Summer 2013 Ending: Summer 2014  
Prerequisite: R SOC 011 or SOC 001

**CED 417 Power, Conflict, and Community Decision Making** (3) Impact of institutions on human interdependence and behavior, the structure of power, and community decision making and public policy.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: R SOC 011 or SOC 001

**CED 420 (US;IL) (R SOC 420, WMNST 420) Women in Developing Countries** (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.  
Effective: Summer 2013 Ending: Summer 2014  
Prerequisite: 5th semester standing or above

**CED 420 (US;IL) (WMNST 420) Women in Developing Countries** (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: 5th semester standing or above

**CED 425 International Community and Economic Development** (3) International community and economic development.  
Effective: Summer 2013

Prerequisite: CED 152

**CED 427W (S T S 427W) Society and Natural Resource (3)** Analysis of the relationships between societal development and enhancement and natural resources.

Effective: Fall 2013

Prerequisite: R SOC 011 or SOC 001

**CED 429 Natural Resource Economics (3)** Optimal management of resources; roles of markets and other institutions; resources and economic development; public policy.

Effective: Summer 2013

Prerequisite: ECON 302 and MATH 110 or MATH 140

**CED 430 Principles of Community Economic Development (3)** Concepts, strategies and techniques of local economic analysis, planning and development; case studies and decision-making exercises.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: introductory course in economics

**CED 431W Economic Analysis of Environmental and Resource Policies (3)** Economic analysis of environmental and natural resource policies, benefit-cost analysis, non-market valuation techniques; resource damage assessment.

Effective: Summer 2013

Prerequisite: ECON 302

**CED 450 (IL) International Development, Renewable Resources, and the Environment (3)** Theories of agricultural and economic development, with particular attention to interactions between development, renewable resources, and the environment.

Effective: Summer 2013

Prerequisite: 6 credits in agricultural economics or economics

**CED 452 Rural Organization (3)** Social organization and change in rural communities; use of sociological principles in analysis of rural problems and rural development.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: 6 credits in rural sociology sociology or psychology

**CED 475 CED Integrated Capstone Experience (3)** An experiential-learning course that provides a capstone learning experience for seniors graduating from the Community, Environment and Development major.

Effective: Summer 2013

Prerequisite: senior status only

**CED 494H CED Honors Research Project (1-12)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2014

**CED 495A Internship in Community, Environment, and Development (1-15)** Supervised field experience in an environmental setting.

Effective: Summer 2013

Prerequisite: prior approval of program

**CED 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2013

**CED 496A Community of Practice: Special Issues in Community, Environment, and Development (3)** A student-led course with a focus on co-creation. Subject matter will center around CED. Together, we will decide what we will learn, how we will learn it, and we will assess our learning.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**CED 497 Special Topics (1-18)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2013

**CED 497A Practicum in Facilitation & Community Engagement (1)** Community process skills, such as brainstorming, SWOT, and facilitation, often are of unsung importance to successful Community, Environment, and Development work. Such skills help a practitioner bring together people with varying perspectives and interests, actively and constructively engage them, and work them to define common goals, and make decisions and reach solutions that satisfy the group's needs. The CED Practicum complements existing courses in the CED program, and is designed to increase students' effectiveness and comfort level working with and within groups, and the community level. The course will create a living laboratory setting for hands-on practice and skill building in facilitation and other techniques essential for engaging and working with communities. This class will be especially useful for students to increase their portfolio of skills, as they consider career options.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CED 152

**CED 497C Exploring Indigenous Ways of Knowing in the North American Context (0.5-3)** Explore through readings and reflections, concepts and values distinctive to indigenous ways knowing in the North American context.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: CED 497B

CED 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2013

CED 499B (IL) (AGECO 499B) **Issues in Economic, Community and Agricultural Development in Kenya Practicum** (0.5)  
Implement and assess viable economic and youth development options for vulnerable youth in Kenya.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: CED 499A or AGECO 499A

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## Comparative Literature (CMLIT)

CMLIT 001 (GH;IL) **Introduction to Western Literatures Through the Renaissance** (3) Introductory comparative survey of European and American literatures of Ancient through Renaissance periods, considering genre, themes, cultural and literary values.

Effective: Spring 2005

CMLIT 002 (GH;IL) **Introduction to Western Literatures Since the Renaissance** (3) Introductory comparative survey of European and American literatures, post-Renaissance through Modern, considering genre, themes, cultural, and literary values.

Effective: Summer 2005

CMLIT 003 (GH;IL) **Introduction to African Literatures** (3) Comparative analysis of drama, essay, novel, poetry, and stories from traditional oral forms to contemporary expressions of African literary styles.

Effective: Summer 2005

CMLIT 004 (GH;IL) (ASIA 004) **Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2010

CMLIT 004U (GH;IL) **Introduction to Asian Literatures** (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 005 (GH;US;IL) **Introduction to Literatures of the Americas** (3) Comparative interpretation of the oral and written literary traditions of North, Central, and South America.

Effective: Summer 2005

CMLIT 006 (GH;IL) (PHIL 006) **Philosophy and Literature in Western Culture** (3) Explores fundamental issues of human existence through the traditions of western literature and philosophy.

Effective: Spring 2006

CMLIT 010 (GH;IL) **World Literatures** (3) The development of literature around the world--from epic, legend, lyric, etc. in the oral tradition to modern written forms.

Effective: Fall 2010

CMLIT 011 (GH;IL) **The Hero in World Literature** (3) The figure of the hero/heroine examined in world literature as a vehicle for expressing social and cultural values.

Effective: Summer 2005

CMLIT 011U (GH;IL) **The Hero in World Literature** (3) The figure of the hero/heroine examined in world literature as a vehicle for expressing social and cultural values.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 012 (GH;IL) **Introduction to World Drama and Performance** (3) The power, ethics, and excitement of drama and related forms of performance literature, presented in a global and comparative context.

Effective: Summer 2010

CMLIT 013 (GH;IL) **Virtual Worlds: Antiquity to the Present** (3) Virtual worlds from ancient to postmodern, in a comparative and global context that includes literature, film, and online multiplayer games.

Effective: Summer 2010

CMLIT 083S (GH;IL) **First-Year Seminar in Comparative Literature** (3) International topics in literature and culture; each seminar will have a specific topic as announced (see the Comparative Literature Web site).

Effective: Summer 2005

CMLIT 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1995

CMLIT 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005



CMLIT 100 (GH;IL) **Reading Across Cultures** (3) Comparative approaches (studying international literary periods, themes, genres, etc.) and principles of literary interpretation introduced through readings representing various cultures.  
Effective: Fall 2010

CMLIT 101 (GH;US;IL) **Race, Gender, and Identity in World Literature** (3) Identity and race, gender and heritage, centrality and marginality, self and other, as expressed in literary works from around the world.  
Effective: Fall 2010

CMLIT 105 (GH;IL) **The Development of Literary Humor** (3) Literary humor expressed as satire, comedy, and farce--from ancient times to the present--in an international and multicultural context.  
Effective: Summer 2005

CMLIT 106 (GH;IL) **The Arthurian Legend** (3) The growth and development of the legend of King Arthur, from medieval Europe to modern Japan.  
Effective: Summer 2005

CMLIT 107 (GH;IL) **Exploration, Travel, Migration, and Exile** (3) An international selection of journey narratives, from the real to the imaginary; travel narratives as critiques of self and society.  
Effective: Spring 2011

CMLIT 108 (GH;IL) **Myths and Mythologies** (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.  
Effective: Summer 2005

CMLIT 108U (GH;IL) **Myths and Mythologies** (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 109 (GH;US;IL) **Native American Myths, Legends, and Literatures** (3) Myths, legends, and literatures of Native American cultures.  
Effective: Spring 2006

CMLIT 110 (GH;US;IL) (J ST 131) **Jewish Literature: An International Perspective** (3) Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas.  
Effective: Spring 2011

CMLIT 111 (GH;IL) **Introduction to Literatures of India** (3) Narrative, lyric, religious, oral, and dramatic literature, as well as film from India studied in translation from a global perspective.  
Effective: Summer 2005

CMLIT 120 (GH;IL) **The Literature of the Occult** (3) Important literary works dealing with witchcraft, demonology, vampirism, ghosts, and related concepts, from biblical times to present.  
Effective: Spring 2006

CMLIT 122 (GH;US;IL) **Global Science Fictions** (3) A study of the relationships between science, literature, and film, from an international and interdisciplinary perspective.  
Effective: Summer 2010

CMLIT 130 (GH;IL) **Banned Books: International and Comparative Perspectives** (3) The world of banned books, their history, and their politics, studied comparatively and internationally.  
Effective: Summer 2010

CMLIT 131 (GH;IL) **Crime and Detection in World Literature** (3) Issues of ethics, truth, justice, and social order as embodied in crime and detective literature, presented in comparative contexts.  
Effective: Summer 2010

CMLIT 132 (GH;IL) **Nobel Prize Literature** (3) Introduction to Nobel Prize winning literature and the culture of the prize in international and historical context.  
Effective: Summer 2010

CMLIT 140 (GH;IL) **Literature and the Other Arts: International and Comparative Perspectives** (3) A comparative, international examination of the relationship between literature and non-literary art forms.  
Effective: Summer 2010

CMLIT 141 (GH;US;IL) **Religion and Literature** (3) Major religious themes as expressed in literary masterpieces; sacred

texts from various cultures read as literature.  
Effective: Summer 2005

CMLIT 142 (GH;IL) **The Psychology of World Literature** (3) A comparative, psychological approach to world literature from the perspectives of writer, narrative, character, and reader.  
Effective: Summer 2010

CMLIT 143 (GH;US;IL) **Human Rights and World Literature** (3) Human rights violations discussed in tandem with their literary representation, presented in a global and comparative context.  
Effective: Summer 2010

CMLIT 153 (GH;IL) **International Cultures: Film and Literature** (3) Comparison of narrative techniques employed by literature and film in portraying different cultures, topics may vary each semester.  
Effective: Spring 2011

CMLIT 153U (GH;IL) **International Cultures: Film and Literature** (3) Comparison of narrative techniques employed by literature and film in portraying different cultures, topics may vary each semester.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CMLIT 184 (GH;IL) (ENGL 184) **The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the Nineteenth and Twentieth Century.  
Effective: Spring 2006

CMLIT 185 (GH;IL) (ENGL 185) **World Novel** (3) Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation.  
Effective: Spring 2011

CMLIT 189 (GH;IL) (ENGL 189) **Modern Drama** (3) Playwrights who set the world's stage for twentieth-century drama; issues that continue to shape the contemporary theatrical world.  
Effective: Spring 2011

CMLIT 190 (GH;IL) **Literary and Cultural Theory: An Introduction** (3) A comparative introduction to literary and cultural theory, and its impact on the study of literature.  
Effective: Summer 2010

CMLIT 191 (GH;US;IL) **Introduction to Video Game Culture** (3) A comparative, international look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.  
Effective: Summer 2012 Ending: Fall 2014

CMLIT 191 (GH;US;IL) (GAME 160) **Introduction to Video Game Culture** (3) A comparative, international look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.  
Effective: Spring 2015 Future: Spring 2015

CMLIT 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1995

CMLIT 199 (IL) **Foreign Study--Comparative Literature** (3-6) Course offered on comparative literary topics as part of a foreign-study program.  
Effective: Summer 2005

CMLIT 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1995

CMLIT 295 **Internship** (1-18) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1997

CMLIT 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1995

CMLIT 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1995

CMLIT 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1995

CMLIT 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

CMLIT 300H **Honors Thesis** (3) Individual projects involving research, reading, and writing; preparation of an honors thesis in comparative literature or world literature.

Effective: Summer 1995

Prerequisite: Participation in the University Scholars program

CMLIT 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

CMLIT 399 (IL) **Foreign Study--Comparative Literature** (3-6) Special course offered on comparative literary topics as part of a foreign-study program.

Effective: Summer 2005

Prerequisite: third-semester standing

CMLIT 400Y (US;IL) **Senior Seminar in Literary Criticism and Theory** (3) Discussions of theories of literature, of literary criticism, and particularly of the distinct methods of comparative study; individual projects.

Effective: Spring 2006

Prerequisite: seventh-semester standing; 18 credits in literature

CMLIT 401Y (IL) **The Western Literary Heritage I** (3) Major literary movements and authors in the literature of the Western world from the beginnings through the early Renaissance.

Effective: Spring 2006

Prerequisite: 3 credits in literature or history

CMLIT 402Y (US;IL) **The Western Literary Heritage II** (3) Major literary movements and authors in the literature of the Western world from the late Renaissance to the present time.

Effective: Spring 2006

Prerequisite: 3 credits in literature or history

CMLIT 403 (US) (LTNST 403) **Latino/a Literature and Culture** (3) Literary and other forms of cultural expression (film, music, art, and theater) are compared across different Latina/o communities.

Effective: Spring 2011

Prerequisite: 3 credits in the humanities or in any LTNST course or 4th-semester proficiency in Spanish

CMLIT 404 (IL) (ASIA 404) **Topics in Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan.

Effective: Spring 2011

Prerequisite: 3 credits in literature or related field appropriate to this course

CMLIT 404Y (IL) (ASIA 404Y) **Topics in Studies of Asian Literature** (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan, taught with focus on written analysis and interpretation.

Effective: Summer 2013

Prerequisite: 3 credits in literature or related field appropriate to this course

CMLIT 405 (US;IL) **Inter-American Literature** (3) This course examines the development of literature in Canada, the United States, Spanish America, the Caribbean area, and Brazil.

Effective: Spring 2006

Prerequisite: 3 credits in literature

CMLIT 406 (IL) **Women and World Literature** (3) Literature written by women, especially women from non-Western cultures; the spectrum of genres in which women writers have excelled.

Effective: Spring 2006

Prerequisite: 3 credits in literature or in women's studies

CMLIT 408 (IL) **Heroic Literature** (3) Traditional heroes, their traits and adventures; typical themes and examples chosen from the epics and sagas of world literature.

Effective: Spring 2006

Prerequisite: 3 credits in literature or folklore

CMLIT 410 (IL) **Literary Translation: Theory and Practice** (3) Emphasizing literary translation, a study of the theoretical and practical problems encountered in the processes of translation, transmission, and interpretation.

Effective: Spring 2011

Prerequisite: 18 credits in a foreign language

CMLIT 415 (GH;US;IL) **World Graphic Novels** (3) Critical analyses of form, genre, medium, and discourse of the graphic novel and its historical precedents in an international and comparative context.

Effective: Summer 2010

Prerequisite: 3 credits in literature

CMLIT 422 (IL) **African Drama** (3) Traditional and popular drama forms; modern anglophone and francophone drama; nationalism and social criticism in contemporary African drama.  
Effective: Spring 2006

CMLIT 423 (IL) **African Novel** (3) From traditional oral narratives to modern autobiographical, historical, satirical, sociological, and allegorical forms; novelist as social critic.  
Effective: Spring 2006

CMLIT 429 (ENGL 429) **New Media and Literature** (3) New media literary genres; critical discussion of creative works in digital media.  
Effective: Summer 2010

CMLIT 430 (IL) **Global Modernisms** (3) A comparative investigation of global Modernisms, with an emphasis on the relations between modernism, modernity, and modernization.  
Effective: Summer 2010  
Prerequisite: 3 credits in literature

CMLIT 435 (IL) **Cultures of Globalization** (3) Cultural and literary effects of the process of globalization, with an emphasis on world literatures and transnationalism.  
Effective: Summer 2010  
Prerequisite: 3 credits of literature

CMLIT 438 (IL) **Fantastic Worlds: International and Comparative Perspectives** (3) A comparative, international study of fantastic worlds in literature and visual culture.  
Effective: Summer 2010  
Prerequisite: 3 credits in literature

CMLIT 443 (US;IL) **Transatlantic Literature** (3 per semester/maximum of 6) Comparative literary and cultural relations across the Atlantic Ocean; may include Europe, Africa, the Americas, and/or the Caribbean.  
Effective: Spring 2011  
Prerequisite: 3 credits in literature

CMLIT 446 (IL) **Postcolonial Literature and Culture** (3) Postcolonial literature and theory in a comparative and international context.  
Effective: Summer 2010  
Prerequisite: 3 credits in the study of literature

CMLIT 448 (IL) **Literary Cultures of Buddhism** (3) Comparative exploration of various Buddhist literary cultures, from the classical Indian subcontinent to modern movements like the Beats and dalit writing.  
Effective: Summer 2010  
Prerequisite: 3 credits in literature

CMLIT 449 (IL) **Literary Cultures of Islam** (3) Comparative discussion of the literary cultures of Islam from the seventh century to the present.  
Effective: Summer 2010  
Prerequisite: 3 credits in the study of literature

CMLIT 453 (IL) (COMM 453) **Narrative Theory: Film and Literature** (3) Comparative study of the aesthetics and techniques of film and literature; close analyses of masters of each art form.  
Effective: Fall 2006  
Prerequisite: COMM 150 or 3 credits in literature

CMLIT 455 (IL) **Ethics, Justice, and Rights in World Literature** (3) Concepts of ethics, justice, and rights, appearing in world literature and/or film.  
Effective: Summer 2010  
Prerequisite: 3 credits in the study of literature

CMLIT 459 **Topics in Theory** (3) Selected topics in this history of theory and literary criticism within a global, comparative context.  
Effective: Summer 2010  
Prerequisite: 3 credits in literature

CMLIT 470 (IL) **The Modern Novel** (3) Major novels of Joyce, Proust, Kafka, Thomas Mann, Nabokov, and others; their contributions to the art of the novel.  
Effective: Spring 2011  
Prerequisite: 3 credits in literature

CMLIT 471 (IL) **Poetry and Poetics** (3) Theoretical and practical concepts in the comparative, global history of poetry and/or poetics.  
Effective: Summer 2010  
Prerequisite: 3 credits in literature

CMLIT 480 (IL) **The International Folktale** (3) Traditional tales from various parts of the world: their origin, characteristics, forms; their transmission as oral narrative and written literature.  
Effective: Spring 2006  
Prerequisite: 3 credits in literature or folklore

CMLIT 486 (IL) **Tragedy** (3) Development of tragic drama and its relationship to social background and philosophical theory.  
Effective: Spring 2006

CMLIT 487 (IL) **Comedy** (3) Development of comic drama and its relationship to social background and philosophical theory.  
Effective: Spring 2006

CMLIT 488 (IL) (ENGL 488) **Modern Continental Drama** (3) From Ibsen to the drama of today: Strindberg, Chekhov, Hauptmann, Pirandello, Ionesco, Beckett, Genet, and others.  
Effective: Spring 2006  
Prerequisite: ENGL 015 or ENGL 030

CMLIT 489 (IL) **Contemporary World Fiction** (3) A survey of developments in contemporary world fiction in translation.  
Effective: Spring 2012  
Prerequisite: 3 credits in literature

CMLIT 490 **Video Game Studies** (3) A comparative look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.  
Effective: Summer 2010  
Prerequisite: 3 credits in literature

CMLIT 491 (IL) **Literary Adaptation: International and Comparative Perspectives** (3) A comparative, international study of adaptations between literature and other media (film, theater, photography, music).  
Effective: Summer 2010  
Prerequisite: 3 credits in literature or other fields relevant to this course

CMLIT 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1995

CMLIT 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

CMLIT 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1995

CMLIT 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1995

CMLIT 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1995

CMLIT 499 (IL) **Foreign Study--Comparative Literature** (3-6) Advanced courses offered on comparative literary topics as part of a foreign-study program.  
Effective: Summer 2005  
Prerequisite: 18 credits or equivalent in the appropriate foreign language; 6 credits in literature or related field appropriate to this course

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## Comparative and International Education (CI ED)

CI ED 401 (IL) (EDTHP 401) **Introduction to Comparative Education** (3) Origins, nature, scope, basic literature, and methodology of comparative education. Study of sample topics.

Effective: Fall 2007

Prerequisite: 5th semester standing or higher

CI ED 440 (EDTHP 440) **Introduction to Philosophy of Education** (3) Introduction to the examination of educational theory and practice from philosophical perspectives, classical and contemporary.

Effective: Spring 2013

Prerequisite: ENGL 015

CI ED 444 (WL ED 444) **Language, Culture and the Classroom: Issues for Practitioners** (3) Critical understanding of cultural linguistic diversity to facilitate the inclusion of English Language Learners in a globalized classroom.

Effective: Fall 2007

Prerequisite: WL ED 300 or WL ED 400

CI ED 457 (AGECO 457) **Principles of Integrated Pest Management** (3) Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester and graduate students.

Effective: Spring 2014 Ending: Summer 2014

Prerequisite: Must take two or more of the following: ENT 313 and/or HORT 238

CI ED 457 **Principles of Integrated Pest Management** (3) Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester and graduate students.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Must take two or more of the following: ENT 313 and/or HORT 238

CI ED 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1998

CI ED 497A **Cultural Diversity in the Workplace** (3) The purpose of this course is to encourage students to engage in critical thinking and dialogue regarding diversity in a rapidly globalizing workplace. The material in this course will help identify sources and implications of "otherness" in the work environment through the use of personal accounts, texts, news media, movies, and a final project.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

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## Computer Engineering (CMPEH)

CMPEH 449 **VLSI Digital Circuits** (3) Modern approaches to using VLSI technology; logic circuits, cell layout and design on CAD systems.

Effective: Spring 2008

CMPEH 472 **Microprocessors** (4) Principles of microprocessors, hardware architecture, assembly language, programming, interfacing, and applications of microprocessors will be studied.

Effective: Fall 2012

Prerequisite: CMPEN 271 andCMPEN 275 orCMPEN 270

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## Computer Engineering (CMPEN)

**CMPEN 111S Computers and Computer Hardware** (1) A brief orientation to University life and resources and an introduction to computers and computer hardware.  
Effective: Spring 2009

**CMPEN 270 Digital Design: Theory and Practice** (4) Introduction to digital systems and their design. Topics include combinational and sequential devices and circuits, modern design tools and design practices. Students may take only one course for credit for CMPEN 270 or 271 and CMPEN 270 or 275.  
Effective: Summer 2008  
Prerequisite: PHYS 212

**CMPEN 271 Introduction to Digital Systems** (3) Introduction to logic design and digital systems. Boolean algebra, and introduction to combinatorial and sequential circuit design and analysis. Students may take only one course for credit for CMPEN 270 or 271.  
Effective: Spring 2008  
Concurrent: PHYS 212

**CMPEN 275 Digital Design Laboratory** (1) Introduction to digital design techniques. Students may take only one course for credit for CMPEN 270 or 275.  
Effective: Spring 2008  
Concurrent: CMPEN 271 ; PHYS 212

**CMPEN 295 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**CMPEN 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2008

**CMPEN 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2008

**CMPEN 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2010

**CMPEN 331 Computer Organization and Design** (3) Introduction to major components of a computer system, how they function together in executing a program, how they are designed.  
Effective: Spring 2011  
Prerequisite: CMPEN 271 or CMPEN 270; CMPSC 121 or CMPSC 201

**CMPEN 351 Microprocessors** (3) Microprocessor architecture; memory system design; assembly language programming; interrupts; the stacks and subroutines; memory and I/O interfacing; serial I/O and data communications; microprocessors applications.  
Effective: Spring 2008  
Prerequisite: CMPEN 271; CMPEN 275

**CMPEN 352W Embedded Systems Design** (3) Design/development of embedded systems for data acquisition, process control, and special-purpose computing systems; peripheral interfacing, serial/parallel communications and bus systems.  
Effective: Spring 2012  
Prerequisite: CMPEN 351 or CMPEN 472; E E 210

**CMPEN 362 (E E 362) Communication Networks** (3) Data transmission, encoding, link control techniques; communication network architecture, design; computer communication system architecture, protocols.  
Effective: Spring 2011  
Prerequisite: CMPEN 270 or CMPEN 271 Concurrent: STAT 301 or STAT 318 or STAT 401 or STAT 414 or STAT 418

**CMPEN 371 Advanced Digital Design** (3) Theory, design, and implementation of digital circuits based on combinational and sequential circuits; implementation of designs using hardware description language.  
Effective: Fall 2011  
Prerequisite: CMPEN 271; CMPEN 275; CMPSC 121 or CMPSC 201; E E 210 or E E 211

**CMPEN 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**CMPEN 396 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2010



**CMPEN 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2010

**CMPEN 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2010

**CMPEN 411 VLSI Digital Circuits** (3) Basic building blocks of CMOS design, design rules, chip planning, layout design, system power and timing, simulation of VLSI structures.  
Effective: Spring 2008  
Prerequisite: CMPEN 371 orCMPEN 471;E E 310

**CMPEN 416 (E E 416) Digital Integrated Circuits** (3) Analyses and design of digital integrated circuit building blocks, including logic gates, flip-flops, memory elements, analog switches, multiplexers, and converters.  
Effective: Spring 2008  
Prerequisite: E E 310

**CMPEN 417 (E E 417) Digital Design Using Field Programmable Devices** (3) Field programmable device architectures and technologies; rapid prototyping using top down design techniques; quick response systems.  
Effective: Spring 2008  
Prerequisite: CMPEN 331

**CMPEN 431 Introduction to Computer Architecture** (3) Introduction to computer architecture. Memory hierarchy and design, CPU design, pipelining, multiprocessor architecture.  
Effective: Spring 2008  
Prerequisite: CMPEN 331 orCMPEN 371

**CMPEN 431H Honors Introduction to Computer Architecture** (3) Honors course in principles of computer architecture: memory hierarchies and design, I/O organization and design, CPU design and advanced processors.  
Effective: Spring 2008  
Prerequisite: CMPEN 331

**CMPEN 441 Operating Systems** (3) Resource management in computer systems. Process scheduling, memory management, file system design, I/O management, Unix operating system.  
Effective: Spring 2008  
Prerequisite: CMPSC 360

**CMPEN 454 (E E 454) Fundamentals of Computer Vision** (3) Introduction to topics such as image formation, segmentation, feature extraction, matching, shape recovery, object recognition, and dynamic scene analysis.  
Effective: Spring 2008  
Prerequisite: MATH 230 orMATH 231;CMPSC 121 orCMPSC 201

**CMPEN 455 (E E 455) Digital Image Processing** (3) Overview of digital image processing techniques and their applications, image sampling, enhancement, restoration, and analysis; computer projects.  
Effective: Spring 2008  
Prerequisite: E E 353 orE E 350;CMPSC 121 orCMPSC 201

**CMPEN 461 Communication Networks** (3) Data transmission, encoding, link control techniques, network architecture, design, protocols, and multiple access.  
Effective: Fall 2011  
Prerequisite: CMPEN 271;CMPSC 121 orCMPSC 201

**CMPEN 471 Logical Design of Digital Systems** (3) Basic switching theory and design of digital circuits, including combinational, synchronous sequential, and asynchronous sequential circuits.  
Effective: Spring 2008  
Prerequisite: CMPEN 331

**CMPEN 472 Microprocessors and Embedded Systems** (3) Microprocessors: architecture, design, assembly language, programming, interfacing, bus structure, and interface circuits and their use in embedded systems.  
Effective: Spring 2008  
Prerequisite: CMPEN 331

**CMPEN 472H Honors Microprocessors and Embedded Systems** (3) Honors course in microprocessors: architecture, design, assembly language, programming, interfacing, bus structure, and interface circuits and their use in embedded systems.  
Effective: Spring 2008  
Prerequisite: CMPEN 331

**CMPEN 473 Microcomputer Laboratory** (3) Design of digital systems using microprocessors.  
Effective: Spring 2008  
Prerequisite: CMPEN 472

**CMPEN 475 Functional Verification** (3) Introduce concepts, methods, and technology for effective functional verification of modern electronic systems.  
Effective: Summer 2008  
Prerequisite: CMPEN 331

**CMPEN 480 Computer Engineering Design** (3) Engineering design and modeling, engineering economy, project planning, capstone project selections, and technical communication skills.

Effective: Spring 2008

Prerequisite: CMPEN 352W;CMPEN 431

**CMPEN 481 Computer Engineering Project** (3) Group or individual design projects in the area of computer engineering.

Effective: Spring 2008

Prerequisite: CMPEN 480

**CMPEN 482W Computer Engineering Project Design** (3) Computer engineering design project, project management, documentation, reporting, and group and individual communication skills.

Effective: Spring 2008

Prerequisite: E E 310;E E 353;CMPSC 473;ENGL 202C

**CMPEN 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

**CMPEN 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

**CMPEN 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**CMPEN 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2008

**CMPEN 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2008

**CMPEN 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2010

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## Computer Engineering Technology (CMPET)

**CMPET 005 Engineering Methods in Engineering Technology** (1) Introduction to experimental and computer methods in engineering technology; applications of experimental concepts through student involvement in computer exercises.

Effective: Fall 2007

Prerequisite: EET 101MATH 081

**CMPET 117 Digital Electronics** (3) Fundamentals of digital circuits, including logic circuits, boolean algebra, Karnaugh maps, counters, and registers.

Effective: Fall 2012

Prerequisite: Prerequisite and/or concurrent:EET 105

**CMPET 120 Digital Electronics Laboratory** (1) Laboratory study of digital electronics circuits.

Effective: Fall 2013

Concurrent: EET 105 CMPET 117

**CMPET 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 1992

**CMPET 211 Embedded Processors and DSP** (3) Introduction to micro-controllers and embedded controllers with applications, including concepts of digital signal processing.

Effective: Fall 2008

Prerequisite: CMPET 117CMPET 120

**CMPET 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1993

**CMPET 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 1992

**CMPET 301 Algorithmic Processes for Electrical Systems** (3) Algorithms, languages, notations and applications of object- and procedure- oriented languages to electrical and electronic problem solving.

Effective: Fall 2007

Prerequisite: CMPET 211 Concurrent: MATH 141 or MATH 210

**CMPET 333 Computer Networking** (3) Introduction to Local Area Networks (LANs) and Wide Area Networks (WANs), including transmission mediums, protocols, topologies, software, and hardware.

Effective: Fall 2007 Ending: Summer 2014

Prerequisite: EET 216CMPET 301

**CMPET 333 Computer Networking** (3) Introduction to Local Area Networks (LANs) and Wide Area Networks (WANs), including transmission mediums, protocols, topologies, software, and hardware.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: EET 212WCMET 301

**CMPET 355 Intermediate Microprocessors and Microcomputers** (3) Microprocessor architecture and assembly language programming. Hardware and software of basic microprocessors. Input/output structure in microcomputers.

Effective: Fall 2007 Ending: Summer 2014

Prerequisite: EET 221CMPET 301EET 341

**CMPET 355 Intermediate Microprocessors and Microcomputers** (3) Microprocessor architecture and assembly language programming. Hardware and software of basic microprocessors. Input/output structure in microcomputers.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: EET 212WCMET 301EET 341

**CMPET 401 Data Communication and Networking** (3) Signal representations, communication techniques, interfacing, serial and parallel communication, modems, error detection, LAN and WAN protocols.

Effective: Fall 2012

Prerequisite: CMPEN 271 orCMPET 117

**CMPET 402 Data Communication and Networking Laboratory** (1) Network operating systems, LAN and WAN protocols, serial and parallel communications, modems, FAX, and other interfacing methods.

Effective: Spring 2001

Prerequisite: or concurrent:CMPET 401

**CMPET 403 Switching Circuit Design** (4) Analysis and design of advanced combinational and sequential circuits using IC logic devices and PLD's while promoting the use of software development tools.

Effective: Fall 2012

Prerequisite: CMPEN 271 orCMPET 117;CMPEN 275 orCMPET 120

**CMPET 412 Microcomputers** (4) Design, architecture, programming, and interfacing of microprocessors, enhanced by lab experiments.

Effective: Fall 2012

Prerequisite: CMPEN 271 orCMPET 117;CMPEN 275 orCMPET 120

CMPET 456 **Advanced Microprocessors, High Level Interfacing** (3) Operating systems; systems programming; high-level application programming; high-level hardware and software protocols; serial and parallel digital communications.

Effective: Spring 2007

Prerequisite: CMPET 355

CMPET 457 **Software Engineering** (3) Application of modern techniques in software development, including program design based on new methods and tools.

Effective: Spring 2007

Prerequisite: CMPET 355

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## Computer Information Systems (CINSY)

CINSY 446 **Database Management** (3) Designed to provide students with explanation, comparison of techniques, methodology of systems, limitations, application of various database management systems.

Effective: Summer 2011

Prerequisite: 3 credits in programming

CINSY 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 1999

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## Computer Science (CMPSC)

**CMPSC 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2008

**CMPSC 100 Computer Fundamentals and Applications** (3) Introduction to computer fundamentals and applications to data processing environments.  
Effective: Spring 1995  
Prerequisite: 2 entrance units in mathematics

**CMPSC 101 (GQ) Introduction to C++ Programming** (3) Properties of algorithms, languages, and notations for describing algorithms, applications of a procedure-oriented language to problem solving. A student may receive credit for only one of the following courses: CMPSC 101, 200, 201, 202, 121.  
Effective: Fall 2010  
Prerequisite: 2 entrance units in mathematics

**CMPSC 102 Introduction to Visual Programming** (3) Problem solving for non-majors; high-level language programming; control structures, functions, parameters, recursion, arrays, records/ structures; verification; debugging; documentation.  
Effective: Fall 2013  
Prerequisite: 2 entrance units in mathematics

**CMPSC 109 Introduction to Data Processing with COBOL** (3) Study of the COBOL programming language and its applications in industry.  
Effective: Spring 2008  
Prerequisite: 3 credits of programming

**CMPSC 111S Logic for Computer Science** (1) An introduction to logic and its application to problem solving and computer science.  
Effective: Spring 2009

**CMPSC 121 (GQ) Introduction to Programming Techniques** (3) Design and implementation of algorithms. Structured programming. Problem solving techniques. Introduction to a high-level language, including arrays, procedures, and recursion.  
Effective: Fall 2010  
Prerequisite: MATH 110 or prerequisite or concurrent MATH 140

**CMPSC 122 Intermediate Programming** (3) Object-oriented programming, recursion, fundamental data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), the basics of algorithmic analysis, and an introduction to the principles of language translation.  
Effective: Spring 2008  
Prerequisite: CMPSC 121

**CMPSC 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2008

**CMPSC 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**CMPSC 200 (GQ) Programming for Engineers with MATLAB** (3) Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, 102, 200, 201, or 202.  
Effective: Spring 2008  
Prerequisite: MATH 140 Concurrent: MATH 141

**CMPSC 201 (GQ) Programming for Engineers with C++** (3) Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, 102, 200, 201, or 202.  
Effective: Spring 2008  
Prerequisite: MATH 140 Concurrent: MATH 141

**CMPSC 202 (GQ) Programming for Engineers with FORTRAN** (3) Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, 102, 200, 201, or 202.  
Effective: Spring 2008  
Prerequisite: MATH 140 Concurrent: MATH 141

**CMPSC 203 (GQ) Introduction to Spreadsheets and Databases** (4) Design, use, and programming of spreadsheets and data bases with applications from a range of disciplines.  
Effective: Spring 2008  
Prerequisite: 2 entrance units in mathematics

**CMPSC 208 (GQ) Technical Game Development (3)** Introduction to the tools and techniques required to implement games in a virtual environment.  
Effective: Summer 2013 Ending: Fall 2014  
Prerequisite: MATH 021

**CMPSC 208 (GQ) (GAME 250) Technical Game Development (3)** Introduction to the tools and techniques required to implement games in a virtual environment.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: MATH 021

**CMPSC 221 Object Oriented Programming with Web-Based Applications (3)** This course will continue with object-oriented programming and will introduce graphics, virtual machines, programming language concepts and web-based programming using Java.  
Effective: Spring 2008  
Prerequisite: CMPSC 122

**CMPSC 295 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**CMPSC 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2008

**CMPSC 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2008

**CMPSC 297A Developing .NET Solutions With Visual Basic.NET (1)** Students will learn the basic of the VB.NET programming language. Topics include the .NET Framework, understanding the VB.NET language and syntax, an introduction to Object-Oriented Design and Programming for VB.NET, Windows Forms, and debugging and deploying VB.NET applications.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**CMPSC 297B Developing .NET Solutions with C# (1)** Learn the basics of the C# programming language. Topics include the .NET Framework, understanding the C# language and syntax, an introduction to Object-Oriented Design and Programming for C#, Windows Forms, and debugging and deploying C# applications.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**CMPSC 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2008

**CMPSC 302 Intermediate Visual Programming (3)** OO programming, visual programming, classes, objects, ADTs, inheritance, recursion, regular expressions, user-defined controls, documentation, testing, verification, productivity tools.  
Effective: Fall 2013  
Prerequisite: CMPSC 102 or CMPSC 121

**CMPSC 311 Introduction to Systems Programming (3)** Unix system programming in C; organization of programs and data; program analysis and support tools; software standards; common system functions.  
Effective: Spring 2008  
Prerequisite: CMPSC 221

**CMPSC 312 Computer Organization and Architecture (3)** Data representation, digital logic, instruction set/control logic, machine/ assembly languages, advanced architectures, memory hierarchy, I/O devices, overall system design.  
Effective: Spring 2008  
Prerequisite: CMPSC 121 or equivalent

**CMPSC 313 Assembly Language Programming (3)** Program design, addressing modes, subroutines, parameter passing, stacks, bit manipulation, text processing, DOS functions, macros, I/O, high level language interfaces.  
Effective: Spring 2008  
Prerequisite: CMPSC 312

**CMPSC 335 Fundamentals of Communication Networks (3)** Introduction to the composition of communication networks, including transmission mediums and protocols, transfer methods, topologies and software, and communications hardware.  
Effective: Spring 2008  
Prerequisite: 3 credits of programming

**CMPSC 360 Discrete Mathematics for Computer Science (3)** Discrete mathematics and foundations for modern computer science. Topics include sets, relations, logic, algorithms, graphs, finite state machines and regular expressions.  
Effective: Spring 2008  
Concurrent: CMPSC 122

**CMPSC 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2013

**CMPSC 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2008

**CMPSC 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**CMPSC 402 UNIX and C** (3) UNIX OS including file system, utilities, and shell scripting; C programming, including I/O, pointers, arrays, dynamic memory, macros, and libraries.

Effective: Fall 2010

Prerequisite: CMPSC 121

**CMPSC 412 Data Structures Lab** (1.5) Programming with common data structures; recursion; stacks, queues, dictionaries, priority queues; string searching and manipulation; sorting; trees; combinatorics.

Effective: Spring 2013

Concurrent: CMPSC 462 or CMPSC 465

**CMPSC 413 Algorithms Lab** (1.5) Programming with common algorithm design techniques; divide and conquer, greedy method, dynamic programming, and tree and graph traversals.

Effective: Summer 2013

Concurrent: CMPSC 463

**CMPSC 421 Net-centric Computing** (3) This course introduces JavaScript and AJAX for creating Rich Internet Applications, and XML for client-server communication and Web Services.

Effective: Spring 2011

Prerequisite: CMPSC 221 or SWENG 311

**CMPSC 426 Object-oriented Design** (3) Object-oriented analysis and design; design patterns such as creational, structural, and behavioral patterns; UML; and unified process.

Effective: Spring 2014

Prerequisite: CMPSC 221 CMPSC 462

**CMPSC 428 Programming in Ada** (3) Structured program design using Ada; strong typing, data abstraction, packages, subprograms, separate compilation, visibility, exceptions, generic units.

Effective: Fall 2010

Prerequisite: CMPSC 121

**CMPSC 430 Database Design** (3) Relational database model, query languages, integrity, reliability, normal forms for design.

Effective: Fall 2010

Prerequisite: CMPSC 462

**CMPSC 431W Database Management Systems** (3) Topics include: conceptual data modeling, relational data model, relational query languages, schema normalization, database/Internet applications, and database system issues.

Effective: Fall 2013

Prerequisite: CMPSC 221; ENGL 202C

**CMPSC 436 Communications and Networking** (3) Data transmission, basic signaling, data encoding, error control, communication protocols, security, network topologies, routing, switching, internetworking, emerging high speed networks.

Effective: Spring 2008

Prerequisite: CMPSC 312

**CMPSC 438 Computer Network Architecture and Programming** (3) Network architectures, communication protocols, internetworking, network security, client-server computing, web application development, programming with APIs.

Effective: Spring 2014

Prerequisite: CMPSC 221 CMPSC 312

**CMPSC 441 Artificial Intelligence** (3) Problem solving, search techniques including local search and genetic algorithms, knowledge representation, planning, learning, and neural networks.

Effective: Spring 2014

Prerequisite: CMPSC 122 CMPSC 360

**CMPSC 442 Artificial Intelligence** (3) Introduction to the theory, research paradigms, implementation techniques, and philosophies of artificial intelligence.

Effective: Spring 2008

Prerequisite: CMPSC 122 or equivalent Concurrent: CMPSC 465

**CMPSC 443 Introduction to Computer and Network Security** (3) Introduction to theory and practice of computer security with an emphasis on Internet and operating system applications.

Effective: Spring 2008

Prerequisite: CMPSC 473 CMPEN 362

**CMPSC 444 Secure Programming** (3) Secure software design principles/practice, common threats, applied cryptography, trust management, input validation, OS-/programming language- specific issues, software validation.

Effective: Spring 2014



Prerequisite: CMPSC 221 Concurrent: CMPSC 430 or CMPSC 431 or CMPSC 421W

**CMPSC 448 Machine Learning and Algorithmic AI (3)** Evaluation and use of machine learning models; algorithmic elements of artificial intelligence.

Effective: Spring 2013

Prerequisite: STAT 319 or STAT 415 and CMPSC 122 or prior programming experience

**CMPSC 450 Concurrent Scientific Programming (3)** Problems of synchronization, concurrent execution, and their solution techniques. Design and implementation of concurrent software in a distributed system.

Effective: Spring 2008

Prerequisite: CMPSC 121 CMPSC 201 or CMPSC 202; MATH 220; MATH 230 or MATH 231

**CMPSC 451 (MATH 451) Numerical Computations (3)** Algorithms for interpolation, approximation, integration, nonlinear equations, linear systems, fast FOURIER transform, and differential equations emphasizing computational properties and implementation. Students may take only one course for credit from CSE/MATH 451 and CSE/MATH 455.

Effective: Spring 2008

Prerequisite: 3 credits of programming; MATH 230 or MATH 231

**CMPSC 452 Numerical Analysis (3)** Algorithm efficiency and accuracy, function interpolation and polynomial approximation, numerical differentiation and integration, initial-value problems, and approximation of eigenvalues.

Effective: Fall 2010

Prerequisite: MATH 220

**CMPSC 455 (MATH 455) Introduction to Numerical Analysis I (3)** Floating point computation, numerical rootfinding, interpolation, numerical quadrature, direct methods for linear systems. Students may take only one course for credit from CMPSC (MATH) 451 and CMPSC (MATH) 455.

Effective: Spring 2008

Prerequisite: MATH 220; MATH 230 or MATH 231 ; and 3 credits of programming

**CMPSC 456 (MATH 456) Introduction to Numerical Analysis II (3)** Polynomials and piecewise polynomial approximation; matrix least square problems; numerical solution of eigenvalue problems; numerical solutions of ordinary differential equations.

Effective: Spring 2008

Prerequisite: CMPSC 455

**CMPSC 457 Computer Graphics Algorithms (3)** Graphics systems/hardware, color models, transformations, projections, clipping, hidden line/surface removal, aliasing, parametric curves/surfaces, 3D modeling animation.

Effective: Fall 2010

Prerequisite: CMPSC 122; MATH 220

**CMPSC 458 Fundamentals of Computer Graphics (3)** Fundamentals of computer graphics: input/output devices, transformation, projection, clipping, hidden line/surface elimination.

Effective: Spring 2008

Prerequisite: CMPSC 311; MATH 220; MATH 230 or MATH 231

**CMPSC 459 Scientific Visualization (3)** Visualization techniques for data analysis and presentation. Applying visualization and perceptual theory. Using extending platform independent visualization software.

Effective: Spring 2008

Prerequisite: CMPSC 122

**CMPSC 460 Principles of Programming Languages (3)** Design and implementation of high level programming languages and survey of language paradigms including imperative, functional, and object-oriented programming.

Effective: Spring 2014

Prerequisite: CMPSC 312; CMPSC 462 Concurrent: CMPSC 469

**CMPSC 461 Programming Language Concepts (3)** Fundamental concepts of programming language design, specifications, and implementation; programming language paradigms and features; program verification.

Effective: Spring 2008

Prerequisite: CMPSC 221; CMPSC 360

**CMPSC 462 Data Structures (3)** In-depth theoretical study of data structures such as balanced trees, hash tables, priority queues, B-trees, binomial heaps, and Fibonacci heaps.

Effective: Spring 2014

Prerequisite: CMPSC 360

**CMPSC 463 Design and Analysis of Algorithms (3)** Recurrences, algorithms design techniques, searching, sorting, selection, graph algorithms, NP-completeness, approximation algorithms, local optimization algorithms.

Effective: Spring 2014

Prerequisite: CMPSC 462 Concurrent: MATH 318 STAT 301 or STAT 318

**CMPSC 464 Introduction to the Theory of Computation (3)** Computability/Complexity: finite automata, regular & context-free languages, Turing machines, Church-Turing Thesis, undecidability, reducibility, completeness, time/space complexity, P versus NP.

Effective: Fall 2009

Prerequisite: CMPSC 465

**CMPSC 465 Data Structures and Algorithms (3)** Fundamental concepts of computer science: data structures, analysis of algorithms, recursion, trees, sets, graphs, sorting.

Effective: Fall 2012

Prerequisite: CMPSC 122; CMPSC 360 or MATH 311W

**CMPSC 467 (MATH 467) Factorization and Primality Testing** (3) Prime sieves, factoring, computer numeration systems, congruences, multiplicative functions, primitive roots, cryptography, quadratic residues. Students who have passed MATH 465 may not schedule this course.

Effective: Spring 2008

Prerequisite: CMPSC 360 or MATH 311W

**CMPSC 469 Formal Languages with Applications** (3) Regular, context free, recursive, and recursively enumerable languages; associated machine models; applications.

Effective: Spring 2014

Prerequisite: CMPSC 360

**CMPSC 470 Compiler Construction** (3) Compiler design and implementation; scanning, parsing, semantic analysis, optimization (including static analysis), code generation, garbage collection, and error detection.

Effective: Spring 2014

Prerequisite: CMPSC 221CMPSC 312CMPSC 462CMPSC 469

**CMPSC 471 Introduction to Compiler Construction** (3) Design and implementation of compilers; lexical analysis, parsing, semantic actions, optimization, and code generation.

Effective: Spring 2008

Prerequisite: CMPSC 461

**CMPSC 472 Operating System Concepts** (3) Theoretical and practical issues of operating systems design and implementation, process management, concurrent programming, memory management, scheduling, I/O, and security.

Effective: Fall 2010

Prerequisite: CMPSC 312;CMPSC 462

**CMPSC 473 Operating Systems Design & Construction** (3) Design and implementation of computer operating systems; management of various system resources: processes, memory, processors, files, input/output devices.

Effective: Spring 2008

Prerequisite: CMPSC 311;CMPEN 331

**CMPSC 474 Operating System & Systems Programming** (3) Operating Systems overview and principles; processes and signals; concurrency and synchronization; memory and file management; client-server computing; scripts; systems-programming.

Effective: Spring 2008

Prerequisite: CMPSC 122;CMPSC 312

**CMPSC 475 Applications Programming** (3) Development of software for devices including smart phones, tablets, handheld units, and other general purpose computing platforms.

Effective: Spring 2014

Prerequisite: CMPSC 221;CMPSC 311 orCMPSC 312 'CMPSC 462 orCMPSC 465

**CMPSC 479 Language Translation** (3) Design and implementation of compilers, lexical analysis, syntax/semantic analysis, optimization, and code generation.

Effective: Spring 2008

Prerequisite: CMPSC 465

**CMPSC 483W Software Design Methods** (3) Applications of scientific knowledge and methods in the design and construction of computer software using engineering concepts.

Effective: Spring 2008

Prerequisite: CMPSC 221;CMPSC 465;ENGL 202C

**CMPSC 484 Computer Science Senior Project I** (2) Computer science capstone project with documentation emphasis.

Effective: Spring 2008

Prerequisite: ENGL 202C;CMPSC 221;CMPSC 465

**CMPSC 485W Computer Science Senior Project II** (3) Computer science capstone project with documentation emphasis.

Effective: Spring 2008

Prerequisite: CMPSC 484

**CMPSC 487W Software Engineering and Design** (3) Software development process, life cycle; requirements analysis, specification, design, prototyping, testing, project management, and documentation.

Effective: Spring 2014

Prerequisite: ENGL 202CCMPSC 221CMPSC 462

**CMPSC 488 Computer Science Project** (3) Project design and implementation with an emphasis on team work, documentation, and the employment and integration of computer science concepts.

Effective: Summer 2013

Prerequisite: CMPSC 487W

**CMPSC 494H Senior Honors Thesis** (1-6) Supervised Honors thesis research in computer science and engineering.

Effective: Spring 2008

Prerequisite: approval of a thesis adviser in the department

**CMPSC 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experience, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**CMPSC 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2008

**CMPSC 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2008

**CMPSC 497A Game Development with HTML 5** (3) Game design of 2D assets using HTML 5, with the specific intention of creating games for mobile applications.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CMPSC 121

**CMPSC 497B Big Data Analytics** (3) The ease of large-scale data collection is driving commercial interest in distributed processing algorithms for performing various analytic tasks. In this course we will take an in-depth look at MapReduce (and related programming models) with applications to processing text data such as Tweets and also an emphasis on graph data. The course will be graded based on projects, class participation, and exams.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CMPSC 221

**CMPSC 497C Cyber Security Contest Problem Practice** (1-6) Students will learn about common offensive and defensive cyber security strategies. They will apply these strategies to solve scenarios created by the instructor.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CMPSC 122

**CMPSC 497D Hands-on Experience on Programming Manycores** (3) This course focuses on programming emerging manycore architectures. Specifically, we will focus on Intel Xeon Phi and NVIDIA Kepler, and the students will optimize (in a collaborative fashion) two large scale parallel applications from the parallelism, data locality and energy angles.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CMPSC 461

**CMPSC 497F Introduction to Bioinformatics** (3) This course will introduce the biological problems and computational solutions that motivate computational biology. Topics will be organized around the three main themes: 1) Genomes, including assembly and annotation of genomic sequences; 2) Evolution, including reconstructing evolutionary relationships, personal genomics, and detecting disease associated traits; and 3) Function, including analysis of functional genomics experimental assays and regulatory relationships between genes. We welcome participation from students majoring in BMB, CMPSC, and other disciplines, and therefore lecture material will not assume prior knowledge of biological or computational topics.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**CMPSC 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2008

**CMPSC 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Corporate Communication (CC)

**CC 401 Corporate, Non-Profit, and Government Public Relations** (3) Explores issues affecting profit and non-profit public relations, including crisis management, consumer and employee affairs, environmental problems and global concerns.

Effective: Summer 2002

Prerequisite: MKTG 310 and sixth-semester standing

**CC 402 The Media and Public Relations** (3) Publicity strategies involving a variety of media resources.

Effective: Summer 2002

Prerequisite: MKTG 310 and sixth-semester standing

**CC 403W Studies in Public Relations** (3) Capstone course for the major in Corporate Communication; focuses on case studies in public relations: problems and solutions.

Effective: Summer 2002

Prerequisite: MKTG 310 and sixth-semester standing

**CC 495A Internship in Corporate Communication** (3) Internship in a business or agency appropriate for a major in Corporate Communication.

Effective: Summer 2002

Prerequisite: MKTG 310 and sixth-semester standing

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## Counseling Psychology (CNPSY)

CNPSY 254 (US) **Understanding Discrimination: An Educational and Employment Perspective** (3) Study of the effects of educational and employment discrimination on United States social groups/identities.  
Effective: Summer 2011

CNPSY 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2011

CNPSY 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

CNPSY 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2011

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## Counselor Education (CN ED)

CN ED 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

CN ED 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

CN ED 100 **Effective Career Decision-Making** (3) Examination of internal and external factors that contribute to career development to assist students undecided about major or career.  
Effective: Summer 2011

CN ED 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

CN ED 197A **Leadership Development - Lion Ambassadors** (1) Introduces students to key leadership concepts and facilitates students' use of leadership development through their duties as a Lion Ambassador.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CN ED 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

CN ED 200 **Peer Mentoring** (1) This course will prepare students for the roles and responsibilities of being a Peer Mentor.  
Effective: Spring 2013

CN ED 280 **Job/Internship Search and Professional Skills** (1) This course will teach students how to implement a career strategy to effectively secure a job/internship.  
Effective: Summer 2013

CN ED 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2011

CN ED 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

CN ED 297A **Freshman Experience I** (2) This course is designed to help entering students in their transition from high school to college. This course will help new students to develop and utilize effective educational strategies.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CN ED 297B **Transition to College Life** (2) The Transition to College Life course is designed to help new PSU Berks students become familiar with the university and hone skills they'll need to succeed in college. Students develop a clear understanding of their personal learning strengths and needs, and discover how resources and self-advocacy can support their success in college.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CN ED 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

CN ED 301 **Student Organization Management** (2) Exploration and development of leadership and group process skills necessary for effectively managing student organizations in higher education settings.  
Effective: Summer 2011

CN ED 302 **The Role of the Resident Assistant: Theory and Practice** (3) An analysis of the various roles of the resident assistant, including interpersonal facilitator, disciplinarian, program developer, and activities facilitator.  
Effective: Summer 2011 Ending: Summer 2014

CN ED 303 **Career Search Strategies for Educators** (1) An aid in preparing students with information helpful for entry into education and alternative job markets.  
Effective: Summer 2011

CN ED 304 **Education of the Peer Assistant** (3) Student development theories: skill development in listening, informing, and referring culturally diverse peers in individual and group situations.  
Effective: Summer 2011  
Prerequisite: limited to students selected as peer assistants or similar positions

CN ED 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

CN ED 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

CN ED 401 **Foundations of Chemical Dependency Counseling** (3) An overview of diagnosis and assessment, models for chemical dependency prevention, counseling, and recovery; contexts of chemical dependency treatment.  
Effective: Summer 2011  
Prerequisite: 3 credits in general psychology

CN ED 404 **Group Procedures in Guidance and Counseling** (3) The nature and functioning of groups in educational and agency settings. Provides prospective counselors with experience in the group process.  
Effective: Summer 2011  
Prerequisite: 6 credits in counselor education; 6 credits in psychology sociology or individual and family studies

CN ED 416 **Interpersonal Relationships and Alcohol and Other Drugs (AOD) Dependency** (3) This course examines families with chemically dependent members, dynamics, appropriate interventions, and treatment.  
Effective: Summer 2011  
Prerequisite: CN ED 401 or RHS 301

CN ED 420 **Chemical Dependency: Youth at Risk** (3) Study of youth who are at-risk of developing chemical dependency including the characteristics and factors related to chemical dependency.  
Effective: Summer 2011  
Prerequisite: CN ED 401

CN ED 421 **Counseling Strategies for Preventing Chemical Dependency** (3) Examines helping professional's role in primary and secondary prevention of substance abuse, and related problems like delinquency, suicide, and pregnancy.  
Effective: Summer 2011  
Prerequisite: CN ED 401

CN ED 422 **Foundations of Addictions Counseling** (3) Study of the fundamental principles of counseling individuals with a wide variety of addictions.  
Effective: Summer 2011  
Prerequisite: a minimum of 12 hours of coursework in sociology psychology education or family studies.

CN ED 423 **Student Assistance Programs** (3) Exploration of early stages of adolescent "at-risk" behavior and skills for student assessment and intervention within schools and communities.  
Effective: Summer 2011  
Prerequisite: CN ED 401

CN ED 424 (WF ED 424) **Facilitating Career Development** (3) This course provides individuals with relevant skills and knowledge to assist others in planning careers and obtaining meaningful work.  
Effective: Summer 2012  
Prerequisite: 300-400 level Psychology HD FS or Education courses or permission of the program

CN ED 430 **Couples and Family Counseling** (3) The theory and practice of counseling with couples and families emphasizing family development and major intervention approaches.  
Effective: Summer 2011  
Prerequisite: A minimum of 12 hours of coursework in sociology psychology education or family studies.

CN ED 431 **Counseling and Teaching Youth at Risk** (3) This course is focused on how to counsel and/or teach youth at risk for a variety of social, emotions, and educational problems.  
Effective: Summer 2011  
Prerequisite: A minimum of 12 hours of coursework in sociology psychology education or family studies.

CN ED 432 **Ethical, Legal, and Professional Issues in Counseling** (3) Examination of the current ethical and legal issues related to professional counselors and counseling.  
Effective: Summer 2011  
Prerequisite: A minimum of 12 hours of coursework in sociology psychology education or family studies.

CN ED 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2011

CN ED 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

which may be topical or of special interest.  
Effective: Summer 2011

CN ED 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

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## Criminal Justice (CRIMJ)

CRIMJ 012 (GS) (CRIM 012, SOC 012) **Criminology** (3) Explanations and measurement of crime; criminal law; characteristics of criminals and victims; violent, property, white-collar, organized, and sexual crimes.  
Effective: Spring 2008

CRIMJ 013 (GS) (SOC 013) **Juvenile Delinquency** (3) Juvenile conduct, causes of delinquency, current methods of treatment; organization and function of agencies concerned with delinquency.  
Effective: Spring 2008

CRIMJ 083S (GS) (CRIM 083S) **First-Year Seminar in Criminal Justice** (3) Critical approaches to issues in criminal justice and criminology.  
Effective: Spring 2008

CRIMJ 100 (GS) (CRIM 100) **Introduction to Criminal Justice** (3) Overview of the criminal justice system, including legal foundations, processing and correction of offenders, extent and types of crime, victims.  
Effective: Spring 2008

CRIMJ 113 (US) (CRIM 113) **Introduction to Law** (3) Introduction to law in society with a focus on criminal law, judicial code, laws of sentencing and corrections, criminal procedure.  
Effective: Spring 2008

CRIMJ 159 (GH;US) (HIST 159) **History of the FBI** (3) Survey of the FBI's history with special emphasis on civil rights and liberties and bureaucratic development.  
Effective: Spring 2014

CRIMJ 200 **Introduction to Security and Loss Control** (3) A general introduction to the field of private security and asset protection.  
Effective: Spring 2008

CRIMJ 201 **Legal and Ethical Issues in Private Security** (3) Detailed examination of legal issues and ethical considerations in private sector security.  
Effective: Spring 2008  
Prerequisite: CRIMJ 200

CRIMJ 210 **Policing in America** (3) Police organization and operations in America.  
Effective: Spring 2008  
Prerequisite: or concurrent: CRIMJ 100

CRIMJ 220 **Courts and the Prosecution Process** (3) Purpose and function of criminal courts in society, organization, jurisdiction and staffing; prosecution, adjudication, and sentencing of offenders.  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

CRIMJ 221 **Issues in the American Criminal Justice System** (3) Examination of the models of the criminal process, functions of the justice system, and approaches to crime and punishment.  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

CRIMJ 230 **Corrections in America** (3) Punishment and treatment of sentenced offenders, correctional institution organization, staffing, inmates, and subcultures.  
Effective: Spring 2008

CRIMJ 234 **Fundamental Techniques of Scientific Criminal Investigation** (3) Traditional and innovative technical approaches utilized by law enforcement scientists; capabilities and limitations of technical techniques highlighted.  
Effective: Spring 2008

CRIMJ 240W **Field Research in the Criminal Justice** (4) Field research and observational strategies appropriate to the identification, investigation, and analysis of research questions in criminal justice.  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

CRIMJ 241 (PUBPL 241) **Computer Applications in Public Affairs/Criminal Justice** (3) Introduction to computer applications for criminal justice and public affairs agencies.  
Effective: Spring 2004

CRIMJ 250W (CRIM 250W) **Research Methods in Criminal Justice** (3) Fundamental concepts of social science research including design, measurement, sampling, and interpretation of the study of crime, law, and justice.

Effective: Fall 2011

Prerequisite: CRIMJ 012

**CRIMJ 260 (GQ) Statistical Analysis for the Social Sciences** (3) Methods of collection, presentation, and analysis of quantitative data in the social science; procedures, interpretation, and application.

Effective: Spring 2011

Prerequisite: 2 units of High School Algebra and CRIMJ 100 or permission of the program

**CRIMJ 290 Introduction to Internship Experience** (1) Planning and preparation for field experience in a criminal justice agency setting.

Effective: Spring 2008

Prerequisite: CRIMJ 100 ; Prerequisite or concurrent: CRIMJ 240W

**CRIMJ 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

**CRIMJ 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2008

**CRIMJ 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2008

**CRIMJ 300H Honors Seminar: Issues and Trends in Criminal Justice** (3-6) Discussion of various, specific criminal justice topics, such as discretionary decision-making, due process, equal protection, violence, and recidivism.

Effective: Spring 2008

Prerequisite: fifth-semester standing and admission to Schreyers Honors College

**CRIMJ 304 Security Administration** (3) Interdisciplinary analysis of security and loss prevention; its administration, role in crime control and prevention, and relationship to criminal justice.

Effective: Spring 1990

**CRIMJ 310 Forensic Science I** (3) Presentation of the techniques, skills, and limitations of modern crime laboratory.

Effective: Spring 2008

Prerequisite: CRIMJ 100

**CRIMJ 311 Forensic Science II** (3) Continuation of CRIMJ 310 including statistical analysis of data from crime scene.

Effective: Spring 2008

Prerequisite: CRIMJ 310

**CRIMJ 345 Criminal Justice and the Community** (3) Justice agencies and the community's crime prevention and participation strategies; community involvement in policy development.

Effective: Spring 2008

Prerequisite: CRIMJ 100

**CRIMJ 389 Gangs and Gang Behavior** (3) The history, structure, and practices of gangs in America as well as societal reaction to them.

Effective: Summer 2003

**CRIMJ 406 (SOC 406, CRIM 406) Sociology of Deviance** (3) Theory and research concerning behaviors and lifestyles viewed as significant departures from a group's normative expectations.

Effective: Spring 2008

Prerequisite: CRIMJ 100 and CRIMJ 113 and CRIMJ 230 or permission of program

**CRIMJ 407 (US) (CRIM 407) Victimology** (3) This course will explore the legal, emotional, and social responses to the process of victimization by offenders and third parties.

Effective: Spring 2008

**CRIMJ 408 Police Administration** (3) Principles of administration as they relate to a police organization; and policy development.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or CRIM 100 and CRIMJ 210 or CRIM 210

**CRIMJ 410 The Pennsylvania Court System** (3) Tracing the steps of criminal cases through the investigative stage, arrest, trial, sentencing and appellate review in Pennsylvania.

Effective: Spring 2004

Prerequisite: CRIMJ 100 CRIMJ 113

**CRIMJ 412 (SOC 412, CRIM 412) Crime, Social Control, and the Legal System** (3) Legal and extralegal control; public opinion on crime; criminal justice and correctional processes; legal sanctions; control strategies. Field trip.

Effective: Spring 2008

Prerequisite: CRIMJ 012 CRIMJ 013 or SOC 005

CRIMJ 413 (CRIM 413, SOC 413) **Advanced Criminological Theory** (3) This course provides an in-depth look at theories of crime and examines influential empirical studies designed to these theories.

Effective: Spring 2008

Prerequisite: CRIMJ 012CRIMJ 250W

CRIMJ 414 (SOC 414, CRIM 414) **Criminal Careers and the Organization of Crime** (3) Research on and theory of criminal careers and crime organizations, emphasizing recruitment and disengagement; offender characteristics and lifestyles; policy implications.

Effective: Spring 2008

Prerequisite: CRIMJ 012 orCRIMJ 013 orSOC 005

CRIMJ 415 (PUBPL 415) **Drug Control Policy in Comparative Perspective** (3) Examines the history of drug control policy in the United States; comparisons and contrasts with other countries' experiences.

Effective: Summer 2004

Prerequisite: CRIMJ 200 orPL SC 001 orPL SC 014 orSOC 001

CRIMJ 420 **Criminal Law and Procedure** (3) Common law and statutory crimes; constitutional rights of accused persons, liability of criminal justice professionals.

Effective: Spring 2008

Prerequisite: CRIMJ 113

CRIMJ 421 (CRIM 421) **Violent Crime in the United States** (3) The impact of violent crime on victims, their families, and communities; the police process as it relates to violent crime.

Effective: Spring 2008

Prerequisite: CRIMJ 012

CRIMJ 422 (CRIM 422) **Victimization** (3) Examines the history, how victimization is measured/studied in social sciences, public policy implications of victimization movement in U.S.

Effective: Spring 2008

Prerequisite: CRIMJ 250W

CRIMJ 423 (US) (WMNST 423, CRIM 423) **Sexual and Domestic Violence** (3) Legal, sociological, and psychological perspectives on sexual and domestic violence.

Effective: Spring 2008

Prerequisite: CRIMJ 100

CRIMJ 424 (CRIM 424) **Drugs and Crime** (3) Analysis of international narcotics trafficking in the twentieth century.

Effective: Spring 2008

Prerequisite: CRIMJ 100

CRIMJ 424W **Drugs and Crime** (3) Analysis of international narcotics trafficking in the twentieth century.

Effective: Spring 2008

Prerequisite: CRIMJ 100

CRIMJ 425 (CRIM 425) **Organized Crime** (3) This course examines organized crime in terms of historical antecedents, structure, related theories, and policy issues.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or permission of program

CRIMJ 426 **Special Offender Types** (3-6) Study of special offender types; relationships with criminal justice system (drug abuse, victimless crime, white collar crime considered different semesters).

Effective: Spring 2008

Prerequisite: 3 credits in Criminal Justice or permission of program

CRIMJ 430 **Alternatives to Incarceration** (3) Control and treatment of offenders in the community, probation and parole organizations, diversion programs, innovative sentences, supervision techniques.

Effective: Spring 2008

Prerequisite: CRIMJ 100 andCRIMJ 113 andCRIMJ 230 or permission of program

CRIMJ 431 **Offender and Prisoner Rights** (3) The identification of correctional problems and the setting of objectives as reflective of court rulings, legislative change, and administrative law.

Effective: Spring 2008

Prerequisite: CRIMJ 100CRIMJ 113CRIMJ 230 or permission of program

CRIMJ 432 (CRIM 432) **Crime and the American Court System** (3) This course examines the American court system including structure and the way courts process offenders with special focus on sentencing.

Effective: Spring 2008

Prerequisite: CRIM 100

CRIMJ 435 **Border Security** (3) This course provides knowledge about government organizations charged with American border security, guiding laws and policies.

Effective: Summer 2011

Prerequisite: 6th semester standing

CRIMJ 439 (PL SC 439) **The Politics of Terrorism** (3) Analysis of political terrorism as a violent alternative for peaceful change and traditional warfare in the nuclear age.

Effective: Spring 2008

Prerequisite: CRIMJ 100 orPL SC 014 or permission of program

CRIMJ 441 (US) (CRIM 441) **The Juvenile Justice System** (3) Historical and contemporary view of the juvenile justice system. Focus on analyzing components of the system, their interactions, processing, and handling of youths.

Effective: Spring 2008  
Prerequisite: CRIMJ 100

**CRIMJ 441W The Juvenile Justice System** (3) Historical and contemporary view of the juvenile justice system. Focus on analyzing components of the system, their interactions, processing, and handling of youths.

Effective: Spring 2008  
Prerequisite: CRIMJ 100 or permission of program

**CRIMJ 450W Senior Seminar** (3 per semester/maximum of 6) Capstone course exploring past, current and future developments in criminal justice.

Effective: Spring 2008  
Prerequisite: CRIMJ 100 or CRIM 100 and sixth semester standing or permission of program.

**CRIMJ 451 (US) (CRIM 451) Race, Crime, and Justice** (3) This course focuses on the significance of race, class, and ethnicity to criminal justice processing and criminal offending.

Effective: Spring 2008  
Prerequisite: CRIMJ 100

**CRIMJ 453 (US) (WMNST 453, CRIM 453) Women and the Criminal Justice System** (3) This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system.

Effective: Spring 2013  
Prerequisite: CRIMJ 100 or WMNST 100

**CRIMJ 460 History and Function of Criminal Justice Components** (3) Historical development of criminal justice system components (police, courts, corrections) related to formulation and function of the state.

Effective: Spring 2008

**CRIMJ 462 Comparative Criminal Justice Systems** (3) A comparison of American and selected foreign justice systems to illustrate the variety of possible responses to crime.

Effective: Spring 2008  
Prerequisite: CRIMJ 100 or permission of program

**CRIMJ 465 Ethics in Criminal Justice** (3) Ethical behavior in the criminal justice system.

Effective: Spring 2008  
Prerequisite: CRIMJ 100 or permission of program

**CRIMJ 467 (SOC 467, CRIM 467) Law and Society** (3) Law and society studies the social origins of law and legal systems; occupational careers, and decision-making of legal officials.

Effective: Spring 2008  
Prerequisite: CRIMJ 100 or CRIMJ 113 or permission of program

**CRIMJ 469 (HIST 469) Drugs and Drug Policy in the United States** (3) Examines the history and dimensions of drug use and analyzes the impact of drug policy.

Effective: Spring 2008  
Prerequisite: CRIMJ 100 or HIST 021

**CRIMJ 471 Legal Rights, Duties, Liabilities of Criminal Justice Personnel** (3) Civil law issues within a justice agency and between criminal justice agencies and members of the public.

Effective: Fall 2013  
Prerequisite: CRIMJ 100

**CRIMJ 473 Criminal Procedure and Evidence in the Business Community** (3) Law of evidence and proof, constitutional constraints on police procedures (arrest, search, etc.) in society and the business community.

Effective: Fall 2013  
Prerequisite: CRIMJ 100

**CRIMJ 482 (CRIM 482) Seminar, Criminal Justice Agency Administration** (3) Relates organizational and public policy management approaches to police, courts, and correctional institutions.

Effective: Spring 2008  
Prerequisite: CRIMJ 100

**CRIMJ 489W Victimology: Predatory Crime** (3) This course uses medical, social scientific and legal research to study the complexities of predatory crime.

Effective: Spring 2004  
Prerequisite: CRIMJ 407

**CRIMJ 494 Research Topics** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2002

**CRIMJ 494H Research Topics** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**CRIMJ 495 Internship in Criminal Justice** (3-12) Experience with a criminal justice agency coordinated through readings and discussion.

Effective: Spring 2008  
Prerequisite: CRIMJ 100

**CRIMJ 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 1987

**CRIMJ 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1987

**CRIMJ 497A Issues in Law Enforcement** (3) This course will examine several contemporary issues of relevance to law enforcement professionals. Students who are seeking a career in law enforcement would benefit from discussion and understanding of four key areas of concern facing law enforcement professionals on a daily basis. The course will provide both instruction and application of key concepts covered through lecture.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**CRIMJ 497A Problem Solving Courts** (3) This course provides students with an understanding and appreciation of the procedures, functioning and criteria that govern these new tribunals by examining the operation of drug, mental health, veterans, DUI, and reentry courts. It also analyzes whether such courts adequately address the needs of the offender, safeguard the constitutional rights of the accused, and protect the safety and security of the community.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**CRIMJ 497B Media and Crime** (3) This seminar course will include an examination of the relationship between media and crime. Specifically, the impact of the media on the criminal justice system, as well as the impact of crime on media, will be discussed. Additionally, media portrayal of special offender types, such as women and juveniles, will be covered. Various theories regarding the relationship between media and crime will also be examined.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**CRIMJ 499 (IL) Foreign Studies** (6) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2008

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## Criminology (CRIM)

CRIM 012 (GS) (CRIMJ 012, SOC 012) **Criminology** (3) Explanations and measurements of crime; criminal law; characteristics of criminals and victims; violent property, white-collar, organized, and sexual crimes.  
Effective: Spring 2008

CRIM 012H (GS) (SOC 012H) **Criminology** (3) Explanations and measurements of crime; criminal law; characteristics of criminals and victims; violent property, white-collar, organized, and sexual crimes.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

CRIM 083S (CRIMJ 083S) **First-Year Seminar in Criminal Justice** (3) Critical approaches to issues in criminal justice and criminology.  
Effective: Spring 2008

CRIM 100 (GS) (CRIMJ 100) **Introduction to Criminal Justice** (3) Overview of the criminal justice system, including legal foundations, processing and correction of offenders, extent and types of crime, victims.  
Effective: Spring 2008

CRIM 113 (US) (CRIMJ 113) **Introduction to Law** (3) Introduction to law in society with a focus on criminal law, judicial code, laws of sentencing and corrections, criminal procedure.  
Effective: Spring 2008

CRIM 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2008

CRIM 201 (GS) (SOC 201) **Presumed Innocent? Social Science of Wrongful Conviction** (3) Social science of how wrongful convictions occur; disparities in the criminal justice system; risks, factors, and policies.  
Effective: Summer 2014

CRIM 250W (CRIMJ 250W) **Research Methods in Criminal Justice** (3) Fundamental concepts of social science research including design, measurement, sampling, and interpretation of the study of crime, law, and justice.  
Effective: Fall 2011  
Prerequisite: CRIM 012

CRIM 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2008

CRIM 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2008

CRIM 296A **Preceptorship in Criminology** (1-6) Supervised experience as a teaching assistant under the supervision of an approved faculty member.  
Effective: Summer 2011

CRIM 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2008

CRIM 312 **Introduction to Forensic Science in the Criminal Justice System** (3) This course introduces the student to the role in the criminal justice system and the legal context of forensic evidence.  
Effective: Spring 2008  
Prerequisite: CRIM 012

CRIM 395 **Internship in Criminal Justice** (1-9) Field experience focusing on the student's major interest within the area of criminal justice.  
Effective: Spring 2008  
Prerequisite: CRIM 250W

CRIM 406 (CRIMJ 406, SOC 406) **Sociology of Deviance** (3) Theory and research concerning behaviors and lifestyles viewed as significant departures from a group's normative expectations.  
Effective: Spring 2008  
Prerequisite: CRIM 012

CRIM 407 (CRIMJ 407) **Victimology** (3) This course will explore the legal, emotional, and social responses to the process

of victimization by offenders and third parties.  
Effective: Spring 2008

CRIM 412 (CRIMJ 412) **Crime, Social Control, and the Legal System** (3) Legal and extralegal control; public opinion on crime; criminal justice and correctional processes; legal sanctions; control strategies. Field trip.  
Effective: Spring 2008  
Prerequisite: CRIM 012CRIM 013 orSOC 005

CRIM 413 (SOC 413, CRIMJ 413) **Advanced Criminological Theory** (3) This course provides an in-depth look at theories of crime and examines influential empirical studies designed to these theories.  
Effective: Spring 2008  
Prerequisite: CRIM 012CRIM 250W

CRIM 414 (CRIMJ 414, CRIM 414) **Criminal Careers and the Organization of Crime** (3) Research on and theory of criminal careers and crime organizations, emphasizing recruitment and disengagement; offender characteristics and lifestyles; policy implications.  
Effective: Spring 2008  
Prerequisite: SOC 012 orSOC 013 orSOC 005

CRIM 421 (CRIMJ 421) **Violent Crime** (3) Examines the nature and causes of violence. Several theoretical perspectives are reviewed including biological, psychological, social, and cultural.  
Effective: Spring 2008  
Prerequisite: CRIM 100CRIM 250W

CRIM 422 (CRIMJ 422) **Victimization** (3) Examines the history, how victimization is measured/studied in social sciences, public policy implications of victimization movement in U.S.  
Effective: Spring 2008  
Prerequisite: CRIM 250W

CRIM 423 (US) (CRIMJ 423, WMNST 423) **Sexual and Domestic Violence** (3) Legal, sociological, and psychological perspectives on sexual and domestic violence.  
Effective: Spring 2013  
Prerequisite: CRIMJ 100 orWMNST 100

CRIM 424 (CRIMJ 424) **Drugs and Crime** (3) Analysis of international narcotics trafficking in the twentieth century.  
Effective: Spring 2013  
Prerequisite: CRIM 100 orWMNST 100

CRIM 425 (CRIMJ 425) **Organized Crime** (3) This course examines organized crime in terms of historical antecedents, structure, related theories, and policy issues.  
Effective: Spring 2008  
Prerequisite: CRIM 100

CRIM 429 **Seminar in Criminal Behavior** (3-4 per semester/maximum of 7) This course explores the study of the application of criminological theories to our understanding of various forms of criminal behavior.  
Effective: Spring 2008  
Prerequisite: CRIM 012

CRIM 430 **American Correctional System** (3) Study of corrections from probation, intermediate punishment, adult and juvenile correctional institutions to parole.  
Effective: Spring 2008  
Prerequisite: CRIM 100CRIM 250W

CRIM 432 (CRIMJ 432) **Crime and the American Court System** (3) This course examines the American court system including structure and the way courts process offenders with special focus on sentencing.  
Effective: Spring 2008  
Prerequisite: CRIM 100

CRIM 433 **Sentencing** (3) This course studies sentencing from prosecutorial charging decisions through revocation of probation, and the complex goals and responsibilities at sentencing.  
Effective: Spring 2008  
Prerequisite: CRIM 100CRIM 250W

CRIM 435 **Policing in America** (3) This course will focus on current, historical, theoretical, and research issues surrounding law enforcement in the United States.  
Effective: Spring 2008  
Prerequisite: CRIM 100CRIM 250W

CRIM 441 (US) (CRIMJ 441) **Delinquency and Juvenile Justice** (3) Course examines delinquency and the juvenile justice system including delinquency's nature, causes, and prevention and the processing of juveniles.  
Effective: Spring 2008  
Prerequisite: CRIM 100

CRIM 451 (US) (CRIMJ 451) **Race, Crime, and Justice** (3) This course focuses on the significance of race, class, and ethnicity to criminal justice processing and criminal offending.  
Effective: Spring 2008  
Prerequisite: CRIM 100

CRIM 453 (US) (CRIMJ 453, WMNST 453) **Women and the Criminal Justice System** (3) This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system.

Effective: Spring 2013

Prerequisite: CRIM 100 or WMNST 100

CRIM 467 (CRIMJ 467, SOC 467) **Law and Society** (3) Law and society studies the social origins of law and legal systems; occupational careers, and decision-making of legal officials.

Effective: Spring 2008

Prerequisite: CRIM 100/CRIMJ 113 or permission of program

CRIM 469 **Seminar in the Law** (3-4 per semester/maximum of 7) The focus of this seminar is the law such as the laws of sentencing, appellate court decisions and their impact.

Effective: Spring 2008

Prerequisite: CRIM 113

CRIM 480H **Research Topics in Crime, Law, and Justice** (1) Students are exposed to a variety of research topics related to crime, law, and justice.

Effective: Spring 2008

Prerequisite: CLJ major and admission to the Schreyer Honors College

CRIM 481H **Information Literacy in Crime, Law, and Justice** (1) Students are exposed to a variety of information sources related to crime, law, and justice.

Effective: Spring 2008

Prerequisite: CLJ 480H

CRIM 482 (CRIMJ 482) **Seminar, Criminal Justice Agency Administration** (3) Relates organizational and public policy management approaches to police, courts, and correctional institutions.

Effective: Spring 2008

Prerequisite: CRIM 100

CRIM 490 **Crime Policy** (3) This course focuses on criminal justice policy and the factors that influence policy development and implementation.

Effective: Spring 2008

Prerequisite: CRIM 100/CRIM 113/CRIM 250W 6 credits of 400-level CRIMJ courses and 7th semester standing

CRIM 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

CRIM 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2008

CRIM 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2008

CRIM 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2008

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## Curriculum and Instruction (C I)

**C I 195 Early Observation Experience for Teacher Preparation** (1-2 per semester/maximum of 2) Early observational work in educational settings with a variety of age/grade levels.  
Effective: Summer 2010

**C I 200 Peer Tutoring** (1) Prepares students to develop successful practices as a peer tutor.  
Effective: Summer 2007

**C I 210 Small Group & One-on-one Tutoring** (1) The course gives students knowledge in one-on-one peer tutoring as well as in a small group setting.  
Effective: Spring 2014

**C I 250H Education Research: Issues and Approaches** (3) Introduction to frameworks and methods for education research, including classroom-based and non-classroom-based research.  
Effective: Spring 2015 Future: Spring 2015

**C I 280 (GH) Introduction to Teaching English to English Language Learners** (3) Introductory English language teaching, and pedagogical strategies with English Language Learners.  
Effective: Spring 2013  
Prerequisite: EDPSY 010 or EDPSY 014

**C I 295 Introductory Field Experience for Teacher Preparation** (1-3 per semester/maximum of 6) Selected observation of schooling situations with small group and tutorial participation.  
Effective: Spring 2014  
Prerequisite: second-semester standing Official clearances required. See:  
<http://www.ed.psu.edu/preservice/clearance.htm>

**C I 295A Introductory Field Experience for Early Childhood Settings** (1-3 per semester/maximum of 3) Selected observations and individual and small group tutoring in early childhood, elementary school, and education related, community settings.  
Effective: Spring 2014  
Prerequisite: second semester standing Concurrent: HD FS 229 or C I 280 or EDPSY 014 or EDTHP 115 or SPLED 400

**C I 295B Introductory Field Experience in Middle Level Education** (1-3 per semester/maximum of 3) Selected observations and individual and small group tutoring in early childhood, elementary school, and education related, community settings.  
Effective: Spring 2014  
Prerequisite: second semester standing HD FS 229 or equivalent

**C I 295C The Bedford Rural Seminar/Introductory Field Experience for Teacher Preparation** (3) C I 295C is designed to give students interested in exploring rural education and life a two-week immersion experience in a rural setting.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: required clearances to be able to go into the schools.

**C I 295D The Philadelphia Urban Seminar** (3) A two-week, 3 credit, summer course that provides a unique immersion experience in an urban public school environment.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: second-semester standing Official clearances required. See:  
<http://www.ed.psu.edu/preservice/clearance.htm>

**C I 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**C I 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**C I 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**C I 400 Introduction to Research Literature** (3) Introduction to research literature and methodology; stress on interpretation, sources, and research reporting.  
Effective: Fall 1981  
Prerequisite: student teaching or teaching experience

**C I 405 (EDLDR 405) Strategies in Classroom Management** (3) Managing and coping with disruptive student behavior in instructional settings so that they support the teaching/learning process.

Effective: Fall 2008

Prerequisite: teaching experience or supervised practicum experience

**C I 412W Secondary Teaching (3)** Study of the teacher's responsibilities, steps in planning instruction, and various strategies for implementing and assessing teaching.

Effective: Spring 2007

Prerequisite: C I 295EDPSY 014EDTHP 115

**C I 494H Research Techniques in Curriculum and Instruction (1-3)** Examination, application, assessment, and presentation of research modes and techniques in Curriculum and Instruction. Limited to University scholars in the College of Education.

Effective: Spring 1988

Prerequisite: second-semester standing

**C I 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Fall 2001

Prerequisite: prior approval of proposed assignment by instructor

**C I 495A Clinical Application of Instruction--PK--4 (3)** Practicum situation for demonstration of selected instructional strategies and management skills acquired in professional training. To be offered only for Satisfactory/Unsatisfactory grading.

Effective: Spring 2014

Prerequisite: C I 295EDPSY 014EDTHP 115 . Official clearances required. See:

<http://www.ed.psu.edu/preservice/clearance.htm> Concurrent: regular professional methods courses in area of certification.

**C I 495B Clinical Application of Instruction--Middle Level Education (3)** Practicum situation for demonstration of selected instructional strategies and management skills acquired in professional training. To be offered only for Satisfactory/Unsatisfactory grading.

Effective: Spring 2014

Prerequisite: C I 295EDPSY 014EDTHP 115 . Official clearances required. See:

<http://www.ed.psu.edu/preservice/clearance.htm> Concurrent: MTHED 420 SCIED 458 SS ED 430W

**C I 495C Clinical Application of Instruction--Secondary Education (3)** Practicum situation for demonstration of selected instructional strategies and management skills acquired in professional training. To be offered only for Satisfactory/Unsatisfactory grading.

Effective: Spring 1997

Prerequisite: C I 295EDPSY 014EDTHP 115 . Official clearances required. See:

<http://www.ed.psu.edu/preservice/clearance.htm> Concurrent: C I 412 and special methods course(s) in area of certification

**C I 495D Practicum in Student Teaching--Childhood and Early Adolescent Education (12)** Full-time classroom instruction in early childhood and elementary education. Students supervised by University personnel and practicing teachers. No concurrent courses other than C I 495F permitted.

Effective: Spring 2014

Prerequisite: C I 495A or C I 495B ; a grade of C or higher in all specified and professional courses. Official clearances required. See: <http://www.ed.psu.edu/preservice/clearance.htm>

**C I 495E Practicum in Student Teaching--Secondary Education (15)** Full-time classroom instruction in secondary education. Students supervised by university personnel and practicing teachers. No concurrent courses permitted.

Effective: Spring 1997

Prerequisite: C I 495C seventh-semester standing and grade of C or higher in all specified and professional courses. Official clearances required. See: <http://www.ed.psu.edu/preservice/clearance.htm>

**C I 495F Professional Development Practicum (3)** Instruction concurrent with student teaching practicum. Students focus on the solution of instructional problems identified at the practicum site.

Effective: Spring 1997

Prerequisite: Official clearances required. See: <http://www.ed.psu.edu/preservice/clearance.htm> Concurrent: C I 495D

**C I 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**C I 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**C I 497B CEAED Disciplinary Inquiry Block (12)** Block of four 3 credit courses required of all students in CEAED major including C I 495A, MTHED 420, SCIED 458 and SS ED 430W..

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**C I 497B CEAED Discipline Inquiry Block (12)** Course serves as block until CEAED students are registered by Department for appropriate section of MTHED 420, SCIED 458, SS ED 430W and C I 495A.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**C I 497C IUG and Honors Thesis Writing Workshop** (3) Workshop offering support for students writing theses in the Readings/SPLED IUG as well as Honors theses in any education major.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**C I 497E Teaching Reading and Writing to English Language Learners** (3) This course prepares teachers to develop literacy instruction that supports the social, emotional, cultural, linguistic, and academic development of ELLs.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**C I 497F Analyses of Classroom Interaction** (3) This course introduces students to foundational discourse-analytic studies in education and widely-used analytic techniques through hands-on data analysis sessions.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**C I 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

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## Curriculum and Supervision (C & S)

C & S 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

C & S 470 **Workshop in Selected Studies in Curriculum** (1-6) Intensive work on selected current problems in curriculum.  
Effective: Winter 1978  
Prerequisite: 12 credits in education and teaching experience

C & S 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

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## Dance (DANCE)

DANCE 100 (GA;US;IL) **Dance Appreciation** (3) Explore dance as a vital, communicative and performing art, reflecting social values and cultural beliefs.  
Effective: Fall 2007

DANCE 101 **Dance and Rhythmic Fundamentals** (1) Fundamental components of rhythm, dance movement, and technique.  
Effective: Summer 1999

DANCE 170 (GHA) **Conditioning for Dancers** (1.5 per semester/maximum of 3) This course is designed to improve technique through strengthening, toning, improving coordination, increasing balance, and helping alignment. The course also addresses common areas of injury.  
Effective: Spring 2013  
Prerequisite: and dance course

DANCE 199 (IL) **Dance Foreign Study** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2014

DANCE 220 **Mojah Fusion Dance** (1.5 per semester/maximum of 3) Mojah introduces intermediate/advanced level dance students to a unique dance technique that blends Horton, Dunham, West African and jazz movements in one form.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: DANCE 231DANCE 241 orDANCE 261 or permission of the program

DANCE 221 **Introduction to African Dance and Culture** (1) An introduction to African dance based in a holistic approach integrating music, movement, drama, costume, and vocalization.  
Effective: Spring 2015 Future: Spring 2015

DANCE 222 **Beginning Hip Hop Dance** (1) Beginning Hip Hop dance introduces the student to Hip Hop culture through dance, free expression with the body/freestyle and choreography.  
Effective: Spring 2015 Future: Spring 2015

DANCE 230 (GA) **Ballet** (1.5 per semester/maximum of 6) An exploration of Ballet technique.  
Effective: Summer 2012

DANCE 231 **Beginning Ballet I** (1.5) An introduction to the techniques of ballet.  
Effective: Spring 2006  
Prerequisite: admission into Musical Theatre Major

DANCE 232 **Beginning Ballet II** (1.5) A continuation of Beginning Ballet I to augment technical proficiency.  
Effective: Spring 2006  
Prerequisite: DANCE 231

DANCE 240 (GA) **Jazz Dance** (1.5 per semester/maximum of 6) An exploration of jazz dance technique throughout history.  
Effective: Summer 2012

DANCE 241 **Beginning Jazz I** (1.5) An introduction to the techniques of Jazz dance.  
Effective: Spring 2006  
Prerequisite: DANCE 232

DANCE 242 **Beginning Jazz II** (1.5) A continuation of Beginning Jazz I to augment technical proficiency.  
Effective: Spring 2006  
Prerequisite: DANCE 241

DANCE 250 (GA) **Tap Dance** (1.5 per semester/maximum of 6) An exploration of tap dance technique throughout history.  
Effective: Summer 2012

DANCE 251 **Beginning Tap I** (1.5) An introduction to the technique of tap dance.  
Effective: Spring 2006  
Prerequisite: DANCE 232

DANCE 252 **Beginning Tap II** (1.5) A continuation of Beginning Tap I to augment technical proficiency.  
Effective: Spring 2006  
Prerequisite: DANCE 251

DANCE 261 (GA) **Beginning Modern Dance I** (1.5 per semester/maximum of 6) Introduction to modern dance as an art form; development of dance technique and composition; teaching methods for improvisational skills.  
Effective: Spring 2013

**DANCE 262 Beginning Modern Dance II (1.5)** A continuation of Beginning Modern Dance I to augment technical proficiency and to further comprehension of choreographic methods.

Effective: Spring 2006

Prerequisite: DANCE 261

**DANCE 270 (GHA) Introduction to Bartenieff Fundamentals (3)** Physical and theoretical approach to movement: facilitates efficiency, and expression through dynamic alignment, mobility, kinesthetic awareness; reduce physical injuries.

Effective: Spring 2003

**DANCE 271 (GH) From Africa to Hip Hop- The Evolution of African American Dance History (3)** From Africa to Hip Hop- Evolution of African-American Dance History will explore the history of African related dance from its beginnings in West Africa through the contemporary expressions of Hip Hop.

Effective: Summer 2012 Ending: Fall 2014

**DANCE 280 Dance Improvisation (1)** Introduction to the concepts and techniques of dance improvisation.

Effective: Spring 2001

Prerequisite: DANCE 261

**DANCE 281 Introduction to African Dance and Culture (1)** An introduction to African dance based in a holistic approach integrating music, movement, drama, costume, and vocalization.

Effective: Spring 1999 Ending: Fall 2014

**DANCE 282 Mojah Fusion Dance (1.5 per semester/maximum of 3)** Mojah introduces intermediate/advanced level dance students to a unique dance technique that blends Horton, Dunham, West African and jazz movements in one form.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: DANCE 231DANCE 241 orDANCE 261 or permission of the program

**DANCE 283 Beginning Hip Hop Dance (1)** Beginning Hip Hop dance introduces the student to Hip Hop culture through dance, free expression with the body/freestyle and choreography.

Effective: Summer 2007 Ending: Fall 2014

**DANCE 285 Contemporary Dance Performance (1-2 per semester/maximum of 8)** Contemporary Dance Performance is designed to introduce the beginning performer to the choreographic and rehearsal process as preparation for performance.

Effective: Summer 2012

**DANCE 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 1999

**DANCE 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1999

**DANCE 297A Fundamentals of Teaching (3)** This course is designed to provide prospective dance teachers with opportunities to develop concepts of pedagogy based on principles of teaching. Course focuses on the development and production of dance classes designed for children K-12. Students learn how to develop a curriculum, how to write class plans, how to determine appropriate skill sets by age, the use of improvisation, and how to choreography interactive performances.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: DANCE 230DANCE 261 or permission of program

**DANCE 297B Contact Improvisation (2)** Contact Improvisation explores the vast potential for movement generated by two or more people, communicating spontaneously through weight, motion and touch. Through the physical principles of touch, momentum, and weight sharing, this course explores the skills of falling, rolling, counterbalance, lifting using minimal effort, how to make ourselves light when being lifted, centering and breathing techniques, and responsiveness to our partners and surroundings. Traditional dance backgrounds is not needed. Each class is an exploration into the potential of what is possible through movement.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**DANCE 297C (AAA S 297C) Introduction to Afro-Brazilian, Afro-Caribbean and West African Dances (3)** Movement of the Orixas, Afro Brazilian dance, movements of the Caribbean, and contemporary West African dances.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**DANCE 299 (IL) Dance Foreign Study (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2014

**DANCE 301 Movement Analysis (2)** Introduce student to principles of practical and abstract movement analysis to determine individual physical limitations and potentials.

Effective: Spring 2001

**DANCE 320 Intermediate Mojah Fusion Dance** (1.5 per semester/maximum of 9) Intermediate Mojah continues instruction for intermediate level dance students and builds on the technical training of Beginning Mojah 7.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: DANCE 220 or permission of the program

**DANCE 331 Intermediate Ballet I** (1.5 per semester/maximum of 6) A continuation of the course work established in Beginning Ballet II.

Effective: Spring 2013

Prerequisite: DANCE 230 or permission of the program

**DANCE 332 Intermediate Ballet II** (1.5 per semester/maximum of 6) A continuation of the course work established in Intermediate Ballet I.

Effective: Spring 2013

Prerequisite: DANCE 230 or permission of the program

**DANCE 341 Intermediate Jazz I** (1.5) A continuation of the course work established in DANCE 242, Beginning Jazz II.

Effective: Spring 2006

Prerequisite: DANCE 242

**DANCE 342 Intermediate Jazz II** (1.5) A continuation of the course work established in DANCE 341, Intermediate Jazz I.

Effective: Spring 2006

Prerequisite: DANCE 341

**DANCE 361 (GA) Intermediate Modern Dance I** (1.5 per semester/maximum of 6) Development of techniques and principles of modern dance on the intermediate level.

Effective: Spring 2013

Prerequisite: DANCE 262

**DANCE 362 (GA) Intermediate Modern Dance II** (1.5 per semester/maximum of 6) A continuation of Modern Dance I to augment technical proficiency.

Effective: Spring 2013

Prerequisite: DANCE 361

**DANCE 365 Contemporary Movement Lab I** (3) An intermediate level modern dance technique utilizing improvisation to enhance technical and performance issues: alignment, connection, balance, transition, expression, discovery.

Effective: Summer 2012

Prerequisite: any 200 level technique course or program permission

**DANCE 366 Contemporary Movement Lab II** (3) An intermediate level modern dance technique utilizing composition to enhance technical and performance issues: alignment, connection, balance, transition, expression, discovery.

Effective: Summer 2012

Prerequisite: any 200 level technique class or program permission

**DANCE 370 (GN) Anatomy for Performers** (3) To provide performers with anatomical theory and concepts applicable to the disciplines of the performing arts.

Effective: Summer 2012

Prerequisite: DANCE 270 or THEA 102

**DANCE 371 Music Theatre Dance--Style I** (1.5) A practical study of dance styles from the 1890'S to the 1990'S.

Effective: Spring 2006 Ending: Fall 2014

Prerequisite: THEA 224

**DANCE 372 Music Theatre Dance--Style II** (1.5) A continuation of course work established in Music Theatre Dance Style I.

Effective: Spring 2006 Ending: Summer 2014

Prerequisite: DANCE 371

**DANCE 380 Dance Programming** (2) Theoretical and practical experiences in dance production and implementation of dance programs in various environments.

Effective: Summer 1999

**DANCE 381 Dance Composition I** (2) Introduction to the basic principles and craft of choreography.

Effective: Spring 2006

**DANCE 382 Music Theatre Dance--Style I** (1.5) A practical study of dance styles from the 1890'S to the 1990'S.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: THEA 224

**DANCE 383 Intermediate Mojah Fusion Dance** (1.5 per semester/maximum of 9) Intermediate Mojah continues instruction for intermediate level dance students and builds on the technical training of Beginning Mojah 7.

Effective: Summer 2012 Ending: Summer 2014

Prerequisite: DANCE 282 or permission of the program

**DANCE 384 Music Theatre Dance--Style II** (1.5) A continuation of course work established in Music Theatre Dance Style I.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: DANCE 382

**DANCE 385 Leadership Practicum: Dance** (1) Supervised experiences in teaching and assisting with the teaching of dance techniques.

Effective: Spring 2000

Prerequisite: DANCE 362

**DANCE 399 (IL) Dance Foreign Study** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2011

**DANCE 410 (US;IL) Dance History** (3) Survey of dance history concerning perspectives of culture, race, and gender with a focus on Nineteenth and Twentieth centuries.

Effective: Fall 2014 Future: Fall 2014

**DANCE 411 (GH) From Africa to Hip Hop- The Evolution of African American Dance History** (3) From Africa to Hip Hop- Evolution of African-American Dance History will explore the history of African related dance from its beginnings in West Africa through the contemporary expressions of Hip Hop.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: DANCE 261

**DANCE 422 Advanced Hip Hop Dance** (1.5) Advanced Hip Hop Dance reinforces and expands concepts from Beginning Hip Hop Dance. Free expression of the body, freestyle, and choreography are emphasized.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: DANCE 222

**DANCE 431 Advanced Ballet I** (1.5) An advanced ballet training course.

Effective: Spring 2006

Prerequisite: DANCE 232

**DANCE 432 Advanced Ballet II** (1.5) A continuation of Advanced Ballet I to augment technical proficiency.

Effective: Spring 2006

Prerequisite: DANCE 431

**DANCE 441 Advanced Jazz I** (1.5) An advanced course in the techniques of jazz dance.

Effective: Spring 2006

Prerequisite: DANCE 242

**DANCE 442 Advanced Jazz II** (1.5) A continuation of Advanced Jazz I to augment technical proficiency.

Effective: Spring 2006

Prerequisite: DANCE 441

**DANCE 451 Advanced Tap I** (1.5) An advanced course in the techniques of tap dance.

Effective: Spring 2006

Prerequisite: DANCE 252

**DANCE 452 Advanced Tap II** (1.5) A continuation of Advanced Tap I to augment technical proficiency.

Effective: Spring 2006

Prerequisite: DANCE 451

**DANCE 461 Advanced Modern Dance I** (1.5 per semester/maximum of 9) Development of dance technique and movement combinations on the advanced level.

Effective: Spring 2013

Prerequisite: DANCE 262 or permission of the program

**DANCE 462 Advanced Modern Dance II** (1.5 per semester/maximum of 9) A continuation of Advanced Modern Dance I to augment technical proficiency.

Effective: Spring 2013

Prerequisite: DANCE 461 or permission of the program

**DANCE 466 Contemporary Movement Lab III** (3 per semester/maximum of 6) An advanced exploration of modern dance techniques supported by the choreographic process.

Effective: Summer 2012

Prerequisite: DANCE 365DANCE 366

**DANCE 472 Introduction to Laban Movement Analysis** (3) Observe and analyze movement elements by exploring concepts of Body, Effort, Shape, and Space to increase personal communication and expression.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: DANCE 261

**DANCE 480 Choreographic Projects** (2) Choreographic practicum experiences for concert performances.

Effective: Spring 2006

Prerequisite: DANCE 381

**DANCE 482 Introduction to Laban Movement Analysis** (3) Observe and analyze movement elements by exploring concepts of Body, Effort, Shape, and Space to increase personal communication and expression.

Effective: Summer 1999 Ending: Summer 2014

**DANCE 484 (US;IL) Dance History** (3) Survey of dance history concerning perspectives of culture, race, and gender with a focus on Nineteenth and Twentieth centuries.

Effective: Fall 2006 Ending: Summer 2014



DANCE 485 **Contemporary Dance Repertory** (1-2 per semester/maximum of 12) An advanced dance course in the choreographic process with emphasis on original choreography in performance.

Effective: Spring 2013

Prerequisite: permission of the program

DANCE 487 **Advanced Hip Hop Dance** (1.5) Advanced Hip Hop Dance reinforces and expands concepts from Beginning Hip Hop Dance. Free expression of the body, freestyle, and choreography are emphasized.

Effective: Summer 2007 Ending: Fall 2014

Prerequisite: DANCE 283

DANCE 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 1999

DANCE 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1999

DANCE 499 (IL) **Dance Foreign Study** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2014

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## **Dietetic Food Systems Management (D S M)**

**D S M 195 Field Experience in Community Dietetics** (3) Planning, preparation, and field experiences in community dietetic programs.

Effective: Summer 2011

Prerequisite: 3 credits in sociology

**D S M 295A Field Experience in Foodservice Management** (1-4) Supervised experience in a foodservice operation: analysis of food service systems.

Effective: Summer 2011

**D S M 295W Professional Staff Field Experience** (4) Methods of, and practice in, the client-oriented dietetic systems.

Effective: Summer 2011

Prerequisite: D S M 195;NUTR 251

**D S M 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2003

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## Early Childhood Education (E C E)

E C E 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

E C E 451 **Instruction in Early Childhood Education Derived from Development Theories** (3) Curriculum and instruction for early childhood education; program practice with pluralistic theoretical foundations for early childhood education.  
Effective: Spring 2014  
Prerequisite: HD FS 229 or HD FS 428 or HD FS 429

E C E 452 **Approaches to Contemporary Early Childhood Education Programs** (3) Description and analysis of early childhood programs; cycles, trends, progressions in early childhood education.  
Effective: Spring 1992  
Prerequisite: E C E 451

E C E 453 **parent Involvement in Home, Center, and Classroom Instruction** (2-3) Parent involvement, programs, and methodologies that strengthen bonds between home and community for educators of children.  
Effective: Spring 1992  
Prerequisite: 6 credits in education

E C E 454 (HD FS 454) **Development and Administration of Child Service Programs** (3) Planning, administering, and evaluating child service programs at several administrative levels using methods from relevant disciplines.  
Effective: Spring 1992  
Prerequisite: HD FS 453; C I 295 or HD FS 330

E C E 479 **The Young Child's Play as Educative Processes** (3) Young child's play as educative processes and uses of materials in curricular settings are examined.  
Effective: Spring 2007  
Prerequisite: E C E 451; HD FS 229 or HD FS 429 or PSYCH 415

E C E 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1991

E C E 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1991

E C E 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

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## Earth Sciences (EARTH)

**EARTH 002 (GN) The Earth System and Global Change** (3) An interdisciplinary introduction to the processes, interactions and evolution of the earth's biosphere, geosphere and hydrosphere.  
Effective: Fall 2007

**EARTH 100 (GN) Environment Earth** (3) Natural processes and their relationship to anthropogenic influences. General principles of global cycles and the role they play in natural hazards, global warming, ozone depletion, etc.  
Effective: Fall 2004

**EARTH 100H (GN) Environment Earth: Environment and Energy** (3) Examination of climate change and energy issues.  
Effective: Summer 2014

**EARTH 101 (GN;US) Natural Disasters: Hollywood vs. Reality** (3) Analysis of the causes and consequences of natural disasters; comparison of popular media portrayal of disasters with perspective from scientific research.  
Effective: Summer 2005

**EARTH 103 (GN) Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century** (3) Climate predictions for the coming century are utilized to examine potential impacts on regions, sectors of society, and natural ecosystems.  
Effective: Summer 2000

**EARTH 105 (GN;IL) (AFR 105) Environments of Africa: Geology and Climate Change** (3) Significant natural features of Africa as related to human endeavor; case studies include the Nile, climate change, and natural resources.  
Effective: Spring 2013

**EARTH 106 (GN) The African Continent: Earthquakes, Tectonics and Geology** (3) Study of earthquakes and seismic waves to learn about the geology and plate tectonics of the African continent.  
Effective: Summer 2007

**EARTH 111 (GN;US) Water: Science and Society** (3) Investigation of water behavior and occurrence, its relevance to life, human activities, politics, and society.  
Effective: Summer 2006

**EARTH 150 (GN) Dinosaur Extinctions and Other Controversies** (3) Dinosaur extinctions and other major and controversial events in the history of life.  
Effective: Spring 2004

**EARTH 202 Modeling the Earth System** (3) A quantitative introduction to the evolution of Earth's biosphere, atmosphere, and hydrosphere, with emphasis on the carbon cycle and climate.  
Effective: Summer 2009  
Prerequisite: MATH 140 or MATH 110 or MATH 083; CHEM 110

**EARTH 240 (GN) Coral Reef Systems** (4) The geography, geology, biology ecology and chemistry of coral reef ecosystems; threats to reef environments; and techniques for reef surveying and monitoring; with local geologic and distant modern field studies.  
Effective: Spring 2012  
Prerequisite: Prerequisite or concurrent: KINES 045 or Nationally Recognized Scuba Certification

**EARTH 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**EARTH 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**EARTH 297A Coastal Processes, Hazards and Society** (3) This blended course will provide students with a global perspective of coastal landscapes, the processes responsible for their formation, diversity, and change over time, as well as societal responses to current changes in the coastal zones around the world.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**EARTH 297B (SCIED 297B) Fundamentals of Climate Science** (3) Address the meaning, variability and change of climate over time as a result of natural and man-made processes. Course is geared toward elementary ed majors but could be appropriate for EMS students interested in reform- based science education.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

EARTH 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

EARTH 400 **Earth Sciences Seminar** (3) Interdisciplinary study of environmental problems in the earth sciences.  
Effective: Spring 2001  
Prerequisite: seventh-semester standing in the Earth major

EARTH 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2001  
Prerequisite: prior approval of proposed assignment by instructor

EARTH 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

EARTH 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

EARTH 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

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## Earth and Mineral Sciences (EM SC)

EM SC 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

EM SC 100S (GWS) **Earth and Mineral Sciences First-Year Seminar** (3) Writing, speaking, and critical thinking skills applied to topics of general interest in Environmental and Materials Science.  
Effective: Spring 2001

EM SC 101 (US;IL) **Resource Wars** (3) "Resource Wars" presents an analysis of natural resources and how competition for them shapes national and international cultures and geopolitics.  
Effective: Summer 2006

EM SC 121 (GN) **Minerals and Modern Society** (3) Production and use of mineral resources in modern society with an emphasis on the interrelationships and their effect on the Earth system.  
Effective: Summer 1996

EM SC 150 (GN;IL) (S T S 150) **Out of the Fiery Furnace** (3) A history of materials, energy and man, with emphasis on their interrelationships. For nontechnical students.  
Effective: Spring 2006

EM SC 294 **Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1994

EM SC 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2007

EM SC 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

EM SC 300 **Professional e-Portfolio Development** (1 per semester) Design, creation and critique of on-line portfolios for personal and professional development. This course is for second-, third-, and fourth- year EMS students.  
Effective: Spring 2003

EM SC 302 **Orientation to Energy and Sustainability Policy** (1) Orientation to goals of the Energy and Sustainability Policy program and resources available to help students succeed.  
Effective: Summer 2010

EM SC 420 (SOC 420, S T S 420) **Energy and Modern Society** (3) Technology and economics of energy resources, production, and consumption; environmental factors, exhaustion, new technology.  
Effective: Fall 1986

EM SC 440 **Science Diving** (4) Advanced scuba diving skills applied to underwater research.  
Effective: Spring 2012  
Prerequisite: basic open water SCUBA certification and approval of program

EM SC 441 **Advanced Science Diving** (4) Advanced scuba diving skills applied to underwater data collection and research.  
Effective: Summer 2011  
Prerequisite: successful completion of EM SC 440 or waiver by University Dive Safety Officer based on acceptable demonstration of practical and academic dive experience

EM SC 470W **Undergraduate Collaborative Research in Earth and Materials Sciences** (1-6 per semester/maximum of 6) Interdisciplinary research seminar involving students in the process of discovery, writing, and debate on issues of broad interest to Earth and Materials Sciences.  
Effective: Spring 2013

EM SC 494 **Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1994

EM SC 494H **Research Project Courses** (1-12) Supervised student activities on research projects identified on an

individual or small-group basis.  
Effective: Fall 2007

EM SC 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2003

EM SC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

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## Economics (ECON)

ECON 014 (GS) **Principles of Economics** (3) Analysis of the American economy, emphasizing the nature and interrelationships of such groups as consumers, business, governments, labor, and financial institutions. Students who have passed ECON 002 or 004 or are registered in the College of Business Administration may not schedule this course. Effective: Spring 2003

ECON 083S (GS) **First-Year Seminar in Economics** (3) Experiments in microeconomic principles. Effective: Summer 1999

ECON 102 (GS) **Introductory Microeconomic Analysis and Policy** (3) Methods of economic analysis and their use; price determination; theory of the firm; distribution. Effective: Spring 2011

ECON 102H (GS) **Honors Introductory Microeconomic Analysis and Policy** (3) Methods of economic analysis and their use; price determination; theory of the firm; distribution. Effective: Summer 2011

ECON 104 (GS) **Introductory Macroeconomic Analysis and Policy** (3) National income measurement; aggregate economic models; money and income; policy problems. Effective: Spring 2011

ECON 104H (GS) **Honors Introductory Macroeconomic Analysis and Policy** (3) National income measurement; aggregate economic models; money and income; policy problems. Effective: Summer 2011

ECON 106 **Statistical Foundations for Econometrics** (3) Basic statistical concepts used in economics. Topics include probability distributions, expectations, estimation, hypothesis testing, correlation, and simple regression. Students who have completed ECON 306 may not schedule this course. Effective: Spring 2011

ECON 106H **Statistical Foundations for Econometrics** (3) Basic statistical concepts used in economics. Topics include probability distributions, expectations, estimation, hypothesis testing, correlation, and simple regression. Students who have completed ECON 306 may not schedule this course. Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ECON 197 **Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. Effective: Spring 1995

ECON 199 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction. Effective: Summer 2005

ECON 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis. Effective: Summer 1994

ECON 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses. Effective: Spring 2008

ECON 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest. Effective: Fall 1992

ECON 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction. Effective: Summer 2005

ECON 302 (GS) **Intermediate Microeconomic Analysis** (3) Allocation of resources and distribution of income within various market structures, with emphasis on analytical tools. Effective: Spring 2011  
Prerequisite: ECON 102

ECON 302H (GS) **Intermediate Microeconomic Analysis (Honors)** (3) Allocation of resources and distribution of income



within various market structures, with emphasis on analytical tools.

Effective: Spring 2011

Prerequisite: ECON 102 and MATH 110 or MATH 140

**ECON 304 (GS) Intermediate Macroeconomic Analysis (3)** Analysis of forces that determine the level of aggregate economic activity.

Effective: Spring 2011

Prerequisite: ECON 104

**ECON 304H (GS) Intermediate Macroeconomic Analysis (Honors) (3)** Analysis of forces that determine the level of aggregate economic activity.

Effective: Spring 2011

Prerequisite: ECON 104 and MATH 110 or MATH 140

**ECON 306 Introduction to Econometrics (3)** The implementation of statistical techniques to analyze data and address economic questions. Econometric results are produced and assessed.

Effective: Spring 2010

Prerequisite: ECON 106

**ECON 306H Introduction to Econometrics (3)** The implementation of statistical techniques to analyze data and address economic questions. Econometric results are produced and assessed.

Effective: Spring 2012

Prerequisite: ECON 106 or ECON 390; MATH 110 or MATH 140

**ECON 315 (GS) Labor Economics (3)** Economic analysis of employment, earnings, and the labor market; labor relations; related government policies.

Effective: Spring 2011

Prerequisite: ECON 102

**ECON 323 (GS) Public Finance (3)** Contemporary fiscal institutions in the United States; public expenditures; public revenues; incidence of major tax types; intergovernmental fiscal relations; public credit.

Effective: Spring 2011

Prerequisite: ECON 102

**ECON 333 (GS) International Economics (3)** Why nations trade, barriers to trade, balance of payments adjustment and exchange rate determination, eurocurrency markets, and trade-related institutions.

Effective: Spring 2011

Prerequisite: ECON 102, ECON 104 or ECON 014

**ECON 342 (GS) Industrial Organization (3)** Industrial concentration, size, and efficiency of business firms, market structure and performance, competitive behavior, public policy and antitrust issues.

Effective: Spring 2011

Prerequisite: ECON 102

**ECON 351 Money and Banking (3)** Money, credit, commercial and central banking, financial intermediaries, treasury operations, monetary theory and policy, and foreign exchange. Students who have already taken Econ. 451 may not schedule this course.

Effective: Spring 2011

Prerequisite: ECON 102 or ECON 104

**ECON 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

**ECON 397 Special Topics (1-9)** Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2008

**ECON 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**ECON 400M Honors Seminar in Economics (3-12)** Readings, discussion, and oral and written reports on selected topics in economics.

Effective: Spring 1993

Prerequisite: ECON 302, ECON 304 fifth-semester standing admission into Honors program

**ECON 401 History of Economic Thought (3)** Survey of economic ideas from Greco-Roman times to the present.

Effective: Spring 2001

Prerequisite: ECON 302 or ECON 304

**ECON 402 Decision Making and Strategy in Economics (3)** Development and application of the tools for decision making under uncertainty and for game theoretic analysis of economic problems.

Effective: Spring 2007

Prerequisite: ECON 302; SCM 200 or STAT 200

**ECON 403 The Economics of Arts and Entertainment (3)** Supply and demand of creative goods and services; industry structures; role of information; policy issues.

Effective: Spring 2013

Prerequisite: ECON 302 and ECON 306

**ECON 404W Current Economic Issues** (3) An analytical survey of significant problems of current economic policy and the application of economic analysis to important social issues.

Effective: Spring 1993

Prerequisite: ECON 302 or ECON 304

**ECON 406 The Economics of Social Conflict** (3) Economic theory of the resolution of social conflicts: social choice theory, voting, noncooperative games, voluntary trade, and allocation by force.

Effective: Spring 2013

Prerequisite: ECON 402 and MATH 110 or MATH 140

**ECON 406W The Economics of Social Conflict** (3) Economic theory of the resolution of social conflicts: social choice theory, voting, noncooperative games, voluntary trade, and allocation by force.

Effective: Summer 2008

Prerequisite: ECON 402 and MATH 110 or MATH 140

**ECON 407 Political Economy** (3) Applications of the tools of game theory to analyze topics in collective decision making.

Effective: Spring 2013

Prerequisite: ECON 402

**ECON 407W Political Economy** (3) Applications of the tools of game theory to analyze topics in collective decision making.

Effective: Summer 2008

Prerequisite: ECON 402

**ECON 408 Intellectual Property** (3) A comparative and cost-benefit analysis of intellectual property that examines patents, copyrights, governmental supported research, and prizes.

Effective: Spring 2013

Prerequisite: ECON 402 or ECON 444

**ECON 408W Intellectual Property** (3) A comparative and cost-benefit analysis of intellectual property that examines patents, copyrights, government supported research, and prizes.

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 444

**ECON 409 Economics of Terrorism** (3) Terrorism throughout history; economic causes, costs, sources, and consequences.

Effective: Spring 2013

Prerequisite: ECON 402

**ECON 409W Economics of Terrorism** (3) Terrorism throughout history; economic causes, costs, sources, and consequences.

Effective: Summer 2008

Prerequisite: ECON 402

**ECON 410 Economics of Labor Markets** (3) Economic analysis of the employment relationship from the microeconomic perspective, with emphasis on current labor-market problems and public policy issues.

Effective: Spring 2011

Prerequisite: ECON 102

**ECON 411 Behavioral Economics** (3) Topics in behavioral economics; selected games; evolutionary models of social behavior, herding, overconfidence.

Effective: Spring 2013

Prerequisite: ECON 402 or ECON 444

**ECON 411W Behavioral Economics** (3) Topics in behavioral economics; selected games; evolutionary models of social behavior; culture and social behavior; herding; overconfidence.

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 444

**ECON 412 Labor Economics and Labor Markets: Theory, Evidence, and Policy** (3) Advanced topics in labor economics: theory, empirical evidence, and policy.

Effective: Spring 2009

Prerequisite: ECON 302 or ECON 315

**ECON 413 Economic Growth and the Challenges of World Poverty** (3) Challenges imposed by poverty; growth; growth rates; microfinance; foreign aid.

Effective: Spring 2013

Prerequisite: ECON 471

**ECON 413W Economic Growth and the Challenge of World Poverty** (3) Economic prosperity in historical perspective; recent successes (East Asia, China, India); ongoing challenges (the bottom billion; sub-Saharan Africa).

Effective: Summer 2008

Prerequisite: ECON 471

**ECON 414 The Economic Way of Looking at Life** (3) Economics/life according to Gary Becker: criminal behavior; economics of the family (marriage, divorce, intrahousehold resource allocation, bequests), policy issues.

Effective: Spring 2013

Prerequisite: ECON 412

**ECON 415 The Economics of Global Climate Change** (3) Evidence on climate change; economic models of the environment and market failure; cost-benefit analysis of policy options; carbon markets.

Effective: Spring 2013

Prerequisite: ECON 302 and ECON 306

**ECON 415W The Economics of Global Climate Change** (3) Evidence on climate change; economic models of the environment and market failure; cost-benefit analysis of policy options; carbon markets.

Effective: Summer 2008

Prerequisite: ECON 428

**ECON 417 The Economics of Uncertainty** (3) Uncertainty and Risk as related to finance, insurance, health, labor, industrial organization, and macroeconomics.

Effective: Spring 2013

Prerequisite: ECON 402 or ECON 444

**ECON 417W The Economics of Uncertainty** (3) Uncertainty is examined in contracts, with an emphasis on limited liability. Asymmetric information and economic puzzles are also considered.

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 444

**ECON 418 A Comparative and Cost-Benefit Analysis of State Government Activities** (3) This course examines federalism with a particular focus on the activities undertaken by the state of Pennsylvania.

Effective: Spring 2013

Prerequisite: ECON 306

**ECON 418W A Comparative and Cost-Benefit Analysis of State Government Activities** (3) This course examines federalism with a particular focus on the activities undertaken by the state of Pennsylvania.

Effective: Summer 2008

Prerequisite: ECON 490

**ECON 421 Analysis of Economic Data** (3) Economic analysis of data: sources, variable definitions, miscodings, missing observations, censoring and truncation, applications.

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 451; ECON 490

**ECON 422 Applying Monetary Theory and Monetary History** (3) Monetary history is examined. Special attention is paid to commodity-based systems, private money, and government monopolies on currency.

Effective: Spring 2013

Prerequisite: ECON 451

**ECON 422W Applying Monetary Theory to Monetary History** (3) Monetary history is examined. Special attention is paid to commodity-based systems, private money, and government monopolies on currency.

Effective: Summer 2008

Prerequisite: ECON 451

**ECON 424 Income Distribution** (3) Inequality and poverty in the United States, measurement problems, determinants of inequality, arguments for and against equality, impact of redistributive policies.

Effective: Fall 1992

Prerequisite: ECON 302; ECON 315 or ECON 323

**ECON 425 Economics of Public Expenditures** (3) Analytic and policy aspects of public expenditure decisions; applications from areas of contemporary public interest.

Effective: Summer 1992

Prerequisite: ECON 302 or ECON 323

**ECON 427 Economics of Energy and Energy Security** (3) Energy economics studies topics related to the supply, energy markets, and environmental impacts of energy use.

Effective: Spring 2013

Prerequisite: ECON 302

**ECON 428 Environmental Economics** (3) Environmental pollution, the market economy, and optimal resource allocation; alternative control procedures; levels of environmental protection and public policy.

Effective: Summer 1992

Prerequisite: ECON 302 or ECON 323

**ECON 429 Public Finance and Fiscal Policy** (3) Analysis of public revenue and expenditure structure primarily at the federal level; federalism; fiscal policy and public debt.

Effective: Fall 1983

Prerequisite: ECON 323; ECON 302 or ECON 304

**ECON 430 Regional Economic Analysis** (3) Analysis of personal and industrial location decisions, regional economic growth, migration patterns, and regional policy; emphasis on tools and techniques.

Effective: Spring 2011

Prerequisite: ECON 102 or ECON 104

**ECON 432 Urban Economics** (3) Theories and methods for economic analysis of such urban problems as housing, segregation, government services, and transportation.

Effective: Summer 1992

Prerequisite: ECON 302 or ECON 323

**ECON 433 Advanced International Trade Theory and Policy** (3) Causes/consequences of trade; effects of tariffs and

quotas; strategic trade policy; political economy of trade restrictions and other topics.

Effective: Summer 1992

Prerequisite: ECON 302 orECON 333

**ECON 434 International Finance and Open Economy Macroeconomics** (3) Trade balance movements, exchange rate determination; monetary and fiscal policies in open economies; international policy coordination; the world monetary system.

Effective: Spring 1992

Prerequisite: ECON 304 orECON 333

**ECON 436 Economics of Discrimination** (3) Analysis of the economic characteristics of women and minorities; with examination of race and sex discrimination and related government policies.

Effective: Spring 2013

Prerequisite: ECON 302 orECON 315

**ECON 436W (US) Economics of Discrimination** (3) Analysis of the economic characteristics of women and minorities, with examination of race and sex discrimination and related government policies.

Effective: Fall 2007

Prerequisite: ECON 302 orECON 315

**ECON 437 Multinationals and the Globalization of Production** (3) Globalization entails many dimensions: trade, migration, FDI, offshoring, cross-border licensing of technologies.

Effective: Spring 2013

Prerequisite: ECON 433

**ECON 437W Multinationals and the Globalization of Production** (3) This course will focus on trade, multinationals and offshoring, and explore their implications for the U.S. and developing countries.

Effective: Summer 2008

Prerequisite: ECON 433

**ECON 438 Winners and Losers from Globalization** (3) Globalization, US, International, Trade, Finance, Growth, Labor, Industrial Organization, Political Economics.

Effective: Spring 2013

Prerequisite: ECON 306 andECON 433

**ECON 438W Winners and Losers from Globalization** (3) The economic effects of globalization on individuals, governments, nation- states and business.

Effective: Summer 2008

Prerequisite: ECON 433 andECON 490

**ECON 439 Economics of Technology Diffusion** (3) Technology Diffusion: Globalization, productivity measurement, intellectual property.

Effective: Summer 2008

Prerequisite: ECON 433

**ECON 442 Managerial Economics** (3) Application of economic theory to managerial decision making; risk, uncertainty; models and statistical techniques.

Effective: Spring 2011

Prerequisite: ECON 102

**ECON 443 Economics of Law and Regulation** (3) An economic analysis of property rights, contractual arrangements, illegal activities, and regulation; competitive problems due to externalities and market failure.

Effective: Summer 1992

Prerequisite: ECON 302 orECON 342

**ECON 444 Economics of the Corporation** (3) Coordination and incentive issues within a corporation. Topics include employment contracts, performance incentives and pricing of financial assets.

Effective: Summer 1997

Prerequisite: ECON 302

**ECON 445 (H P A 445) Health Economics** (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.

Effective: Spring 1994

Prerequisite: ECON 302ECON 315 orECON 323

**ECON 445W (H P A 445W) Health Economics** (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.

Effective: Spring 2008

Prerequisite: ECON 302ECON 315 orECON 323

**ECON 446 Economics of Industry Evolution** (3) Dynamics of industry evolution; empirical evidence and theoretical modeling of firm entry, growth, and exit; entrepreneurship; investment and strategic behavior.

Effective: Spring 2013

Prerequisite: ECON 306 andECON 444

**ECON 446W Economics of Industry Evolution** (3) Dynamics of industry evolution; empirical evidence and theoretical modeling of firm entry, growth, and exit; entrepreneurship; investment and strategic behavior.

Effective: Summer 2008

Prerequisite: ECON 444 andECON 490

**ECON 447 Economics of Sports** (3) Topics in sports; demand, owners, ticket resale, leagues, markets, efficiency,

antitrust, discrimination, collegiate sports.

Effective: Spring 2013

Prerequisite: ECON 302 orECON 306

**ECON 447W Economics of Sports (3)** Examination of economic issues pertaining to professional and collegiate sports, including analysis of industrial organization, labor markets, and local economies.

Effective: Spring 2009

Prerequisite: ECON 302 andECON 490

**ECON 448 Economics of Auctions and Procurements (3)** Theoretical and empirical analyses of auctions and procurements; different modeling environments; econometric analysis of auction and procurement data.

Effective: Spring 2013

Prerequisite: ECON 402 orECON 444ECON 306

**ECON 448W Economics of Auctions and Procurements (3)** Theoretical and empirical analyses of auctions and procurements; different modeling environments; econometric analysis of auction and procurement data.

Effective: Summer 2008

Prerequisite: ECON 402 orECON 444 andECON 490

**ECON 449 Economics of Collusion (3)** Collusion, Bidding Rings, Antitrust, Price Fixing, Incentives, Law

Effective: Spring 2013

Prerequisite: ECON 302 orECON 342 andECON 306

**ECON 449W Economics of Collusion (3)** Theoretical and empirical analysis of collusion among firms, case studies of cartel behavior, bidding behavior at auctions and procurements.

Effective: Spring 2008

Prerequisite: ECON 302 orECON 342 andECON 490 or permission of instructor

**ECON 450 The Business Cycle (3)** Measurement and theories of the business cycle; stabilization policies; forecasting.

Effective: Summer 1992

Prerequisite: ECON 304 orECON 351

**ECON 451 Monetary Theory and Policy (3)** Monetary and income theory; monetary and fiscal policy.

Effective: Winter 1978

Prerequisite: ECON 304 orECON 351

**ECON 452 Economics of the Financial Crisis (3)** This course studies the economics of financial crises with special emphasis on 2008.

Effective: Spring 2013

Prerequisite: ECON 304

**ECON 452W Financial Crises (3)** Examination of causes and consequences of financial crises; asset pricing theory, market efficiency, speculative bubbles; policy considerations.

Effective: Summer 2008

Prerequisite: ECON 451

**ECON 454 Economics of Mergers (3)** Economic analysis of horizontal and vertical mergers; econometric issues in measurement of unilateral and coordinated effects; policy issues.

Effective: Summer 2008

Prerequisite: ECON 444 andECON 490

**ECON 455 Economics of the Internet (3)** Economics of the Internet; electronic commerce and network economics; pricing issues; intellectual property.

Effective: Spring 2013

Prerequisite: ECON 402 orECON 444

**ECON 455W Economics of the Internet (3)** Economics of the Internet; electronic commerce and network economics; pricing issues; intellectual property.

Effective: Summer 2008

Prerequisite: ECON 402 orECON 444

**ECON 457 Economics of Organizations (3)** Consumers, Firms, Utility Maximization, Profit Function, Equilibrium, Firm Distribution.

Effective: Spring 2013

Prerequisite: ECON 402 orECON 444

**ECON 457W Economics of Organizations (3)** An advanced course in the economics of organizations. The focus is on coordination, incentives, contracts, and information in corporations.

Effective: Summer 2008

Prerequisite: ECON 402 orECON 444

**ECON 460 Issues in Sports Economics (3)** Economic analysis of professional and collegiate sports: organization, input and output markets, the public sector, decision-making, and public policy.

Effective: Summer 2013

Prerequisite: ECON 102 ; credit can be earned from taking ECON 447 or ECON 460 but not both

**ECON 463 (IL) Economic Demography (3)** Microeconomics of demographic behavior; interrelationships between demographic and economic factors, in developing and industrialized economies; economic welfare and policy implications.

Effective: Spring 2006

Prerequisite: ECON 302 orECON 304 ; or 9 credits in demography

**ECON 463W Economic Demography** (3) Microeconomics of demographic behavior; interrelationships between demographic and economic factors, in developing and industrialized economies; economic welfare and policy implications.

Effective: Summer 2008

Prerequisite: ECON 412 orECON 471 or 9 credits in demography

**ECON 465 Cross Sectional Econometrics** (3) Econometrics, simultaneous equations, discrete choice, sample selection.

Effective: Spring 2013

Prerequisite: ECON 106 andECON 306

**ECON 465W Cross Sectional Econometrics** (3) Discrete choice models, censored and truncated regression models, longitudinal models, applications.

Effective: Summer 2008

Prerequisite: ECON 302 andECON 490

**ECON 466 Panel Data Models** (3) Random and fixed effects, endogeneity, balanced and unbalanced panels, censoring of spells, differences in differences, applications.

Effective: Spring 2013

Prerequisite: ECON 302 andECON 306

**ECON 466W Panel Data Models** (3) Random and fixed effects, endogeneity, balanced and unbalanced panels, censoring of spells, differences in differences, applications.

Effective: Summer 2008

Prerequisite: ECON 302 andECON 490

**ECON 470 (IL) International Trade and Finance** (3) Economic analysis of why nations trade, barriers to trade, the international monetary system, and macroeconomic policy in an open economy.

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104

**ECON 471 Growth and Development** (3) Problems of capital formation, institutional considerations, theories of economic growth.

Effective: Summer 2011

Prerequisite: ECON 302 orECON 304 orECON 372

**ECON 472 Transition to Market Economies** (3) Economics of transition to a market economy; problems of former Soviet-type economies; privatization, stabilization, and institutional change.

Effective: Fall 2005

Prerequisite: ECON 302 orECON 304

**ECON 473 (IL) China in the Global Economy: History, Culture, and Society** (3) Analysis of China's role in the global economy and the impact on U.S. as well as global business and society.

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 or permission of program

**ECON 475 Migration and Development** (3) Human Capital Approach to Migration; Economics of Family Migration; Evidence: Micro and Macro Perspectives; Migration Policies.

Effective: Spring 2013

Prerequisite: ECON 471 orECON 412;ECON 306

**ECON 475W Migration and Development** (3) Human Capital Approach to Migration; Economics of Family Migration; Evidence: Micro and Macro Perspectives; Migration Policies.

Effective: Summer 2008

Prerequisite: ECON 471 orECON 412;ECON 490

**ECON 476 The Economics of Fertility in the Developing World** (3) Demand for children, supply of children, and costs of fertility regulation; fertility transition; public policies to affect fertility.

Effective: Spring 2013

Prerequisite: ECON 471 andECON 306

**ECON 476W The Economics of Fertility in the Developing World** (3) Demand for children, supply of children, and costs of fertility regulation; fertility transition; public policies to affect fertility.

Effective: Summer 2008

Prerequisite: ECON 471 andECON 490

**ECON 477 Labor Markets in Developing Countries** (3) Labor demand and supply in developing countries; urban and rural labor markets, modern and informal sectors; policy issues.

Effective: Summer 2008

Prerequisite: ECON 471 orECON 412

**ECON 478 Incomplete Markets** (3) Rural land markets, fragmented credit markets, risk and insurance, human capital and labor markets, innovation and technology spillovers, coordination failures.

Effective: Summer 2008

Prerequisite: ECON 471

**ECON 479 Economics of Matching** (3) Economic application of matching to employment, marriage, organ markets, and medical residents.

Effective: Spring 2013

Prerequisite: ECON 402 orECON 412ECON 444

**ECON 479W Economics of Matching** (3) Economic application of matching to employment, marriage, organ markets, and medical residents.

Effective: Summer 2008

Prerequisite: ECON 402 orECON 412 orECON 444

**ECON 480 Mathematical Economics** (3) Mathematical techniques employed in economic analysis; formal development of economic relationships.

Effective: Summer 1992

Prerequisite: ECON 302ECON 304MATH 110

**ECON 481 Business Forecasting Techniques** (3) A survey of contemporary business forecasting techniques, with emphasis on smoothing, decomposition, and regression techniques.

Effective: Spring 2008

Prerequisite: SCM 200 orSTAT 200

**ECON 483 Economic Forecasting** (3) Forecasting time series, using linear regression models and econometric software; useful forecasting models; financial and seasonal time series; trends.

Effective: Summer 2008

Prerequisite: ECON 490

**ECON 485 Econometric Techniques** (3) Applying statistical techniques to test and explain economic relationships; integration of economic theory with observed economic phenomena.

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104;SCM 200 orSTAT 200

**ECON 489M Honors Thesis** (1-6) No description.

Effective: Spring 1993

Prerequisite: ECON 302ECON 304 and admission into the departmental honors program

**ECON 490 Introduction to Econometrics** (3) Use of simple and multiple regression models in measuring and testing economic relationships. Problems including multicollinearity, hetroskedasticity, and serial correlation.

Effective: Summer 2000

Prerequisite: MATH 110ECON 390

**ECON 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

**ECON 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**ECON 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1995

Prerequisite: prior approval of proposed assignment by instructor

**ECON 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**ECON 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**ECON 499 (IL) Foreign Study--Economics** (2-6) Study in selected countries of economic institutions and current economic problems.

Effective: Spring 2011

Prerequisite: ECON 102ECON 104

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## Educ Leadership Prog (EDLDR)

EDLDR 405 (C I 405) **Strategies in Classroom Management** (3) Managing and coping with disruptive student behavior in instructional settings so that they support the teaching/learning process.

Effective: Fall 2008

Prerequisite: teaching experience or supervised practicum experience

EDLDR 409 **Leadership Studies in Popular Film** (3) In-depth analysis of leadership dynamics revealed in popular film. Focus on cinematic depictions of theory and practical application of leadership.

Effective: Spring 2012

Prerequisite: EDTHP 115 junior standing or permission of program

EDLDR 476 **The Teacher and the Law** (3) An introduction to education law as it affects the teacher.

Effective: Fall 2004

Prerequisite: 9 credits in education or the social sciences

EDLDR 480 **Introduction to Educational Leadership** (3) Development of educational leadership. Relationships among local, state, and federal agencies. Introduction to current concepts and theories.

Effective: Fall 2004

Prerequisite: 3 credits in social science sociology anthropology community development business administration or political science

EDLDR 485 **Principal as Instructional Leader** (3) Knowledge and skills principals need to lead instructional design and implementation.

Effective: Fall 2004

Prerequisite: EDLDR 480

EDLDR 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

EDLDR 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2012

EDLDR 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2004

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## Education (EDUC)

**EDUC 100S First-Year Seminar in Education (3)** Learning about a scholarly community through the development of knowledge and skills needed for successful participation in higher education.  
Effective: Fall 2007

**EDUC 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

**EDUC 199 (IL) Foreign Studies (1-12)** Study of educational topics in a country other than the United States.  
Effective: Summer 2007

**EDUC 294 Research Project Courses (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

**EDUC 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2010

**EDUC 302 Basic Preparation for Teaching (3)** Philosophical, psychological issues in education; instructional objectives, lesson planning; evaluation, grading procedures; assessment, instruction of individual children. Field experience.  
Effective: Spring 2001  
Prerequisite: admission into Elementary Education Major

**EDUC 303 Sensitivity to Special Learners (3)** This course is designed to examine the procedures, characteristics and strategies for working with special learners in the elementary school.  
Effective: Spring 2005 Ending: Summer 2014  
Prerequisite: seventh-semester standing in Elementary Education Major

**EDUC 303 Inclusive Practices in General Education Classrooms (3)** This course is designed to examine the procedures, characteristics and strategies for working with special learners in the elementary school.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: seventh-semester standing in Elementary Education Major

**EDUC 304 Classroom Organization and Management (3)** Organization, integration of the elementary school day; classroom management, control techniques; audio-visual techniques.  
Effective: Spring 2001  
Prerequisite: sixth-semester standing in Elementary Education Major

**EDUC 305 Creative Arts (3)** Experiences in self-expression through a variety of artistic media. Techniques for guiding children in artistic expression.  
Effective: Spring 2001 Ending: Fall 2014  
Prerequisite: admission into Elementary Education Major

**EDUC 305 Creative Arts (3)** Experiences in self-expression through a variety of visual and performing arts. Techniques for guiding school children in artistic expression.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: admission into Elementary Education Major

**EDUC 313 Field Observation (2)** Observation techniques; classroom observation and participation.  
Effective: Spring 2001  
Prerequisite: admission into Secondary Teacher Certification Program. Prerequisite or concurrent:EDUC 314

**EDUC 314 Learning Theory and Instructional Procedures (3)** Theories of learning in relation to instructional practices. Analysis of motivation, transfer of learning, and retention. Field practicum.  
Effective: Spring 2001  
Prerequisite: admission into Secondary Teacher Certification Program. Prerequisite or concurrent:EDUC 313

**EDUC 315W (US) Social and Cultural Factors in Education (3)** Critical examination of how different experiences linked to race, ethnicity, religion, gender, and sexual orientation influence education.  
Effective: Spring 2011  
Prerequisite: admission into Elementary Education Major or Secondary Teacher Certification Program

**EDUC 320 Methods in Teaching Beginning Readers (3)** Concepts, methods, and materials for developing beginning reading abilities, with emphasis on personalized instruction through diagnostic teaching.  
Effective: Spring 2001  
Prerequisite: sixth-semester standing in Elementary Education Major

**EDUC 321 Methods in Teaching Intermediate and Advanced Readers (3)** Concepts, methods, and materials for personalizing reading instruction with emphasis on extending personal and functional reading abilities beyond beginning reading.

Effective: Winter 1981  
Prerequisite: EDUC 320

**EDUC 322 Adolescent Literature and Developmental Reading (3)** Adolescent literature materials, reading principles, and practices suitable for an English class.  
Effective: Spring 2001 Ending: Fall 2014  
Prerequisite: admission into Secondary English Certification Program

**EDUC 322 Adolescent Literature and Developmental Reading (3)** Adolescent literature materials, reading principles, and practices suitable for an English class.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: admission into Secondary English Certification Program or Elementary Education 4-8 Language Arts/English Option

**EDUC 352 Teaching Language Arts (3)** Teaching the writing process, including speaking and listening skills in relation to oral and written composition.  
Effective: Spring 2001  
Prerequisite: sixth-semester standing in Elementary Education Major

**EDUC 353 Teaching Elementary Social Studies (3)** The theory and practice of elementary social studies instruction.  
Effective: Spring 2001  
Prerequisite: seventh-semester standing in Elementary Education Major

**EDUC 371 Teaching Music in the Elementary School (3)** Music methods course for elementary education majors; students will learn elements of music, and instructional techniques.  
Effective: Spring 2001  
Prerequisite: seventh-semester standing in Elementary Education Major

**EDUC 385 Professional Development in Teaching (3)** This course addresses practical issues central to the profession of teaching and, in some cases, specific to Pennsylvania.  
Effective: Spring 1995  
Prerequisite: eight-semester standing approval of program

**EDUC 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2010

**EDUC 397B Urban Teaching Collaborative Afterschool Online Tutoring (1)** Future teachers provide education support and mentorship to elementary school students from Isaac Sheppard Elementary Schools in Philadelphia.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**EDUC 400 Diversity and Cultural Awareness Practices in the K-12 Classroom (3)** This course addresses diversity, cultural awareness and sensitivity about cultures, concepts and methods in society, communities and educational settings.  
Effective: Summer 2008

**EDUC 401 Early Childhood Education (3)** Organization, methodology, and materials for nursery school and kindergarten programs.  
Effective: Winter 1981

**EDUC 402 Language Development, Self-Expression, and Literature in Early Childhood Education (3)** Examining the development of language and self-expression in young children, and the role of children's literature in facilitating development.  
Effective: Winter 1981 Ending: Fall 2014

**EDUC 402 Early Learning: Language and Concept Development (3)** Examining the development of language and self-expression in young children, and the role of children's literature in facilitating development.  
Effective: Spring 2015 Future: Spring 2015

**EDUC 403 Curriculum for Early Childhood (3)** Examining early childhood programs and methodology, focusing on areas of social studies, mathematics, and science.  
Effective: Winter 1981

**EDUC 404 Young Children's Behavior: Observation and Evaluation (3)** Observation, recording and evaluation of student behaviors, and the use of prescription techniques for early childhood students with special needs.  
Effective: Winter 1981

**EDUC 408 Administration of Early Childhood Education Programs (3)** The role of the early childhood administrator as it relates to regulations, staffing, management, funding and curriculum.  
Effective: Winter 1981  
Prerequisite: EDUC 401

**EDUC 410 The Child and Social Institutions (3)** The effects of the family on a child's development, especially in the infancy and preschool years.

Effective: Winter 1981

**EDUC 412 Early Literacy Intervention I** (3) Participants will better understand factors affecting early reading behavior through diagnostic techniques, observation techniques, and literacy intervention strategies.

Effective: Summer 1996

Prerequisite: permission of the program

**EDUC 415 Teaching Secondary Social Studies** (3) Study of the objectives, content, methods, and evaluation of procedures of social studies. Students design units and lesson plans.

Effective: Spring 2011 Ending: Fall 2014

Prerequisite: EDUC 314EDUC 315W and admission into Secondary Social Studies Certification Program

**EDUC 415 Teaching Secondary Social Studies** (3) Study of the objectives, content, methods, and evaluation of procedures of social studies. Students design units and lesson plans.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: EDUC 315W and admission into Teacher Education Programs

**EDUC 416 Teaching Secondary English and the Humanities** (3) Study of the objectives, content, and methods of English and humanities courses.

Effective: Spring 2011 Ending: Fall 2014

Prerequisite: EDUC 314EDUC 315W and admission into Secondary English Certification Program

**EDUC 416 Teaching Secondary English and the Humanities** (3) Study of the objectives, content, and methods of English and humanities courses.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: EDUC 315W and admission into Teacher Education Programs

**EDUC 417 Teaching Secondary Mathematics** (3) Study of the objectives, content, methods, and evaluation procedures of mathematics.

Effective: Spring 2011 Ending: Fall 2014

Prerequisite: EDUC 314EDUC 315W and admission into Secondary Mathematics Certification Program

**EDUC 417 Teaching Secondary Mathematics** (3) Study of the objectives, content, methods, and evaluation procedures of mathematics.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: EDUC 315W and admission into Teacher Education Programs

**EDUC 418 Positive Classroom Climate for Positive Attitudes About Learning** (3) Participants will learn strategies for creating classroom climates which encourage positive attitudes toward learning while preventing and correcting student misbehavior.

Effective: Summer 1995

Prerequisite: permission of program

**EDUC 421 Children's Literature** (3) Knowledge of literature appropriate for elementary school children and utilization of literature-related activities in teaching reading.

Effective: Spring 2001

Prerequisite: admission into Elementary Education Major

**EDUC 422 Literature for Children and Adolescents** (3) Literature for children and adolescents, approaches for using such literature in the school curriculum.

Effective: Fall 2008

**EDUC 425 Literacy Assessment** (3) This course emphasizes alternative literacy measures focusing on portfolio assessment and performance assessments.

Effective: Spring 1997

Prerequisite: permission of the program

**EDUC 432 Children's Literature in Teaching Writing** (3) Introduction to introduces methods for transferring writing skills and literary devices from literature to student writing in all subject areas.

Effective: Summer 2008

**EDUC 435 Addressing the Needs of Special Learners** (1) An examination of attitudes toward, barriers experienced by, and special needs of special learners in the schools.

Effective: Spring 2001

Prerequisite: eighth-semester standing in Secondary Teacher Certification Program

**EDUC 436 Inclusion Practices in Education** (3) The educational, social, and political foundations for inclusion practices in public education.

Effective: Summer 1995

Prerequisite: permission of program

**EDUC 440 Educational Statistics and Measurements** (3) Descriptive statistics, correlation, reliability, validity, scaling techniques, and introduction to item analysis.

Effective: Winter 1981

**EDUC 450 Current Topics in Education** (1-15) No description.

Effective: Fall 1983

**EDUC 452 Teaching Writing** (3) Techniques for teaching the writing process, kindergarten through grade 12, including writing in content areas; workshop format.  
Effective: Fall 1983

**EDUC 458 Behavior Management Strategies for Inclusive Classrooms** (3) Provides knowledge and skills essential for designing positive learning environments in secondary classrooms with the inclusion of exceptional learners.  
Effective: Summer 2009  
Prerequisite: admission to teacher education

**EDUC 459 Strategies for Effective Teaching in Inclusive Classrooms** (3) Course examines effective strategies for accommodating and adapting instruction for exceptional learners in secondary classrooms.  
Effective: Fall 2012  
Prerequisite: admission to Teacher Certification Program or Approval of program

**EDUC 460 Field Study in Ecology** (4) Study and analysis of the ecology of various regions of the world. May be repeated for credit.  
Effective: Summer 1995  
Prerequisite: EDSCI 454

**EDUC 462 Computers for Classroom Teachers** (3) An introduction: microcomputers and their educational applications.  
Effective: Spring 2001  
Prerequisite: admission into Elementary Education Major

**EDUC 463 The Internet and K-12 Education** (3) Relates educational theory and practice to applications of the Internet, applying content from educational foundations, curriculum, and research.  
Effective: Spring 2003 Ending: Fall 2014  
Prerequisite: EDUC 462 or approval of program.

**EDUC 463 Teaching With Modern Web Technologies** (3) Relates educational theory and practice to applications of the modern Web, applying content from educational foundations, curriculum, and research.  
Effective: Spring 2015 Future: Spring 2015

**EDUC 464 Technology and the Learning Process** (3) Evaluates the relationship between technology-based resources and learning theories through design, implementation, and evaluation of online instructional modules.  
Effective: Spring 2003  
Prerequisite: EDUC 462 or EDUC 463 or permission of program

**EDUC 465 Serving Culturally and Linguistically Diverse (CLD) Learners** (3) The course provides teachers with knowledge, understandings, and skills to engage culturally and linguistically diverse (CLD) students in mainstream classrooms.  
Effective: Spring 2009

**EDUC 466 Foundations of Teaching English as a Second Language** (3) Overview of various legal, historical, and socio-cultural implications of teaching and learning English as a Second Language.  
Effective: Summer 2006  
Prerequisite: permission of program

**EDUC 467 English Language Structure for English as a Second Language Teachers** (3) An in-depth study and review of general linguistic concepts and their application to ESL pedagogy.  
Effective: Summer 2006  
Prerequisite: EDUC 466 or permission of program

**EDUC 468 Language Acquisition for English as a Second Language Teachers** (3) Study of the theory, research, and processes involved in first and second language development, acquisition, and assessment.  
Effective: Summer 2006  
Prerequisite: EDUC 466 and EDUC 467 or permission of program

**EDUC 469 Teaching Methods and Assessment of English as a Second Language** (3) Integration of theory, research, and practice about ESL curriculum, instructional methods, assessment, and literacy development.  
Effective: Summer 2006  
Prerequisite: EDUC 466 EDUC 467 EDUC 468 or permission of program

**EDUC 470W Higher-Order Thinking for Educators** (3) Presentation of strategies, techniques, and principles of higher-order thinking which are grounded in relevant research and practice will be presented.  
Effective: Fall 2006  
Prerequisite: admission into Elementary Education Major

**EDUC 471 Best Practices in Literacy** (3) An application of best literacy practices to classroom instruction and assessment of reading, writing, listening, and speaking.  
Effective: Spring 2003  
Prerequisite: EDUC 320 or EDUC 321

**EDUC 472 Teaching Reading Through the Content Areas** (3) Designed to enable teachers of content areas to improve the reading/study skills needed by their students.  
Effective: Winter 1981

**EDUC 475 ESL Leadership, Research and Advocacy** (3) Teachers will develop their skills as instructional leaders and researchers by conducting school-based action research projects.  
Effective: Summer 2010  
Prerequisite: EDUC 469

**EDUC 477 Teaching Struggling Readers and Writers** (3) A comprehensive overview of learning problems and effective strategies for teaching K-12 students who have difficulties reading and writing.  
Effective: Spring 2008

**EDUC 478 Secondary Transition for Students with Disabilities** (3) Process and procedures for successful transition of secondary students with disabilities.  
Effective: Summer 2013  
Prerequisite: EDUC 459

**EDUC 484 School Law for Teachers** (3) This course will focus on increasing teacher awareness of law and how it impacts on daily performance and job security.  
Effective: Summer 1995  
Prerequisite: permission of program

**EDUC 490 Student Teaching** (1-12) Observation and teaching in selected elementary or secondary schools under direction of cooperating classroom teachers and University supervisors. Regular seminars. GPA 3.0 or higher. Passing scores on required Praxis I tests.  
Effective: Fall 2003  
Prerequisite: eight semester standing approval of program

**EDUC 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1994

**EDUC 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

**EDUC 495 Internship** (1-15) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.  
Effective: Fall 1983  
Prerequisite: prior approval of proposed assignment by instructor

**EDUC 495A Junior Field Experience** (1) Second semester juniors assigned to a suburban elementary school for the purpose of actively participating in classroom activities.  
Effective: Summer 2003  
Prerequisite: prior approval of proposed placement by instructor.

**EDUC 495B Senior Field Experience** (1) First semester seniors assigned to an urban elementary school for the purpose of actively participating in classroom activities.  
Effective: Summer 2003  
Prerequisite: prior approval of proposed placement by instructor.

**EDUC 495C Early Childhood Field Experience** (1) First semester seniors assigned to an urban elementary school for the purpose of actively participating in an early childhood classroom.  
Effective: Summer 2003  
Prerequisite: prior approval of proposed placement by instructor and completion of all four early childhood prerequisite courses.

**EDUC 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 1983

**EDUC 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1983

**EDUC 497A Crucial Role of Technology Within the Framework for Teaching** (3) Designed to guide educators in the purposeful planning for integration of technology into their teaching practices. Participants will experience presentations from nationally recognized leaders in educational technology through large group presentations, small group seminars, and collaboration with colleagues. Participants will develop an action plan that defines intention, and delineates necessary steps for successful implementation.  
Effective: Summer 2014 Ending: Summer 2014

**EDUC 497A iWRITE: Using Digital Technology to Engage Writers and Encourage Student Voices** (3) This course is designed to explore the intersection between technological, pedagogical, and content knowledge.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**EDUC 497B Navigating Non-Fiction Reading and Writing in a Common Core** (3) Designed to explore a variety of methods to improve and modify instructional strategies to promote maximum engagement and increase effective teaching of non-fiction reading and writing. The course will assist in the development of a knowledge base and subsequent use of research-based models of effective teaching practices and areas of: non-fiction reading, non-fiction writing, mentor texts, technology, assessment, and professional collaboration.  
Effective: Summer 2014 Ending: Summer 2014

**EDUC 497C International Field Experience: Germany** (0.5-3) This course is intended to: develop student perceptions on education, provide pre-service teachers with opportunities to participate in culturally diverse classrooms, and engage in political dialogue regarding education in Germany.  
Effective: Summer 2014 Ending: Summer 2014

**EDUC 497D Using a Writer's Notebook to Empower Writers** (3) This course will explore the endless possibilities of using a writer's notebook to strengthen and broaden both student writing and classroom instruction. Best suited for grades kindergarten-8th grade.  
Effective: Summer 2014 Ending: Summer 2014

**EDUC 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

**EDUC 499 (IL) Foreign Studies** (1-12) Study of educational topics in a country other than the United States.  
Effective: Summer 2007  
Prerequisite: permission of instructor

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## Education Abroad (ED AB)

ED AB 199 **Temporary Education Abroad Registration** (1-18) This course is used to temporarily register students that are studying overseas. Permanent courses will be entered after the student returns.  
Effective: Summer 2007

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## Education Mathematics (EDMTH)

**EDMTH 301 Mathematics in Elementary Education I** (3) Survey of content, pedagogy, and psychology of mathematics instruction for pre-school through third grade. Emphasis on a concrete approach to instruction.

Effective: Spring 2001 Ending: Fall 2014

Prerequisite: a previous course in college mathematics and formal admission into the Teacher Certification Program

**EDMTH 301 Mathematics in Elementary Education I** (3) Survey of content, pedagogy, and psychology of mathematics instruction relating to numbers, operations, and algebraic thinking for pre-school through eighth grade.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: a previous course in college mathematics and formal admission into the Teacher Certification Program

**EDMTH 302 Mathematics in Elementary Education II** (3) Survey of content, pedagogy, and psychology of mathematics instruction for grades 4 through 8. Emphasis on a concrete approach to instruction.

Effective: Winter 1981 Ending: Fall 2014

Prerequisite: EDMTH 301

**EDMTH 302 Mathematics in Elementary Education II** (3) Survey of content, pedagogy, and psychology of mathematics instruction relating to geometry, measurement, statistics, and data for pre-school through eighth grade.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: EDMTH 301

**EDMTH 441 Geometry and Measurement Across the K-12 Curriculum** (3) The course presents participants with investigations of reports, research, and recent trends related to teaching geometry and measurement.

Effective: Spring 2008

Prerequisite: permission of program

**EDMTH 442 Algebra and Functions Across the K-12 Curriculum** (3) The course presents participants with investigations of reports, research, and recent trends related to teaching algebra and function concepts.

Effective: Spring 2008

Prerequisite: permission of program

**EDMTH 443 Data Analysis and Probability Across the K-12 Curriculum** (3) The course presents participants with investigations of reports, research, and recent trends to teaching data analysis and probability concepts.

Effective: Spring 2008

Prerequisite: permission of program

**EDMTH 444 Numbers and Operations Across the Curriculum** (3) The course focuses on investigating reports, research, and recent trends related to teaching number and operation concepts K-12. A student who has passed MATH 200 may not take EDMTH 444 for credit.

Effective: Summer 2009

**EDMTH 455 Current Issues in Mathematics Education** (3) An examination and analysis of contemporary trends and concerns in the teaching of mathematics.

Effective: Fall 1983

Prerequisite: EDMTH 302 or EDUC 417

**EDMTH 497 Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1990

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## Education Science (EDSCI)

EDSCI 454 **Modern Elementary Science Education** (3) Introduction of content, methods, and materials used in modern elementary science with emphasis upon modern elementary science programs.

Effective: Spring 2001

Prerequisite: seventh-semester standing in Elementary Education Major

EDSCI 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1985

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## Educational Psychology (EDPSY)

**EDPSY 010 (GS) Individual Differences and Education (3)** Relationships between learner differences and physical, cognitive, language, social, and cultural development; emphasis on ethnicity, gender, special needs; schooling implications.

Effective: Summer 2011

**EDPSY 014 Learning and Instruction (3)** Psychology of human learning applied toward the achievement of educational goals; evaluation of learning outcomes.

Effective: Summer 2011

**EDPSY 014H Learning and Instruction (3)** Psychology of human learning applied toward the achievement of educational goals; evaluation of learning outcomes.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**EDPSY 101 (GQ) Analysis and Interpretation of Statistical Data in Education (3)** An introduction to quantitative methods in educational research emphasizing the interpretation of frequently encountered statistical procedures.

Effective: Summer 2011

**EDPSY 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2011

**EDPSY 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2011

**EDPSY 297A Effective Study Skills (3)** This course focuses on improving study skills, time management techniques, and other topics that should help students improve their academic lives.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**EDPSY 400 Introduction to Statistics in Educational Research (3)** The foundations of statistical techniques used in educational research; distributions, central tendency, variability, correlation, regression, probability, sampling, hypothesis testing.

Effective: Summer 2011

**EDPSY 406 Applied Statistical Inference for the Behavioral Sciences (3)** Common techniques (parametric) covered through two-factor analysis of variance (independent samples); hypothesis testing, confidence interval, power, robustness; MINITAB frequently used.

Effective: Summer 2011

Prerequisite: EDPSY 400 or STAT 200

**EDPSY 408 (SPLED 408) Meeting Instructional Needs of English Language Learners with Special Needs (3)** The course content and activities focus on instruction and assessment for English Language Learners with special needs.

Effective: Summer 2011

Prerequisite: EDPSY 010EDPSY 014 Prerequisite or concurrent:SPLED 395WSPLED 425

**EDPSY 421 Learning Processes in Relation to Educational Practices (3)** An introduction to the empirical study of variables and conditions that influence school learning.

Effective: Summer 2011

Prerequisite: EDPSY 014 or PSYCH 212

**EDPSY 450 (PSYCH 404) Principles of Measurement (3)** Scale transformation, norms, standardization, validation procedures, estimation of reliability.

Effective: Summer 2011

Prerequisite: EDPSY 400 or PSYCH 200 or PSYCH 100; STAT 200

**EDPSY 475 Introduction to Educational Research (3)** Scientific method; classes of variables in educational research; the measurement of classroom behavior; survey, predictive, and experimental studies.

Effective: Summer 2011

Prerequisite: EDPSY 400

**EDPSY 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2011

**EDPSY 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2011

EDPSY 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2011

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## Educational Technology (EDTEC)

**EDTEC 400 Introduction to Instructional Technology for Educators** (1-3) Use of microcomputers, video, and other media in education; models use technologies including video, audio, print, computer, and telephone.

Effective: Fall 2005

Prerequisite: EDPSY 014

**EDTEC 440 Educational Technology Integration** (3) Technology integration in educational settings.

Effective: Fall 2008

Prerequisite: EDPSY 014 and 6th semester standing

**EDTEC 448 Using the Internet in the Classroom** (3) This course introduces students to methods and models of using the Internet effectively in their classroom.

Effective: Fall 2005

Prerequisite: EDTEC 400 or demonstrated Internet awareness

**EDTEC 449 Using Video in the Classroom** (3) Skills and knowledge needed to direct the use of video technologies in educational settings.

Effective: Fall 2011

Prerequisite: 7th semester standing or higher

**EDTEC 461 Designing Computer Networks for Education** (3) Applying fundamental concepts of computer networking to design effective networks for educational purposes.

Effective: Spring 2013

Prerequisite: Work experience in a K-12 school setting

**EDTEC 462 Coordinating Technology Use in Education** (3) Skills and knowledge needed to direct the use of learning technologies in educational settings.

Effective: Spring 2013

Prerequisite: Work experience in a K-12 school setting

**EDTEC 467 Emerging Web Technologies and Learning** (3) This course examines emerging Web technologies and explores their application to learning and education.

Effective: Spring 2013

Prerequisite: EDPSY 014 sixth semester standing

**EDTEC 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2010

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## Educational Theory and Policy (EDTHP)

EDTHP 115 (US) **Education in American Society** (3) Introduction to the development of educational institutions, with emphasis on historical, philosophical, and sociological forces, and on problems of equity.  
Effective: Spring 2006

EDTHP 115A (GS;US) **Competing Rights: Issues in American Education** (3) An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society.  
Effective: Spring 2006

EDTHP 115S (GS;US) **Competing Rights: Issues in American Education** (3) An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society.  
Effective: Spring 2006

EDTHP 200 (GS) **Educational Reform and Public Policy** (3) The course uses an interdisciplinary approach to explore the reforms that shape the nation's largest social institutional-public education.  
Effective: Summer 2008

EDTHP 234H **Honors Leadership Jumpstart** (3) Intensive survey of contemporary leadership theory joined with practice, team-building skills, policy formation and influence, and service leadership.  
Effective: Fall 2006  
Prerequisite: first-semester Penn State student in the Schreyer Honors College

EDTHP 297 **Special Topics** (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently.  
Effective: Fall 2001

EDTHP 297A **Multicultural Perspectives: Families, Communities and Education** (3) This course employs an expansive definition of "multiculturalism" within the context of education by broadly exploring issues of diversity within the context of families, communities and schools. Relationships between families, communities and school cultures are examined from a sociological perspective. The course focuses on understanding cultural differences, analyzing theories of multicultural education, and giving attention to the unique educational needs of students.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

EDTHP 394 **Professional Development in Education and Public Policy** (3) This course develops professional skills and opportunities to prepare students for field placement and future employment or study.  
Effective: Summer 2008

EDTHP 395 **Field Experience in Education and Public Policy** (3) This course structures a summer field experience, research project, and service in an off-site educational policy organization.  
Effective: Summer 2008  
Prerequisite: EDTHP 394

EDTHP 401 (IL) (CI ED 401) **Introduction to Comparative Education** (3) Origins, nature, scope, basic literature, and methodology of comparative education. Study of sample topics.  
Effective: Fall 2007  
Prerequisite: 5th semester standing or higher

EDTHP 411 (US) **Ethnic Minorities and Schools in the United States** (3) Analysis of the social and cultural factors which affect educational outcomes among minority pupils, especially Blacks, Hispanics, and Indians.  
Effective: Spring 2006

EDTHP 412 (WMNST 412) **Education and the Status of Women** (3) An examination of the relationship of education to the status of women in American society.  
Effective: Spring 2005

EDTHP 416 (US) (SOC 416) **Sociology of Education** (3) The theoretical, conceptual, and descriptive contributions of sociology to education.  
Effective: Spring 2006

EDTHP 420 **Education and Public Policy** (3) Focus on the development and analysis of education policy, and policy's influence on schools.  
Effective: Fall 2011  
Prerequisite: six credits in social/behavioral sciences

EDTHP 427 **Intelligence and Educational Policy** (3) This course explores the concept of intelligence and its assessment from historical, psychological, educational and policy perspectives.

Effective: Spring 2006

Prerequisite: EDTHP 115 or 6 credits in social/behavioral sciences

**EDTHP 430 History of Education in the United States** (3) American educational ideas and practice critically examined in terms of their historical development and contemporary significance.

Effective: Summer 1995

**EDTHP 434H Honors Teaching Experience in Leadership Jumpstart** (1) Guided instruction and practical experience for teaching assistants to the Honors Leadership Jumpstart course (EDTHP 234H).

Effective: Fall 2006

Prerequisite: EDTHP 234H and permission of program

**EDTHP 435 Child Labor and Education in the Global Economy** (3) The legal instruments and social science theories useful for understanding and combating child labor through education policy and practice.

Effective: Spring 2014

**EDTHP 440 (CI ED 440) Introduction to Philosophy of Education** (3) Introduction to the examination of educational theory and practice from philosophical perspectives, classical and contemporary.

Effective: Spring 2013

Prerequisite: ENGL 015

**EDTHP 441 Education, Schooling, and Values** (3) Studies in education and schooling as problems in value; axiological problems and positions; examination of practical applications, including moral education.

Effective: Summer 1995

**EDTHP 496 Individual Studies** (1-18) Creative projects supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1995

**EDTHP 497 Special Topics** (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently.

Effective: Summer 1995

**EDTHP 497A Gender Issues in Education and Family** (3) This course will help students explore the relationship between gender, education, and families. Students examine issues such as gender role development and families, gay, lesbian, and transgender children and families, educational access, gender bias, sexual harassment, gender and children's literature, the impact of the media on gender role development, and strategies for teaching boys and girls in elementary classrooms.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**EDTHP 498 Special Topics** (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently.

Effective: Summer 1995

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## Electrical Engineering (E E)

**E E 007S Adventures in Electrical Engineering** (1) Exploration of electrical engineering through several hands-on activities that cover a broad spectrum of applications and fundamental concepts.  
Effective: Fall 1999

**E E 008S Introduction to Digital Music** (1) First-year seminar that discusses digital music from an electrical engineering perspective; topics include sampling, digital filtering, compression, and music synthesis.  
Effective: Fall 2001

**E E 009S First-Year Seminar in Electrical Engineering** (1) First-year seminar covering a variety of Electrical Engineering topics that vary from year to year.  
Effective: Spring 2008

**E E 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1998

**E E 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**E E 200 Design Tools** (3) A working knowledge of electrical engineering design tools and hardware realization of electrical engineering systems.  
Effective: Summer 2012  
Prerequisite: E E 210CMPEN 270 orCMPEN 271 andCMPEN 275CMPSC 201 orCMPSC 121 ; Prerequisite or concurrentE E 310

**E E 210 Circuits and Devices** (4) Introduction to electrical circuit analysis, electronic devices, amplifiers, and time-domain transient analysis.  
Effective: Spring 2003  
Prerequisite: PHYS 212 . Prerequisite or concurrent:MATH 250

**E E 210H Circuits and Devices** (4) Introduction to electrical circuit analysis, electronic devices, amplifiers, and time-domain transient analysis.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: PHYS 212 . Prerequisite or concurrent:MATH 250

**E E 211 Electrical Circuits and Power Distribution** (3) D.C. and A.C. circuits, transformers, single and three-phase distribution systems, A.C. motors and generators.  
Effective: Spring 2008  
Prerequisite: PHYS 212

**E E 212 Introduction to Electronic Measuring Systems** (3) Electronic devices and characteristics, amplifiers and feedback, electronic instruments and recording systems. Designed for non-electrical engineering students.  
Effective: Spring 2008  
Prerequisite: PHYS 212

**E E 295 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**E E 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1993

**E E 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1993

**E E 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**E E 300W Design Process** (3) Introduction to the electrical engineering design process, project teaming and management, and technical communication.  
Effective: Summer 2012  
Prerequisite: E E 200 Concurrent: ENGL 202C

**E E 310 Electronic Circuit Design I** (4) Properties of fundamental electronic devices, analysis of DC, AC small-signal and nonlinear behavior, analog and digital circuit design applications.

Effective: Spring 2008

Prerequisite: E E 210 or E E 315

**E E 311 Electronic Circuit Design II** (3) Electronic circuit design with consideration to single and multi-device subcircuits, frequency response characteristics, feedback, stability, efficiency, and IC techniques.

Effective: Fall 2012

Prerequisite: E E 310; E E 350 or E E 352

**E E 312 Electrical Circuit Analysis** (3) Circuit analysis techniques; mutual inductance; frequency response; FOURIER series; LAPLACE transform.

Effective: Fall 2011

Prerequisite: E E 210

**E E 313W Electronic Circuit Design II** (4) Design/analysis of electronics circuits including: single/multistage transistor amplifiers, op amp circuits, feedback amplifiers, filters, A/D and D/A converters.

Effective: Spring 2008

Prerequisite: E E 310

**E E 314 Signals and Circuits II** (3) Circuit analysis including op-amps, and ideal transformers; one/two port network models; three-phase and industrial loads; engineering professionalism.

Effective: Spring 2008

Prerequisite: E E 210; CMPSC 201 or CMPSC 121

**E E 315 Electrical Signals and Circuits with Lab** (5) Introduction to circuits, signals, energy, circuit analysis; frequency response, Bode diagrams, two-port networks; Laplace transforms, Polyphase circuits.

Effective: Spring 2008

Prerequisite: or concurrent: MATH 250

**E E 316 Introduction to Embedded Microcontrollers** (3) Introduction to microcontrollers in electronic and electromechanical systems. Hardware and software design for user/system interfaces, data acquisition, and control.

Effective: Spring 2008

Prerequisite: CMPSC 201 or CMPSC 121; CMPEN 271 Concurrent: E E 310

**E E 320 Introduction to Electro-Optical Engineering** (3) An introduction covering several fundamental areas of modern optics, optical processes, and devices.

Effective: Spring 1998

Prerequisite: E E 330

**E E 330 Engineering Electromagnetics** (4) Static electric and magnetic fields; solutions to static field problems, Maxwell's equations; electromagnetic waves; boundary conditions; engineering applications.

Effective: Spring 2008

Prerequisite: E E 210 or E E 315; MATH 230

**E E 331 Electromagnetic Fields and Waves** (3) Electromagnetic field theory and applications; Maxwell's equations; plane wave propagation; boundary conditions; basic antenna theory; impedance matching.

Effective: Spring 2008

Prerequisite: E E 210; MATH 230

**E E 340 Introduction to Nanoelectronics** (4) Introduction to the physics and technology of nanoelectronic devices.

Effective: Summer 2012

Prerequisite: PHYS 214E E 210

**E E 341 Semiconductor Device Principles** (3) Quantitative description of properties and behavior of materials with application to integrated circuits, photonic devices, and quantum well devices.

Effective: Spring 2008

Prerequisite: E E 210 or Prerequisite or concurrent: E E 315

**E E 350 Continuous-Time Linear Systems** (4) Introduction to continuous-time linear system theory: differential equation models, sinusoidal steady-state analysis, convolution, Laplace transform and Fourier analysis.

Effective: Spring 1999

Prerequisite: E E 210; MATH 220; MATH 250

**E E 351 Discrete-Time Linear Systems** (3) Introduction to discrete-time signal processing: sampling, linear time-invariant systems, discrete-time Fourier transform and discrete Fourier transform, Z transform.

Effective: Summer 1998

Prerequisite: E E 350

**E E 352 Signals and Systems: Continuous and Discrete-Time** (4) Transient response, frequency response, Bode plots, resonance, filters, Laplace transform, Fourier series and transform, discrete-time signals/ systems; sampling z-transform.

Effective: Fall 2013

Prerequisite: MATH 250; E E 210 or E E 314 or E E 315

**E E 353 Signals and Systems: Continuous and Discrete-Time** (3) Fourier series and Fourier transform; discrete-time signals and systems and their Fourier analysis; sampling; z-transform.

Effective: Spring 2008

Prerequisite: E E 210; CMPSC 201 or CMPSC 121; MATH 250

**E E 360 Communications Systems I** (3) Generic communication system; signal transmission; digital communication systems; amplitude modulation; angle modulation.

Effective: Spring 2008

Prerequisite: E E 350 or E E 352



**E E 362 (CMPEN 362) Communication Networks (3)** Data transmission, encoding, link control techniques; communication network architecture, design; computer communication system architecture, protocols.

Effective: Spring 2011

Prerequisite: CMPEN 270 or CMPEN 271 Concurrent: STAT 301 or STAT 318 or STAT 401 or STAT 414 or STAT 418

**E E 380 Introduction to Linear Control Systems (3)** State variables; time-domain and frequency-domain design and analysis; design of feedback control systems; Root Locus.

Effective: Spring 2008

Prerequisite: MATH 220; E E 350 or E E 312

**E E 383 Signals and Controls Laboratory (1)** Design, computer simulation, and practical implementation of systems in the areas of filtering, digital signal processing, and controls.

Effective: Spring 2008

Concurrent: E E 352 ; E E 380

**E E 387 Energy Conversion (3)** Modeling of induction machines, synchronous machines, transformers, and transmission lines.

Effective: Spring 2008

Prerequisite: E E 350 or E E 312

**E E 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**E E 396H Independent Studies (1-4)** Junior-level honors course involving special individual projects under the direction of an electrical engineering faculty member.

Effective: Fall 1993

Prerequisite: junior standing

**E E 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 1993

**E E 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

**E E 400 Engineering Design Concepts (3)** Engineering design and modelling, engineering economy, project planning, capstone project selection, and technical communication skills.

Effective: Spring 2008

Prerequisite: E E 313W; E E 316; E E 352; E E 380 ; seventh-semester standing

**E E 401 Electrical Design Projects (3)** Group design projects in the areas of electronics and electrical/computer systems.

Effective: Spring 2008

Prerequisite: E E 400 ; eighth-semester standing

**E E 403M Senior Project Design (3)** Project designs of electrical engineering systems, encompassing various subdisciplines within Electrical Engineering, with an emphasis on technical communications skills.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: E E 330; E E 350; E E 316 ; and the completion of two Electrical Engineering technical electives Concurrent: ENGL 202C

**E E 403W Senior Project Design (3)** Project designs of electrical engineering systems, encompassing various subdisciplines within Electrical Engineering, with an emphasis on technical communications skills.

Effective: Spring 2008

Prerequisite: E E 330; E E 350; E E 316 ; and the completion of two Electrical Engineering technical electives Concurrent: ENGL 202C

**E E 405 Capstone Proposal Preparation (1)** Performing the initial research needed for the capstone course, and the preparation of the written project proposal.

Effective: Fall 2012

Prerequisite: senior level standing; ENGL 202C; CAS 100

**E E 406W Electrical Engineering Capstone Design (3)** Project designs of analog and digital systems, interfacing, and relevant electronic circuits, with an emphasis on technical communications skills.

Effective: Fall 2012

Prerequisite: E E 405

**E E 410 Linear Electronic Design (3)** Linear circuit design via integrated circuit processes; A/D converters, switched capacitor filters, phase lock loops, multipliers, and voltage- controlled oscillators.

Effective: Spring 2008

Prerequisite: E E 311

**E E 413 Power Electronics (3)** Switch-mode electrical power converters. Electrical characteristics and thermal limits of semiconductor switches.

Effective: Fall 2012

Prerequisite: E E 310; E E 350 or E E 352

**E E 416 (CMPEN 416) Digital Integrated Circuits** (3) Analyses and design of digital integrated circuit building blocks, including logic gates, flip-flops, memory elements, analog switches, multiplexers, and converters.

Effective: Spring 2008

Prerequisite: E E 310

**E E 417 (CMPEN 417) Digital Design Using Field Programmable Devices** (3) Field programmable device architectures and technologies; rapid prototyping using top down design techniques; quick response systems.

Effective: Spring 2008

Prerequisite: CMPEN 331

**E E 420 Electro-optics: Principles and Devices** (3) Spatially linear system and transform; diffraction theory, partial coherence theory, optical image detection, storage and display, holography.

Effective: Spring 1997

Prerequisite: E E 320

**E E 421 Optical Fiber Communications** (3) Operational principles of optical components, including sources, fibers and detectors, and the whole systems in optical fiber communications.

Effective: Spring 2014

Prerequisite: E E 320;E E 350;E E 340 orE E 341 orE SC 314

**E E 422 Optical Engineering Laboratory** (3) Hands-on experience covering areas of optical transforms, electro-optics devices, signal processing, fiber optics transmission, and holography.

Effective: Fall 1993

Prerequisite: E E 320

**E E 424 Principles and Applications of Lasers** (3) Principles of lasers--generation, propagation, detection and modulation; applications in fiber optics communication, remote sensing, holography, optical switching and processing.

Effective: Spring 2008

Prerequisite: E E 330E SC 400H orPHYS 400

**E E 430 Principles of Electromagnetic Fields** (3) Laws of electrodynamics, boundary value problems, relativistic effects, waves in dielectrics and ferrites, diffraction and equivalence theorems.

Effective: Spring 2008

Prerequisite: E E 330

**E E 432 RF and Microwave Engineering** (3) Transmission line and waveguide characteristics and components; design of RF and microwave amplifiers, oscillators, and filters; measurement techniques; design projects.

Effective: Fall 2013

Prerequisite: E E 310E E 330

**E E 438 Antenna Engineering** (3) Radiation from small antennas, linear antenna characteristics, arrays of antennas, impedance concepts and measurements, multifrequency antennas, and aperture antennas.

Effective: Spring 2001

Prerequisite: E E 330

**E E 439 Radiowave Propagation in Communications** (3) Radiowave propagation in mobile, terrestrial, and satellite communications; applications at microwave and lower frequencies.

Effective: Spring 2008

Prerequisite: E E 330

**E E 441 Semiconductor Integrated Circuit Technology** (3) An overview of fundamentals of processes involved in silicon integrated circuit fabrication through class lectures and hands-on laboratory.

Effective: Spring 2014

Prerequisite: E E 310;E E 340 orE E 341 orE SC 314

**E E 442 Solid State Devices** (3) The physics of semiconductors as related to the characteristics and design of solid state electronic devices.

Effective: Spring 2014

Prerequisite: E E 310;E E 340 orE E 341 orE SC 314

**E E 450 Signal and Image Processing** (3) Linear system analysis in one-dimension and two-dimensions, emphasis on filtering; multi-dimensional signal analysis; image enhancement and reconstruction; computer simulation applications.

Effective: Spring 2008

Prerequisite: E E 352

**E E 453 Fundamentals of Digital Signal Processing** (3) Design of FIR and IIR filters; DFT and its computation via FFT; applications of DFT; filter implementation; finite arithmetic effects.

Effective: Spring 2008

Prerequisite: E E 351 orE E 352 orE E 353

**E E 454 (CMPEN 454) Fundamentals of Computer Vision** (3) Introduction to topics such as image formation, segmentation, feature extraction, shape recovery, object recognition, and dynamic scene analysis.

Effective: Spring 2008

Prerequisite: MATH 230 orMATH 231;CMPSC 201 orCMPSC 121

**E E 455 (CMPEN 455) An Introduction to Digital Image Processing** (3) Overview of digital image processing techniques and their applications; image sampling, enhancement, restoration, and analysis; computer projects.

Effective: Spring 2008

Prerequisite: E E 350 orE E 353;CMPSC 201 orCMPSC 121

**E E 456 (E SC 456, EGEE 456) Introduction to Neural Networks** (3) Artificial Neural Networks as a solving tool for difficult

problems for which conventional methods are not applicable.

Effective: Spring 2008

Prerequisite: CMPSC 201 orCMPSC 202;MATH 220

**E E 458 Digital Image Processing and Computer Vision** (3) Principles of DSP and computer vision, including sensing preprocessing, segmentation, description, recognition, and interpretation.

Effective: Spring 2008

Prerequisite: E E 352

**E E 460 Communication Systems II** (3) Probability fundamentals, digital/analog modulation/demodulation, system noise analysis, SNR and BER calculations, optimal receiver design concepts, introductory information theory.

Effective: Spring 2008

Prerequisite: E E 360

**E E 461 Communications I** (4) Element of analog and digital communication systems, AM, FM, and digital modulation techniques, receivers, transmitters, and transmission systems, noise.

Effective: Spring 2008

Prerequisite: E E 352

**E E 471 (AERSP 490, NUC E 490) Introduction to Plasmas** (3) Plasma oscillations; collisional phenomena; transport properties; orbit theory; typical electric discharge phenomena.

Effective: Spring 2008

Prerequisite: E E 330

**E E 472 (AERSP 492) Space Astronomy and Introduction to Space Science** (3) The physical nature of the objects in the solar system; the earth's atmosphere, ionosphere, radiation belts, magnetosphere, and orbital mechanics.

Effective: Spring 2008

Prerequisite: E E 330 orPHYS 400

**E E 474 Satellite Communications Systems** (3) Overview of satellite communications systems, principles, space platforms, orbital mechanics, up/down links and link budgets, modulation techniques.

Effective: Spring 2008

Prerequisite: E E 330 andE E 360

**E E 477 (METEO 477) Fundamentals of Remote Sensing Systems** (3) The review of fundamental physical properties leads into discussions of various techniques, including imaging, spectroscopy, radiometry, and active sensing.

Effective: Spring 2008

Prerequisite: E E 330 orMETEO 436

**E E 480 Linear Systems: Time Domain and Transform Analysis** (3) Signals and systems representations, classifications, and analysis using: Difference and Differential equations, Laplace transform, z-transform, Fourier series, FT, FFT, DFT.

Effective: Spring 2008

Prerequisite: graduate standing

**E E 481 Control Systems** (4) Classical/modern approaches to system analysis/design; time/frequency domain modeling, stability, response, optimization, and compensation.

Effective: Spring 2008

Prerequisite: E MCH 211;PHYS 211;E E 352

**E E 482 Introduction to Digital Control Systems** (3) Sampling and hold operations; A/D and D/A conversions; modeling of digital systems; response evaluation; stability; basis of digital control; examples.

Effective: Spring 2008

Prerequisite: E E 380;E E 351 orE E 352

**E E 483 Introduction to Automation and Robotics Systems** (3) Introduction to robotics systems with emphasis on robotic motion and control, and robotic components such as actuators and sensors.

Effective: Summer 2008

Prerequisite: E E 481

**E E 484 Control System Design** (3) Analysis and design of automatic control systems using time, frequency domain and state variable methods.

Effective: Spring 2008

Prerequisite: E E 481

**E E 485 Energy Systems and Conversion** (3) Overview of energy alternatives available, and study of theory of operation and models of major energy conversion devices.

Effective: Spring 2008

Prerequisite: E E 314 orE E 315;MATH 250

**E E 487 Electric Machinery and Drives** (3) Analysis of variable-speed drives comprised of AC electric machines, power converters, and control systems.

Effective: Summer 2007

Prerequisite: E E 387

**E E 488 Power Systems Analysis I** (3) Fundamentals, power transformers, transmission lines, power flow, fault calculations, power system controls.

Effective: Spring 2008

Prerequisite: E E 387 orE E 485

**E E 489 Power Systems Analysis II** (3) Symmetrical components, unbalanced networks, unsymmetrical faults, unbalanced operation of rotating machines, transient transmission line modeling, system protection.

Effective: Spring 2008  
Prerequisite: E E 488

**E E 494 Senior Thesis (1-9)** Students must have approval of a thesis adviser before scheduling this course.  
Effective: Fall 1993

**E E 494H Senior Thesis (1-9)** Students must have approval of a thesis adviser before scheduling this course.  
Effective: Spring 2008

**E E 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**E E 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1993

**E E 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1993

**E E 497A Principles of Signal Integrity (3)** Transmission lines and reflections, lossy lines, rise time, material properties, cross talk in transmission lines. Time and frequency domain measurements.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: E E 330E E 352

**E E 497B Application of IC Based Design (3)** Design and applications of electronic circuits and systems using operational amplifiers and analog integrated circuits.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: CMPEN 271E E 310 Concurrent: E E 311

**E E 497B Probability and Random Processes for Electrical Engineers (3)** Probability elective for EE/CMPEN students with applications in information theory, signal detection, control systems and circuit analysis.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: E E 350 or E E 353

**E E 497C Application of Optics in Communications, Lighting and Power (3)** Applications of optical engineering in communications (e.g. fiber optics), lighting (e.g. LEDs), and Power (e.g. solar energy). st.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: E E 340 and E E 320

**E E 497E Space Systems Engineering Seminar (1)** Seminar overviewing the systems engineering approach as applied to practical space systems.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: 5th semester standing or higher

**E E 497E Software-defined Radio (3)** An overview of the principles of software-defined radio systems with laboratory component.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: E E 351E E 360

**E E 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

Last Import from UCM: May 31, 2014 3:00 AM

## Electrical Engineering Technology (EET)

**EET 002S Introduction to Engineering Technology** (1) Introduction to engineering technology and the use of computer methods for analyzing and solving engineering technology problems; microcomputer fundamentals, word processing, spreadsheet, and database software packages.  
Effective: Fall 2007

**EET 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2007

**EET 100 Electric Circuits, Power, and Electronics** (3) AC and DC circuits; machinery; controls; and introduction to electronic devices, circuits, and instrumentation.  
Effective: Fall 2010  
Prerequisite: MATH 082 or MATH 041

**EET 101 Electrical Circuits I** (3) Fundamental theory of resistance, current, and voltage; capacitance, inductance. Direct current and alternating current concepts through series/ parallel circuits.  
Effective: Fall 2007  
Prerequisite: or concurrent: MATH 081

**EET 105 Electrical Systems** (3) Introduction to the study of electrical systems, with a focus on applications in our society.  
Effective: Spring 2008  
Prerequisite: MATH 021 or greater placement

**EET 109 Electrical Circuits Laboratory I** (1) Use of basic electrical instruments to measure AC and DC voltage, current, power, resistance. Introduction to report writing.  
Effective: Fall 2007  
Prerequisite: or concurrent: EET 101

**EET 114 Electrical Circuits II** (4) Direct and alternating current circuit analysis including Thevenin and Norton Theorems, mesh, node analysis. Capacitance, inductance, resonance, power, polyphase circuits.  
Effective: Fall 2008  
Prerequisite: EET 105 MATH 026

**EET 118 Electrical Circuits Laboratory** (1) Use of basic electrical instruments to measure AC and DC voltage, current, power, resistance, and lab reporting.  
Effective: Fall 2008  
Prerequisite: EET 105 Concurrent: EET 114

**EET 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2007

**EET 205 Semiconductor Laboratory** (1) Laboratory study of semiconductor devices and circuits.  
Effective: Fall 2007  
Concurrent: EET 210

**EET 210 Fundamentals of Semiconductors** (2) Semiconductor and circuit theory including power supplies, amplifiers, power amplifiers, oscillators, and introduction to op-amps.  
Effective: Fall 2007  
Prerequisite: EET 114 MATH 082

**EET 212W Op Amp and Integrated Circuit Electronics** (4) Analysis and design of amplifier, rectifier, filter, comparator, oscillator, and other practical circuits using op amps and integrated circuit devices.  
Effective: Fall 2012  
Prerequisite: EET 114 ENGL 015 MATH 022 or MATH 040 or MATH 082

**EET 213W Fundamentals of Electrical Machines Using Writing Skills** (5) AC and DC machinery principles and applications; introduction to magnetic circuits, transformers, and electrical machines including laboratory applications.  
Effective: Fall 2007  
Prerequisite: EET 114 EET 118 ENGL 015

**EET 214 Electric Machines and Energy Conversion** (3) Fundamental operating principles, characteristics, and analysis of electric machines, transformers, and power systems.  
Effective: Spring 2008  
Prerequisite: EET 114 EET 118

**EET 215 Electric Machines and Energy Conversion Laboratory** (1) Laboratory study of electric machine applications, transformers, and power systems.  
Effective: Spring 2008  
Prerequisite: EET 114 EET 118 Concurrent: EET 214

**EET 216 Linear Electronic Circuits** (3) Theoretical study of linear electronic devices and circuits, including field effect transistors, integrated circuits, and operational amplifiers.

Effective: Fall 2007  
Prerequisite: EET 210

**EET 220 Programmable Logic Controllers** (2) An introduction to programmable logic controllers (PLCs); topics covered include programming, troubleshooting, networking, and industrial applications.  
Effective: Spring 2008  
Prerequisite: CMPET 117

**EET 221 Linear Electronics Laboratory** (1) Laboratory study of transistors; study of differential and operational amplifiers. Emphasis is placed on circuit design.  
Effective: Fall 2007  
Prerequisite: EET 205 Concurrent: EET 216

**EET 275 Introduction to Programmable Logic Controls** (3) Principles of industrial control, programming, interfacing, input/output devices, and applications.  
Effective: Fall 2012  
Prerequisite: CMPET 117CMPET 120

**EET 280 System Integration Project** (1) Schematic design, circuit board layout and fabrication, mechanical housing fabrication.  
Effective: Spring 2014  
Prerequisite: EET 212W ; Prerequisite or concurrent:EG T 119

**EET 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2007

**EET 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2007

**EET 311 Alternating Current Circuits** (4) Circuit analysis including controlled sources, op amps, and ideal transformers, and calculus relationships; one/two port network models; three- phase and industrial loads.  
Effective: Fall 2007  
Prerequisite: MATH 140 Concurrent: MATH 141

**EET 312 Electric Transients** (4) Applied differential equations; in-depth study of transient electricity using Laplace, Fourier transforms, and state-space methods; Bode plots and application.  
Effective: Spring 2010  
Prerequisite: EET 311E E 314 orE E 315;MATH 141 Concurrent: MATH 141

**EET 315 Linear and Discrete System Analysis** (3) Introduction to the principles and operation of linear and discrete systems.  
Effective: Fall 2007  
Prerequisite: CMPET 301 . Prerequisite or concurrent:MATH 250 orMATH 211

**EET 320 Industrial Electricity and Electronics** (3) Basic circuit theory applied to DC/AC circuits containing resistors, inductors, capacitors; magnetic circuits; power; control; electronic applications.  
Effective: Spring 2008  
Prerequisite: MATH 140PHYS 150 orPHYS 250 orPHYS 211

**EET 330 Wireless Communications Systems** (3) Wireless communications technology, transceivers, modulation techniques, serial communications, and applications. Personal area networks, local area networks, RFID systems.  
Effective: Spring 2011  
Prerequisite: EET 341CMPET 301 ; prerequisite or concurrent:EET 315MATH 211

**EET 331 Electronic Design** (4) Analog/Digital and Digital/Analog Converters; advanced and nonlinear Op-Amp circuit design; noise analysis; Active Filters and Waveform Generators.  
Effective: Spring 2008  
Prerequisite: EET 311 orE E 314 orE E 315;EET 205 andEET 210 or concurrentE E 310 Concurrent: EET 312

**EET 341 Measurements and Instrumentation** (3) Measurement concepts, transducers, electronic-aided measurement, mechanical and electrical measurements. Intended for electrical engineering technologists.  
Effective: Fall 2007 Ending: Summer 2014  
Prerequisite: CMPET 117EET 216 . Prerequisite or concurrent:MATH 141 orMATH 210

**EET 341 Measurements and Instrumentation** (3) Measurement concepts, transducers, electronic-aided measurement, mechanical and electrical measurements. Intended for electrical engineering technologists.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: CMPET 117EET 212W . Prerequisite or concurrent:MATH 141 orMATH 210

**EET 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Fall 2007

**EET 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

**EET 402 High-Frequency Circuit Design** (4) Electromagnetic theory as applied to the design of antennas, waveguides, and high-frequency components.

Effective: Fall 2007

Prerequisite: senior standing in Electrical Engineering Technology

**EET 408 Communication System Design** (4) Communication system principles including modulation techniques, encoding and decoding, noise, and elementary probability.

Effective: Fall 2007

Prerequisite: senior standing in Electrical Engineering Technology

**EET 409 Power System Analysis I** (4) Analysis and applications study of power utility electrical equipment such as: synchronous machines, transformers, capacitors and transmission lines.

Effective: Fall 2007

Prerequisite: senior standing in Electrical Engineering Technology

**EET 410 Power System Analysis II** (4) Principles of load studies, fault analysis, stability and protection of the public electrical power system.

Effective: Fall 2007

Prerequisite: senior standing in Electrical Engineering Technology

**EET 413 Optoelectronics** (4) Principles and applications of optoelectronics including sources, detectors, imagers, transmitters, fiber optics, systems and integrated optics.

Effective: Fall 2007

Prerequisite: senior standing in Electrical Engineering Technology

**EET 414 Biomedical Instrumentation** (4) Introduction to transducers and circuits used to detect and process medical physiological data with focus on cardiovascular and respiratory systems.

Effective: Fall 2007

Prerequisite: EET 312EET 331

**EET 416 Fluid and Thermal Design in Electrical Systems** (3) Introduction to basic electrical engineering technology concepts and applications of thermodynamics, heat transfer, and fluid power in electrical/ electronic systems.

Effective: Fall 2007

Prerequisite: EET 315;MATH 211 orMATH 231MATH 250

**EET 419 Project Proposal Preparation** (1) Performing the initial research needed for the senior project course, and the preparation of the written project proposal.

Effective: Fall 2007

Prerequisite: senior standing

**EET 420W Electrical Design Project** (3) Design, construction, and testing of a project either selected by the students with approval or assigned by the instructor.

Effective: Spring 2008

Prerequisite: EET 312EET 331EET 419ENGL 202C

**EET 431 Advanced Electronic Design** (4) Applications of analog and digital integrated circuits; introduction to analog and digital communication techniques.

Effective: Fall 2007

Prerequisite: EET 331

**EET 433 Control System Analysis and Design** (4) Classical and modern control analysis and design approaches, such as Laplace and state-space, aided by analog and digital computers.

Effective: Fall 2007

Prerequisite: EET 312

**EET 440 Applied Feedback Controls** (3) Analysis and design of analog and digital feedback control systems.

Effective: Fall 2007

Prerequisite: EET 315

**EET 450 Manufacturing Related Topics in Electrical Systems** (3) Manufacturing methods, including reliability and quality control considerations as applied to electrical and electronic systems.

Effective: Fall 2007

Prerequisite: MATH 211 ; orMATH 231MATH 250

**EET 456 Automation and Robotics** (4) Introduction to robotic systems and automation. Emphasis includes robot motion, control, and components, as well as programming PLCs.

Effective: Spring 2008

Prerequisite: EET 331CMPET 403 ; Prerequisite or concurrent:MATH 220;EET 433

**EET 458 Digital Signal Processing** (3) Continuous and discrete time signals, Fourier series and transform, z-transform, sampling, FIR and IIR filters, FFT, DFT, and applications.

Effective: Fall 2007

Prerequisite: EET 315CMPET 355

**EET 461 Power Electronics** (3) Fundamentals of power electronic circuits, semiconductor power devices, power conversion equipment. Circuit topologies, closed-loop control strategies, equipment design consideration.

Effective: Fall 2007 Ending: Summer 2014

Prerequisite: EET 213WEET 216EET 315

**EET 461 Power Electronics** (3) Fundamentals of power electronic circuits, semiconductor power devices, power conversion equipment. Circuit topologies, closed-loop control strategies, equipment design consideration.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: EET 212WEET 214EET 315

**EET 475 Intermediate Programmable Logic Controllers** (3) Application of programmable logic controllers (PLCs) to data acquisition, automation and process control.

Effective: Fall 2007

Prerequisite: EET 220 orEET 275 andEET 315

**EET 478 Digital Communication Systems** (4) Discrete signal analysis, A/D conversion, digital modulation techniques, encoding, decoding, data communication, noise.

Effective: Fall 2007

Prerequisite: CMPET 403

**EET 480 Electrical and Computer Systems Senior Seminar** (1) Concepts of career development; project management; engineering design documentation; industrial design examples.

Effective: Spring 2011

Prerequisite: EET 341EET 330 orCMPET 333CMPET 355ENGL 202C . Prerequisite or concurrent:ECON 102 orECON 104

**EET 490W Electrical/Computer Senior Design Project** (3) Individual or group design projects in electrical and computer engineering technology.

Effective: Fall 2007

Prerequisite: EET 480 . Prerequisite or concurrent:EET 450

**EET 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experience, practica or internships. Written and oral critique of activity required.

Effective: Fall 2007

Prerequisite: prior approval of proposed assignment by instructor

**EET 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 2007

**EET 496A Polygon Analysis Using Computer Aided Design Program** (1-6) Qualitative and Quantitative analysis of various two dimensional polygons to establish a metric for evaluation of symmetry.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: EG T 119 orEDSGN 100

**EET 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2007

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## Electro-Mechanical Engineering Technology (EMET)

**EMET 222 Mechanics for Technology** (4) Strength of materials and dynamics, including axial, shear, torsion, and bending stresses, beam deflection, kinematics and kinetics of rigid bodies.

Effective: Spring 2012

Prerequisite: MCH T 111 Concurrent: MATH 083 or MATH 140

**EMET 230 Computerized I/O Systems** (3) Introduction to concepts of structured programming, data acquisition, computerized interfaces, and graphical user interfaces.

Effective: Spring 2012

Concurrent: EET 212W

**EMET 325 Electric Drives** (3) Study of operation, application and specification of AC/DC electrical drive motors, servos, actuators, control units and power converters.

Effective: Spring 2008

Prerequisite: EET 212W

**EMET 326 Mechanical Drives** (3) Transmission of force and motion using linkages, cams, gears, belts, and hydraulic and pneumatic drives.

Effective: Spring 2012

Prerequisite: EMET 322 or EMET 222

**EMET 330 Measurement Theory and Instrumentation** (3) Fundamentals of measuring, transmitting, and recording temperature, pressure, flow, force, displacement, and velocity; laboratory component emphasizes systems used in manufacturing.

Effective: Fall 2012

Prerequisite: EMET 230 ; Prerequisite or concurrent: MATH 211 or MATH 250

**EMET 350 Quality Control, Inspection, and Design** (3) Fundamentals of quality including statistics, probability, and design of experiments.

Effective: Fall 2004

**EMET 394 EMET Student Design Competition** (1-3 per semester/maximum of 3) Students collaborate on research and design of appropriate solutions to real-life problems and projects.

Effective: Summer 2011

Prerequisite: junior-level standing

**EMET 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2002

Prerequisite: prior approval of proposed assignment by instructor

**EMET 396 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2001

**EMET 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2002

**EMET 397A Automotive Manufacturing Techniques in Germany** (0.5) Research automated manufacturing techniques and document actual observations after touring several German manufacturing facilities and museums related to auto manufacturing.

Effective: Summer 2014 Ending: Summer 2014

**EMET 401 Engineering Technology Career Development** (1) Career planning, preparation, and decision making for students enrolled in an Engineering Technology baccalaureate degree program.

Effective: Spring 2008

Prerequisite: seventh semester standing

**EMET 402 Fundamentals of Engineering Review** (2) Overview of the topics covered on the Fundamentals of Engineering Exam administered by the NCEES for the purpose of earning a Professional Engineering license.

Effective: Spring 2008

Prerequisite: seventh semester standing

**EMET 403 Electromechanical Design Project Preparation** (1) This course involves the planning and preliminary design activities for the capstone electro-mechanical design project.

Effective: Spring 2008

Prerequisite: seventh semester standing

**EMET 405 Fluid Mechanics and Heat Transfer** (3) Introduction to the principles of fluid mechanics and heat transfer with emphasis on the application to practical problems.

Effective: Fall 2013

Prerequisite: EMET 326 and MATH 211 or MATH 250

**EMET 410 Automated Control Systems** (4) Introduction to analog feedback control theory and computer simulation and analysis using Matlab; laboratory study of feedback systems.

Effective: Fall 2012

Prerequisite: MATH 211 or MATH 250 ; Prerequisite or concurrent: EMET 330 Concurrent: EMET 330

**EMET 430 Programmable Logic Controls II** (3) A second course in PLCs covering sequencing/shift instructions, program flow control, data and math instructions, PID loops, and machine communication.

Effective: Spring 2012

Prerequisite: EET 220 or EET 275

**EMET 432 Electromechanical Devices for Biomedical Instrumentation** (3) A study of electromechanical devices, transducers, and instrumentation used in the biomedical field.

Effective: Summer 2006

Prerequisite: EMET 330; PHYS 151 or PHYS 212 or PHYS 251 or equivalent

**EMET 440 Electro-Mechanical Project Design** (3) Planning, development, and implementation of electro-mechanical design project; includes formal report writing, project documentation, group presentations, project demonstrations.

Effective: Fall 2013

Prerequisite: EMET 325; EMET 326; EMET 410 EMET 403

**EMET 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2002

Prerequisite: prior approval of proposed assignment by instructor

**EMET 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2001

**EMET 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2002

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## Elementary Education in Multicultural Settings (ELEDM)

**ELEDM 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2005

**ELEDM 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2005

**ELEDM 395W Field Experience for Urban Teacher Preparation** (2 per semester, maximum of 6) Structured opportunities for investigating and understanding the work of teachers within urban schools and communities.  
Effective: Spring 2005  
Prerequisite: C I 295EDPSY 014EDTHP 115 Concurrent: SPLED 444 ELEDM 400 ELEDM 401A OR ELEDM 402

**ELEDM 400 Schools, Families and Communities** (3) Cultural and ethnic dimensions of family-school-community communications and the resultant impact on student-teacher relations.  
Effective: Spring 2005  
Prerequisite: C I 295EDPSY 014EDTHP 115 6 credits of social/behavioral sciences Concurrent: EDTHP 411 ELEDM 395W

**ELEDM 401A Teaching Reading in Multicultural Elementary Schools** (3) An exploration of current research, practices, strategies and materials in the development of reading skills in multicultural schools.  
Effective: Summer 2005  
Prerequisite: ELEDM 400 Concurrent: ELEDM 395W ELEDM 401B ELEDM 401C

**ELEDM 401B Teaching Language Arts in Multicultural Elementary Schools** (3) An exploration of current research, practices, strategies and materials in the development of language arts skills in multicultural schools.  
Effective: Summer 2005  
Prerequisite: ELEDM 400 Concurrent: ELEDM 395W ELEDM 401A ELEDM 401C

**ELEDM 401C Teaching Children's Literature in Multicultural Elementary Schools** (3) Survey of children's literature with an emphasis on multicultural literature and its application in multicultural elementary classrooms.  
Effective: Summer 2005  
Prerequisite: ELEDM 400 Concurrent: ELEDM 395W ELEDM 401A ELEDM 401B

**ELEDM 402 Teaching and Assessment in Multicultural Elementary Schools** (3) Multicultural education; elementary education; pluralistic pedagogical foundations, assessment, child's play, instrumental activities, State/Federal initiatives, and parent programs.  
Effective: Spring 2006  
Prerequisite: A ED 303;MUSIC 241ELEDM 400 Concurrent: ELEDM 395W

**ELEDM 403 Using Science and Mathematics Knowledge and Assessment in Urban Settings** (6) Knowledge, skills, and assessment pertaining to science and mathematics education in urban schools.  
Effective: Spring 2005  
Prerequisite: CMPSC 101MATH 200ELEDM 400 and 9 credits of natural sciences Concurrent: ELEDM 395W

**ELEDM 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2005

**ELEDM 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2005

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## Energy Bus & Finance (E B F)

**E B F 200 (GS) Introduction to Energy and Earth Sciences Economics** (3) Resource use decisions and their effect on local, national, and global development.  
Effective: Fall 2010

**E B F 301 Global Finance for the Earth, Energy, and Materials Industries** (3) The aim of this course is to introduce fundamental concepts of financial management and illustrate their global applications.  
Effective: Fall 2009

**E B F 304W Global Management for the Earth, Energy, and Materials Industries** (3) This class is designed to introduce students to modern management and organization strategies for resource businesses.  
Effective: Fall 2010  
Prerequisite: E B F 200

**E B F 401 Strategic Corporate Finance for the Earth, Energy, and Materials Industries** (3) Financial decisions corporations in the earth science area make and the tools and analyses used to make these decisions.  
Effective: Fall 2013  
Prerequisite: E B F 200/EME 460 and junior or senior standing

**E B F 402 Energy Law and Contracts** (3) An examination of the law that applies to acquiring the property rights for exploration and drilling of energy sources.  
Effective: Spring 2014  
Prerequisite: B LAW 243

**E B F 472 Quantitative Analysis in Earth Sciences** (3) Quantitative analysis of decision making in atmospheric/geophysical sciences: exploratory data analysis, quantification of uncertainty, parametric/non- parametric testing, forecasting, time series analysis.  
Effective: Fall 2010  
Prerequisite: MATH 110 or MATH 140

**E B F 473 Risk Management in Energy Industries** (3) Analysis of strategies for mitigating business risk from market, atmospheric, geophysical uncertainties including the use of energy/mineral commodity futures/options, weather derivatives, and insurance.  
Effective: Fall 2010  
Prerequisite: MSIS 200 or STAT 200 or E B F 472

**E B F 483 Introduction to Electricity Markets** (3) Introduction to the electric power industry; economics of power generation, transmission and distribution; regulation of electric utilities; deregulated electricity markets.  
Effective: Spring 2013  
Prerequisite: ECON 102 or E B F 200/MATH 110 or MATH 140

**E B F 484 Energy Economics** (3) Economics of energy demand, production, storage, and pricing; advanced energy policy issues including regulation, climate change, new energy technology.  
Effective: Spring 2011  
Prerequisite: ECON 102 or E B F 200/MATH 110 or MATH 140

**E B F 499 (IL) Foreign Study** (1-15) This course is designed to enable students to study in EBF study abroad programs.  
Effective: Spring 2014

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## Energy and Geo-Environmental Engineering (EGEE)

**EGEE 012 Energy Science and Engineering Lectures** (1) Lectures and discussion by faculty and visiting scientists/engineers on energy science and engineering, job selection, patents, licensing, ethics, and other professional issues and challenges.

Effective: Spring 2008

Prerequisite: fifth-semester standing in Energy Engineering major or Energy and Fuels Engineering Option in Chemical Engineering

**EGEE 101 (GN) (MATSE 101) Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Fall 2007

**EGEE 101A (GN;IL) (MATSE 101A) Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Fall 2007

**EGEE 101H (GN) Energy and the Environment** (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

Effective: Summer 2009

**EGEE 102 (GN) Energy Conservation for Environmental Protection** (3) Exposure to energy efficiency in day-to-day life to save money and energy, and thereby protect the environment.

Effective: Spring 2000

**EGEE 102H (GN) Energy Conservation for Environmental Protection** (3) Honors level exposure to energy efficiency in day to day life to save money and energy, and thereby protect the environment.

Effective: Summer 2008

**EGEE 110 (GN) Safety Science for the Rest of Your Life** (3) Survey of applications and technologies associated with safety in our every day life with associated review of scientific principles and economic, social and political impacts.

Effective: Summer 2005

**EGEE 120 (GS;US;IL) Oil: International Evolution** (3) Survey of the commercial development of the world petroleum industry from various international, historical, business, and cultural perspectives.

Effective: Spring 2006

**EGEE 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**EGEE 210 (GN) Technological Legacy of Pennsylvania Coal** (3) Survey of coal technologies with a review of scientific principles and economic, social, and political impacts.

Effective: Summer 2005

**EGEE 211 (GS;US) Social Legacy of Pennsylvania Coal** (3) Survey of coal technologies with economic, social, and political impacts discussed with historical, cultural, and international perspectives.

Effective: Summer 2005

**EGEE 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1999

**EGEE 295 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1999

**EGEE 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 1999

**EGEE 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**EGEE 302 Principles of Energy Engineering** (3) Basic engineering calculations and mathematical methodologies on

material and energy balances and reaction rates during chemical transformations in energy systems.

Effective: Summer 2007

Prerequisite: CHEM 112 and MATH 141

**EGEE 304 Heat and Mass Transfer (3)** Introduces the fundamentals of heat and mass transfer. Conduction, convection, radiation, and diffusion mass transfer will be emphasized.

Effective: Fall 2009

Prerequisite: EME 301 and EGEE 302

**EGEE 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1999

**EGEE 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1999

**EGEE 398 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1999

**EGEE 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**EGEE 401 Energy in a Changing World (3)** Energy is in transition, with increased international energy demand and increasing environmental pressures. Energy transitions, approaches, and outcomes are addressed.

Effective: Spring 2008

Prerequisite: EGEE 101 or EGEE 102 or CHEM 112

**EGEE 411 Energy Science and Engineering Lab (3)** A comprehensive introduction to classic and modern laboratory skills and experimentation of relevance to energy science and engineering practice.

Effective: Spring 2008 Ending: Fall 2014

Prerequisite: F SC 401 or EGEE 302 or permission of program

**EGEE 411W Energy Science and Engineering Lab (3)** A comprehensive introduction to classic and modern laboratory skills and experimentation of relevance to energy science and engineering practice.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: F SC 401 or EGEE 302 or permission of program

**EGEE 412 Green Engineering & Environmental Compliance (3)** Material and energy flows as they relate to industrial systems, environmental concerns, pollution prevention, and the development of clean technologies.

Effective: Summer 2007

Prerequisite: EGEE 302

**EGEE 420 Hydrogen and Fuel Cells (3)** Course will cover the fundamental principles of electrochemical engineering, hydrogen production and storage, and the design and application of the main types of fuel cells.

Effective: Fall 2009

Prerequisite: EME 301

**EGEE 430 (M E 430) Introduction to Combustion (3)** Concepts related to laminar and turbulent premixed and nonpremixed combustion with applications to propulsion and stationary systems.

Effective: Fall 2009

Prerequisite: M E 201 or M E 300 or EME 301

**EGEE 433 Physical Processes in Energy Engineering (3)** Introduces fluid flow, heat transfer, phase equilibrium and mass transport phenomena in energy separation processes.

Effective: Summer 2007

Prerequisite: EGEE 304 or concurrent

**EGEE 436 Modern Thermodynamics for Energy Systems (3)** Thermodynamics of external fields, theory of stability and fluctuations, irreversible and non-linear thermodynamics, and bifurcation theory and their applications in energy and environmental processes are discussed.

Effective: Fall 2009

Prerequisite: EME 301 EGEE 302 MATH 231 and MATH 251

**EGEE 437 Design of Solar Energy Conversion Systems (3)** A review of fundamental concepts in solar energy conversion including photovoltaic (PV) and solar thermal conversion systems.

Effective: Spring 2010

Prerequisite: EGEE 304 or permission of program

**EGEE 438 Wind and Hydropower Energy Conversion (3)** Principles of sustainability and renewable energy conversion with emphasis on wind and hydrokinetic energy resources.

Effective: Spring 2012

Prerequisite: EGEE 302 EME 303

**EGEE 441 Electrochemical Engineering Fundamentals (3)** Course covers fundamental principles of electrochemistry, including electrochemical thermodynamics, kinetics, catalysis, and corrosion and focuses on applications such as fuel

cells, batteries, and photovoltaics. Each application covers: principles of method, criteria determining performance, present state of development, and advantages/disadvantages. Laboratory demonstration of the performance (current-voltage) measurements of an electrochemical converter is scheduled in this course.

Effective: Fall 2012

Prerequisite: EME 301 and EME 303 or CH E 220 and CH E 330 or M E 300 and M E 320 or MATSE 401 and MATSE 402

**EGEE 451 Energy Conversion Processes (3)** Emphasizes processes for conversion of fossil fuels, nuclear and biomass to other fuel forms as transportation fuels and electricity.

Effective: Summer 2007

Prerequisite: F SC 431

**EGEE 455 Materials for Energy Applications (3)** Overview of key principles and technologies for materials relevant to energy applications, including membranes, catalysis, supercapacitors, adsorbents, and semi-conductors.

Effective: Summer 2007

Prerequisite: EGEE 302/MATSE 201

**EGEE 456 (E E 456, E SC 456) Introduction to Neural Networks (3)** Artificial Neural Networks as a solving tool for difficult problems for which conventional methods are not applicable.

Effective: Spring 2008

Prerequisite: CMPSC 201 or CMPSC 202; MATH 220

**EGEE 464W Energy Design Project (3)** A team and capstone design project on an industrial energy-related problem.

Effective: Spring 2008

Prerequisite: seventh-semester standing in energy engineering or chemical engineering/ENGL 202C

**EGEE 470 Air Pollutants from Combustion Sources (3)** Generation of pollutants in combustion chambers; reduction by combustion control; pre- and post-combustion treatment of fuels and effluents.

Effective: Fall 2009

Prerequisite: EME 301

**EGEE 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1999

**EGEE 494A Research Project (2)** Supervised research on a selected topic of energy science and engineering and preparation of written and oral presentation of the research results.

Effective: Summer 2007

Prerequisite: Seventh semester standing in energy engineering

**EGEE 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**EGEE 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1999

**EGEE 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 1999

**EGEE 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1999

**EGEE 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1999

**EGEE 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Energy and Mineral Engineering (EME)

**EME 301 Thermodynamics in Energy and Mineral Engineering** (3) Treatment of classical thermodynamics targeted to the needs of students in the Department of Energy and Mineral Engineering.

Effective: Fall 2009

Prerequisite: CHEM 112PHYS 212 andMATH 250 orMATH 251

**EME 303 Fluid Mechanics in Energy and Mineral Engineering** (3) Treatment of fluid mechanics targeted to the needs of students in the Department of EME.

Effective: Summer 2009

Prerequisite: MATH 250 orMATH 251 andPHYS 212

**EME 407 Electrochemical Energy Storage** (3) Electrochemical concepts in energy storage devices, cell construction and materials involved in batteries and capacitors, electrochemical testing methods and applications.

Effective: Spring 2012

Prerequisite: EME 301 orM E 300 orCH E 220 andEME 303 orM E 320 orCH E 330 or their equivalent

**EME 432 (GEOG 432) Energy Policy** (3) Analysis, formulation, implementation, and impacts of energy-related policies, regulations, and initiatives.

Effective: Summer 2010

Prerequisite: E B F 200EGEE 120PL SC 490

**EME 444 Global Energy Enterprise** (3) Industry perspective on the resources, technologies, engineering approaches and externalities involved in satisfying worldwide energy demand profitably and sustainably.

Effective: Summer 2010

Prerequisite: ECON 004 or equivalentEGEE 102EGEE 120

**EME 460 Geo-resource Evaluation and Investment Analysis** (3) The course covers engineering evaluation of geo-resources, present value and rate of return analysis, mineral property and reserve estimation, and cost estimation and engineering economy concepts applied to geo-resources including energy and minerals.

Effective: Spring 2011

Prerequisite: 5th semester or higher

**EME 466 Energy and Sustainability in Society** (3) Capstone course in energy technology and policy options for reduced-carbon communities. Covering agent/stakeholder relations, sustainability, communication and public engagement.

Effective: Summer 2010

Prerequisite: GEOG 030METEO 469EME 432

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## Energy, Environmental, and Mineral Economics (ENNEC)

ENNEC 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2001

ENNEC 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practicums, or internships. Written and oral critique of activity required.  
Effective: Spring 2002  
Prerequisite: prior approval of proposed assignment by instructor

ENNEC 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2002

ENNEC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2001

ENNEC 499 (IL) **Foreign Study--Mineral Industries** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Engineering (ENGR)

**ENGR 096 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2011

**ENGR 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1998

**ENGR 097S 1st Year Seminar Engineering** (1-2) This First Year Seminar is designed to introduce first year students to the academic and social culture of Penn State University. The objective of the class is to help you engage with academic, social, and personal resources available at Penn State and in the community and to facilitate your transition to college life.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: must be engineering student

**ENGR 098 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2011

**ENGR 099 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**ENGR 100S Introduction to Engineering** (1) A seminar providing information about different engineering majors, coping with college life, and exploring educational and career goals.  
Effective: Fall 1999

**ENGR 110 (SCIED 110) Introduction to Engineering for Educators** (3) This course focuses on physics content, engineering design principles, and elementary science education pedagogy.  
Effective: Spring 2014

**ENGR 111 (IL) Introduction to Cross-Cultural Communication for Engineers** (1) Introduction to theoretical approaches and practical applications of intercultural communications for engineering students.  
Effective: Summer 2013

**ENGR 118 (GS;IL) Impact of Culture on Engineering in China** (3) Study of engineering in the context of cultural, historical, societal, political, and environmental considerations to understand the relationship between Chinese culture and engineering projects and policies; brief introduction to the basic engineering principles underlying the engineering projects and their design.  
Effective: Summer 2013  
Prerequisite: ENGR 111

**ENGR 194 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2011

**ENGR 195 Engineering Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1985

**ENGR 195A Engineering Internship** (1 credit per semester/maximum of 4 credits) A supervised work experience in a professionally relevant position in research, industry or government.  
Effective: Spring 2003

**ENGR 195I (IL) Engineering International Internship** (0.5- 1 per semester/maximum of 4) A supervised work experience in a professionally relevant position in research, industry, government or service sector.  
Effective: Fall 2013

**ENGR 196 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2011

**ENGR 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2009

ENGR 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2011

ENGR 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

ENGR 201 (GH) **Structures and Society** (3) Historical study of structures in the contexts of cultural, artistic, societal, and technological considerations; brief introduction to the scientific principles underlying their design.  
Effective: Spring 2013

ENGR 294 **Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1994

ENGR 295 **Engineering Co-Op Work Experience I** (1-3) A supervised work experience where the student is employed in an engineering position in industry or government. (To be offered only for SA/UN grading.)  
Effective: Spring 2008  
Prerequisite: CHEM 110CMPSC 122MATH 140MATH 141 orPHYS 211

ENGR 295A **Engineering Cooperative Education** (1) A supervised work experience in research, industry or government relevant to a student's major.  
Effective: Summer 2003

ENGR 295I (IL) **Engineering International Cooperative Education** (1) A supervised work experience in research, industry or government relevant to a student's major.  
Effective: Spring 2006

ENGR 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 1993

ENGR 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1985

ENGR 297A **Engineering Leadership, Communication and Outreach** (1-6) Required training course for students accepted into the Behrend College School of Engineering Ambassador's Program.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: CAS 100

ENGR 297C **2014 Women in Engineering Program Orientation** (0.5) An orientation program for first-year women students to provide them with resources and skills necessary for academic success in engineering.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGR 297G **Multicultural Engineering Program Orientation** (0.5) An Orientation Program for first-year minority students to provide them with skills and resources necessary for success in engineering.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGR 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2011

ENGR 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

ENGR 310 **Entrepreneurial Leadership** (3) This course develops leadership and entrepreneurial skills using collaborative, problem-based projects, with engineering and business students working in teams.  
Effective: Summer 2002

ENGR 312 **Sustainable Energy Entrepreneurship** (3) Three interrelated modules guide students through technical, global/business, and entrepreneurial aspects of sustainable energy.  
Effective: Summer 2010  
Prerequisite: EGEE 102E B F 200

ENGR 320 **Materials Properties Measurement I** (3) Measurement and experimental procedures determination of the

mechanical properties of engineered materials under deflection, compression, tension, fracture and fatigue conditions.

Effective: Summer 2010

Prerequisite: E MCH 213;ENGR 350E MCH 407 Prerequisite or concurrent:E MCH 461

**ENGR 320Y (GS;US;IL) Design for Global Society (3)** An interdisciplinary study of the engineering design process and the influence of society and culture on design.

Effective: Spring 2012

Prerequisite: ENGL 202

**ENGR 350 Computational Modeling Methods (3)** Theoretical and hands-on experience of mathematical modeling in mechanical systems; 2D thermal stresses, beam elements, solid modeling and vibrations.

Effective: Summer 2010

Prerequisite: CHEM 112;CMPSC 201;E MCH 213;MATH 231;M E 300 orEME 301;PHYS 212

**ENGR 394 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2011

**ENGR 395 Engineering Co-Op Work Experience II (1-3)** A supervised work experience where the student is employed in an engineering position in industry or government. (To be offered only for SA/UN grading.)

Effective: Fall 1987

Prerequisite: ENGR 295

**ENGR 395A Engineering Cooperative Education (1-2 per semester)** A supervised work experience in research, industry or government relevant to a student's major.

Effective: Summer 2003

Prerequisite: ENGR 295A orENGR 295I

**ENGR 395I (IL) Engineering International Cooperative Education (1-2 per semester)** A supervised work experience in research, industry or government relevant to a student's major.

Effective: Spring 2006

Prerequisite: ENGR 295A orENGR 295I

**ENGR 396 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2011

**ENGR 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2010

**ENGR 397A Advanced Engineering Communication (3)** This is a required training course for those accepted into the Engineering ambassadors program.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ENGR 397B World Class Engineering (3)** The practice of engineering is being shaped worldwide by major trends such as globalization, informatization, and financialization. Organizations that depend on engineers must continually refine engineering practice to complete at a world-class level. These changes in engineering practice lead to increased expectations for engineers in ethical and cultural competencies and their abilities to collaborate, innovate, and lead. This course discusses major social, business, and technical trends that are changing the practice of engineering within multinational and domestic contexts. Because engineering collaborations increasingly cross cultural boundaries as well as national borders, the impacts of culture on engineering processes are addressed. Ethical dimensions of engineering practice are discussed at the individual, team, and organizational level through topics such as developing trust, sustainable development, and corporate social responsibility.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ENGR 398 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2011

**ENGR 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

**ENGR 405 Project Management for Professionals (3)** Covers the essential concepts and skills needed to make effective contributions on projects, on time and within budget.

Effective: Spring 2014

Prerequisite: two years of work experience or fourth-semester standing or prior approval of instructor

**ENGR 407 Technology-Based Entrepreneurship (3)** Technology innovation coupled with business planning and development.

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104

**ENGR 408 (US) Leadership Principles (2)** An introduction to an exploration of theories and principles of leadership,

supplemented by presentations given by industry and government leaders.  
Effective: Spring 2006

**ENGR 409 (US) Leadership in Organizations (3)** Development of leadership skills essential for engineers to guide colleagues or an organization in a productive direction.  
Effective: Spring 2006

**ENGR 411 Entrepreneurship Business Basics (3)** Three critical entrepreneurship skills are covered for non-business majors: business finance, intellectual property, and marketing.  
Effective: Summer 2002  
Prerequisite: three credits in economics or economics-related course

**ENGR 415 Technology Launch for Entrepreneurs (3)** Development of a technology-based product or service that includes creative ideation, concept evaluation, market and sales analysis, prototyping, and manufacturing with potential for commercialization.  
Effective: Summer 2013  
Prerequisite: ENGR 407 and either MGMT 215 or ENGR 310 and 5th semester standing

**ENGR 421 Materials Properties Measurements II (4)** Materials powder characterization, compaction and densification techniques, density measurements, micro structural evaluation, thermal and electrical properties of materials.  
Effective: Summer 2010  
Prerequisite: ENGR 320/MATSE 201/MATSE 400

**ENGR 425 (IST 425, MGMT 425) New Venture Creation (3)** Via problem-based learning, teams define new business ventures to meet current market needs, develop business plans, and present to investors.  
Effective: Spring 2011  
Prerequisite: ECON 102 or ECON 104 or ECON 014; CAS 100

**ENGR 426 (IST 426, MGMT 426) Invention Commercialization (3)** Working with Penn State inventions selected by the Intellectual Property Office, student teams define an optimum commercialization path each technology.  
Effective: Spring 2011  
Prerequisite: ECON 102 or ECON 104 or ECON 014; CAS 100

**ENGR 450 Materials Design and Applications (3)** Engineering design considerations for materials selection, organization of property trends of materials families, materials design strategies and property compatibility.  
Effective: Summer 2010  
Prerequisite: ENGR 350E/MCH 407 or E MCH 461; ENGR 421

**ENGR 451 Social Entrepreneurship (3)** Students develop business models and implementation strategies for social ventures in diverse world regions.  
Effective: Summer 2013  
Prerequisite: 5th semester standing

**ENGR 455 Humanitarian Engineering and Social Entrepreneurship Reflection and Research Dissemination (3)** This post-fieldwork course focuses on reflection on ethical issues and grassroots diplomacy challenges, and workshops on research dissemination.  
Effective: Summer 2013  
Prerequisite: EDSGN 454

**ENGR 475 Space Systems Engineering Seminar (1)** Seminar overviewing the systems engineering approach as applied to practical space systems.  
Effective: Summer 2014  
Prerequisite: 5th semester standing or higher

**ENGR 486 Business Opportunities in Engineering (2)** Business principles, leadership and management strategies, accounting fundamentals, engineering and business ethics, creativity, and personal character as a formula for success.  
Effective: Summer 2014  
Prerequisite: 5th semester standing or higher. This course is not open to Business students.

**ENGR 487 Business Opportunities in Engineering: The Business Plan (1)** Essential elements, development, and presentation of the Business Plan from both an engineering and business point of view.  
Effective: Summer 2014  
Prerequisite: or concurrent: ENGR 486

**ENGR 490W Senior Design I (1)** Analysis of environmental impacts on a design, designing products for the global environment and discussion on engineering ethics and professionalism.  
Effective: Fall 2012  
Prerequisite: Prerequisite or concurrent: ENGR 350E/MCH 407E/MCH 461 or M E 461

**ENGR 491W Senior Design II (3)** Capstone of research projects from conception to prototype through industry sponsored collaboration on common technical interests between faculty and student.  
Effective: Summer 2010  
Prerequisite: ENGR 490W

**ENGR 493 Individual Leadership Experience (1)** Approved individual project or internship for students to practice the leadership skills developed in the Engineering Leadership Development Minor.  
Effective: Fall 2007  
Prerequisite: Prerequisite or concurrent: ENGR 408

**ENGR 494 Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1994

**ENGR 494H Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

**ENGR 495 Engineering Co-Op Work Experience III** (1-3) A supervised work experience where the student is employed in an engineering position in industry or government. (To be offered only for SA/Un grading.)  
Effective: Fall 1987  
Prerequisite: ENGR 395

**ENGR 495A Engineering Cooperative Education** (1-3 per semester) A supervised work experience in research, industry or government relevant to a student's major.  
Effective: Summer 2003  
Prerequisite: ENGR 395A or ENGR 395I

**ENGR 495I (IL) Engineering International Cooperative Education** (1-3 per semester) A supervised work experience in research, industry or government relevant to a student's major.  
Effective: Spring 2006  
Prerequisite: ENGR 395A or ENGR 395I

**ENGR 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 1993

**ENGR 496A International Experience-Hungary** (0.5) Independent Study in Engineering Leadership Topics.  
Effective: Summer 2014 Ending: Summer 2014

**ENGR 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1988

**ENGR 497A Politico-Engineering** (3) This course overviews the current "politico-engineering (politically-initiated engineering)"; technologies for the society sustainability and crisis technologies for natural disaster, infectious disease, enormous accident, terrorist/criminal incident, and war/territorial invasion, including risk management in the international relationship.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: senior or graduate standing

**ENGR 497C Global Engineering Teams Seminar** (1) Preparation for a career in international engineering enterprise. Prerequisite for students traveling internationally with the Engineering Leadership Development Program. Students must earn a B or better in this class to qualify for travel.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: ENGR 408 and ENGR 493 (grade of C or better)

**ENGR 497I Seminars for Teaching Interns** (0.5) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ENGR 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

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## Engineering Design (EDSGN)

**EDSGN 010 Introductory Engineering Graphics** (1) Multiview projections, pictorial drawings, dimensioning, engineering standards, and working drawings.  
Effective: Fall 2007

**EDSGN 011S Explorations in Design First-Year Seminar** (1) Students explore topical issues in engineering design.  
Effective: Spring 2007

**EDSGN 012S Solar Racers First-Year Seminar** (1) Students explore solar energy engineering by designing, building, testing, and racing a model car powered by a photovoltaic panel.  
Effective: Spring 2007

**EDSGN 013S Ethics of Star Trek First-Year Seminar** (1) The Star Trek television series is used as an introduction to ethics, with application to student life and engineering practice.  
Effective: Spring 2007

**EDSGN 015S Transformations by Design: First-Year Seminar** (1) Examination of the social and environmental transformations that follow engineering design, and of the transformations of students by higher education.  
Effective: Spring 2007

**EDSGN 100 Introduction to Engineering Design** (3) Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal, and written.  
Effective: Fall 2007

**EDSGN 100H Introduction to Engineering Design** (3) Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal, and written.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**EDSGN 100S Introduction to Engineering Design** (3) Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal, and written.  
Effective: Fall 2007

**EDSGN 110 Spatial Analysis in Engineering Design** (2) Spatial analysis techniques using advanced computer-aided drafting and design systems, with an emphasis on engineering concepts, analysis and design.  
Effective: Summer 2010  
Prerequisite: EDSGN 100

**EDSGN 130 Architectural Graphics and CAD** (3) Principles of architectural drawing; spatial relations with architectural applications; introduction to computer graphics (CAD) with project.  
Effective: Fall 2007

**EDSGN 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**EDSGN 210 Tolerancing and Spatial Models** (2) Tolerances; form and size; unilateral, bilateral, and symmetric; form control, critical fits, tolerances specifications precedence; applications in spatial models.  
Effective: Summer 2010  
Prerequisite: EDSGN 110

**EDSGN 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 2004

**EDSGN 295 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2004

**EDSGN 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2004

**EDSGN 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2004

**EDSGN 297A Engineering Design Abroad (3)** This course provides a unique opportunity for students to study engineering in cross-cultural design teams at partner institutions worldwide. The course examines engineering design from various cultural perspective through hands- on design activities, engagement with industry partners and a 2-week design project. Through the course, students will learn to identify and analyze cultural differences during customer needs assessments, formulate engineering design solutions and prototypes (3D models), and communicate design process and concepts to a cross-cultural audience. The culmination of this course is a final project where the results are presented in oral reports as well as detailed prototypes. Student evaluations will be based upon the quality of oral reports, prototypes, and team performance. Students choose the focus of their global engineering design experience by selecting the location of their studies from a list partner institutions.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: EDSGN 100 or EDSGN 100H

**EDSGN 297B Engineering Design Abroad (3)** This course provides a unique opportunity for students to study engineering in cross-cultural design teams at partner institutions worldwide. The course examines engineering design from various cultural perspective through hands- on design activities, engagement with industry partners and a 2-week design project. Through the course, students will learn to identify and analyze cultural differences during customer needs assessments, formulate engineering design problems that span cultural boundaries, compare design solutions within a cultural context, design and develop efficient design solutions and prototypes (3D models), and communicate design process and concepts to a cross-cultural audience. The culmination of the course is a final project where the results are presented in oral reports as well as detailed prototypes. Student evaluations will be based upon the quality of the oral reports, prototypes, and team performance.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: EDSGN 100 or EDSGN 100H

**EDSGN 298 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2008

**EDSGN 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**EDSGN 352 Fundamentals of Community Service Engineering (1)** Students collaborate on community service engineering projects. Course modules cover engineering design, teamwork and topics relevant to project work.

Effective: Summer 2008

**EDSGN 394 Research Project Courses (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2007

**EDSGN 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique or activity required.

Effective: Summer 2007

**EDSGN 396 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2007

**EDSGN 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2007

**EDSGN 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

**EDSGN 401 Engineering Systems Design (3)** Design requirements for complex systems; trade-offs between market opportunities and technology; translation of priorities and needs into an operational concept.

Effective: Spring 2012

Prerequisite: EDSGN 100CMPEN 271E MCH 212MATH 251

**EDSGN 410 Robotics Design and Applications (4)** Introduction to robotics, with emphasis on the design of robotics systems through multidisciplinary integration of electrical, mechanical, and software components.

Effective: Spring 2012

Prerequisite: CMPEN 472CMPSC 201 orCMPSC 121E E 310E MCH 212

**EDSGN 452 Projects in Humanitarian Engineering (2)** Multidisciplinary student teams engage in integrated design of real-world humanitarian ventures.

Effective: Spring 2014

Prerequisite: 5th semester standing Concurrent: EDSGN 453

**EDSGN 453 Design for Developing Communities (1)** A seminar series related to the context and integrated design of



Humanitarian Engineering and Social Entrepreneurship ventures in developing communities.

Effective: Summer 2013

Prerequisite: 5th semester standing

**EDSGN 454 Humanitarian Engineering and Social Entrepreneurship Field Experience (0.5)** A hands-on integrated learning research and entrepreneurial engagement experience for students working on various humanitarian projects.

Effective: Summer 2013

Prerequisite: EDSGN 453

**EDSGN 460W Multidisciplinary Capstone Design Project (3 per semester/maximum of 6)** Course provides multidisciplinary industry-sponsored and service-based senior design projects in conjunction with the Learning Factory.

Effective: Summer 2013 Ending: Summer 2014

Prerequisite: BIO E CH E CMPEN E E I E or M E; BIOE 440 or E E 300W or I E 302I E 305I E 323I E 327I E 330I E 405 or M E 340

**EDSGN 460W Multidisciplinary Capstone Design Project (3 per semester/maximum of 6)** Course provides multidisciplinary industry-sponsored and service-based senior design projects in conjunction with the Learning Factory.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIO E CH E CMPEN E E I E or M E; BME 440 or E E 300W or I E 302I E 305I E 323I E 327I E 330I E 405 or M E 340

**EDSGN 479 (I E 479) Human Centered Product Design and Innovation (3)** Consumer product design for a global market, incorporating human factors principles and user desires in a multicultural perspective.

Effective: Summer 2010

Prerequisite: I E 408 or I E 419 or equivalent

**EDSGN 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2004

**EDSGN 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**EDSGN 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 2004

**EDSGN 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2004

**EDSGN 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2004

**EDSGN 497A Projects in Sustainability Leadership (3)** This hands-on course challenges students to apply concepts of sustainability. An emphasis on residential energy and sustainability is used to prepare students to conduct home energy assessments and related activities in their community.

Effective: Summer 2014 Ending: Summer 2014

**EDSGN 497B Solidworks Fundamentals (3)** Fundamentals of solidworks.

Effective: Summer 2014 Ending: Summer 2014

**EDSGN 497B Solid Works Fundamentals (3)** First level of solid works instruction.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**EDSGN 497G Current Cad Applications (3)** Students will use the latest version of AutoCAD as a design tool for 2D and 3D applications in a variety of disciplines.

Effective: Summer 2014 Ending: Summer 2014

**EDSGN 497G Current CAD Applications (3)** Students will use the latest version of AutoCAD as a design tool for 2D and 3D applications in a variety of disciplines.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**EDSGN 497H Open Source and the Design of Technology (1-3)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**EDSGN 497H Open Source and the Design of Technology (1-3)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**EDSGN 497K Engineering Design and Analysis with Advanced CAD (3)** The course objectives are to understand how engineering design efforts are supported through the use of advanced computer aided design (CAD). Advanced CAD makes creating rich and complex designs possible. Advanced CAD (in this offering CATIA V5) is used as a design tool to build parts and assemblies, and to create drawings of those parts and assemblies. Students will learn basic FEA (Finite Element Analysis) capabilities to conduct structural analysis and computer simulation of designs. Students will learn how to generate models, establish meshes, apply boundary conditions, loads, and material properties to the model for structural analysis, and then generate an FEA report. Through various exercises, design projects with rapid prototyping models, and building design portfolios, students will obtain a solid foundations in the use of advanced CAD for their design and engineering analyses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**EDSGN 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2008

**EDSGN 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Engineering Graphics Technology (EG T)

**EG T 060 3D Visualization and Spatial Development** (1) Supplemental course designed to improve spatial skills through the use of interactive hands-on activities, such as clay modeling and multi-media software.  
Effective: Summer 2007

**EG T 101 Technical Drawing Fundamentals** (1) Technical skills and drafting room practices; fundamentals of theoretical graphics; orthographic projection including sectional and auxiliary views; dimensioning.  
Effective: Summer 1988

**EG T 102 Introduction to Computer Aided Drafting** (1) A first course presenting an intensive study utilizing a computer assisted drafting and design system to obtain graphic solutions.  
Effective: Summer 1988

**EG T 114 Spatial Analysis and Computer-Aided Drafting** (2) Spatial relations of applications in engineering technology with more advanced functionality of computer-aided drafting and design systems.  
Effective: Fall 2008  
Prerequisite: EDSGN 100

**EG T 119 Introduction to CAD for Electrical and Computer Engineering** (2) Introduction to computer-aided drafting (CAD) for Electrical and Computer Engineering Technology students with a focus on three dimensional assemblies.  
Effective: Summer 2007  
Prerequisite: MATH 081

**EG T 120 Introduction to Graphics and Solid Modeling** (3) Development of visualization skills; introduction to parametric solids modeling techniques with constrained and unconstrained geometry, and assemblies.  
Effective: Spring 2007

**EG T 121 Applied Solid Modeling** (3) Creation of working drawings from solid models; dimensioning, GD&T, fastener, weld and finish symbols, layouts and bill of materials.  
Effective: Spring 2007  
Prerequisite: EG T 120

**EG T 201 Advanced Computer Aided Drafting** (2) Application of the principles of engineering graphics; preparation of working drawings; details, examples, and bill of material using CAD.  
Effective: Fall 2008  
Prerequisite: EDSGN 100EG T 114

**EG T 205 Transition From 2-D CAD to Solid Modeling** (1) Supplemental course designed to introduce students (primarily transfer) to a solid modeling program.  
Effective: Summer 2007  
Prerequisite: EG T 201

**EG T 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1988

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## Engineering Mechanics (E MCH)

E MCH 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

E MCH 210 **Statics and Strength of Materials** (5) Equilibrium of particles, rigid bodies, frames, trusses, beams, columns; stress and strain analysis of rods, beams, pressure vessels.  
Effective: Fall 1983  
Prerequisite: or concurrent:MATH 141

E MCH 210H **Statics and Strength of Materials, Honors** (5) Equilibrium of particles and rigid bodies, frames, trusses, beams, columns; stress and strain analysis of rods, beams, pressure vessels.  
Effective: Spring 2008  
Prerequisite: or concurrent:MATH 141

E MCH 211 **Statics** (3) Equilibrium of coplanar force systems; analysis of frames and trusses; noncoplanar force systems; friction; centroids and moments of inertia.  
Effective: Spring 2008  
Prerequisite: or concurrent:MATH 141

E MCH 211H **Statics** (3) Equilibrium of coplanar force systems; analysis of frames and trusses; noncoplanar force systems; friction; centroids and moments of inertia.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: or concurrent:MATH 141 Concurrent: E MCH 211

E MCH 212 **Dynamics** (3) Motion of a particle; relative motion; kinetics of translation, rotation, and plane motion; work-energy; impulse-momentum.  
Effective: Spring 2008  
Prerequisite: E MCH 211 or E MCH 210;MATH 141

E MCH 212H **Dynamics** (3) Motion of a particle; relative motion; kinetics of translation, rotation, and plane motion; work-energy; impulse-momentum.  
Effective: Spring 2008  
Prerequisite: E MCH 211E MCH 210H or E MCH 210;MATH 141

E MCH 213 **Strength of Materials** (3) Axial stress and strain; torsion; stresses in beams; elastic curves and deflection of beams; combined stress; columns.  
Effective: Spring 2008  
Prerequisite: E MCH 211

E MCH 213D **Strength of Materials with Design** (3) Stress and deformation in members under axial, bending, and torsional loads, combined stress; columns. Design with a project.  
Effective: Spring 2008  
Prerequisite: E MCH 211ED&G 100

E MCH 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 1995

E MCH 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

E MCH 315 **Mechanical Response of Engineering Materials** (2) Mechanical response measures and design theories for engineering materials; elastic and plastic response as affected by stress, strain, time, temperature.  
Effective: Spring 2008  
Prerequisite: E MCH 213E MCH 210H or E MCH 210

E MCH 316 **Experimental Determination of Mechanical Response of Materials** (1) Experimental techniques for mechanical property measurement and structural testing.  
Effective: Spring 2008  
Prerequisite: or concurrent:E MCH 315

E MCH 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

E MCH 400 **Advanced Strength of Materials and Design** (3) Combined stresses; energy methods; special problems in bending and torsion; plates; thin-walled structures; buckling and stability; design projects.  
Effective: Spring 2008  
Prerequisite: E MCH 213E MCH 210H or E MCH 210

E MCH 402 **Applied and Experimental Stress Analysis** (3) Experimental design of structural and machine components;

photoelasticity, electrical resistance strain gauge techniques, Moire techniques, interferometry, holography.

Effective: Spring 2008

Prerequisite: E MCH 213E MCH 210H orE MCH 210

E MCH 403 **Strength Design in Materials and Structures** (4) Determination, interpretation, significance, and application of mechanical properties such as plastic flow, fatigue strength, creep resistance, and dynamic properties.

Effective: Spring 2008

Prerequisite: E MCH 315E MCH 316

E MCH 407 **Computer Methods in Engineering Design** (3) Computer methods in mechanical design: solid modeling, graphics, surface smoothing/interpolation and underlying numerics: simultaneous equations, quadrature, eigen problems, discrete models.

Effective: Spring 2008

Prerequisite: CMPSC 201CMPSC 202 orE SC 261M;E MCH 213E MCH 210H orE MCH 210

E MCH 409 **Advanced Mechanics** (3) Continuation of E MCH 012; Euler's equations for the rotation of a rigid body, gyroscopic motion, impulsive motion, Lagrangian mechanics.

Effective: Spring 2008

Prerequisite: E MCH 212 orE MCH 212H;MATH 230

E MCH 416H **Failure and Failure Analysis of Solids** (3) Examination and analysis of the various modes of failure of solid materials.

Effective: Spring 2008

Prerequisite: E MCH 213E MCH 210 orE MCH 210H

E MCH 440 (MATSE 440) **Nondestructive Evaluation of Flaws** (3) Methods and limitations of nondestructive evaluation of mechanical flaws; optical, acoustical, electromagnetic, x-ray, radiography, thermography, and dye techniques.

Effective: Spring 2008

Prerequisite: E MCH 213E MCH 210H orE MCH 210

E MCH 446 **Mechanics of Viscoelastic Materials** (3) Nature of viscoelastic materials, constitutive relations, thermorheological materials, viscoelastic stress analysis, rubber elasticity, viscoelastic liquids, experimental techniques for material characterization.

Effective: Spring 2008

Prerequisite: E MCH 315E MCH 316

E MCH 461 (M E 461) **Finite Elements in Engineering** (3) Computer modeling and fundamental analysis of solid, fluid, and heat flow problems using existing computer codes.

Effective: Spring 2011

Prerequisite: E MCH 213E MCH 210H orE MCH 210;CMPSC 200CMPSC 201 orCMPSC 202

E MCH 470 (M E 470) **Analysis and Design in Vibration Engineering** (3) Application of Lagrange's equations to mechanical system modeling, multiple- degree-of-freedom systems, experimental and computer methods; some emphasis on design applications.

Effective: Spring 2008

Prerequisite: E MCH 212 orE MCH 212H;M E 370 orE SC 407H

E MCH 471 **Engineering Composite Materials** (3) Properties, manufacture, forms of composites; micromechanics; orthotropic lamina properties; laminate analysis; theories; failure analysis; thermal, environmental effects.

Effective: Spring 2008

Prerequisite: E MCH 213E MCH 210H orE MCH 210;E MCH 315E SC 414M orMATSE 201

E MCH 473 (AERSP 473) **Composites Processing** (3) An introduction to the principles of mechanics governing manufacturing, computer-aided design, and testing of composite materials and structures.

Effective: Summer 1988

Prerequisite: E MCH 471

E MCH 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

E MCH 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

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## Engineering Science (E SC)

**E SC 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1998

**E SC 097S Respect the Environment: Designing New, Bioabsorbable Medical Implants and New Green Energy Storage Devices** (1) Environment is: the surroundings or conditions in which a person, animal, or plant lives or operates. Our task as modern engineers is to make it clean, free of debris and highly effective in providing and maintaining productive advancements focused on limiting amount of 'waste left behind' in two very different fields: the human body and nature. We will be analyzing a new field of bioabsorbable, not-toxic biomedical implants and development of environmentally respectful energy storage devices. Both new bioimplants and new energy sources are expected to disappear at the end of their designed life. We will learn (in the lab!) how to evaluate bioimplants and how to build efficient batteries. The FYS will serve as a good introduction to modern engineering and its spectrum of interconnected fields and show how an engineering problem and its solution have important implications in meeting societal needs.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**E SC 120S Design for Failure--First-Year Seminar** (1) This seminar, through the utilization of commonly used examples, discusses the engineering principles which are exploited by such designs.  
Effective: Summer 2000

**E SC 121S Science/Engineering Fiction and the Engineering Sciences--First-Year Seminar** (1) Examines the technology predictions of authors in view of the engineering sciences on which the underlying devices of their stories are based.  
Effective: Summer 2000

**E SC 122S Weird, Wild, and Wonderful Materials and Devices--First-Year Seminar** (1) First-year seminar that surveys the use of novel materials and material systems to create practical devices.  
Effective: Summer 2000

**E SC 123S Catastrophic Failures--First-Year Seminar** (1) First-year seminar that explores design deficiencies through the study of case histories of a number of famous failures.  
Effective: Summer 2000

**E SC 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**E SC 211 Material, Safety and Equipment Overview for Nanotechnology** (3) Nanotechnology processing equipment and materials handling procedures with a focus on safety, environment, and health issues.  
Effective: Fall 2011  
Prerequisite: CHEM 101MATH 081PHYS 150 orPHYS 250

**E SC 212 Basic Nanotechnology Processes** (3) Step-by-step description of equipment and processes needed in top-down, bottom-up, and hybrid nanotechnology processing.  
Effective: Fall 2011  
Concurrent: E SC 211

**E SC 213 Materials in Nanotechnology** (3) The use of materials for nanotechnology as well as the unique material properties available at the nano-scale.  
Effective: Fall 2007 Ending: Summer 2014  
Concurrent: E SC 211 E SC 212

**E SC 213 Materials in Nanotechnology** (3) The processing of materials in nanotechnology as well as the unique material properties available at the nano-scale.  
Effective: Fall 2014 Future: Fall 2014  
Concurrent: E SC 211 E SC 212

**E SC 214 Patterning for Nanotechnology** (3) Lithographic process from substrate preparation to exposure; process from development through inspection; advanced optical lithographic techniques.  
Effective: Fall 2011 Ending: Summer 2014  
Concurrent: E SC 211 E SC 212

**E SC 214 Patterning for Nanotechnology** (3) Pattern transfer techniques from photolithography to nanoimprinting and nanomolding.  
Effective: Fall 2014 Future: Fall 2014  
Concurrent: E SC 211 E SC 212

**E SC 215 Materials Modification in Nanotechnology Applications** (3) Processing steps used in modifying material properties in nanotechnology.

Effective: Fall 2011 Ending: Summer 2014

Concurrent: E SC 211 E SC 212

**E SC 215 Nanotechnology Applications (3)** Applications of nanotechnology including those in medicine, biology, electronics, energy, and materials.

Effective: Fall 2014 Future: Fall 2014

Concurrent: E SC 211

**E SC 216 Characterization, Testing of Nanotechnology Structures and Materials (3)** Measurements and techniques essential for controlling device fabrication.

Effective: Fall 2011

Concurrent: E SC 211 E SC 212

**E SC 261M Computational Methods in Engineering (3)** Computational methods for solving engineering problems using C++ and MATLAB. Reports on root finding, systems of algebraic equations.

Effective: Spring 2014

Prerequisite: or concurrent:MATH 141

**E SC 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 1995

**E SC 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1988

**E SC 312 Engineering Applications of Wave, Particle, and Ensemble Concepts (3)** The engineering applications of the wave and ensemble pictures of the physical world.

Effective: Spring 2012

Prerequisite: PHYS 214

**E SC 313 Introduction to Principles, Fabrication Methods, and Applications of Nanotechnology (3)** Principles, fabrication methods and applications of nanoscale.

Effective: Summer 2007

Prerequisite: CHEM 110CHEM 111PHYS 212PHYS 214

**E SC 314 Engineering Applications of Materials (3)** Basic concepts of material structure and their relation to mechanical, thermal, electrical, magnetic, and optical properties, with engineering applications.(E SC 314 is not intended for students in E SC major)

Effective: Spring 2007

Prerequisite: PHYS 212

**E SC 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**E SC 400H Electromagnetic Fields (3)** Irrotational and solenoidal fields, potentials, vector and scalar field and wave equations, harmonic and wave functions in various coordinates, radiation.

Effective: Fall 2003

Prerequisite: E E 210MATH 250

**E SC 404H Analysis in Engineering Science (3)** Unified application of coordinate transformations; Laplace's, heat, and wave equations to boundary value problems and problems of continua in engineering.

Effective: Spring 2001

Prerequisite: MATH 250 orMATH 251

**E SC 406H Analysis in Engineering Science II, Honors (3)** Application of complex variable theory, integral equations, and the calculus of variations to engineering problems.

Effective: Fall 1983

Prerequisite: E SC 404H

**E SC 407H Computer Methods in Engineering Science, Honors (3)** Numerical solution of differential equations including fundamentals: roots of single nonlinear and simultaneous (Matrix) equations, least squares fitting and statistical goodness, interpolation, finite differences, differentiation, integration, eigensolutions.

Effective: Spring 2007

Prerequisite: CMPSC 201C orCMPSC 201F orE SC 261M Concurrent: MATH 220

**E SC 409H Senior Research and Design Project Preparation, Honors (1)** Preliminary identification and planning for the senior year research and design project.

Effective: Summer 2014

Prerequisite: E SC 433HE SC 414M

**E SC 410H Senior Design Project, Honors (3)** Design and synthesis in the context of a specific design project undertaken during the senior year.

Effective: Summer 1998 Ending: Summer 2014

Prerequisite: E SC 407H

**E SC 410H Senior Research and Design Project I, Honors (3)** Design and synthesis in the context of a specific design

project undertaken during the senior year.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: E SC 409H

**E SC 411H Senior Research and Design Project II, Honors (3)** Design and synthesis in the context of a specific design project undertaken during the senior year.

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: E SC 410H

**E SC 411H Senior Research and Design Project II, Honors (2)** Design and synthesis in the context of a specific design project undertaken during the senior year.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: E SC 410H

**E SC 414M Elements of Material Engineering (3)** Structure and imperfections in engineered materials; their influence on properties, behavior, and processing. Applications of metals, ceramics, polymers, and composites.

Effective: Spring 2008

Prerequisite: E MCH 213E MCH 210H or E MCH 210 . Prerequisite or concurrent: E SC 312 or PHYS 237

**E SC 417 (MATSE 417) Electrical and Magnetic Properties (3)** Electrical conductivity, dielectric properties, piezoelectric and ferroelectric phenomena; magnetic properties of ceramics.

Effective: Summer 2006 Ending: Fall 2014

Prerequisite: MATSE 400MATSE 402PHYS 214

**E SC 417 (MATSE 417) Electrical and Magnetic Properties (3)** Electrical conductivity, dielectric properties, piezoelectric and ferroelectric phenomena; magnetic properties of ceramics.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MATSE 400MATSE 413 Concurrent: MATSE 402

**E SC 419 Electronic Properties and Applications of Materials (3)** The course covers the electrical, optoelectronic, dielectric, and other electron-based properties of solids, semiconductors in particular, and their engineering/ device applications.

Effective: Summer 2006

Prerequisite: E SC 312

**E SC 433H Engineering Science Research Laboratory Experience (1)** Hands-on lab experience and exposure to campus-wide interdisciplinary experimental research. Experimental probability and statistics. Applications across all Engineering Science disciplines.

Effective: Spring 2007

Prerequisite: MATH 251

**E SC 445 Semiconductor Optoelectronic Devices (3)** The course will present the basic engineering science and technology involved in modern semiconductor optoelectronic devices.

Effective: Spring 2007

Prerequisite: E SC 419 or E SC 314 or E E 368

**E SC 450 (MATSE 450) Synthesis and Processing of Electronic and Photonic Materials (3)** The materials science of applying thin film coatings, etching, and bulk crystal growth; includes materials transport, accumulation, epitaxy, and defects.

Effective: Fall 2005

Prerequisite: MATSE 201 or E SC 414H sixth semester standing

**E SC 455 Electrochemical Methods Engineering and Corrosion Science (3)** The objective of the course is to give students hands-on experience in assessing environmental degradation of engineering materials.

Effective: Fall 2013

Prerequisite: MATSE 259 or E SC 414M or EGEE 441

**E SC 456 (E E 456, EGEE 456) Introduction to Neural Networks (3)** Artificial Neural Networks as a solving tool for difficult problems for which conventional methods are not available.

Effective: Spring 2008

Prerequisite: CMPSC 201 or CMPSC 202; MATH 220

**E SC 475 (MATSE 475) Particulate Materials Processing (3)** Fundamentals of processing particulate materials including production, characterization, handling, compaction, and sintering of metal, carbide, intermetallic, and composite powders.

Effective: Spring 2008

Prerequisite: E MCH 315E SC 414 or MATSE 259

**E SC 481 Elements of Nano/Micro-electromechanical Systems Processing and Design (3)** Interdisciplinary fundamentals of nano/microelectromechanical systems (NEMS/ MEMS), including design, fabrication and machining of miniature systems. Draws from mechanics, science and materials.

Effective: Spring 2008

Prerequisite: E MCH 213 or E MCH 315 or E SC 312

**E SC 482 Micro-Optoelectromechanical Systems (MOEMS) and Nanophotonics (3)** Principles and applications of Micro-Optoelectromechanical and Nanophotonic devices and systems.

Effective: Summer 2006

Prerequisite: PHYS 212PHYS 214

**E SC 483 (MATSE 483) Simulation and Design of Nanostructures (3)** Introduction to computer simulation techniques and their applications at the physical/life sciences interface.



Effective: Fall 2007

Prerequisite: PHYS 214 or E SC 312 MATH 230

E SC 484 **Biologically Inspired Nanomaterials** (3) Advances in biomolecular-based Science and technology at the physical/life sciences interface.

Effective: Summer 2006

Prerequisite: PHYS 214 MATH 230

E SC 494 **Senior Thesis** (1-9) Students must have approval of a thesis adviser before scheduling this course.

Effective: Summer 1986

E SC 494H **Senior Thesis** (1-9) Students must have approval of a thesis adviser before scheduling this course.

Effective: Fall 2007

E SC 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

E SC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

E SC 497A **Business Opportunities in Engineering and Independent Study** (3) The principal goal of this course is to inform engineering students of business opportunities in Engineering.

Effective: Summer 2014 Ending: Summer 2014

E SC 497A **Multidisciplinary Design** (3) Multidisciplinary teams engage students from other departments to provide a broad perspective typical of real-life experiences.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: M E 300 or M E 302 E E 210 or E E 210 HE SC 312 or PHYS 237 E SC 414 M or M E 340

E SC 497B **Business Opportunities in Engineering** (2) The principal goal of this course is to inform engineering students of business opportunities in Engineering.

Effective: Summer 2014 Ending: Summer 2014

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## Engineering Technology (ET)

**ET 002 Engineering Technology Orientation** (1) Introduction to computer methods for analyzing and solving engineering technology problems; microcomputer fundamentals, word processing, spreadsheet, and database software packages.  
Effective: Summer 1995

**ET 200 Graphic Communications** (3) The study of graphic communications relating to the design and construction industry.  
Effective: Fall 2007  
Prerequisite: 2-credit drafting course

**ET 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 1997

**ET 300 Mechanics I: Statics** (3) Equilibrium of coplanar force systems; analysis of frames and trusses; shear and moment diagrams; friction; centroids and moment of inertia.  
Effective: Spring 2010  
Prerequisite: MATH 140;PHYS 150 orPHYS 211 orPHYS 250

**ET 302 Mechanics II: Dynamics** (3) Kinematics of a particle; relative motion; kinematics of a mass-point; kinematics of a rigid body; work-energy; impulse-momentum.  
Effective: Fall 2007  
Prerequisite: statics

**ET 321 Dynamics** (3) Motion of a particle, relative motion; kinetics of translation; rotation and plane motion; conservation of energy and momentum.  
Effective: Spring 2010  
Prerequisite: ET 300E MCH 211 orMCH T 111 Concurrent: statics integral calculus

**ET 322 Strength of Materials** (3) Axial, torsional, bending, and combined stress analysis; deformation and deflection analysis of cables, shafts, and beams; column design and analysis.  
Effective: Spring 2010  
Prerequisite: ET 300E MCH 211 orMCH T 111

**ET 323 Strength of Materials Laboratory** (1) Measurement of mechanical properties of materials, structural testing.  
Effective: Spring 2010  
Prerequisite: or concurrent:ET 322E MCH 213 orMCH T 213

**ET 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

**ET 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.  
Effective: Fall 2007  
Prerequisite: prior approval of proposed assignment by instructor

**ET 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2007

**ET 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

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## English (ENGL)

ENGL 001 (GH) **Understanding Literature** (3) Explores how major fiction, drama, and poetry, past and present, primarily English and American, clarify enduring human values and issues.  
Effective: Spring 2003

ENGL 001H (GH) **Understanding Literature** (3) Explores how major fiction, drama, and poetry, past and present, primarily English and American, clarify enduring human values and issues.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 001W (GH) **Understanding Literature** (3) Studies the various critical ways of reading, understanding, and writing about fiction, poetry, and drama.  
Effective: Spring 1999

ENGL 002 (GH) **The Great Traditions in English Literature** (3) Major works of fiction, drama, and poetry from the Middle Ages to the twentieth century expressing enduring issues and values.  
Effective: Spring 2000

ENGL 003S (GH) **The Great Traditions in American Literature** (3) Major works of fiction, drama, and poetry from the colonial to the modern periods expressing enduring issues and values.  
Effective: Fall 2002

ENGL 004 **Basic Writing Skills** (3 per semester/maximum of 6) Intensive practice in writing sentences and paragraphs and instruction in grammar, usage, and punctuation. Designed for students with deficient preparation. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.  
Effective: Fall 1983

ENGL 005 **Writing Tutorial** (1) Tutorial instruction in composition and rhetoric for students currently enrolled in Engl. 4 or 15. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.  
Effective: Fall 1983

ENGL 006 **Creative Writing Common Time** (1 per semester/maximum of 8) Required one hour a week meeting time; readings, professional development, advising, community-building.  
Effective: Fall 2007

ENGL 015 (GWS) **Rhetoric and Composition** (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.  
Effective: Fall 1991  
Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

ENGL 015A (GWS;US) **Rhetoric and Composition** (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.  
Effective: Summer 2005  
Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

ENGL 015H (GWS) **Rhetoric and Composition** (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

ENGL 015S (GWS) **Rhetoric and Composition** (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.  
Effective: Summer 1999  
Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

ENGL 030 (GWS) **Honors Freshman Composition** (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.  
Effective: Fall 1991

ENGL 030H (GWS) **Honors Freshman Composition** (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 030S (GWS) **Honors Freshman Composition** (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.  
Effective: Spring 2003

ENGL 030T (GWS) **Honors Freshman Composition** (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.  
Effective: Spring 2003

ENGL 050 (GA) **Introduction to Creative Writing** (3) Practice and criticism in the reading, analysis and composition of fiction, nonfiction and poetry writing.  
Effective: Spring 2001

ENGL 050H (GA) **Introduction to Creative Writing** (3) Practice and criticism in the reading, analysis and composition of fiction, nonfiction and poetry writing.  
Effective: Summer 2012

ENGL 083S (GH) **First-Year Seminar in English** (3) Critical approaches to the dimensions and directions in English/American literature and rhetoric.  
Effective: Summer 1999

ENGL 088 (GH) **Australian/New Zealand Cultural Perspectives** (3) Australian and New Zealand cultural and social perspectives, with emphasis on the historical development of intellectual, aesthetic, and humanistic values.  
Effective: Spring 2001

ENGL 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ENGL 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

ENGL 100 **English Language Analysis** (3) An examination of English sounds, words, and syntax using traditional, structural, and transformational grammar.  
Effective: Spring 1984

ENGL 103 (GH;US) **The Great Traditions in American Literature** (3) Major works of fiction, drama, and poetry from the colonial to the modern periods expressing enduring issues and values.  
Effective: Spring 2013

ENGL 104 (GH) **The Bible as Literature** (3) Study of the English Bible as a literary and cultural document.  
Effective: Spring 2002

ENGL 105 (GH;US) (AM ST 105) **American Popular Culture and Folklife** (3) Survey of popular culture, folklife, and ethnicity, synthesizing material from such areas as literature, media, entertainment, print, music, and film.  
Effective: Fall 2008

ENGL 110 **Newsriting Practicum** (2 per semester, maximum of 6) Practice in writing and editing articles for the campus newspaper.  
Effective: Fall 2001

ENGL 111 **The Possibilities of English** (2) This course familiarizes students with the range of professional possibilities offered by the English major.  
Effective: Summer 2010

ENGL 112 (GH;US) **Pennsylvania Literature** (3) An introduction to the literature that has been written by Pennsylvania authors from the colonial era through the present day.  
Effective: Summer 2014

ENGL 129 (GH) **Shakespeare** (3) A selection of the major plays studied to determine the sources of their permanent appeal. Intended for non-majors.  
Effective: Spring 2003

ENGL 129H (GH) **Shakespeare** (3) A selection of the major plays studied to determine the sources of their permanent appeal. Intended for non-majors.  
Effective: Summer 2012

ENGL 130 (GH) **Reading Popular Texts** (3) Popular texts (printed, visual, and aural texts) and their social, political, and cultural significance in the contemporary world.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030H

ENGL 132 (GH;US) (J ST 132) **Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.

Effective: Spring 2009

ENGL 132U (GH;US) (J ST 132U) **Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 133 (GH) **Modern American Literature to World War II** (3) Cather, Eliot, Frost, Faulkner, Fitzgerald, Hemingway, Hurston, Wharton, Wright, and other writers representative of the years between the world wars.

Effective: Spring 2002

ENGL 134 (GH) **American Comedy** (3) Studies in American comedy and satire, including such writers as Mark Twain, Faulkner, Vonnegut, Ellison, O'Connor, Welty, and Heller.

Effective: Spring 2003

ENGL 135 (GH;US) (AM ST 135) **Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

Effective: Fall 2013

ENGL 135S (GH;US) **Alternative Voices in American Literature** (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

Effective: Summer 2005

ENGL 136 (GH) **The Graphic Novel** (3) The graphic novel as a literary and visual form (produced primarily in English).

Effective: Summer 2010

ENGL 137H (GWS) (CAS 137H) **Rhetoric and Civic Life I** (3) Within a liberal arts framework and with attention to public discourse-- speaking, writing, online communication, and visual presentation--this course instructs students in the arts, practices, and principles of rhetoric.

Effective: Summer 2012

ENGL 138T (GWS) (CAS 138T) **Rhetoric and Civic Life II** (3) This course builds rhetorical skills in oral, written, visual, and digital contexts and introduces deliberation and advocacy in civic and disciplinary spheres.

Effective: Summer 2012

Prerequisite: ENGL 137H or CAS 137H

ENGL 139 (GH;US) (AF AM 139) **Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

Effective: Fall 2013

ENGL 139S (GH;US) **Black American Literature** (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

Effective: Fall 2006

ENGL 140 (GH) **Contemporary Literature** (3) Writers such as Baldwin, Beckett, Bellow, Ellison, Gordimer, Lessing, Lowell, Mailer, Naipaul, Pinter, Plath, Pynchon, Rushdie, and Walker.

Effective: Spring 2003

ENGL 145 (GH;IL) **Modern Irish Literature** (3) Irish literature in the twentieth century and beyond; focus on the interplay of political, social, and cultural forces on literature.

Effective: Spring 2007

ENGL 180 (GH) **Literature and the Natural World** (3) Literary representations of the natural world, focusing on English language traditions.

Effective: Spring 2003

ENGL 181A (GH;US) **Adventure Literature: Exploring the Chesapeake Bay** (4.5) Examines the interconnection of culture and nature in the Chesapeake Bay region through the literature of the region.

Effective: Summer 2011

ENGL 181B (GH;US) **Adventure Literature: Exploring Cape Cod** (4.5) Examines the interconnection of culture and nature

on Cape Cod through considerations of texts in various literary genres that have contributed to development of a distinctive regional identity and culture.  
Effective: Summer 2011

ENGL 181C (GH;US) **The Beach: Exploring the Literature of the Atlantic Shore** (4.5) Examines the interconnection of culture and nature in coastal areas of the Atlantic seaboard.  
Effective: Spring 2012

ENGL 181D (GH;US) **Adventure Literature: Exploring the Literature of American Wilderness** (3) Examines the history and cultural impact of wilderness in America.  
Effective: Spring 2013

ENGL 182A (GH;US;IL) **Literature and Empire** (3) Literature written in English from countries that were once part of European empires, e.g., India, Canada, South Africa, and others.  
Effective: Summer 2005

ENGL 182C (GH;IL) **Literature and Empire** (3) Literature written in English from countries that were once part of European empires, e.g., India, Canada, South Africa, and others.  
Effective: Summer 2005

ENGL 184 (GH;IL) (CMLIT 184) **The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.  
Effective: Spring 2006

ENGL 184S (GH;IL) **The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.  
Effective: Spring 2006

ENGL 184U (GH;IL) **The Short Story** (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 185 (GH;IL) (CMLIT 185) **World Novel** (3) Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation.  
Effective: Spring 2011

ENGL 189 (GH;IL) (CMLIT 189) **Modern Drama** (3) Playwrights who set the world's stage for twentieth-century drama; issues that continue to shape the contemporary theatrical world.  
Effective: Spring 2011

ENGL 191 (GH) **Science Fiction** (3) Science fiction as the literature of technological innovation and social change--its development, themes, and problems.  
Effective: Summer 1995

ENGL 192 (GH) **The Literature of Fantasy** (3) Literature(s) of fantasy from early forms through a variety of contemporary traditions.  
Effective: Spring 2011

ENGL 194 (GH;US;IL) (WMNST 194) **Women Writers** (3) Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers.  
Effective: Summer 2005

ENGL 194S (GH;US;IL) **Women Writers** (3) Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers.  
Effective: Summer 2005

ENGL 196 (GH;US) (AM ST 196, AMSTD 196) **Introduction to American Folklore** (3) A basic introduction to verbal and nonverbal folklore stressing the basic procedures of collection, classification, and analysis.  
Effective: Summer 2005

ENGL 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

ENGL 197A **Hollywood's Golden Age** (1) Through weekly mandatory screenings of classic Hollywood film, students will

learn how Hollywood has helped to create the American experience.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ENGL 198 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**ENGL 199 (IL) Foreign Study--English** (3-6) Studies in English language and/or literature.

Effective: Summer 2005

**ENGL 200 Introduction to Critical Reading** (3) Responses to a variety of literary texts written in English that evoke different approaches.

Effective: Fall 1991

Prerequisite: ENGL 015 or ENGL 030

**ENGL 200H Introduction to Critical Reading** (3) Responses to a variety of literary texts written in English that evoke different approaches.

Effective: Summer 2012

Prerequisite: ENGL 015 or ENGL 030

**ENGL 200W Introduction to Critical Reading** (3) Responses to a variety of literary texts written in English that evoke different approaches.

Effective: Fall 2001

Prerequisite: 6 credits of ENGL ENLSH or LIT

**ENGL 201 (GH) What is Literature** (3) Acquaints students with theory and practice relevant to studies of narrative, lyric poetry, and drama.

Effective: Summer 2006

Prerequisite: ENGL 015 or ENGL 030

**ENGL 201H (GH) What is Literature** (3) Acquaints students with theory and practice relevant to studies of narrative, lyric poetry, and drama.

Effective: Summer 2012

Prerequisite: ENGL 015 or ENGL 030

**ENGL 202A (GWS) Effective Writing: Writing in the Social Sciences** (3) Instruction in writing persuasive arguments about significant issues in the social sciences. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**ENGL 202B (GWS) Effective Writing: Writing in the Humanities** (3) Instruction in writing persuasive arguments about significant issues in the humanities. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**ENGL 202C (GWS) Effective Writing: Technical Writing** (3) Writing for students in scientific and technical disciplines. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**ENGL 202D (GWS) Effective Writing: Business Writing** (3) Writing reports and other common forms of business communication. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**ENGL 202H (GWS) Writing in the Humanities: Adult Literacy** (3) Instruction in writing persuasive arguments about significant issues in the humanities. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**ENGL 202H (GWS) Writing in the Humanities: Adult Literacy** (3) Instruction in writing persuasive arguments about significant issues in the humanities. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**ENGL 209 Journal or Magazine Practicum** (1-6 per semester/maximum of 8) A practicum in the editing and publishing of a magazine or journal.

Effective: Fall 2007

**ENGL 210 The Process of Writing** (3) Examination of the relation between fiction and nonfiction; practice in principles common to all writing.

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

**ENGL 211 Introduction to Writing Studies (3)** This course introduces students to the most salient issues and theories in writing studies. Students explore contemporary theories and issues about writing in order to understand writing as a skill and a complex object of study in various professional contexts.

Effective: Spring 2010

Prerequisite: ENGL 015 or ENGL 030 ; third semester standing

**ENGL 211W Introduction to Writing Studies (3)** This course introduces students to the most salient issues and theories in writing studies. Students explore contemporary theories and issues about writing in order to understand writing as a skill and a complex object of study in various professional contexts.

Effective: Summer 2010

Prerequisite: ENGL 015 or ENGL 030 ; third semester standing

**ENGL 212 Introduction to Fiction Writing (3)** Written exercises and short readings in the elements of fiction writing; the writing of at least one short story.

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

**ENGL 213 Introduction to Poetry Writing (3)** Written exercises in the components and techniques of poetry writing in conjunction with selected readings.

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

**ENGL 214 Introduction to Creative Nonfiction Writing (3)** Introduces lyric and narrative forms in memoir writing and the personal essay.

Effective: Summer 2013

**ENGL 215 Introduction to Article Writing (3)** Written exercises in, and a study of, the principles of article writing; practice in the writing of specific articles.

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

**ENGL 221 British Literature to 1798 (3)** Introduction to literary history and analysis; Beowulf and writers such as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, and Fielding.

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030

**ENGL 221W British Literature to 1798 (3)** Introduction to literary history and analysis. Beowulf and writers such as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, and Fielding.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 222 British Literature from 1798 (3)** Introduction to literary history and analysis; writers such as Austen, Wordsworth, Keats, Browning, Dickens, The Brontes, Yeats, Joyce, and Woolf.

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030

**ENGL 222W British Literature from 1798 (3)** Introduction to literary history and analysis. Writers such as Austen, Wordsworth, Keats, Browning, Dickens, the Brontes, Yeats, Joyce, and Woolf.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 225 (GA;GH) (ART H 225, WMNST 225) Sexuality and Modern Visual Culture (3)** An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

Effective: Summer 2009

**ENGL 226 (GH;US;IL) (LTNST 226) Latina and Latino Border Theories (3)** English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture.

Effective: Spring 2007

**ENGL 227 (GH;US;IL) (WMNST 227) Introduction to Culture and Sexuality (3)** A course addressing the relationships between sexuality, literature, and culture.

Effective: Spring 2013

Prerequisite: ENGL 015 or ENGL 030

**ENGL 228 (GH;IL) Introduction to Disability Studies in the Humanities (3)** Provides a humanities-based interdisciplinary introduction to Disability Studies.

Effective: Spring 2013

**ENGL 229 Digital Studies (3)** An introduction to concepts, methods, and resources for the computer-assisted study of language and textual culture, including literature, in the English language.

Effective: Summer 2013

**ENGL 231 American Literature to 1865 (3)** Introduction to literary history and analysis; writers such as Bradstreet, Franklin, Emerson, Hawthorne, Douglass, Thoreau, Fuller, Melville, Whitman, and Dickinson.

Effective: Summer 1996



Prerequisite: ENGL 015 or ENGL 030

**ENGL 231W American Literature to 1865** (3) Introduction to literary history and analysis. Writers such as Bradstreet, Franklin, Emerson, Hawthorne, Douglass, Thoreau, Fuller, Melville, Whitman, and Dickinson.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 232 American Literature from 1865** (3) Introduction to literary history and analysis; writers such as Mark Twain, James, Cather, Frost, O'Neill, Faulkner, Hemingway, Hughes, and Morrison.

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030

**ENGL 232W American Literature from 1865** (3) Introduction to literary history and analysis. Writers such as Mark Twain, James, Cather, Frost, O'Neill, Faulkner, Hemingway, Hughes, and Morrison.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 233 (GH;GN) (CHEM 233) Chemistry and Literature** (3) Exploration of key concepts of chemistry, the reciprocal influence of chemistry and literature through history, and the relationship of science to society, culture, and values.

Effective: Spring 2006

**ENGL 235 (US) (AF AM 235) African-American Oral Folk Tradition** (3) The origins, forms, and function of the oral folk tradition of African Americans.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: ENGL 015 or ENGL 030

**ENGL 235 (US) (AF AM 235) From Folk Shouts and Songs to Hip Hop Poetry** (3) The origins, forms, and function of the oral folk tradition of African Americans.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ENGL 015 or ENGL 030

**ENGL 240 Exploring Literary Traditions** (3 per semester, maximum of 6) The examination of specific literary traditions in English-language texts and an inquiry into the question of tradition itself. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

**ENGL 245 (GH;US) (WMNST 245) Introduction to Lesbian and Gay Studies** (3) An introduction to the study of homosexual identities across a wide range of disciplines and methodologies.

Effective: Spring 2013

**ENGL 250 Peer Tutoring in Writing** (3) Introduction to skills and attitudes required for successful peer tutoring in writing. Provides internship experience in a writing center.

Effective: Spring 1987

Prerequisite: ENGL 202A ENGL 202B ENGL 202C or ENGL 202D ; approval of department

**ENGL 261 Exploring Literary Forms** (3 per semester/maximum of 6) The examination of specific genres in English-language texts and an inquiry into the question of genre itself. (Section subtitles may appear in the Schedule of Courses.)

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

**ENGL 262 (GH) Reading Fiction** (3) Elements of fiction including plot, character, viewpoint, and fictional genres in British, American, and other English-language traditions.

Effective: Spring 2003

Prerequisite: ENGL 015 or ENGL 030

**ENGL 263 (GH) Reading Poetry** (3) Elements of poetry including meter, rhyme, image, diction, and poetic forms in British, American, and other English-language traditions.

Effective: Spring 2003

Prerequisite: ENGL 015 or ENGL 030

**ENGL 265 (GH) Reading Nonfiction** (3) Forms of nonfictional prose such as autobiography, biography, essay, letter, memoir, oration, travelogue in British, American, and other English-language traditions.

Effective: Spring 2003

Prerequisite: ENGL 015 or ENGL 030

**ENGL 268 (GH) Reading Drama** (3) Elements of drama including plot, character, dialogue, staging, and dramatic forms in British, American, and other English-language traditions.

Effective: Spring 2003

Prerequisite: ENGL 015 or ENGL 030

**ENGL 268H (GH) Reading Drama** (3) Elements of drama including plot, character, dialogue, staging, and dramatic forms in British, American, and other English-language traditions.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: ENGL 015 or ENGL 030

**ENGL 281 Television Script Writing** (3) An introduction to the writing of scripts for television production.

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 294 Research Topics (1-12)** Individual or small group instruction.  
Effective: Spring 2001

**ENGL 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2001

**ENGL 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**ENGL 297A Walden (1)** "How many a man has dated a new era in his life from the reading of a book?" Here is your chance to focus on a literary classic--just one great book for the whole class. In this one-credit class, meeting once a week for the first ten weeks of the semester, we'll read *Walden*, Henry Thoreau's account of his two-year stay in a cabin he built himself by the side of Walden Pond. This is a book that is widely recognized as the most important work of nature writing, the book that essentially has come to define the genre. It is a book that changes lives, like a kid of scripture. You'll find out where Thoreau lived (and what he lived for), how much it cost him to build his cabin (and to live in it), and what he has to say about the meaning and purpose of life. All this, and transcendentalism, too!  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ENGL 297D Londong Calling: Ordering the World - the Trip (0.5)** This course will take students on an 8-day exploration of London and surrounding areas. Students will be expected to attend all scheduled visits and to act as responsible representatives of Penn State Altoona while abroad. Students will also be asked to compose short writings during the trip that respond to our site visits and to write a final evaluative paper after the trip.  
Effective: Summer 2014 Ending: Summer 2014

**ENGL 298 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**ENGL 299 (IL) Foreign Studies (12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**ENGL 300M Honors Course in English (3-12)** Reading, group discussions, and oral and written reports on various specific authors and literary works.  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

**ENGL 301M Honors Seminar in English: Literature Before 1800 (3-12)** Reading, group discussions, and oral and written reports on various specific authors and literary works.  
Effective: Fall 2005  
Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

**ENGL 302M Honors Seminar in English: Literature After 1800 (3-12)** Reading, group discussions, and oral and written reports on various specific authors and literary works.  
Effective: Fall 2005  
Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

**ENGL 303M Honors Seminar in English: American Literature & Culture (3-12)** Reading, group discussions, and oral and written reports on various specific authors and literary works.  
Effective: Fall 2005  
Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

**ENGL 304M Honors Seminar in English: Creative Writing (3-12)** Reading, group discussions, and oral and written reports on various specific authors and literary works.  
Effective: Fall 2005  
Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

**ENGL 310H Honors Thesis in English (3)** Research paper or creative project on a topic approved by the Departmental Honors Committee.  
Effective: Fall 1983  
Prerequisite: 9 credits of ENGL 300H

**ENGL 311 The Canon and Its Critics (3)** History and formation of literary canons, and challenges to canon ideology by writers and critics, through readings in English and American literature.  
Effective: Fall 2007  
Prerequisite: ENGL 015 or ENGL 030H

**ENGL 312 Globality and Literature (3)** Examines relationships between literature and culture, through the study of major texts in English by writers of various cultures.  
Effective: Fall 2007  
Prerequisite: ENGL 015 or ENGL 030H

**ENGL 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

**ENGL 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**ENGL 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**ENGL 399 (IL) Foreign Study--English** (3-6) Advanced studies in English language and/or literature.  
Effective: Summer 2005

**ENGL 400 Authors, Texts, Contexts** (3 per semester, maximum of 6) Styles, cultural milieus, critical perspectives toward particular English- language authors and/or movements they represent, and the idea of authorship. (Section subtitles may appear in the Schedule of Courses.)  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030

**ENGL 401 Studies in Genre** (3 per semester, maximum of 6) English-language texts exemplifying particular genres, with attention to critical theories, historical development, rhetorical strategies, and social, cultural, and aesthetic values. (Section subtitles may appear in the Schedule of Courses.)  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030

**ENGL 401W Creative Writing Theory** (3) Theories of art and creativity which inform the making of literary works.  
Effective: Fall 2007  
Prerequisite: ENGL 200; ELISH 201; ELISH 209; ENGL 212 or ENGL 213

**ENGL 402 Literature and Society** (3 per semester, maximum of 6) Texts confronting social, political, technological, or other issues in the English-speaking world. (Section subtitles may appear in the Schedule of Courses.)  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030

**ENGL 403 Literature and Culture** (3 per semester, maximum of 6) Historical, theoretical, and practical issues within cultural studies in relation to English-speaking texts. (Section subtitles may appear in the Schedule of Courses.)  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030

**ENGL 404 Mapping Identity, Difference, and Place** (3 per semester, maximum of 6) Ethnicity, gender, class, race with reference to theoretical inquiry into identity, difference, and place in English-language literatures. (Section subtitles may appear in the Schedule of Courses.)  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030

**ENGL 405 Taking Shakespeare From Page to Stage** (3) Students experience a Shakespeare play as a text to be explicated and as a script to be performed.  
Effective: Summer 2003  
Prerequisite: permission of program

**ENGL 407 History of the English Language** (3) Historical and structural study of developments in English sounds, forms, inflections, syntax, derivations, and meanings.  
Effective: Spring 1987  
Prerequisite: ENGL 100; ENGL 202A; ENGL 202B; ENGL 202C or ENGL 202D

**ENGL 409 Composition Theory and Practice for Teachers** (3) An overview of the theory and practice of writing for teachers, with emphasis on the writing process.  
Effective: Summer 2000  
Prerequisite: permission of the program Concurrent: EDUC 452

**ENGL 412 Advanced Fiction Writing** (3 per semester/maximum of 6) Advanced study of the techniques of fiction writing; regular practice in writing the short story; group discussion of student work.  
Effective: Spring 1992  
Prerequisite: ENGL 212 and permission of the department

**ENGL 413 Advanced Poetry Writing** (3 per semester/maximum of 6) Advanced study of the techniques of poetic composition; regular practice in writing poetry; group discussion of student work.  
Effective: Fall 2013  
Prerequisite: ENGL 213

**ENGL 414 Biographical Writing** (3) Writing of biography and autobiography, character sketches, "profiles," and literary portraits; analysis and interpretations of source materials.  
Effective: Spring 1987  
Prerequisite: ENGL 200; ENGL 202B; ENGL 210; ENGL 212 or ENGL 215

**ENGL 415 Advanced Nonfiction Writing** (3 per semester/maximum of 6) Advanced study of the principles of nonfiction; substantial practice in writing and submitting magazine articles for publication.

Effective: Spring 1992

Prerequisite: ENGL 215 and permission of the department

**ENGL 416 Science Writing** (3 per semester/maximum of 6) Prepares scientists and writers to gather, interpret, and present scientific information to the layman with clarity and accuracy.

Effective: Spring 2001

Prerequisite: COMM 260WENGL 202CENGL 210ENGL 215 orENGL 421

**ENGL 417 The Editorial Process** (3) The process of editing from typescript through final proof.

Effective: Summer 2011

Prerequisite: ENGL 202AENGL 202BENGL 202CENGL 202DENGL 210ENGL 215

**ENGL 418 Advanced Technical Writing and Editing** (3 per semester/maximum of 6) Preparing and editing professional papers for subject specialists and for others interested in careers as writers or editors.

Effective: Fall 1987

Prerequisite: ENGL 202AENGL 202BENGL 202CENGL 202D orENGL 215

**ENGL 419 Advanced Business Writing** (3) Preparing and editing reports and presentations common to business, industry, and government.

Effective: Fall 1987

Prerequisite: ENGL 202AENGL 202BENGL 202C orENGL 202D

**ENGL 420 Writing for the Web** (3) Analysis and composition of informative, persuasive, and "creative" Web texts, based on rhetorical principles; no prior Web writing experience required.

Effective: Spring 2002

Prerequisite: ENGL 015 orENGL 030

**ENGL 421 Advanced Expository Writing** (3) Develops skill in writing expository essays, with particular attention to style. Intended for liberal arts majors.

Effective: Spring 1987

Prerequisite: ENGL 202AENGL 202BENGL 202C orENGL 202D

**ENGL 422 Fiction Workshop** (3 per semester/maximum of 6) Practice and criticism in the composition of the short story and the novel.

Effective: Spring 1985

Prerequisite: ENGL 412

**ENGL 423 Poetry Writing Workshop** (3 per semester/maximum of 6) Extensive practice in writing poetry; consideration of contemporary poetic forms; selected readings.

Effective: Spring 1985

Prerequisite: ENGL 413

**ENGL 424 (ENVST 424) Creative Writing and the Natural World** (3) Creative writing workshop focused on the environment and related issues.

Effective: Summer 2011

Prerequisite: ENGL 050 orENVST 100

**ENGL 425 Nonfiction Workshop** (3 per semester/maximum of 6) Extensive writing of nonfiction for publication; an introduction to the principles of writing the nonfiction book.

Effective: Spring 1985

Prerequisite: ENGL 415

**ENGL 426 (US) (LTNST 426) Chicana and Chicano Cultural Production: Literature, Film, Music** (3) An in-depth study of Chicana/Chicano literature, film, and music from the inception of the Chicano Movement (1965-1975) to the present.

Effective: Spring 2007

Prerequisite: 3 credits in English

**ENGL 427 (J ST 427) Topics in Jewish American Literature** (3 per semester/maximum of 9) An in-depth examination of important themes, writers, and/or historical developments in Jewish Literature of the United States.

Effective: Spring 2014 Ending: Summer 2014

Prerequisite: ENGL 015 orENGL 030;J ST 132 orCMLIT 110

**ENGL 427 (J ST 427) Topics in Jewish American Literature** (3 per semester/maximum of 9) An in-depth examination of important themes, writers, and/or historical developments in Jewish Literature of the United States.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: ENGL 015 orENGL 030

**ENGL 428 (US) (AAS 428) Asian American Literatures** (3 per semester/maximum of 6) A seminar on the literatures and cultures of Asian America, with attention to forms of geographic, historical, and ethnic diversity.

Effective: Summer 2010

**ENGL 429 (CMLIT 429) New Media and Literature** (3) New media literary genres; critical discussion of creative works in digital media.

Effective: Summer 2010

**ENGL 430 The American Renaissance** (3) Studies in the works and the interrelationships of writers such as Emerson,

Hawthorne, Poe, Thoreau, Whitman, Melville, and Dickinson.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

**ENGL 431 (US) (AM ST 475) Black American Writers** (3 per semester, maximum of 6) A particular genre or historical period in the development of Black American literature.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030

**ENGL 432 The American Novel to 1900** (3) Such writers as Hawthorne, Melville, Stowe, Mark Twain, James, Crane, Chopin, and others.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 433 The American Novel: 1900-1945** (3) Such writers as Wharton, Dreiser, Cather, Fitzgerald, Faulkner, Hemingway, Hurston, Wright, and others.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 434 (AM ST 472) Topics in American Literature** (3 per semester) Focused study of a particular genre, theme, or problem in American literature. (May be repeated for credit.)

Effective: Fall 2007

Prerequisite: 6 credits of ENGL ENLSH or LIT

**ENGL 435 The American Short Story** (3) Development of the short story as a recognized art form, with emphasis on major writers.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

**ENGL 436 American Fiction Since 1945** (3) Representative fiction by such writers as Barth, Bellow, Ellison, Heller, Mailer, Morrison, Nabokov, Oates, O'Connor, Pynchon, Updike, Walker.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 437 The Poet in America** (3) American poets such as Bradstreet, Taylor, Poe, Emerson, Whitman, Dickinson, Frost, Eliot, Stevens, Hughes, Brooks, Moore, Williams, Plath, Rich, Lowell.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 438 American Drama** (3) Development from the colonial period to playwrights such as O'Neill, Wilder, Hellman, Miller, Williams, Albee, Shepard, Norman, Wilson, and others.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 439 American Nonfiction Prose** (3) Major prose writers such as Franklin, Emerson, Thoreau, Fuller, Henry Adams, Mailer, Baldwin, McCarthy, Dillard, Didion, Angelou, and others.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 440 Studies in Shakespeare** (3) Intensive study of a single genre, topic, or critical approach to selected plays.

Effective: Summer 1991

Prerequisite: ENGL 015 or ENGL 030

**ENGL 441 Chaucer** (3) The principal narrative poems and their background.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

**ENGL 442 Medieval English Literature** (3) Study of major works and genres of medieval English literature, exclusive of Chaucer.

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

**ENGL 443 The English Renaissance** (3) Such writers as More, Sidney, Spenser, Shakespeare, Donne, Jonson, Bacon, and Marvell.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

**ENGL 444 Shakespeare** (3) Selected tragedies, comedies, and histories.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

**ENGL 445 Shakespeare's Contemporaries** (3) Selected plays by Shakespeare's major predecessors and contemporaries: Kyd, Marlowe, Jonson, Webster, Marston, Middleton, and others.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

**ENGL 446 Milton** (3) Analysis of principal poems and their background.

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

**ENGL 447 The Restoration and the Eighteenth Century** (3) The neoclassical age (1660-1776). Such writers as Dryden,

Congreve, Swift, Pope, Fielding, Goldsmith, Sheridan, Boswell, Johnson.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

**ENGL 448 The English Novel to Jane Austen** (3) Novelists such as Defoe, Richardson, Fielding, Smollett, Sterne, and Austen.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

**ENGL 450 The Romantics** (3) Poets such as Blake, Wordsworth, Coleridge, Keats, Shelley, and Byron; also prose by writers such as Hazlitt, Lamb, and DeQuincey.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

**ENGL 451 Literary Modernism in English** (3) Survey of literary modernism in English and English translation in a variety of genres, including poetry, fiction, and drama.

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030; ENGL 200ELISH 300 or ELISH 301

**ENGL 452 The Victorians** (3) Poets such as Tennyson, Browning, Arnold, and Hopkins; also prose by writers such as Carlyle, Mill, Ruskin, and Arnold.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

**ENGL 453 Victorian Novel** (3) Novelists such as the Brontës, Thackeray, Dickens, George Eliot, Meredith, and Hardy.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

**ENGL 454 Modern British and Irish Drama** (3) From Wilde and Shaw to the present season.

Effective: Fall 2004

Prerequisite: ENGL 015 or ENGL 030

**ENGL 455 Topics in British Literature** (3) Focused study of a particular genre, theme, or problem in British literature. (May be repeated for credit.)

Effective: Fall 2001

Prerequisite: 6 credits of ENGL ENLSH or LIT

**ENGL 456 British Fiction, 1900-1945** (3) Major writers such as Conrad, Lawrence, Mansfield, Forster, Joyce, Woolf, Waugh, Greene, Bowen, Beckett, and others.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

**ENGL 457 British Fiction Since 1945** (3) Readings in British fiction since World War II.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

**ENGL 458 Twentieth-Century Poetry** (3) Poets writing in English such as Yeats, Pound, Eliot, Frost, Auden, Stevens, Plath, Bishop, Brooks, H.D., and others.

Effective: Spring 1995

Prerequisite: ENGL 015 or ENGL 030

**ENGL 461 (US) The Vernacular Roots of African American Literature** (3) The relationship between oral tradition and literary texts and the double consciousness of African American voice in "print."

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

**ENGL 462 (US) (WMNST 462) Reading Black, Reading Feminist** (3) Female identity and its construction in textual representations of gender, class, color, and cultural difference in English-language literatures.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

**ENGL 463 (US) African American Autobiography** (3) The African American literary quest for identity and its adaptation to Euro-American culture and autobiographies.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

**ENGL 466 (US) African American Novel I** (3) Thematic, structural, and stylistic characteristics of the African American novel from residually oral forms to satiric realism.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

**ENGL 467 (US) African American Novel II** (3) Thematic, stylistic, and structural characteristics of the African American novel from naturalism to modernism and postmodernism.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

**ENGL 468 (US) African American Poetry** (3) African American poetry within the contexts of the black oral tradition and transformed European literary tradition.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

- ENGL 469 (US) (AF AM 469) Slavery and the Literary Imagination** (3) The impact of slavery on the petitions, poetry, slave narratives, autobiographies, and novels of African Americans.  
Effective: Fall 2012  
Prerequisite: ENGL 015 or ENGL 030
- ENGL 470 Rhetorical Theory and Practice** (3) Application of certain rhetorical principles to problems in composition. Writing exercise. Designed as preparation for the teaching of composition.  
Effective: Spring 1995  
Prerequisite: ENGL 015 or ENGL 030
- ENGL 471 Rhetorical Traditions** (3 per semester, maximum of 6) Introduces major traditions of rhetorical inquiry and their relevance for English studies. (Section subtitles may appear in the Schedule of Courses.)  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030
- ENGL 472 Current Theories of Writing and Reading** (3 per semester, maximum of 6) Investigates models of textual production and reception current within English studies. (Section subtitles may appear in the Schedule of Courses.)  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030
- ENGL 473 Rhetorical Approaches to Discourse** (3 per semester, maximum of 6) Practices the criticism of written texts from selected rhetorical perspectives. (Section subtitles may appear in the Schedule of Courses.)  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030
- ENGL 474 Issues in Rhetoric and Composition** (3 per semester, maximum of 6) Examines selected topics in the field of rhetoric and composition. (Section subtitles may appear in the Schedule of Courses.)  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030
- ENGL 477 Teaching Children's Literature** (3) Teaching Children's Literature in light of recent literary pedagogy, the history of childhood, and critical approaches to Children's Literature.  
Effective: Fall 2007  
Prerequisite: ENGL 202
- ENGL 479 Business or Technical Writing Practicum** (1-3) Practical experience applying business or technical writing principles, working with advanced business, science, or engineering students on classroom projects.  
Effective: Fall 2007  
Prerequisite: Prerequisite or concurrent: ENGL 418 or ENGL 419
- ENGL 480 Communication Design for Writers** (3) This course explores visual design, non-verbal communication, and software packages used in professional settings to most effectively present written communications.  
Effective: Summer 2005  
Prerequisite: ENGL 015 or ENGL 030; ENGL 202A ENGL 202B ENGL 202C or ENGL 202D ; 7th semester standing or higher
- ENGL 481 Literary Theory: Historical Perspectives** (3) Selected topics in the history of literary criticism and theory within the English-language tradition.  
Effective: Summer 1994  
Prerequisite: ENGL 015 or ENGL 030
- ENGL 482 Contemporary Literary Theory and Practice** (3 per semester, maximum of 6) Contemporary literary theories and their implication for critical practice as applied to British, American, and other English-language literary works.  
Effective: Summer 1992  
Prerequisite: ENGL 015 or ENGL 030
- ENGL 482W Contemporary Literary and Cultural Theory** (3) Contemporary literary and cultural theories and their implication for critical practice as applied to a variety of texts, e.g. literary, linguistic, visual, multimedia, and/or popular.  
Effective: Fall 2007  
Prerequisite: ENGL 015 or ENGL 030H; ENGL 200
- ENGL 483 Problems in Critical Theory and Practice** (3) Intensive study of one or more recent theoretical approaches as applied to British, American, and other English-language literary works.  
Effective: Summer 1994  
Prerequisite: ENGL 015 or ENGL 030
- ENGL 484 James Joyce** (3) Analysis of principal works and their background.  
Effective: Fall 2007  
Prerequisite: ENGL 002; ENGL 015 or ENGL 030
- ENGL 485 Australian and New Zealand Literature and Culture** (3) Questions of nationality, identity, gender, race, class, colonialism, and postcolonialism in these literatures.  
Effective: Summer 1995  
Prerequisite: ENGL 015 or ENGL 030
- ENGL 486 (IL) The World Novel in English** (3) Studies in the novel, written in English, by writers outside of the United States and Great Britain.  
Effective: Fall 2007  
Prerequisite: ENGL 002; ENGL 015 or ENGL 030
- ENGL 487W Senior Seminar** (3) Issues, themes, periods, critical theories, etc., that invite students to use prior English studies, limited to seniors majoring in English.

Effective: Summer 1997

Prerequisite: six credits of 400-level courses in English

ENGL 488 (IL) (CMLIT 488) **Modern Continental Drama** (3) From Ibsen to the drama of today: Strindberg, Chekhov, Hauptmann, Pirandello, Ionesco, Beckett, Genet, and others.

Effective: Spring 2006

Prerequisite: ENGL 015 or ENGL 030

ENGL 489 (WMNST 489) **British Women Writers** (3) A study of selected British women writers.

Effective: Spring 2008

Prerequisite: 6 credits of ENGL

ENGL 490 (US;IL) (WMNST 490) **Women Writers and Their Worlds** (3) American and British literature written from the perspective of women.

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030

ENGL 491 **The Capstone Course in Professional Writing** (3) This culminating course for Professional Writing majors concentrates on reflective analyses, design, and presentation of documents in the development of professional portfolios.

Effective: Summer 2004

Prerequisite: ENGL 015 or ENGL 030; ENGL 202A ENGL 202B ENGL 202C or ENGL 202D ; seventh-semester standing or higher; enrollment in Professional Writing major

ENGL 492 (AM ST 476, WMNST 491) **American Women Writers** (3) A study of selected American women writers.

Effective: Spring 2008

Prerequisite: 6 credits of ENGL

ENGL 493 (AM ST 493) **The Folktale in American Literature** (3) A survey of the literary uses of the folktale and legendary materials, with particular concentration on the literature of America.

Effective: Spring 1986

Prerequisite: ENGL 015 or ENGL 030

ENGL 494 **Senior Thesis in English** (1-6) Senior English (ELISH) majors write a thesis arranged with in-charge person and submit it to a faculty committee for appraisal.

Effective: Fall 2007

Prerequisite: seventh-semester standing

ENGL 494H **Senior Thesis in English** (1-6) Senior English (ELISH) majors write a thesis arranged with in-charge person and submit it to a faculty committee for appraisal.

Effective: Fall 2007

Prerequisite: seventh-semester standing

ENGL 495 **Internship** (3-12) Supervised practicum in fields appropriate to the English major.

Effective: Spring 2001

ENGL 496 **Independent Studies** (1-18) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

ENGL 496H **Creative Fiction** (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

ENGL 497A **Words and Images: Artists and Writers Collaborate** (3) Students consider the artist's book as a form and locate it within the context of contemporary writing and visual art.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

ENGL 497B **London Calling: Ordering the World - The Trip** (0.5) This course will take students on an 8-day exploration of London and surrounding areas. Students will be expected to attend all scheduled visits and to act as responsible representatives of Penn State Altoona while abroad. Students will also be asked to compose short writings during the trip that respond to our site visits and to write a final evaluative paper after the trip.

Effective: Summer 2014 Ending: Summer 2014

ENGL 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

ENGL 499 (IL) **Foreign Study--English** (3-6) Studies abroad in English language and/or literature.

Effective: Summer 2005



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## English as a Second Language (ESL)

**ESL 004 ESL Composition for American Academic Communication I** (3) For undergraduate students who are beginning-intermediate level non-native speakers of English to improve their grammar and writing skills in preparation for future American academic writing assignments. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.  
Effective: Fall 2011

**ESL 005 Writing Tutorial** (1) This course supplements ESL 015, providing focused instruction for non-native English speaking students in English composition and academic writing.  
Effective: Spring 2013  
Concurrent: ESL 015

**ESL 015 (GWS) ESL Composition for American Academic Communication II** (3) For undergraduate students who are intermediate/advanced level non-native speakers of English to develop strategies for reading and writing American academic discourse.  
Effective: Fall 2011  
Prerequisite: a grade of C or higher required in ESL 004

**ESL 114G American Oral English for Academic Purposes** (3) Instruction in ESL for graduate students, focusing on the use of oral language skills in an academic setting.  
Effective: Fall 2011

**ESL 115G American Oral English for ITAs I** (3-9) Initial course in American Oral English for preparation of international teaching assistants.  
Effective: Spring 2001  
Prerequisite: score below 200 on the American English Oral Communicative Proficiency Test (AEOCPT)

**ESL 116G ESL Composition for Academic Disciplines** (3) For international students at the graduate level to engage in scholarly activity in their academic disciplines.  
Effective: Fall 2011

**ESL 117G American Oral English for ITAs II** (3-9) Intermediate course in American Oral English for preparation of international teaching assistants.  
Effective: Fall 2011  
Prerequisite: score of 200-229 on the American English Oral Communicative Proficiency Test (AEOCPT) or a grade of C required in ESL 115G

**ESL 118G American Oral English for ITAs III** (3) Advanced course in American Oral English for preparation of international teaching assistants.  
Effective: Fall 2011  
Prerequisite: score of 230-249 on the American English Oral Communicative Proficiency Test (AEOCPT) or a grade of C required in ESL 117G

**ESL 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2004

**ESL 297A Academic English for University Study** (3) The course is a general integrated-skills ESL class which will provide crucial language, communication and study skill practice for students who have never studied in an American university.  
Effective: Summer 2014 Ending: Summer 2014

**ESL 297A American Oral English for Academic Purposes** (3) Instruction for non-native speakers of English focusing on the use of oral language skills in an academic setting.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**ESL 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2004

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## Entomology (ENT)

ENT 202 (GN) **The Insect Connection** (3) An introduction to the diversity of insects and the ways in which they interact with humans and impact our world.  
Effective: Summer 1998

ENT 222 (GN) **Honey Bees and Humans** (3) This course explores the unique biology and behavior of bees, examining our relationship with them through time and across cultures.  
Effective: Spring 2014

ENT 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

ENT 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

ENT 297H **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

ENT 313 **Introduction to Entomology** (2) Introduction to basic entomology, covering insect diversity, identification, structure and function, and principles of management.  
Effective: Fall 2012  
Prerequisite: 3 credits of natural science

ENT 314 **Management of Insect Pests of Ornamentals** (1) Diagnosis and management of insect pests on shrubs and trees in the landscape or production nursery.  
Effective: Spring 1999  
Prerequisite: ENT 313

ENT 316 **Field Crops Entomology** (1) Laboratory-based approach to identification and management of insect pests of agronomic crops.  
Effective: Spring 1999  
Prerequisite: ENT 313

ENT 317 **Turfgrass Insect Pest Management** (3) Introduction to entomology and management of insect pests of cool- and warm- season turfgrass.  
Effective: Summer 2007  
Prerequisite: TURF 235CHEM 101 orCHEM 110

ENT 395 **Internship** (10-12) Supervised field experience and study related to the student's major professional interest. Written and oral critique of activity required.  
Effective: Summer 1984  
Prerequisite: prior approval of proposed assignment by department; cumulative GPA of 2.00 or higher; 6 credits of entomology; at least fourth-semester standing

ENT 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1998

ENT 402W (VB SC 402W) **Biology of Animal Parasites** (3) An introduction to animal parasitology. Emphasizes placed on host/parasite interactions, parasites of zoonotic importance, control programs and taxonomy.  
Effective: Spring 2010  
Prerequisite: BIOL 110

ENT 410 **Insect Structure and Function** (3) Integrated physiology and anatomy of insects; emphasis on unique adaptations, genetic regulation of development, insects as model systems, environmental physiology.  
Effective: Summer 1994  
Prerequisite: BIOL 110BIOL 220WBIOL 230WBIOL 240W

ENT 420 **Introduction to Population Dynamics** (3) Principles of population regulation, demographic analysis, modeling of dynamic processes are discussed; laboratories involve the exploration of population growth models.  
Effective: Summer 1994  
Prerequisite: BIOL 110BIOL 220W

ENT 424 **Sensory Biology of Insects** (3) This course provides students an understanding of insect sensory systems contributing to behaviors performed for survival and reproduction.  
Effective: Summer 2013  
Prerequisite: BIOL 110

**ENT 425 Freshwater Entomology** (3) Collection and identification of insects and other arthropods in freshwater ecosystems; field study of habitats.  
Effective: Fall 2000

**ENT 430 (BIOL 430, B M B 430) Developmental Biology** (3) Molecular and genetic analyses of mechanisms involved in differentiation and determination in biological systems.  
Effective: Summer 1994  
Prerequisite: BIOL 222;B M B 252 orBIOL 230W

**ENT 432 Insect Biodiversity and Evolution** (4) In this course students learn insect taxonomy, evolutionary history, collection and preservation techniques, morphology, fossils, and natural history.  
Effective: Spring 2014  
Prerequisite: ENT 313

**ENT 445 Evolution of Insect Societies** (3) Basic principles of Darwinian theory and their application to understanding the evolution of complex social behavior in insects are addressed.  
Effective: Spring 2012  
Prerequisite: BIOL 110 or equivalent

**ENT 457 (AGECO 457) Principles of Integrated Pest Management** (3) Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester students and graduate students.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Must take two or more of the following:ENT 313PPEM 405PPEM 318 orHORT 238

**ENT 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**ENT 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

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## Entrepreneuership (ENTR)

**ENTR 300 Principles of Entrepreneurship** (3) Overview of the fundamental principles and processes of entrepreneurship including idea generation and opportunity analysis.

Effective: Spring 2011

Prerequisite: ACCTG 211ECON 102

**ENTR 320 Entrepreneurship and New Venture Creation** (3) Explores the process for starting and growing a new venture including the development of a business plan.

Effective: Summer 2000

Prerequisite: ENTR 300

**ENTR 400 Financing Entrepreneurial Ventures** (3) Overview of alternative forms of financing including seed capital, valuing a company, going public, partnerships, and acquisitions.

Effective: Summer 2000

Prerequisite: B A 243 orB LAW 243;ENTR 320FIN 301

**ENTR 410 Entrepreneurial Marketing** (3) Principles of Internet marketing and strategies for marketing new ventures on the Web.

Effective: Spring 2007

Prerequisite: ENTR 320MIS 204MKTG 301

**ENTR 420 Leadership and Growth of New Ventures** (3) Leadership of an entrepreneurial organization, including organizational effectiveness, stages of entrepreneurial growth, strategies for the future, and developing people.

Effective: Summer 2000

Prerequisite: ENTR 320;MGMT 100 orMGMT 301

**ENTR 430 Entrepreneurship and New Product Development** (3) Examines the process of designing, testing and launching new products, and developing a strategy for commercialization of the technology.

Effective: Summer 2000

Prerequisite: ENTR 300

**ENTR 440 Entrepreneurship and Franchising** (3) Overview of the entire franchising process with a focus on licensing and distributorship, trade marks, strategy, and growing the enterprise.

Effective: Summer 2000

Prerequisite: ENTR 300

**ENTR 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2000

**ENTR 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2000

**ENTR 497A Sheetz Fellows Program** (1) This course is an introduction to the Sheetz Fellows Program. It prepares students with an entrepreneurial mindset for leadership roles by providing them with mentoring opportunities, academic challenges, and resources. Topic areas include; servant leadership, business networking, social networking, study abroad exploration, and resume development. The Sheetz Fellows experience offers "an education for leadership" in the best tradition of the Business program. It molds well-rounded students who are ready for the world and prepares students for citizenship for life-long learning.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

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## Environmental Engineering (ENVE)

**ENVE 301W Environmental Microbiology** (3) Fundamentals of microbial ecology and environmental microbiology with an emphasis on aspects of these fields important to environmental engineers.

Effective: Fall 2011

Prerequisite: CHEM 110 andCHEM 111

**ENVE 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1997

**ENVE 401 Occupational Safety and Environmental Health** (1) Regulations, management practices, hazard identification, exposure assessment, monitoring, employee protection, and program management for occupational safety and health.

Effective: Fall 2011

Prerequisite: CHEM 301 andENVE 301W

**ENVE 411 Water Supply and Pollution Control** (3) Water supply, wastewater characteristics, design of unit processes for water and wastewater treatment, sludge processing, and related new technologies.

Effective: Fall 2011 Ending: Fall 2014

Prerequisite: CHEM 301 ; andC E 370 or graduate standing

**ENVE 411 Water Supply and Pollution Control** (3) Water supply, wastewater characteristics, design of unit processes for water and wastewater treatment, sludge processing, and related new technologies.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: C E 370 or graduate standing

**ENVE 413W Operation and Control of Treatment Systems** (3) Wastewater treatment, water treatment, solids handling, hazardous waste site control and operations, operator certification, report writing.

Effective: Fall 2011

Prerequisite: ENVE 411 Concurrent: ENVE 416

**ENVE 415 Hydrology** (3) Watershed response to rainfall events; hydrologic systems; ground water flow.

Effective: Fall 2011

Prerequisite: ENVE 417 ; andSTAT 301 orSTAT 401

**ENVE 416 Treatment Plant Design** (3) Design of treatment facilities for water and waste water based on regulatory requirements and standards.

Effective: Fall 2011

Prerequisite: ENVE 411 Concurrent: ENVE 417

**ENVE 417 Hydraulic Design** (3) Design of water and waste water conveyance systems and storage facilities.

Effective: Fall 2011

Prerequisite: C E 360

**ENVE 424 Solid Waste Management** (3) Solid waste collection and disposal techniques; recycling and design optimization; including content analysis, legislation, and planning.

Effective: Fall 2011

Prerequisite: C E 335

**ENVE 425 Hazardous Waste Management** (3) Overview of regulations, risk assessment, waste minimization and pollution prevention, treatment of hazardous waste, and remediation of contaminated sites.

Effective: Fall 2011

Prerequisite: ENVE 411

**ENVE 430 Sustainable Engineering** (3) A course on engineering which uses ecological principles to minimize waste and maximally use input materials.

Effective: Summer 2003

Prerequisite: Permission of program

**ENVE 460 Environmental Law** (3) This course provides a survey of Federal and State environmental laws, including statutory, common and administrative law. May not be taken for graduate credit by Dickinson School of Law students in the concurrent J.D./EPC programs.

Effective: Summer 2003

Prerequisite: senior standing graduate standing or permission of program.

**ENVE 470 Air Quality** (3) Overview of air quality issues with regard to the sources, measurements, effects, transport and control of potential air contaminants.

Effective: Fall 2011 Ending: Fall 2014

Prerequisite: CHEM 112 andCHEM 113

**ENVE 470 Air Quality** (3) Overview of air quality issues with regard to the sources, measurements, effects, transport and control of potential air contaminants.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: C E 370

**ENVE 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2005

ENVE 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

ENVE 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2005

ENVE 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 1996

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## Environmental Resource Management (E R M)

**E R M 151 Careers and Issues in Environmental Resource Management** (1) Career opportunities and topical issues in the environmental sciences.  
Effective: Spring 2001

**E R M 210 (GN) Environmental Factors and Their Effect on Your Food Supply** (3) An exploration of how urban environmental problems influence our ability to obtain food and natural resources.  
Effective: Spring 2000

**E R M 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1996

**E R M 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1996

**E R M 300 Basic Principles and Calculations in Environmental Analysis** (3) This course will teach basic problem solving skills while using examples taken from environmental media--air, water, and soil.  
Effective: Fall 2010  
Prerequisite: 3 credits in BIOL;CHEM 111;MATH 110 orMATH 140;PHYS 250 orPHYS 211

**E R M 309 (A S M 309) Measurement & Monitoring of Hydrologic Systems** (3) Introduction to measurement and monitoring equipment/techniques commonly used in analyses and design of hydrologic systems.  
Effective: Spring 2010  
Prerequisite: PHYS 211 orPHYS 250CHEM 110

**E R M 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2012

**E R M 402 Foundations of Sustainable Business** (3) Emphasis on understanding business strategies for enhancing sustainable operations, including issues related to the natural environment and corporate social responsibility.  
Effective: Summer 2013  
Prerequisite: AG BM 101 orECON 102 orECON 104

**E R M 411 Legal Aspects of Resource Management** (3) Legal systems and lawmaking processes; property rights in land, water, and wildlife resources; jurisdictional problems in planning resource use.  
Effective: Summer 1996  
Prerequisite: E R M 151

**E R M 412 Resource Systems Analysis** (3) The concept of systems; techniques of analysis, including input/output, mathematical programming, and simulation; application to resource systems.  
Effective: Spring 2001  
Prerequisite: BIOL 220WE R M 151E R M 300 andSTAT 240;MATH 111 orMATH 141

**E R M 413W Case Studies in Ecosystem Management** (3) Application of biological, physical, and social science principles to ecosystem management problems; introduction to environmental impact analysis and review.  
Effective: Spring 2010  
Prerequisite: BIOL 220WSOILS 101 . Prerequisite or concurrent:E R M 412

**E R M 430 (PEM 430) Air Pollution Impacts to Terrestrial Ecosystems** (3) Overview of the direct and indirect effects of air pollutants on terrestrial plants and ecosystems.  
Effective: Spring 2014  
Prerequisite: BIOL 220W orFOR 308

**E R M 431 (VB SC 431) Environmental Toxicology** (3) Effects of pollutants on animal health at the chemical, physical, and cellular level.  
Effective: Spring 2011  
Prerequisite: BIOL 110CHEM 110CHEM 112

**E R M 433 Transformation of Pollutants in Soils** (3) Processes regulating fate and transport of metals, organics, nutrients, salts, pathogens, and radionuclides in soil systems.  
Effective: Summer 2007  
Prerequisite: CHEM 112CHEM 111SOILS 101

**E R M 435 (W F S 435) Limnology** (3) Biogeochemistry and natural history of freshwater ecosystems.  
Effective: Summer 2007  
Prerequisite: BIOL 110BIOL 220WCHEM 110

**E R M 436 (W F S 436) Limnological Methods** (3) Application of current methodologies to evaluate the biological, chemical, and physical characteristics of aquatic ecosystems.



Effective: Spring 2010

Prerequisite: BIOL 110 andCHEM 110

**E R M 440 Chemistry of the Environment: Air, Water, and Soil** (3) A global perspective of the chemical principles, composition and processes that operate within and between air, water, and soil environments.

Effective: Spring 2012

Prerequisite: CHEM 110CHEM 111CHEM 112;CHEM 202 orCHEM 210

**E R M 444 Environmental Biophysics** (3) Analysis of the interaction of living organisms and their microenvironment by applying biophysical principles and engineering methods.

Effective: Summer 2013

Prerequisite: BIOL 110;MATH 110 orMATH 140;PHYS 250 orPHYS 211

**E R M 447 Stream Restoration** (3) Stream restoration including fluvial geomorphology, stream classification, impairment, sediment transport, stable stream design, and watershed assessment.

Effective: Summer 2008

Prerequisite: A S M 327 orA B E 307 orC E 361

**E R M 450 (W F S 450) Wetland Conservation** (3) Wetland types, classification, functions and values; hydrology, soils, and plants; introduction to wetland identification and delineation; wetland regulations.

Effective: Spring 2002

Prerequisite: E R M 300 orW F S 209

**E R M 494H Honors Thesis** (1-6) Independent study directed by a faculty supervisor that culminates in the production of an ERM honors thesis.

Effective: Summer 2009

Prerequisite: Junior or senior status in the Schreyer Honors College and permission of the ERM honors advisor

**E R M 495 Internship** (1-12) A supervised practicum in the environmental field. To be offered only for SA/UN grading.

Effective: Summer 1996

Prerequisite: prior approval of assignment by instructor

**E R M 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1996

**E R M 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1996

**E R M 499 (IL) Foreign Studies** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2005

**E R M 499B (IL) New Zealand Natural Resources** (1) Pre-requisite organizational course for E R M 499C New Zealand Natural Resource embedded course to Christchurch, NZ. Environmental issues in New Zealand will include topics such as climate, sustainability issues, ecotourism, land use and biodiversity issues. Additionally, the course will be infused with content related to New Zealand and international travel tools.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

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## Environmental Scienc (ENVSC)

ENVSC 400W **Case Studies in Environmental Analysis and Problem-Solving** (3) A writing-intensive environmental science course comprising review and analysis of field, lab, policy, and management aspects; investigative methods; and projects.

Effective: Summer 2014

Prerequisite: BIOL 402W;CHEM 202 ; GEOSC 300/400 level;ENGL 202C ; any PL SC or ECON

ENVSC 494 **Research in Environmental Science** (1-3 per semester/maximum of 9) ENVSC 494 is an experiential course that allows undergraduates to design, complete and present a research project in environmental science.

Effective: Summer 2014

Prerequisite: 3 credits of 400-level coursework; Junior or senior standing

ENVSC 495 **Internship in Environmental Science** (1-3 per semester/maximum of 9) ENVSC 495 is an off-campus internship experience with a local, regional, or national environmental organization, government agency, or private-sector business.

Effective: Summer 2014

Prerequisite: 3 credits of 400-level coursework; Junior or senior standing

ENVSC 496 **Independent Studies in Environmental Science** (1-3 per semester/maximum of 9) Creative projects or specialized coursework, supervised on an individual basis, that falls outside the scope of formal ENVSC coursework.

Effective: Summer 2014

Prerequisite: 3 credits of 400-level coursework; Junior or senior standing

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## Environmental Studies (ENVST)

ENVST 100 (GS) **Visions of Nature** (3) An interdisciplinary introduction to environmental studies, including perspectives from ethics, economics, public policy, art, literature, history, geology, biology, and ecology.  
Effective: Fall 2000

ENVST 200 **Research Methods in Environmental Studies** (3) Focus on interdisciplinary research methodologies from biology, social sciences, and humanities for the study of environmental issues and problems.  
Effective: Spring 2000  
Prerequisite: BIOL 110ENGL 015ENVST 100

ENVST 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2000

ENVST 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2000

ENVST 299 (IL) **Foreign Studies in Environmental Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012  
Prerequisite: approval of the program

ENVST 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2000  
Prerequisite: prior approval of proposed assignment by instructor

ENVST 400W **Senior Seminar in Environmental Studies** (3) Writing-intensive study of a specified topic in environmental studies integrating approaches and research from a variety of disciplines.  
Effective: Spring 2000  
Prerequisite: ENVST 200

ENVST 424 (ENGL 424) **Creative Writing and the Natural World** (3) Creative writing workshop focused on the environment and related issues.  
Effective: Summer 2011  
Prerequisite: ENGL 050 or ENVST 100

ENVST 494 **Research Topics in Environmental Studies** (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small group basis.  
Effective: Summer 2012  
Prerequisite: 6th semester standing and 6 credits in ENVST or related disciplines

ENVST 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2000

ENVST 497 **Special Topics in Environmental Studies** (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2012  
Prerequisite: 6th semester standing and 6 credits in ENVST or related disciplines

ENVST 499 (IL) **Foreign Studies in Environmental Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012  
Prerequisite: 6th semester standing approval of program and 6 credits in ENVST or related disciplines

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## Environmental Systems Engineering (ENVSE)

**ENVSE 400 Safety Engineering** (3) An examination of the engineering aspects of the safety discipline and its management in the work environment.

Effective: Fall 2012

Prerequisite: CHEM 110PHYS 211MATH 141PSYCH 100

**ENVSE 404W Surface and Interfacial Phenomena in Environmental Systems** (3) Principles underlying surface and interfacial phenomena with application to mineral processing and environmental systems.

Effective: Spring 2012

Prerequisite: or concurrent:CHEM 110MATH 141PHYS 212EME 301

**ENVSE 406 Sampling and Monitoring of the Geo-Environment** (3) Issues of sampling, analysis, monitoring and control techniques for effective environmental management in the extractive industries.

Effective: Summer 2012

Prerequisite: Prerequisite or concurrent:MN PR 301

**ENVSE 408 Contaminant Hydrology** (3) Mobility of contaminants in aquifers; multiphase flow, transport, retardation and attenuation, vapor mobility, aquifer characterization, mathematical models and aquifer remediation.

Effective: Fall 2012

Prerequisite: GEOSC 452

**ENVSE 412 Environmental Systems Engineering Laboratory** (1) A laboratory study of the principles involved in the characterization and remediation of process wastes with an emphasis on physical separations.

Effective: Summer 2012

Prerequisite: or concurrent:MN PR 301

**ENVSE 420 Fire Safety Engineering** (3) Overview of the history and behavior of fire, hazards and risk identification, detection and suppression systems, and emergency evacuation procedures.

Effective: Summer 2012

Prerequisite: CHEM 110MATH 141PHYS 212

**ENVSE 427 Pollution Control in the Process Industries** (3) Development of multimedia pollution control strategies for the mineral, metallurgical processing, and fossil fuel industries.

Effective: Spring 2012

Prerequisite: CHEM 110CHEM 112MATH 141MN PR 301

**ENVSE 440 Industrial Ventilation for Contaminant Control** (3) Ventilation system design and analysis for control of industrial contaminants; measurements, dilution and local exhaust ventilation strategies; laboratory demonstrations included.

Effective: Spring 2012

Prerequisite: MATH 141PHYS 212CHEM 110

**ENVSE 450 Environmental Health and Safety** (3) Overview of toxicology, epidemiology, exposure assessment, industrial hygiene, environmental laws, and engineering approaches to protecting workers and the environment.

Effective: Spring 2012

Prerequisite: CHEM 110

**ENVSE 457 Industrial Hygiene Measurements** (4) Introduction to industrial hygiene methods used in evaluating occupational exposures, and in designing and evaluating control systems; laboratory work included.

Effective: Summer 2012

Prerequisite: ENVSE 450

**ENVSE 470 Systems Safety and Risk Engineering** (3) Quantitative methods of systems analysis, risk analysis and tolerance, as well as accident cost and cost-benefit analysis are covered.

Effective: Spring 2012

Prerequisite: MATH 251

**ENVSE 480 Environmental Systems Engineering Process Design** (3) An integrated problem-based learning experience that utilizes fundamental concepts covered in the curriculum to design a geo-environmental system.

Effective: Summer 2012

Prerequisite: ENVSE 427 minimum of seventh-semester standing in Environmental Systems Engineering

**ENVSE 494H Senior Thesis** (1-6) Independent research and/or design projects under the supervision of the Environmental Systems Engineering program.

Effective: Summer 2012

Prerequisite: seventh-semester standing in Environmental Systems Engineering

**ENVSE 495 Environmental Health and Safety Engineering Internship** (2) Students work with an advisor to prepare technical memos and a final report summarizing the experiential education gained through employment in industry.

Effective: Spring 2012

Prerequisite: junior or senior standing

**ENVSE 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2012

ENVSE 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2012

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## Finance (FIN)

**FIN 100 Introduction to Finance** (3) The nature, scope, and interdependence of the institutional and individual participants in the financial system. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 301 or FIN 301.

Effective: Spring 1996

Prerequisite: third-semester standing

**FIN 108 Personal Finance** (3) Personal management of budgets, bank accounts, loans, credit buying, insurance, real estate and security buying. May not be used to satisfy Smeal College baccalaureate degree requirements.

Effective: Fall 1983

Prerequisite: third-semester standing

**FIN 108A Personal Finance: Wealth Management** (1) Personal finance with a focus on wealth management and retirement planning along with investment securities, tax strategies, personal financial needs, and long-term care.

Effective: Summer 2011

Prerequisite: third-semester standing

**FIN 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

**FIN 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**FIN 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**FIN 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

**FIN 301 Corporation Finance** (3) Nature of finance function; risk and return concepts; working capital; dividend policies; mergers; security markets; acquisition and management of corporate capital; analysis of operations, forecasting capital requirements; raising capital; and planning profits. Available to Baccalaureate students only. Not available to students who have taken B A 301.

Effective: Spring 2011

Prerequisite: ENGL 015 or ENGL 030; ACCTG 211; ECON 102 or ECON 104; SCM 200 or STAT 200

**FIN 301H Corporation Finance (Honors)** (3) Review of corporate finance concepts including financial statements, ratio analysis, financial planning, time value of money, securities valuation, and capital budgeting.

Effective: Spring 2014

Prerequisite: ENGL 015 or ENGL 030 or ENGL 137H or CAS 137H; ACCTG 211; ECON 102 or ECON 104; SCM 200 or STAT 200

**FIN 302 Introductory Financial Modeling** (3) This course applies spreadsheets to build financial models and solve numerically intensive problems in finance.

Effective: Spring 2011

Prerequisite: ACCTG 211; ECON 102; MATH 110 or MATH 140 and SCM 200 or STAT 200 Concurrent: FIN 301

**FIN 305 Financial Management of the Business Enterprise** (3) Development of advanced practices of financial management and their application to decision making in business firm.

Effective: Spring 2011

Prerequisite: B A 301 or FIN 301

**FIN 305M Financial Management of the Business Enterprise (Honors)** (3) Development of advanced practices of financial management and their application to decision making in a business firm.

Effective: Spring 2012

Prerequisite: B A 301 or FIN 301

**FIN 305W Financial Management of the Business Enterprise** (3) Development of advanced practices of financial management and their application to decision making in a business firm.

Effective: Spring 2011

Prerequisite: B A 301 or FIN 301

**FIN 306W Investment Valuation** (3) Approaches to investment strategy, investment decisions; valuation of corporate securities, including the impact of dividend policy and capital structure.

Effective: Spring 2001

Prerequisite: FIN 301

**FIN 330 Personal Financial Planning** (3) Developing financial plans including cash budgets, credit purchases, investments, and insurance.

Effective: Spring 2012

Prerequisite: third-semester standing or permission of instructor

**FIN 340 Insurance Planning** (3) Introduction to personal insurance including homeowner's, auto, life, disability, health, and Social Security.  
Effective: Spring 2008

**FIN 395A Nittany Lion Fund - Associate Fund Manager Practicum** (3 per semester/maximum of 6) Introduction to working with the Nittany Lion Fund. Students work on projects such as investor reports and earnings reports along with assisting Nittany Lion Fund Managers with the development of stock pitches based on market insights.  
Effective: Summer 2011  
Prerequisite: permission of program

**FIN 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2003

**FIN 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2003

**FIN 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**FIN 405 Advanced Financial Management** (3) An examination of the development and application of decision rules for major long-term financial and investment problems of the firm.  
Effective: Summer 1993  
Prerequisite: FIN 305W

**FIN 406 Security Analysis and Portfolio Management** (3) Advanced valuation theory; fundamentals of security analysis; portfolio construction and management.  
Effective: Spring 2011  
Prerequisite: B A 301 or FIN 301

**FIN 406H Security Analysis and Portfolio Management (Honors)** (3) Advanced valuation theory; fundamentals of security analysis; portfolio construction and management.  
Effective: Summer 2011  
Prerequisite: B A 301 or FIN 301

**FIN 407 Multinational Financial Management** (3) Analysis of the international aspects of managerial finance; emphasis on the impact of the international financial environment on firm operations.  
Effective: Spring 2005  
Prerequisite: FIN 305W

**FIN 408 Financial Markets and Institutions** (3) Functional analysis of major credit institutions; sources and uses of funds; impact of government regulation.  
Effective: Fall 1994  
Prerequisite: B A 301 or FIN 301

**FIN 408H Financial Markets and Institutions (Honors)** (3) Introduction to bonds, equities, derivatives, and financial institutions including insurance, pension funds and mutual funds.  
Effective: Spring 2012  
Prerequisite: B A 301 or FIN 301

**FIN 409 Real Estate Finance and Investment** (3) The sources and uses of credit; instruments and methods of financing; the theory and practice or real estate investment analysis.  
Effective: Summer 2011  
Prerequisite: B A 301 or FIN 301

**FIN 410 Derivative Markets** (3) Functions, techniques, and impact of speculation conducted through forward markets; the nature of speculative transactions, pricing, and methods of trading.  
Effective: Spring 2011  
Prerequisite: FIN 406

**FIN 412 Commercial Bank Management** (3) Fundamental principles underlying management of a commercial bank; capital funds; asset and liability management; value maximization; legal and operational constraints.  
Effective: Fall 1994  
Prerequisite: FIN 305W FIN 408

**FIN 413 Risk Management of Financial Institutions** (3) Measuring and managing risk faced by financial institutions.  
Effective: Summer 2007  
Prerequisite: B A 301 or FIN 301

**FIN 414 Financial Trading and Applications** (3) This course focuses on financial modeling and analysis of trading strategies. Bloomberg, Reuters, spreadsheets and trading simulations are used extensively.  
Effective: Summer 2007  
Prerequisite: FIN 305W FIN 406 or FIN 301

**FIN 415 Advanced Financial Modeling** (3) Develop financial models using spreadsheets, VBA programming, and trading room applications such as Bloomberg and @Risk.

Effective: Spring 2011

Prerequisite: FIN 406

**FIN 418 Introduction to Energy Finance** (3) This course provides an introduction to the physical and financial energy markets, along with concepts important to managing risk.

Effective: Summer 2014

Prerequisite: FIN 301 or equivalent approved course

**FIN 419 Advanced Energy Finance** (3) This course provides an investigation of energy products; energy commodity price formation; credit, counterparty, country risk assessment, and ethics.

Effective: Summer 2014

Prerequisite: FIN 418

**FIN 420 Investment and Portfolio Analysis** (3) Investment and risk, types of security investments, sources of investment information, the broker, the stock market, portfolio management.

Effective: Spring 2008

Prerequisite: FIN 301

**FIN 427 Derivative Securities** (3) Introduction to futures contracts and options, leading to a working understanding of their importance in financial management applications.

Effective: Spring 2008

Prerequisite: FIN 420 or approval of program

**FIN 430 Estate Planning** (3) Liquidity planning, titling and transfer of property, trusts, federal unified tax system, gifting, incapacity planning, legal documents.

Effective: Spring 2008 Ending: Summer 2014

Prerequisite: ACCTG 310 and FIN 340

**FIN 430 Estate Planning** (3) Liquidity planning, titling and transfer of property, trusts, federal unified tax system, gifting, incapacity planning, legal documents.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: FIN 330 and ACCTG 310 or ACCTG 405

**FIN 450 Retirement Planning** (3) Retirement planning: qualified and non-qualified plans, characteristics, provisions, regulations administration, application approach with case studies.

Effective: Spring 2008

**FIN 451 Intermediate Financial Management** (3) Case studies are used to develop skills in solving a variety of financial management problems.

Effective: Spring 2010

Prerequisite: FIN 301

**FIN 456 (IL) International Capital Markets** (3) This course develops understanding of international capital markets by striking a balance between institutional details, theoretical foundation and practical application.

Effective: Spring 2008

Prerequisite: FIN 301

**FIN 460 (R M 460) Real Estate Financial Analysis** (3) Debt and equity financing, capital structure, "creative financing," risk analysis, corporate asset management.

Effective: Spring 2012

Prerequisite: FIN 305W or R M 303 or R M 330W

**FIN 461 Portfolio Management and Analysis** (3) Investment policy and process, modern portfolio theory, portfolio construction, and portfolio performance measurement and evaluation.

Effective: Fall 2011

Prerequisite: FIN 420

**FIN 470 (R M 470) Real Estate and Capital Markets** (3) Analysis of publicly-traded real estate of both the equity, (REITs) and debt (MBSs) sides. The course also provides international perspectives.

Effective: Spring 2012

Prerequisite: FIN 305W or R M 303 or R M 330W

**FIN 471 International Finance** (3) Financial decision making in an international environment. Emphasis on topics relevant to small businesses and entrepreneurs.

Effective: Spring 2010

Prerequisite: FIN 301

**FIN 475 Financial Decision Making** (3) Problems and cases in financial decision making for non-financial corporations and financial institutions.

Effective: Fall 2009

Prerequisite: FIN 302 FIN 420 and senior standing

**FIN 481 Advanced Financial Analysis** (3) Capstone course integrating financial analysis coursework. This course is based on the case study method which provides a challenging setting in which to apply business concepts.

Effective: Spring 2009

Prerequisite: ACCTG 426 FIN 405

**FIN 489 Seminar in Finance** (3) In-depth study of new trends, concepts, and practices in financial or portfolio management.

Effective: Spring 2008



Prerequisite: FIN 301 or equivalent; 3 additional credits of course work in Finance

**FIN 491 Financial Planning Capstone** (3) Critical thinking and decision-making about personal financial planning topics in the context of the financial planning process.

Effective: Summer 2012

Prerequisite: FIN 330FIN 420FIN 430FIN 450

**FIN 494 Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2003

**FIN 494H Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2008

**FIN 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**FIN 495A Nittany Lion Fund -- Lead Fund Manager Practicum** (3 per semester/maximum of 6) Advanced work with the Nittany Lion Fund. Lead Fund Managers are accountable for sector and stock performance as well as reports. Students delegate work to Associate Fund Managers while focusing a great amount of attention to all aspects of stock pitches, weekly and quarterly reports, along with conducting weekly training session for new analysts.

Effective: Summer 2011

Prerequisite: FIN 395A and permission of program

**FIN 495B Nittany Lion Fund - Executive Board Practicum** (3 per semester/maximum of 6) Oversight of the Nittany Lion Fund (NLF) and its overall performance. Executive Board members and Directors are accountable for all aspects of the Nittany Lion Fund. Students interact with investors and are responsible for delivering professionally developed performance reports, weekly information updates, and annual shareholder meetings. Executive Board members assume specific duties within the NLF associated with their position, along with a shared responsibility for being a spokesperson for the fund.

Effective: Summer 2011

**FIN 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**FIN 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**FIN 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2003

**FIN 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

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## Financial Services (FINSV)

FINSV 400 **Investment Valuation for the Financial Services Professional** (3) Approaches to investment strategies, investment decisions, and the valuation of corporate securities.

Effective: Summer 2002

Prerequisite: FIN 301

FINSV 411 **Federal Income Taxation for the Financial Services Professional** (3) Tax regulations, tax policy, tax determination, and tax planning applicable for personal/business decision making; emphasis on taxation of individuals.

Effective: Summer 2002

Prerequisite: ACCTG 211

FINSV 420 **Estate Planning for the Financial Services Professional** (3) Studies the processes relating to the use, conservation, and transfer of an individual's wealth; emphasizing investments, insurance and taxation.

Effective: Fall 2011

Prerequisite: FINSV 400FINSV 411

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## First-Year Seminar (CAP)

**CAP 100S Orientation to the Undergraduate Experience** (1) To facilitate transition of new students through active engagement and introduction to university and campus resources.  
Effective: Fall 2004

**CAP 110S First-Year Seminar for Capital College, The School of Behavioral Sciences and Education** (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.  
Effective: Spring 2003

**CAP 120S First-Year Seminar for Business** (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.  
Effective: Spring 2003

**CAP 140S First-Year Seminar for Humanities** (1) Introduction to the discipline including: ethics, research methods, communications, career opportunities/issues and applied technology.  
Effective: Summer 1999  
Prerequisite: or concurrent: CAP 100S

**CAP 150S First-Year Seminar for Capital College, The School of Public Affairs** (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.  
Effective: Spring 2003

**CAP 160S First-Year Seminar for Capital College, The School of Science, Engineering and Technology** (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.  
Effective: Spring 2004

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## Food Science (FD SC)

FD SC 105 (GHA) (S T S 105) **Food Facts and Fads** (3) Impact on society and the individual of modern food technology, food laws, additives, etc.; historical, current, and futuristic aspects.  
Effective: Spring 2004

FD SC 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2001

FD SC 200 **Introductory Food Science** (3) General overview and principles; food constituents and properties; quality and safety; preservation methods; processing animal and plant products.  
Effective: Summer 2007  
Prerequisite: CHEM 110

FD SC 201 **Introductory Food Science Practicum** (1) Demonstration to illustrate actual chemical reactions in food systems and visits to campus and area food processing operations.  
Effective: Fall 1984  
Prerequisite: or concurrent:FD SC 200

FD SC 205 **Food Plant Sanitation** (3) Organization and administration of food plant sanitation with emphasis on the production and maintenance of safe, wholesome food products.  
Effective: Spring 1997  
Prerequisite: FD SC 200

FD SC 206 **Improving Food Quality** (3) Modern philosophies coupled with practical information on improving product quality, including topics on HACCP, SPC, recall procedures and customer relations.  
Effective: Spring 1997  
Prerequisite: FD SC 200

FD SC 207 (AN SC 207) **Animal Products Technology** (2) Composition, safety, palatability, preservation, and processing of foods from animals, impact of animal production and handling practices on product properties.  
Effective: Spring 2003

FD SC 208 (AN SC 208) **Animal Products Technology Laboratory** (1) Harvesting and processing of foods from animals; hands-on and demonstration exercises; industry procedures for processing meat, milk, and egg products.  
Effective: Spring 2003  
Prerequisite: or concurrent:AN SC 207

FD SC 280H (GH) (PHIL 280H) **Food, Values, and Health** (3) The perceived relationship between food and health, emphasizing the conceptual nature of both; and how values contribute to the relationship.  
Effective: Spring 2007

FD SC 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2001

FD SC 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2001

FD SC 400 **Food Chemistry** (4) Chemical properties of food constituents as influenced by processing and storage.  
Effective: Fall 2009  
Prerequisite: CHEM 202 . Prerequisite or concurrent:B M B 211B M B 212

FD SC 404 **Sensory Evaluation of Foods** (3) Sensory evaluation of food, methods of test analyses, panel selection and training, taste sensation theory, consumer testing methods.  
Effective: Spring 2001  
Prerequisite: STAT 250 Junior standing

FD SC 405 **Food Engineering Principles** (3) Engineering principles of importance to food manufacturing, including units, dimensions, mass and energy balance, fluid flow, rheology, heat transfer, and psychrometrics.  
Effective: Spring 2009  
Prerequisite: MATH 110PHYS 250

FD SC 406 **Physiology of Nutrition** (3) Physiological mechanisms involved in thirst and appetite, digestion, absorption, utilization of nutrients, respiration, and body temperature regulation.  
Effective: Spring 2001  
Prerequisite: B M B 211

FD SC 407 **Food Toxins** (2) Microbiological and chemical aspects of food poisoning; toxicological principles; case histories and prevention of problems.

Effective: Winter 1978

Prerequisite: senior standing in food science or related majors

**FD SC 408 Food Microbiology (2)** Significance of microorganisms in food commodities, microbial spoilage, food-borne infections, and intoxication; methods of preservation, processing, and control.

Effective: Fall 2009

Prerequisite: MICRB 201MICRB 202

**FD SC 409W Laboratory in Food Microbiology (3)** Methods of isolation, detection of spoilage, pathogenic microorganisms in foods; effects of processing and preservation on survival of food microorganisms.

Effective: Fall 2009

Prerequisite: MICRB 202 . Prerequisite or concurrent:FD SC 408

**FD SC 410 Chemical Methods of Food Analysis (3)** Qualitative and quantitative determinations of food constituents.

Effective: Spring 2001

Prerequisite: B M B 212FD SC 400

**FD SC 411 Managing Food Quality (2)** Principles and applications of Hazard Analysis Critical Control Points. Statistical tools for the control and improvement of food quality.

Effective: Summer 1999

Prerequisite: FD SC 408STAT 250

**FD SC 413 Science and Technology of Plant Foods (3)** Physical and chemical behavior of plant-based raw materials and ingredients, with emphasis on parameters influencing finished product quality.

Effective: Fall 2009

Prerequisite: FD SC 405FD SC 400FD SC 408FD SC 410

**FD SC 414 Science and Technology of Dairy Foods (3)** Physical and chemical behavior of dairy-based raw materials and ingredients, with emphasis on parameters influencing finished product specifications.

Effective: Fall 2009

Prerequisite: FD SC 405FD SC 400FD SC 408FD SC 410

**FD SC 415 Science and Technology of Muscle Foods (3)** Physical and chemical properties of muscle food commodities, with emphasis on muscle-based ingredients in formulated foods.

Effective: Fall 2009

Prerequisite: FD SC 405FD SC 400FD SC 408FD SC 410

**FD SC 430 Unit Operations in Food Processing (3)** Thermal processing, refrigeration, freezing, dehydration, and concentration in the food industry, including effects on food quality; food packaging; waste management.

Effective: Fall 2009

Prerequisite: FD SC 405FD SC 400FD SC 408

**FD SC 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1992

Prerequisite: prior approval of proposed assignment by instructor

**FD SC 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**FD SC 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**FD SC 497A Research Basics: Learning How to Communicate Scientifically (1)** Developed to enhance the undergraduate food science research experience. Prepares students for graduate school and provide set of skills that are applicable to any career.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: sophomore junior or senior

**FD SC 497B Research Basics: Learning How to Communicate Scientifically (1)** Developed to enhance the undergraduate food science research experience. Prepares students for graduate school and provide set of skills that are applicable to any career.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: sophomore junior or senior

**FD SC 497C Topics in Dairy Products Processing (3)** Special topics covering the science and technology associated with manufacturing a variety of dairy products including fluid milk, yogurt, and ice cream.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: FD SC 400FD SC 405FD SC 408FD SC 410

**FD SC 497H Challenging Dogmas: How Major Discoveries in Microbiology Revolutionized Biology (3)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**FD SC 499 (IL) Foreign Studies (1-12 per semester/maximum of 12)** Courses offered in foreign countries by individual or group instruction.

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## Forensic Science (FRNSC)

FRNSC 100 (GN) **Introduction to Forensic Science** (3) Introduction forensic science.  
Effective: Spring 2011

FRNSC 200 (GN) **Introduction to Crime Scene Investigation** (3) This course offers an exploration of the science, management, and investigative techniques for the field of crime scene investigation.  
Effective: Spring 2010

FRNSC 210 **Essential Practices of Forensic Science** (3) Basic practices of forensic science including documentation methods (measurements, notes, sketches, and photography), microscopy, communication of results, and integration of concepts from other sciences including chemistry, biology, and physics, as well as mathematics and statistics.  
Effective: Spring 2012 Ending: Summer 2014  
Prerequisite: FRNSC 100

FRNSC 210 **Essential Practices of Forensic Science** (3) Practices of forensic science including documentation, microscopy, communication of results, and integration of concepts from other sciences, mathematics, and statistics.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: FRNSC 100 andCHEM 110 andCHEM 111

FRNSC 294 **Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2008

FRNSC 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2008

FRNSC 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2008

FRNSC 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2005

FRNSC 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2009

FRNSC 400 **Courtroom Proceedings and Testimony** (1) Introduction to courtroom proceedings and testimony as they related to forensic science.  
Effective: Fall 2012  
Prerequisite: FRNSC 411 andFRNSC 413

FRNSC 410 **A Scientific Approach to Crime Scene Investigation** (2) Principles of crime scene investigation with emphasis on scientific philosophy, concepts, and procedures.  
Effective: Fall 2012  
Prerequisite: FRNSC majorFRNSC 210STAT 250

FRNSC 411 **Criminalistics: Trace and Impression Evidence** (3) Laboratory-based examination of forensic evidence; microscopy, classification and identification.  
Effective: Fall 2012  
Prerequisite: FRNSC majorFRNSC 210STAT 250 andPHYS 251 orPHYS 212

FRNSC 413 **Criminalistics: Biology** (3) Laboratory-based examination of forensic evidence; biological fluid identification, hair microscopy.  
Effective: Fall 2012  
Prerequisite: FRNSC majorFRNSC 210 andBIOL 230W orMICRO 202 orB M B 251

FRNSC 415W **Laboratory in Crime Scene Investigation** (2) Laboratory course covering crime scene investigation with emphasis on scientific philosophy, concepts, procedures, problem solving, and hands-on activities.  
Effective: Summer 2012  
Prerequisite: FRNSC 410

FRNSC 421W **Forensic Molecular Biology** (4) Concepts and application of serology of molecular biology techniques to analyze biological evidence collected at crime scenes.  
Effective: Fall 2012  
Prerequisite: B M B 442B M B 400B M B 401 andFRNSC 413 prerequisite or concurrentFRNSC 400

FRNSC 427W (CHEM 427W) **Forensic Chemistry** (4) Analytical and instrumental methods used in the forensic sciences with

special emphasis on the analysis and characterization of trace evidence.

Effective: Fall 2012

Prerequisite: CHEM 213CHEM 227 andFRNSC 411 orCHEM 431W

FRNSC 475 **Forensic Science Seminar** (1) Presentation and discussion of special issues in forensic science; extension and application of background knowledge to unusual topics and cases.

Effective: Spring 2008

Prerequisite: Prerequisite or concurrent:FRNSC 401W

FRNSC 485W **Coalescence of Forensic Science Concepts.** (4) Advanced concepts in criminalistics as they apply to criminal and civil investigations.

Effective: Spring 2013

Prerequisite: FRNSC 411FRNSC 413FRNSC 415W Concurrent: FRNSC 421W FRNSC 427W

FRNSC 494 **Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

FRNSC 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2008

FRNSC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2006

FRNSC 497A **Special Topics in Crime Scene Investigation** (2) This laboratory course in crime scene investigation is designed for students registered with the Penn State ADA Office. Laboratory course covering crime scene investigation with emphasis on scientific philosophy, concepts, procedures, problem solving, and hands-on activities.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: FRNSC 410

FRNSC 497B **Chromatography and Electrochemistry** (3) The course topics include gas, liquid, and other forms of chromatography, mass spectroscopy, and important techniques of electrochemistry. The course material is designed to increase student understanding of both the analytical instruments used in the laboratory and the principles underlying the measurements. Evaluation of student performance is based on the level to which a student understands how an instrument operates and how particular components determine overall performance and specifications; limitations to measurements as a function instrument design; criteria by which one selects an appropriate instrument to obtain the desired measurements; and criteria by which one selects appropriate components to build an instrument for specific uses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 227

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## Forest Technology (FORT)

**FORT 100S Introduction to Forestry (1)** A general introduction to forest ecology, history, management, and practices.  
Effective: Summer 2013

**FORT 105 Forest Mensuration (3)** Measurement of forests and forest products.  
Effective: Summer 2013

**FORT 110 Forest Inventories (3)** Application of forest mensuration, mapping, GIS, sampling, and statistical analysis to the inventory of forest resources.  
Effective: Summer 2013  
Prerequisite: FORT 105

**FORT 120 Forestry Computer Applications (2)** Computer hardware and software applications specific to forestry.  
Effective: Summer 2013  
Prerequisite: three credits of mathematics

**FORT 130 Forest Mapping Systems (2)** Mapping forest properties, using traditional mechanical drawing techniques, geographical positioning systems, geographic information systems, and spatial analysis of resources.  
Effective: Summer 2013

**FORT 140 Forest Surveying (3)** Plane surveying including hand compass and survey equipment, map reading, deed and title research, land descriptions and property line location.  
Effective: Summer 2013  
Prerequisite: or concurrent: FORT 130 MATH 081

**FORT 150 Dendrology (3)** Taxonomy, identification, ranges, and uses of important U.S. timber species and lesser vegetation of a regional nature.  
Effective: Summer 2013

**FORT 160 Silvicultural Practices (3)** Principles and techniques of forest establishment, culture, and regeneration systems.  
Effective: Summer 2013  
Prerequisite: FORT 150

**FORT 170 Forest Harvesting and Operations (3)** Forest harvesting and intermediate operations: forest worker safety, hand and power tools, harvest planning, and best management practices.  
Effective: Summer 2013  
Prerequisite: FORT 110 FORT 160 American Red Cross Standard First Aid and CPR

**FORT 175 Forest Products Industry Tour (1)** Field tour of local and regional forest products industries.  
Effective: Summer 2013  
Prerequisite: FORT 110 FORT 160

**FORT 200 Wood Identification and Properties (1)** Anatomy of wood and bark; cell wall formation and composition; and identification of wood by gross and microscopic qualities.  
Effective: Summer 2013

**FORT 210 Arboriculture (3)** Selection, planting, care, and maintenance of woody ornamental plants and shade trees grown in urban, sub-urban, and rural landscapes.  
Effective: Summer 2013  
Prerequisite: second-year standing

**FORT 220 Forest Ecosystem Protection (4)** Principles and concepts involved in managing the forest ecosystem in regard to fires, insects, and diseases.  
Effective: Summer 2013

**FORT 230 Aerial Photo Interpretation (2)** Aerial photo interpretation techniques applied to land management inventories, mapping, road location, and procurement.  
Effective: Summer 2013  
Prerequisite: FORT 130

**FORT 240 Forest Soils and Hydrology (3)** The study of forest soils and hydrology, especially as they are affected by forest management activities.  
Effective: Summer 2013  
Prerequisite: second-year standing

**FORT 250 Forest Management Practices (3)** Practical techniques for implementing management plans for forest stands under various ownerships and management regimes.  
Effective: Summer 2013  
Prerequisite: FORT 110 FORT 160

**FORT 260 GIS for Natural Resources Management (3)** Geographic Information Systems technology including mapping

and GIS data management procedures w/ emphasis on natural resource management applications.

Effective: Summer 2013

Prerequisite: FORT 120/FORT 130

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## Forestry (FOR)

**FOR 200 The Profession of Forestry** (1) Introduction to the profession of forestry and related career opportunities.

Effective: Spring 2014

Concurrent: FOR 203

**FOR 201 (GN) Global Change and Ecosystems** (3) This course will provide students with an understanding of the climate system, ecosystems, and feedbacks between the two.

Effective: Summer 2013

Prerequisite: 3 credits of science

**FOR 203 Field Dendrology** (3) Field identification of native and introduced trees and shrubs by leaf, fruit, twig, and bark.

Effective: Summer 2013

Concurrent: FOR 200W or W P 200W and W P 203

**FOR 204 Dendrology** (2) Taxonomic and silvical characteristics, ranges, genetic relationships, and uses of important forest tree species.

Effective: Summer 2013

Prerequisite: FOR 203

**FOR 228 Chainsaw Safety, Maintenance, and Operation in Forest Management** (1) Safety, maintenance, skills, and techniques for effective chainsaw operation in forest management.

Effective: Summer 2013

Prerequisite: FOR 203 and W P 203

**FOR 242 Elements of Project Supervision in Forestry** (3) Supervisory techniques developed through an understanding of the behavioral sciences applied to field forestry personnel management.

This course is offered only at the DuBois and Mont Alto Campus as part of the two-year Forest Technology and Wildlife Technology majors. Effective: Summer 2013

**FOR 255 GPS and GIS Applications for Natural Resources Professionals** (3) Using Global Positioning Systems (GPS) and Geographic Information Systems (GIS) for mapping and analysis of natural resources data.

Effective: Summer 2013

Prerequisite: MATH 022 and MATH 026 ; or MATH 040 ; or MATH 041 ; or MATH 110 ; or MATH 140

**FOR 266 Forest Resources Measurements** (4) Measurement systems used in forest and wildlife management and urban forestry.

Effective: Spring 2014

Prerequisite: FOR 203; FOR 255; MATH 022 and MATH 026 MATH 040 or MATH 041 or MATH 110 or MATH 140; STAT 200 STAT 240 or STAT 250

**FOR 295 Forest Technology Internship** (1-4) Supervised field experience related to the student's major.

This course is offered only at the Mont Alto Campus as part of the two-year Forest Technology major. Effective: Summer 2013

Prerequisite: approval of proposed assignment by instructor prior to registration

**FOR 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2013

**FOR 296A Certification Activity** (0.5) Activity related to various wildland fire certifications.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**FOR 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

**FOR 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2014

**FOR 303 Herbaceous Forest Plant Identification and Ecology** (3) Survey of common herbaceous plant taxa occurring within forested habitats in Pennsylvania and eastern North America. Botanical characteristics, ecological interrelations, commercial importance, and field specimen collection methods are covered.

Effective: Spring 2013

Prerequisite: 3 credits in plant or biological sciences

**FOR 308 Forest Ecology** (3) Effects of environment, spacing, and age on trees; forest influences; origin and development of forest communities.

Effective: Summer 2013

Prerequisite: or concurrent: FOR 203

**FOR 320 Forest Fire Management** (2) Principles and concepts involved in managing the forest ecosystem in regard to fire.

Effective: Summer 2013

Prerequisite: FOR 308

**FOR 350 Forest Ecosystem Monitoring and Data Analysis** (3) Quantitative approaches for characterization, monitoring, and comparison of forest ecosystems.

Effective: Spring 2014

Prerequisite: STAT 200STAT 240STAT 250 or equivalent with a C or higher grade

**FOR 400 Senior Forest Practicum** (2) Application of forest management concepts and principles. Students will collect, analyze, and interpret forest management data and present project solutions.

Effective: Spring 2014

Prerequisite: FOR 203FOR 255FOR 266FOR 308FOR 421ECON 102SOILS 101 andSTAT 200STAT 240 orSTAT 250

**FOR 401 Urban Forest Management** (3) Uses and values of urban vegetation, open space, and wildlife; planning, financing, support, management, and administration of urban forestry programs.

Effective: Summer 2013

Prerequisite: three credits in business management or economics and six credits in biology forestry or plant materials

**FOR 403 Invasive Forest Plants: Identification, Ecology, and Management** (3) Survey of common nonnative ("exotic") herbs, forbs, shrubs, trees, and vines that invade forested habitats in Pennsylvania and the region. Field identification, life history traits, ecosystem-related challenges and problems, and management options and considerations are reviewed.

Effective: Spring 2013

Prerequisite: 6 credits in plant or biological sciences

**FOR 409 Tree Physiology** (2) Fundamentals of the relationship of the basic physiological functions of forest trees to form.

Effective: Summer 2013

Prerequisite: BIOL 240W

**FOR 410 Elements of Forest Ecosystem Management** (3) Fundamentals of forest ecosystem management for goods and services.

Effective: Summer 2013

Prerequisite: 3 credits in both ecology and biology

**FOR 416 Forest Recreation** (3) The management and administration of multiple-use forest lands and wilderness for forest recreational experiences, with emphasis on public forests.

Effective: Summer 2013

Prerequisite: 3 credits in social or behavioral sciences

**FOR 418 (US;IL) Agroforestry: Science, Design, and Practice** (3) Agroforestry integrates trees in agricultural landscapes, and/or agriculture products into forested areas for multiple benefits.

Effective: Summer 2013

**FOR 421 Silviculture** (3) The application of the principles of forest ecology to control of establishment, composition, and growth of forest stands.

Effective: Summer 2014

Prerequisite: FOR 308FOR 266

**FOR 430 (W F S 430) Conservation Biology** (3) The application of biological principles to issues in the conservation of biodiversity.

Effective: Summer 2013

Prerequisite: BIOL 220W orFOR 308

**FOR 439 Timber Sale Administration** (2) Practical aspects of the logistical, environmental, managerial, and regulatory oversight of active and retired timber sales.

Effective: Summer 2014

Prerequisite: FOR 203 andFOR 266 ; and prerequisite or concurrentFOR 421

**FOR 440 Forest and Conservation Economics** (3) The role and application of economics and finance to forest resource conservation and management.

Effective: Spring 2013

Prerequisite: ECON 102 orECON 104

**FOR 450W Human Dimensions of Natural Resources** (3) Addresses human needs and desires, from individuals to nations, for social, ecological, and economic benefits derived from natural resource decisions.

Effective: Spring 2014

Prerequisite: 6 credits of social and behavioral sciences

**FOR 455 Remote Sensing and Spatial Data Handling** (3) Remote sensing systems, with emphasis on application to forest ecosystem analysis. Includes introduction to computer systems for spatial data handling.

Effective: Summer 2013

Prerequisite: MATH 110 3 credits in computer science 6 credits in ecological and/or geological sciences

**FOR 466W Forest Management and Planning** (3) Rationale, process, and tools for forest management decision-making and planning. Developing and communicating forest plans for forested properties.

Effective: Spring 2014

Prerequisite: FOR 255FOR 421 andFOR 440

**FOR 470 Watershed Management** (3) Management of wild land watersheds for control of the amount and timing of water yield, water quality, erosion, and sedimentation.

Effective: Summer 2013

Prerequisite: 3 credits in Soils

**FOR 471 Watershed Management Laboratory** (1) Introduction to hydrologic and climatic measurements and computations useful in watershed management.

Effective: Summer 2013

Prerequisite: or concurrent:FOR 470

**FOR 475 Principles of Forest Soils Management** (3) Effect of current forest management practices on the properties and productive capacity of forest soils.

Effective: Summer 2013

Prerequisite: FOR 308 3 credits in soils

**FOR 480 Policy and Administration** (3) Forest resources policy objectives; criteria and goals of society; policy implementation by ownership classes; planning, administration, and evaluation of programs.

Effective: Summer 2014

Prerequisite: 3 credits of social or behavioral science

**FOR 488Y (IL) Global Forest Conservation** (3) Ecological, economic, technological, and political aspects of forested ecosystems in a global context, emphasizing tropical and developing countries.

Effective: Spring 2013

Prerequisite: 3 credits in natural sciences and 3 credits in social and behavioral sciences

**FOR 494 Forestry Research** (3) Introduction to the theory, principles, and practices of forestry research; supervised research experience.

Effective: Summer 2013

Prerequisite: FOR 350STAT 250

**FOR 494H Forestry Research** (3) Introduction to the theory, principles, and practices of forestry research; supervised research experience.

Effective: Summer 2013

Prerequisite: FOR 350STAT 250

**FOR 495 Forestry Internship** (1-6) Supervised field experience related to the student's major.

Effective: Summer 2013

Prerequisite: approval of proposed assignment by instructor prior to registration.

**FOR 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2013

**FOR 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

**FOR 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

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## **Fractional Transfer Credits (GMISC)**

GMISC 001 **FRACTIONAL TRANSFER CREDITS** (1-99) FRACTIONAL TRANSFER CREDITS FOR ADMISSION'S USE ONLY.  
Effective: Fall 1983

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## French (FR)

**FR 001 Elementary French I** (4) Grammar, with reading and writing of simple French; oral and aural work stressed. Students who have received high school credit for two or more years of French may not schedule this course for credit, without the permission of the department.  
Effective: Fall 1985

**FR 002 Elementary French II** (4) Grammar and reading continued; oral and aural phases progressively increased. Students who have received high school credit for four years of French may not schedule this course for credit, without the permission of the department.  
Effective: Fall 1985  
Prerequisite: FR 001

**FR 003 Intermediate French** (4) Grammar, reading, composition, oral and aural exercises.  
Effective: Fall 1985  
Prerequisite: FR 002

**FR 051 Elementary Intensive French I for Graduate Students** (3) Intensive introduction to French: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: graduate standing

**FR 052 Elementary Intensive French II for Graduate Students** (3) Intensive introduction to French: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: FR 051 or equivalent and graduate standing

**FR 053 Intermediate Intensive French for Graduate Students** (3) Continued intensive study of French at the intermediate level: reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: FR 052 or equivalent and graduate standing

**FR 083S (GH;IL) First-Year Seminar in French** (3) Critical approaches to the dimensions and directions in French/Francophone literatures and cultures.  
Effective: Summer 2005

**FR 111 Elementary French** (6) Acquisition of basic skills in the active use of French: listening, speaking, reading, and writing.  
Effective: Fall 1983

**FR 112 Intermediate French** (6) Reinforcement of basic skills previously acquired in the active use of French in FR 111.  
Effective: Fall 1983

**FR 121G Fundamentals of Reading French** (3) Instruction in fundamental skills required for reading expository French prose, primarily for research purposes. (This course may not be used to satisfy any baccalaureate degree requirements. No graduate credit is given for this course.)  
Effective: Spring 2001  
Prerequisite: seventh-semester standing

**FR 122G Practice in Reading French** (3) Development and reinforcement of basic reading skills, with emphasis on the individual student's area of research. (This course may not be used to satisfy any baccalaureate degree requirements. No graduate credit is given for this course.)  
Effective: Fall 1984  
Prerequisite: FR 121G

**FR 137 (GH;IL) Paris: Anatomy of a City** (3) Survey of the cultural, artistic, literary, and social life of the city of Paris from Gallo-Roman times to the present.  
Effective: Summer 2005

**FR 138 (GH) French Culture Through Film** (3) Introduction to French culture through film by French and francophone directors examining gender, ethnicity, and global issues. Taught in English.  
Effective: Spring 2002

**FR 139 (GH;IL) France and the French-speaking World** (3) An introduction to the culture of France and its impact on the world.  
Effective: Summer 2005

**FR 141 (IL) Cultural Tradition in French Cuisine** (3) A study of French culture in English, emphasizing the French gastronomical traditions in literature and civilization.  
Effective: Spring 2006

FR 142 (GH) **French and Francophone Literatures in Translation** (3) An introduction to the literature of France and French-speaking countries.  
Effective: Spring 2004

FR 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

FR 199 (IL) **Foreign Study--French** (1-12) Intensive postintermediate grammar review, with emphasis on oral skills and vocabulary building.  
Effective: Summer 2005  
Prerequisite: FR 003

FR 201 (IL) **Oral Communication and Reading Comprehension** (3) Emphasis on oral skills and reading for total comprehension.  
Effective: Spring 2007  
Prerequisite: FR 003 or FR 112

FR 201U (IL) **Oral Communication and Reading Comprehension** (3) Emphasis on oral skills and reading for total comprehension.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: FR 003 or FR 112

FR 201U (IL) **Oral Communication and Reading Comprehension** (3) Emphasis on oral skills and reading for total comprehension.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: FR 003 or FR 112

FR 202 (IL) **Grammar and Composition** (3) Grammar review and writing of short essays.  
Effective: Spring 2006  
Prerequisite: FR 003

FR 270 (WMNST 270) **Race and Gender in Literature Translated from French** (3) A critical presentation, taught in English, of changing ideas and values on race and gender in French and Francophone literatures.  
Effective: Spring 2005

FR 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

FR 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1982

FR 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1982

FR 299 (IL) **Foreign Study--French** (3-12) Writing practice at postintermediate level. Cultural readings about French civilization.  
Effective: Summer 2005  
Prerequisite: FR 199

FR 316 **French Linguistics** (3) Survey of the theory and methods of linguistics as they apply to the major subfields.  
Effective: Summer 2006  
Prerequisite: FR 201FR 202

FR 331 (IL) **French Culture and Civilization I** (3) French history and culture from the Middle Ages until the French Revolution.  
Effective: Summer 2006  
Prerequisite: FR 201FR 202

FR 332 (IL) **French Culture and Civilization II** (3) French history and culture from the French Revolution through the Third Republic.  
Effective: Summer 2006  
Prerequisite: FR 201FR 202

FR 351 (IL) **Introduction to French Literature I** (3) Introduction to close textual reading and analysis of selected works of French literature from the middle ages to 1789.  
Effective: Summer 2013  
Prerequisite: FR 201FR 202

FR 352 (IL) **Introduction to French Literature II** (3) Introduction to close textual reading and analysis of selected works of



French Literature from 1789 to the present.

Effective: Summer 2013

Prerequisite: FR 201FR 202

**FR 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

**FR 397 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2006

**FR 399 (IL) Foreign Study--French** (3-12) Advanced training in the French language skills.

Effective: Summer 2005

Prerequisite: FR 201FR 202

**FR 401 (IL) Advanced Oral Communication** (3) Emphasis on speaking and listening comprehension through discussion of current issues, using journalistic materials.

Effective: Spring 2006

Prerequisite: FR 201FR 202

**FR 402Y (IL) Advanced Grammar and Writing** (3) Advanced study of the structure of the French language. Intensive essay writing.

Effective: Spring 2006

Prerequisite: FR 201FR 202

**FR 407 (IL) Business Writing in French** (3) Common forms of business communication; writing of reports and abstracts.

Effective: Spring 2007

Prerequisite: FR 331 orFR 332

**FR 408 (IL) French-American Business Translation** (3) Translation from French to English of actual documents from the business world; theoretical consideration and systematic vocabulary building.

Effective: Spring 2007

Prerequisite: FR 407

**FR 409 (IL) Commercial and Technical Translation** (3) Translation from English to French of commercial and technical materials; vocabulary building; writing of abstracts and summaries.

Effective: Spring 2006

Prerequisite: FR 402Y

**FR 410 (IL) French Press** (3) Extensive readings of selected french daily and weekly newspapers and magazines, along with newscast viewings.

Effective: Spring 2007

Prerequisite: FR 331 orFR 332

**FR 417 (IL) French Phonology** (3) A formal study of the sound pattern of French.

Effective: Spring 2007

Prerequisite: FR 201FR 202

**FR 418 (IL) French Syntax** (3) A formal theory of word order and related issues in French grammar.

Effective: Spring 2006

Prerequisite: FR 201 andFR 202

**FR 419 French Semantics** (3) The study of meaning in human language with a special focus on how it is encoded in French.

Effective: Summer 2011

Prerequisite: FR 316

**FR 422 (IL) Old French Literature** (3) Medieval masterpieces in original and modern French versions.

Effective: Fall 2006

Prerequisite: FR 351 orFR 352

**FR 426Y (IL) French Literature of the Renaissance** (3) Survey of key texts from sixteenth century France, with attention to historical and philosophical currents of French social thought.

Effective: Fall 2006

Prerequisite: FR 351 orFR 352

**FR 430 (IL) Contemporary France** (3) Study of contemporary French society, politics, and culture from 1870 to the present.

Effective: Summer 2013

**FR 436Y (IL) Readings in Seventeenth-Century French Literature** (3) Baroque and classicism: reappraisal of major and lesser-known 17th-century texts and theories.

Effective: Fall 2006

Prerequisite: FR 351 orFR 352

**FR 440 (IL) Teaching of Romance Languages** (3) Theories of second language acquisition. Current classroom practices in the teaching of Romance languages.

Effective: Spring 2006

Prerequisite: 15 credits beyond the elementary level

FR 445Y (IL) **Self and Society in Eighteenth-Century France** (3) The changing relationship of the individual to society in pre-Revolutionary France will be explored in texts by major writers.

Effective: Spring 2006

Prerequisite: FR 351 . Prerequisite or concurrent:FR 352

FR 452Y (IL) **Nineteenth-Century French Literature** (3) Selected readings in romanticism, realism, and symbolism, including Balzac, Stendhal, Sand, Baudelaire, and others, with emphasis on cultural issues.

Effective: Fall 2006

Prerequisite: FR 351 orFR 352

FR 453Y (IL) **La Belle Epoque: Politics, Society, and Culture in France, 1880-1914** (3) Interdisciplinary perspectives on the politics, society, and culture of France, 1880-1914.

Effective: Summer 2013

Prerequisite: FR 351 orFR 352

FR 458 (IL) **African Literature of French Expression** (3) Genesis of Franco-African literature in the 1930s; phases of the negritude movement; colonial and national literature.

Effective: Fall 2006

Prerequisite: FR 351 orFR 352

FR 460 (IL) **Contemporary French Literature** (3) Major authors and movements in French novel, drama, and poetry from Proust to the present.

Effective: Fall 2006

Prerequisite: FR 351 orFR 352

FR 470 (IL) **Race and Gender Issues in Literatures in French** (3) A critical presentation, taught in French, of changing ideas and values on race and gender in French and Francophone literatures.

Effective: Summer 2005

Prerequisite: FR 351 orFR 352

FR 475 **Women's History in Post-Revolutionary France** (3-6 per semester/maximum of 6) Women's history and creativity in post-revolutionary France.

Effective: Summer 2013

Prerequisite: FR 332 orFR 352

FR 487 (IL) **Topics in French Film History and Theory I: 1895-1945** (3) Provide background needed to understand the broad outlines of French film history and theory in their first fifty years (1895-1945).

Effective: Spring 2006

Prerequisite: FR 351 andFR 352 orCOMM 250

FR 488 (IL) **Topics in French Film History and Theory II: 1945-2002** (3) Provide background needed to understand the broad outlines of French film history and theory in their second half-century (1945-2002).

Effective: Spring 2006

Prerequisite: FR 351 andFR 352 orCOMM 250

FR 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

FR 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

FR 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1998

Prerequisite: prior approval of proposed assignment by instructor

FR 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

FR 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

FR 499 (IL) **Foreign Study--French** (3-12) Advanced studies in French language and literature.

Effective: Summer 2005

Prerequisite: FR 201FR 202

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## Fuel Science (F SC)

F SC 401 **Introduction to Fuel Technology** (3) An introduction to the scientific and engineering principles of fuel technology. For non-fuel science majors; fuel science majors will not receive credit.

Effective: Summer 2007

Prerequisite: CHEM 112PHYS 211

F SC 431 **The Chemistry of Fuels** (3) Nature and properties of fossil and other fuels, including aerospace, in relation to use; preparation of fuels; by-products; fuel analysis.

Effective: Spring 2008

Prerequisite: CHEM 210;EGEE 302 or equivalent

F SC 432 (CH E 432) **Petroleum Processing** (3) A study of physical and chemical processes to convert crude oil into desired products with an outlook from present to future.

Effective: Summer 2007

Prerequisite: CHEM 210

F SC 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2000

F SC 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

F SC 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 1999

F SC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1999

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## Gaming (GAME)

GAME 140 (GS) **Gaming and Interactive Media** (3) Introduction to business and social aspects of interactive media, videogame and simulation industries.  
Effective: Spring 2015 Future: Spring 2015

GAME 160 (GH;US;IL) (CMLIT 191) **Introduction to Video Game Culture** (3) A comparative, international look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.  
Effective: Spring 2015 Future: Spring 2015

GAME 220 (GA) **Introduction to Game Design** (3) Design of games as aesthetic objects and cultural artifacts that people find meaningful and entertaining.  
Effective: Spring 2014

GAME 250 (GQ) (CMPSC 208) **Technical Game Development** (3) Introduction to the tools and techniques required to implement games in a virtual environment.  
Effective: Summer 2014  
Prerequisite: MATH 021

GAME 420 **Advanced Game Design** (3) Develop the habits of successful game designers - playing games thoughtfully, and documenting those thoughts.  
Effective: Summer 2014  
Prerequisite: GAME 220

GAME 434 (PSYCH 434) **Psychology of Gaming** (3) Upper level course examining the core psychological principles as they apply to the topic of games.  
Effective: Spring 2014  
Prerequisite: 3 credits of psychology or 3 credits of a gaming course

GAME 450 **Advanced Game Programming** (3) Autonomously generating object behavior and content in games.  
Effective: Summer 2014  
Prerequisite: GAME 250CMPSC 122 andMATH 220

GAME 480 **Game Development Project** (3) A team of students manages the production of a game from concept to implementation.  
Effective: Summer 2014  
Prerequisite: 3 credits of 400 level GAME classes

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## Geography (GEOG)

**GEOG 010 (GN) Physical Geography: An Introduction (3)** Survey and synthesis of processes creating geographical patterns of natural resources, with application of basic environmental processes in resource management.  
Effective: Spring 2006

**GEOG 010S (GN) Physical Geography: An Introduction (3)** Survey and synthesis of processes creating geographical patterns of natural resources, with application of basic environmental processes in resource management.  
Effective: Spring 2006

**GEOG 020 (GS;US;IL) Human Geography: An Introduction (3)** Spatial perspective on human societies in a modernizing world; regional examples; use of space and environmental resources; elements of geographic planning.  
Effective: Summer 2005

**GEOG 030 (GS;IL) Geographic Perspectives on Sustainability and Human-Environment Systems (3)** Introduction to theory, methods, history and contemporary issues in global and regional relationships between human activity and the physical environment.  
Effective: Spring 2012

**GEOG 040 (GS;IL) World Regional Geography (3)** Introduction to the world as an interdependent community built from unique and independent regions and nations.  
Effective: Spring 2012

**GEOG 097 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2011

**GEOG 098 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2011

**GEOG 110 (GN) Climates of the World (3)** Introduction to climatology, including principal processes of the global climatic system and their variation over space and time.  
Effective: Fall 2004

**GEOG 111 (GN) Biogeography and Global Ecology (3)** Distribution of plants and animals on global, regional, and local scales; their causes and significance.  
Effective: Fall 2007

**GEOG 115 (GN) Landforms of the World (3)** Distribution of the world's landform features and mineral resources; their characteristics, causes, and significance. Practicum includes correlated field trips and laboratory studies.  
Effective: Fall 2004

**GEOG 120 (GS;US;IL) Urban Geography: A Global Perspective (3)** Introduction to the geography of the world's cities and urban system.  
Effective: Spring 2006

**GEOG 122 (GH;US) The American Scene (3)** Historical perspectives on the social and cultural forces associated with the production of distinctive American landscapes.  
Effective: Spring 2007

**GEOG 123 (GS;IL) Geography of Developing World (3)** Patterns of poverty in poor countries; conventional and non-conventional explanations; focus on solutions; case studies of specific regions.  
Effective: Spring 2007

**GEOG 124 (GS;IL) Elements of Cultural Geography (3)** Locational analysis of changes in non-Western cultures. Problems of plural societies, economic development, population growth, and settlement.  
Effective: Summer 2005

**GEOG 126 (GS;US;IL) Economic Geography (3)** The geographic location and organization of economic activities and outcomes at global, national, regional, and local scales.  
Effective: Spring 2012

**GEOG 128 (GS;IL) Geography of International Affairs (3)** Contemporary international affairs in their geographical setting; geographic elements in the development of national power, political groupings, and international disputes.  
Effective: Summer 2005

**GEOG 130 (GS) Environment, Power, and Justice (3)** This course explores contemporary themes in human-environment relations through the lens of political ecology.  
Effective: Spring 2008

**GEOG 160 (GS) Mapping Our Changing World (3)** Fundamental concepts of GIS, cartography, remote sensing, and GPS in the context of environmental and social problems.  
Effective: Spring 2007

**GEOG 161 Applied Geographic Information Systems (1)** An introduction to GIS (Geographic Information Systems) with emphasis on applications and analysis.  
Effective: Spring 2008  
Prerequisite: or concurrent GEOG 160

**GEOG 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2011

**GEOG 198 Special Topics (1-9 per semester/maximum of 18)** Formal courses given infrequently to explore, at a foundational level, a comparatively narrow subject which may be topical or of special interest and incorporating experiential learning.  
Effective: Summer 2011

**GEOG 199 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006  
Prerequisite: prior approval of program

**GEOG 293H Honors Experiences in International Service Learning (1-3)** Classroom instruction with supervised student activity on an honors international community service project.  
Effective: Summer 2006  
Prerequisite: sophomore standing

**GEOG 294 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2011

**GEOG 295 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2011

**GEOG 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2011

**GEOG 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1988

**GEOG 298 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2001

**GEOG 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006  
Prerequisite: prior approval of program

**GEOG 301 Thinking Geographically (3)** Learning to think geographically.  
Effective: Summer 2006  
Prerequisite: GEOG 010GEOG 020GEOG 030 Prerequisite or concurrent: GEOG 160

**GEOG 310W Introduction to Global Climatic Systems (3)** Introduction to global atmospheric circulation, including tropical, midlatitude and polar subsystems; ocean, land, cryospheric and urban climatic systems and interactions.  
Effective: Spring 2007  
Prerequisite: GEOG 010 or METEO 003

**GEOG 311 Landscape Ecology (3)** This course examines the ways in which spatial patterns and spatial processes operate in an ecological context.  
Effective: Fall 2007

Prerequisite: GEOG 111BIOL 110FOR 308 orW F S 209 or by permission

**GEOG 313 Introduction to Field Geography** (3) Introduction to the methods and techniques for collecting spatial and environmental data for physical geography and ecological studies.

Effective: Spring 2007

Prerequisite: GEOG 160

**GEOG 323 GIS and Social Theory** (3) Critical understanding of how to use GIS and tools of regional analysis in the context of postmodern social theory.

Effective: Spring 2007

Prerequisite: GEOG 160

**GEOG 333 Human Dimensions of Natural Hazards** (3) An introduction to natural hazards, integrating physical and social science perspectives.

Effective: Fall 2011

Prerequisite: junior or senior standing

**GEOG 361 Cartography--Maps and Map Construction** (3) The art and science of creating small-scale maps as a medium for communication and research.

Effective: Spring 2007

Prerequisite: GEOG 160

**GEOG 362 Image Analysis** (3) Introduction to the basic principles of remote sensing, and the analysis of aerial and satellite data.

Effective: Spring 2007

Prerequisite: GEOG 160

**GEOG 363 Geographic Information Systems** (3) Principles and use of geographic information; emphasis is on data acquisition and techniques for computer-aided analysis.

Effective: Spring 2007

Prerequisite: GEOG 160

**GEOG 364 Spatial Analysis** (3) Geographic measurement, scaling, and classification; analysis of spatial pattern and structure; geographic covariation and autocorrelation.

Effective: Fall 2008

Prerequisite: STAT 200 and 6 credits in social science

**GEOG 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2011

**GEOG 397A Energy Futures** (3) Explores changing geography of energy production/distribution/use to understand dynamics among policy, technology, and regional geography in energy transitions.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: GEOG 030 orEGEE 101 orEGEE 102 orE B F 200

**GEOG 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2011

**GEOG 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2006

Prerequisite: prior approval of program

**GEOG 411 Forest Geography** (3) This course studies processes that control spatial and temporal change in forests.

Effective: Fall 2007

Prerequisite: GEOG 010GEOG 111 ; orBIOL 220W

**GEOG 411W Forest Geography** (3) This course studies processes that control spatial and temporal change in forests.

Effective: Fall 2007

Prerequisite: GEOG 010GEOG 111 ; orBIOL 220W

**GEOG 412W Climatic Change and Variability** (3) Theories and observations of past, present, and future climatic change and variability; introduction to techniques used in climatic change research.

Effective: Spring 2007

Prerequisite: GEOG 110 orMETEO 003

**GEOG 414 Principles and Applications in Landscape Ecology** (1-3) Introduction to the ways in which spatial patterns and processes operate in an ecological context.

Effective: Spring 2014

Prerequisite: BIOL 110 orBIOL 220 orGEOG 111 orGEOG 314 orFOR 308 orW F S 209 orLARCH 241 or by permission

**GEOG 417 Satellite Climatology** (3) A discussion of the application of satellite data to current and planned large-scale climate experiments.

Effective: Spring 2007

Prerequisite: GEOG 362

**GEOG 420Y (US;IL) Comparative Urbanism** (3) This course investigates selected urban issues through the lens of comparative urbanism.

Effective: Fall 2011

Prerequisite: GEOG 120GEOG 160

**GEOG 423Y (US) Historical Geography of North America (3)** Exploration, settlement, and changing patterns of human occupancy from the seventeenth century to the 1930s.

Effective: Fall 2011

Prerequisite: GEOG 122 3 additional credits in geography or 6 credits American history

**GEOG 424 (US;IL) Geography of the Global Economy (3)** Focus on industrial location theory, factors in industrial location, studies of selected industries and problems of industrial development.

Effective: Spring 2011

Prerequisite: ECON 102ECON 104GEOG 126

**GEOG 425 (US) Geography of Race, Class, and Poverty in America (3)** This class examines the spatial interactions of race, class and poverty in the United States.

Effective: Fall 2011

Prerequisite: GEOG 126;ECON 102 orECON 104

**GEOG 426Y (US;IL) (WMNST 426Y) Gender Geographies (3)** Description and explanation of the links between gender relations and spatial structures.

Effective: Fall 2013

Prerequisite: GEOG 020 orGEOG 126 orGEOG 120 orWMNST 100

**GEOG 427 (US;IL) Urban Historical Geography (3)** Study of the development and transformation of the historical urban built environment.

Effective: Spring 2007

Prerequisite: 6 credits in geography humanities or social sciences

**GEOG 428 (US) Political Geography (3)** Geographical foundations of political phenomena; significant geographic factors in growth and development of states, boundary problems, population distribution, colonies, and internal and international regional problems.

Effective: Spring 2007

Prerequisite: 6 credits in history or 6 credits in political science

**GEOG 428Y (US;IL) Political Geography (3)** Geographical foundations of political phenomena; significant geographic factors in growth and development of states, boundary problems, population distribution, colonies, and internal and international regional problems.

Effective: Spring 2012

Prerequisite: 3 credits human geography (GEOG 020 or 120 or 122 or 123 or 124 or 126 or 128)

**GEOG 429 (US;IL) Geographic Perspectives on Global Urbanization (3)** This course reflects critically on a number of issues related to global urbanization, including the culture and political economy of urban space.

Effective: Spring 2012

Prerequisite: GEOG 020GEOG 126 orGEOG 120

**GEOG 430 Human Use of Environment (3)** The human use of resources and ecosystems and social causes and consequences of environmental degradation in different parts of the world; development of environmental policy and management strategies.

Effective: Fall 2008

Prerequisite: GEOG 010 orGEOG 020 orGEOG 030 orGEOG 040 orGEOG 130 or permission of the program

**GEOG 431 Geography of Water Resources (3)** Perspectives on water as a resource and hazard for human society; water resource issues in environmental and regional planning.

Effective: Spring 2007

Prerequisite: 6 credits in geography or natural sciences

**GEOG 432 (EME 432) Energy Policy (3)** Analysis, formulation, implementation, and impacts of energy-related policies, regulations, and initiatives.

Effective: Summer 2010

Prerequisite: E B F 200EGEE 120PL SC 490

**GEOG 434 Politics of the Environment (3)** This course explores politics related to the use, transformation, valuation, and representation of the environment.

Effective: Spring 2007

Prerequisite: 6 credits in social sciences or humanities

**GEOG 435H (IL) Global Change and Sustainability - Bulgaria (3)** Sustainability in the context of climate change, global socioeconomic change and regional transformation in Bulgaria; embedded foreign fieldwork (honors).

Effective: Summer 2008

Prerequisite: sophomore standing or above; departmental permission required

**GEOG 436 Ecology, Economy, and Society (3)** Analyses of major themes in ecology and economic development, poverty-alleviation, and sustainability.

Effective: Summer 2006

Prerequisite: upper-division standing

**GEOG 438W Human Dimensions of Global Warming (3)** Human dimensions of climate change: human causes, human consequences, and policy implications of global warming.

Effective: Spring 2012

Prerequisite: EARTH 002GEOG 010 orMETEO 003;GEOG 030



**GEOG 439 Property and the Global Environment** (3) This course reviews theoretical and empirical relationships between multiple legal, economic, and cultural approaches to property, and environmental quality and conflicts.

Effective: Summer 2006

Prerequisite: 6 credits in geography humanities or social sciences

**GEOG 440 Topics in Regional Geography** (3) Analysis of historical, contemporary and future environmental and societal issues in a specified world region from a geographical perspective.

Effective: Summer 2006

Prerequisite: 3 credits in physical geography 3 credits in human geography

**GEOG 444 African Resources and Development** (3) Ecological and cultural factors in the geography of Africa; natural resources and development.

Effective: Spring 2001

Prerequisite: GEOG 010GEOG 020GEOG 030 orGEOG 124

**GEOG 461W Dynamic Cartographic Representation** (3) Theory and practice of mapping and geo-representation in a dynamic media context. Applications in science, policy, travel, and education.

Effective: Spring 2010

Prerequisite: GEOG 361 orGEOG 362 orGEOG 363

**GEOG 463 Geospatial Information Management** (3) This course examines geospatial data representations and algorithmic techniques that apply to spatially-organized data in digital form.

Effective: Fall 2011

Prerequisite: GEOG 363

**GEOG 464 Advanced Spatial Analysis** (3) Skills and knowledge for applying quantitative methods to analyze information with spatial distributions.

Effective: Spring 2012

Prerequisite: GEOG 364

**GEOG 467 Applied Cartographic Design** (3) Project-based map production problems with emphasis on map design and advanced mapping tools in geographic information systems.

Effective: Fall 2011

Prerequisite: GEOG 361

**GEOG 468 Geographic Information Systems Design and Evaluation** (3) Design and evaluation of Geographic Information Systems and other forms of integrated spatial data systems.

Effective: Spring 2007

Prerequisite: GEOG 363

**GEOG 469 Energy Industry Applications of GIS** (3) Roles of geographic information systems in energy siting decisions focusing on electric energy transmission networks.

Effective: Summer 2010

Prerequisite: GEOG 030EGEE 102EME 444

**GEOG 475H (LER 475H) Labor in the Global Economy: U.S. and South African Perspectives** (3) This course focuses on how the nature of work is changing in the global economy, and the implications for economic opportunity and inequality in both.

Effective: Spring 2008

Prerequisite: a minimum of 12 GEOG or LER credits before taking the course (or permission of the program).

**GEOG 480 Exploring Imagery and Elevation Data in GIS Applications** (3) Using imagery and terrain data in typical application scenarios faced by the geospatial professional.

Effective: Spring 2013

Prerequisite: GEOG 482 or equivalent professional experience

**GEOG 482 The Nature of Geographic Information** (2) Orientation to the properties of geographic data and the practice of distance learning.

Effective: Summer 2004

Prerequisite: admission to the Master of GIS program or Certificate Program in GIS

**GEOG 483 Problem-Solving with GIS** (3) How geographic information systems facilitate data analysis and communication to address common geographic problems.

Effective: Summer 2004

Prerequisite: GEOG 482

**GEOG 484 GIS Database Development** (3) Database design, creation, maintenance, and data integration using desktop GIS software.

Effective: Summer 2004

Prerequisite: GEOG 483

**GEOG 485 GIS Programming and Customization** (3) Customizing GIS software to extend its built-in functionality and to automate repetitive tasks.

Effective: Fall 2007

Prerequisite: GEOG 363 orGEOG 484;CMPSC 101 or equivalent

**GEOG 486 Cartography and Visualization** (3) Theory and practice of cartographic design emphasizing effective visual thinking and visual communication with geographic information systems.

Effective: Summer 2004

Prerequisite: GEOG 484

**GEOG 487 Environmental Applications of GIS** (3) Real-world applications of GIS and spatial analysis to investigate a variety of current environmental issues.

Effective: Spring 2010

Prerequisite: GEOG 484

**GEOG 488 Acquiring and Integrating Geospatial Data** (3) Advanced technical, legal, ethical and institutional problems related to data acquisition for geospatial information systems.

Effective: Summer 2004

Prerequisite: GEOG 484

**GEOG 489 GIS Application Development** (3) Advanced topics in GIS customization, including the Systems Development Life Cycle, packaging and deployment, and consuming Web services.

Effective: Summer 2004

Prerequisite: GEOG 485

**GEOG 493 Service Learning** (3-12) Classroom instruction with supervised student activity on a group community service project.

Effective: Summer 2006

Prerequisite: sophomore standing; 6 credits of social or environmental science

**GEOG 494 Research Project in Geography** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2006

Prerequisite: prior approval of program

**GEOG 494H Research Project in Geography** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

Prerequisite: prior approval of program

**GEOG 495 Internship** (1-13) Supervised off-campus, non-group instruction including individual field experience, practicums, or internships. Written and oral critique of activity required.

Effective: Fall 1981

Prerequisite: prior approval of proposed assignment by instructor

**GEOG 495B Geography Teaching Internship** (1-10) Supervised undergraduate teaching experience in which students serve as peer tutors, laboratory assistants, or course material developers.

Effective: Summer 2004

**GEOG 495C Internship Supervision and Mentoring** (1) Candidates for the Master of GIS degree sponsor a GIS-related internship for students in Penn State's resident undergraduate program.

Effective: Summer 2004

**GEOG 495G Giscience Internship** (1-10) Supervised research experience within the Department of Geography's GeoVISTA Center, Gould Center, or an appropriate external agency.

Effective: Spring 2007

Prerequisite: GEOG 160

**GEOG 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**GEOG 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**GEOG 497B Location Intelligence for Business** (3) Understanding location technology and geospatial analysis to support an efficient and effective pathway to better business decisions.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**GEOG 497C GIS for Transportation Principles, Data, and Applications** (3) This course examines the use of GIS principles, data, and applications that have been developed for the field of transportation.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: GEOG 483

**GEOG 497D Lidar Technology and Applications** (3) Understanding lidar systems' design, operation, data processing techniques, and product generation to address typical application scenarios faced by the geospatial professional.

Effective: Summer 2014 Ending: Summer 2014

**GEOG 497D Lidar Technology and Applications** (3) Understanding lidar systems' design, operation, data processing techniques, and product generation to address typical application scenarios faced by the geospatial professional.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**GEOG 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

which may be topical or of special interest.  
Effective: Fall 1998

GEOG 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006  
Prerequisite: prior approval of program

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## Geosciences (GEOSC)

**GEOSC 001 Physical Geology (3)** Earth processes and their effects on the materials, structure, and morphology of the earth's crust. Practicum includes field work, study of rocks, minerals, dynamic models, and topographic maps. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.) This course contains from one to several field trips for which an additional charge will be made to cover transportation. Effective: Fall 1983

**GEOSC 002 (GN) Historical Geology (3)** History of the earth and its life; fundamentals of evolution, correlation, and paleogeography; practicum includes field trips, study of geologic maps, geologic problems, and fossils, with emphasis on Appalachian geology. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.) This course contains from one to several field trips for which an additional charge will be made to cover transportation. Effective: Summer 1995

**GEOSC 010 (GN) Geology of the National Parks (3)** Introduction to geology, geological change, and environmental hazards, as seen in the National Parks. Effective: Fall 2003

**GEOSC 020 (GN) Planet Earth (3)** Nontechnical presentation of earth processes, materials, and landscape. Practicum includes field trips, study of maps, rocks, and dynamic models, introduction to geologic experimentation. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.) This course contains from one to several field trips for which an additional charge will be made to cover transportation. Effective: Fall 2003

**GEOSC 020L (GN) Planet Earth (3)** Nontechnical presentation of earth processes, materials, and landscape. Practicum includes field trips, study of maps, rocks, and dynamic models, introduction to geologic experimentation. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.) Effective: Summer 1988

**GEOSC 021 (GN) Earth and Life: Origin and Evolution (3)** Introduction to the origin and evolution of life on Earth from the perspective of geologic time and the fossil record. This course contains from one to several field trips for which an additional charge will be made to cover transportation. Effective: Spring 2002

**GEOSC 030 (GN) Volcanoes (3)** Basic concepts in Volcanology and Geosciences are explored through a series of virtual field trips to historic eruptions. Effective: Summer 2014

**GEOSC 040 (GN) The Sea Around Us (3)** Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography. Effective: Fall 2003

**GEOSC 040L (GN) The Sea Around Us (2)** Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography. Effective: Summer 2009

**GEOSC 040P (GN) The Sea Around Us (1)** Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography. Effective: Spring 2009

**GEOSC 071 Physical Geology for Engineers (3)** Principles of physical geology, with emphasis on the engineering point of view; practicum includes field work, study of rocks, minerals, dynamic models, and topographic maps. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.) This course contains from one to several field trips for which an additional charge will be made to cover transportation. Effective: Summer 2007  
Prerequisite: CHEM 110

**GEOSC 097 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest. Effective: Fall 1992

**GEOSC 109H (GN) Earthquakes and Society (3)** Introduction to earthquakes and seismology, and their relationship to society, including monitoring for nuclear weapons and seismic hazards. Effective: Spring 2007

**GEOSC 110H (GN) The Science of Gemstones (3)** An exploration of the geological uses of gems and of the physical and chemical properties underlying their brilliance and color.

Effective: Summer 2002

Prerequisite: high school chemistry and trigonometry

**GEOSC 111 (GN) Forensic Geoscience (3)** Covers fundamental geoscience concepts such as stratigraphy, mineral and soil identification, seismology, and geochemistry within the context of forensic investigation.

Effective: Spring 2008

**GEOSC 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**GEOSC 201 Earth Materials (4)** Elements of crystallography and crystal chemistry; origin, occurrence, and identification of sedimentary, igneous, and metamorphic rocks and their minerals. This course has one or more required field trips for which a fee is charged to the student.

Effective: Summer 2007

Prerequisite: CHEM 110 third-semester standing. Prerequisite or concurrent: GEOSC 001 or GEOSC 020

**GEOSC 202 Chemical Processes in Geology (4)** An in-depth examination of the application of chemical principles to geological processes.

Effective: Summer 2007

Prerequisite: GEOSC 001 MATH 140 third-semester standing. Prerequisite or concurrent: CHEM 113

**GEOSC 203 Physical Processes in Geology (4)** An in-depth examination of various physical processes that operate within and at the surface of the earth.

Effective: Spring 2011

Prerequisite: GEOSC 001 or permission of program. Prerequisite or concurrent: PHYS 211 MATH 140

**GEOSC 204 Geobiology (4)** An introduction to how biological processes and materials are used to solve geological problems.

Effective: Spring 2001

Prerequisite: BIOL 110; GEOSC 001 or GEOSC 020

**GEOSC 228 Dinosaurs (3)** Dinosaurs and other large Mesozoic reptiles; their morphology, stratigraphic and paleoenvironmental distribution, preservation, collecting, classification, lifestyles, origins, evolution, and extinction.

Effective: Summer 1995

**GEOSC 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**GEOSC 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**GEOSC 297A The Geology of Marcellus Shale (3)** This class is a field based introduction to the geological processes that result in the formation of oil and gas accumulations with an emphasis on the Marcellus Shale.

Effective: Summer 2014 Ending: Summer 2014

**GEOSC 297D Introductory Field Geology in Italy (3)** This program will consist of two courses that aim to develop basic field geology skills while assembling a broad range of observations that will lead to an integrated understanding the origin and evolution of the Northern Apennines mountains.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: GEOSC 001 GEOSC 020 GEOSC 010 GEOSC 040 EARTH 101 or EARTH 100

**GEOSC 303 Introduction to Environmental Geology (3)** Origin of earth and earth materials; natural resources, geologic barriers and hazards, and relationships to human use of the environment. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

This course contains from one to several field trips for which an additional charge will be made to cover transportation.

Effective: Fall 1983

**GEOSC 310 Earth History (4)** The principles of stratigraphy and paleontology and their use, in combination with plate tectonics, in reconstructing the earth's history. This course has one or more required field trips for which a fee is charged to the student.

Effective: Spring 2002

Prerequisite: GEOSC 201

**GEOSC 320 Geology of Climate Change (3)** Geologic evidence for climate change and mechanisms of change, especially from the Ice Age through the near future.

Effective: Spring 2001

**GEOSC 340 Geomorphology** (3) Physical and chemical processes operating at the earth's surface and their resulting landforms. This course has one or more required field trips for which a fee is charged to the student.

Effective: Spring 2002

Prerequisite: GEOSC 001 ; fifth-semester standing

**GEOSC 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**GEOSC 397D The Tectonic Evolution of Italy** (3) This program will consist of two courses that aim to develop basic field geology skills while assembling a broad range of observations that will lead to an integrated understanding of the origin and evolution of the Northern Apennines mountains.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: GEOSC 297D

**GEOSC 402Y (IL) Natural Disasters** (3) Case studies of the causes and consequences of natural disasters; analysis of disaster impact in different economic, cultural, and social conditions.

Effective: Summer 2005

Prerequisite: fourth-semester standing

**GEOSC 405 (SOILS 405) Hydropedology** (3) Soil and water interactions across scales, integrated studies of landscape-soil-water relationships, fundamental processes of water flow and chemical transport.

Effective: Spring 2008

Prerequisite: SOILS 101

**GEOSC 409W Geomicrobiology** (3) Investigation of modern and ancient microbial interactions with soils, sediments, the atmosphere, minerals, rocks, nutrients, and pollutants.

Effective: Summer 2008

Prerequisite: CHEM 112;GEOSC 001GEOSC 020GEOSC 040EARTH 002BIOL 110 orMICRB 201

**GEOSC 410 Marine Biogeochemistry** (3) Exploration of the ways in which life influences and is influenced by chemical, physical, and geological processes in the ocean.

Effective: Summer 2012

Prerequisite: CHEM 112;EARTH 002 orGEOSC 001GEOSC 020GEOSC 040

**GEOSC 412 Water Resources Geochemistry** (3) Aqueous geochemistry of silica, alumina, carbonate minerals, and selected metals; organic species in water; isotope geochemistry applied to water.

Effective: Summer 2007

Prerequisite: CHEM 110CHEM 112

**GEOSC 413W Techniques in Environmental Geochemistry** (3) This course teaches techniques needed for the collection, chemical analysis, and data analysis of environmental geochemical measurements. This course has one or more required field trips for which a fee is charged to the student.

Effective: Spring 2002

Prerequisite: one of the following: C E 475CHEM 402GEOSC 202GEOSC 412SOILS 419

**GEOSC 415 Geochemistry** (3) Element abundance and genesis, application of chemical principles to earth materials, element fractionation in geologic processes.

Effective: Spring 2011

Prerequisite: CHEM 112GEOSC 201

**GEOSC 416 Stable and Radioactive Isotopes in Geosciences: Introduction** (3) Discussions on theories for natural isotopic and element variations and their applications to the solution of geologic and cosmologic problems.

Effective: Summer 2007

Prerequisite: CHEM 110CHEM 112CHEM 111CHEM 113;GEOSC 001 orGEOSC 020

**GEOSC 418 (SOILS 419) Soil Environmental Chemistry** (3) Introduction to chemical constituents and processes occurring in soils. Topics include mineral weathering, soil solution chemistry and adsorption of solutes.

Effective: Summer 2007

Prerequisite: CHEM 112SOILS 101

**GEOSC 419 The Organic Geochemistry of Natural Waters and Sediments** (3) Composition, sources, and fates of particulate and dissolved organic matter in natural environments; biogeochemical processes; organic geochemistry of anthropogenic contaminants.

Effective: Summer 2007

Prerequisite: CHEM 110CHEM 112

**GEOSC 420 (BIOL 420) Paleobotany** (3) Classification, morphology, phylogeny, and stratigraphic occurrence of fossil plants; practicum includes field trips and study of paleobotanical techniques and specimens.

Effective: Spring 2005

Prerequisite: any 3-credit introductory course in historical geology or plant biology

**GEOSC 422 Vertebrate Paleontology** (3) Course covers scientific thinking and skills in scientific writing, the history of vertebrates, and modern evolutionary theory applied to vertebrates.

This course contains from one to several field trips for which an additional charge will be made to cover transportation.

Effective: Spring 2009

Prerequisite: GEOSC 001 andBIOL 110

**GEOSC 424 Paleontology and Fossils** (3) Concepts and procedures using fossils to solve problems in systematics, evolution, biostratigraphy, correlation, sedimentation, paleoecology, and global change.

Effective: Spring 2001

Prerequisite: GEOSC 001 orGEOSC 020

**GEOSC 428 Micropaleontology** (4) Biology and ecology of microfaunas and microfloras (e.g., foraminifera, coccolithophores, radiolaria, diatoms, dinoflagellates) and applications in biostratigraphy and paleoenvironmental reconstruction.

Effective: Summer 2004

Prerequisite: GEOSC 204

**GEOSC 434 Volcanology** (3) Phenomena and products of volcanic eruptions; physical characteristics of lava and pyroclastic material.

Effective: Spring 2011

Prerequisite: GEOSC 201

**GEOSC 439 Principles of Stratigraphy** (3) An introduction to the description and genesis of sedimentary rock bodies, the determination of their stratal geometries, and their correlation. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

This course contains from one to several field trips for which an additional charge will be made to cover transportation.

Effective: Spring 2001

Prerequisite: GEOSC 201

**GEOSC 440 Marine Geology** (3) Chemical and physical processes affecting the topography and sediments of the sea floor.

Effective: Spring 2001

Prerequisite: fourth-semester standing

**GEOSC 444 Matlab Applications for Geoscience** (2) An introduction to Matlab: m-file development, descriptive statistics, bootstrapping, Fourier transforms, regression, interpolation, least-squares, differentiation, integration, differential equations, signal analysis, graphics.

Effective: Spring 2009

Prerequisite: MATH 110 orMATH 140

**GEOSC 450 Risk Analysis in the Earth Sciences** (3) An introduction to concepts and methods of quantitative risk analysis with focus on water, climate, and energy related risks.

Effective: Spring 2010

Prerequisite: MATH 140 orMATH 110 Introductory Earth Science or Geoscience class Introductory Statistics class (e.g. STATS 200 or STATS 301 or ENNEC 473) or permission of program

**GEOSC 451 Natural Resources: Origins, Economics and Environmental Impact** (3) Geologic, economic and environmental issues related to exploitation of non-renewable natural resources (metals, minerals, rocks, and fossil fuels).

Effective: Fall 2006

Prerequisite: GEOSC 001 orGEOSC 020

**GEOSC 452 Hydrogeology** (3) Hydrologic cycle: occurrence, movement, quality, and quantity of groundwater; solute transport; quantitative hydrogeologic methods; role of water in geologic processes. This course has one or more required field trips for which a fee may be charged to the student.

Effective: Spring 2008

Prerequisite: CHEM 112;GEOSC 001GEOSC 020 orGEOSC 071;MATH 140 orMATH 110

**GEOSC 454 Geology of Oil and Gas** (3) Properties, origin, migration, and occurrence of oil and gas. This course has one or more required field trips for which a fee is charged to the student.

Effective: Spring 2002

Prerequisite: GEOSC 001

**GEOSC 461 Geology of North America** (3) Evolution of structural-stratigraphic framework of continent; interpretation of relevant data obtained from field, experimental, and geophysical observation.

Effective: Spring 2001

Prerequisite: GEOSC 001GEOSC 020 orGEOSC 071

**GEOSC 465 Structural Geology** (4) Effects and mechanics of deformation of the earth's crust; practicum includes field trips and studies of maps and structural problems. This course has one or more field trips for which a fee is charged to the student.

Effective: Spring 2002

Prerequisite: or concurrent:GEOSC 203GEOSC 310

**GEOSC 470W Introduction to Field Geology** (3) Field interpretation of geologic features; principles and techniques of geologic mapping; interpretation of geologic maps and diagrams. This course has one or more required field trips for which a fee is charged to the student.

Effective: Spring 2002

Prerequisite: GEOSC 001 ; fifth-semester standing

**GEOSC 472A Field Geology I (Introduction to Field Methods)** (3) Introduction to geologic field methods and the 3-D characterization of earth structure and the reconstruction of geologic histories. This course includes travel outside the University for which an additional charge will be made to cover transportation, food, and lodging.

Effective: Summer 2005

Prerequisite: GEOSC 310

**GEOSC 472B Field Geology II (Advanced Field Methods)** (3) Advanced application of geologic field methods to the 3-D characterization of earth structure and the reconstruction of geologic histories. This course includes travel outside the University for which an additional charge will be made to cover transportation, food, and lodging.

Effective: Summer 2005

Prerequisite: GEOSC 310GEOSC 465 . Prerequisite or concurrent:GEOSC 472A

GEOSC 474 (BIOL 474) **Astrobiology** (3) In depth treatment of principles/concepts of biochemical evolution, the origin/evolution of life; evaluation of distribution of life in the universe.

Effective: Summer 2007

Prerequisite: BIOL 110CHEM 110

GEOSC 479 **Advanced Stratigraphy** (3) Modern topics of sequence stratigraphy are addressed, with a heavy emphasis on field and laboratory data analysis and interpretation.

Effective: Spring 1999

Prerequisite: GEOSC 439

GEOSC 483 **Environmental Geophysics** (3) This course presents the principles and applications of the variety of techniques geophysicists use to address environmental problems.

Effective: Fall 2001

Prerequisite: PHYS 211PHYS 212

GEOSC 487 **Analysis of Time Series** (3) Nonstatistical approach to data analysis; spectral and correlation analysis; filter theory; signal-to-noise improvement applied to geoscience data.

Effective: Fall 2010

Prerequisite: MATH 140 andMATH 141

GEOSC 488 **An Introduction to Seismology** (4) An overview of the observations, methods, and frameworks used in seismogram analysis for earthquake and earth-structure investigations (includes laboratory).

Effective: Spring 2003

Prerequisite: MATH 140MATH 141

GEOSC 489 **Dynamics of the Earth** (4) Constitution and dynamics of the solid earth; mechanics and consequences of Plate Tectonic processes.

Effective: Fall 2001

Prerequisite: GEOSC 203GEOSC 310PHYS 211

GEOSC 494M **Senior Thesis** (1-4) Supervised student activities on research projects identified on an individual or small group basis.

Effective: Fall 2007

Prerequisite: seventh-semester standing

GEOSC 494W **Senior Thesis** (1-4) Supervised student activities on research projects identified on an individual or small group basis.

Effective: Spring 2001

Prerequisite: seventh-semester standing

GEOSC 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2001

GEOSC 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

GEOSC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

GEOSC 497A **Geoscience Scholarship** (3) Intended for geoscience majors seeking research careers. Major focus on core skills: writing, speaking, discussion, scientific literature, professionalism.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

GEOSC 497A **Geologic Maps in ARCGIS** (1) This course provides an introduction to Geographic Information Systems (GIS) and their use in making geologic maps.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

GEOSC 497B **Introduction to Remote-Sensing** (3) Comprehensive introduction to theory and methods in remote-sensing, covering optical, thermal and radar methods and their application in geosciences.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: MATH 140PHYS 211

GEOSC 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1997

GEOSC 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005





## German (GER)

**GER 001 Elementary German I** (4) Introduction to listening, speaking, reading, and writing with emphasis on the first two skills; cultural aspects through readings and videos. Students who have received high school credit for two or more years of German may not schedule this course for credit, without the permission of the department.  
Effective: Fall 2012

**GER 002 Elementary German II** (4) Continuation of GER 001; further introduction of basic structures, culture, and development of four basic skills stressing aural-oral aspects. Students who have received high school credit for four or more years of German may not schedule this course for credit, without the permission of the department.  
Effective: Fall 2012  
Prerequisite: GER 001

**GER 003 Intermediate German** (4) Continued four-skill development with increased emphasis on reading, writing, and grammatical accuracy; culturally-oriented reading selections and videos. Students may receive credit for only one of the following: GER 003 or GER 008.  
Effective: Summer 1994  
Prerequisite: GER 002

**GER 008 Business German** (4) Introduction to Business German. Students may receive credit for only one of the following: GER 003 or GER 008.  
Effective: Summer 2000  
Prerequisite: GER 001GER 002

**GER 011 Intensive Basic German** (6) Listening, speaking, reading, writing, basic structures and vocabulary of German. Taught on an accelerated basis. Students may receive credit for only one of the following: GER 001, 011, or 015.  
Effective: Fall 1983

**GER 012 Intensive Intermediate German** (6) Continued skill development of structures and vocabulary; listening, speaking, reading, writing. Taught on an accelerated basis. Students may receive credit for only one of the following: GER 002, 003, 012, or 016.  
Effective: Fall 1983  
Prerequisite: GER 011

**GER 051 Elementary Intensive German for Graduate Students I** (3) Intensive introduction to German: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: graduate standing

**GER 052 Elementary Intensive German for Graduate Students II** (3) Intensive introduction to German: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: GER 051 or equivalent and graduate standing

**GER 053 Intermediate Intensive German for Graduate Students** (3) Continued intensive study of German at the intermediate level: reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: GER 052 or equivalent and graduate standing

**GER 083S (GH;US;IL) First-Year Seminar in German** (3) Germany's cultural past and present.  
Effective: Summer 2005

**GER 099 (IL) Foreign Study--German** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**GER 100 (GH;IL) German Culture and Civilization** (3) Culture and civilization of the German people from the Germanic migrations to the Nazi period. Conducted in English.  
Effective: Summer 2005

**GER 143 (GH;IL) (RUS 143) The Culture of Stalinism and Nazism** (3) The culture of Stalinist Russia and Nazi Germany in comparative perspective.  
Effective: Summer 2005

**GER 157 (GH;US) Pennsylvania Germans: The Culture of the Sectarians** (3) Survey of the religious background, beliefs, social life, customs, education, and culture of the Pennsylvania German sectarians, especially the Amish. Conducted in English.  
Effective: Summer 2005

**GER 175 (GH;IL) Germanic Heroic and Medieval Literature in English Translation** (3) Germanic heroic and medieval courtly literature from 800 to 1350 focusing on the prevailing cultural, social, and legal conditions.

Effective: Spring 2006

GER 189 (GH;IL) **German Film** (3) A survey of German film from its beginnings to the present, with emphasis on historical, political, and cultural contexts.  
Effective: Summer 2014

GER 189U (GH;IL) **German Film** (3) A survey of German film from its beginnings to the present, with emphasis on historical, political, and cultural contexts.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

GER 190 (GH;IL) **Twentieth-Century German Literature in English Translation** (3) Works of such writers as Boll, Brecht, Durrenmatt, Frisch, Grass, Hesse, Kafka, Mann, Rilke, Weiss, and Wolf.  
Effective: Spring 2006

GER 195 (GH;IL) **Modern German Drama and Theatre in English Translation** (3) Plays and their stage realization by writers such as Brecht, Durrenmatt, Handke, Hauptmann, Kaiser, Schnitzler, Wedekind, and Weiss.  
Effective: Spring 2006

GER 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1995

GER 199 (IL) **Foreign Study--German** (3-6) Intermediate training in German language skills.  
Effective: Summer 2005  
Prerequisite: GER 002

GER 200 (GH;IL) **Contemporary German Culture** (3) Germany since WWI, its politics, economics, society, arts, and educational system in the international context; conducted in English.  
Effective: Summer 2005

GER 201 (IL) **Conversation and Composition** (4) Continuation of GER 003; emphasis on reading, writing, and conversational skills; course utilizes short literary selections, a concise novel, videos.  
Effective: Fall 2006  
Prerequisite: GER 003 or GER 008

GER 208Y (IL) **Business German** (4) Intermediate Business German.  
Effective: Fall 2006  
Prerequisite: GER 003 or GER 008

GER 245 (GH) **The Vikings** (3) Focus on the history of the Vikings from 800 to 1400 as conveyed to us in mythology, literature, and archaeology. Conducted in English.  
Effective: Spring 2005

GER 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

GER 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

GER 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1985

GER 299 (IL) **Foreign Study--German** (3-6) Advanced training in German language skills.  
Effective: Summer 2005

GER 301 (IL) **Intermediate Speaking and Listening** (3) Intensive practice in spoken German through readings, discussions and video.  
Effective: Spring 2012  
Prerequisite: GER 201 or GER 208

GER 302W **Intermediate Composition and Grammar** (3) Continuation of oral and written practice in German with extensive work in composition.  
Effective: Spring 2012  
Prerequisite: GER 201 or GER 208

GER 308Y (IL) **German Business Communication** (3) Development of German commerce and industry; extensive practice

in the major forms of business communications such as business correspondence.

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

**GER 310 (IL) Introduction to the Study of German Literature (3)** History, methods, and the terminology of literary interpretation and analysis in German.

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

**GER 344 (IL) Intermediate German Culture (3)** An overview of German culture from the Middle Ages to the present. Conducted in German.

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

**GER 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

**GER 399 (IL) Foreign Study--German (3-12)** Advanced studies in German language and/or literature.

Effective: Summer 2005

Prerequisite: GER 201

**GER 401Y (IL) Advanced Composition (3)** Intensive practice in writing different text types in German.

Effective: Spring 2012

Prerequisite: GER 301 and GER 302W

**GER 408 (IL) Advanced German Business Communications (3)** Study of German business organization, forms of business communications, business terminology; writing of reports and abstracts.

Effective: Spring 2006

Prerequisite: GER 308

**GER 411 The Teaching of German (3)** Theory, methods, techniques, materials, bibliography; use of inter-active media; contributions of linguistics or psychology to language learning.

Effective: Summer 1994

Prerequisite: or concurrent: GER 401

**GER 412 (IL) Contrastive Analysis of Modern German and English (3)** Structural comparison of the German and English grammatical systems: morphology, syntax, phonology.

Effective: Spring 2006

Prerequisite: or concurrent: GER 401

**GER 420 (IL) Genre (3-9)** Special studies in a particular literary genre in German literature, such as lyrical poetry, drama, or narrative prose.

Effective: Spring 2006

Prerequisite: GER 310 GER 401

**GER 430 (IL) History of the German Language (3)** Development of German from its earliest stages, including historical and cultural aspects.

Effective: Fall 2007

Prerequisite: or concurrent: GER 401Y

**GER 431 (IL) History of German Literature and Culture I (3)** Significant works of German literature before the mid-eighteenth century considered in their cultural context.

Effective: Spring 2006

Prerequisite: GER 310 . Prerequisite or concurrent: GER 401

**GER 432 (IL) History of German Literature and Culture II (3)** Significant works of German literature from the mid-eighteenth century to the present considered in their cultural context.

Effective: Spring 2006

Prerequisite: GER 310 . Prerequisite or concurrent: GER 401

**GER 440 (IL) Seminar in German Culture (3-6)** Seminar devoted to a special topic in the field of German culture and civilization.

Effective: Spring 2006

Prerequisite: or concurrent: GER 401

**GER 472 (IL) Romanticism (3)** A study of both early and late romanticism, including such writers as Novalis, the Schlegels, E.T.A. Hoffmann, and Heine.

Effective: Spring 2006

Prerequisite: or concurrent: GER 431 or GER 432

**GER 489 Introduction to German Film History and Theory in Context (3)** Introduces films in German since the 1960s and addresses issues relevant to German and European cultures and politics.

Effective: Spring 2005

Prerequisite: GER 310 or COMM 250

**GER 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

**GER 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

**GER 495 Internship** (3-9) Supervised off-campus, non-group instruction including individual field experiences, practicums, or internships. Written and oral critique of activity required.  
Effective: Summer 1981  
Prerequisite: prior approval of proposed assignment by instructor

**GER 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**GER 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1985

**GER 499 (IL) Foreign Study--German** (3-12) Advanced studies in German language, literature, and culture.  
Effective: Summer 2005  
Prerequisite: any 300-level course in German

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## Graphic Design (GD)

**GD 001S First-Year Seminar in Graphic Design** (1) An orientation to the historical, social, and professional context of design and an exposure to a variety of ethical, philosophical, and topical ideas from the world of design.

Effective: Summer 2007

Prerequisite: admission to the AADES program

**GD 100 (GA) Introduction to Graphic Design** (3) A beginning level graphic design course. Instruction touches on the practice, theories, history and processes of the graphic design industry.

Effective: Spring 2006

**GD 101 Thinking Creatively: Defining Problems, Solving Problems, and Generating Ideas in Graphic Design** (2) An introduction to the theory and practice of defining problems, developing solutions, and generating ideas in design.

Effective: Summer 2007

Concurrent: GD 001S

**GD 102 Introductory Design Studio** (3) A studio course in defining problems, solving problems, and generating ideas.

Effective: Summer 2007

Prerequisite: GD 001S and GD 101

**GD 200 Graphic Design Studio I** (3) A beginning graphic design studio course. Instruction focuses on the practical and analytical process of creating graphic designs and their critical evaluation.

Effective: Spring 2008

Prerequisite: GD 102

**GD 201 Typography** (3) A consideration of the word in relation to visual organization and its application to communication.

Effective: Fall 2006

Prerequisite: GD 200

**GD 202W The History of Graphic Design** (3) A survey of graphic design, especially emphasizing influential movements, innovative designers and technological advances relevant to contemporary visual communication.

Effective: Summer 2011

Prerequisite: GD 001SGD 100GD 101 Concurrent: GD 102

**GD 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2006

**GD 295 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2006

**GD 296 Independent Study** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2006

**GD 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2006

**GD 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2006

**GD 300 Design Photography** (4) An investigation of graphic photography processes and how print technology affects the final appearance of a photograph.

Effective: Fall 2006

Prerequisite: GD 201 and successful portfolio review

**GD 301 Graphic Design Technology I** (4) Theoretical and practical aspects of computer application to graphic design.

Effective: Fall 2006

Prerequisite: GD 201 and successful portfolio review

**GD 302 Applied Communication** (4) Definition and concentrated involvement in problem/audience analysis, with emphasis on understanding symbol and image in evoking audience response.

Effective: Fall 2006

Prerequisite: GD 300GD 301

**GD 303 Graphic Design Technology II** (4) Advanced application of digital technology as a medium of graphic design.

Effective: Spring 2006

Prerequisite: GD 300GD 301

**GD 304 Practical Communications** (3) Practical design experience for students through design/publicity problems from the University and community non-profit organizations.

Effective: Fall 2006

Prerequisite: Prerequisite or concurrentGD 300GD 301

**GD 310 Studio Apprenticeship** (3 per semester/maximum of 6) Direct involvement in the creative process of the artist-teacher in the studio environment.

Effective: Fall 2006

Prerequisite: Junior or senior standing in Graphic Design. Prior approval of proposed assignment by instructor.

**GD 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2006

**GD 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2006

**GD 400 Time and Sequence** (4) Development of visual sequence as replies to graphic design problems.

Effective: Fall 2006

Prerequisite: GD 302

**GD 401 Package Design** (3) Orientation to packaging designs as it relates to the consumer, client, and to societal and environmental concerns.

Effective: Fall 2006

Prerequisite: GD 302

**GD 402 Senior Problems** (4) Development of visual replies to graphic design problems.

Effective: Fall 2006

Prerequisite: GD 400GD 401

**GD 403W Graphic Design Seminar** (3) A seminar on subjects which relate to the field of graphic design.

Effective: Fall 2007

Prerequisite: GD 302

**GD 404 Book Design** (3) Writing, designing, illustrating and production (printing) of a book.

Effective: Fall 2006

Prerequisite: GD 302

**GD 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2006

**GD 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**GD 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2006

**GD 496 Independent Study** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2006

**GD 496H Independent Study - Honors** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

**GD 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2006

**GD 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2006

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## Greek (GREEK)

Knowledge of Greek or Latin not required. See also CLASSICS AND ANCIENT MEDITERRANEAN STUDIES and LATIN,

**GREEK 001 Elementary Classical and New Testament Greek** (4) Pronunciation, forms, syntax, and translation.  
Effective: Fall 1983

**GREEK 002 Elementary Classical and New Testament Greek** (4) Further instruction in syntax and sentence structure.  
Effective: Fall 1983  
Prerequisite: GREEK 001

**GREEK 003 Intermediate Classical and New Testament Greek** (4) Selections from representative authors.  
Effective: Fall 1983  
Prerequisite: GREEK 002

**GREEK 099 (IL) Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**GREEK 101 Introductory Ancient Greek** (4) Fundamentals of classical Greek grammar, syntax, and vocabulary.  
Effective: Fall 2001

**GREEK 102 Intermediate Ancient Greek** (4) Intermediate study of classical Greek grammar, syntax, and vocabulary.  
Effective: Fall 2001  
Prerequisite: GREEK 101

**GREEK 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1995

**GREEK 199 (IL) Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**GREEK 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

**GREEK 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2001

**GREEK 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1983

**GREEK 299 (IL) Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**GREEK 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**GREEK 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Spring 2001

**GREEK 399 (IL) Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**GREEK 401 Introductory Reading in Greek Literature** (3-6) Analysis of selected passages of ancient Greek literature; attention will be paid to grammatical as well as literary details.  
Effective: Summer 2011  
Prerequisite: GREEK 102

**GREEK 420 Greek Prose Authors** (3-6) Readings in representative authors.  
Effective: Summer 2011



GREEK 425 **Greek Historians** (3-6) Translation and study of one or more of the ancient Greek historians.

Effective: Summer 2011

Prerequisite: GREEK 102

GREEK 430 **Greek Poetry** (3-6) Translation and analysis of selected readings in Greek poetry.

Effective: Summer 2011

Prerequisite: GREEK 102

GREEK 440 **Greek Drama** (3-6) Translation and study of a selected play.

Effective: Summer 2011

Prerequisite: GREEK 102

GREEK 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

GREEK 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

GREEK 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

GREEK 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

GREEK 499 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Health (HLTH)

HLTH 306 **Physical Education, Health, and Safety in Elementary Schools** (2) A study of appropriate activities for elementary-age children. Student participation in physical activities is required.

Effective: Fall 2004

Prerequisite: eighth-semester standing in Elementary Education Program

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## Health Care Management (H C M)

H C M 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1990

Prerequisite: prior approval of proposed assignment by instructor

H C M 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 1983

H C M 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 1983

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## Health Education (HL ED)

HL ED 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

HL ED 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

HL ED 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1993

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## Health Education (HLHED)

HLHED 406 **Human Sexuality** (3) Examination of physiology, diseases, attitudes, morality, and controversial topics related to human sexuality.

Effective: Fall 2012

Prerequisite: 7th semester standing or permission of program

HLHED 415 **Planning and Developing Health Education Programs** (3) Premises and strategies for planning, implementing, and evaluating wellness programs in corporate, hospital, and community agency settings.

Effective: Fall 1997

Prerequisite: permission of program

HLHED 420 **Development of Stress Management Programs for Health Education** (3) Planning, development, and implementing strategies for stress management programs for health education professionals in school, community, and corporate settings.

Effective: Fall 1997

Prerequisite: permission of program

HLHED 443 **Alcohol and Drug Education** (3) Principles of integration and coordination of alcohol and drug education programs for health education and other social service professions.

Effective: Fall 1997

Prerequisite: permission of program

HLHED 456 **Advanced Techniques in School and Community Health Education** (3) Public health, mental health, nutrition, dental school health, physical education, accident prevention, health teaching; projects, consultation, visitation, discussions, and resources.

Effective: Fall 1997

Prerequisite: permission of program

HLHED 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 1997

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## Health Policy and Administration (H P A)

H P A 057 (GHA) **Consumer Choices in Health Care** (3) Introduction to consumers' role in health-care decisions, including health benefits, physician and hospital choice, and end-of-life choices.  
Effective: Spring 2004

H P A 101 **Introduction to Health Services Organization** (3) Examination of the social, political, historic, and scientific factors in the development and organization of health services.  
Effective: Fall 1998

H P A 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

H P A 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

H P A 297A **Accounting for Health Services Managers** (3) Students will develop a basic understanding of accounting through an introduction to the disciplines of financial and managerial accounting. Specifically, the process of accounting for an entity's transactions will be examined, and the role of accounting information in the decisions of users (internal and external to the entity) will be discussed. The course will be approached in such a way as to focus on the accomplishments of additional goals beyond mere knowledge acquisition.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

H P A 297A **Accounting and Health Services Organizations** (3) The purpose of this course is to aid the student in developing a basic understanding of accounting through an introduction to the disciplines of financial and managerial accounting. Specifically, the process of accounting for an entity's transactions will be examined, and the role of accounting information in the decisions of users (internal and external to the entity) will be discussed. The course will be approached in such a way as to focus on the accomplishments of additional goals beyond mere knowledge acquisition. Our goal is to cover the material in such a way as to contribute to higher-level cognitive skills such as comprehension, application, analysis, synthesis and evaluation.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

H P A 297B **Communication in Health Policy and Administration** (3) This course will provide students with practical, contemporary, and industry- related practice in communication within the health care field. Through a variety of short, weekly writing projects and lecture- and readings-based lessons, students will take away from the next 15 weeks a strong understanding of the technical writing skills needed in today's health care and an improved mastery of the English language and its uses. Overall, the successful completion of this course will help students develop effective skills to communication internally and externally among various health care settings.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

H P A 301W **Health Services Policy Issues** (3) Analysis of major issues in health services delivery in hospitals, medical practice, public health, mental health, and health professional education.  
Effective: Spring 2011  
Prerequisite: ECON 102H P A 101PL SC 001

H P A 310 **Health Care and Medical Needs** (3) Health care from an individual, family, and community standpoint illustrated with specific diseases and health problems.  
Effective: Spring 1998  
Prerequisite: BB H 101BI SC 004 orBIOL 141

H P A 332 **Health Systems Management** (3) Introduction to and analysis of managerial roles and practices in health service organizations.  
Effective: Spring 1987  
Prerequisite: H P A 101

H P A 390 **Professional Development in Health Policy and Administration** (3) Development of personal understanding and professional skills to prepare students for future employment or study in health policy and administration.  
Effective: Summer 2000  
Prerequisite: H P A 101

H P A 395 **Field Experience in Health Policy and Administration** (1-13) Professional field experience providing opportunities to apply skills and knowledge in health care setting.  
Effective: Fall 2001  
Prerequisite: H P A 301WH P A 310H P A 332H P A 390

H P A 396 **Professional Transition to Careers in Health Policy and Administration** (1) Professional skills development preparing students for their first work experience in Health Policy and Administration.  
Effective: Spring 1999

Prerequisite: H P A 395

H P A 401 (IL) **Comparative Health Systems** (3) Comparative analysis of health services in selected developed and developing countries.  
Effective: Summer 2011

H P A 410 **Principles of Public Health Administration** (3) The rationale for, and the patterns of, public health service at all levels of government in the United States.  
Effective: Summer 2011

H P A 420 **Principles of Managed Care** (3) Survey of managed health care, including history, typology, current issues, management challenges, and impacts on patients, providers, and special populations.  
Effective: Summer 2011

H P A 430 **Health Care Leadership** (3) This course provides an opportunity to students to learn about the challenges of leadership in health care.  
Effective: Summer 2013  
Prerequisite: H P A 101 ; and H P A 301W or H P A 332 ; and 5th semester or higher

H P A 433 **Administration of Hospital and Health Service Systems** (3) Analysis of administrative structures and interorganizational arrangements among hospitals and other health care organizations.  
Effective: Spring 1998  
Prerequisite: H P A 332

H P A 440 (US;IL) (BB H 440) **Principles of Epidemiology** (3) Theory of epidemiology and significant case studies. Potential application to health care.  
Effective: Fall 2008  
Prerequisite: BB H 101 or BIOL 110 or H P A 310; STAT 200 or STAT 250

H P A 440U (US;IL) **Principles of Epidemiology** (3) Theory of epidemiology and significant case studies. Potential application to health care.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: BB H 101 or BIOL 110 or H P A 310; STAT 200 or STAT 250

H P A 442 **Long-Term Care Management** (3) Management and policy issues for institutional, community, and home settings for chronic care services.  
Effective: Spring 1998  
Prerequisite: H P A 332

H P A 445 (ECON 445) **Health Economics** (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.  
Effective: Spring 1994  
Prerequisite: ECON 302ECON 315 or ECON 323

H P A 445W (ECON 445W) **Health Economics** (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.  
Effective: Spring 2008  
Prerequisite: ECON 302ECON 315 or ECON 323

H P A 447 **Financing Health Care** (3) Analysis of financial flows, third party payment programs, and reimbursement practices in the health services sector.  
Effective: Fall 2011  
Prerequisite: FIN 100; H P A 332

H P A 450 **Healthcare Policies and Politics** (3) Survey of health care's political contexts: formulation, implementation, and modification stages of policy process; politics of private interests (associations) at national and state levels.  
Effective: Summer 2011  
Prerequisite: H P A 101PL SC 001

H P A 455 **Strategic Planning and Marketing for Health Services** (3) Introduction to principles and methods of strategic planning and marketing.  
Effective: Spring 1998  
Prerequisite: H P A 332

H P A 460 **Human Resource Management in Health Care Organizations** (3) Foundations of human resource management applied to health care organizations, including hospitals, long-term care facilities, and community health organizations.  
Effective: Spring 1998  
Prerequisite: H P A 332

H P A 470 **Health Care Information Management** (3) This course introduces information systems terminology, data structures, software applications, and their management functions in health services organizations.  
Effective: Summer 2000  
Prerequisite: H P A 332IST 210IST 220

H P A 490 **Physician Practice Management** (3) Development of skills needed to effectively manage physician practices.  
Effective: Spring 2012  
Prerequisite: H P A 332

H P A 494H **Senior Honors Thesis** (1-6) Independent study related to student's interests directed by a faculty supervisor and culminating in the production of a thesis.

Effective: Summer 2006

Prerequisite: approval of honors thesis advisor

H P A 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

H P A 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

H P A 497A **Quality Management of Health Services Organizations** (3) Covers the historical evolution, current concepts, and future trends associated with the monitoring and evaluation of health care quality. The course explores the major components of quality improvement to include patient care assessment, risk management, patient safety, medical management, outcomes management, and process improvement.

Effective: Summer 2014 Ending: Summer 2014

H P A 497A **Human Diversity and Health Administration** (3) Health care providers in contemporary society are faced with the important challenge of designing, implementing, and delivering health care to populations with diverse backgrounds. Meeting the health care needs of diverse individuals requires sensitivity and respect for individual differences. This course is designed to prepare students to be knowledgeable of people's differences based on race, ethnicity, culture, religion, age, sex, sexual orientation, social and economic status, disability and how these impact health care. In addition to learning about diverse populations and competent attitudes and behaviors for the provision of health services, each student will have an opportunity to reflect, assess, and determine their own potential sources of bias and preconceived attitudes so they may be more effective in serving health needs of all people.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

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## Health and Human Development (H&HD)

H&HD 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

H&HD 297S **Jumpstart** (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

H&HD 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2011

H&HD 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2006

H&HD 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2002

H&HD 497A **Women's Leadership Initiative** (2) Women's Leadership Initiative.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

H&HD 497H **Special Topics--Honors** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2002

H&HD 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

H&HD 499H (IL) **Foreign Studies-Honors** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Hebrew (HEBR)

HEBR 001 **Basic Modern Hebrew I** (4) An introduction to modern Hebrew in its written and spoken forms; oral and aural work stressed.  
Effective: Summer 1990

HEBR 002 **Basic Modern Hebrew II** (4) Continued study of grammar; emphasis on improving oral-aural facility, with increased attention to reading and writing.  
Effective: Summer 1990  
Prerequisite: HEBR 001

HEBR 003 **Intermediate Modern Hebrew** (4) Grammar, reading, composition, and oral and aural exercises.  
Effective: Summer 1977  
Prerequisite: HEBR 002

HEBR 010 (GH;IL) (J ST 010) **Jewish Civilization** (3) Life of the Jewish people from Biblical times, emphasizing cultural, religious, and institutional developments.  
Effective: Summer 2005

HEBR 097 **Special Topics** (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1992

HEBR 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

HEBR 151 (CAMS 151, J ST 151) **Introductory Biblical Hebrew** (3) Fundamentals of Biblical Hebrew grammar, syntax, and vocabulary.  
Effective: Summer 2005

HEBR 152 (CAMS 152, J ST 152) **Intermediate Biblical Hebrew** (3) Intermediate study of Biblical Hebrew grammar, syntax, and vocabulary.  
Effective: Summer 2005  
Prerequisite: HEBR 151

HEBR 197 **Special Topics** (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1992

HEBR 199 (IL) **Foreign Study--Basic Hebrew** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

HEBR 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

HEBR 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practicums, or internships.  
Effective: Summer 1986  
Prerequisite: prior approval of proposed assignment by instructor

HEBR 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1986

HEBR 297 **Special Topics** (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1983

HEBR 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

HEBR 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

HEBR 397 **Special Topics** (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1992

HEBR 399 (IL) **Foreign Study--Intermediate Hebrew** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

HEBR 401 **Advanced Hebrew--Conversation Emphasis** (3 per semester, maximum of 6) Development of oral proficiency through discussions focusing on issues in contemporary Jewish culture.  
Effective: Summer 2011

HEBR 402 **Advanced Hebrew--Reading Emphasis** (3 per semester, maximum of 6) Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Jewish culture.  
Effective: Summer 2011

HEBR 451 **Advanced Biblical Hebrew** (3) Translation and analysis of selected readings in Biblical Hebrew texts; attention will be paid to grammatical as well as literary details.  
Effective: Spring 2007  
Prerequisite: HEBR 152 or equivalent

HEBR 452 **Readings in Biblical Hebrew** (3) Translation and analysis of selected readings in Biblical Hebrew texts; attention will be paid to grammatical as well as literary details.  
Effective: Spring 2007  
Prerequisite: HEBR 451 or equivalent

HEBR 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

HEBR 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

HEBR 496 **Independent Studies** (1-18) Creative projects including research and design which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1982

HEBR 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1983

HEBR 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

HEBR 499 (IL) **Foreign Study--Advanced Hebrew** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Higher Education (HI ED)

HI ED 302 **The Role of the Resident Assistant: Theory and Practice** (3) An analysis of the various roles of the resident assistant, including interpersonal facilitator, disciplinarian, program developer, and activities facilitator.  
Effective: Fall 2014 Future: Fall 2014

HI ED 490 **Exploration of Careers in Higher Education** (3) Foundation of graduate study in the field of higher education.  
Effective: Summer 2014

HI ED 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1995

HI ED 497A **Professional Graduate Seminar in Higher Education** (3) This course is designed as an introduction to graduate study, to professional careers, and to professionalism in higher education. Students should leave this course with a plan for successfully completing their M.Ed. program of study and a road map for career success in higher education.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HI ED 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1995

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## Hindi (HINDI)

HINDI 001 **Level One Hindi A** (4) This is an introductory course in Hindi that presents the Devanagari script, elementary grammar and sentence structure.  
Effective: Summer 2010

HINDI 002 **Level One Hindi B** (4) This intermediate level course seeks to impart functional literacy in oral and written expression in Hindi to students.  
Effective: Summer 2010  
Prerequisite: HINDI 001 or equivalent competency

HINDI 003 **Level Two Hindi A** (4) This is an intermediate level course in Hindi that seeks to improve student's skills in oral and written expression.  
Effective: Summer 2010  
Prerequisite: HINDI 002 or equivalent competency

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## History (HIST)

HIST 001 (GH;IL) **The Western Heritage I** (3) A survey of the Western heritage from the ancient Mediterranean world to the dawn of modern Europe.  
Effective: Spring 2006

HIST 001T (GH;IL) **The Western Heritage I** (3) A survey of the Western heritage from the ancient Mediterranean world to the dawn of modern Europe.  
Effective: Spring 2006

HIST 002 (GH;IL) **The Western Heritage II** (3) A survey of the Western heritage from the dawn of modern Europe in the seventeenth century to the present.  
Effective: Spring 2006

HIST 003 (GH) **The American Nation: Historical Perspectives** (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.  
Effective: Spring 1995 Ending: Summer 2014

HIST 003 (GH;US) **The American Nation: Historical Perspectives** (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.  
Effective: Fall 2014 Future: Fall 2014

HIST 003U (GH;US) **The American Nation: Historical Perspectives** (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 005 (GH;IL) (CAMS 005) **Ancient Mediterranean Civilizations** (3) Survey of the history and cultures of ancient Mediterranean civilizations in Mesopotamia, Egypt, Syro-Levant, Anatolia, Greece, and Rome.  
Effective: Spring 2008

HIST 010 (GH;IL) **World History I** (3) Human origins; early civilizations; major political and intellectual developments on all continents; cultural interrelationships to 1500.  
Effective: Summer 2005

HIST 011 (GH;IL) **World History II** (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.  
Effective: Summer 2005

HIST 011U (GH;IL) **World History II** (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 012 (GH;US) **History of Pennsylvania** (3) Chronological and topical survey, emphasizing immigration of diverse ethnic groups and religious, political, economic, and social developments, including industrialization and urbanization.  
Effective: Spring 2006

HIST 020 (GH;US) **American Civilization to 1877** (3) An historical survey of the American experience from its colonial beginnings through the Civil War and Reconstruction.  
Effective: Spring 2006

HIST 020Y (GH;US) **American Civilization to 1877** (3) An historical survey of the American experience from its colonial beginnings through the Civil War and Reconstruction.  
Effective: Spring 2006

HIST 021 (GH;US) **American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.  
Effective: Spring 2006

HIST 021U (GH;US) **American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 021U (GH;US) **American Civilization Since 1877** (3) An historical survey of the American experience from the

emergence of urban-industrial society in the late nineteenth century to the present.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

HIST 021Y (GH;US) **American Civilization Since 1877** (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.  
Effective: Spring 2006

HIST 066 (GH;IL) **Survey of British History** (3) The British Isles and their peoples since the ancient period, emphasizing political, cultural, and intellectual developments and imperial rise and fall.  
Effective: Summer 2012

HIST 083S (GH) **First-Year Seminar in History** (3) Critical approaches to the dimensions and directions in History.  
Effective: Summer 1999

HIST 100 (GH;IL) (CAMS 100) **Ancient Greece** (3) Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization.  
Effective: Spring 2006

HIST 101 (GH;IL) (CAMS 101) **The Roman Republic and Empire** (3) History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire.  
Effective: Spring 2006

HIST 102 (GH;IL) (CAMS 102, J ST 102, RL ST 102) **Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.  
Effective: Summer 2005

HIST 103 (GH;IL) **The History of Madness, Mental Illness, and Psychiatry** (3) This course will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness.  
Effective: Summer 2005

HIST 103U (GH;IL) **The History of Madness, Mental Illness, and Psychiatry** (3) This course will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 104 (GH) (CAMS 104) **Ancient Egypt** (3) The history and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.  
Effective: Summer 2002

HIST 105 (GH;IL) **The Byzantine Empire** (3) Development of Byzantine civilization from the decline of the Roman Empire to the fall of Constantinople.  
Effective: Spring 2006

HIST 107 (GH;IL) (MEDVL 107) **Medieval Europe** (3) Rise and development of the civilization of medieval Europe from the decline of Rome to 1500.  
Effective: Spring 2006

HIST 108 (GH;IL) **The Crusades: Holy War in the Middle Ages** (3) The social and political history of medieval religious warfare in Europe and in the Middle East.  
Effective: Spring 2006

HIST 110 (GH;IL) **Nature and History** (3) A broad introduction to the history of human relationships with nature throughout the world.  
Effective: Summer 2005

HIST 111 (GH;US) (NUTR 111) **American Food System: History, Technology, and Culture** (3) A cultural analysis of the evolution of U.S. agricultural production and food consumption patterns, the food industry and food marketing.  
Effective: Fall 2013

HIST 113 (IL) **Baseball in Comparative History** (3) Comparative survey of baseball history from its beginnings to the present.  
Effective: Fall 2009

HIST 115 (GH;US) (J ST 115, RL ST 115) **American Jewish History and Culture** (3) Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.  
Effective: Summer 2006

HIST 116 (GS;US;IL) (WMNST 116) **Family and Sex Roles in Modern History** (3) Historical perspectives on the Western family since 1500: gender roles, marriage, sexuality, child rearing, and old age; emphasis on United States.  
Effective: Spring 2006

HIST 117 (GH;US;IL) (WMNST 117) **Women in Modern History** (3) Modernization and women: changing images and roles since mid-eighteenth century in the family, workshop, politics, society; cross-cultural comparisons.  
Effective: Summer 2005

HIST 118 (US;IL) (J ST 118) **Modern Jewish History: 1492 to Present** (3) Jewish social and political history from 1492 to the present.  
Effective: Spring 2006

HIST 119 (GH;IL) **Gender and History** (3) Survey of the development of gender roles in Western societies from the prehistoric era to the early modern period.  
Effective: Spring 2008

HIST 120 (GS;IL) **Europe Since 1848** (3) Political, social, and ideological developments; origin and impact of two World Wars; totalitarianism and democracy; changing role in the world.  
Effective: Spring 2006

HIST 121 (GH;IL) (J ST 121) **History of the Holocaust 1933-1945** (3) Historical analysis of holocaust themes.  
Effective: Summer 2005

HIST 122 (GH) (S T S 122) **History of Science I** (3) A history of science and culture from Stonehenge to the scientific revolution.  
Effective: Spring 2005 Ending: Summer 2014

HIST 122 (GH) **History of Science I** (3) A history of science and culture from pre-history until the Scientific Revolution.  
Effective: Fall 2014 Future: Fall 2014

HIST 123 (GH) (S T S 123) **History of Science II** (3) A history of science and culture from the scientific revolution to the present.  
Effective: Spring 2004 Ending: Summer 2014

HIST 123 (GH) **History of Science II** (3) A history of science and culture from the scientific revolution to the present.  
Effective: Fall 2014 Future: Fall 2014

HIST 124 (GH;US;IL) (S T S 124) **History of Western Medicine** (3) This course explores the history of health, illness, and medicine in western society.  
Effective: Summer 2008

HIST 127 (US) (LTNST 127) **Introduction to U.S. Latina/o History** (3) This course introduces students to the history of U.S. Latina/os, including Puerto Ricans, Dominicans, Chicanos, Cubans, and Central Americans.  
Effective: Spring 2008

HIST 130 (GH;US) **Introduction to the Civil War Era, 1848 through 1877** (3) Survey of causes and consequences of American Civil War, end of Mexican War in 1848 through end of Reconstruction, 1877.  
Effective: Spring 2010

HIST 134 (GH;IL) **Introduction to the British Isles, 1400-1800** (3) Survey of the history and cultures of the British Isles from 1400 to 1800.  
Effective: Spring 2010

HIST 141 (GH;IL) **Medieval and Modern Russia** (3) Introductory survey, including political, social, economic, and cultural development of Kievan, Muscovite, and Imperial Russia.  
Effective: Spring 2006

HIST 142 (GS;IL) **History of Communism** (3) Marxism; Leninism and evolution of the Soviet Union; formation and development of the Communist bloc; impact of Chinese Communism.  
Effective: Spring 2006

HIST 143 (GH;IL) **History of Fascism and Nazism** (3) The study of right-wing totalitarianism in the twentieth century, with special emphasis on Fascist Italy and Nazi Germany.



Effective: Spring 2006

**HIST 143U (GH;IL) History of Fascism and Nazism (3)** The study of right-wing totalitarianism in the twentieth century, with special emphasis on Fascist Italy and Nazi Germany.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**HIST 144 (GH;US;IL) The World at War: 1939-1945 (3)** In-depth study of the origins and conduct of World War II. Political and economic aspects as well as military.  
Effective: Spring 2006

**HIST 151 (GS;US) (S T S 151) Technology and Society in American History (3)** Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.  
Effective: Spring 2006

**HIST 152 (GH;US;IL) (AF AM 152) African American History (3)** African roots; colonial and revolutionary experiences; slavery and abolitionism; civil war and reconstruction; accommodation and protest; the new militancy.  
Effective: Fall 2013

**HIST 153 (GH;US) The Indian in North America (3)** A survey of the American Indian from prehistory to the present.  
Effective: Summer 2005

**HIST 153Y (GH;US) The Indian in North America (3)** A survey of the American Indian from prehistory to the present.  
Effective: Summer 2005

**HIST 154 (GH;US) History of Welfare and Poverty in the United States (3)** History of care of the impoverished (emphasis on gender, race, nationality, age of poor, and welfare givers), 18th century to present.  
Effective: Summer 2005

**HIST 155 (GH;US) American Business History (3)** Major developments in the history of business and industry from the colonial period to the present.  
Effective: Spring 2006

**HIST 156 (US) History of the American Worker (3)** A study of the American worker from the preindustrial era to the present.  
Effective: Spring 2006

**HIST 158 (US;IL) History of American Immigration (3)** The waves of migration to America and an analysis of the resulting minority groups, their reception, assimilation, and persisting identity.  
Effective: Spring 2006

**HIST 159 (GH;US) (CRIMJ 159) History of the FBI (3)** Survey of the FBI's history with special emphasis on civil rights and liberties and bureaucratic development.  
Effective: Spring 2014

**HIST 160 (US) American Naval History (3)** Introduction to the role of the United States Navy in the defense, diplomacy, commerce, and scientific development of the nation.  
Effective: Spring 2006

**HIST 161 (US) The Battle of Gettysburg in American Historical Memory (3)** Examines factors shaping understanding of the Civil War's decisive battle and its meanings as a national symbol.  
Effective: Spring 2006

**HIST 165 (IL) (ARAB 165, RL ST 165) Introduction to Islamic Civilization (3)** Islamic history, culture, and religious life c.600-1500 C.E.  
Effective: Spring 2006

**HIST 166 (GH;US) (WMNST 166) History of Sexuality (3)** Discusses the ideas, practices, and identities surrounding sexuality over several centuries in a variety of contexts, focusing primarily on the US.  
Effective: Summer 2012  
Prerequisite: one introductory level course in History or Women's Studies

**HIST 172 (IL) Survey of Japanese Civilization (3)** Survey of social, institutional, cultural, and religious developments from ancient times to the present.  
Effective: Summer 2005

HIST 173 (GH;IL) **Vietnam in War and Peace** (3) Rise of nationalism and communism; origins of conflict; United States involvement; impact on postwar regional and international politics; contemporary Vietnam.  
Effective: Spring 2006

HIST 174 (GH;IL) **The History of Traditional East Asia** (3) Comparative cultural, institutional, and social history of traditional China and Japan to their contact with the industrialized West.  
Effective: Summer 2005

HIST 175 (GH;IL) **The History of Modern East Asia** (3) Comparative survey of the internal developments and external relations of China and Japan since their contact with the industrialized West.  
Effective: Summer 2005

HIST 176 (GH;IL) **Survey of Indian History** (3) Survey of cultural, institutional, and political history from ancient times to the present.  
Effective: Summer 2005

HIST 177 (GH;IL) (ASIA 177) **The Rise of Modern Southeast Asia** (3) Study of Southeast Asia from the rise of early empires to the present.  
Effective: Summer 2014

HIST 178 (GH;IL) **Latin-American History to 1820** (3) Conquest of the New World, development of colonial institutions, impact on native cultures, and origins of independence movements.  
Effective: Summer 2005

HIST 179 (GH;IL) **Latin-American History Since 1820** (3) Origin, political growth, international relations, and economic status of the Latin-American republics, with emphasis upon present-day conditions.  
Effective: Summer 2005

HIST 180 (GH;IL) (CAMS 180) **Ancient Warfare** (3) Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire.  
Effective: Summer 2006

HIST 181 (GH;IL) **Introduction to the Middle East** (3) Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.  
Effective: Summer 2005

HIST 181U (GH;IL) **Introduction to the Middle East** (3) Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 182 (GH;IL) (ASIA 182) **Asian Trade: Economy, Industrialization and Capitalism in Asia** (3) An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present.  
Effective: Summer 2014

HIST 183 (GH;IL) (ASIA 183) **Gender, Family, and Society in East Asia** (3) Investigates the history of gender, family, love, and sex in East Asia.  
Effective: Summer 2012

HIST 184 (GH;IL) (ASIA 184) **Society and Culture in the Pacific War** (3) Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.  
Effective: Summer 2012

HIST 185 (GH;IL) (ASIA 185) **Asian Pop: The History of Popular Culture in Asia** (3) A history of popular culture from the early modern period to the present.  
Effective: Summer 2014

HIST 188 (GH;IL) (ASIA 188) **Tibet: People, Places and Space** (3) This course examines the historical, cultural, and ethnic dimensions of Tibet from the seventh century to the present.  
Effective: Summer 2012

HIST 189 (GH;IL) (ASIA 189) **Illicit Asia: An Alternative Introduction to Asia** (3) A historical introduction to unlawful, illegitimate and forbidden ideas, goods people and places in modern Asia.  
Effective: Summer 2014

HIST 191 (GH;IL) (AFR 191) **Early African History** (3) Explores important economic and cultural transformations in the

making of early African empires from 1 MBC to 1750.  
Effective: Fall 2012

HIST 192 (GH;IL) (AFR 192) **Modern African History** (3) Impact of the slave trade, expansion of Islam, colonial conquest, social and cultural transformations, resistance, nationalism, and independence.  
Effective: Fall 2012

HIST 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1995

HIST 197A **History of Genocide** (3) Raphael Lemkin, in his work *Axis Rule in Occupied Europe* (1944), coined the term "genocide" by combining Greek *genos* and Latin. "Generally speaking, genocide does not necessarily mean the immediate destruction of a nation, except when accomplished by mass killings of all members of a nation. It is intended rather to signify a coordinated plan of different actions aiming at the destruction of essential foundations of the life of national groups, with the aim of annihilating the groups themselves." It is the goal of this course to establish an historical understanding of genocide. We will primarily examine incidents and personal accounts from the record of the nineteenth and twentieth centuries but will also reflect on earlier incidents. In so doing we will not only examine the victims of genocide, but put a face on the perpetrators.  
Effective: Summer 2014 Ending: Summer 2014

HIST 197A (J ST 197A) **East European Jewish History** (3) This course examines the history of Jewish life in Eastern Europe beginning with its Medieval origins and up through the Holocaust. Topics to be covered include religious, political, social, and cultural transformations, in the context of the general political changes in this area.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 197B **London Calling: Ordering the World - the Trip** (0.5) This course will take students on an 8-day exploration of London and surrounding areas. Students will be expected to attend all scheduled visits and to act as responsible representatives of Penn State Altoona while abroad. Students will also be asked to compose short writings during the trip that respond to our site visits and to write a final evaluative paper after the trip.  
Effective: Summer 2014 Ending: Summer 2014

HIST 197H (ANTH 197H, RL ST 197H) **Religion and Society in Russia** (1) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 199 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

HIST 200 (US) **American Local History** (3 per semester/maximum of 6) Topics in American local history relating local to national developments and studying the historical method by using primary source material.  
Effective: Spring 2006  
Prerequisite: HIST 020 or HIST 021

HIST 205 (GH;US) (J ST 205) **American Antisemitism** (3) The Phenomenon of antisemitism in American history from Peter Stuyvesant to the present.  
Effective: Summer 2011

HIST 210 (GH;US) (AF AM 210) **Between Accommodation and Alienation: African Americans in a Jim Crow Nation, 1896-1932** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100 three credits of American history or permission of the instructor

HIST 210 (GH;US) (AF AM 210) **Freedom's First Generation: African American Life and Work, 1865 to World War II** (3) The course will explore the context and events that shaped African American life over the period 1896-1932.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: AF AM 100 three credits of American history or permission of the instructor

HIST 211 (GH;US;IL) (AF AM 211) **The Emergence and Evolution of the Black Diaspora in the Atlantic World** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

HIST 211 (GH;US;IL) (AF AM 211) **Slavery and Freedom in the Black Atlantic** (3) The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

HIST 220 (GH;IL) (J ST 220) **The Jewish and Other Diasporas** (3) Introduction to and survey of the Jewish and other Diasporas around the world.

Effective: Spring 2012

HIST 235 (US;IL) (J ST 235, RL ST 235) **The Church and the Jews** (3) Examination of the relationship between Western church and the Jews from the First Century to Enlightenment.  
Effective: Spring 2006

HIST 250 (GH;IL) (AF AM 250) **Introduction to the Modern Caribbean** (3) A survey course which explores the historical evolution and emergence of the modern Caribbean.  
Effective: Fall 2012

HIST 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

HIST 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 1986

HIST 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1986

HIST 297B **History Goes Outside** (3) Learn how historical thinking moves from scholars to the public -- examine museums, films, historic districts and some other professional pathways.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 299 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

HIST 300B **American Historiography** (3) Readings, group discussions, and oral and written reports on great historians, philosophy of history, and conflicting interpretations in American history.  
Effective: Fall 1983  
Prerequisite: third-semester standing 6 credits in history with a grade of A or B an all-University average of B

HIST 300C **Independent Study** (3) Readings and oral and written reports in areas to be arranged with the chairman of the Honors Committee.  
Effective: Spring 2012  
Prerequisite: HIST 300B

HIST 300D **Honors Thesis** (3) Research paper in an area arranged with the chairman of the Honors Committee.  
Effective: Spring 2012  
Prerequisite: HIST 300BHIST 300C

HIST 300H **Honors Course in History** (3-12) No description available.  
Effective: Fall 1983

HIST 301W **Scope and Methods of History** (3) A course designed to introduce students to the analysis, methods, and practices of historical writing and research.  
Effective: Spring 2008  
Prerequisite: 3 credits in history

HIST 302M **American Indian History** (3) Thematic or topical investigation; emphasis on historical criticism and analysis.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: 4th semester standing

HIST 302W **Undergraduate Seminar** (3) Thematic or topical investigation; emphasis on historical criticism and analysis.  
Effective: Spring 2014  
Prerequisite: 4th semester standing

HIST 320 **Contemporary World History and Issues** (3) Aspects of global history in 20th and 21st centuries and study of selected trends and controversies.  
Effective: Spring 2008

HIST 320W **Contemporary World History and Issues** (3) Aspects of global history in 20th and 21st centuries and study of selected trends and controversies.  
Effective: Spring 2008

HIST 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

**HIST 399 (IL) Foreign Study--History (1-12)** Study in selected foreign countries of various periods and topics in history.  
Effective: Summer 2005

**HIST 400 Research in Ancient Sources (3)** Guided research in the literature of ancient Mediterranean civilizations.  
Effective: Spring 2008  
Prerequisite: HIST 001

**HIST 401 (IL) (J ST 401) Ancient Technologies and Socio-cultural History in the Ancient Levant (3)** Social and intellectual development in the Ancient Levant as they affected and were affected by technological development.  
Effective: Spring 2006  
Prerequisite: RL ST 110

**HIST 402 (IL) The Rise of the Greek Polis (3)** Development of the Greek city-state from Homeric times to the fifth century B.C.; special references to Athenian society.  
Effective: Spring 2006  
Prerequisite: HIST 100

**HIST 403 (IL) Alexander the Great and the Hellenistic World (3)** The career of Alexander, his impact on his own time, and the Hellenistic legacy.  
Effective: Spring 2006  
Prerequisite: HIST 100

**HIST 405Y (IL) The Roman Empire (3)** The political and social history of the Roman empire; economic institutions and religious groups which influenced Roman administration.  
Effective: Spring 2006  
Prerequisite: HIST 001HIST 101 or 3 credits in classical studies

**HIST 406W Research in Medieval Sources (3)** Guided research in the literature of medieval Europe.  
Effective: Spring 2008  
Prerequisite: HIST 001

**HIST 407 (IL) Early Medieval Society (3)** Rise of European nations and evolution of their social and political institutions from the time of Constantine to the Crusades.  
Effective: Spring 2006  
Prerequisite: HIST 107

**HIST 408 (IL) Church and State in the High Middle Ages (3)** European political, institutional, and social history in light of church- state tensions from the Crusades to the Renaissance.  
Effective: Spring 2006  
Prerequisite: HIST 107

**HIST 409Y (IL) (J ST 409Y, RL ST 407Y) European Anti-Semitism from Antiquity to the Present (3)** Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.  
Effective: Summer 2005

**HIST 410 (US;IL) (J ST 410, RL ST 410) Jews in the Medieval World (3)** Trends in medieval Jewish society under Islam and Western Christendom.  
Effective: Spring 2006

**HIST 411 (IL) (MEDVL 411) Medieval Britain (3)** Political, cultural, and economic history of Britain from circa 400 to 1485 with an emphasis on the kingdom of England.  
Effective: Spring 2006  
Prerequisite: 6 credits in European history or medieval studies

**HIST 412 (IL) Intellectual History of the Middle Ages (3)** Intensive study of selected topics, such as philosophy, mysticism, heresy, the church, literary and artistic expression, and science.  
Effective: Spring 2006  
Prerequisite: HIST 107

**HIST 413 (IL) (MEDVL 413) Medieval Celtic Studies (3)** Celtic civilization from antiquity to the end of the middle ages.  
Effective: Spring 2006  
Prerequisite: 3 credits in medieval studies or in language literature or European history of the medieval period

**HIST 414 (IL) Renaissance and Reformation (3)** The transformation of consciousness from medieval to modern times, with special emphasis on Renaissance Italy and Reformation Germany.  
Effective: Spring 2006  
Prerequisite: HIST 001

**HIST 415 (US;IL) Race, Gender, and Politics in the United States and South Africa (3)** This thematic course will compare key issues, figures, and events in the historical development of the United States and South Africa.  
Effective: Spring 2013  
Prerequisite: AF AM 100AF AM 102AFR 110AFR 192 orHIST 152

**HIST 416 (J ST 416) Zionist History 1890-1948 (3)** History of Zionist thought and politics to the foundation of Esrael 1948.  
Effective: Summer 1997

**HIST 417 (IL) The Age of Absolutism (3)** Seventeenth- and eighteenth-century royal absolutism in France, Prussia, and Austria; concurrent economic, social, and scientific developments; the Enlightenment.

Effective: Spring 2006

Prerequisite: HIST 001

**HIST 418 (IL) The French Revolution and the Napoleonic Era (3)** Development of revolutionary France and the First French Empire and their impact on Europe from 1789 to the Vienna settlement.

Effective: Spring 2006

Prerequisite: HIST 002

**HIST 418W (IL) The French Revolution and the Napoleonic Era (3)** Developments of revolutionary France and the First French Empire and their impact on Europe from 1789 to the Vienna settlement.

Effective: Spring 2008

Prerequisite: HIST 002

**HIST 419 (US;IL) The History of Feminist Thought (3)** A critical analysis of European and United States feminist thought from the renaissance to the present.

Effective: Spring 2013

Prerequisite: HIST 116HIST 117WMNST 100 orWMNST 106

**HIST 420 (IL) Recent European History (3)** Impact of two World Wars in twentieth century; social conflict and economic catastrophe; political radicalism; post-1945 recovery and cooperation.

Effective: Spring 2006

Prerequisite: 3 credits in European history

**HIST 421 (IL) (WMNST 421) The History of European Women (3)** European women's lives from the Middle Ages to the present.

Effective: Spring 2013

Prerequisite: HIST 116HIST 117WMNST 100 orWMNST 106

**HIST 424H (J ST 424H, RL ST 424H) Monotheism and the Birth of the West (3)** The birth of monotheism and its relation to social organization, the idea of individuality, and science.

Effective: Fall 2012

Prerequisite: CAMS 004CAMS 110CAMS 120 orHIST 102

**HIST 427 (IL) Germany Since 1860 (3)** Bismarckian power-state; rise to economic dominance; welfare and warfare under Weimar republic and Hitler; post-1945 reconstruction and democracy.

Effective: Spring 2006

Prerequisite: 3 credits in European history

**HIST 428 (IL) (S T S 428) The Darwinian Revolution (3)** The origins and implications of evolutionary theory.

Effective: Spring 2006

Prerequisite: an introductory science course and a history course

**HIST 429 Europe in the Age of Nationalism, 1789-1914 (3)** Emphasizing the role of nationalism in European cultural, diplomatic and imperial developments; concurrent economic and social changes.

Effective: Spring 2008

Prerequisite: HIST 002

**HIST 430 (IL) Eastern Europe in Modern Times (3)** Influence of geography, economic conditions, and nationalism upon the Eastern European and Balkan peoples; Pan-Slavism, conflicting interests of the great powers.

Effective: Spring 2006

Prerequisite: HIST 001 orHIST 002

**HIST 431 (US;IL) (AF AM 431) Black Liberation and American Foreign Policy (3)** This course deals with American foreign policy and Black liberation in Africa since 1945.

Effective: Fall 2012

Prerequisite: 3 credits in African history; 3 credits in African political science; or 3 credits in American political science

**HIST 432 (IL) (AF AM 432) Between Nation and Empire: The Caribbean in the 20th Century (3)** An exploration of the political evolution of the Caribbean Region over the course of the 20th Century.

Effective: Fall 2012

Prerequisite: HIST 250

**HIST 433 (IL) Imperial Russia, 1700-1917 (3)** Enlightened absolutism, mercantilism, westernization; economic progress, liberal reforms, and revolutionary movement; major intellectual and cultural trends; Russia as great power.

Effective: Spring 2006

Prerequisite: HIST 141

**HIST 434 (IL) History of the Soviet Union (3)** Revolution; social, political, economic, and cultural continuity and change in the U.S.S.R. since 1917.

Effective: Spring 2006

Prerequisite: HIST 141 orHIST 142

**HIST 435 Topics in European History (3 per semester/maximum of 9)** Study of a particular period or country in European history, its significance and relation to other areas and the present. (May be repeated for credit.)

Effective: Spring 2008

Prerequisite: HIST 001 orHIST 002

HIST 436 (IL) **Great Britain Under the Tudors and Stuarts, 1485-1688** (3) Religious, political, and constitutional developments in the British Isles.

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

HIST 437 (IL) **Great Britain 1688-1867** (3) Social, economic, and political history of Great Britain from late Stuart times until the mid-Victorian era.

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

HIST 438 (IL) **Great Britain 1867-Present** (3) Social, economic, and political history of Great Britain from the mid-Victorian era to the present.

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

HIST 440 (US) **Colonial America to 1753** (3) Background, establishment, and growth of the American colonies, including economic, political, social, religious, and intellectual developments.

Effective: Spring 2006

Prerequisite: HIST 020 3 additional credits in history

HIST 441 (US) **Revolutionary America, 1753-1783** (3) Forces in Great Britain and America causing withdrawal of thirteen colonies from the British Empire and the Revolutionary War.

Effective: Spring 2006

Prerequisite: HIST 020 3 additional credits in history

HIST 442 (US) **The Early American Republic, 1783-1850** (3) Confederation and Constitution; the Federalist and Jeffersonian periods; "the Era of Good Feelings"; "the Age of Jackson."

Effective: Spring 2006

Prerequisite: 3 credits in American history

HIST 444 (US) **The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

Effective: Spring 2006

Prerequisite: HIST 130

HIST 444U (US) **The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: HIST 130

HIST 444U (US) **The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: HIST 130

HIST 444W (US) **The United States in Civil War and Reconstruction--1850-1877** (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of reconstruction.

Effective: Spring 2008

Prerequisite: HIST 130 or HIST 020

HIST 445 (US) **The Emergence of Modern America** (3) Economic, social, political history of the United States, 1877-1919, emphasizing growth of industrialism and development as a modern nation.

Effective: Spring 2006

Prerequisite: HIST 021 3 additional credits in history economics or political science

HIST 446 (US) **America Between the Wars** (3) The Roaring Twenties, the Great Crash, Depression, and New Deal; war debts, reparations, isolationism, and World War II.

Effective: Spring 2006

HIST 447 (US) (AM ST 447) **Recent American History** (3) Contemporary economic, social, and political aspects of the United States and its role as a world power since 1945.

Effective: Spring 2014

Prerequisite: HIST 021 3 additional credits in history economics or political science

HIST 448 (US) **America in the 1960s** (3) Social, political, and cultural themes in the United States in the 1960s.

Effective: Spring 2006

Prerequisite: HIST 021

HIST 449 (US) **Constitutional History of the United States to 1877** (3) Colonial background; framing and adoption of the constitution; development of the court under Marshall and Taney; sectionalism, Civil War, Reconstruction.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021 3 additional credits in history or political science

HIST 450 (US) **Constitutional History of the United States Since 1877** (3) Constitutional developments from laissez-faire to the welfare state; imperialism, war, internationalism; the contemporary court, civil liberties, and civil rights.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021 3 additional credits in history or political science

HIST 451 (US) **The Consumer Revolution** (3) The origins and impact of American consumer society since 1870.

Effective: Spring 2006

Prerequisite: three credits in history marketing or advertising

**HIST 452 (US;IL) History of U.S. Foreign Relations (3)** History of U.S. foreign relations since 1789; emphasis on twentieth century.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021

**HIST 453 American Environmental History (3)** The history of the ways Americans have used and thought about the environment since 1500.

Effective: Summer 2012

Prerequisite: GEOG 030 ; and HIST 020 HIST 021 ; or 6 credits in the humanities or social sciences

**HIST 454 (US) American Military History (3)** Development of U.S. military policy, 1776 to the present, emphasizing the conduct of our wars, interrelationship of civil and military authority.

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021

**HIST 456Y (US) The Social History of American Vernacular Building, 1607-1980 (3)** Social, historical, and cultural context of American building including settlements, housing, workplaces, stores, recreational facilities; changes over time.

Effective: Spring 2006

Prerequisite: 3 credits in American history

**HIST 457 (US;IL) (S T S 457, WMNST 457) The History of Women in Science (3)** Critical analysis of the roles women, gender, and minorities have played in natural sciences.

Effective: Spring 2013

Prerequisite: HIST 116 HIST 117 WMNST 100 WMNST 106 or WMNST 157

**HIST 458Y (US) (LER 458Y) History of Work in America (3)** A study of selected problems in the history of work in the United States, especially since 1877.

Effective: Spring 2008

Prerequisite: HIST 021 HIST 156 or LER 100

**HIST 459Y (US) Social and Cultural History of the United States Since 1783 (3)** Role of immigration, social reform movements, religion, education, science, literature, and the arts in American history.

Effective: Spring 2006

**HIST 460 (US;IL) United States Foreign Intelligence (3)** Aims, methods, and organization of U.S. foreign intelligence from the American Revolution to the Cold War and beyond.

Effective: Spring 2006

**HIST 461 (US;IL) The Emergence of the American City: 1100-1880 (3)** The growth of American cities from their urban origins in Europe and the Native-American Southwest to 1880.

Effective: Spring 2006

**HIST 462 (US;IL) The Twentieth Century City (3)** Political, economic, social, and cultural transformations in American cities from 1880 to 2000.

Effective: Spring 2006

**HIST 463 (US) American Thought to 1865 (3)** Introduction to, scholarly commentary on, major documents of American Intellectual history, early colonial period to end of the Civil War.

Effective: Spring 2006

Prerequisite: any American history course at the college freshman level

**HIST 464 (US) American Thought from 1865 (3)** Introduction to, scholarly commentary on, major documents of American Intellectual history from end of the Civil War to the present.

Effective: Spring 2006

Prerequisite: any American history course at the college freshman level

**HIST 465 (US) (AF AM 465) Civil Rights and American Politics 1933-1968 (3)** The civil rights struggle and its impact upon American politics.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: AF AM 100 HIST 021 HIST 152 PL SC 001 or PL SC 002

**HIST 465 (US) (AF AM 465) The Post-World War II Civil Rights Movement (3)** The civil rights struggle and its impact upon American politics.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 HIST 021 HIST 152 PL SC 001 or PL SC 002

**HIST 466 (US;IL) (WMNST 466) Lesbian and Gay History (3)** Critical exploration of the history of sexuality, focusing especially on the emergence of modern lesbian and gay identities.

Effective: Spring 2013

Prerequisite: HIST 117 WMNST 100

**HIST 467 (US;IL) (LTNST 467) Latin America and the United States (3)** Historical development of policies of the United States with regard to Latin- American affairs from colonial times to the present.

Effective: Fall 2008



HIST 468 (IL) **Mexico and the Caribbean Nations in the Twentieth Century** (3) Political, economic, and social development in Mexico and the Caribbean since 1900. Emphasis on Mexican, Guatemalan, and Cuban revolutions. Effective: Spring 2006

HIST 469 (CRIMJ 469) **Drugs and Drug Policy in the United States** (3) Examines the history and dimensions of drug use and analyzes the impact of drug policy. Effective: Spring 2008  
Prerequisite: CRIMJ 100 or HIST 021

HIST 470 **Modern Bondage: Slavery in the Americas, 1492-1888** (3) The work, culture, ideology, and political economy of slavery in the Americas between 1500 and 1888. Effective: Summer 2007  
Prerequisite: HIST 011HIST 020HIST 152HIST 178 or HIST 192

HIST 471Y (IL) (RL ST 471Y) **Classical Islamic Civilization, 600-1258** (3) Pre-Islamic Arabia; Muhammad; Arab conquests; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity. Effective: Fall 2006

HIST 472 (IL) **The Ottoman Empire and Other Muslim States** (3) Turkish and Mongol invasions; Mamluks; Ottoman expansion and institutions; Safavid Persia; disintegration and reform; emergence of modern Turkey and Iran. Effective: Spring 2006  
Prerequisite: HIST 181

HIST 473 (IL) **The Contemporary Middle East** (3) Political, economic, and social changes in Turkey, Iran, Israel, and the Arab countries in the twentieth century; Arab-Israeli conflict. Effective: Spring 2006

HIST 474 (JAPNS 426) **Early Modern Japan** (3) Japanese history from 1580-1880. Effective: Spring 2013 Ending: Summer 2014  
Prerequisite: HIST 172HIST 174JAPNS 120 or JAPNS 121

HIST 474 (JAPNS 426, ASIA 474) **Early Modern Japan** (3) Japanese history from 1580-1880. Effective: Fall 2014 Future: Fall 2014  
Prerequisite: HIST 172HIST 174JAPNS 120 or JAPNS 121

HIST 475Y (IL) **The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle. Effective: Spring 2006 Ending: Fall 2014  
Prerequisite: HIST 010HIST 011HIST 172HIST 175HIST 176HIST 181 or HIST 191

HIST 475Y (IL) (ASIA 475Y) **The Making and Emergence of Modern India** (3) India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle. Effective: Spring 2015 Future: Spring 2015  
Prerequisite: HIST 010HIST 011HIST 172HIST 175HIST 176HIST 181 or HIST 191

HIST 476 (IL) (ASIA 476) **Technology & Society in Modern Asia** (3) Role of technology in modernization, national identity, and foreign relations of an Asian country from 19th century to present day. Effective: Summer 2014  
Prerequisite: ASIA 100HIST 172HIST 173HIST 174HIST 175HIST 176HIST 183HIST 184HIST 188

HIST 477 **American Military History to 1900** (3) Development of United States military policy, 1776-1900, emphasizing conduct of wars, interrelationship of civil and military authority. Effective: Spring 2008  
Prerequisite: 3 credits in history

HIST 478 **American Military History Since 1900** (3) Development of United States military policy in the 20th and 21st centuries, emphasizing conduct of wars, interrelationship of civil and military authority. Effective: Spring 2008  
Prerequisite: 3 credits in history

HIST 479 (IL) **History of Imperialism and Nationalism in Africa** (3) Theories and types of imperialism; varied patterns of colonial administration; initial African responses; nationalism; decolonization and independence. Effective: Spring 2006  
Prerequisite: HIST 191

HIST 480 (IL) **Medieval Japan** (3) An overview of Japan between 1150-1550, a period of political decentralization, cultural efflorescence, and social change. Effective: Spring 2006 Ending: Summer 2014  
Prerequisite: HIST 107HIST 172HIST 174 or HIST 407

HIST 480 (IL) (ASIA 480) **Japan in the Age of Warriors** (3) An overview of Japan the 10th to 17th century, a period of political decentralization, cultural efflorescence, and social change. Effective: Fall 2014 Future: Fall 2014  
Prerequisite: HIST 107HIST 172HIST 174 or HIST 407

HIST 481 (IL) **Modern Japan Since 1800** (3) The transformation of Japan from a pre-modern, isolated, and agricultural

nation into a highly industrialized world power.  
 Effective: Spring 2006 Ending: Summer 2014  
 Prerequisite: HIST 172HIST 174 orHIST 175

HIST 481 (IL) (ASIA 481) **Modern Japan Since 1800** (3) The transformation of Japan from a relatively isolated, agricultural nation into a highly industrialized world power.  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: HIST 172HIST 174 orHIST 175

HIST 482 (CHNS 424) **Confucius and the Great Books of Early China** (3) This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China.  
 Effective: Spring 2013 Ending: Summer 2014  
 Prerequisite: fifth semester standing

HIST 482 (CHNS 424, ASIA 482) **Confucius and the Great Books of Early China** (3) This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China.  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: fifth semester standing

HIST 483 (IL) **Chinese Society and Culture to 1800** (3) The social, political, and cultural issues and developments from ancient to the late-imperial times.  
 Effective: Spring 2006 Ending: Fall 2014  
 Prerequisite: HIST 174

HIST 483 (IL) (ASIA 483) **Middle China** (3) The social, political, and cultural issues and developments from the 8th to 16th century.  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: HIST 174

HIST 484Y (IL) **History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.  
 Effective: Spring 2006 Ending: Summer 2014  
 Prerequisite: HIST 174 orHIST 175

HIST 484Y (IL) (ASIA 484Y) **History of Chinese Thought** (3) A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: HIST 174 orHIST 175

HIST 485Y (IL) **Nineteenth-Century China** (3) Ch'ing society and institutions; "opening" to the west; imperialism; domestic upheaval and its effect upon Chinese society; reform movements.  
 Effective: Spring 2006 Ending: Summer 2014  
 Prerequisite: HIST 175 orHIST 300H (Honors in East Asian history)

HIST 485Y (IL) (ASIA 485Y) **China's Last Empire: The Qing Dynasty, 1644-1911** (3) China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: HIST 175 orHIST 300H (Honors in East Asian history)

HIST 486 (IL) **Twentieth-Century China** (3) China from the Republican Revolution of 1911 to the present; nationalism, cultural change; development of communism.  
 Effective: Spring 2006 Ending: Summer 2014  
 Prerequisite: HIST 175 orHIST 300H (Honors in East Asian History)

HIST 486 (IL) (ASIA 486) **China in Revolution** (3) China from 1900 to the present; nationalism, cultural change; development of communism.  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: HIST 175 orHIST 300H (Honors in East Asian History)

HIST 487 **American Diplomacy, 1776-1914** (3) Developments in the foreign policy of the United States from independence to the eve of World War I.  
 Effective: Spring 2008  
 Prerequisite: HIST 002 orHIST 020

HIST 488 **American Diplomacy Since 1914** (3) Developments in the foreign policy of the United States since the eve of World War I.  
 Effective: Spring 2008  
 Prerequisite: HIST 002 orHIST 021

HIST 489 (IL) (PL SC 486, ASIA 489) **International Culture in East Asia** (3) Study of the role of culture in East Asian regional and East-West international relations.  
 Effective: Summer 2013  
 Prerequisite: any one of the following:HIST 172HIST 174HIST 175HIST 480HIST 481HIST 483HIST 484HIST 485HIST 486

HIST 490 (L ST 490) **Archival Management** (1-3) Introduction to the principles and procedures in the management of archives and historical manuscripts.  
 Effective: Fall 1978

HIST 491 (IL) **British Civil Wars and Revolutions, 1639-1651** (3) This is an advanced course on the history of the general crisis in the British Isles, from the outbreak of war between England and Scotland in 1639 to the securing of the

Commonwealth regime following the destruction of the last major royalist army in 1651.

Effective: Fall 2009

Prerequisite: HIST 002HIST 134 orHIST 436

HIST 492 (IL) **Witchcraft in Early Modern Europe** (3) Survey of the social, economic, political, and religious conditions of accusations and prosecutions of witchcraft in western Europe and north America, from 1500 to 1700.

Effective: Fall 2009

Prerequisite: HIST 002

HIST 493 (IL) (JAPNS 427) **Japan in the World** (3) Study of Japan's foreign relations and position in the international community from the early 19th century to the present.

Effective: Spring 2014 Ending: Fall 2014

Prerequisite: ASIA 100HIST 172HIST 175 orHIST 481

HIST 493 (IL) (ASIA 493) **Japan in the World** (3) Study of Japan's foreign relations and position in the international community from the early 19th century to the present.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ASIA 100HIST 172HIST 175 orHIST 481

HIST 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

HIST 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

HIST 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practicums, or internships.

Effective: Summer 1986

Prerequisite: prior written approval of proposed assignment by instructor

HIST 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

HIST 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

HIST 497A **World War I** (3) Course studies how the Great War happened why it happened and how those nations and people involved were affected. Also it will look at WWI relevance a century later.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 497B **Powering America** (3) Discover how the United States became the world's biggest consumer and provider of energy. What is the impact of American energy production on the environment?

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 497C **London Calling: Ordering the World - the Trip** (0.5) This course will take students on an 8-day exploration of London and surrounding areas. Students will be expected to attend all scheduled visits and to act as responsible representatives of Penn State Altoona while abroad. Students will also be asked to compose short writings during the trip that respond to our site visits and to write a final evaluative paper after the trip.

Effective: Summer 2014 Ending: Summer 2014

HIST 497C (J ST 497A, WMNST 497A) **Gender and Autobiography in Modern Jewish History** (3) In this course we will read autobiographies critically and carefully in examining the tremendous changes wrought by modernity in the Jewish community. In particular we will look at memoir literature to illuminate the role of gender in Jewish life over the past two hundred years.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HIST 499 (IL) **Foreign Study--History** (1-6) Study in selected foreign countries of various periods and topics in history.

Effective: Summer 2005

Prerequisite: 3 credits in the appropriate introductory history course for the geographic location specified

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## Honors (HONOR)

**HONOR 201 Developing Critical Thinking for Leadership** (1) Discussions on various topics using critical thinking skills to make informed leadership decisions.

Effective: Summer 2010

Prerequisite: member of the Presidential Leadership Academy

**HONOR 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2009

**HONOR 297H Human Economics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**HONOR 301H The Role of Knowledge in Society** (3) Honors interdisciplinary study of topics utilizing contributions from science/ engineering, business, public policy, behavioral sciences/education, and the humanities.

Effective: Fall 2010

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium

**HONOR 401H Honors Seminar** (1-6 per semester/maximum of 6) In-depth honors-level exploration of a topic or theme that crosses disciplinary boundaries; may be repeated for credit.

Effective: Fall 2011

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium or approval from the Schreyer Honors College

**HONOR 493H Honors Service Learning** (1-3) A supervised honors experience doing service for campus or community welfare and analyzing related issues.

Effective: Fall 2010

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium

**HONOR 494M Interdisciplinary Writing and Thesis Formulation** (2) Seminar to help students with interdisciplinary analysis, writing, and formulation of honors projects and proposals.

Effective: Fall 2010

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium

**HONOR 495H Research Studies** (1) A capstone seminar for honors students working on honors theses and projects to work together and learn about their research interests.

Effective: Fall 2010

Prerequisite: HONOR 301H and enrollment in an honors program belonging to the Penn State Honors Consortium

**HONOR 496H Honors Thesis** (3) Research, creative activities, and writing necessary for pursuit and completion of an interdisciplinary honors thesis.

Effective: Fall 2010

Prerequisite: HONOR 301H senior standing and enrollment in an honors program belonging to the Penn State Honors Consortium

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## Horticulture (HORT)

**HORT 101 (GN) Horticultural Science** (3) Introduction to horticulture with emphasis on plant domestication, morphology, classification, world food crops, commodities, gardens, propagation, and agrochemicals.  
Effective: Summer 2013

**HORT 120 Computer Applications for Landscape Contracting** (2) Emphasis is placed on the use of commercial software used for landscape planning and estimating. Limited to Landscape Contracting majors only.  
Effective: Summer 2013

**HORT 131 Herbaceous Perennial and Annual Identification** (3) Herbaceous and annual plant identification; landscape use of herbaceous perennials and greenhouse and garden annuals.  
Effective: Summer 2013  
Prerequisite: BIOL 127BIOL 110 orHORT 101

**HORT 137 Ornamental Plant Materials** (3) Identification and description under fall conditions; discussion of cultural and aesthetic aspects of trees of value in ornamental planting.  
Effective: Summer 2013

**HORT 138 Ornamental Plant Materials** (3) Identification and description under spring conditions; discussion of cultural and aesthetic aspects of shrubs of value in ornamental plantings.  
Effective: Summer 2013

**HORT 150 (GN) Plants in the Human Context** (3) An introduction to the many fascinating and vital relationships between plants and human society.  
Effective: Summer 2013

**HORT 201 Applied Arboriculture** (2) Overview of methods used to diagnose problems and provide for the long term care of large trees.  
Effective: Summer 2013  
Prerequisite: Students must be physically capable of safely handling a running chainsaw and pulling their weight up a rope.

**HORT 202 Plant Propagation** (3) Principles and practices of asexual and sexual plant propagation.  
Effective: Summer 2013  
Prerequisite: BIOL 027BIOL 110 orHORT 101

**HORT 220 CAD Applications in Landscape Contracting** (3) Application of computer-aided design software including AutoCAD and LANDCADD to landscape contracting.  
Effective: Summer 2013  
Prerequisite: HORT 120

**HORT 232 Horticultural Systematics** (3) Fundamentals of horticultural crop plant classification and systematics. Examples chosen from fruits and vegetables, exclusive of subtropical and tropical fruit.  
Effective: Summer 2013  
Prerequisite: HORT 101

**HORT 238 (TURF 238) Turf and Ornamental Weed Control** (3) Students will be introduced to the development of integrated weed management strategies utilizing a variety of cultural and chemical methods.  
Effective: Fall 2013

**HORT 250 Landscape Contracting Design/Build Principles** (3) Introduction to the processes and principles of residential landscape site development, from initial client contact to implementation.  
Effective: Summer 2013

**HORT 269 Residential Landscape Planning** (3) Principles and techniques in landscape design; preparation of plans of small properties.  
Effective: Summer 2013  
Prerequisite: Landscape Contracting majors in the Design/Build Option

**HORT 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2013

**HORT 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

**HORT 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

which may be topical or of special interest.  
Effective: Summer 2013

**HORT 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2013

**HORT 301 Principles of Arboriculture** (3) Overview of the concepts and methods prescribed for the evaluation and care of large trees in urban settings.  
Effective: Summer 2013  
Prerequisite: BIOL 110 and SOILS 101

**HORT 315 Environmental Effects on Horticultural Crops** (3) Horticultural plants respond to the environmental factors of light, temperature, water, and fertilizer both in controlled and field environments.  
Effective: Summer 2013  
Prerequisite: HORT 101 HORT 202

**HORT 352 Flower Arranging** (2) Floral design beginning with elements and principles of design. Flower arranging techniques as well as different styles of flower arrangements.  
Effective: Summer 2013

**HORT 368 Landscape Planting Design** (4) Basic planting design employing the use of indigenous and ornamental plants as design elements in the man-made environment. Intended for Landscape Contracting majors only.  
Effective: Summer 2013  
Prerequisite: HORT 269

**HORT 390 Junior Seminar** (1) Current issues in horticulture and agriculture.  
Effective: Summer 2013  
Prerequisite: FIFTH-SEMESTER STANDING

**HORT 402W Plant Nutrition** (3) Mineral nutrition of higher plants, including nutrient acquisition, transport, metabolism, and practical implications.  
Effective: Summer 2013  
Prerequisite: HORT 315 or BIOL 441 SOILS 101

**HORT 407 Plant Breeding** (3) The scientific principles and techniques of utilizing genetic variability in improving the heredity of plants for specific purposes.  
Effective: Summer 2013

**HORT 408 Landscape Plant Establishment and Maintenance** (4) The principles and practices involved in the establishment of plants in the landscape, and their subsequent maintenance.  
Effective: Summer 2013  
Prerequisite: HORT 137 or HORT 138; SOILS 101

**HORT 410W Issues in Landscape Contracting** (3) This will be a survey of business management, regulatory, and environmental issues facing the landscape contracting profession. Laboratory.  
Effective: Summer 2013  
Prerequisite: HORT 408

**HORT 412W Post-Harvest Physiology** (3) Harvesting, handling, storage, and transportation of horticultural crops; primary emphasis on physiological response to pre- and post-harvest environmental factors.  
Effective: Summer 2013  
Prerequisite: 6 credits in horticulture or other plant sciences

**HORT 420 Plant Growth Regulators** (3) Plant growth regulators, their chemical and physical properties; general principles, practices, and applications in regulating plant growth and development.  
Effective: Summer 2013  
Prerequisite: BIOL 110 or HORT 101

**HORT 431 Small Fruit Culture** (3) Cultural requirements and production practices of the principal small fruit crops: strawberries, grapes, blueberries, brambles, and cranberries.  
Effective: Summer 2013  
Prerequisite: HORT 101 HORT 315

**HORT 432 Deciduous Tree Fruits** (3) Science, art, and techniques of regulated cropping; orchard designs and management systems.  
Effective: Summer 2013  
Prerequisite: HORT 101 HORT 315

**HORT 433 Vegetable Crops** (3) Cultural requirements of important vegetable crops in conjunction with physiological processes and problems related to commercial production.  
Effective: Summer 2013  
Prerequisite: HORT 101 HORT 315

**HORT 445 Plant Ecology** (3) Advanced lectures on plant ecology which stress integration of physiological, population-level and community-level phenomena, and ecology in agriculture.  
Effective: Summer 2013  
Prerequisite: BIOL 220 WFOR 308 or HORT 315

**HORT 450 Greenhouse Management** (3) Maintenance and manipulation of the greenhouse production systems including structures, covers, light, temperature, carbon dioxide, water, growing media, fertilizer and greenhouse cost accounting.  
Effective: Summer 2013

Prerequisite: HORT 101HORT 315

**HORT 453 Flower Crop Production and Management** (3) Production of greenhouse flower and foliage plants; development of management skills for a greenhouse business.

Effective: Summer 2013

Prerequisite: HORT 101HORT 315

**HORT 455 Retail Horticulture Business Management** (3) The nature, operation, and management of retail horticulture business, emphasizing retail greenhouses, nurseries, and flower shops.

Effective: Summer 2013

Prerequisite: HORT 131HORT 137 orHORT 138 ; 3 credits of marketing

**HORT 457 Interior Landscaping** (3) Foliage identification, environmental factors affecting plants, concepts of interior plant design, installation and maintenance.

Effective: Summer 2013

Prerequisite: HORT 101;HORT 202 orHORT 250 orHORT 269

**HORT 459 (BIOTC 459, BIOL 459) Plant Tissue Culture and Biotechnology** (3) Principles and techniques for the in vitro culture, propagation, and genetic manipulations of plant cells.

Effective: Summer 2013

Prerequisite: BIOL 230W ; orB M B 251B M B 252

**HORT 464 Landscape Construction I** (4) Standards, processes, and computations for site grading, drainage, earthwork, vehicular circulation, parking; detailing, and finishing of landscape construction materials.

Effective: Summer 2013

Prerequisite: HORT 269

**HORT 466 Landscape Construction II** (5) Project scheduling methods, plant installation techniques, and field layout principles and practices. Implications of site preparation.

Effective: Summer 2013

Prerequisite: HORT 464

**HORT 468 Landscape Estimating and Bidding** (2) Reading and interpreting contract drawings and specifications, quantity take- offs, cost estimating, and bid document preparation.

Effective: Summer 2013

Prerequisite: HORT 466

**HORT 490 Senior Seminar** (1) Exploration of the interrelationships of horticulture, science, and society; evaluation of attributes and abilities related to various career opportunities.

Effective: Summer 2013

Prerequisite: HORT 390 seventh-semester standing

**HORT 495 Internship** (1-13) Supervised off campus experience in a public or commercial horticultural enterprise. Written and oral critique of activity required.

Effective: Summer 2013

Prerequisite: approval of proposed assignment required prior to registration

**HORT 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2013

**HORT 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

**HORT 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

**HORT 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

**HORT 499A (IL) Landscape in Italy** (0.5) Traveling with students that took HORT 499 to Italy to look at various real-life examples of landscape.

Effective: Summer 2014 Ending: Summer 2014

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## Hospitality Mgmt (HM)

HM 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2014 Future: Fall 2014

HM 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2014 Future: Fall 2014

HM 201 **Introduction to Management in the Hospitality Industry** (3) Introduction to the hospitality industry and hospitality management.  
Effective: Fall 2014 Future: Fall 2014  
Concurrent: HM 202

HM 202 **Colloquium in Hospitality Management** (1 per semester, maximum of 4) Major industry and professional speakers lecture on current issues followed by discussion with students and faculty.  
Effective: Fall 2014 Future: Fall 2014

HM 204 **Hotel and Restaurant Marketing and Merchandising** (3) Merchandising and marketing as a system concerned with motivating consumers to purchase hospitality products and services. This course will not meet the prescribed requirements for the HM major in any option.  
Effective: Fall 2014 Future: Fall 2014

HM 228 **Hospitality Food Safety** (1) Application of HACCP, U.S. Food Code, biosecurity and other federal regulations to hospitality foodservice operations. Students attain certification in foodservice sanitation.  
Effective: Fall 2014 Future: Fall 2014

HM 250 **Principles of Quantity Food Production** (3) Principles and methods of quantity food production including preparation techniques, quality control and evaluation, and cost control.  
Effective: Fall 2014 Future: Fall 2014

HM 260 **Hospitality Supervision Seminar** (3) Hospitality management topics are discussed with a major emphasis on operations management. This course will not meet the prescribed requirements for the HM major in any option.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: HM 201

HM 270 **Hospitality Administration Seminar** (4) Components of food service systems are identified and studied as separate problems and as a total system. This course will not meet the prescribed requirements for the HM major in any option.  
Effective: Spring 2014  
Prerequisite: HM 250 HM 260 ; or MGMT 341

HM 271 **Introduction to Hospitality Technology** (3) Introduction to technologies used in the hospitality industry including networks, security, e-commerce, social media, spreadsheets, databases and property management systems.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Prerequisite or concurrent: HM 201

HM 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2014 Future: Fall 2014

HM 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2014 Future: Fall 2014

HM 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2014 Future: Fall 2014

HM 304 **Institutional Food Service Management** (3) Institutional food service management systems in the hospitality field.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: a grade of "C" or better required for HM 201

HM 305 **Restaurant Management** (3) Restaurant food service management systems in the hospitality field; analysis including cost control and quality control techniques.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: or concurrent: HM 201

HM 306 **Hospitality in Senior Living** (3) Introduction to senior living and continuing care retirement communities and related hospitality management career opportunities.



Effective: Summer 2014

Prerequisite: HM 201

**HM 311 Wine Appreciation (2)** A study of identification of varieties of wine, methods and techniques of viniculture, development of wine lists and wine marketing.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Students must be 21 years of age or older to register for this course.

**HM 318 Club Management and Operations (2)** Principles and practices of club organizations and management.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better required for HM 201

**HM 319 Hospitality Facilities Management (3)** Fundamental principles of facilities planning, facilities management, and maintenance for all segments of the hospitality industry.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better required for HM 201

**HM 329 Introduction to Food Production and Service (3)** Principles of quality food production and service stressing the integration of menu planning, recipes, cost control, and service.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Prerequisite or concurrent: HM 228

**HM 330 Food Production and Service Management (2)** Food service management laboratory stressing the integration of purchasing, menu planning, and costing in quantity production of quality food.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required for HM 228 and HM 329 ; and a grade of "C" or better in NUTR 119 or NUTR 120

**HM 335 Hospitality Financial Accounting (3)** Basic accounting concepts and practices applicable to hospitality organizations.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required for MATH 021 . Prerequisite or concurrent: HM 201

**HM 336 Hospitality Managerial Accounting (3)** Collection, processing, and interpretation of accounting data for managerial planning, control, and evaluation in hospitality organizations.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better in HM 335 or ACCT 211 and a grade of "C" or better in HM 271

**HM 350 Hospitality Decision Making and Information Systems (3)** Application of decision theory and models to solve qualitative and quantitative problems using Hospitality Information Systems and Computer Applications.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required for HM 271 STAT 200

**HM 350 (GQ) Hospitality Decision Making and Information Systems (3)** Application of decision theory and models to solve qualitative and quantitative problems using Hospitality Information Systems and Computer Applications.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: A grade of "C" or better required for HM 271 STAT 200

**HM 355 Legal Aspects of the Hospitality Industry (3)** Specialized applications of law to the hospitality industry.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: or concurrent: HM 201

**HM 365 (IL) Organizational Behavior in the Hospitality Industry (3)** Study of individual satisfaction and performance in hospitality organizations. Topics include cultural diversity, motivation, communication, group behavior, and leadership.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 201 Concurrent: HM 201

**HM 380 Hotel Management (3)** Introduction to rooms management including front office, housekeeping, security, and engineering. Emphasizes operations, coordination, and communication within and between departments.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better in HM 201 HM 271

**HM 384 Introduction to Meeting and Event Planning (3)** This course provides an overview of the meeting, event, and conference sector of the hospitality industry.

Effective: Summer 2014

Prerequisite: Prerequisite or concurrent: HM 201

**HM 385 Management Principles in Dietetic Services (3)** Application and integration of management principles and leadership skills in dietetic services.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 330 NUTR 380

**HM 386 Introduction to the Gaming and Casino Industry (3)** Students will learn about those traits of the casino industry which distinguish it from other segments of the hospitality industry.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Prerequisite or concurrent: HM 201

**HM 387 Casino Controls (3)** This course is an overview of controls used in casinos including an exploration of complimentary goods (comps) and services and credit.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: "C" or better in HM 201 HM 335 and HM 386 Concurrent: HM 388

**HM 388 Gaming Operations Management** (3) Students will learn casino mathematics, game protection, floor layout methods, departmental organizational structure, and performance analysis.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: "C" or better in STAT 200HM 201 and HM 386 Concurrent: HM 387

**HM 395W Practicum Analysis** (3) Written analysis comparing and contrasting conceptual issues in the hospitality industry.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 201 1000 hours of adviser-approved professional hospitality experience

**HM 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Future: Fall 2014

**HM 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2014 Future: Fall 2014

**HM 411 Beverage Management and Wine Selection** (3) Management issues in beverage service and products. Students taste wines, brews, and distilled spirits.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: students must be at least 21 years old

**HM 413 New Product Development for Commercial Foodservice** (3) This course introduces students to a new product development process that requires coordination, communication, and integration throughout the organization.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better in HM 329

**HM 415 International Cuisine** (3) Cooking and eating practices of cultures around the world, including historical, religious, cultural, geographic, and political influences on each cuisine.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required for HM 201NUTR 100NUTR 119

**HM 430 Advanced Food Production and Service Management** (3) Simulation and application of technical, conceptual, interpersonal skills. Emphasis on group dynamics; improvement in managerial skills; management team functions.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required for HM 330

**HM 432 Contemporary Issues in Restaurant Management** (3) A focus on special topics and current events in the restaurant industry.

Effective: Summer 2014

Prerequisite: a grade of "C" or better in HM 201HM 228 and HM 329

**HM 435 Financial Management in Hospitality Operations** (3) Fiscal techniques in the development, management, and control of hospitality establishments.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required in ECON 102 or ECON 014 and HM 336 . Prerequisite or concurrent: HM 350

**HM 437 Hospitality Project Evaluation and Funding** (3) Current techniques for project evaluation in the hospitality industry; trends in hospitality project funding.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 435

**HM 438 Cases in Financial Analysis** (3) Financial analysis and decision making is examined through a series of hospitality-oriented cases.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 435

**HM 442 Hospitality Marketing** (3) Marketing management in the hospitality industry, including analyzing the market through market research and developing a marketing plan.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required in HM 201MKTG 221

**HM 443 Sales Planning and Advertising for Hospitality Operations** (3) Elements of sales management, advertising, promotion, and public relations as applied to hospitality organizations.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better for HM 442

**HM 466 (US) Human Resource Management in the Hospitality Industry** (3) Recruitment, selection, training, performance appraisal, and compensation of hospitality human resources in today's culturally diverse work force.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required in HM 201HM 365

**HM 467 Management of Hotel and Restaurant Employee Relations** (3) Survey and analysis of managerial strategies for employee relations in hospitality operations.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better in HM 466

**HM 471 New Trends and System Selection in Hospitality Information Technology** (3) This course introduces the

student to new information technology in the hospitality industry and to the system selection process.

Effective: Summer 2015 Future: Summer 2015

Prerequisite: A grade of "C" or better required for HM 271

**HM 480 Advanced Hotel Management** (3) Advanced hotel operations, internal control systems, and service philosophy. Integrates management, departmental operations, law, technology applications, marketing and managerial accounting.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required in HM 336 HM 380

**HM 482 Hospitality Real Estate** (3) The course focuses on commercial real estate concepts related to the hospitality industry.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required in HM 336 HM 380

**HM 483 Revenue Management** (3) Students learn how to effectively implement revenue management strategies and techniques in the hospitality industry.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of C or better in HM 350

**HM 484 Hospitality Entrepreneurship** (3) The course focuses on successfully launching new business ventures in the hospitality industry.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: a grade of "C" or better in HM 336 MKTG 221

**HM 486 Casino Marketing** (3) Students will learn marketing techniques for casinos which take into account the external environment, individual consumer choices, and ethical considerations.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: "C" or better in MKTG 221 HM 387 HM 388 and HM 495 Concurrent: HM 487

**HM 487 Casino Operations and Societal Impact of Gaming** (3) Students will learn the structure, culture, and ethical responsibility toward disordered gambling and other lifestyle issues of modern casinos.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: "C" or better in HM 387 HM 388 and HM 495 Concurrent: HM 486

**HM 490W Strategic Hospitality Management** (3) This capstone writing-intensive class integrates content from throughout the previous curriculum, focusing on strategic application to current industry issues.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better for HM 365 HM 435 HM 442

**HM 492 Advanced Professional Seminar in Hospitality Management** (1) Course prepares senior HM students to assume leadership positions in the hospitality industry (Focus on careers, leadership, ethics, lifelong learning).

Effective: Fall 2014 Future: Fall 2014

Prerequisite: 1000 hours of work experience in the hotel restaurant and institutional management industry Concurrent: HM 430 HM 466 HM 490W

**HM 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: prior approval of proposed assignment by instructor

**HM 495A Hotel Internships-PS Hospitality Services Internship** (3) Students will participate in a supervised internship with Penn State Hospitality Services.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: prior approval of proposed assignment by instructor

**HM 495A Penn State Hospitality Services Hotel Internship** (3) Supervised internship with Penn State Hospitality Services and weekly class meetings.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Employment offer from Penn State Hospitality Services approval of internship assignment by program and a minimum overall grade point average of 2.50.

**HM 495B Executive Internship-NLI** (3) Students will participate in a supervised internship with the Nittany Lion Inn.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: prior approval of proposed assignment by instructor

**HM 495B Penn State Hospitality Services Executive Internship** (3) A project-oriented internship with Penn State Hospitality Services either at The Nittany Lion Inn or The Penn State Conference Hotel.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Selection by Penn State Hospitality Services department head approval of internship assignment by instructor minimum overall grade point average of 2.50 and HM 495A

**HM 495C Housing and Food Service Internship** (3) Students will participate in a supervised internship with a facility within PSU housing and food service.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: prior approval of proposed assignment by instructor

**HM 495C Penn State Housing & Food Service Internship** (3) Supervised internship with Penn State Housing and Food Services and weekly class meetings.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Employment offer from Penn State Housing and Food Services approval of internship assignment by instructor and a minimum overall grade point average of 2.50.

**HM 495D External Off Campus Internship (1-6)** Student will participate in a supervised internship with an approved site participant. Internships are typically one semester in length.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: prior approval of proposed assignment by instructor

**HM 495D External/Off Campus Internship (3)** A supervised off-campus internship with an approved site participant, typically spanning one semester or a summer in length.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: approval of proposed work assignment by instructor and a minimum overall grade point average of 2.50

**HM 495E External Off Campus Internship (1-6)** Student will participate in a supervised internship with an approved site participant. Internships are typically one semester in length.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: prior approval of proposed assignment by instructor

**HM 495F Housing and Food Service Internship (3)** Students will participate in a supervised internship with a facility within PSU housing and food service.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: prior approval of proposed assignment by instructor

**HM 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2014 Future: Fall 2014

**HM 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2014 Future: Fall 2014

**HM 497B Advanced Meeting Planning (3)** Students will apply advanced concepts and applications to event and meeting planning and implement an event plan.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: meeting and events I

**HM 497E Corporate Social Responsibility (3)** Examines the role of ethics and corporate social responsibility in the hospitality industry.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**HM 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2014 Future: Fall 2014

**HM 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2014 Future: Fall 2014

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## Hotel, Restaurant, and Institutional Management (HRIM)

HRIM 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2007 Ending: Summer 2014

HRIM 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2007 Ending: Summer 2014

HRIM 201 **Introduction to Management in the Hospitality Industry** (3) Introduction to the hospitality industry and hospitality management.  
Effective: Fall 2003 Ending: Summer 2014  
Concurrent: HRIM 202

HRIM 202 **Colloquium in Hospitality Management** (1 per semester, maximum of 4) Major industry and professional speakers lecture on current issues followed by discussion with students and faculty.  
Effective: Spring 2004 Ending: Summer 2014

HRIM 204 **Hotel and Restaurant Marketing and Merchandising** (3) Merchandising and marketing as a system concerned with motivating consumers to purchase hospitality products and services. This course will not meet the prescribed requirements for the HRIM major in any option.  
Effective: Spring 2004 Ending: Summer 2014

HRIM 228 **Hospitality Food Safety** (1) Application of HACCP, U.S. Food Code, biosecurity and other federal regulations to hospitality foodservice operations. Students attain certification in foodservice sanitation.  
Effective: Spring 2010 Ending: Summer 2014

HRIM 250 **Principles of Quantity Food Production** (3) Principles and methods of quantity food production including preparation techniques, quality control and evaluation, and cost control.  
Effective: Summer 2012 Ending: Summer 2014

HRIM 260 **Hospitality Supervision Seminar** (3) Hospitality management topics are discussed with a major emphasis on operations management. This course will not meet the prescribed requirements for the HR&IM major in any option.  
Effective: Fall 2009 Ending: Summer 2014  
Prerequisite: HRIM 201

HRIM 271 **Introduction to Hospitality Technology** (3) Introduction to technologies used in the hospitality industry including networks, security, e-commerce, social media, spreadsheets, databases and property management systems.  
Effective: Spring 2014 Ending: Summer 2014  
Prerequisite: Prerequisite or concurrent: HRIM 201

HRIM 295W **Analysis of Field Experience I** (3) Capstone class integrating content from throughout the previous curriculum, including directed written analysis of the 500-hour hospitality working experience.  
Effective: Spring 2008 Ending: Summer 2014  
Prerequisite: HRIM 201HRIM 204HRIM 250HRIM 335 andHRIM 380

HRIM 295W **Analysis of Field Experience I** (3) Capstone class integrating content from throughout the previous curriculum, including directed written analysis of the 500-hour hospitality working experience.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: HM 201HM 204HM 250HM 335 andHM 380

HRIM 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2004 Ending: Summer 2014

HRIM 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2004 Ending: Summer 2014

HRIM 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2007 Ending: Summer 2014

HRIM 304 **Institutional Food Service Management** (3) Institutional food service management systems in the hospitality field.  
Effective: Fall 2010 Ending: Summer 2014  
Prerequisite: a grade of "C" or better required forHRIM 201

HRIM 305 **Restaurant Management** (3) Restaurant food service management systems in the hospitality field; analysis including cost control and quality control techniques.  
Effective: Spring 2004 Ending: Summer 2014

Prerequisite: or concurrent:HRIM 201

**HRIM 310 Hotel, Restaurant, and Institutional Purchasing and Cost Control** (3) Purchasing and cost control principles for hotel, restaurant, and institutional operations.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: NUTR 119 a grade of "C" or better required forHRIM 201HRIM 335

**HRIM 310 Hotel, Restaurant, and Institutional Purchasing and Cost Control** (3) Purchasing and cost control principles for hotel, restaurant, and institutional operations.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: NUTR 119 a grade of "C" or better required forHM 201HM 335

**HRIM 311 Wine Appreciation** (2) A study of identification of varieties of wine, methods and techniques of viniculture, development of wine lists and wine marketing.

Effective: Summer 2008 Ending: Summer 2014

Prerequisite: Students must be 21 years of age or older to register for this course.

**HRIM 318 Club Management and Operations** (2) Principles and practices of club organizations and management.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better required forHRIM 201

**HRIM 319 Hospitality Facilities Management** (3) Fundamental principles of facilities planning, facilities management, and maintenance for all segments of the hospitality industry.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better required forHRIM 201

**HRIM 329 Introduction to Food Production and Service** (3) Principles of quality food production and service stressing the integration of menu planning, recipes, cost control, and service.

Effective: Fall 2011 Ending: Summer 2014

Prerequisite: Prerequisite or concurrent:HRIM 228

**HRIM 330 Food Production and Service Management** (2) Food service management laboratory stressing the integration of purchasing, menu planning, and costing in quantity production of quality food.

Effective: Fall 2011 Ending: Summer 2014

Prerequisite: A grade of "C" or better required forHRIM 228 andHRIM 329 ; and a grade of "C" or better inNUTR 119 orNUTR 120

**HRIM 335 Hospitality Financial Accounting** (3) Basic accounting concepts and practices applicable to hospitality organizations.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: A grade of "C" or better required forMATH 021 . Prerequisite or concurrent:HRIM 201

**HRIM 336 Hospitality Managerial Accounting** (3) Collection, processing, and interpretation of accounting data for managerial planning, control, and evaluation in hospitality organizations.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better inHRIM 335 orACCT 211 and a grade of "C" or better inCMPSC 203

**HRIM 350 Hospitality Decision Making and Information Systems** (3) Application of decision theory and models to solve qualitative and quantitative problems using Hospitality Information Systems and Computer Applications.

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: A grade of "C" or better required forCMPSC 203STAT 200 . Prerequisite or concurrent:HRIM 201HRIM 202

**HRIM 355 Legal Aspects of the Hospitality Industry** (3) Specialized applications of law to the hospitality industry.

Effective: Spring 2009 Ending: Summer 2014

Prerequisite: or concurrent:HRIM 201

**HRIM 365 (IL) Organizational Behavior in the Hospitality Industry** (3) Study of individual satisfaction and performance in hospitality organizations. Topics include cultural diversity, motivation, communication, group behavior, and leadership.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: HRIM 201 Concurrent: HRIM 201

**HRIM 380 Hotel Management** (3) Introduction to rooms management including front office, housekeeping, security, and engineering. Emphasizes operations, coordination, and communication within and between departments.

Effective: Spring 2014 Ending: Summer 2014

Prerequisite: A grade of "C" or better inHRIM 201HRIM 271

**HRIM 385 Management Principles in Dietetic Services** (3) Application and integration of management principles and leadership skills in dietetic services.

Effective: Summer 2004 Ending: Summer 2014

Prerequisite: HRIM 330NUTR 380

**HRIM 386 Introduction to the Gaming and Casino Industry** (3) Students will learn about those traits of the casino industry which distinguish it from other segments of the hospitality industry.

Effective: Summer 2010 Ending: Summer 2014

Prerequisite: Prerequisite or concurrent:HRIM 201

**HRIM 387 Casino Controls** (3) This course is an overview of controls used in casinos including an exploration of complimentary goods (comps) and services and credit.

Effective: Summer 2010 Ending: Summer 2014

Prerequisite: "C" or better inHRIM 201HRIM 335 andHRIM 386 Concurrent: HRIM 388

**HRIM 388 Gaming Operations Management** (3) Students will learn casino mathematics, game protection, floor layout methods, departmental organizational structure, and performance analysis.

Effective: Summer 2010 Ending: Summer 2014

Prerequisite: "C" or better in STAT 200 HRIM 201 and HRIM 386 Concurrent: HRIM 387

**HRIM 395W Practicum Analysis** (3) Written analysis comparing and contrasting conceptual issues in the hospitality industry.

Effective: Spring 2004 Ending: Summer 2014

Prerequisite: HRIM 201 1000 hours of adviser-approved professional hospitality experience

**HRIM 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2004 Ending: Summer 2014

**HRIM 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007 Ending: Summer 2014

**HRIM 411 Beverage Management and Wine Selection** (3) Management issues in beverage service and products. Students taste wines, brews, and distilled spirits.

Effective: Spring 2004 Ending: Fall 2014

Prerequisite: students must be at least 21 years old

**HRIM 413 New Product Development for Commercial Foodservice** (3) This course introduces students to a new product development process that requires coordination, communication, and integration throughout the organization.

Effective: Spring 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better for HRIM 329

**HRIM 415 International Cuisine** (3) Cooking and eating practices of cultures around the world, including historical, religious, cultural, geographic, and political influences on each cuisine.

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 201 NUTR 100 NUTR 119

**HRIM 430 Advanced Food Production and Service Management** (3) Simulation and application of technical, conceptual, interpersonal skills. Emphasis on group dynamics; improvement in managerial skills; management team functions.

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 330

**HRIM 435 Financial Management in Hospitality Operations** (3) Fiscal techniques in the development, management, and control of hospitality establishments.

Effective: Spring 2014 Ending: Fall 2014

Prerequisite: A grade of "C" or better required for ECON 102 or ECON 014; HRIM 336 . Prerequisite or concurrent: HRIM 350

**HRIM 437 Hospitality Project Evaluation and Funding** (3) Current techniques for project evaluation in the hospitality industry; trends in hospitality project funding.

Effective: Spring 2004 Ending: Summer 2014

Prerequisite: HRIM 435

**HRIM 438 Cases in Financial Analysis** (3) Financial analysis and decision making is examined through a series of hospitality-oriented cases.

Effective: Spring 2004 Ending: Summer 2014

Prerequisite: HRIM 435

**HRIM 442 Hospitality Marketing** (3) Marketing management in the hospitality industry, including analyzing the market through market research and developing a marketing plan.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 201 MKTG 221

**HRIM 443 Sales Planning and Advertising for Hospitality Operations** (3) Elements of sales management, advertising, promotion, and public relations as applied to hospitality organizations.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better for HRIM 442

**HRIM 466 (US) Human Resource Management in the Hospitality Industry** (3) Recruitment, selection, training, performance appraisal, and compensation of hospitality human resources in today's culturally diverse work force.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 201 HRIM 365

**HRIM 467 Management of Hotel and Restaurant Employee Relations** (3) Survey and analysis of managerial strategies for employee relations in hospitality operations.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better for HRIM 466

**HRIM 471 New Trends and System Selection in Hospitality Information Technology** (3) This course introduces the student to new information technology in the hospitality industry and to the system selection process.

Effective: Spring 2014 Ending: Spring 2015

Prerequisite: A grade of "C" or better required for HRIM 271

**HRIM 480 Advanced Hotel Management** (3) Advanced hotel operations, internal control systems, and service philosophy. Integrates management, departmental operations, law, technology applications, marketing and managerial accounting.

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 336 HRIM 380

**HRIM 482 Hospitality Real Estate (3)** The course focuses on commercial real estate concepts related to the hospitality industry.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 336 HRIM 380

**HRIM 483 Revenue Management (3)** Students learn how to effectively implement revenue management strategies and techniques in the hospitality industry.

Effective: Spring 2011 Ending: Summer 2014

Prerequisite: a grade of C or better in HRIM 350

**HRIM 484 Hospitality Entrepreneurship (3)** The course focuses on successfully launching new business ventures in the hospitality industry.

Effective: Summer 2013 Ending: Fall 2014

Prerequisite: a grade of "C" or better in HRIM 336 MKTG 221

**HRIM 486 Casino Marketing (3)** Students will learn marketing techniques for casinos which take into account the external environment, individual consumer choices, and ethical considerations.

Effective: Summer 2010 Ending: Summer 2014

Prerequisite: "C" or better in MKTG 221 HRIM 387 HRIM 388 and HRIM 495 Concurrent: HRIM 487

**HRIM 487 Casino Operations and Societal Impact of Gaming (3)** Students will learn the structure, culture, and ethical responsibility toward disordered gambling and other lifestyle issues of modern casinos.

Effective: Summer 2010 Ending: Summer 2014

Prerequisite: "C" or better in HRIM 387 HRIM 388 and HRIM 495 Concurrent: HRIM 486

**HRIM 490W Strategic Hospitality Management (3)** This capstone writing-intensive class integrates content from throughout the previous curriculum, focusing on strategic application to current industry issues.

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better for HRIM 365 HRIM 435 HRIM 442

**HRIM 492 Advanced Professional Seminar in Hotel, Restaurant and Institutional Management (1)** Course prepares senior HR&IM students to assume leadership positions in the hospitality industry (Focus on careers, leadership, ethics, lifelong learning).

Effective: Spring 2004 Ending: Summer 2014

Prerequisite: 1000 hours of work experience in the hotel restaurant and institutional management industry Concurrent: HRIM 430 HRIM 466 HRIM 490

**HRIM 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2004 Ending: Summer 2014

Prerequisite: prior approval of proposed assignment by instructor

**HRIM 495E External/Off Campus Internship (1-6)** A supervised internship with an approved site participant. Internships are typically one semester or summer in length.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: prior approval of proposed assignment by instructor. Minimum GPA-2.5.

**HRIM 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2004 Ending: Summer 2014

**HRIM 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2004 Ending: Summer 2014

**HRIM 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2008 Ending: Summer 2014

**HRIM 498F International Food Service Management and Cuisine (3)** This course is designed to cover major European cuisines and oenology in a European setting.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: prior approval of proposed assignment by instructor

**HRIM 498G French Cuisine and Culture (3)** Program will including intensive classes on language and culture, products, cuisine, wine, and also design and atmosphere.

Effective: Summer 2014 Ending: Summer 2014

**HRIM 498I International Hospitality Management (3)** This course is designed to expose students to international hospitality management, organization, practices, and structures in a European setting.

Effective: Summer 2014 Ending: Summer 2014

**HRIM 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.



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## Human Development and Family Studies (HD FS)

HD FS 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

HD FS 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

HD FS 129 (GS) **Introduction to Human Development and Family Studies** (3) Introduction to psychosocial and family development at all stages of the individual and family life cycle. Students may take only one course for General Education credit from SOC 030 or HD FS 129.  
Student may take only one course for General Education credits from HD FS 129 GS or SOC 030 GS. Effective: Fall 2004

HD FS 129H (GS) **Introduction to Human Development and Family Studies** (3) Introduction to psychosocial and family development at all stages of the individual and family life cycle. Students may take only one course for General Education credit from SOC 030 or HD FS 129.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HD FS 129S (GS) **Introduction to Human Development and Family Studies** (3) Introduction to psychosocial and family development at all stages of the individual and family life cycle.  
Effective: Summer 2006

HD FS 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

HD FS 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

HD FS 216 **Personal and Interpersonal Skills** (2) Conceptions of lifespan personal and interpersonal skill enhancement.  
Effective: Summer 1990

HD FS 218 **Foundations of Marriage** (3) Factors influencing the husband/wife relationship across the life course.  
Effective: Summer 1990

HD FS 229 (GS) **Infant and Child Development** (3) Theory, research, and methods of social/behavioral/biological sciences related to developmental processes and intervention during infancy and childhood.  
Effective: Fall 2004

HD FS 230 **Overview of Curricular Practices in Early Childhood Care and Education** (3) Curricular practices in programs for infants, toddlers and preschoolers. Focus on developmentally appropriate practice, emergent curriculum and home/child care links.  
Effective: Summer 2004  
Prerequisite: HD FS 229

HD FS 231 **Guidance in Early Childhood Care and Education** (3) Positive guidance methods for infants, toddlers and preschoolers, leading to self-control and social capability. Includes focus on home/childcare links.  
Effective: Summer 2004  
Prerequisite: HD FS 229

HD FS 232 **Creativity and Play in Early Childhood Care and Education** (3) Planning for play, creativity and exploration in programs for infants, toddlers and preschoolers. Includes focus on home/childcare links.  
Effective: Summer 2004  
Prerequisite: HD FS 229

HD FS 233 **Emergent Language and Literacy: Development and Practice in Early Childhood Care and Education** (3) Fostering development of language and literacy in infants, toddlers and preschoolers. Includes children's literature and focus on home/childcare links.  
Effective: Summer 2004  
Prerequisite: HD FS 229

HD FS 234 **Mathematics and Science Reasoning: Development and Practice in Early Childhood Care and Education** (3) Fostering development of mathematical reasoning and scientific inquiry in infants, toddlers and preschoolers. Includes project approach and focus on home/childcare links.

Effective: Summer 2004  
Prerequisite: HD FS 229

HD FS 239 (GS) **Adolescent Development** (3) Social, behavioral, and biological development and intervention throughout adolescence.  
Effective: Spring 2002

HD FS 249 (GS) **Adult Development and Aging** (3) Physiological, psychological, and social development and intervention from young adulthood through old age.  
Effective: Spring 2003

HD FS 250 (US) (WMNST 250) **Sexual Identity over the Life Span** (3) Concepts of affectional and sexual orientation over life span, with emphasis on lesbian and gay male personal, family, and community adaptation.  
Effective: Summer 2005  
Prerequisite: 3 credits in HD FS or 3 credits in social or behavioral sciences

HD FS 287W (GS;US) **Intercultural Community-Building** (3) An experiential introduction to negotiating differences in small groups, families, institutions, and communities.  
Effective: Summer 2005

HD FS 287X (GS;US) **Intercultural Community-Building** (3) An experiential introduction to negotiating differences in small groups, families, institutions, and communities.  
Effective: Summer 2005

HD FS 287Y (GS;US) **Intercultural Community-Building** (3) An experiential introduction to negotiating differences in small groups, families, institutions, and communities.  
Effective: Summer 2005

HD FS 296 **Independent Studies** (1-12) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1990

HD FS 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1990

HD FS 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

HD FS 300H **Honors Seminar: Concepts and Issues in Human Development and Family Studies** (3) Introduces core concepts and issues in the study of Human Development and Family Studies.  
Effective: Spring 1996  
Prerequisite: HD FS 129 or permission of human development and family studies honors adviser

HD FS 301 **Values and Ethics in Health and Human Development Professions** (3) Examines bases for choices among values in personal and professional relations in human development processes and supporting services.  
Effective: Summer 1998

HD FS 302A **Leadership and Technology Skills for Human Services Professionals A** (3) Development of skills essential for contemporary human services professionals, including critical thinking, problem solving, electronic communications, and information handling.  
Effective: Spring 2001  
Prerequisite: HD FS 129

HD FS 302B **Leadership and Technology Skills for Human Services Professionals B** (3) Application and enhancement of leadership and technology skills in team settings; emphasis on active and collaborative problem-solving.  
Effective: Summer 1997  
Prerequisite: HD FS 302A

HD FS 310M **Seminar in Honors--Research Methods** (4) Overview of research and methods issues tailored around development of honors thesis proposals.  
Effective: Spring 2014  
Prerequisite: permission of Human Development and Family Studies honors adviser

HD FS 311 **Human Development and Family Studies Interventions** (3) Survey of individual and family formal and informal intervention efforts; historical and current perspectives and approaches.  
Effective: Spring 1996  
Prerequisite: HD FS 129

HD FS 312W **Empirical Inquiry in Human Development** (3) Introduction to the skills involved in critical thinking in general and the methods of empirical inquiry in particular. Open to HD FS majors only.

Effective: Spring 2001

Prerequisite: a grade of C or better required in EDPSY 101 or STAT 200

**HD FS 313 Empirical Inquiry in Human Development for Non-Majors (3)** Introduction to the skills involved in critical thinking in general and the methods of empirical inquiry in particular.

Effective: Summer 2014

Prerequisite: a grade of C or better in: EDPSY 101 or STAT 200

**HD FS 315 (US) Family Development (3)** Family functions over the life course; family from a multidisciplinary perspective, emphasizing adaptation and change.

Effective: Summer 2005

Prerequisite: HD FS 129 ; 3 credits of social behavioral or human biological sciences

**HD FS 315Y (US) Family Development (3)** Family functions over the life course; family from a multidisciplinary perspective, emphasizing adaptation and change.

Effective: Summer 2005

Prerequisite: HD FS 129 ; 3 credits of social behavioral or human biological sciences

**HD FS 330 Observation or Experience with Children, Youth, and Families (1-6)** Directed observations of, or supervised experience with children, youth, and families in group or home settings.

Effective: Spring 2007

Prerequisite: HD FS 229 or PSYCH 212

**HD FS 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1998

Prerequisite: prior approval of proposed assignment by instructor

**HD FS 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**HD FS 397A Global Youth Justice (3)** An exploration, comparison and critical analysis of the most influential concepts, policies and practices in reform of juvenile justice around the globe, aimed to provide better understanding and enhancement of juvenile justice in US.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**HD FS 398 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**HD FS 401 Project Planning, Implementation, and Evaluation in the Human Services (3)** Exercises and activities related to the design, planning, implementation and management, and evaluation of projects and programs in the human services.

Effective: Fall 2006

Prerequisite: HD FS 312W ; approval by internship coordinator. Prerequisite or concurrent: HD FS 411

**HD FS 402 Human Services Seminar (4)** Presentations and discussion of contemporary human issues by students and visiting professionals.

Effective: Summer 1997

Prerequisite: HD FS 401

**HD FS 405 (US) Gender and Social Development (3)** A review of gender-related patterns of social development over the lifespan, as influenced by biological, sociological, and psychological factors.

Effective: Spring 2006

Prerequisite: HD FS 129 HD FS 312W ; or 6 credits in social sciences

**HD FS 410 Communities and Families (3)** Family and community interaction, emphasizing strategies for intervention to solve family-community problems.

Effective: Spring 1996

Prerequisite: HD FS 312W ; 3 credits of social/behavioral sciences

**HD FS 411 The Helping Relationship (3)** Theory and research related to interpersonal conditions which facilitate personal growth; intensive interpersonal competency training.

Effective: Spring 1996

Prerequisite: HD FS 311; HD FS 312W ; or 6 credits in Human Development and Family Studies or psychology

**HD FS 412 Adult-Child Relationships (3)** Theories, research, and application of adult behavior for maximizing adult-child relationships and optimizing child socialization and self-development.

Effective: Spring 2007

Prerequisite: HD FS 229 or PSYCH 212; HD FS 311; HD FS 315 or HD FS 315W; HD FS 312W

**HD FS 413 Developmental Problems in Adulthood (3)** Analysis of individual developmental problems from young adulthood through old age and their prevention and modification.

Effective: Spring 2001

Prerequisite: HD FS 129; HD FS 249; HD FS 312W

**HD FS 414 Resolving Human Development and Family Problems (3)** Strategies for, and roles of professional specialists

in, the solution of problems in human development and family functioning.

Effective: Spring 1996

Prerequisite: HD FS 312W ; 6 credits in Human Development and Family Studies or psychology

**HD FS 415 Program Development in Family Relationships (3)** Methods for planning, developing, and evaluating human service programs for families across the life span.

Effective: Spring 2001

Prerequisite: HD FS 311;HD FS 312W;HD FS 315 orHD FS 315W

**HD FS 416 (US) (SOC 411) Racial and Ethnic Diversity and the American Family (3)** This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States.

Effective: Spring 2005

Prerequisite: 3 credits in sociology

**HD FS 417 (US;IL) Biocultural Studies of Family Organization (3)** Study of variability in family organization with an emphasis on cultural and economic factors influencing household organization and family roles.

Effective: Spring 2006

Prerequisite: HD FS 129;HD FS 312W;HD FS 315 orHD FS 315W ; or 6 credits in sociology or anthropology

**HD FS 418 Family Relationships (3)** Dynamics of family interaction; effects of parenthood, sibling and intergeneration relationships on family solidarity.

Effective: Spring 2001

Prerequisite: HD FS 312W;HD FS 315 orHD FS 315W

**HD FS 420 Laboratory in Individual and Family Enhancement (3)** Supervised practice in methods of assessment, intervention, and evaluation to enhance individual and family development.

Effective: Spring 1996

Prerequisite: HD FS 312W;HD FS 411 ; 6 additional credits in Human Development and Family Studies

**HD FS 424 (US) Family Development in an Economic Context (3)** Economic conditions influencing family functioning; familial effects on the economy; strategies to enhance work-family relations.

Effective: Spring 2006

Prerequisite: HD FS 312W;HD FS 315 orHD FS 315W

**HD FS 425 (US) Work as a Context for Human Development (3)** Theory and research on role of work in adult development; interrelationships between work and family; workplace interventions to enhance development.

Effective: Spring 2006

Prerequisite: HD FS 312W ; 3 credits in social and behavioral sciences

**HD FS 427 (KINES 427) Developmental Sport & Exercise Psychology (3)** Developmental changes in the antecedents and consequences of physical activity across the lifespan.

Effective: Spring 2008

Prerequisite: PSYCH 100 andKINES 321 orHD FS 129 orPSYCH 212

**HD FS 428 Infant Development (3)** Conceptual analysis, assessment, and empirical investigation of normal and deviant development, prenatal through first two years of life.

Effective: Spring 2007

Prerequisite: HD FS 229 orPSYCH 212;HD FS 312W

**HD FS 429 Advanced Child Development (3)** Processes of development during childhood from birth to adolescence. Emphasis upon theory, method, and empirical research.

Effective: Spring 2007

Prerequisite: HD FS 229 orPSYCH 212;HD FS 312W

**HD FS 430 Experience in Preschool Groups (6)** Guided practicum experience in planning and facilitating developmentally appropriate activities for young children.

Effective: Spring 2007

Prerequisite: HD FS 229 orPSYCH 212;HD FS 312W;HD FS 330

**HD FS 431 (SOC 431) Family Disorganization: Stress Points in the Contemporary Family (3)** Focuses on divorce, remarriage, incest, family violence as well as problems associated with family formation and parent-child relations.

Effective: Spring 1996

Prerequisite: HD FS 312W ; 6 credits of Human Development and Family Studies psychology sociology

**HD FS 432 Developmental Problems in Childhood and Adolescence (3)** Analysis of problems in individual development from infancy through adolescence; prevention and modification of developmental difficulties.

Effective: Spring 2007

Prerequisite: HD FS 229;HD FS 239 orPSYCH 212;HD FS 312W

**HD FS 433 Developmental Transition to Adulthood (3)** Conceptual analysis and empirical investigation of interrelationships between developmental processes during the period of pubertal growth.

Effective: Spring 1996

Prerequisite: HD FS 239;HD FS 312W

**HD FS 434 (SOC 435) Perspectives on Aging (3)** An analysis of the demographic, social, and cultural factors affecting the aged population in American society.

Effective: Fall 2007

Prerequisite: HD FS 312W ; 6 credits in sociology

**HD FS 440 (SOC 440) Family Policy (3)** An in-depth examination of family policy.

Effective: Spring 2007

Prerequisite: 3 credits of SOC or HD FS

HD FS 445 (PSYCH 416) **Development Throughout Adulthood** (3) Processes of development and change of behavior from early adulthood through old age, emphasizing theory, method, and empirical research.

Effective: Spring 2007

Prerequisite: HD FS 249 or PSYCH 100; HD FS 312W or PSYCH 301W; PSYCH 200STAT 200 or 3 credits of statistics ; 6 credits in HD FS PSYCH or SOC.

HD FS 446 **Programs and Services in Gerontology** (3) Theoretical and historical views of the conceptualization and delivery of programs and services to older persons within a multidisciplinary developmental framework.

Effective: Spring 1996

Prerequisite: HD FS 249 or HD FS 445; HD FS 312W

HD FS 447 **Issues in Gerontology** (3) Analysis of major issues in adulthood and aging, with an emphasis on integration of theory and research.

Effective: Spring 1996

Prerequisite: HD FS 249 or HD FS 445; HD FS 312W

HD FS 450 **Developmental Child Programs and Services** (3) Current and historical views of the conceptualization and delivery of child programs and services within a multidisciplinary developmental framework.

Effective: Spring 2007

Prerequisite: HD FS 229 or PSYCH 212; HD FS 312W

HD FS 452 **Child Maltreatment Prevention, Intervention, and Legal Issues** (3) Examines causes, correlates, and consequences of child maltreatment, empirically supported prevention/intervention programs, the Child Welfare System and relevant legal issues.

Effective: Spring 2013

Prerequisite: HD FS 229 or HD FS 239; HD FS 312W

HD FS 453 **Family Participation and Involvement in Child Services** (3) Current and historical perspectives of roles and functions of family members in designing, delivering, and evaluating of child service programs.

Effective: Spring 2001

Prerequisite: HD FS 229; HD FS 312W; HD FS 315 or HD FS 315W

HD FS 454 (E C E 454) **Development and Administration of Child Service Programs** (3) Planning, administering, and evaluating child service programs at several administrative levels using methods from relevant disciplines.

Effective: Spring 1996

Prerequisite: HD FS 312W; HD FS 453; C I 295 or HD FS 330

HD FS 455 **Development and Administration of Human Services Programs** (3) Fundamentals of program development and administration of human service programs in community settings; emphasis given to program content, strategies, and the overall planning process.

Effective: Fall 2009

Prerequisite: HD FS 311

HD FS 468 **Biological Bases of Behavioral Development** (3) Biological, genetic, and experiential influences in development through the lifespan.

Effective: Spring 2007

Prerequisite: HD FS 129 or PSYCH 100; HD FS 312W ; 3 credits in human biology

HD FS 477 **Analysis of Family Problems** (3) Analysis of families' behavioral, managerial, interpersonal, and financial problems and their interrelationships.

Effective: Spring 2001

Prerequisite: HD FS 312W; HD FS 315 or HD FS 315W ; 3 credits in social sciences

HD FS 490 **Introduction to Internship Experience** (2) Planning and preparation for field experience in human service setting. Analysis of human service system and arrangement of site.

Effective: Spring 1996

Prerequisite: HD FS 312W ; approval by internship coordinator. Prerequisite or concurrent: HD FS 411

HD FS 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2000

HD FS 494A **Research Practicum** (3) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HD FS 494B **Research Paper** (3) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

HD FS 494H **Senior Honors Thesis** (1-6) Independent study under the direction of the thesis advisor of topics related to the interests of the student, culminating in presentation of a thesis.

Effective: Summer 1997

Prerequisite: approval of honors thesis advisor

HD FS 495A **Internship: Advanced Experience** (9) Full-time, one semester experiential training in human service settings.

Open to HD FS majors only.

Effective: Spring 2014

Prerequisite: HD FS 490HD FS 301HD FS 455 and permission of internship director

**HD FS 495B Internship: Advanced Project** (3) Implementation of internship projects or scholarly paper. Open to HD FS majors only.

Effective: Fall 2006

Prerequisite: or concurrent:HD FS 495A

**HD FS 495C Professional Practicum in Human Services** (3-8) Guided professional practicum in human services, usually in the form of a project related to a human services issue.

Effective: Summer 1997

Prerequisite: HD FS 401 orHD FS 490

**HD FS 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1990

**HD FS 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1990

**HD FS 497A Autism - Providing Professional Support for Individual and Families** (3) This course will emphasize professional development for students planning to pursue careers in the field of autism. Topics include the stresses and needs of families and siblings of children with Autism Spectrum Disorders (ASD), vocational and social challenges faced as individuals with ASD age into adolescence and adulthood, and techniques to aid parents in becoming effective advocates for their child's academic, social, and behavioral needs. Although the core symptomatology of ASD and empirically validated interventions will be covered as foundational knowledge, these topics will not be the focus of this course. Rather, this course will identify the challenges and strengths likely to be encountered in the lives of families and individuals with ASD and provide current best practices used to help clients navigate life with ASD.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**HD FS 497B Teaching Human Development and Family Studies** (3) Students who excel in HD FS classes may be invited to become an undergraduate teaching assistant.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**HD FS 497C Peer and Consultation** (1-3) Students register for this course if they will be serving as a teaching assistant in HD FS courses.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: must have taken the course they want to TA for and passed with at least a grade of A.

**HD FS 497C Peer and Consultation** (1-3) Students register for this course if they will be serving as a teaching assistant in HD FS courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**HD FS 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**HD FS 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Fall 2007

**HD FS 499A (IL) Early Childhood in Italy** (3) This course will give students the opportunity to examine the way in which Italians structure the early childhood years, and the social policies that support this structure. Students will observe children in public, as well as having the opportunity to visit preschool and day care programs for young children.

Effective: Summer 2014 Ending: Summer 2014

**HD FS 499B (IL) Historical Roots of the Modern Italian Family** (3) The purpose of this course is to examine the historical roots of the Italian family system as it has evolved from antiquity to modernity. Issues to be explored include the implications of economic, political, religious, and social factors, the status of Italian women over time with regard to legal rights, roles, societal expectations and cultural values, and the attitudes toward and practices regarding child rearing.

Effective: Summer 2014 Ending: Summer 2014

**HD FS 499C (IL) Italian Relationships, Both Cultural and Familial** (3) The purpose of this course is to examine the cultural factors affecting business, friendship, and family relationships in Italy. Issues to be explored include the implications of economic, political, religious, and social factors on Italian families, and the influence of the Catholic Church on family and social roles in Italy.

Effective: Summer 2014 Ending: Summer 2014





## Humanities and Social Sciences (H&SS)

H&SS 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

H&SS 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

H&SS 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 1989

H&SS 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1989

H&SS 297A **Introduction to Game Design** (3) Introduction to game design introduces students to a multidisciplinary practice of game development through projects and assignments.  
Effective: Summer 2014 Ending: Summer 2014

H&SS 297A **Introduction to Game Design** (3) Design of games as aesthetic objects and cultural artifacts that people find meaningful and entertaining.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

H&SS 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

H&SS 397A **Advanced Game Design** (3) Develop habits of successful game designers playing games thoughtfully and documenting those thoughts.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: H&SS 297 or GAME 220

H&SS 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 1989

H&SS 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1989

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## Industrial Engineering (I E)

**I E 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1998

**I E 100S Discover Industrial Engineering: First-Year Seminar** (1) Informational First-year on Industrial Engineering as a career choice and profession; lab exercises; guest speakers; real world problems.  
Effective: Fall 1999

**I E 101S Build Your Own Robot--First-Year Seminar** (1) The objective of this first-year seminar course is to provide students hands-on experience with robotics and automation devices.  
Effective: Summer 2000

**I E 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**I E 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1997

**I E 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**I E 302 Engineering Economy** (3) Principles and methods for analyzing the economic feasibility of technical alternatives leading to a decision or recommendation.  
Effective: Fall 1992  
Prerequisite: MATH 141

**I E 302H Engineering Economy** (3) Principles and methods for analyzing the economic feasibility of technical alternatives leading to a decision or recommendation.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: MATH 141

**I E 303 Engineering Economic Analysis** (2) Economic analysis of engineering alternatives.  
Effective: Spring 2008

**I E 305 Product Design, Specification and Measurement** (3) Principles of product design and specifications and methods for product verification.  
Effective: Summer 2005  
Prerequisite: Prerequisite or concurrent: MATSE 259

**I E 306 Machining Process Design & Analysis** (3) Application of Engineering Principles for the Design and Implementation of Economic and Effective Machining Processes.  
Effective: Spring 2008  
Prerequisite: I E 305I E 322

**I E 307 Additive Manufacturing Process and Reverse Engineering** (3) The study and application of rapid prototyping technologies in design and manufacturing.  
Effective: Fall 2013  
Prerequisite: I E 305

**I E 311 Principles of Solidification Processing** (3) Discussion, laboratory practices, and laboratory experiments covering principles of metal casting and joining, nondestructive testing, and nonmetallic processing.  
Effective: Spring 2009  
Prerequisite: I E 305

**I E 312 Product Design and Manufacturing Processes** (3) Theory and principles of mechanical design specification, verification, and manufacturing. Industrial engineering majors may not schedule this course.  
Effective: Fall 2013  
Prerequisite: E MCH 213E MCH 210H orE MCH 210 ; Prerequisite or concurrent: E SC 414M orMATSE 259

**I E 322 Probabilistic Models in Industrial Engineering** (3) The study and application of probability theory in the solution of engineering problems.  
Effective: Fall 2005  
Prerequisite: MATH 141

**I E 322H Probabilistic Models in Industrial Engineering** (3) The study and application of probability theory in the solution of engineering problems.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: MATH 141

**I E 323 Statistical Methods in Industrial Engineering** (3) The study and application of statistics in the solution of engineering problems.  
Effective: Spring 2006  
Prerequisite: I E 322

**I E 327 Introduction to Work Design** (3) Job analysis, cognitive and physical considerations in design of work, work measurement.  
Effective: Fall 2013  
Prerequisite: MATH 141 Prerequisite or concurrent: E MCH 211 or E MCH 210

**I E 330 Engineering Analytics** (3) The study and application of Computing, Information Technology and Analytics to Industrial Engineering.  
Effective: Spring 2014  
Prerequisite: I E 322 and CMPSC 200 CMPSC 201 or CMPSC 202

**I E 330L Information Technology for Industrial Engineering** (3) The study and application of computing and information technology to industrial engineering.  
Effective: Spring 2008  
Prerequisite: MATH 141 CMPSC 201

**I E 330P Information Technology for Industrial Engineering** The study and application of computing and information technology to industrial engineering.  
Effective: Spring 2008  
Prerequisite: MATH 141 CMPSC 201

**I E 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2000

**I E 399 (IL) Foreign Studies--Industrial Engineering** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**I E 402 Advanced Engineering Economy** (3) Concepts and techniques of analyses useful in evaluating engineering projects under deterministic and uncertain conditions.  
Effective: Summer 1995  
Prerequisite: I E 302 I E 322 I E 405

**I E 405 Deterministic Models in Operations Research** (3) Deterministic models in operation research including linear programming, flows in networks, project management, transportation and assignment models and integer programming.  
Effective: Spring 2014  
Prerequisite: MATH 220

**I E 408 Cognitive Work Design** (3) Design and evaluation of cognitive work, including the human/computer interface, visual displays, software design, and automated system monitoring, with emphasis on human performance.  
Effective: Spring 2006  
Prerequisite: I E 327

**I E 418 Human/Computer Interface Design** (3) Design and evaluation of the human/computer interface, including human performance, visual displays, software design, and automated system monitoring.  
Effective: Spring 2014  
Prerequisite: I E 327 and CMPSC 200 CMPSC 201 or CMPSC 202

**I E 419 Work Design - Productivity and Safety** (3) Methods improvement, physical work design, productivity, work measurement; principles and practice of safety.  
Effective: Spring 2006  
Prerequisite: I E 327

**I E 424 Process Quality Engineering** (3) Statistical methods for engineering process characterization and improvement. For non-Industrial Engineering majors.  
Effective: Fall 2013  
Prerequisite: MATH 141 and either MATH 220 or B E 301

**I E 425 Stochastic Models in Operations Research** (3) Stochastic models in operations research with real world applications including dynamic programming, Markov chains, queueing models and inventory models.  
Effective: Spring 2014  
Prerequisite: MATH 220 and I E 322 Concurrent: I E 405

**I E 428 Metal Casting** (3) Application of engineering principles to the design of castings; casting of ferrous and nonferrous alloys; laboratory and simulation projects.  
Effective: Summer 1995  
Prerequisite: I E 311 I E 312 or METAL 408W

**I E 433 Regression Analysis and Design of Experiments** (3) Theory and Application of Regression Analysis and Design of Experiments to build models and optimize process and product parameters.  
Effective: Summer 2005  
Prerequisite: I E 323

**I E 434 Statistical Quality Control** (3) Statistical techniques for univariate and multivariate monitoring of independent and autocorrelated processes; foundations of quality control and improvement.

Effective: Summer 2007

Prerequisite: I E 323

**I E 436 Six Sigma Methodology** (3) Techniques for structured problem-solving to improve the quality and cost of products and processes.

Effective: Spring 2010

Prerequisite: I E 323

**I E 453 Simulation Modeling for Decision Support** (3) Introduction of concepts of simulation modeling and analysis, with application to manufacturing and production systems.

Effective: Fall 2009

Prerequisite: CMPSC 200CMPSC 201 orCMPSC 202 andI E 323 andI E 425

**I E 454 Applied Decision Analysis** (3) Theory and practice of decision analysis applied to engineering problems.

Effective: Fall 1992

Prerequisite: I E 322

**I E 456 (M E 456) Industrial Robot Applications** (3) Introduction to robotics, with emphasis on robot selection, programming, and economic justification for manufacturing applications.

Effective: Spring 2011

Prerequisite: MATH 220;MATH 250 orMATH 251;I E 305 orM E 360;CMPSC 200 orCMPSC 201

**I E 460 Service Systems Engineering** (3) Use of quantitative models and methods for analysis, design and control of service systems.

Effective: Spring 2011

Prerequisite: I E 322 andI E 405

**I E 462 Introduction to Expert Systems** (3) Building expert systems in general; emphasis on knowledge representation and inference mechanisms in the manufacturing domain.

Effective: Fall 2009

Prerequisite: CMPSC 200CMPSC 201 orCMPSC 202 andI E 323

**I E 463 Computer Aided Design and Manufacturing** (3) Three dimensional modeling and manufacture of parts and assemblies using Computer Aided Design and manufacturing software, and numerically controlled machines.

Effective: Fall 2013

Prerequisite: I E 305

**I E 464 Assembly of Printed Circuit Boards** (3) Manufacturing processes and principles for assembly of printed circuit boards with surface mount and through-hole technology.

Effective: Spring 2008

Prerequisite: PHYS 212I E 305

**I E 466 Concurrent Engineering** (3) Concurrent engineering methods for product/process development, capturing customer requirements, insuring manufacturability and serviceability.

Effective: Summer 1996

Prerequisite: MATH 141MATH 220

**I E 467 Facility Layout and Material Handling** (3) Analytical, simulation and computer-aided graphical methods to generate effective layout designs; design and integration of material handling systems and equipment. For Industrial Engineering majors.

Effective: Fall 2007

Prerequisite: I E 302I E 327

**I E 468 Optimization Modeling and Methods** (3) Mathematical modeling of linear, integer, and nonlinear programming problems and computational methods for solving these classes of problems.

Effective: Fall 2001

Prerequisite: I E 405MATH 231

**I E 469 Global Industrial Engineering Experience** (1) Students will learn how to prepare for a short term, professional exchange in a foreign nation. Students will then travel to a designated university within a foreign nation for the purpose of a five day cultural and professional exchange.

Effective: Summer 2009

Prerequisite: 5th semester standing or higher

**I E 470 Manufacturing System Design and Analysis** (3) Contemporary design and analysis methodologies used to organize systems for economic manufacture of products.

Effective: Fall 2013

Prerequisite: Prerequisite or concurrent: with manufacturing process elective

**I E 477 Computer Control of Manufacturing Machines and Processes** (3) Elements of computer control and discrete-time modeling. Design and analysis of digital controls for manufacturing machines and processes.

Effective: Fall 2009

Prerequisite: MATH 141CMPSC 200CMPSC 201 orCMPSC 202 andI E 305

**I E 478 Retail Services Engineering** (3) Introduction to retail services operations, process models, and application of information technologies to enhance productivity and profitability.

Effective: Spring 2010

Prerequisite: I E 330

I E 479 (EDSGN 479) **Human Centered Product Design and Innovation** (3) Consumer product design for a global market, incorporating human factors principles and user desires in a multicultural perspective.

Effective: Summer 2010

Prerequisite: I E 408 or I E 419 or equivalent

I E 480W **Capstone Design Project** (3) Industry-based senior capstone design project emphasizing manufacturing systems, service systems, and information systems in an interdisciplinary setting.

Effective: Spring 2009

Prerequisite: I E 302I E 327I E 323I E 305I E 330I E 405

I E 494H **Senior Honors Thesis** (1-9) Students must have approval of a thesis adviser before scheduling this course.

Effective: Spring 2000

I E 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1992

I E 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

I E 497D **Micro/Nano Fabrication** (3) An exploration of the emerging science and engineering concepts of how to fabricate very small components and devices on the micro/nano-scale.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

I E 499 (IL) **Foreign Studies--Industrial Engineering** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Industrial Engineering Technology (IET)

**IET 101 Manufacturing Materials, Processes, and Laboratory** (3) Mechanical properties of materials; primary processing methods used in manufacturing; ferrous and nonferrous metals; important plastic plus ceramic materials; dimensional verification and measurements; mechanical properties evaluation; laboratory methods; statistical interpretation of data.  
Effective: Fall 2007

**IET 105 Economics of Industry** (2) Internal economics of industrial enterprise, cost factors, and methods of comparing alternate proposals.  
Effective: Fall 2007

**IET 109 Inspection and Quality Control** (3) Inspection methods and procedures and their application to control and acceptance sampling based on statistical methods.  
Effective: Fall 2007  
Prerequisite: MATH 082

**IET 215 Production Design** (2) The study of manufacturing processes for the purpose of part creation and/or part feature creation using both current and advanced technologies.  
Effective: Fall 2008  
Prerequisite: IET 101 or MET 105

**IET 216 Production Design Laboratory** (2) Laboratory methods in production design including conventional and advanced manufacturing processes, computer applications, and automation/robotics.  
Effective: Fall 2008  
Prerequisite: or concurrent: IET 215

**IET 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2007

**IET 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2007

**IET 308 Statistical Quality Control** (3) Fundamentals of probability and statistics, introduction to quality control fundamentals, control charts, acceptance sampling.  
Effective: Fall 2007

**IET 311 Elements of Metallurgy** (3) Introduction to metallurgical concepts, metallurgical testing, phase diagram studies, heat treating concepts, ferrous and nonferrous systems.  
Effective: Fall 2007  
Prerequisite: CHEM 110 or CHEM 111

**IET 321 Manufacturing Processes** (3) Manufacturing processes for producing metal, plastic, and ceramic items. Primary emphasis is placed on machine tool processes.  
Effective: Fall 2007

**IET 333 Engineering Economics for Technologists** (2) Fundamentals of engineering economics; equivalence and rate of return analysis; replacement models; depreciation and tax considerations; and economic decision making for technologists.  
Effective: Fall 2008  
Prerequisite: MATH 022 and MATH 026 or MATH 040 or MATH 041

**IET 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

**IET 402 Production Management** (3) Principles and practices of managing the manufacturing operations of companies. Topics include management structure, physical plant, quality control, work sampling.  
Effective: Fall 2007  
Prerequisite: IET 321

**IET 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2007

**IET 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

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## Information Science (IN SC)

IN SC 431 **Information Systems Architecture** (3) Principles and priorities of enterprise system design, middleware and service-oriented architectures and web services.  
Effective: Summer 2005

IN SC 463 **Languages of the Web** (3) Taxonomy of programming languages and frameworks used in the development of web-based information systems.  
Effective: Summer 2005

IN SC 480 **Software Development Lifecycle** (3) Modern Software Development Techniques and Processes. Software Paradigms including OO and lifecycle modeling and improvement.  
Effective: Summer 2005

IN SC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that they may be topical or of special interest.  
Effective: Spring 1998

IN SC 497A **Special Topics: Network Management II** (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that they may be topical or of special interest.  
Effective: Summer 2014 Ending: Summer 2014

IN SC 497B **Special Topics: Enterprise Architecture** (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that they may be topical or of special interest.  
Effective: Summer 2014 Ending: Summer 2014

IN SC 497C **Special Topics: Business Intelligence** (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that they may be topical or of special interest.  
Effective: Summer 2014 Ending: Summer 2014

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## Information Sciences And Technology (IST)

IST 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

IST 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

IST 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

IST 110 (GS) **Information, People and Technology** (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises.  
Effective: Summer 2005

IST 110H (GS) **Information, People and Technology** (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

IST 110S (GS) **Information, People and Technology** (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

IST 110S (GS) **Information, People and Technology** (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

IST 111 **Seminar in IST** (1) Introduction to academic requirements, career planning & information literacy for students majoring in College of IST.  
Effective: Spring 2010

IST 111S **Seminar in Information Sciences and Technology** (1) Introduction to academic requirements, career planning, and information literacy for students majoring in the College of Information Sciences and Technology.  
Effective: Spring 2001

IST 130 (GA) **Emerging Technologies in Popular Culture** (3) A survey course that explores emerging technologies used to produce and consume popular cultural artifacts.  
Effective: Summer 2009

IST 140 **Introduction to Application Development** (3) A first course in concepts and skills for application development.  
Effective: Summer 2014  
Prerequisite: college algebra

IST 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

IST 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

IST 210 **Organization of Data** (4) Introduction to concept of databases including the storage, manipulation, evaluation, and display of data and related issues.  
Effective: Summer 2005  
Prerequisite: IST 110

IST 211 **Advanced Topics in Relational Database Management Systems** (3) In depth coverage of: database administration, advanced Structures Query Language inquiries, normalization, referential integrity; troubleshooting, tweaking; implementation dependent transactions, embedded SQL, Open Database Connectivity.  
Effective: Summer 1999  
Prerequisite: IST 210

IST 220 **Networking and Telecommunications** (3) Introduction to digital network topologies; transmission media, signal modulation, digital packet switching and routing, systems integration, communications management, and security.

Effective: Summer 1999

Prerequisite: IST 110

**IST 225 PC Hardware Basics** (3) Preparation for PC hardware support: Students learn data recovery and how to build, configure, upgrade, troubleshoot, diagnose, and repair PC's.

Effective: Summer 1999

Prerequisite: IST 220

**IST 226 Networking Essentials** (3) Concepts for peer-to-peer and server-based network: International Organization for Standardization-Open Systems Interconnection (ISO-OSI) reference model, industry standards, troubleshooting, performance monitoring, and optimization.

Effective: Summer 1999

Prerequisite: IST 220

**IST 227 Network Administration** (3) Administering peer-to-peer and client/server networks: Planning, installation, server configuration, resource management, remote access, performance monitoring, and optimization.

Effective: Summer 1999

Prerequisite: IST 226

**IST 228 Advanced Network Administration** (3) TCP/IP planning, installation, configuration: IP addressing, subnetting, routing, Dynamic Host Configuration Protocol (DHCP), Windows Internet Naming Service (WINS), address/name resolution, Domain Name System (DNS); database, web, mail server management.

Effective: Summer 1999

Prerequisite: IST 226

**IST 230 Language, Logic, and Discrete Mathematics** (3) Introduction to formal languages, mathematical logic, and discrete mathematics, with applications to information sciences and technology.

Effective: Spring 2004

Prerequisite: MATH 110 or MATH 140

**IST 235 (US) (WMNST 235) Gender and the Global Information Technology Sector** (3) Integrates information technology and gender studies. Overview issues and socio-cultural shaping of gender in the IT field.

Effective: Summer 2013

**IST 237 Digital Entrepreneurship** (3) Introduction to foundational concepts for starting and operating digital business, including business models, funding, strategic, operational, structural, and cultural components.

Effective: Summer 2014

**IST 240 Introduction to Computer Languages** (3) Introduction to the specification and application of languages and language paradigms that interact with computers.

Effective: Spring 2002

Prerequisite: CMPSC 101 Concurrent: IST 230

**IST 242 Intermediate & Object-Oriented Application Development** (3) Intermediate application development including algorithms, data structures, and object-oriented concepts.

Effective: Summer 2014

Prerequisite: IST 140 or CMPSC 121 or IST 240

**IST 247 Contemporary Projects in Software Development** (3) The analysis, design, coding, testing, and documentation of a software project using state-of-the-art languages/tools and concepts.

Effective: Spring 2008

Prerequisite: CMPSC 302; IST 211 or IST 256

**IST 250 New Media and the Web** (3) Introduction to how the World Wide Web utilizes emerging technologies. Students acquire conceptual understanding of constructing Web sites.

Effective: Summer 1999

Prerequisite: IST 110 or concurrent enrollment

**IST 255 Fundamentals of Web Administration** (3) An introduction to fundamental web administration concepts: Internet, graphic design, Hypertext Markup Language (HTML), security, legal/ethical implications, Internet business.

Effective: Summer 1999

Prerequisite: IST 250

**IST 256 Programming for the Web** (3) An introduction to fundamental Web programming concepts: Advanced Hypertext Markup Language (HTML), Dynamic Hypertext Markup Language (DHTML), extensible Markup Language (XML), Data Warehouses, JavaScript, common Gateway Interface (CGI), and Java.

Effective: Summer 1999

Prerequisite: IST 250

**IST 257 Advanced Web Administration** (3) Web site server installation, access, management, security, performance monitoring and optimization, network services, and troubleshooting.

Effective: Summer 1999

Prerequisite: IST 255

**IST 260W Introduction to Systems Analysis and Design** (3) Introduction to systems analysis and design, stressing the process of requirements acquisition, specification, design, and implementation.

Effective: Spring 2010

Prerequisite: IST 110; IST 210; IST 220 and ENGL 015

**IST 261 Application Development Design Studio I (3)** Introductory design and development studio course for IST and SRA students.

Effective: Summer 2014

Prerequisite: IST 242

**IST 295A Distributed Team Project (1-3)** Supervised experience in which student teams work on information system design projects gathered from industry or units within the University.

Effective: Spring 2001

Prerequisite: IST 110

**IST 295B IST Internship (1-3)** Supervised work experience where the student is employed in an information sciences and technology position in industry, government, or academia.

Effective: Spring 2001

Prerequisite: IST 110

**IST 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2000

**IST 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2000

**IST 297A Introduction to Analytic Techniques for Problem Solving (3)** Problem solving techniques using mathematical models on spreadsheets. Applications to a wide range of management, information technology and security problems.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: MATH 022 or satisfactory performance on the mathematics placement examination

**IST 297B Supervised Experience in Instructional Support (1)** Introduction to best practices in and supervision of instructional support activities such as coaching, team facilitation, grading, and learning assessment.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**IST 297B Supervised Experience in Instructional Support (3)** Introduction to best practices in and supervision of instructional support activities such as coaching, team facilitation, grading, and learning assessment.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**IST 297D Introduction to Application Programming (3)** The focus of the course is on beginning programming principles as experienced in the context of object-oriented application development.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**IST 297E Digital Entrepreneurship & Innovation Business Fundamentals (3)** Introduction to digital entrepreneurship. Basic concepts for setting up/running an it-focused business, success factors, and risks.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**IST 297G Application Development Design Studio 1 (3)** A studio course for students to practice and apply skills learned in basic programming and development courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: IST 240 or IST 297J

**IST 297J Intermediate and Object-Oriented Application Development (3)** Intermediate and object-oriented application development in Java, including event-driven and graphical programming, algorithms, data structures, debugging, and testing.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: IST 297D

**IST 297K New Media, Individuals, and Institutions (3)** Introduction to the rapidly changing world of new media, and their communicative and social impacts on individuals and institutions.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: IST 110 or IST 110S

**IST 298 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2001

**IST 301 Information and Organizations (3)** Overview of organizational structures and functions. Includes information processing and analytic perspectives of organizations.

Effective: Summer 2003

Prerequisite: IST 210 or IST 220

**IST 302 IT Project Management (3)** Exploration and application of the basic concepts, methodologies, and tools of project management in the field of information sciences and technology.

Effective: Summer 2003

Prerequisite: IST 210 or IST 220

**IST 311 Object-Oriented Design and Software Applications** (3) Introduction to object-oriented applications including applications in an Object Oriented Design (OOD) language or OOD languages.

Effective: Spring 2008

Prerequisite: CMPSC 102 or CMPSC 101; IST 240

**IST 331 Organization and Design of Information Systems: User and System Principles** (3) Interdisciplinary survey of topics related to the use and usability of information systems.

Effective: Spring 2004

Prerequisite: IST 230

**IST 337 Technologies for Digital Entrepreneurs** (3) Introduction to the tools available to IT entrepreneurs considering starting-up or looking to develop new applications.

Effective: Summer 2014

**IST 341 (US;IL) Human Diversity in the Global Information Economy** (3) Globalization, human diversity and their impacts on IT products, work, workforce, and the knowledge economy and social inclusion in general.

Effective: Fall 2010

Prerequisite: IST 110

**IST 361 Application Development Design Studio II** (3) Second of two design and development studio courses for IST and SRA students.

Effective: Summer 2014

Prerequisite: IST 311 or program approval

**IST 390 Introduction to Professional Development** (1) Interdisciplinary course to introduce students to the issues, concepts and skills involved in successfully transitioning into professional life.

Effective: Summer 2005

**IST 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2001

**IST 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2001

**IST 402 Emerging Issues and Technologies** (3 per semester/maximum of 9) Introduction to emerging issues, technology forecasting and analysis; overview of emerging issues and leading technologies in IST and how they impact information systems, users, the IT labor force and society.

Effective: Fall 2006

Prerequisite: IST 210 IST 220

**IST 411 Distributed-Object Computing** (3) Introduction to distributed-object computing and its use in client/server and real-world computing applications.

Effective: Summer 1999

Prerequisite: IST 311

**IST 412 The Engineering of Complex Software Systems** (3) Introduction to the engineering of complex software systems including software system specification, design and implementation, integration and test, and evolution.

Effective: Summer 1999

Prerequisite: IST 311

**IST 413 Usability Engineering** (3) This course addresses activities in the system development process that ensure usability. It considers the emerging concept of usability, requirements gathering and analysis, activity design, information design, interaction design, documentation design, user testing and usability evaluation.

Effective: Spring 2007

Prerequisite: IST 331

**IST 420 Fundamentals of Systems and Enterprise Integration** (3) Introductory course on integration of information technology into different venues, including the planning, development, and implementation of the integration.

Effective: Summer 2003

Prerequisite: IST 240 IST 301 IST 302

**IST 421 Advanced Enterprise Integration: Technologies and Applications** (3) Advanced course on the integration of information technology into systems applications.

Effective: Spring 2004

Prerequisite: IST 420

**IST 422 Enterprise Architecture Foundations** (3) Theoretical foundations and practice of enterprise architecture.

Effective: Summer 2013

Prerequisite: IST 301

**IST 423 Enterprise Information Management and Storage Architecture** (3) Provide in-depth study of the concepts, issues, and technologies associated with the complex world of enterprise information and storage architecture.

Effective: Summer 2013

Prerequisite: IST 301

**IST 424 Architectural Modeling of Organizations** (3) Theoretical foundations and practice of enterprise modeling.

Effective: Summer 2013

Prerequisite: IST 301

**IST 425 (MGMT 425, ENGR 425) New Venture Creation** (3) Via problem-based learning, teams define new business ventures to meet current market needs, develop business plans, and present to investors.

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 orECON 014;CAS 100

**IST 426 (ENGR 426, MGMT 426) Invention Commercialization** (3) Working with Penn State inventions selected by the Intellectual Property Office, student teams define an optimum commercialization path each technology.

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 orECON 014;CAS 100

**IST 431 The Information Environment** (3) Survey of social environment of information technology themes: Community, sovereignty, privacy, ethics, economics, and knowledge management.

Effective: Fall 2004

Prerequisite: IST 210IST 220

**IST 432 Legal and Regulatory Environment of Information Science and Technology** (3) Legal environment of information technology, constitutional/political issues, intellectual property, management, e-commerce, privacy, access, computer contracting, cyberspace regulation.

Effective: Spring 2007

Prerequisite: IST 301 orSRA 231 or equivalent

**IST 437 Digital Design & Innovation** (3) This course introduces students to design thinking, user-driven innovation and user experience, and business model implementation issues for IT-driven innovation.

Effective: Summer 2014

Prerequisite: IST 237

**IST 440W Information Sciences and Technology Integration and Problem Solving** (3) Problem-based approach to technology integration by focusing on real-life problems faced by an organization.

Effective: Fall 2002

Prerequisite: ENGL 202C orENGL 202D seventh-semester standing (this course is intended for seniors) and the five common course requirements plus at least three of the required courses in an option

**IST 441 Information Retrieval and Organization** (3) Introductory course for seniors and graduate students covering the practices, issues, and theoretical foundations of organizing and analyzing information and information content for the purpose of providing access to textual and nontextual information resources. Introduces students to the principles of information storage and retrieval systems and databases.

Effective: Spring 2004

Prerequisite: IST 210IST 240

**IST 442 (IL) Information Technology in an International Context** (3) International concepts to improve strategies for the design, dissemination, and use of information technology.

Effective: Summer 2006

Prerequisite: IST 110

**IST 443 IT Professional Services Theory and Practice** (3) Explores and applies the basic concepts, methodologies, tools, and techniques of consulting and professional service organizations in information sciences and technology.

Effective: Spring 2006

Prerequisite: IST 210IST 220 . Prerequisite or concurrent:IST 302 orIST 412

**IST 444 Advanced IT Professional Services** (3) Explores advanced IT professional services topics, and the unique application of consulting methods in various industry sectors.

Effective: Summer 2005

Prerequisite: IST 443

**IST 445H Globalization Trends and World Issues** (3) This course covers trends in globalization and their influence on U.S. policy making as well as the role of the U.S. in international issues.

Effective: Summer 2005

Prerequisite: 6 credits of honors course work

**IST 446 An Introduction to Building Computer/Video Games** (3) An interdisciplinary course that introduces students to process and techniques involved in developing a video or computer game.

Effective: Summer 2006

Prerequisite: IST 311IST 331 or approval of program

**IST 451 Network Security** (3) Fundamental issues and concepts of network security, network security technologies and protocols, and emerging technologies in network security.

Effective: Spring 2012

Prerequisite: IST 220SRA 221

**IST 452 Legal and Regulatory Environment of Privacy and Security** (3) Exploration of legal, regulatory, public policy, and ethical issues related to security and privacy for information technology professionals in public institutions, private enterprise, and IT services.

Effective: Spring 2012

Prerequisite: IST 432

**IST 453 Legal, Regulatory, Policy Environment of Cyber Forensics** (3) Legal, regulatory and public policy environment of computer and network forensics that constrain investigatory and monitoring activities in computer and network

environments.

Effective: Summer 2006

Prerequisite: IST 110 and 6th-semester standing or higher

**IST 454 Computer and Cyber Forensics (3)** Fundamental issues and concepts of computer forensics; aspects of computer and cyber crime; methods to uncover, protect, exploit, and document digital evidence; tools, techniques, and procedure to perform computer and cyber crime investigation.

Effective: Spring 2012

Prerequisite: IST 220SRA 221

**IST 456 Information Security Management (3)** Contemporary Security Issues; security management processes, architecture and models; risk analysis and management; security planning, analysis and safeguards; security policies development and administration; contingency planning, incidence handling and response; and security standards and certification processes.

Effective: Fall 2013

Prerequisite: IST 220SRA 221

**IST 461 Database Management and Administration (3)** Introduces advanced topics in database management systems that are fundamental to effective administration of enterprise information systems.

Effective: Spring 2006

Prerequisite: IST 210IST 240

**IST 462 Database Modeling and Applications (3)** This course introduces advanced topics in database modeling and applications.

Effective: Spring 2006

Prerequisite: IST 210IST 240

**IST 489H Research Methods for the Information Sciences and Technology (3)** Seminar course focused on approaches to studying information and communication technologies and writing theses and other research reports.

Effective: Summer 2006

Prerequisite: IST 110 honors standing or permission of program

**IST 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Fall 1999

Prerequisite: prior approval of proposed assignment by instructor

**IST 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2000

**IST 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2000

**IST 497C Connective Media Fundamentals (3)** The course introduces recent research and development efforts in connective media. Students will develop a real-world computer system.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: IST 210IST 220IST 230IST 240 and working knowledge of at least one computer programming language

**IST 497E Mobile and Ubiquitous Computing (3)** Seminar focused on the research themes and hands-on development of mobile & ubiquitous computing applications.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: IST 240 or IST 242

**IST 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2001

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## Instructional Systems (INSYS)

**INSYS 100 (GS;IL) World Technologies and Learning (3)** This course examines the impact of learning technologies from email to online learning on world cultures from a socio-technical perspective.  
Effective: Spring 2006

**INSYS 101 Effective Communication for Educators (3)** Introduction to communication for educators, principles of pedagogical communication including educational communication technologies.  
Effective: Summer 2013  
Prerequisite: CAS 100

**INSYS 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1996

**INSYS 298 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1996

**INSYS 415A Systematic Instructional Development (3)** Preparation in the use of a nine-step model for systematically analyzing instructional problems and developing validated, practical solutions.  
Effective: Fall 2013

**INSYS 415B Systematic Instructional Development for Teachers (3)** Preparation of teachers to use a systematic model to design learning environments for K-12 classrooms.  
Effective: Summer 2012  
Prerequisite: 6th semester standing in education or equivalent professional experience

**INSYS 432 Designing Learning Within Course Management Systems (3)** Hands-on design of didactic and constructivist instructor-facilitated online lessons within the affordances and constraints of course management systems.  
Effective: Summer 2013  
Concurrent: ADTED 470

**INSYS 433 Teaching and Learning Online in K-12 Settings (3)** Explores uses of online technologies for K-12 settings including cybercharter and blended settings.  
Effective: Summer 2013

**INSYS 441 Design, Development, and Evaluation of Internet Resources (3)** Design, production, and evaluation of instructional materials for delivery on the Internet.  
Effective: Fall 2001

**INSYS 442 Innovative Instructional Applications of Microcomputer Technology (3)** Educators experience and develop innovative instructional applications of text-processing, database management, spreadsheet, and telecommunication software in their classrooms.  
Effective: Fall 2008  
Prerequisite: EDTEC 440

**INSYS 447 Instructional Design for Multimedia Technologies (3)** State of the art multimedia technology hardware such as interactive video, CD-ROM and digitizing audio and video.  
Effective: Fall 2001

**INSYS 471 Introduction to Educational System Design (3)** Investigates systems theory and how components of educational systems interact; develops insights on current issues and models in Educational System Design.  
Effective: Summer 1996

**INSYS 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1996

**INSYS 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1996

**INSYS 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1996





## Integrative Arts (INART)

INART 001 (GA) **The Arts** (3) Develop critical perception, knowledge, and judgments through an examination of the basic concepts common among the arts.  
Effective: Spring 2006

INART 003 (GA) **Reception of the Arts** (3) This course considers how art uses time, space, and causality to define culture and the human condition.  
Effective: Spring 2004

INART 005 (GA) **Performing Arts** (3) Introduction to music, dance, and theatre. Orientation to the aesthetics, theory, and practice of professional performance.  
Effective: Summer 2012

INART 010 (GA) **The Popular Arts in America: Mass Media Arts** (3) An introduction to the arts of the mass media with emphasis on how film, radio, television, and the print media influence and reflect society.  
Effective: Summer 2012

INART 015 (GA) **The Popular Arts in America: Performing Arts** (3) The development of the performing arts of American popular culture; emphasis on popular music, dance, theatre, and variety arts.  
Effective: Spring 2004

INART 050 (GN) **The Science of Music** (3) Waves, physics of sound, hearing, musical scales, musical instruments, and room acoustics.  
Effective: Spring 2012

INART 055 (GA) **History of Electroacoustic Music** (3) A history of electroacoustic music as a consequence of developments in culture and technology from 1880 to present.  
Effective: Summer 2012

INART 062 (GA;US;IL) **West African and African American Arts: from the 1960s to the present** (3) An introduction to West African and African American Arts from the 1960s to the present.  
Effective: Summer 2014

INART 062U (GA;US;IL) **West African and African American Arts: from the 1960s to the present** (3) An introduction to West African and African American Arts from the 1960s to the present.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

INART 100 (GA) **Seminar in Integrative Arts** (3) A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester.  
Effective: Spring 2004

INART 100W (GA) **Seminar in Integrative Arts** (3) A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester.  
Effective: Summer 2012

INART 110 (GA) **The Dramatic Arts in the Mass Media** (3) The place of television-radio-film drama in our culture; relationship with other art forms; standards of evaluation.  
Effective: Summer 2012

INART 115 (GA;US) **The Popular Arts in America: Popular Music** (3) An examination of the roots, development, and significance of popular music in our culture.  
Effective: Summer 2013

INART 116 (GA;US) **The Popular Arts in America: The History of Rock and Roll-The 1950s** (3) This course examines the roots, development, and significance of rock and roll music in its first decade.  
Effective: Summer 2012

INART 125 (GA;US;IL) **The Popular Arts in America: The History of Rock and Roll - Punk Rock** (3) An examination of the roots, development, and significance of punk rock in our culture.  
Effective: Summer 2012

INART 126 (GA;US) (AF AM 126) **The Popular Arts in America: The History of Rock and Roll - Hip-Hop** (3) An

examination of the roots, development, and significance of hip-hop in our culture.  
Effective: Spring 2014

INART 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2012

INART 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012

INART 200 (GA) **The Popular Arts in America: Elvis Presley - The King of Rock and Roll** (3) The significance and influence of Elvis Presley as an artist and cultural force focusing on his recordings and major performances.  
Effective: Summer 2013

INART 205 (GA) **Introducing the Beatles** (3) The influence and achievement of the Beatles as artists focusing on their recordings and films as sociocultural artifacts.  
Effective: Summer 2008

INART 210 (GA) **Integrative Approaches to Computer-Aided Music Composition** (3) Interdisciplinary introduction to music composition using software to assist with notation; historical perspectives drawn from art, dance, theater, and literature.  
Effective: Fall 2004  
Prerequisite: MUSIC 008 or instructor permission

INART 215 (GA) **The Craft of Singing** (3) Vocal and breathing anatomy and technique, vocal health and classifications, posture, and beginning acting/movement techniques for singers.  
Effective: Summer 2014  
Prerequisite: MUSIC 052MUSIC 104VOICE 110J orTHEA 112

INART 220 (GA;US) **Stand-Up Comedy: A Cultural History** (3) An American cultural history from mid-19th through mid-20th Century as seen through the prism of stand-up comedy.  
Effective: Summer 2013  
Prerequisite: sophomore standing

INART 236 (GA) **Integrating Music and Animation with Technology** (3) An introduction to the theory, design and creation of musical animations. For general students.  
Effective: Summer 2011

INART 258A (GA) **Fundamentals of Digital Audio** (3) A thorough introduction to digital music production technologies, covering fundamentals of how digital musical information is stored, processed and transmitted.  
Effective: Spring 2012  
Prerequisite: MUSIC 008 or concurrent enrollment in eitherMUSIC 131 orMUSIC 132

INART 258B (GA) **Fundamentals of Digital Audio** (1) A general overview of music technologies current to music educators and performers.  
Effective: Spring 2012  
Concurrent: concurrent enrollment in either MUSIC 131 or MUSIC 132

INART 294 **Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 2012

INART 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2012  
Prerequisite: prior approval of proposed assignment by instructor

INART 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2012

INART 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2012

INART 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2012

INART 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012

**INART 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012

**INART 410 Early Pennsylvania Decorative Arts and Furniture (3)** The study of Pennsylvania and related furniture, pottery, paintings, and decorative arts of the seventeenth, eighteenth, and early nineteenth centuries.  
Effective: Summer 2012

**INART 415 Nineteenth Century Pennsylvania Architecture and Restoration (3)** Interior and exterior design of early Pennsylvania architecture; understanding and evaluation of and experience in restoration.  
Effective: Summer 2012  
Prerequisite: INART 410

**INART 494 Research Projects (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 2012

**INART 494H Research Projects (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

**INART 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2012  
Prerequisite: prior approval of proposed assignment by instructor

**INART 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2012

**INART 496H Independent Studies - Honors (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2012

**INART 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2012

**INART 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2012

**INART 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2012

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## **Integrative Biosc (IBIOS)**

IBIOS 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 1997

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## Interdisciplinary Humanities (I HUM)

**I HUM 150 (GH;IL) World Mythologies in the Arts** (3) Interdisciplinary, cross cultural, historical, and contemporary study of world mythologies as represented in the visual arts, literature, and film.  
Effective: Spring 2009

**I HUM 300W Interpretations in the Humanities** (3) A study of selected themes, topics, or periods that introduces students to interdisciplinary approaches to knowledge, interpretation, and creative expression.  
Effective: Fall 2001  
Prerequisite: ENGL 015ENGL 202 and at least 30 credits

**I HUM 311 (GH;IL) The Western Tradition I** (3) From prehistory through the Roman world.  
Effective: Summer 2005  
Prerequisite: fifth-semester standing

**I HUM 400 Expressions in the Humanities** (3) Capstone course for School of Humanities majors: students synthesize and apply approaches to a topic in creative expression and knowledge.  
Effective: Fall 2001  
Prerequisite: I HUM 300W seventh-semester standing

**I HUM 410 (IL) Religion and Culture** (3) A comparative examination of several world religions in their social and cultural contexts.  
Effective: Summer 2005  
Prerequisite: sixth-semester standing

**I HUM 430 Philosophy and Literature** (3) The study of philosophical viewpoints in literature.  
Effective: Spring 2002  
Prerequisite: fifth-semester standing

**I HUM 453 Texts and Culture** (3) Study of art, literature, film, and other creative genres to illustrate the interrelationships between creative expression and cultural practices.  
Effective: Spring 2002  
Prerequisite: fifth-semester standing

**I HUM 460 Thematic Studies** (3) Analysis of a group of related ideas in art, music, literature, and/or philosophy. (May be repeated for credit.)  
Effective: Spring 2002  
Prerequisite: fifth-semester standing

**I HUM 461 (IL) Selected Periods in the Humanities** (3) Interdisciplinary studies dealing with selected periods of world culture. (May be repeated for credit.)  
Effective: Summer 2005  
Prerequisite: fifth-semester standing

**I HUM 491 Seminar in Interdisciplinary Humanities** (3) Interdisciplinary studies dealing with selected periods of world culture. (May be repeated for credit.)  
Effective: Fall 2001  
Prerequisite: I HUM 300W seventh-semester standing

**I HUM 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2002

**I HUM 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

**I HUM 495 Internship** (1-6) Supervised internship for undergraduate or graduate Humanities majors in state offices, educational institutions, arts agencies, community organizations, or humanities councils.  
Effective: Spring 2002  
Prerequisite: senior-level status for undergraduate students; 18 credits of course work for graduate students; approval of program required

**I HUM 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2002

**I HUM 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2002

**I HUM 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## International Agriculture (INTAG)

INTAG 100 (GS;IL) **Introduction to International Agriculture** (3) Ag in developing countries; contemporary crucial issues in global agriculture; emphasizing hunger and food security.  
Effective: Summer 2013

INTAG 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

INTAG 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

INTAG 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

INTAG 300 (IL) **Agricultural Production and Farming Systems in the Tropics** (3) This course focuses on contemporary issues in tropical agriculture and the production of crops, livestock and forestry within tropical agroecosystems.  
Effective: Summer 2013

INTAG 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

INTAG 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

INTAG 470A (AG BM 470A) **Comparing Agricultural and Food Systems in the US and France: Lecture** (2.5) Explore key differences and similarities in the food and agricultural systems of the United States and France.  
Effective: Spring 2014  
Prerequisite: INTAG 100 or 3 credits in social or behavioral sciences

INTAG 470B (AG BM 470B) **Comparing Agricultural and Food Systems in the United States and France: Travel** (0.5) Explore key differences and similarities in the food and agricultural systems of the United States and France.  
Effective: Spring 2014  
Prerequisite: INTAG 470A or AG BM 470A

INTAG 481 **Problems in Agriculture in Tropical Areas** (3) Students apply their "expertise" to problems in agriculture. An integral component is a trip to tropical areas at their expense.  
Effective: Summer 2013  
Prerequisite: completion of six credits in applicant's major and successful completion of interview

INTAG 490 **Senior Seminar in International Agriculture** (3) Seminar discussions on contemporary topics in global agriculture; capstone course for INTAG minor.  
Effective: Summer 2013  
Prerequisite: INTAG 100

INTAG 495 **Internship in International Agriculture** (1-3) Observation of and participation in the operation and management of a University-approved international agricultural firm or international agricultural development agency.  
Effective: Summer 2013  
Prerequisite: Prior approval of proposed internship plan

INTAG 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

INTAG 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

INTAG 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

INTAG 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

INTAG 499I (IL) (AG BM 499I) **Exploring Greek Food Systems** (0.5) Travel to Thessaloniki and surrounding sites. Learn about food systems in Greece, how economic issues are affecting agriculture, and the history and culture of the country. The trip concludes in Athens.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: INTAG 499G or AG BM 499G

INTAG 499K (IL) **Travel Exploring Turfgrass Management in the United Kingdom** (0.5) Travel to the United Kingdom to explore differences in turfgrass management between the United States and the United Kingdom.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: INTAG 499J

INTAG 499L (IL) **Exploring Contemporary Issues in the Caribbean: A Journey Through Trinidad and Tobago** (3)

Exploring cultural history and social policy which influences societal issues on the islands of Trinidad and Tobago.

Effective: Summer 2014 Ending: Summer 2014

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## International Business (I B)

**I B 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2011

**I B 290 International Business Goes to the Movies** (1 per semester/maximum of 3) A business elective to expose students to international and global issues through the eyes of film makers around the world.  
Effective: Summer 2011

**I B 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2011

**I B 297 Special Topics** (1-9) Formal courses given infrequently to explore in depth, a comparatively narrow subject interest.  
Effective: Summer 2011

**I B 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2011

**I B 303 (IL) International Business Operations** (3) A survey of the major aspects of international business environment and operations with an emphasis on the cultural dimension.  
Effective: Summer 2011  
Prerequisite: fifth-semester standing

**I B 395A Practicum in International Business** (3-5) Professional and guided international business work experience taken as part of an approved education abroad program.  
Effective: Summer 2011  
Prerequisite: B A 301 orFIN 301;B A 302 orSCM 301;B A 303 orMKTG 301 ; andB A 304 orMGMT 301

**I B 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparative narrow subject which may be topical or of special interest.  
Effective: Spring 2008

**I B 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2011

**I B 403 International Business and National Policies** (3) Evaluation of national economic policies in the light of international economic theory; their impacts on operations of the international business firm.  
Effective: Summer 2011  
Prerequisite: ACCTG 211B A 301 orFIN 301

**I B 404 Contemporary Issues in International Business** (3) Investigation of issues in international business practice interpreted from the foundations of the social sciences. Topics will be chosen from contemporary issues in global business and economics.  
Effective: Summer 2011  
Prerequisite: ACCTG 211B A 301 orFIN 301

**I B 440 (US;IL) (PL SC 440, AFR 440) Globalization and Its Implications** (3) This course explores the socioeconomic implications of globalization.  
Effective: Spring 2013  
Prerequisite: AF AM 100 orAFR 110 orPL SC 003 orPL SC 014 orPL SC 020 orPL SC 022

**I B 450 The Business Environment of Europe** (3) This course provides an overview of the economic, institutional, and regulatory environment in Europe at the EU and national levels.  
Effective: Summer 2011  
Prerequisite: ACCTG 211B A 301 orFIN 301

**I B 460 International Business in Emerging Nations** (3) An overview of international business strategies and economic environments of emerging nations with a specific focus on markets in China, India, and Southeast Asia.  
Effective: Summer 2011  
Prerequisite: ACCTG 211;FIN 301 orB A 301 Concurrent: I B 303

**I B 480 (R M 480) International Real Estate Markets** (3) International perspectives on real estate as property, evaluation of land use regulations, and differences in real estate markets across countries.  
Effective: Fall 2013  
Prerequisite: R M 303 orR M 330W

**I B 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 2011

Prerequisite: permission of the program

**I B 494H Honors Research Project** (1-3 per semester/maximum of 6) Supervised honors student research projects identified on an individual or small-group basis.

Effective: Summer 2011

Prerequisite: permission of the program

**I B 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2011

**I B 497 Special Topics** (1-9) Formal courses given infrequently to explore in depth, a comparatively narrow subject interest.

Effective: Summer 2011

**I B 497A Sustainability and International Business** (3) This course examines the global business environment in the context of sustainability and explores the challenges and opportunities facing multinational enterprises and the countries in which they do business.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**I B 497A International Development in African Context** (3) Course delves into African's development prospects in the 21st Century, past & current issues in international business.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**I B 497B The Global Financial Crisis** (3) An overview of the growth of the financial industry in the U.S. economy and the globalization of financial markets. It will look at the role of government, consumers, mortgage companies, the rating agencies and the banking sector in the creation of the housing bubble. The impact of certain financial derivatives on the global economy in general and specific countries in particular will be explored. Through readings of key players involved in the crisis, it will identify risk management issues that are important to this case and look at proposed remedies designed to avoid future problems.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**I B 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2011

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## International Studies (INTST)

INTST 100 (GS;IL) **Introduction to International Studies** (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.  
Effective: Summer 2005

INTST 100S (GS;IL) **Introduction to International Studies** (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.  
Effective: Summer 2005

INTST 100U (GS;IL) **Introduction to International Studies** (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

INTST 400 (IL) **Seminar in International Studies** (3) An upper-division seminar focusing on one or two critical international issues from an interdisciplinary perspective; individual projects.  
Effective: Spring 2007  
Prerequisite: INTST 100

INTST 493 **International Studies** (3) Selected topics in International Studies.  
Effective: Spring 2008  
Prerequisite: prior participation in an Education Abroad program or international work experience and enrollment in the International Studies major

INTST 493H **Schreyer Honors College International Experience** (1) Selected topics in International Studies.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: prior participation in an Education Abroad program or international work experience and enrollment in the International Studies major

INTST 493H **Schreyer Honors College Global Integration Course** (2) Students will integrate their summer experience (India or South America) with themes from the spring course as well as additional themes, and will produce an extended thesis proposal that demonstrates their ability to propose and execute a research project on some topic relevant to the countries they have studied and toured.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: INTST 493H for Summer 2014

INTST 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 1994

INTST 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

INTST 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.  
Effective: Spring 2008  
Prerequisite: Approval by International Studies or Global Studies Advisor

INTST 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 1994

INTST 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1994

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## Internship (INTSP)

**INTSP 295A Internship in Arts and Humanities** (1-6) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 2004

Prerequisite: minimum 30 credit hours; minimum 2.0 GPA; prior approval of proposed assignment(s) by instructor

**INTSP 295B Internship in Business & Engineering** (1-6) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 2004

Prerequisite: minimum 30 credit hours; minimum 2.0 GPA; prior approval of proposed assignment(s) by instructor

**INTSP 295C Internship in Education, Human Development, & Social Sciences** (1-6) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 2004

Prerequisite: minimum 30 credit hours; minimum 2.0 GPA; prior approval of proposed assignment(s) by instructor

**INTSP 295D Internship in Mathematics & Natural Sciences** (1-6) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 2004

Prerequisite: minimum 30 credit hours; minimum 2.0 GPA; prior approval of proposed assignment(s) by instructor

**INTSP 370 Internship Preparation** (1) Planning and preparation for upper-level or capstone internship experience, suited to students' individual academic and career interests.

Effective: Summer 2004

Prerequisite: formal acceptance into a College major; junior standing; minimum 2.0 GPA; completion of core research/skills course(s) for student's degree program

**INTSP 495A Internship in Business for non-Business Students** (1-6) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2011

Prerequisite: senior standing; minimum 2.0 GPA; ENGL 015MATH 021ECON 102 or ECON 104MGMT 301MKTG 301INTSP 370ACCTG 211 or substitute approved by the instructor; prior approval of proposed assignment(s) by instructor

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## Italian (IT)

IT 001 **Elementary Italian I** (4) For beginners. Grammar, with reading and writing of simple Italian; oral and aural work stressed.

Effective: Spring 1988

IT 002 **Elementary Italian II** (4) Grammar and reading continued; oral and aural phrases progressively increased; composition.

Effective: Spring 1988

Prerequisite: IT 001

IT 002H **Elementary Italian II** (4) Grammar and reading continued; oral and aural phrases progressively increased; composition.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: IT 001

IT 003 **Intermediate Italian** (4) Advanced grammar; oral and written composition; reading of modern authors; Italian life and culture.

Effective: Winter 1978

Prerequisite: IT 002

IT 003H **Intermediate Italian** (4) Advanced grammar; oral and written composition; reading of modern authors; Italian life and culture.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: IT 002

IT 010 **Intensive Elementary Italian** (6) Intensive Italian basic reading, writing, listening, and speaking skills stressed.

Lab. Equivalent to IT 001 and half of IT 002.

Effective: Spring 2005

IT 020 **Intensive Intermediate Italian** (6) Continuation of Intensive Elementary Italian, building on grammar and communication skills (reading, writing, listening, and speaking).

Effective: Summer 2004

Prerequisite: IT 010

IT 050 **Italian Conversation Tutorial** (1-3) Roundtable conversation practicum for students concurrently enrolled in IT 001, 002, 003, 010, or 020. May be repeated up to 3 times for credit.

Effective: Summer 2004

Prerequisite: Concurrent enrollment in IT 001 IT 002 IT 003 IT 010 or IT 020

IT 051 **Elementary Intensive Italian for Graduate Students I** (3) Intensive introduction to Italian: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

Effective: Summer 2008

Prerequisite: graduate standing

IT 052 **Elementary Intensive Italian for Graduate Students II** (3) Intensive introduction to Italian: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

Effective: Summer 2008

Prerequisite: IT 051 or equivalent and graduate standing

IT 053 **Intermediate Intensive Italian for Graduate Students** (3) Continued intensive study of Italian at the intermediate level: reading, writing, speaking, listening, cultural contexts.

Effective: Summer 2008

Prerequisite: IT 052 or equivalent and graduate standing

IT 083S (GH;IL) **First-Year Seminar in Italian Literature, Film, and Culture** (3) Introduction to the study of Italian literature, film, and culture.

Effective: Summer 2005

IT 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

IT 110 **Topics in Italian Conversation** (3) Focus on intensive oral communication practice, especially aimed at preparation for study or work abroad and tourism.

Effective: Spring 2005

Prerequisite: IT 003 or IT 020

IT 130 (GH;IL) **Italian Culture and Civilization** (3) Italian life from antiquity to the present; literature, film, the arts, and contemporary problems in historical perspective.

Effective: Summer 2005

IT 131 (GH;US) **Italian American Culture and Civilization** (3) Italian-American experience from the late 19th century to present. Socio-political issues seen through cinema and through literary and other readings.

Effective: Summer 2005

IT 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1995

IT 197A **Italian for Study Abroad** (3) Introduction to key Italian social issues, essential vocabulary terms, phrases and pronunciation to prepare students who are planning to study abroad. Taught in English; no Italian language knowledge is expected.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

IT 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

IT 230 (GH) **Masterpieces of Italian Literature in English Translation** (3) Emphasis on works and authors of international importance. Lectures, readings, and written work in English.

Effective: Summer 1995

IT 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

IT 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 1998

IT 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1985

IT 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

IT 301 **Pathways to Fluency** (3) For majors, minors, and others with adequate preparation; deepening of grammatical skills, integrated conversation, composition, and reading.

Effective: Fall 2005

Prerequisite: IT 003

IT 320 **Introduction to Italian Culture; Food, Fashion, Family** (3) Focus on the social, historical, and socio-political issues of Italy in the last two centuries.

Effective: Summer 2004

Prerequisite: IT 003

IT 325 **Introduction to Italy's Genius** (3) Focus on the art, literature, and philosophy of Italy from the Renaissance to present. In Italian.

Effective: Spring 2005

Prerequisite: IT 003

IT 330W **Greatest Books of Italian Literature** (3) A survey of the greatest books of Italian literature (prose, poetry, drama). Time period varies each semester. In Italian.

Effective: Summer 2006

Prerequisite: IT 003IT 020 or permission of program

IT 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

IT 399 (IL) **Foreign Study--Italian** (1-12) Advanced training in Italian language skills.

Effective: Summer 2005

Prerequisite: IT 003

IT 412 **Theory and Practice of Translation** (3) Advanced practicum in Italian explores the technical, artistic, and practical applications of translation between Italian and American cultures.

Effective: Summer 2004

Prerequisite: any 300-level course in Italian

IT 415 **Dante** (3) Readings in the Divina Commedia and the related lesser works of Dante Alighieri.

Effective: Summer 2011

IT 422 **Topics in the Italian Renaissance** (3) Topics vary by year and may include "Theories of Love," "Magic, Witchcraft,

Alchemy, and the Emergence of Modern Science," etc.

Effective: Fall 2005

Prerequisite: any Italian course at the 300-level

**IT 430 Italian Children's Literature** (3) This course, conducted in Italian, examines Italian children's books from the post-unification period (1880s) to the present day.

Effective: Spring 2014

Prerequisite: any 300-level IT course

**IT 450 Nineteenth-Century Italian Literature** (3) Italian romanticism, Verismo and neoclassicism, their origin and development in the novel, poetry, and drama.

Effective: Winter 1978

Prerequisite: IT 351

**IT 460 Twentieth-Century Italian Literature** (3) Modern and contemporary Italian prose, drama, and poetry.

Effective: Winter 1978

Prerequisite: IT 351

**IT 475 Modern Italian Literature and Cinema** (3) Focus on silent films, fascism, WWII, Resistance, Neorealism, and reactions against Neorealism.

Effective: Spring 2003

**IT 480 Italian Women Writers Through the Centuries** (3) Analysis of the works of women authors in their historical and literary contexts.

Effective: Spring 2005

Prerequisite: any 300-level Italian course

**IT 485 Italian-American Cultural Studies** (3) In-depth exploration of Italian-American cultural contributions.

Effective: Spring 2005

Prerequisite: any 300-level Italian course

**IT 490 Dante in Translation** (3) The reading of Dante's Divine Comedy and selected minor works.

Effective: Fall 1983

Prerequisite: junior standing or permission of instructor

**IT 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

**IT 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**IT 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**IT 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

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## Japanese (JAPNS)

JAPNS 001 **Level One Japanese A** (4) Introduction to modern Japanese; development of audio-lingual facility and ability to read and write Japanese without aid of romanization.  
Effective: Spring 2011

JAPNS 002 **Level One Japanese B** (4) Continuation of elementary Japanese, with emphasis on improving audio-lingual facility and strengthening reading and writing skills in modern Japanese.  
Effective: Spring 2011  
Prerequisite: JAPNS 001

JAPNS 003 **Level Two Japanese A** (4) Continued study of modern Japanese at elementary level; extensive audio-lingual practice for conversational fluency; reading/writing original scripts.  
Effective: Spring 2011  
Prerequisite: JAPNS 002

JAPNS 051 **Elementary Intensive Japanese for Graduate Students I** (3) Intensive introduction to Japanese: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Spring 2010  
Prerequisite: graduate standing

JAPNS 052 **Elementary Intensive Japanese for Graduate Students II** (3) Continued intensive study of Japanese at the intermediate level: reading, writing, speaking, listening, cultural contexts.  
Effective: Spring 2010  
Prerequisite: JAPNS 051 or equivalent and graduate standing

JAPNS 053 **Intermediate Intensive Japanese for Graduate Students** (3) Continued intensive study of Japanese at the intermediate level: reading, writing, speaking, listening, cultural contexts.  
Effective: Spring 2010  
Prerequisite: JAPNS 052 or equivalent and graduate standing

JAPNS 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2010

JAPNS 099 (IL) **Foreign Study** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

JAPNS 110 (IL) **Level Two Japanese B** (4) Intermediate Japanese - Continued study of modern Japanese at intermediate level; extensive audio-lingual practice for conversational fluency; reading/writing original scripts.  
Effective: Spring 2011  
Prerequisite: JAPNS 003

JAPNS 120 (GH;IL) **Japanese Literature in Its Cultural Context** (3) Japanese literature and film from classical through contemporary times, with attention to changing cultural settings. Taught in English.  
Effective: Spring 2010

JAPNS 120W (GH;IL) **Japanese Literature in its Cultural Context** (3) Japanese Literature in its Cultural Context: Japanese literature and Culture from Classical through contemporary times; writing intensive.  
Effective: Summer 2013

JAPNS 121 (GH;IL) **Japanese Film and New Media** (3) Survey of Japanese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English.  
Effective: Spring 2010

JAPNS 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2010

JAPNS 199 (IL) **Foreign Study--Basic Japanese** (1-8) Small group instruction in spoken and written modern Japanese at the introductory level.  
Effective: Spring 2010

JAPNS 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2010

JAPNS 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.



Effective: Spring 2010

Prerequisite: prior approval of proposed assignment by instructor

JAPNS 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2010

JAPNS 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2010

JAPNS 299 (IL) **Foreign Study--Intermediate Japanese** (1-12) Small group instruction in spoken and written modern Japanese at the intermediate level.

Effective: Spring 2010

Prerequisite: JAPNS 002

JAPNS 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2010

Prerequisite: prior approval of proposed assignment by instructor

JAPNS 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2010

JAPNS 399 (IL) **Foreign Study** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2010

JAPNS 401 (IL) **Level Three Japanese A** (4) Further acquisition of the four language skills in Japanese--reading, writing, speaking and listening comprehension.

Effective: Spring 2011

Prerequisite: JAPNS 110

JAPNS 402 (IL) **Level Three Japanese B** (4) Exclusively for study abroad returnees. To further develop Japanese proficiency in speaking, listening, reading, and writing.

Effective: Spring 2011

Prerequisite: JAPNS 401

JAPNS 403Y (IL) **Level Four Japanese A** (4) Continuation of JAPNS 402. Aims to improve students' proficiency in all four language skills, with a special emphasis on writing.

Effective: Fall 2012

Prerequisite: JAPNS 402

JAPNS 404 (IL) **Level Four Japanese B** (4) Continuation of JAPNS 403Y. Aims to improve students' proficiency in all four language skills through content-based language learning.

Effective: Fall 2013

Prerequisite: JAPNS 403Y

JAPNS 410 (IL) **Japanese Through Manga** (3) The course aims to expand students' knowledge and application of Japanese language beyond elementary and intermediate textbooks through the use of manga (graphic novels).

Effective: Summer 2013

Prerequisite: JAPNS 110 or equivalent

JAPNS 421 (IL) **Courtly Japan** (3) Focused study of aristocratic society and culture of Heian period Japan.

Effective: Spring 2012

Prerequisite: JAPNS 120/JAPNS 121 or HIST 172

JAPNS 422 (IL) **War and the Warrior in Japan** (3) Survey of the role of warfare and the warrior in Japan, with attention to changing cultural settings. Taught in English.

Effective: Summer 2011

Prerequisite: JAPNS 120 or JAPNS 121 or HIST 172

JAPNS 423 (IL) **Men, Women, and Animals** (3) Japanese history and culture through the lens of relations between men and women and between humans and animals.

Effective: Summer 2011

Prerequisite: HIST 172/JAPNS 120 or JAPNS 121

JAPNS 424 (IL) **Traveling Voices** (3) Transnational Writings of Japan: from Modern to Contemporary Eras .

Effective: Spring 2012

Prerequisite: JAPNS 120/JAPNS 121 or HIST 172

JAPNS 425 **Beyond Anime** (3) Selected works from the history of illustrated narrative from scrolls to chapbook, through film and anime; topics may vary. This seminar-style study of Japanese visual culture will help students see Japanese visual arts in terms that are local to Japanese aesthetics and through those that transcend local cultures.

Effective: Spring 2011

Prerequisite: HIST 172/JAPNS 120 or JAPNS 121

JAPNS 426 (HIST 474) **Early Modern Japan** (3) Japanese history from 1580 to 1880.

Effective: Spring 2013 Ending: Summer 2014

Prerequisite: HIST 172HIST 174JAPNS 120JAPNS 121JAPNS 421JAPNS 422 orJAPNS 423

JAPNS 426 (HIST 474, ASIA 474) **Early Modern Japan** (3) Japanese history from 1580 to 1880.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172HIST 174JAPNS 120JAPNS 121JAPNS 421JAPNS 422 orJAPNS 423

JAPNS 450 (IL) **Introduction to Classical Japanese** (3) Basic patterns and structures of Classical Japanese from its development in the 6th century through usage in the 20th century.

Effective: Summer 2013

Prerequisite: JAPNS 402 or equivalent

JAPNS 452 (IL) **Contemporary Japan: Cultures, Lifestyles, Trends** (3 per semester/maximum of 6) Survey of aspects of modern Japanese society; includes readings from Japanese newspapers, magazines, and fiction; topics may vary each semester.

Effective: Spring 2010

Prerequisite: JAPNS 401

JAPNS 453 (IL) **Japanese Film** (3 per semester/maximum of 6) Selected films and directors representing various aspects of Japanese culture and cinema; topics may vary each semester.

Effective: Spring 2010

Prerequisite: JAPNS 401

JAPNS 454 (IL) **Japanese Literature** (3 per semester/maximum of 6) Selected works from important Japanese texts representing genres such as autobiography, poetry, fiction, and drama; topics may vary each semester.

Effective: Spring 2010

Prerequisite: JAPNS 401

JAPNS 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2010

JAPNS 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2010

JAPNS 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2010

JAPNS 496B **Global Experiences in Japan** (0.5) This embedded course is a two-week education abroad program in which a group of PSU students visit Ibaraki University, Mito, Japan and communicated with Japanese students at Ibaraki.

Effective: Summer 2014 Ending: Summer 2014

JAPNS 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1995

JAPNS 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2010

JAPNS 499 (IL) **Foreign Study--Advanced Japanese** (1-15) Small group instruction in spoken and written modern Japanese at the advanced level.

Effective: Spring 2010

Prerequisite: JAPNS 110 orJAPNS 299

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## Jewish Studies (J ST)

J ST 004 (GH;US;IL) (RL ST 004, CAMS 004) **Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationship to culture.

Effective: Summer 2005

J ST 010 (GH;IL) (HEBR 010) **Jewish Civilization** (3) Life of the Jewish people from biblical times; emphasizing cultural, religious, and institutional developments.

Effective: Summer 2005

J ST 012 (GH;IL) (CAMS 012, RL ST 012) **Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Summer 2005

J ST 012U (GH;IL) (CAMS 012U, RL ST 012U) **Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 060 (GS;IL) (ANTH 060, PL SC 060, SOC 060) **Society and Cultures in Modern Israel** (3) An introduction to the society and cultures of the State of Israel from 1948 to the present.

Effective: Summer 2006

J ST 070 (GH;IL) (CAMS 070, RL ST 070) **Prophecy: The Near East Then and Now** (3) Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.

Effective: Summer 2007

J ST 083S (GH;IL) **First-Year Seminar in Jewish Studies** (3) Critical approaches to the history, sociology, and literature of Jewish Studies.

Effective: Summer 2005

J ST 090 (GH;IL) (RL ST 090, CAMS 090) **Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

Effective: Summer 2005

J ST 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1998

J ST 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1998

J ST 102 (GH;IL) (RL ST 102, CAMS 102, HIST 102) **Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

Effective: Summer 2005

J ST 106 (GH;IL) (RL ST 106) **Mysticism** (3) A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

Effective: Spring 2012

J ST 110 (GH;US;IL) (CAMS 110, RL ST 110) **Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.

Effective: Summer 2005

J ST 111 (GH;IL) (CAMS 111, RL ST 111) **Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

Effective: Summer 2005

J ST 112 (RL ST 121, CAMS 121) **Jesus the Jew** (3) A historical critical examination of the life of Jesus of Nazareth within the context of first century Palestinian Judaism.

Effective: Fall 2013

J ST 114 (GH;US;IL) (RL ST 114) **Modern Judaism** (3) Trends in Jewish life and thought since the French revolution; Judaism's responses to the challenge of modernity.  
Effective: Summer 2005

J ST 115 (GH;US) (HIST 115, RL ST 115) **American Jewish History and Culture** (3) Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.  
Effective: Summer 2006

J ST 118 (US;IL) (HIST 118) **Modern Jewish History: 1492 to Present** (3) Jewish social and political history from 1492 to the present.  
Effective: Spring 2006

J ST 120 (GH) (CAMS 120, RL ST 120) **New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.  
Effective: Spring 2004

J ST 120H (GH) (CAMS 120H, RL ST 120H) **New Testament** (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 121 (GH;IL) (HIST 121) **History of the Holocaust 1933-1945** (3) Historical analysis of holocaust themes.  
Effective: Summer 2005

J ST 122 (GH;IL) (CAMS 122, RL ST 122) **Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.  
Effective: Summer 2014

J ST 123 (GH;IL) (CAMS 123, RL ST 123) **Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of the ancient Near East: Judaism, Christianity, and Islam.  
Effective: Summer 2014

J ST 124 (GH;US;IL) (RL ST 124, CAMS 124) **Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.  
Effective: Summer 2005

J ST 131 (GH;US;IL) (CMLIT 110) **Jewish Literature: An International Perspective** (3) Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas.  
Effective: Spring 2011

J ST 132 (GH;US) (ENGL 132) **Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.  
Effective: Spring 2009

J ST 132U (GH;US) (ENGL 132U) **Introduction to Jewish American Literature** (3) A historical and thematic survey of Jewish Literature of the United States.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 134 (GH;IL) (RL ST 134, CAMS 134) **Archaeology of Biblical Israel** (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.  
Effective: Summer 2005

J ST 137 (GH;US;IL) (RL ST 137, WMNST 137) **Women and Religion** (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.  
Effective: Fall 2012  
Prerequisite: third-semester standing

J ST 151 (CAMS 151, HEBR 151) **Introductory Biblical Hebrew** (3) Fundamentals of Biblical Hebrew grammar, syntax, and vocabulary.  
Effective: Summer 2005

J ST 152 (HEBR 152, CAMS 152) **Intermediate Biblical Hebrew** (3) Intermediate study of Biblical Hebrew grammar, syntax, and vocabulary.  
Effective: Summer 2005  
Prerequisite: J ST 151

J ST 153 (GH;IL) (RL ST 153, CAMS 153) **Dead Sea Scroll** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scroll, Jewish texts from approximately 225 B.C.E. to 68 C.E.

Effective: Summer 2014

J ST 160 (GH;IL) (CAMS 160, RL ST 160) **Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.  
Effective: Summer 2014

J ST 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

J ST 197A (HIST 197A) **East European Jewish History** (3) This course examines the history of Jewish life in Eastern Europe beginnings with its Medieval origins and up through the Holocaust. Topics to be covered include religious, political, social, and cultural transformations, in the context of the general political changes in this area.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 197B **Maimonides** (3) Nine centuries ago, Moses Maimonides--philosopher and physician--strove to enable medieval Judaism to meet the challenges of modernity. The result was wisdom for our time.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1998

J ST 199 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

J ST 205 (GH;US) (HIST 205) **American Antisemitism** (3) The Phenomenon of antisemitism in American history from Peter Stuyvesant to the present.  
Effective: Summer 2011

J ST 210 (GH;IL) (CAMS 210) **Numismatics and the Historian** (3) Numismatics--the scholarly study of coins and medals--is a major tool in the study of Classical history and archaeology.  
Effective: Summer 2012

J ST 220 (GH;IL) (HIST 220) **The Jewish and Other Diasporas** (3) Introduction to and survey of the Jewish and other Diasporas around the world.  
Effective: Spring 2012

J ST 235 (US;IL) (HIST 235, RL ST 235) **The Church and the Jews** (3) Examination of the relationship between Western church and the Jews from the First Century to Enlightenment.  
Effective: Spring 2006

J ST 280 (GH;IL) (WMNST 280, RL ST 280) **Women and Judaism** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.  
Effective: Fall 2006

J ST 294 **Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1998

J ST 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 1998  
Prerequisite: prior approval of proposed assignment by instructor

J ST 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 1994

J ST 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1994

J ST 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1998

J ST 299 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

J ST 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

J ST 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1998

J ST 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1998

J ST 399 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

J ST 401 (IL) (HIST 401) **Ancient Technologies and Socio-cultural History in the Ancient Levant** (3) Social and intellectual development in the Ancient Levant as they affected and were affected by technological development.  
Effective: Spring 2006  
Prerequisite: RL ST 110

J ST 405 (IL) (RL ST 405) **Ancient Jewish Traditions and Modern Food Movements** (3) Jewish laws, customs and attitudes with regard to food production, agricultural policy and eating from biblical to modern times.  
Effective: Spring 2012

J ST 409Y (IL) (HIST 409Y, RL ST 407Y) **European Anti-Semitism from Antiquity to the Present** (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.  
Effective: Summer 2005

J ST 410 (US;IL) (HIST 410, RL ST 410) **Jews in the Medieval World** (3) Trends in medieval Jewish society under Islam and Western Christendom.  
Effective: Spring 2006

J ST 411 (US;IL) (RL ST 411) **Jewish Studies** (3) Study of the life and thought of a particular period or movement in the history of Judaism.  
Effective: Spring 2006  
Prerequisite: 3 credits in religious studies

J ST 412 (RL ST 412) **American Judaism** (3) The development of Jewish religion and culture in America from the colonial era to the present.  
Effective: Summer 1999  
Prerequisite: HEBR 010 or J ST 010

J ST 416 (HIST 416) **Zionist History 1890-1948** (3) History of Zionist thought and politics to the foundation of Israel 1948.  
Effective: Summer 1997

J ST 420 (ANTH 420) **Archaeology of the Near East** (3) Culture of the Near East and India from Paleolithic times through the Bronze Age.  
Effective: Spring 1999  
Prerequisite: ANTH 008 ANTH 009 ANTH 011 or ANTH 012

J ST 424H (RL ST 424H, HIST 424H) **Monotheism and the Birth of the West** (3) The birth of monotheism and its relation to social organization, the idea of individuality, and science.  
Effective: Fall 2012  
Prerequisite: J ST 004 J ST 102 J ST 110 or J ST 120

J ST 427 (ENGL 427) **Topics in Jewish American Literature** (3 per semester/maximum of 9) An in-depth examination of important themes, writers, and/or historical developments in Jewish Literature of the United States.  
Effective: Spring 2014 Ending: Summer 2014  
Prerequisite: ENGL 015 or ENGL 030; J ST 132 or CMLIT 110

J ST 427 (ENGL 427) **Topics in Jewish American Literature** (3 per semester/maximum of 9) An in-depth examination of important themes, writers, and/or historical developments in Jewish Literature of the United States.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: ENGL 015 or ENGL 030

J ST 433 **Introduction to Jewish Music and Art** (3) Introduction to the study of Jewish music and art from antiquity to the

present.

Effective: Summer 2011

Prerequisite: 5th semester standing and one of the following: a previous course in art music or literature or elseJ ST 010

J ST 434 **Media and the American Jewish Experience** (3) Study of United States Jewish history through film and accompanying written text.

Effective: Summer 2011

Prerequisite: 5th semester standing and one of the following: a previous course in art music or literature or elseJ ST 115

J ST 450H (PL SC 450H) **Genocide and Tyranny** (3) This course focuses on the conceptualization and socio-political determinants of genocide and tyrannical regimes, with an emphasis on the Holocaust.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: PL SC 003PL SC 007 orPL SC 014 orHIST 121

J ST 457 (US;IL) (ANTH 457, SOC 457) **Jewish Communities: Identity, Survival, and Transformation in Unexpected Places** (3) Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement.

Effective: Summer 2006

Prerequisite: ANTH 001 orANTH 045HEBR 010J ST 010SOC 001SOC 005SOC 007SOC 015

J ST 468 **Modern Jewish Philosophy** (3) Explores the major figures in modern Jewish philosophy and their influences on contemporary philosophy.

Effective: Summer 2012

Prerequisite: one course in Philosophy and/or Jewish Studies

J ST 478 (RL ST 478) **Ethics After the Holocaust** (3) Explores the philosophical effects of the Holocaust for thinking about the primary question: Is ethics possible?

Effective: Summer 2012

Prerequisite: one course in Jewish Studies or Philosophy

J ST 480 (CAMS 480) **Greeks and Persians** (3) Development and achievements of the Achaemenid kingdom; relationships between Persians and Greeks.

Effective: Spring 2001

Prerequisite: CAMS 010CAMS 025 orCAMS 100

J ST 494 **Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 1998

J ST 494H **Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

J ST 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 1998

Prerequisite: prior approval of proposed assignment by instructor

J ST 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 1994

J ST 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1994

J ST 497A (HIST 497C, WMNST 497A) **Gender and Autobiography in Modern Jewish History** (3) In this course we will read autobiographies critically and carefully in examining the tremendous change wrought by modernity in the Jewish community. In particular we will look to memoir literature to illuminate the role of gender in Jewish life over the past two hundred years.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

J ST 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1998

J ST 499 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Kinesiology (KINES)

### PROFESSIONAL COURSES

The following courses are designed for the major in Kinesiology and related disciplines as designated in the various curricular programs. They are pedagogically oriented and do not fulfill the Health Sciences and Physical Education (GPE) component of General Education.

**KINES 001 (GHA) Introduction to Outdoor Pursuits** (1.5-3 per semester, maximum of 12) Introduction to selected outdoor pursuit activities, such as, but not limited to, rock climbing, cross country skiing, backpacking, hiking, orienteering.  
Effective: Fall 2008

**KINES 003 Drugs in Sports** (1) Nature of drug use, misuse, and abuse in the athletic setting with implications for counseling and controls.  
Effective: Spring 2005

**KINES 004 (GHA) Principles of Fly Tying and Fly Fishing for Trout** (1.5) A course designed to enhance student's knowledge, skill, and performance in fly tying and the sport of fly fishing for trout.  
Effective: Fall 2001

**KINES 006 (GHA) Cycling** (1.5) A course designed to give students an understanding of and the ability to establish an exercise program involving riding.  
Effective: Summer 2003

**KINES 008 (GHA) Competition Casting** (1.5) A course designed to enhance student's knowledge, skills, and performance in all forms of casting for sport fishing.  
Effective: Fall 2001

**KINES 010 (GHA) Indoor Rock Climbing** (1.5) A course designed to provide students with the basic skills, safety, and knowledge of rock climbing.  
Effective: Summer 2003

**KINES 010A (GHA) Lead Rock Climbing** (1.5) A course designed to provide students with skills, safety, and knowledge of lead rock climbing in a top rope environment.  
Effective: Summer 2003  
Prerequisite: KINES 010 or with permission of program

**KINES 011 (GHA) Basic Downhill Skiing** (1) Students will gain a comprehensive understanding and basic level of proficiency in Downhill Skiing.  
Effective: Summer 2004

**KINES 011A (GHA) Intermediate Downhill Skiing** (1) Students will gain a comprehensive understanding and intermediate to advanced level of proficiency in Downhill Skiing.  
Effective: Summer 2004

**KINES 012 (GHA) Snowboarding** (1) Students will gain a comprehensive understanding and basic level of proficiency in Snowboarding.  
Effective: Summer 2004

**KINES 013 (GHA) First Aid, Personal Safety, and CPR** (1) A course designed to provide students with the opportunity for Red Cross certification in Community First Aid, Safety, and CPR.  
Effective: Fall 2003

**KINES 015 Lifestyles for Health** (1) Concepts of health, life-style, and risk factors; development and implementation of personal action plans.  
Effective: Spring 2005

**KINES 017 (GHA) Ballroom Dance** (1.5) A course designed to provide students with basic dance skills and an understanding and appreciation of ballroom dance.  
Effective: Summer 2003

**KINES 017S (GHA) Ballroom Dance** (1.5) A course designed to provide students with basic dance skills and an understanding and appreciation of ballroom dance.  
Effective: Fall 2007



**KINES 020 (GHA) Modern Dance (1.5)** A course designed to teach the basic skills of modern dance and to develop a further appreciation of modern dance.  
Effective: Summer 2002

**KINES 024 (GHA) Introduction to Lifetime Sports (1.5)** Students participate in lifetime sports such as archery, bowling, golf, and at least one racquet and/or winter sport.  
Effective: Summer 2002

**KINES 025 (GHA) Introduction to Court Sports (1.5)** A course designed to introduce students to various court sports such as tennis, racquetball, handball, squash, and/or badminton.  
Effective: Summer 1999

**KINES 026 (GHA) Archery/Indoor & Outdoor (1.5)** Course designed to introduce students to Archery/Bowhunting.  
Effective: Summer 2003

**KINES 027 (GHA) Badminton 1 (1.5)** The course promotes health, fitness, and enjoyment of the game of badminton.  
Effective: Summer 2002

**KINES 028 (GHA) Fencing I (1.5)** Kinesiology 028 is designed to give students knowledge of the rules, strategies and skills of the sport of Fencing.  
Effective: Summer 2004

**KINES 029 (GHA) Golf I (1-1.5)** A course designed to give students an understanding of and a proficiency in golf skills, rules, and etiquette.  
Effective: Summer 1999

**KINES 029A (GHA) Golf II (1.5)** A course designed to provide a further understanding of and a more advanced proficiency in golf skills, rules and etiquette.  
Effective: Summer 2004  
Prerequisite: KINES 029 or equivalent

**KINES 041 (GHA) Handball (1.5)** A course designed to introduce students to a basic instructional course in the fundamentals of 4-wall handball.  
Effective: Spring 2001

**KINES 042 (GHA) Ice Skating--Beginning (1.5)** A course of instruction focused on the physical development and knowledge of basic ice skating skills.  
Effective: Summer 2002

**KINES 042A (GHA) Ice Skating--Advanced Beginning (1.5)** A course of instruction focused on the physical development and knowledge of basic ice skating skills.  
Effective: Summer 2002  
Prerequisite: KINES 042 or some experience with the activity

**KINES 042B (GHA) Ice Skating--Intermediate/Advanced (1.5)** A course of instruction in basic figure skating: field moves, freestyle, choreography, pairs skating, and ice dance.  
Effective: Summer 2002  
Prerequisite: KINES 042 and/or KINES 042A or equivalent skating experience

**KINES 043 (GHA) Power Skating (1.5)** A course of instruction in basic power skating specifically designed for ice hockey, applicable to other ice sports.  
Effective: Summer 2002  
Prerequisite: KINES 042 or KINES 042A or equivalent skating experience

**KINES 044 (GHA) Racquetball I (1-1.5)** The course promotes health, fitness, and enjoyment of the game of racquetball.  
Effective: Spring 2001

**KINES 045 (GHA) NAUI Basic Scuba (1.5)** A course to introduce students to the fundamentals of Scuba diving.  
Effective: Summer 2002  
Prerequisite: meet NAUI standards and/or by permission of the instructor

**KINES 046 (GHA) Squash I (1-1.5)** A course designed to give students an appreciation of and proficiency in the skills, rules, and regulations of squash.  
Effective: Spring 2001

**KINES 047 (GHA) Beginning Swimming (1.5)** A course designed to give students skills and knowledge necessary to be safe in shallow and deep water.  
Effective: Summer 2002

**KINES 047A (GHA) Advanced Beginner Swimming (1.5)** A course designed to give students skills and knowledge necessary to be safe in shallow and deep water.

Effective: Summer 2002

Prerequisite: students should be comfortable in shallow and deep water and be moderately proficient in front crawl elementary backstroke sidestroke and breaststroke

**KINES 047B (GHA) Intermediate Swimming (1.5)** A course designed to teach students a variety of swimming strokes and increase their knowledge of fitness using aquatic activities.

Effective: Summer 2002

Prerequisite: KINES 047A or equivalent skills; students should be safe in deep water and have proficiency in the front crawl elementary backstroke sidestroke and breaststroke

**KINES 048 (GHA) Tennis I (1.5)** A course designed to give students an appreciation of and proficiency in the skills, rules, and regulations of tennis.

Effective: Spring 2001

**KINES 048A (GHA) Tennis II (1.5)** A course designed to give students an appreciation of and proficiency in the skills, rules, and regulations of tennis.

Effective: Summer 2004

Prerequisite: KINES 048 or for students who demonstrate reasonable consistency in depth and placement of ground strokes and the serve and who have not had instruction at Penn State.

**KINES 054 (GHA) Aikido (1.5)** Students will gain a comprehensive understanding and basic level of proficiency in the Japanese Traditional martial art of Aikido.

Effective: Summer 2003

**KINES 055 Dance Forms (1.5)** Basic skills and methods of teaching and assessing creative movement and folk, square, social, and modern dance.

Effective: Summer 1996

**KINES 056 (GHA) Introduction to Martial Arts (1.5)** A course designed to give students an introduction to martial arts, and the use of martial arts for lifelong fitness.

Effective: Summer 2002

**KINES 057 (GHA) Personal Defense (1.5)** A course designed to give students an understanding of and a proficiency in martial arts and self-defense.

Effective: Summer 2004

**KINES 058 (GHA) Judo I (1.5)** Kinesiology 058 will help students develop stamina, confidence and discipline, and promote general fitness through the introduction to basic Judo.

Effective: Summer 2003

**KINES 059 (GHA) Introduction to Karate (1.5)** A course designed to give students an understanding of and a proficiency in Karate.

Effective: Summer 2003

**KINES 060 Principles and Practices of Healthful Living (3)** Facts and principles as related and applied to the science of living serve as a basis for health instruction and student guidance.

Effective: Spring 2005

**KINES 061 (GHA) Fitness Theory and Practice (3)** Students will learn about the science of fitness/wellness; evaluate their present fitness levels and create a personal fitness plan.

Effective: Spring 2001

**KINES 061S (GHA) Fitness Theory and Practice (3)** Students will learn about the science of fitness/wellness; evaluate their present fitness levels and create a personal fitness plan.

Effective: Summer 2005

**KINES 062 (GHA) Introduction to Cardiovascular Activities (1.5)** A course designed to give students an introduction to various types of cardiovascular training.

Effective: Summer 2002

**KINES 063 (GHA) Aerobic Dance (1.5)** A course designed to involve students in daily aerobic activity while teaching the fundamentals of overall health and well-being.

Effective: Summer 2002

**KINES 065 (GHA) Jogging (1.5)** A course designed to give students an understanding of and the ability to establish an exercise program involving jogging.

Effective: Summer 2003

**KINES 067 (GHA) Physical Conditioning (1.5)** A course designed to give students an experience with an understanding of vigorous physical training.  
Effective: Spring 2001

**KINES 068 (GHA) Strength Training (1.5)** Designed to improve students' muscular strength/endurance, teaches students how to develop an effective personal strength/endurance training program for lifelong fitness.  
Effective: Summer 2002

**KINES 070 (GHA) Swim Conditioning (1.5)** A course designed to provide students an understanding of and proficiency in swimming conditioning.  
Effective: Summer 2002  
Prerequisite: KINES 047A

**KINES 072 (GHA) Fitness Walking (1-1.5)** A course designed to give students an understanding of and a proficiency in fitness walking.  
Effective: Spring 2001

**KINES 076 (GHA) Introduction to Tai Chi Ch'uan (1.5)** A course designed to introduce students to Tai Chi Ch'uan, a traditional Chinese system of personal cultivation and self-defense.  
Effective: Summer 2004

**KINES 077 (GHA) Yoga 1 (1.5)** A course designed to give students an understanding of and proficiency in yoga.  
Effective: Summer 2002

**KINES 077A (GHA) Advanced Yoga (1.5)** A course designed to expand on a student's fundamental understanding of and proficiency in yoga.  
Effective: Summer 2003  
Prerequisite: KINES 077

**KINES 081 (GHA) Wellness Theory (3)** Focused on preparing and engaging students in the attitudes and behaviors that enhance quality of life and maximize personal potential.  
Effective: Summer 2002

**KINES 082 (GHA) Action Methods for Stress Management (3)** Achieving wellness by studying the effects of stressors on systems of the body and effectiveness of activity to relieve stress.  
Effective: Summer 2002

**KINES 083 (GHA) Exercise for Stress Management (1.5)** A course designed to identify the factors that contribute to student stress and develop strategies that will manage these factors. Students who receive credit for KINES 083 will not receive credit for KINES 082.  
Effective: Summer 2002

**KINES 084 (GHA) Fitness for Life (1.5-2)** A course designed to give students an understanding of the fundamental principles of physical fitness. Students who receive credit for KINES 084 shall not receive credit for either KINES 061 or 081.  
Effective: Summer 1999

**KINES 088 (GHA) Varsity Sport Experience (2)** A course designed to promote an active and healthful lifestyle through participation in a varsity sport sanctioned by Penn State.  
Effective: Summer 2004

**KINES 089 (GHA) Student Wilderness Experience (3)** Incoming student wilderness experience. Backpacking and one additional adventure: rock climbing, high ropes course/canoeing. One-day of community service.  
Effective: Summer 2003

**KINES 090 (GHA) Introduction to Team Sports/Indoor (1-1.5)** A course designed to introduce students to indoor team sports.  
Effective: Spring 2001

**KINES 090A (GHA) Introduction to Team Sports/Indoor - Volleyball (1.5 per semester/maximum of 99)** A course designed to introduce students to the team sport of volleyball.  
Effective: Spring 2004

**KINES 090B (GHA) Introduction to Team Sports/Indoor - Basketball (1.5 per semester/maximum of 99)** A course designed to introduce students to the team sport of basketball.  
Effective: Spring 2004

**KINES 090C (GHA) Introduction to Team Sports/Indoor - Team Handball** (1.5 per semester/maximum of 99) A course designed to introduce students to the sport of team handball.  
Effective: Spring 2004

**KINES 091A (GHA) Introduction to Team Sports/Outdoor - Soccer** (1.5 per semester) A course designed to introduce students to the outdoor team sport of Soccer.  
Effective: Summer 2004

**KINES 091C (GHA) Introduction to Team Sports/Outdoor - Rugby** (1.5 per semester) A course designed to introduce students to the outdoor team sport of Rugby.  
Effective: Summer 2004

**KINES 091D (GHA) Introduction to Team Sports/Outdoor-Ultimate Frisbee** (1.5 per semester) A course designed to introduce students to the outdoor team sport of Ultimate Frisbee.  
Effective: Summer 2004

**KINES 093 (GHA) Masters Activity (Sport)** (1.5 per semester/maximum of 12) A course that introduces students to movement subcultures by providing the knowledge, habits, and skills for activity across the lifespan.  
Effective: Spring 2003  
Prerequisite: successful completion of relevant activity course or permission of the instructor

**KINES 096 (GHA) Independent Study in Physical Activity** (.5-3 per semester) This course is designed to meet the needs of students to expand Kinesiology experiences beyond the designed course curriculum.  
Effective: Spring 2006

**KINES 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1997

**KINES 097A Certified Lifeguard** (3) Certified Lifeguard American red Cross certification for lifeguarding with CPR/AED/First Aid; must be able to swim 300 yards continuously. Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 097B Yoga Theory for Wellness** (1.5) This course is designed to introduce the students to strategies and practices for optimum health and wellness as a means to decrease stress. The intention of the class is to provide the information needed and the experience of developing a personal practice for ongoing health and wellness using specific yoga practices which are correlated with current wellness strategies.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 126 The Health Program for the Elementary School Child** (1.5) Introduction to the Coordinated School Health Program. Overview of contemporary school-based health education theory, content, methods, and practice.  
Effective: Fall 2006  
Prerequisite: EDPSY 014

**KINES 127 The Physical Education Program for the Elementary School Child** (1.5) Theoretical and practical overview of developmentally appropriate physical education for children.  
Effective: Fall 2006

**KINES 135 Introduction to Athletic Training** (3) Foundation of injury recognition and prevention; ethical, legal, and professional issues for the athletic trainer. A laboratory based course.  
Effective: Fall 2006

**KINES 141 (US;IL) The Socio-Cultural Dynamics of Kinesiology** (3) Evolution of cultural values in physical activity from antiquity to the present.  
Effective: Spring 2014

**KINES 165 Health Education Concepts** (3) Principles of healthy living which are the basis for health instruction in schools and health care settings.  
Effective: Summer 1999

**KINES 180 Introduction to Kinesiology** (3) The foundation course of the Kinesiology degree, providing an interdisciplinary approach to the study of movement through problem based learning.  
Effective: Summer 2003

**KINES 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.

Effective: Spring 1997

**KINES 197A Biophysical Basis of Kinesiology (3)** KINES 197A is intended for entry-level students (majors and minor) with an interest in human movement and physical activity. It provides a rigorous introduction to the biophysical foundations of kinesiology including applications of basic science to professional and clinical settings. Students will become familiar with the field of kinesiology, and discuss how this undergraduate major can serve as preparation for a wide range of professional pursuits, including post-graduate occupations, professional programs to study in medicine and allied health fields, and as a basis for biomedical research careers. The course focuses on the biological, physiological, and psychological foundations of human movement, movement disorders, and sport-related performance. It serves as an entry-level complement to KINES 141, which introduces students to the historical and philosophical foundations of kinesiology.

Effective: Summer 2014 Ending: Summer 2014

**KINES 197A Biophysical Basis of Kinesiology (3)** Kinesiology 197A is intended for entry-level students (majors and minors) with an interest in human movement and physical activity. It provides a rigorous introduction to the biophysical foundations of kinesiology including applications of basic science to professional and clinical settings. Students will become familiar with the field of kinesiology, and discuss how this undergraduate major can serve as preparation for a wide range of professional pursuits, including post-graduate occupations, professional programs of study in medicine and allied health fields, and as a basis for biomedical research careers. The course focuses on the biological, physiological, and psychological foundations of human movement, movement disorders, and sport-related performance. It serves as an entry-level complement to KINES 141, which introduces students to the historical and philosophical foundations of kinesiology.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 197A Biophysical Basis of Kinesiology (3)** KINES 197A is intended for entry-level students (majors and minor) with an interest in human movement and physical activity. It provides a rigorous introduction to the biophysical foundations of kinesiology including applications of basic science to professional and clinical settings. Students will become familiar with the field of kinesiology, and discuss how this undergraduate major can serve as preparation for a wide range of professional pursuits, including post-graduate occupations, professional programs of study in medicine and allied health fields, and as a basis for biomedical research careers. The course focuses on the biological, physiological, and psychological foundations of human movement, movement disorders, and sport-related performance. It serves as an entry-level complement to KINES 141, which introduces students to the historical and philosophical foundations of kinesiology.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**KINES 197B ROTC Lab (1-6)** ROTC Lab accompanying ROTC lectures courses at Behrend.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 199 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2011

**KINES 200 Muscle Training: Physiology, Programs, Techniques (3)** Physiological basis of strength training emphasizing mechanisms of muscle contraction and growth, program and facility design, and individual exercise technique.

Effective: Spring 2000

Prerequisite: BIOL 141

**KINES 201 Cardiorespiratory Training for Health and Performance (3)** Exploration of the principles and practical applications of cardiorespiratory training for health and performance enhancement.

Effective: Spring 2006

**KINES 202 Functional Human Anatomy (4)** In-depth examination of the, musculoskeletal, nervous, cardiovascular, and respiratory systems, and their relationship to human movement.

Effective: Spring 2004

**KINES 203 Medical Terminology for Allied Health Professionals (3)** Comprehensive review of terms related to functions, disorders, diagnosis, and treatment of body systems related to physical activity and movement.

Effective: Summer 2010

**KINES 220 Inner Sports: Strategies for Maximizing Performance (1)** Theory and research in competitive anxiety. Identification of athletic goals with training in cognitive skills and strategies to maximize performance.

Effective: Summer 1996

Prerequisite: active participation in competitive sports

**KINES 231 Athletic Training Clinical Practice I (3)** Preparation in basic psychomotor skills required in the clinical practice of athletic training. This is a laboratory fee based course.

Effective: Fall 2006

Prerequisite: Athletic Training Application Completed Concurrent: KINES 135 KINES 202 KINES 233

**KINES 232 Athletic Training Clinical Practice II (3)** Preparation in advanced psychomotor skills required in the clinical practice of athletic training. This is a laboratory fee based course.

Effective: Fall 2006

Prerequisite: admitted to the Athletic Training Option KINES 231 Concurrent: KINES 334

**KINES 233 Emergency Care in Athletic Training (3)** Introduction into emergency medical care with emphasis on management of common emergency situations occurring during athletic participation. This is a laboratory fee based course.

Effective: Fall 2006

Prerequisite: Athletic Training Option Application Completed Concurrent: KINES 135 KINES 231 KINES 202

**KINES 260 Research Skills in Kinesiology (3)** Development of research skills employed in kinesiology, including experimental design, statistical testing and information technology, through experiential learning.

Effective: Spring 2006

Prerequisite: KINES 180

**KINES 261 Educational Gymnastics (1)** This course provides an introduction to developmentally appropriate gymnastics for K-12 students.

Effective: Spring 2010

Prerequisite: Official acceptance into the Physical and Health Education Teacher Education (PHETE) option in Kinesiology

**KINES 262 Educational Dance (1)** This course provides an introduction to a variety of dance forms typically taught as part of K-12 physical education curricula.

Effective: Spring 2010

Prerequisite: Official acceptance into the Physical and Health Education Teacher Education (PHETE) option in Kinesiology

**KINES 264 Health-Related Physical Fitness (1)** Basic skills and methods of teaching, assessing, and prescribing health-related fitness and strength training activities.

Effective: Spring 2010

Prerequisite: Official acceptance into the Physical and Health Education Teacher Education (PHETE) option in Kinesiology

**KINES 266 Adventure/Outdoor Recreational Activities (1)** Introduction to adventure/outdoor recreational activities teaching and assessment strategies for K-12 and community groups.

Effective: Spring 2010

Prerequisite: Official acceptance into the Physical and Health Education Teacher Education (PHETE) option in Kinesiology

**KINES 268 Technology Applications in Health and Physical Education (1)** Integration of technology into health and physical education curriculum.

Effective: Spring 2010

Prerequisite: Official acceptance into the Physical and Health Education Teacher Education (PHETE) option in Kinesiology

**KINES 295A Observation of Health and Physical Education in the Public Schools (1)** Introduction to the career of teaching including guided observation of HPE in K-12 public schools.

Effective: Fall 2006

**KINES 295B Careers/Observations in Kinesiology (1)** Introduction to career information and observational experiences in the Kinesiology field.

Effective: Spring 2000

Prerequisite: third-semester standing

**KINES 295C Professional Development - Field Experience (1-2 per semester/maximum of 8)** Develops the necessary professional skills needed to maximize the benefits obtained from a professional conference.

Effective: Summer 2010

Prerequisite: completion of three credits in Kinesiology

**KINES 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 1996

**KINES 296A Independent Study Athletic Training (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**KINES 296A Independent Study Athletic Training (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 296B Independent Study Biomechanics (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**KINES 296B Independent Study Biomechanics (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 296C Independent Study Exercise Physiology (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**KINES 296C Independent Study Exercise Physiology (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 296D Independent Study History and Philosophy of Sport (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2014 Ending: Summer 2014

**KINES 296D Independent Study History and Philosophy of Sport (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 296E Independent Study Motor Control (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2014 Ending: Summer 2014

**KINES 296E Independent Study Motor Control (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 296F Independent Study Psychology of Movement and Sport (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2014 Ending: Summer 2014

**KINES 296F Independent Study Psychology of Movement and Sport (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 296G Independent Study Teaching and/or Coaching (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2014 Ending: Summer 2014

**KINES 296G Independent Study Teaching and/or Coaching (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 296K Independent Study Applied Kinesiology (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2014 Ending: Summer 2014

**KINES 296K Independent Study Applied Kinesiology (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1996

**KINES 298 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1996

**KINES 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2011

**KINES 303 (GHA) Emergency Care - First Aid/Safety/AED (3)** Develop skills for First Responder Certification in CPR/AED, First Aid and Safety by American Red Cross or National Safety Council.  
Effective: Fall 2003

**KINES 304 First Aid: Instructors (1)** Competencies leading to certification for teaching American Red Cross Advanced First Aid and Emergency Care and American Heart Association Cardiopulmonary Resuscitation. Laboratory.  
Effective: Spring 1998  
Prerequisite: KINES 303

**KINES 321 Psychology of Movement Behavior (3)** Basic concepts and application of psychological knowledge for organized sport, physical activity, and athletic training.  
Effective: Spring 2004 Ending: Fall 2014  
Prerequisite: KINES 180

**KINES 321 Psychology of Movement Behavior (3)** Basic concepts and application of psychological knowledge for organized sport, physical activity, and athletic training.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Students must have a C or better in:KINES 180

**KINES 334 Mechanisms and Evaluation of Lower Body Athletic Injuries (3)** Etiology of athletic injuries with scientific and practical rationales for evaluation of injuries to the lower extremity and lumbosacral spine.  
Effective: Fall 2006  
Prerequisite: Admitted to the Athletic Training OptionKINES 231 Concurrent: KINES 232

**KINES 335 Mechanisms and Evaluation of Upper Body Athletic Injuries (3)** Etiology of athletic injuries with scientific and practical rationales for evaluation of injuries to upper extremity, neck, head, and trunk.  
Effective: Fall 2006  
Prerequisite: KINES 334 Concurrent: KINES 395F KINES 434

**KINES 336 Medical Aspects of Athletic Training (3)** Pathology, assessment, and treatment (including pharmacology) of general medical conditions commonly seen in physically active populations.  
Effective: Fall 2006  
Prerequisite: KINES 335 Concurrent: KINES 395G KINES 435 KINES 436

**KINES 345 Meaning, Ethics, and Movement (3)** Development of philosophic reasoning skills to better understand the values of physical activity and ethics in a variety of performance settings.  
Effective: Summer 1996 Ending: Fall 2014  
Prerequisite: KINES 141

**KINES 345 Meaning, Ethics, and Movement (3)** Development of philosophic reasoning skills to better understand the values of physical activity and ethics in a variety of performance settings.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Students must have a C or better in:KINES 141

**KINES 350 Exercise Physiology (3)** Structure and function of the human body as applied to health, wellness, exercise, and sports.  
Effective: Spring 2012 Ending: Fall 2014  
Prerequisite: KINES 180;KINES 202;BIOL 141 ; andCHEM 101 orCHEM 110 ; or permission by instructor for non-kinesiology majors

**KINES 350 Exercise Physiology (3)** Structure and function of the human body as applied to health, wellness, exercise, and sports.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Students must have a C or better in:KINES 180KINES 202BIOL 141CHEM 101 orCHEM 110

**KINES 356 Activity and Disease (3)** Examination of hypokinetic disease on human wellness involving identification, assessment, research, and exercise design of human activity for disease prevention.  
Effective: Spring 2000  
Prerequisite: BIOL 141

**KINES 358 Ergogenic Aids (1)** Skills development including research identification and evaluation of work-enhancing methods and devices as related to human performance and wellness.  
Effective: Spring 2000  
Prerequisite: BIOL 141NUTR 251

**KINES 360 The Neurobiology of Motor Control and Development (3)** The neurobiological foundations of human movement, with an emphasis on applications in rehabilitation and athletics.  
Effective: Fall 2006 Ending: Fall 2014  
Prerequisite: KINES 180KINES 202;BIOL 141

**KINES 360 The Neurobiology of Motor Control and Development (3)** The neurobiological foundations of human movement, with an emphasis on applications in rehabilitation and athletics.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Students must have a C or better in:KINES 180KINES 202 andBIOL 141

**KINES 362 Teaching Individual Activities (1.5)** This course introduces teacher candidates to the spectrum of individual activities being taught in the K-12 school setting.  
Effective: Spring 2010  
Prerequisite: KINES 261KINES 262KINES 264KINES 266 andKINES 268

**KINES 364 Teaching Group Activities (1.5)** This course introduces teacher candidates to the spectrum of group activities being taught in the K-12 school setting.  
Effective: Spring 2010  
Prerequisite: KINES 261KINES 262KINES 264KINES 266 andKINES 268

**KINES 366 The Process of Teaching Physical Education (3)** Analysis of pedagogical skills and methods applied to K-12 physical education.  
Effective: Spring 2010  
Prerequisite: KINES 261KINES 262KINES 264KINES 266 andKINES 268



**KINES 384 Biomechanics** (3) Basic mechanical knowledge required to understand human movement.  
Effective: Fall 2006 Ending: Fall 2014  
Prerequisite: KINES 180KINES 202MATH 022

**KINES 384 Biomechanics** (3) Basic mechanical knowledge required to understand human movement.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Students must have a C or better in:KINES 180KINES 202 andMATH 022

**KINES 395A Leadership Practicum for Teachers** (1) Supervised experiences in guiding individuals and in leading groups in the motor skill learning process.  
Effective: Fall 2006  
Prerequisite: KINES 362KINES 364KINES 366

**KINES 395B Leadership Practicum: KINES** (1) Supervised experience in leading/assisting in tasks associated with fitness testing/prescription in a variety of settings.  
Effective: Summer 1996  
Prerequisite: KINES 295B fifth-semester standing

**KINES 395F Practicum in Athletic Training** (3) Practical experience in the athletic training room and with selected sports activities under direct supervision of the medical staff.  
Effective: Fall 2006  
Prerequisite: KINES 232 Concurrent: KINES 335 KINES 434

**KINES 395G Practicum in Athletic Training** (3) Practical experience in the athletic training room and with selected sports activities under direct supervision of the medical staff.  
Effective: Fall 2006  
Prerequisite: KINES 395F Concurrent: KINES 336 KINES 435 KINES 436

**KINES 395I Practicum in Athletic Training** (3) Practical experience in the athletic training room and with selected sports activities under direct supervision of the medical staff.  
Effective: Fall 2006  
Prerequisite: KINES 395G Concurrent: KINES 438W

**KINES 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1997

**KINES 398 Special Topics Course** (1-9) Forman courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1996

**KINES 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2011

**KINES 400 Adapted Physical Education** (3) Basic concepts of planning and conducting physical education programs for children with physical, sensory, and/or intellectual impairments.  
Effective: Fall 2001  
Prerequisite: KINES 202

**KINES 403 Emergency Medical Technology** (4) Theoretical and practical aspects of emergency medical techniques as applied in the pre-hospital environment.  
Effective: Spring 1998  
Prerequisite: KINES 303 and/or current advanced first aid and cardiopulmonary resuscitation certification

**KINES 404 Emergency Medical Technology Instructor** (2) Educational concepts and skills necessary to present instruction in emergency care; lesson planning, methods of instruction, and evaluation techniques.  
Effective: Summer 1997  
Prerequisite: KINES 403 with current Pennsylvania Emergency Medical Technician certification

**KINES 410 Physical Growth and Motor Development** (3) Study of biologically programmed growth processes and environmental influences leading to attained adult form and biomechanical function.  
Effective: Fall 2013  
Prerequisite: KINES 180

**KINES 411 Introduction to Musculoskeletal Injury and Rehabilitation** (3) This course is designed to provide an overview of common musculoskeletal injuries and rehabilitation for pre-allied health and fitness professionals.  
Effective: Summer 2011  
Prerequisite: KINES 202

**KINES 420 Psychosocial Dimensions of Physical Activity** (3) Discussion of theoretical and empirical findings, structuring a frame of reference for exploring man's involvement in physical activity.  
Effective: Spring 2001  
Prerequisite: KINES 321 or 3 credits in psychology or sociology

**KINES 421 Exercise Psychology** (3) Psychological antecedents and consequences of physical activity behaviors.  
Effective: Spring 2014  
Prerequisite: KINES 321 andPSYCH 100

- KINES 422 Physical Activity Interventions** (3) Principles of designing, planning, and implementing theory- and evidence-based physical activity interventions.  
Effective: Spring 2014  
Prerequisite: KINES 321 and PSYCH 100
- KINES 423 Psychology of Sports Injuries** (3) Psychological causes and consequences of sports related injuries in athletes.  
Effective: Spring 2008  
Prerequisite: KINES 321
- KINES 424 (US) (WMNST 424) Women and Sport** (3) An interdisciplinary approach to contemporary issues related to women and sport from historical, physiological, psychological, and sociological perspectives.  
Effective: Spring 2013  
Prerequisite: PSYCH 100 PSYCH 231 PSYCH 479 SOC 001 or WMNST 100
- KINES 425W Physical Activity in Diverse Populations** (3) An examination of the social, cultural, political, and environmental influences on health and physical activity promotion among diverse populations.  
Effective: Summer 2013  
Prerequisite: KINES 321
- KINES 426 Physical Activity and Public Health** (3) Examines the role of physical activity in public health. Includes population level strategies for promoting physical activity in communities.  
Effective: Summer 2014  
Prerequisite: KINES 321
- KINES 427 (HD FS 427) Developmental Sport & Exercise Psychology** (3) Developmental changes in the antecedents and consequences of physical activity across the lifespan.  
Effective: Spring 2008  
Prerequisite: PSYCH 100 and KINES 321 or HD FS 129 or PSYCH 212
- KINES 428 Motivation and Emotion in Movement** (3) Theories of motivational and emotional processes and their applications in movement settings.  
Effective: Spring 2014  
Prerequisite: KINES 321 and PSYCH 100
- KINES 429 Psychology of Sport Performance** (3) Psychological theories of talent development and performance enhancement in sport.  
Effective: Spring 2014  
Prerequisite: KINES 321 and PSYCH 100
- KINES 434 Rehabilitation of Injuries to the Lower Extremities** (3) Theoretical foundation and laboratory experience in manual therapy techniques and therapeutic exercises for the lower extremities.  
Effective: Fall 2006  
Prerequisite: KINES 334 Concurrent: KINES 335 KINES 395F
- KINES 435 Rehabilitation of Injuries to the Trunk and Upper Extremities** (3) Theoretical foundation and laboratory experience in manual therapy techniques and therapeutic exercises for the trunk and upper extremities.  
Effective: Fall 2006  
Prerequisite: KINES 434 Concurrent: KINES 336 KINES 435 KINES 395G
- KINES 436 Therapeutic Modalities in Athletic Training** (4) Lecture and laboratory course exploring physiological principles and clinical evidence to the use of therapeutic modalities in athletic training.  
Effective: Fall 2006  
Prerequisite: KINES 434 Concurrent: KINES 336 KINES 435 ; KINES 395G
- KINES 438W Administration and Issues in Athletic Training** (3) Theoretical and practical aspects for management of an Athletic Training professional practice and identifying contemporary issues related to the profession.  
Effective: Fall 2006  
Prerequisite: KINES 436 Concurrent: KINES 395I
- KINES 439W Ethics in Sport and Sport Management** (3) Analysis of moral dilemmas in sport and sport management utilizing the tools of ethics.  
Effective: Spring 2001  
Prerequisite: KINES 345 or 3 credits in humanities
- KINES 440 Philosophy and Sport** (3) An examination of human nature from the perspective of our participation in sport.  
Effective: Spring 2001  
Prerequisite: KINES 345 or 3 credits in philosophy
- KINES 441 (US) (AM ST 441) History of Sport in American Society** (3) Background, establishment, and growth of sport in America from colonial times to the present.  
Effective: Fall 2007  
Prerequisite: KINES 141 or 3 credits of United States history
- KINES 442 (IL) (CAMS 442) Sport in Ancient Greece and Rome** (3) An examination of the continuity of sport in ancient Greek and Roman societies.  
Effective: Spring 2008  
Prerequisite: CAMS 025 CAMS 033 CAMS 140 CAMS 150 CAMS 100 CAMS 101 or KINES 141
- KINES 443 (IL) The Modern Olympic Games** (3) An analysis of the modern Olympic Games from their inception through the current festival.  
Effective: Spring 2006

Prerequisite: KINES 141 or 3 credits of history or philosophy

**KINES 444 (US) History of Athletics in Higher Education (3)** Origin and development of athletics in American higher education from colonial times to the present.

Effective: Spring 2006

Prerequisite: KINES 141 or 3 credits of American history

**KINES 445 Alcohol and Drug Education (3)** Principles of integration and coordination of alcohol and drug education programs for health education and other health related professions.

Effective: Spring 1998

Prerequisite: 9 credits of health science and/or psychology

**KINES 446 (IL) History of Sport in the Modern World (3)** History of sport in modern world, ca. A.D. 1500 to present; concentrates on role of sport in societies outside United States.

Effective: Summer 2005

Prerequisite: KINES 141 or 3 credits of non-United States history

**KINES 447W Representing Sport in Popular Film (3)** Critical, contextual, and theoretical analyses of sport films focusing on popular narratives of social inequalities.

Effective: Spring 2013

Prerequisite: KINES 141KINES 345

**KINES 448 Coping with Life After Sport (1)** Psychosocial concerns affecting student-athletes as they enter the transition period following sport disengagement, focusing on coping interventions.

Effective: Summer 2002

Prerequisite: seventh-semester standing or higher; major or minor in Kinesiology or intercollegiate sport participation

**KINES 452 Applied Cardiovascular Physiology (3)** In-depth study of cardiovascular regulation during postural, environmental, and exercise stress.

Effective: Spring 2010

Prerequisite: KINES 350

**KINES 453 Environmental Physiology (3)** This course examines physiological function of humans at rest and during prolonged or maximal exercise in conjunction with environment stress (heat, cold, altitude, hyperbaria).

Effective: Spring 2013

Prerequisite: KINES 350

**KINES 454 Women's Health and Exercise Across the Lifespan (3)** In-depth study of the physiological role of exercise in modulating the health of girls and women during different phases of the lifespan.

Effective: Summer 2010

Prerequisite: KINES 350

**KINES 455 Physiological Basis of Exercise as Medicine (3)** Reviews the physiological basis of exercise for enhancing health and protecting against chronic diseases.

Effective: Summer 2014

Prerequisite: BIOL 141 or equivalent;KINES 350

**KINES 456 Physical Fitness Appraisal (4)** The basic components of physical fitness, how it can be measured, and how it can be developed.

Effective: Summer 1996

Prerequisite: or concurrent:KINES 350 3 credits in statistics

**KINES 457 Exercise Prescription and Case Studies (3)** Principles of exercise prescription; application of fitness appraisal based on current practices using evaluation and discussion of case studies.

Effective: Spring 2002

Prerequisite: KINES 350KINES 456

**KINES 460 Movement Disorders (3)** Major peripheral and central movement disorders and methods of their treatment.

Effective: Summer 1999

Prerequisite: KINES 360KINES 384

**KINES 461W Preparation for Research Project (2)** Planning and preparation for research project.

Effective: Fall 2006

Prerequisite: KINES 180KINES 260STAT 200KINES 321KINES 345KINES 350KINES 360KINES 384

**KINES 462W Research Project (2)** Completion of research topic.

Effective: Fall 2006

Prerequisite: KINES 461W

**KINES 463 Acquisition of Motor Skills (3)** Examination of principles of motor learning; the application of strategic factors such as: practice types, schedules, augmented information, and motivation.

Effective: Summer 2000

Prerequisite: KINES 360

**KINES 464 Children's Physical Education Curriculum and Practicum (3)** Curriculum for elementary school physical education emphasizing the skill theme approach.

Effective: Fall 2006

Prerequisite: KINES 362KINES 364KINES 366

**KINES 465 Neurobiology of Sensorimotor Stroke Rehabilitation (3)** This course is designed to expose students to the recent topics in motor stroke rehabilitation research through literature.

Effective: Spring 2011

Prerequisite: KINES 360KINES 384

**KINES 466 Assessment and Evaluation in Physical Education and Health Education (2)** Explores measurement as an important and distinct component in a variety of physical education and health education contexts.

Effective: Spring 2006

Prerequisite: KINES 362KINES 364KINES 366

**KINES 468 Health Instruction in the School--Content and Method (3)** Methods, materials, and units of instruction.

Effective: Fall 2006

Prerequisite: KINES 362KINES 364 andKINES 366

**KINES 469W Curriculum Development in Health and Physical Education (3)** The content and process of K-12 school health and physical education curriculum development for public school students.

Effective: Fall 2006

Prerequisite: KINES 362KINES 364KINES 366

**KINES 481W Scientific Basis of Exercise for Older Adults (3)** Study of age-associated physical changes and the effects of exercise on the aging process.

Effective: Spring 2001

Prerequisite: KINES 350

**KINES 483 Motor Patterns of Children (3)** Development of motor patterns. Fundamentals of movement, basic motor skills, and adaptation of the body to external forces.

Effective: Summer 1996

Prerequisite: KINES 202

**KINES 484 Advanced Biomechanics (3)** The use of advanced biomechanics to provide an in-depth understanding of the principles which underpin human movement.

Effective: Spring 1999

Prerequisite: KINES 384

**KINES 485 Science of Training Athletes (3)** Application of scientific data knowledge to analyze sport training.

Effective: Fall 1996

Prerequisite: KINES 350KINES 384

**KINES 486 Legal Issues in Sport (3)** Contemporary legal issues in sport and their implications for sport managers.

Effective: Summer 1996

Prerequisite: seventh-semester standing

**KINES 488 Mechanics of Locomotion (3)** This course examines the forces and motions characteristic of locomotion, with emphasis on walking, the most common human activity.

Effective: Summer 2002

Prerequisite: KINES 384 or previous coursework in biomechanics (or mechanics) and musculoskeletal anatomy

**KINES 492W Programming for Business and Agencies (3)** Fundamentals of program development applied to corporate and private physical fitness businesses.

Effective: Fall 2006

Prerequisite: KINES 395B

**KINES 493 Principles and Ethics of Coaching (3)** Integration of the practical and theoretical knowledge necessary for effective coaching through classroom and field experiences.

Effective: Fall 2006

Prerequisite: KINES 180 orKINES 366

**KINES 494H Senior Honors Thesis (1-6)** Independent study directed by a faculty supervisor that culminates in the production of a thesis.

Effective: Summer 2008

Prerequisite: Approval of honors thesis advisor

**KINES 495A Practicum in Student Teaching (12)** Supervised teaching of health and physical education in K-12 public schools with seminars focused on transition from student to professional.

Effective: Fall 2006

Prerequisite: A grade of C or higher in all required courses in the Teacher Preparation Option

**KINES 495B Field and/or Research Practicum in Kinesiology (6)** Participation under supervision in a field or research practicum.

Effective: Fall 2006

Prerequisite: KINES 395B seventh-semester standing 9 credits of 400-level KINES courses 2.00 cumulative GPA

**KINES 495C Exercise Science Practicum (3 per semester/maximum of 6)** Participation under supervision in a health and fitness setting.

Effective: Fall 2006

Prerequisite: KINES 141KINES 180KINES 200KINES 202 and fifth semester standing

**KINES 495D Expanded Field and/or Research Practicum in Kinesiology (1-6)** Additional participation under supervision in a field or research practicum.

Effective: Spring 2006

Concurrent: KINES 495B

**KINES 495E Advanced Professional Development in Kinesiology (3)** Professional development preparation focused on

knowledge, skills and abilities to complete national certification; obtain internships, employment or graduate school admission.

Effective: Summer 2014

Prerequisite: KINES 350 Concurrent: KINES 456 and KINES 457

**KINES 495F Field Practicum in Athletic Training (3)** Participation under supervision in a field practicum.

Effective: Summer 1996

Prerequisite: KINES 395I

**KINES 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 1996

**KINES 496A Independent Study Athletic Training (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**KINES 496A Independent Study Athletic Training (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 496B Independent Study Biomechanics (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**KINES 496B Independent Study Biomechanics (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 496C Independent Study Exercise Physiology (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**KINES 496C Independent Study Exercise Physiology (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 496D Independent Study History and Philosophy of Sport (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**KINES 496D Independent Study History and Philosophy of Sport (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 496E Independent Study Motor Control (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**KINES 496E Independent Study Motor Control (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 496F Independent Study Psychology of Movement and Sport (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**KINES 496F Independent Study Psychology of Movement and Sport (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 496G Independent Study Teaching and/or Coaching (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2014 Ending: Summer 2014

**KINES 496G Independent Study Teaching and/or Coaching (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 496H Kinesiology Honors Independent Study** (1-9 per semester/maximum of 18) For non-thesis independent study/research by Schreyer Honors College scholars.  
Effective: Summer 2013

**KINES 496K Independent Study Applied Kinesiology** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2014 Ending: Summer 2014

**KINES 496K Independent Study Applied Kinesiology** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1996

**KINES 497A Advanced Anatomy** (3) This course is designed to provide students with an established anatomy background the basic concepts and applications of human cadaver dissection. The course includes: proper dissection techniques and upper and lower extremity cadaver dissection.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: KINES 202 or equivalent and permission of program

**KINES 497A Genetics and Human Performance** (3) Acquaint students with one of the most rapidly expanding areas of basic biological science that will influence Kinesiology. The course is along the lines of the interaction of genetic and environmental factors in human function at peak (performance) levels, as well as, normal functional baselines.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**KINES 497B Exercise is Medicine** (3) This course is designed for students interested in developing a deeper understanding of the physiological mechanisms behind exercise as medicine. In this course we will explore how exercise modifies physiological function, and how these adaptations translate into protective and therapeutic benefits for a wide range of healthy and diseased populations.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: BIOL 141 and KINES 350

**KINES 497B Clinical Neuroanatomy** (3) The goal of this course is for students to obtain a working knowledge of the nervous system and neurological disorders. This course is most appropriate for students pursuing a career in medicine or the allied health professions.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: KINES 180 KINES 202 KINES 360 and BIOL 141

**KINES 497C Nutrition, Exercise and Sport Performance** (3) This course is designed for students who have a background in exercise physiology and wish to develop a better understanding of the relationship between nutrition, exercise, and sport performance.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: NUTR 251 KINES 350

**KINES 497C Nutrition, Exercise, and Sport Performance** (3) The course is designed to support critical thinking in exercise nutrition. This requires knowledge of fundamental principles of nutrition, exercise, and performance, as well as an understanding of the scientific methods that can be used to evaluate the benefits of harm of nutritional practices. These skills will enable students to independently acquire knowledge in the field of exercise nutrition, and to translate this knowledge into practice.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: KINES 350 NUTR 251

**KINES 497D High School Athletics - Administration and Coaching** (3) Examination and full disclosure of the role and responsibilities of the interscholastic athletic director.  
Effective: Summer 2014 Ending: Summer 2014

**KINES 497E Sport Management** (3) Study of contemporary sport management issues.  
Effective: Summer 2014 Ending: Summer 2014

**KINES 497E Ergogenic Aids** (3) Students will describe and evaluate the evidence base for agents and practices used to improve aerobic power, strength, body composition, metabolism and thermoregulation as they relate to exercise and physical activity.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: KINES 345 KINES 350 and BIOL 141

**KINES 497F Physical Activity and Public Health** (3) An examination of the role of physical activity in public health. Includes introduction to basic epidemiology, measurement, dose-response relationships, chronic disease prevention, and population level strategies for promoting physical activity in communities through policy and environmental strategies.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: KINES 321

KINES 497K **EKG Interpretation** (3) Providing skills and experience needed to read and interpret normal and abnormal EKG's. at may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: KINES 456 with "C" grade or better or with program permission

KINES 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1996

KINES 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2011

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## Korean (KOR)

KOR 001 **Level One Korean A** (4) Listening, speaking, reading, writing Korean: an introduction for beginners; basic structures and vocabulary; cultural elements.  
Effective: Spring 2011

KOR 002 **Level One Korean B** (4) Listening, speaking, reading, writing Korean: structures and vocabulary; cultural elements.  
Effective: Spring 2011  
Prerequisite: KOR 001

KOR 003 **Level Two Korean A** (4) Further development of listening, speaking, reading, writing skills in Korean; cultural elements.  
Effective: Spring 2011  
Prerequisite: KOR 002

KOR 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2010

KOR 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

KOR 110 **Level Two Korean B** (4) This is the fourth semester course of sequenced Korean study at Penn State. It is the Advanced-Intermediate course.  
Effective: Fall 2013  
Prerequisite: KOR 001KOR 002 andKOR 003 (or equivalent cumulative knowledge of Korean)

KOR 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2010

KOR 197A **Introudction to Korean Culture** (3) This course is to help students understand Korea and its culture using popular TV dramas, films, and K-pops. Lecture and discussion, and films will be used. The course will cover the following topics: history, popular culture, religion, and social issues. Students will also learn beginner level Korean in class.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

KOR 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

KOR 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2010

KOR 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2010  
Prerequisite: prior approval of proposed assignment by instructor

KOR 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2010

KOR 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2010

KOR 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

KOR 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2010  
Prerequisite: prior approval of proposed assignment by instructor

KOR 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2010



KOR 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

KOR 401 (IL) **Level 3 Korean A** (4) KOR 401 is the first semester of third-year Korean, which is equivalent to Advanced-Intermediate Korean I.  
Effective: Summer 2014  
Prerequisite: KOR 110 or equivalent

KOR 402 (IL) **Level 3 Korean B** (4) KOR 402 is the second semester of third-year Korean, which is equivalent to Advanced-Intermediate Korean II.  
Effective: Summer 2014  
Prerequisite: KOR 401 or equivalent

KOR 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2010

KOR 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2010

KOR 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2010

KOR 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2010

KOR 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2010

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## Labor Studies and Employment Relations (LER)

LER 083S (GS) **First-Year Seminar in Labor Studies and Employment Relations** (3) Critical approaches to the dimensions and direction in Labor and Employment Relations.  
Effective: Spring 2008

LER 100 (GS) **Employment Relations** (3) Introductory analysis of the employment relationship and of the interrelated interests of managements, workers, unions, and the public.  
Effective: Spring 2008

LER 136 (US) (WMNST 136) **Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.  
Effective: Spring 2008

LER 136U (US) (WMNST 136U) **Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

LER 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2008

LER 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2008

LER 201 (GS) **Employment Relationship: Law and Policy** (3) An examination of basic legal principles underlying the employment relationship and their social, political, and economic bases.  
Effective: Spring 2008

LER 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2008

LER 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2008

LER 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2008

LER 299 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2008

LER 312 **Research Methods in Labor Studies and Employment Relations** (4) Provides an understanding of social science research as employed in the field of Human Resources and Employment Relations.  
Effective: Spring 2008

LER 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

LER 399 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2008

LER 400 (IL) **Comparative Employment Relations Systems** (3) Analysis of structure and elements of employment relations systems in developed and developing areas.  
Effective: Spring 2008  
Prerequisite: 3 credits in Labor and Employment Relations

LER 401 **The Law of Labor-Management Relations** (3) Development of Anglo-American law regulating collective bargaining, with emphasis on American labor-management relations under Wagner, Taft-Hartley, and other acts.  
Effective: Spring 2008  
Prerequisite: 3 credits in Labor and Employment Relations or Political Science

**LER 414W Labor and Employment Relations Theory** (3) Content and implications of major and minor theories of Labor and Employment Relations.  
Effective: Spring 2008

Prerequisite: 6 credits in Labor and Employment Relations

**LER 424 Employment Compensation** (3) Development and management of employee compensation systems.

Effective: Spring 2008

Prerequisite: LER 201 and sixth-semester standing

**LER 425 Employee Benefits** (3) The examination of employee benefits programs used by employers to meet the welfare needs of employees and their families.

Effective: Spring 2008

Prerequisite: LER 201 and 6th semester standing

**LER 426 Staffing and Training Strategies in Organizations** (3) This course focuses on the theory and practice of human resource staffing and training in organizations.

Effective: Spring 2011

Prerequisite: 3 credits in Labor and Employment Relations (LER) or Human Resources and Employment Relations (HRER)

**LER 434 Collective Bargaining and Contract Administration** (3) Theory, practice, and economic impact of collective bargaining, including administration of the collective bargaining agreement.

Effective: Spring 2008

Prerequisite: LER 100

**LER 435 Labor Relations in the Public Sector** (3) Analysis of labor relations problems within different areas of public employment.

Effective: Spring 2008

Prerequisite: 3 credits in Labor and Employment Relations

**LER 437 Workplace Dispute Resolution** (3) Dispute resolution practices and procedures used in the workplace and employment law settings.

Effective: Spring 2008

Prerequisite: LER 100

**LER 444 Workplace Safety and Health: Principles and Practices** (3) The role of employees, unions, employers, and government in dealing with work-related safety and health issues.

Effective: Fall 2013

Prerequisite: LER 100 or sixth-semester standing

**LER 445Y (US) (AF AM 445Y, PL SC 445Y) Politics of Affirmative Action** (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

**LER 458Y (US) (HIST 458Y) History of Work in America** (3) A study of selected problems in the history of work in the United States, especially since 1877.

Effective: Spring 2008

Prerequisite: HIST 021/HIST 156 or LER 100

**LER 459 Collective Bargaining in Professional Sports** (3) Students will learn how collective bargaining works in professional sports and how it compares to bargaining in other industries.

Effective: Summer 2013

Prerequisite: 4th semester standing and LER 100

**LER 460 Human Resources Ethics** (3) Ethics of human resources management.

Effective: Spring 2011 Ending: Summer 2014

Prerequisite: Take one of the following courses: ARMY 402H P A 460HRIM 466MGMT 341MGMT 441NAVSC 402NURS 432PSYCH 281 3 credits in Labor and Employment Relations (LER) or Human Resources and Employment Relations (HRER)

**LER 460 Human Resources Ethics** (3) Ethics of human resources management.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Take one of the following courses: ARMY 402H P A 460HM 466MGMT 341MGMT 441NAVSC 402NURS 432PSYCH 281 3 credits in Labor and Employment Relations (LER) or Human Resources and Employment Relations (HRER)

**LER 464 (OLEAD 464) Communication Skills for Leaders in Groups and Organizations** (3) Theory-and research-based communication skills for leaders dealing with work-related problems in contemporary groups and organizations.

Effective: Spring 2013

**LER 465 (OLEAD 465) Collective Decision Making** (3) Application of theories of decision making to work-related issues in groups and organizations requiring collective resolution and action.

Effective: Spring 2013

**LER 468 American Labor Unions** (3) Students will examine, debate and gain a fundamental understanding of the current state of the American labor movement.

Effective: Spring 2014

Prerequisite: LER 100

**LER 472 (WMNST 472) Work-Life Practices and Policies** (3) Explore the causes and consequences of conflicts between

work, family, and other life commitments, and how these may be resolved.

Effective: Spring 2008

Prerequisite: 3 credits of LER

**LER 475H (GEOG 475H) Labor in the Global Economy: U.S. and South African Perspectives (3)** This course focuses on how the nature of work is changing in the global economy, and the implications for economic opportunity and inequality in both .

Effective: Spring 2008

Prerequisite: A minimum of 12 GEOG or LER credits before taking the course (or the permission of the program).

**LER 480 Current Issues in Human Resources (3)** Examines current issues in the field of human resource management, including innovative work schedules, telecommuting, non-traditional office environments, etc.

Effective: Spring 2008

Prerequisite: 3 credits of LER

**LER 485 The Business Side of Human Resources (3)** Students will examine the interface between HR, the business model, and other aspects of the business organization.

Effective: Spring 2012

Prerequisite: 6th semester standing and 6 credits of Labor Studies and Employment Relations

**LER 488 Career Development Seminar I (1.5)** This course features an introduction to several useful career development resources, development of a personal profile of your career-related strengths and interests, exploration of career options, creation of a career development plan, and guidance for securing prospective internships and other relevant experiences.

Effective: Spring 2014

Prerequisite: 4th semester standing

**LER 489 Career Development Seminar II (1.5)** This course is the second of two 1.5-credit seminars designed to help LER majors launch their career in labor, employment relations, or human resources. Both seminars guide students through the process of charting their career path and preparing for success as a professional. This seminar focuses on helping students to cultivate their professional brand, plan a job search strategy, market themselves as a professional in the world of work, manage a variety of interview challenges, and strengthen key work habits that are valued by employers and essential to success as a professional.

Effective: Spring 2014

Prerequisite: LER 488

**LER 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

**LER 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2008

**LER 495 Labor Studies Internship (1-12)** Supervised practicum in labor relations setting with union, management, or government agency.

Effective: Spring 2008

Prerequisite: prior approval by department

**LER 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2008

**LER 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2008

**LER 497A International Human Resource Management (3)** International Human Resource Management builds on the foundations of human resource management (HR) by considering what this concept means in different countries around the world. As organizations become increasingly international, issues of national culture and institutions can often stand in the way of a seamless progression of HRM across national boundaries. From a cultural perspective, the course compares how people in different countries see themselves and others around them, and how expectations, values, and beliefs can differ. From an institutional perspective, it compares how national level legislation, state intervention, trade union influence, and the respective power of shareholders versus stakeholders all impact on patterns of HRM practices in different countries.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**LER 497B Leadership Development: A Life-Long Learning Perspective (3)** The course examines the continuing influence of social and environmental factors in shaping leadership and leadership development.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**LER 497C Career Development Seminar II (1.5)** This seminar will help students to position themselves for a successful career as a professional in human resources, employment relations, or labor. This seminar focuses on helping students to launch their career by prioritizing potential employers and promoting yourself as a strong candidate for a career path and positions that match their interests and strengths. Students will discover proven techniques for marketing themselves

through their resume, correspondence, and screening interviews. This seminar includes guidelines for managing behavior-based interviews, strategies for showing prospective employers and recruiters how they can meet their needs and add value. The course also offers useful tips for negotiating offers and compensation packages as well as suggestions related to planning for graduate or professional school.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

LER 499 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2008

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## Landscape Architecture (LARCH)

LARCH 060 (GA;US;IL) **History of Design on the Land** (3) A survey of the historical development of outdoor space in relationship to allied arts from early beginnings to this century.  
Students may take only one course for General Education credit from LARCH 003 GA or 060 GA. Effective: Fall 2010

LARCH 065 (GA;US;IL) **Built Environment and Culture** (3) Investigates the relationship between socio-cultural practices and the development and organization of contemporary built environments.  
Effective: Summer 2005

LARCH 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

LARCH 112 **Introductory Design Studio** (3) Provides students with an interdisciplinary introduction to studio work in landscape design.  
Effective: Fall 2011  
Prerequisite: admission into the Department of Landscape Architecture LARCH 121S and LARCH 151

LARCH 121S **Landscape Architecture Orientation Seminar** (1) Introductory seminar involving readings on significant issues in landscape architecture. LARCH majors only.  
Effective: Spring 2007

LARCH 151 **Introduction to Design Visualization** (3) Provides students with an introduction to visualization techniques for landscape architectural design and planning.  
Effective: Summer 2008  
Prerequisite: admission into the Department of Landscape Architecture Concurrent: LARCH 121S

LARCH 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

LARCH 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2006

LARCH 211 **Design and Theory I: Introduction to Principles of Landscape Architectural Design** (4) An introduction to design theories and principles of landscape architecture. LARCH majors only.  
Effective: Fall 2011  
Prerequisite: LARCH 112 Concurrent: LARCH 221

LARCH 212 **Design and Theory II: Introduction to Issues of Place** (4) Studio design addressing issues of nature and culture; application of theories, processes, and presentation methods learned in course and concurrent courses. LARCH majors only.  
Effective: Fall 2011  
Prerequisite: LARCH 211 LARCH 221 LARCH 251 Concurrent: LARCH 222

LARCH 221 **Design Theory Seminar** (1) Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 211.  
Effective: Fall 2011  
Prerequisite: LARCH 112 Concurrent: LARCH 211

LARCH 222 **Design Theory Seminar** (1) Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 212.  
Effective: Fall 2011  
Prerequisite: LARCH 211 LARCH 221 Concurrent: LARCH 212

LARCH 231 **Introduction to Design Implementation** (3) Introduction of basic principles and tools supporting landform data, site systems, grading, visualization representation and site circulation.  
Effective: Spring 2009  
Prerequisite: LARCH 251

LARCH 241 **Ecological Principles for Landscape Design** (3) The development of basic ecological knowledge that becomes the basis for sensitive ecological design.  
Effective: Fall 2010  
Prerequisite: LARCH majors only or permission of the program.

LARCH 251 **Design Visualization and Graphics I** (3) Advanced visualization principles and techniques; computer-aided design, image processing, color theory and application; visual thinking and problem solving. For Landscape Architecture majors only.  
Effective: Fall 2008  
Prerequisite: LARCH 151

**LARCH 272 Landscape Architecture Field Trip** (1) A week-long class trip to visit recent projects, offices, and outstanding historical developments.

Effective: Spring 2007

Prerequisite: LARCH 241

**LARCH 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**LARCH 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**LARCH 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2006

**LARCH 311 Design and Theory III: Regional Planning and Landscape Systems** (4) An introduction to site planning, management, and design.

Effective: Fall 2011

Prerequisite: LARCH 241LARCH 212LARCH 222 Concurrent: LARCH 321

**LARCH 312 Design and Theory IV: Site and Community Design** (4) An introduction to master planning and community design. For landscape architecture majors only.

Effective: Fall 2011

Prerequisite: LARCH 311LARCH 321 Concurrent: LARCH 322

**LARCH 321 Design Theory Seminar** (1) Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 311.

Effective: Spring 2007

Prerequisite: LARCH 241LARCH 212LARCH 222 Concurrent: LARCH 311

**LARCH 322 Design Theory Seminar** (1) Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 312.

Effective: Spring 2007

Prerequisite: LARCH 311LARCH 321 Concurrent: LARCH 312

**LARCH 331 (IL) Landscape Architectural Design Implementation I** (3) Introduction to landscape construction materials and their use in design; includes principles and techniques for detailed design of site elements. For Landscape Architecture majors only.

Effective: Spring 2012

Prerequisite: LARCH 231

**LARCH 332 Landscape Architectural Design Implementation II** (3) Introduces the principles and techniques of planting design, including instruction in proper construction documentation. For Landscape Architecture majors only.

Effective: Spring 2012

Prerequisite: LARCH 331LARCH 341

**LARCH 341 Plants, People and Place: Plants in Landscape Architectural Design** (3) The ecological, historic, and aesthetic values of native and ornamental herbaceous and woody plants and their use in landscape design.

Effective: Summer 2006

Prerequisite: LARCH 241

**LARCH 361W Historic Issues in Landscape Architecture** (3) A review of design history (precedent studies), an introduction to historic method, history as an informant to design, reading the historic landscape, and issues of preservation and restoration. Landscape Architecture majors only.

Effective: Spring 2012

Prerequisite: LARCH 311

**LARCH 382 Professional Practice** (3) An investigation of current professional and business practices in the field of landscape architecture. For Landscape Architecture majors only.

Effective: Spring 2007

Prerequisite: LARCH 311

**LARCH 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2007

**LARCH 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2006

**LARCH 400 Introduction to Design and Theory (IUG)** (5) Introductory landscape architectural design and applied theory for IUG students.

Effective: Summer 1998

Prerequisite: admission to the IUG program Concurrent: LARCH 400A

**LARCH 414 Design and Theory V: Advanced Landscape Architectural Design** (5 per semester/maximum of 15) Review

of landscape architectural theories and issues; supports development of comprehensive design study and/or independent honors (Thesis-Based) design projects. LARCH Majors only.

Effective: Spring 2007

Prerequisite: LARCH 312LARCH 322

**LARCH 424 Design Theory Seminar** (3 per semester/maximum of 9) Inquiry-based reading and discussion of design theory literature relevant to contemporary landscape architecture issues. Topics vary each semester.

Effective: Spring 2012

Prerequisite: LARCH 312LARCH 322

**LARCH 431 Landscape Architectural Design Implementation III** (3) Introduces the principles and techniques of stormwater management and drainage design, including instruction in proper construction documentation, calculations and estimations. For Landscape Architecture majors only.

Effective: Spring 2012

Prerequisite: LARCH 332LARCH 312

**LARCH 450 Geodesign: Geospatial Technology for Design** (3) Interactive geodesign and digital design studio.

Effective: Fall 2012

**LARCH 494H Research Projects - Honors** (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2012

**LARCH 495 Internship** (1-13) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.

Effective: Fall 1981

Prerequisite: prior approval of proposed assignment by instructor

**LARCH 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**LARCH 496H Independent Studies - Honors** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

**LARCH 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**LARCH 497A Ecology and Field Identification of Central Appalachian Flora** (3) This course is an introduction to the field identification and ecology of herbaceous and woody plants of the central Appalachian region. We will focus on field characteristics of common plants and learn how to identify them to the level of species, if possible. This class is entirely field based and we will be taking field trips each and every week, regardless of the weather. Some trips will be within walking distance, others will require a van. As such, class enrollment is limited to 13 students. There will be weekly quizzes of both common and scientific names. You will also develop a digital plant collection by the end of the semester. As the seasons change, certain plants die back and others come into flower. The end of the semester will likely be an examination of winter characteristics.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**LARCH 497B Advanced Digital Landscape Modeling and Rendering** (3) As digital 3D modeling software has become more powerful and easy to use, it is now possible for the average student or professional to create stunning, photorealistic renderings of complex scenes that were once only possible by enlisting the most sophisticated Hollywood movie studios or professional computer graphics illustrators. As impressive as these computer renderings are, the quest for photographic realism has resulted in the loss of one of the most important qualities of traditional design drawings and renderings, imperfection. It's the "imperfections" (or perhaps subtle variations) in nature and the built environment that helps produce beauty. Perhaps it's the imperfection and ambiguity in traditional rendering techniques that helps make them so appealing and effective for visual communication.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**LARCH 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**LARCH 499A (IL) Design Theory Seminar** (1) Inquiry-based reading and discussion of design theory literature relevant to the focus and content of the associated design studio course, LARCH 499B. LARCH majors only.

Effective: Spring 2007

Prerequisite: LARCH 361W Concurrent: LARCH 499B LARCH 499C LARCH 499D

**LARCH 499B (IL) Design and Theory VI: Contemporary/International Landscape Architectural Design Issues** (5) Study of and design for sites, programs, and social groups associated with ongoing contemporary landscape architectural concerns. LARCH majors only.

Effective: Spring 2012



Prerequisite: LARCH 312 LARCH 361W Concurrent: LARCH 499A LARCH 499C LARCH 499D

LARCH 499D (IL) **Contemporary/International Special Topics** (3) Special topics related to, and study in conjunction with 499B. Landscape Architecture majors only.

Effective: Spring 2012

Prerequisite: LARCH 361W Concurrent: LARCH 499B

LARCH 499E (IL) **People and Protected Areas** (3) LARCH 499E is a three-credit seminar that aims to introduce students to key issues associated with communities, community design, biodiversity conservation, and the interface of people and conservation in the vicinity of Udzungwa Mountains National Park in south-central Tanzania. The format of the course is reading and discussion, where students read assigned literature and then contribute to discussions led by faculty, both to demonstrate their understanding of the reading assignments and to begin to explore key issues introduced by those readings. Students also write two papers, the first examining the interface of rural land use planning, community design, and biodiversity conservation; and the second focusing on biodiversity conservation in the context of human settlement near Udzungwa Mountains National Park. Student evaluation is based on seminar participation and the two papers.  
Effective: Summer 2014 Ending: Summer 2014

LARCH 499F (IL) **Community Design in the Vicinity of Udzungwa Mountains** (5) LARCH 499F is a five-credit course that focuses on student research projects associated with communities along the eastern boundary of Udzungwa Mountains National Park. We have purposefully maintained a general definition for the course to allow students to design projects that best suit their interests and skills. For example, some students may focus on evaluating existing village configurations and propose new designs that help villagers better meet their daily needs. Other students, in turn, may focus on developing a more marketable park that attracts larger numbers of visitors who stay in or near the park for longer periods of time - generating more income that ultimately will find its way, in part, to local communities.  
Effective: Summer 2014 Ending: Summer 2014

LARCH 499G (IL) **The Contribution of Service-Learning to Students and Community** (1) LARCH 499G is a one-credit course designed to enable students to reflect on what for most will be their first opportunity to visit and work in rural East Africa. It involves the development of daily journals to record reflections on their evolving awareness of Tanzania and the challenges that people and conservation face in this less-developed country. The journals provide a foundation of reflections about one or more issues that interest each - maybe (though not necessarily) something close to the focus of the specific education abroad experience involved (e.g., the relationship between people and protected areas in south-central Tanzania), maybe international development in general, or maybe another topic. The journals also should be important personally: In all likelihood, this six-week period will expose students to places, people, and challenges that they have never seen in person.  
Effective: Summer 2014 Ending: Summer 2014

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## Language and Literacy Education (LL ED)

LL ED 005 **College Reading Improvement I** (3) Improvement of basic reading skills: vocabulary development; literal and interpretive comprehension; application of these skills more efficiently into college work.

Effective: Spring 1992

Prerequisite: limited to students whose academic profile sheets indicate help in reading is needed

LL ED 010 **College Reading Improvement II** (3) Development of higher level comprehension, vocabulary, and study skills incorporated into content area reading.

Effective: Spring 1992

Prerequisite: LL ED 005

LL ED 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 1992

LL ED 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1992

LL ED 297A **Language and Composition** (1) Develop proficiency in researching, writing, reading and rhetoric through the exploration of current issues and policies in the field of education.

Effective: Summer 2014 Ending: Summer 2014

LL ED 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 1992

LL ED 400 **Teaching Reading in the Elementary School** (3) Introduction to the reading program; acquaintance with materials and techniques; observations of reading instruction; correlation with human growth and development.

Effective: Spring 2014

Prerequisite: C I 295A or C I 295B;EDTHP 115 or EDTHP selection Concurrent: LL ED 401 LL ED 402 for CEAED majors

LL ED 401 **Teaching Language arts in Elementary School** (3) Principles, problems, materials, and techniques involved in teaching speaking, listening, writing, and reading in the elementary school.

Effective: Spring 2014

Prerequisite: C I 295A or C I 295B;EDTHP 115 or EDTHP selection Concurrent: LL ED 400 LL ED 402 for CEAED majors

LL ED 402 **Teaching Children's Literature** (3) Survey of children's literature with an emphasis on the importance of literature in the development of the elementary school curriculum.

Effective: Spring 2014

Prerequisite: C I 295A or C I 295B;EDTHP 115 or EDTHP selection Concurrent: LL ED 400 LL ED 401 for CEAED majors

LL ED 411 **Teaching Language Arts in Secondary Schools I** (3) Exploration of language, literacy, and culture and development of curricular designs for teaching language arts in secondary schools.

Effective: Spring 1994

Prerequisite: ENGL 200 or 200-level literature course ENGL 444 Concurrent: LL ED 420

LL ED 412W **Teaching Language Arts in Secondary Schools II** (3) Exploration of language, literacy, and culture and development of curricular designs for teaching language arts in secondary schools.

Effective: Spring 2014

Prerequisite: LL ED 411 or LL ED 400 Concurrent: C I 412W

LL ED 420 **Adolescent Literature and Literacy** (3) Exploration of adolescent literacy and curricular designs for using the diversity of cultural voices in adolescent literature in secondary schools.

Effective: Spring 1992

Concurrent: LL ED 411

LL ED 445 **Teaching English in Bilingual/Dialectal Education** (3) Theories, techniques, materials for teaching English speaking, reading, and writing to bilingual and nonnative speakers in elementary and secondary schools.

Effective: Summer 2011

LL ED 450 **Content Area Reading** (3) Study of reading skills and materials for specific content areas; diagnostic and instructional procedures for classroom teachers.

Effective: Spring 2014

Prerequisite: EDPSY 014 or teaching experience

LL ED 462 **The Art of the Picturebook** 3 An in-depth study of picturebooks as art objects providing aesthetic experiences and contributing to our aesthetic development in literacy education.

Effective: Summer 2009

Prerequisite: ENGL 015 and 5th semester standing or higher

LL ED 465 **Fantasy Literature for Children** (3) A study of fantasy literature for children looking at a variety of fantasy

stories and examining them from different perspectives.

Effective: Summer 2010

Prerequisite: ENGL 015 and 5th semester standing or higher

LL ED 480 **Media Literacy in the Classroom** (3) Exploration of media languages and literacy in classrooms, learning in an electronic age; issues, ideas, and teaching strategies.

Effective: Spring 2005

Concurrent: LL ED 411 LL ED 420

LL ED 495 **School Practicum in Reading** (1-18) Supervised practicum providing field experiences at any grade level, with opportunities to assume various teaching roles.

Effective: Spring 1992

Prerequisite: LL ED 400

LL ED 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 1992

LL ED 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1992

LL ED 497A **CEAED PK-4 Literacy Block** (15) Course serves as block until CEAED students are registered by Department for appropriate section of LL ED 400, 401, 402, A ED 303 and MUSIC 241.

Effective: Summer 2014 Ending: Summer 2014

LL ED 497A **CEAED PK-4 Literacy Block** (15) Block of five 3 credit courses required of all students in CEAED PK-4 major including LL ED 400, 401, 402, A ED 303 and MUSIC 241.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

LL ED 497A **CEAED PK-4 Literacy Block** (15) Course serves as block until CEAED students are registered by Department for appropriate section of LL ED 400, 401, 402, A ED 303 and MUSIC 241.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

LL ED 497B **CEAED 4-8 Literacy Block** (9) Block of three 3 credit courses required of all students in CEAED 4-8 major including LL ED 400, 401, and 402.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

LL ED 497C **Children's Literature Through Picturebooks** (3) Students will gain knowledge of picture books and how picture books contribute to the literacy development of pre-K to 4th grade children.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 5th semester standing; ENGL 015

LL ED 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 1992

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## Languages (LANG)

**LANG 051 Elementary Intensive Less Commonly Taught Language for Graduate Students I** (3) Intensive introduction to a less commonly taught language: first half of elementary sequence in reading, writing, speaking, listening, cultural contexts.

Effective: Summer 2008

Prerequisite: graduate standing

**LANG 052 Elementary Intensive Less Commonly Taught Language for Graduate Students II** (3) Intensive introduction to a less commonly taught language: second half of elementary sequence in reading, writing, speaking, listening, cultural contexts.

Effective: Summer 2008

Prerequisite: LANG 051 and graduate standing

**LANG 053 Intermediate Intensive Less Commonly Taught Language for Graduate Students** (3) Continued intensive study of a less commonly taught language at the intermediate level: reading, writing, speaking, listening, cultural contexts.

Effective: Summer 2008

Prerequisite: LANG 052 or equivalent and graduate standing

**LANG 099 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

**LANG 196 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2007

**LANG 196A Elementary Intensive Turkish I** (4) Intensive introduction to Turkish: first half of elementary sequence in reading, writing, speaking, listening, cultural contexts.

Effective: Summer 2014 Ending: Summer 2014

**LANG 196B Elementary Turkish II** (4) Intensive introduction to Turkish: second half of elementary sequence in reading, writing, speaking, listening, cultural contexts.

Effective: Summer 2014 Ending: Summer 2014

**LANG 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2007

**LANG 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

**LANG 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2007

**LANG 296B Intermediate Intensive Turkish** (4) Continued intensive study of Turkish at the intermediate level: reading, writing, speaking, listening, cultural contexts.

Effective: Summer 2014 Ending: Summer 2014

**LANG 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2007

**LANG 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

**LANG 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

**LANG 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2007

**LANG 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2007

LANG 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

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## Latin (LATIN)

Knowledge of Greek or Latin not required. See also CLASSICS AND ANCIENT MEDITERRANEAN STUDIES and GREEK.

**LATIN 001 Elementary Latin** (4) Pronunciation; inflections; simple rules of syntax.  
Effective: Winter 1978

**LATIN 002 Elementary Latin** (4) Advanced syntax and sentence structure.  
Effective: Winter 1978  
Prerequisite: LATIN 001

**LATIN 003 Intermediate Latin** (4) Selected readings from representative authors.  
Effective: Winter 1978  
Prerequisite: LATIN 002

**LATIN 051 Elementary Intensive Latin for Graduate Students I** (3) Intensive introduction to Latin: first half of graduate intensive sequence in elementary reading, writing, syntax, and cultural contexts.  
Effective: Summer 2008  
Prerequisite: graduate standing

**LATIN 052 Elementary Intensive Latin for Graduate Students II** (3) Intensive introduction to Latin: second half of graduate intensive sequence in elementary reading, writing, syntax, and cultural contexts.  
Effective: Summer 2008  
Prerequisite: LATIN 051 and graduate standing

**LATIN 053 Intermediate Intensive Latin for Graduate Students** (3) Continued intensive study of Latin at the intermediate level: reading, writing, syntax, and cultural contexts.  
Effective: Summer 2008  
Prerequisite: LATIN 052 or equivalent and graduate standing

**LATIN 099 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**LATIN 101 Introductory Latin** (4) Introduction to Latin forms, syntax, and vocabulary.  
Effective: Summer 2007

**LATIN 102 Advanced Latin** (4) Advanced study of Latin grammar, syntax, and vocabulary.  
Effective: Summer 2007  
Prerequisite: LATIN 101 or evidence of advanced placement through a Latin A.P. exam (minimum grade of 3) or a placement exam set by the instructor

**LATIN 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

**LATIN 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**LATIN 203 Latin Reading and Composition** (4) The course reviews Latin grammar, syntax, and vocabulary and introduces students to classical Latin poetry and prose.  
Effective: Summer 2008  
Prerequisite: LATIN 102

**LATIN 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

**LATIN 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2001

**LATIN 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1983

**LATIN 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**LATIN 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

**LATIN 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**LATIN 402 Republican Literature** (3-12) Selected works by Plautus, Lucretius, Catullus, Cicero (content varies).

Effective: Summer 1995

Prerequisite: LATIN 003

**LATIN 403 Augustan Age Literature** (3-12) Selected works by Virgil, Horace, Propertius, Tibullus, Ovid, Livy (content varies).

Effective: Summer 1995

Prerequisite: LATIN 003

**LATIN 404 Silver Age Literature** (3-12) Selected works by Petronius, Seneca, Tacitus, Juvenal, Martial, Pliny the Younger (content varies).

Effective: Summer 1995

Prerequisite: LATIN 003

**LATIN 420 Medieval Latin Literature** (3-6) Survey of Medieval Latin literature.

Effective: Spring 1995

Prerequisite: LATIN 003

**LATIN 450W History of Latin** (3) History of the Latin language and its speakers, from their origins to the 2nd century C.E.

Effective: Summer 1994

Prerequisite: LING 102;LATIN 401LATIN 402 orLATIN 403

**LATIN 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

**LATIN 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**LATIN 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**LATIN 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**LATIN 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Latin American Studies (LATAM)

LATAM 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

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## Latina and Latino Studies (LTNST)

LTNST 100 (GH;US) **Introduction to Latina/s Studies** (3) This course provides an interdisciplinary introduction to the study of Latinas/os in the U.S.  
Effective: Fall 2012

LTNST 127 (US) (HIST 127) **Introduction to U.S. Latina/o History** (3) This course introduces students to the history of U.S. Latina/os, including Puerto Ricans, Dominicans, Chicanos, Cubans, and Central Americans.  
Effective: Fall 2012

LTNST 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2012

LTNST 226 (GH;US;IL) (ENGL 226) **Latina and Latino Border Theories** (3) English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture.  
Effective: Fall 2012

LTNST 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2012

LTNST 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2012

LTNST 300 (US) (WMNST 300) **Latinas in the US: Gender Culture and Society** (3) This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latina feminisms in the United States.  
Effective: Spring 2013  
Prerequisite: LTNST 100 or WMNST 100

LTNST 315 (GH;US) (SPAN 315) **Spanish and Spanish-speakers in the U.S.** (3) In this course, we investigate various aspects of the language(s) and language behaviors of U.S. Latinos.  
Effective: Fall 2012

LTNST 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2012

LTNST 403 (US) (CMLIT 403) **Latina/o Literature and Culture** (3) Literary and other forms of cultural expression (film, music, art, and theater) are compared across different Latina/o communities.  
Effective: Fall 2012  
Prerequisite: 3 credits in the humanities or in any LTNST course or 4th-semester proficiency in Spanish

LTNST 426 (US) (ENGL 426) **Chicana and Chicano Cultural Production: Literature, Film, Music** (3) An in-depth study of Chicana/Chicano literature, film, and music from the inception of the Chicano Movement (1965-1975) to the present.  
Effective: Fall 2012  
Prerequisite: 3 credits in English

LTNST 467 (US;IL) (HIST 467) **Latin America and the United States** (3) Historical development of policies of the United States with regard to Latin- American affairs from colonial times to the present.  
Effective: Fall 2012

LTNST 479 (GH;US) (LTNST 479) **U.S. Latina/o Culture en Espanol** (3) The history, culture, art, and social issues of Latinos in the United States.  
Effective: Summer 2014  
Prerequisite: SPAN 253W

LTNST 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Fall 2012

LTNST 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2012

LTNST 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.  
Effective: Fall 2012

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## Law And Society (LAWSC)

LAWSC 495 **Undergraduate Field Experience or Practicum** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.  
Effective: Fall 2013

LAWSC 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2013

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## Letters Arts And Sci (LAS)

LAS 495 **Undergraduate Field Experience or Practicum** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.  
Effective: Fall 2013

LAS 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2013

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## Liberal Arts (L A)

**L A 083S First Year Seminar in the Liberal Arts** (1) An exploration of a theme through the lens of the humanities, social sciences and diverse cultural perspectives.

Effective: Summer 2013

Prerequisite: open only to DUS students

**L A 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1994

**L A 098 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1994

**L A 100S Contemporary Legal Issues** (3) An introduction to law-related issues with a focus on current legal topics viewed from an across discipline perspective.

Effective: Summer 2013

**L A 101H (GWS) Honors Rhetoric and Civic Life** (4) Within a liberal arts framework and with attention to public discourse-- speaking, writing, online communication, and visual presentation--this course instructs students in the arts, practices, and principles of rhetoric.

Effective: Fall 2009

**L A 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1994

**L A 198 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1994

**L A 199 (IL) Foreign Study--Liberal Arts** (1-9) Study in selected foreign countries of the cultural, institutional, and/or social development of the host country.

Effective: Summer 2005

**L A 200 Business and the Liberal Arts** (1) Introduction to business careers and concepts for students enrolling in the Business and the Liberal Arts minor.

Effective: Summer 2007

**L A 201W Experiential Learning Portfolio** (3) Students will learn how to assemble a portfolio that reflects their progress, knowledge, and insight into college-level study.

Effective: Summer 2014

**L A 294 Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis. (No course under L A 294/494 may be offered without approval of the associate dean of liberal arts. All courses must have a specific title and letter suffix.)

Effective: Spring 1994

**L A 295 Undergraduate Field Experience or Practicum** (1-18) Approved experience, related to student career objectives, in agencies external to the University.

Effective: Fall 1983

**L A 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**L A 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**L A 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1994

L A 299 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

L A 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

L A 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2003

L A 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1994

L A 399 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

L A 401 **Professional Development for the Liberal Arts Student** (1) Provides Liberal Arts students with the techniques and information necessary to specify and implement postgraduation educational and career plans.  
Effective: Fall 1983

L A 402 **Fundraising Leadership: Building a Strong Base** (3) The course will focus on the fundamentals of fundraising and leadership, including communications, management of events and people, and stewardship.  
Effective: Summer 2014  
Prerequisite: 60 undergraduate credits or permission of program

L A 494 **Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis. (No course under L A 294/494 may be offered without approval of the associate dean of liberal arts. All courses must have a specific title and letter suffix.)  
Effective: Spring 1994

L A 494H **Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis. (No course under L A 294/494 may be offered without approval of the associate dean of liberal arts. All courses must have a specific title and letter suffix.)  
Effective: Fall 2007

L A 495 **Undergraduate Field Experience or Practicum** (1-12) Approved experience, related to student career objectives, in agencies external to University.  
Effective: Fall 1981

L A 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

L A 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

L A 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1994

L A 498H **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

L A 499 (IL) **Foreign Study--Liberal Arts** (1-9) Study in selected foreign countries of the cultural, institutional, and/or social development of the host country.  
Effective: Summer 2005

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## Library Studies (L ST)

**L ST 083S The Twenty-First Century Researcher** (1) Students learn to use technology and Libraries resources to access and cite relevant information into academic research projects.  
Effective: Fall 2009

**L ST 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**L ST 098 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2001

**L ST 100 Information Search Strategy** (1) Concepts and methodology for determining informational needs and planning efficient strategies to locate information in a library.  
Effective: Spring 1985  
Prerequisite: or concurrent: ENGL 015 or ENGL 030

**L ST 100H Information Search Strategy** (1) Concepts and methodology for determining informational needs and planning efficient strategies to locate information in a library.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: or concurrent: ENGL 015 or ENGL 030

**L ST 110 Information Organization and Retrieval** (3) Information structure and resource related to search and problem-solving procedures to identify, organize, and locate print and nonprint materials.  
Effective: Fall 1983  
Prerequisite: ENGL 015 or ENGL 030

**L ST 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**L ST 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**L ST 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**L ST 301H Information Research Methods and Systems** (1) Survey of information theories, structures and resources as related to library research methods for social, behavioral sciences and the humanities.  
Effective: Fall 1983

**L ST 370 Research Methods for Law and Government Information Resources** (3) Evaluating, retrieving and integrating Federal and Legal Information Resources into scholarly research.  
Effective: Spring 2005  
Prerequisite: 3 credits in Administration of Justice Political Science Communication History or Sociology

**L ST 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**L ST 490 (HIST 490) Archival Management** (1-3) Introduction to the principles and procedures in the management of archives and historical manuscripts.  
Effective: Fall 1978

**L ST 495 Internship** (1-9) Directed internship in library studies, archival administration, rare books curation and/or preservation.  
Effective: Summer 1995  
Prerequisite: L ST 490 or L ST 496

**L ST 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses. Students may not register for these courses without prior written approval of a faculty member in the department in which the courses are listed.  
Effective: Fall 1983

L ST 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

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## Linguistics (LING)

LING 001 (GS;US;IL) **The Study of Language** (3) A non-technical introduction to the study of human language, and its role in human interaction. Students who have successfully completed LING 100 may not enroll in LING 001.  
Effective: Summer 2005

LING 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1992

LING 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1992

LING 100 (GS) **Foundations of Linguistics** (3) Systematic study of linguistic structures in a variety of the world's languages; an overview of language, and its organization.  
Effective: Spring 2011

LING 102 (GH) **Introduction to Historical Linguistics** (3) How languages change and evolve over time; language families; effects of borrowing and language contact.  
Effective: Spring 2002  
Prerequisite: LING 010 or LING 100

LING 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1992

LING 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1992

LING 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

LING 294 **Research Project** A1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

LING 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1983

LING 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1992

LING 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

LING 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

LING 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1992

LING 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1992

LING 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

LING 402 **Syntax I** (3) Principles of grammatical analysis in the generative framework; an overview of syntactic structures across languages.  
Effective: Fall 2001

LING 404 **Phonology I** (3) The analysis of the sound systems of human languages; focus on common phonological processes across languages and on phonetics-phonology interface.  
Effective: Fall 2001

LING 429 (PSYCH 426) **Language and Thought** (3) Relations between language and cognition; cognitive implications of normal and impaired language development; cognition and bilingualism.  
Effective: Spring 2007  
Prerequisite: PSYCH 100/LING 001 or LING 100

LING 446 (PSYCH 427) **L1 Acquisition** (3) How children learn their first language; psycholinguistic aspects of lexical, syntactic, semantic, and phonological development.  
Effective: Spring 2010  
Prerequisite: LING 100 or PSYCH 002 or permission of program

LING 447 **Bilingualism** (3) Explores the social and psychological aspects of bilingualism; topics include languages in contact, transference, maintenance, and loss.  
Effective: Fall 2001

LING 448 **Sociolinguistics** (3) Issues in the study of language in its sociocultural context; analysis of social dialects and speech styles.  
Effective: Fall 2001

LING 449 **Semantics I** (3) The study of meaning in human language; methods of analysis; study of sense, reference, compositionality, quantification, presupposition, and sentence-level meaning.  
Effective: Fall 2001

LING 457 (PSYCH 457) **Psychology of Language** (3) Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.  
Effective: Fall 2013 Ending: Summer 2014  
Prerequisite: LING 100

LING 457 (PSYCH 457) **Psychology of Language** (3) Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: PSYCH 100 or LING 100

LING 493 **Field Methods** (3) Primary linguistic investigation of a language different from English; field work with a native speaker; data gathering; linguistic analysis.  
Effective: Fall 2001

LING 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

LING 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

LING 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

LING 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1983

LING 497A **EEG/ERP Methods and Experimental Research** (3) This course introduces students to the basic concepts, principles and research methods in scalp-recorded EEG, in particular the application of the Event-Related brain Potentials (ERPs) technique, signal-averaged EEG recordings that are time-locked to perceptual or cognitive events. The course also includes a practical part in which students receive hands-on training in which they learn to record, analyze and interpret ERP data.  
Effective: Summer 2014 Ending: Summer 2014

LING 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Fall 1992

LING 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Management (MGMT)

**MGMT 001S Business Leadership** (3) The aim of this course is to introduce fundamental concepts of business management and leadership.  
Effective: Spring 2000

**MGMT 100 Survey of Management** (3) Introduction to organizational factors relevant to management processes, including leadership, motivation, job design, technology, organizational design and environments, systems, change. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 304 or MGMT 301.  
Effective: Fall 1989

**MGMT 100W Survey of Management** (3) Introduction to organizational factors relevant to management processes, including leadership, motivation, job design, technology, organizational design and environments, systems, change. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 304 or MGMT 301.  
Effective: Summer 1993

**MGMT 150 Supervisory Management** (3) Preparation for supervisory positions in formal organizations. Emphasis placed on the motivational aspects of the supervisor's job.  
Effective: Summer 1990  
Prerequisite: MGMT 100

**MGMT 197 Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2008

**MGMT 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**MGMT 215 Entrepreneurial Mindset** (3) This course provides the opportunity to learn to think like an entrepreneur in the broader context of social entrepreneurship, intrapreneurship, creative problem solving, opportunity recognition, and innovation.  
Effective: Summer 2013

**MGMT 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small group basis.  
Effective: Spring 2008

**MGMT 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1989

**MGMT 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1989

**MGMT 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**MGMT 301 Basic Management Concepts** (3) Study of fundamental principles and processes available to the understanding of management. Not available to students who have taken B A 304.  
Effective: Summer 2013  
Prerequisite: ENGL 015 or ENGL 030; ECON 102 or ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**MGMT 301H Basic Management Concepts (Honors)** (3) Study of fundamental principles and processes available to the understanding of management.  
Effective: Spring 2014  
Prerequisite: ENGL 015 or ENGL 030; ENGL 137H or CAS 137H; ECON 102 or ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**MGMT 301W Basic Management Concepts** (3) Examination of fundamental principles and processes applicable to the study of management. Not available to students who have taken B A 304.  
Effective: Summer 2013  
Prerequisite: ENGL 015 or ENGL 030; ECON 102 or ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**MGMT 321 Leadership and Motivation** (3) Applies organizational behavior theories, concepts, and skills to leading and motivating individuals and groups.

Effective: Spring 2001

Prerequisite: B A 304 orMGMT 301 or 3 credits of psychology sociology or cultural anthropology

**MGMT 326 Organizational Behavior and Design** (3) Concepts, theories, and methods of managing people and designing organizations.

Effective: Spring 2008

Prerequisite: B A 304 orMGMT 301

**MGMT 331 Management and Organization** (3) Designing organizations to effectively manage new technologies, structures, and people in changing global contexts.

Effective: Spring 2001

Prerequisite: B A 304MGMT 100 orMGMT 301 ; or 3 credits of psychology sociology or cultural anthropology

**MGMT 341 Human Resource Management** (3) Introduction to the strategic planning and implementation of human resource management, including staffing, development, appraisal, and rewards.

Effective: Spring 2001

Prerequisite: B A 304 orMGMT 301

**MGMT 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 2000

Prerequisite: prior approval of proposed assignment by instructor

**MGMT 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2003

**MGMT 397A Organizational Theory** (1-6) Develop insights in students as to how organizations work and how different contingency factors can impact organizations and management decisions.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: MGMT 301

**MGMT 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2003

**MGMT 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

**MGMT 400 Organization Development** (3) A study of organizational change and methodologies related with change and improvement. Examination of planned change on processes, strategies, people and culture in organizations.

Effective: Spring 2008

Prerequisite: MGMT 301

**MGMT 401 Contemporary Issues in Management** (3) Advanced treatment of topics of current managerial significance. Issues examined will differ by instructor, section, and semester. Consult departmental office.

Effective: Spring 2008

Prerequisite: MGMT 321MGMT 331 ; orMGMT 326

**MGMT 402 Experiences in Organizational Relations** (3) An experiential approach to study of behavior in organizations, applying concepts and theories of management to interpersonal situations.

Effective: Spring 2008

Prerequisite: MGMT 301

**MGMT 409 Project Management for Engineers** (3) The course provides a real-time experience to students in engineering and engineering technology in project management with a focus on leadership behavior and decision making.

Effective: Spring 2008

Prerequisite: 7th semester standing

**MGMT 410 Project Management** (3) A problem-based, interdisciplinary course in project management skills and techniques needed to manage projects in a modern business environment.

Effective: Spring 2008

Prerequisite: MGMT 301SCM 310

**MGMT 415 Project Portfolio Management and Organizations** (3) An advanced course in project management focusing on portfolio planning and control within the context of specific organizational challenges.

Effective: Summer 2013

Prerequisite: SCM 301MGMT 409 orMGMT 410

**MGMT 418 Project Planning and Resource Management** (3) Advanced course in project management focusing on a more in-depth approach to project planning and scheduling and resource management.

Effective: Summer 2013

Prerequisite: SCM 301MGMT 409 orMGMT 410

**MGMT 420 Negotiation and Conflict Management** (3) An exploration of the sources of interpersonal conflict and

strategies of resolution in the managerial context.

Effective: Fall 2010

Prerequisite: MGMT 301 orB A 304

**MGMT 424 Interpersonal Relationships in Organizations** (3) Developing individual skills in interpersonal and group settings and experience-based and conceptual training in relating effectively to other people.

Effective: Spring 2008

Prerequisite: MGMT 321 orMGMT 326

**MGMT 425 (IST 425, ENGR 425) New Venture Creation** (3) Via problem-based learning, teams define new business ventures to meet current market needs, develop business plans, and present to investors.

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 orECON 014;CAS 100

**MGMT 426 (ENGR 426, IST 426) Invention Commercialization** (3) Working with Penn State inventions selected by the Intellectual Property Office, student teams define an optimum commercialization path each technology.

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 orECON 014;CAS 100

**MGMT 427 Managing an Entrepreneurial Start-Up Company** (3) Exploration of the tensions and experiences of starting and growing a new company.

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 orECON 014;CAS 100 ; 5th semester standing

**MGMT 431 Entrepreneurship and Small Business Management** (3) Entrepreneurship, new ventures, and management of small firms.

Effective: Spring 2008

Prerequisite: ACCTG 211MGMT 301MKTG 301

**MGMT 432 Small Business Field Study** (3) Supervised field study with a small firm.

Effective: Spring 2008

Prerequisite: MGMT 431

**MGMT 433 Leadership and Team Building** (3) Team-based learning approach to developing conceptual knowledge, skills sets, and personal competencies needed for leading and managing organizations.

Effective: Spring 2008

Prerequisite: MGMT 301

**MGMT 440 Advanced Human Resource Management** (3) In depth study of human resource management and personnel administration functions and processes.

Effective: Spring 2008

Prerequisite: MGMT 341

**MGMT 441 Organizational Staffing and Development** (3) This course focuses on the skills and methods managers need to manage staffing and development activities in organizations.

Effective: Spring 2011

Prerequisite: MGMT 341

**MGMT 443 Performance Management** (3) This course focuses on skills and methods managers need to enhance the contribution of employees to organizational performance and effectiveness.

Effective: Spring 2011

Prerequisite: MGMT 341

**MGMT 445 (US) Managing Differences in Organizations** (3) This course focuses on developing knowledge and skills for dealing with demographic, functional, occupational and identity-based differences within and among organizations.

Effective: Spring 2008 Ending: Fall 2014

Prerequisite: B A 304 orMGMT 301;MGMT 341

**MGMT 445 (US) Managing a Diverse Workforce** (3) This course focuses on developing knowledge and skills for managing demographic, functional, occupational and identity-based differences within and among organizations.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: B A 304 orMGMT 301;MGMT 341

**MGMT 450 Labor Management Relations** (3) Study of the key concepts and processes involved in current American labor/management relations.

Effective: Spring 2008

Prerequisite: MGMT 301

**MGMT 451W Business, Ethics, and Society** (3) Advanced examination of social, ethical, legal, economic, equity, environmental, public policy, and political influences on managerial decisions and strategies.

Effective: Spring 2004 Ending: Fall 2014

Prerequisite: B A 241 andB A 242 orB A 243

**MGMT 451W Business, Ethics, and Society** (3) Advanced examination of social, ethical, legal, economic, equity, environmental, public policy, and political influences on managerial decisions and strategies.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: B A 241 andB A 242 orB A 243 orB A 342

**MGMT 453 Creativity and Innovation** (3) Analysis of the process of innovation in organizations and of how creativity and other variables influence the process.

Effective: Summer 2007

Prerequisite: MGMT 301

**MGMT 461 (IL) International Management (3)** Examines issues of nations and cultures including motivation, communication, negotiation, leadership, ethics and social responsibility, and women in management.

Effective: Spring 2008

Prerequisite: B A 304 orMGMT 301

**MGMT 466 Organizational Learning and Knowledge Management (3)** Examination of the social processes through which organizations continuously develop, acquire, interpret, and apply information and knowledge for performance enhancement and continuous improvement.

Effective: Spring 2008

Prerequisite: MGMT 301

**MGMT 471 Strategic Management (3)** Issues that influence the competitive performance of the firm are identified and examined.

Effective: Spring 2004

Prerequisite: MGMT 326B A 411 or taken concurrently

**MGMT 471W Strategic Management and Business Policy (3)** Study of strategic management and business policy formulation and implementation processes.

Effective: Spring 2008

Prerequisite: MGMT 301MKTG 301FIN 301SCM 301

**MGMT 475W Strategic Product Development (3)** Study of an organization, industry, and evaluation of the introduction to a new product. Preparation of proposal for industry product.

Effective: Summer 2008

Prerequisite: 7th semester standing;MGMT 300;FIN 301;SCM 310;MKTG 301;M E 300 orMET 330;MCH T 213 orE MCH 213;EET 101 orE E 211

**MGMT 476 Product Realization Capstone (3)** Study of an organization, industry, and evaluation of the introduction of a new product. Preparation of proposal for industry product.

Effective: Summer 2008

Prerequisite: MGMT 475W ; 8th semester standing

**MGMT 483 Compliance and Fairness in Organizations (3)** Compliance with employment laws with respect to managing human resources and fair treatment in employer-employee relationships.

Effective: Summer 2007

Prerequisite: MGMT 341

**MGMT 489 Seminar in Management (3)** A capstone course in management for students of high academic achievement. Emphasis on in-depth research of current interest.

Effective: Spring 2008

Prerequisite: MGMT 301 and at least senior status

**MGMT 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2003

**MGMT 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**MGMT 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**MGMT 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1989

**MGMT 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1989

**MGMT 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2003

**MGMT 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

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## Mangt Info Systems (MIS)

**MIS 103 Microcomputer Applications in Business** (3) Introduction to current business uses of the microcomputer, including spreadsheets, database management, word processing, and decision-making models.  
Effective: Spring 2007

**MIS 190 Microcomputer Accounting and Transaction Processing** (3) Use of accounting software to manage small to medium sized businesses, transaction processing, general ledger, payables, receivables, inventory management, payroll.  
Effective: Spring 2007  
Prerequisite: CMPSC 203 or MIS 103 . Prerequisite or concurrent: 2 credits in Financial Accounting

**MIS 197 Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2007

**MIS 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**MIS 204 Introduction to Business Information Systems** (3) Introduction to the use of information systems in business organizations.  
Effective: Summer 2007

**MIS 204H Honors Introduction to Management Information Systems** (3) Introduction to the use of information systems in business organizations.  
Effective: Spring 2009

**MIS 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small group basis.  
Effective: Spring 2007

**MIS 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2007

**MIS 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2007

**MIS 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**MIS 301 Introduction to Business Applications Development** (3) Event-driven programming in a visual environment in which students will learn how to build business applications using current, state of the art technology.  
Effective: Spring 2007 Ending: Fall 2014  
Prerequisite: MIS 204 and SCM 200 Concurrent: SCM 302

**MIS 301 Business Analytics** (3) The application of IT tools and techniques to extract value from data sets to manage, manipulate and analyze data in organizations.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: SCM 200 or STAT 200; MIS 204 Concurrent: MATH 110 or MATH 140

**MIS 307 Algorithmic Concepts** (3) Using state-of-art programming language; concepts, program structure and design, documentation, file handling, and elementary data structures are introduced.  
Effective: Spring 2008  
Prerequisite: CMPSC 102 or CMPSC 101 or CMPSC 121

**MIS 336 Database Management Systems** (3) Theory and utilization of database management systems in organizations, including data modeling and applications development.  
Effective: Summer 2011  
Prerequisite: MIS 204 or MIS 110 or CMPSC 121 or CMPSC 102

**MIS 387 Website Design and Administration** (3) Applied, hands-on, interdisciplinary website design/administration course. Acquired concepts, techniques and tools are exercised in individual and team projects.  
Effective: Summer 2008  
Prerequisite: MIS 204

**MIS 390 Information Systems Management and Applications** (3) Specification, design and implementation of information systems directed at aiding decision making in organizations.  
Effective: Spring 2008



Prerequisite: MIS 204

**MIS 391 E-Commerce Strategies** (3) Introduction to the fundamental Principles of Electronic Commerce (E-Commerce) technologies, applications, and management of E-Commerce in modern organizations.

Effective: Spring 2007

Prerequisite: MIS 390

**MIS 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2007

**MIS 397A Data Analytics** (3) An introduction to data analytics with data preparation, visualization, dimensions reduction, modeling, and applications in different domain areas.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: SCM 200 or STAT 200 or equivalent

**MIS 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2007

**MIS 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

**MIS 404 Introduction to ERP and Business Processes** (3) A problem-based, interdisciplinary course on Enterprise Resource Planning (ERP) concepts and business processes.

Effective: Summer 2010

Prerequisite: MIS 204 or 1st Level Programming Course or with the permission of the program

**MIS 405 Supply Chain Information Systemes with Oracle** (3) Strategic design and implementation of Oracle supply chain management information systems in an ERP environment.

Effective: Summer 2010

Prerequisite: SCM 301 MIS 204

**MIS 406 Customer Information Systems with Oracle** (3) A technology-based exploration of the various Oracle Order Management and Customer Relationship Management tools.

Effective: Summer 2010

Prerequisite: MIS 405

**MIS 407 Enterprise Integration with Oracle** (3) This is a technology course focusing on software development in an Oracle eBusiness ERP Environment.

Effective: Fall 2012

Prerequisite: MIS 336

**MIS 410 Health Informatics Capstone** (3) Develop understanding of concepts in Health Information Systems including current trends and issues in using, designing and managing Health systems.

Effective: Spring 2013

Prerequisite: MIS 336 KINES 203

**MIS 413 Interface design for Information Systems Applications** (3) The study of interface design emphasizing application and user requirements, development and testing techniques, and information processing issues.

Effective: Spring 2007

Prerequisite: MIS 307 MIS 465

**MIS 430 Systems Analysis** (3) Information analysis and the logical specification of the system.

Effective: Spring 2007

Prerequisite: Prerequisite or concurrent: MIS 336

**MIS 431 Business Data Management** (3) The architecture of business information processing systems and technical aspects of database management.

Effective: Spring 2007 Ending: Fall 2014

Prerequisite: MIS 204 Concurrent: SCM 301

**MIS 431 Business Data Management** (3) Management of data including large, complex sets to support business analytics, strategy, and operations.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MIS 301 Concurrent: SCM 301

**MIS 432 Business Information System Analysis** (3) The analysis of business information systems and the requirements specifications of redesigned systems.

Effective: Spring 2007

Prerequisite: MIS 431

**MIS 434 Internet Technologies** (3) Technical foundations of the eBusiness environment and web applications development to support internet-based commerce.

Effective: Spring 2007 Ending: Fall 2014

Prerequisite: MIS 431 Concurrent: MIS 432

**MIS 434 Internet Technologies** (3) Technical foundations and web applications to support internet-based commerce.

Effective: Spring 2015 Future: Spring 2015  
Prerequisite: MIS 431 Concurrent: MIS 432

**MIS 435 Systems Design and Implementation** (4) Logical and physical design of information systems and implementation.

Effective: Fall 2012  
Prerequisite: MIS 430 and a second-level programming course

**MIS 436 Business Data Communications** (3) Introduction to the principles and techniques of business data communication encompassing transmission concepts, network analysis, design, implementation, and administration.

Effective: Spring 2007  
Prerequisite: MIS 431

**MIS 441 Business Intelligence for Decision Making** (3) Application of Information Technology based methods and tools to analyze business data and support decision making.

Effective: Summer 2014  
Prerequisite: MIS 431

**MIS 442 Business Information Systems Design** (3) Object-oriented concepts such as: object, instance, class, inheritance, polymorphism; application of these methodologies and design patterns to business system analysis.

Effective: Summer 2007  
Prerequisite: MIS 432

**MIS 445 Business Intelligence** (4) Develops insights and skills related to Business Intelligence, Data Warehousing, Data Mining, Analytics, OLAP, and report generators.

Effective: Spring 2012  
Prerequisite: MIS 336

**MIS 446 Information Technology and Business Strategy** (3) Strategic use and management of information technology in digital global economy.

Effective: Spring 2008  
Prerequisite: MIS 390

**MIS 448 Business Telecommunications** (3) Introduces telecommunication concepts, its evolution, and present applications in business. Discusses the software and hardware components of telecommunication networks.

Effective: Spring 2007  
Prerequisite: MIS 390

**MIS 450 System Design Project** (3) A project in the design, specification, and programming of a system in an application area.

Effective: Spring 2009  
Prerequisite: MIS 307 MIS 465; MIS 448 ; 3 additional credits of MIS at the 300- or 400-level; seventh or eighth semester standing

**MIS 461 Web Technologies** (3) Fundamentals of Web development for e-business and related project management.

Effective: Spring 2007  
Prerequisite: MIS 307 and MIS 465

**MIS 465 DataBase Management** (3) Provides a comparison of techniques, methodology of systems, limitations, and applications of various data base management systems.

Effective: Spring 2008  
Prerequisite: CMPSC 102 or CMPSC 101 or CMPSC 121 and MIS 390

**MIS 466 Business Programming for the WEB** (3) Advanced programming for WEB-based applications.

Effective: Spring 2007  
Prerequisite: MIS 307

**MIS 470 Advanced Applications Development** (4) Focus on concepts and practice of advanced tools and techniques such as application generators, object-oriented methods, and client/server development.

Effective: Fall 2012  
Prerequisite: MIS 336 CMPSC 102 or CMPSC 121

**MIS 479 Management of Operations Information/ERP** (3) Management and implementation of enterprise information systems for business integration and supply chain management.

Effective: Summer 2007  
Prerequisite: MIS 390 or MIS 431

**MIS 479W Management of Operations Information/ERP** (3) Management and implementation of enterprise information systems for business integration and supply chain management.

Effective: Spring 2008 Ending: Fall 2014  
Prerequisite: MIS 390 or MIS 431

**MIS 479W Enterprise Information Systems** (3) Management and implementation of enterprise information systems for business integration and supply chain management.

Effective: Spring 2015 Future: Spring 2015  
Prerequisite: MIS 434

**MIS 489 Seminar in Information Systems** (3) Covers new trends and concepts in information/processing technology and their applications and impact on computer information systems.

Effective: Spring 2007  
Prerequisite: MIS 307 and MIS 465

**MIS 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2007

**MIS 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2008

**MIS 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2007  
Prerequisite: prior approval of proposed assignment by instructor

**MIS 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2007

**MIS 496A Social Media Project Development** (1-6) Work with instructor to develop a series of exercises and projects for a social media module and course.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: MIS 387

**MIS 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2007

**MIS 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2007

**MIS 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

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## Marketing (MKTG)

**MKTG 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**MKTG 220 Introduction to Selling Techniques** (3) Principles underlying the sales process and practical application of these principles to selling situations. Studies role of selling in total marketing process.  
Effective: Spring 2008  
Prerequisite: third-semester standing

**MKTG 221 Contemporary American Marketing** (3) Social and economic aspects, movement of goods and services from producers to consumers; analysis of marketing functions, systems, and institutions. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 303 or MKTG 301.  
Effective: Spring 1996  
Prerequisite: 3 credits in economics

**MKTG 221W Contemporary American Marketing** (3) Social and economic aspects; movement of goods and services from producers to consumers; analysis of marketing functions, systems, and institutions. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 303 or MKTG 301.  
Effective: Spring 1993  
Prerequisite: 3 credits in economics

**MKTG 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**MKTG 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**MKTG 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

**MKTG 301 Principles of Marketing** (3) Focuses on customer behavior, product, channels of distribution, promotion, and pricing with emphasis on a culturally diverse environment. Not available to students who have taken B A 303.  
Effective: Summer 2013  
Prerequisite: ENGL 015 or ENGL 030; ECON 102 or ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**MKTG 301H Principles of Marketing (Honors)** (3) This course emphasizes fundamental marketing concepts (e.g., segmentation, targeting, and positioning) and the use of marketing research to inform managerial decision-making.  
Effective: Spring 2014  
Prerequisite: ENGL 015 ENGL 030 ENGL 137H or CAS 137H; ECON 102 or ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**MKTG 301W Principles of Marketing** (3) Focuses on customer behavior, product, channels of distribution, promotion, and pricing with emphasis on a culturally diverse environment. Not available to students who have taken BA 303.  
Effective: Summer 2013  
Prerequisite: ENGL 015 or ENGL 030; ECON 102 or ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**MKTG 302 Marketing Techniques for Electronic Commerce** (3) Explores methods to implement/adapt marketing methods to the Internet; builds upon introductory marketing classes to examine what does/doesn't work.  
Effective: Spring 2008  
Prerequisite: B A 303 or MKTG 301

**MKTG 310 Public Relations and Marketing** (3) Examination of the role of public relations in a company's efforts to manufacture and market its products and services.  
Effective: Spring 2008  
Prerequisite: B A 303 or MKTG 301

**MKTG 327 Retailing** (3) Management of marketing institutions in distribution channels from producers to consumers. Emphasis on retail institutions: location, personnel, merchandising, control, promotion.  
Effective: Spring 2008  
Prerequisite: B A 303 or MKTG 301

**MKTG 330 Consumer Behavior** (3) Application of behavioral science concepts to the understanding of buyer behavior as a basis for marketing management decision making.  
Effective: Spring 2008  
Prerequisite: B A 303 or MKTG 301

**MKTG 342 Marketing Research** (3) Research approaches, methods, and applications studied as a formal approach to problem solving for marketing decisions.

Effective: Spring 2008

Prerequisite: B A 303 orMKTG 301;SCM 200 orSTAT 200

**MKTG 344 Buyer Behavior** (3) Application of behavioral science concepts to the understanding of buyer behavior as a basis for strategic decisions in marketing management.

Effective: Spring 2012

Prerequisite: MKTG 301 andMKTG 342

**MKTG 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2003

**MKTG 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2003

**MKTG 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

**MKTG 410 Personal Selling** (3) Principles underlying the selling process and practical application of these principles to selling situations.

Effective: Spring 2008

Prerequisite: MKTG 301

**MKTG 420 Direct Marketing** (3) Applies principles of marketing management to the direct marketing of products by mail, telephone, print, and broadcast media.

Effective: Spring 2002

Prerequisite: MKTG 330MKTG 342

**MKTG 422 Advertising and Sales Promotion Management** (3) Perspectives and models of the key decisions involved in managing advertising and sales promotion campaigns.

Effective: Spring 2008

Prerequisite: MKTG 330 orMKTG 342

**MKTG 426 Business Marketing** (3) Developing marketing strategies and programs. The course emphasizes the special nature of the business and organizational markets.

Effective: Spring 2002

Prerequisite: MKTG 330MKTG 342

**MKTG 428 Advanced Sales Management** (3) Approaches to planning, organizing, staffing, training, directing, and controlling the sales force in support of marketing objectives.

Effective: Spring 2008

Prerequisite: MKTG 330MKTG 342

**MKTG 437 Advanced Retailing and Merchandise Management** (3) Analyzing planning and controlling the retail merchandising effort, including procurement, resource selection, vendor relations, product presentation, inventory control.

Effective: Spring 2002

Prerequisite: MKTG 330MKTG 342

**MKTG 440 Services Marketing** (3) Marketing theory and methods applied to profit and nonprofit service industries such as health care, finance, transportation, tourism, arts and consulting.

Effective: Spring 2002

Prerequisite: MKTG 330MKTG 342

**MKTG 441 Sustainability in Marketing Strategy** (3) This course examines sustainability in marketing strategy, including real- world applications, green solutions, and using marketing principles to solve social issues.

Effective: Spring 2014

Prerequisite: MKTG 301MKTG 342

**MKTG 443 Sports Marketing** (3) This course will focus on how companies develop, execute and measure marketing strategies and tactics to use sports teams, families, leagues and other organizations to market their products and services domestically and internationally to consumers and business partners. The course will examine the marketing strategies employed by sports teams and leagues.

Effective: Summer 2010

Prerequisite: B A 303 orMKTG 301

**MKTG 445 (IL) Global Marketing** (3) Role of international marketing in the global environment; political, economic, geographic, historical, cultural conditions; developing and implementing international marketing strategies.

Effective: Spring 2008

Prerequisite: B A 303 orMKTG 301

**MKTG 450W Marketing Strategy** (3) Market-oriented problems of the firm; identification and selection of market opportunities; formulation of competitive strategies; marketing policies and programs.

Effective: Spring 2008

Prerequisite: MKTG 330MKTG 342

**MKTG 475 Innovation and Product Management** (3) This course is an application-oriented interdisciplinary course on

new product development concepts, and innovation management.

Effective: Spring 2011

Prerequisite: MKTG 301

**MKTG 476 Sales Management** (3) Application of modern management principles to field sales force planning, organization, and administration; selection, training, and compensation plans.

Effective: Spring 2008

Prerequisite: MKTG 301 andMGMT 301

**MKTG 478 Services Marketing Management** (3) Conceptual understanding of services and the analytical tools that are used in solving strategic services marketing problems.

Effective: Spring 2008

Prerequisite: MKTG 301

**MKTG 480 Intermediate Social Media Marketing** (3) Social Media Marketing tools, techniques, and strategies to build brands and customers.

Effective: Spring 2014

Prerequisite: MIS 204 andMKTG 301

**MKTG 485 Business-to-Business Marketing** (3) Application of marketing principles to commercial enterprises, industrial firms, government, and other non-profit institutions.

Effective: Spring 2008

Prerequisite: MKTG 301

**MKTG 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2003

**MKTG 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2008

**MKTG 495 Internship** (1-18) Supervised off campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: B A 303 ORMKTG 301

**MKTG 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**MKTG 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**MKTG 497A Sports Business** (3) This course will introduce you to the major marketing and business activities of the sports industry. Emphasis will be placed on understanding the unique aspects of the sports product that is being marketed and on the sports consumer to whom the product is targeted. The course will cover a wide range of marketing concepts in international, intercollegiate, and men's and women's professional sports.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: MKTG 330MKTG 342

**MKTG 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2003

**MKTG 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

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## Materials Engineering Technology (MAE T)

**MAE T 201 Introduction to Materials Engineering Technology** (3) An introduction to Materials Engineering Technology emphasizing relationships between structure and properties of engineering materials.

Effective: Summer 2007

Prerequisite: CHEM 110MATH 082

**MAE T 202 Materials Testing** (3) A review of industrial methods and testing standards used for mechanical property testing and evaluation of engineering materials.

Effective: Spring 2005

Prerequisite: MATH 082PHYS 150

**MAE T 203 Introduction to Powder Metallurgy** (3) A comprehensive study of powdered metal technology including production, characterization, compaction, sintering, and finishing operations.

Effective: Summer 2007

Prerequisite: CHEM 110MATH 082

**MAE T 204W Structure Characterization Laboratory** (3) A hands-on experience course with emphasis on equipment and lab techniques used for microstructural evaluation of metals.

Effective: Summer 2007

Prerequisite: MAE T 201CHEM 111PHYS 150

**MAE T 205 Powder Metallurgy Laboratory** (4) A capstone course emphasizing hands-on laboratory experience in powder metallurgy and semester project; field trips to nearby P/M industries.

Effective: Summer 2007

Prerequisite: MAE T 201MAE T 202MAE T 203CHEM 111MATH 083

**MAE T 294 Research Topics** (1-12) Supervised student activities on research projects identified on an individual or small group basis.

Effective: Summer 2009

Prerequisite: third semester standing

**MAE T 296 Independent Study** (1-6) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2009

Prerequisite: prior written approval of MAE T faculty member

**MAE T 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2005

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## Materials Science and Engineering (MATSE)

**MATSE 081 (GN;IL) Materials in Today's World (3)** A survey of the properties, manufacture, and uses of polymers, ceramics and metals in today's world with emphasis on modern developments and new materials.  
Effective: Summer 2005

**MATSE 090H High-Tech Materials (1)** A series of introductory seminars concerning the most important aspects of modern materials technology; some laboratory visits will be included.  
Effective: Summer 1994

**MATSE 091 (GN) Polymers, Life and Society (3)** An exploration of the science and use of polymer materials and their impact on society using a case study approach.  
Effective: Summer 2005

**MATSE 101 (GN) (EGEE 101) Energy and the Environment (3)** Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.  
Effective: Fall 2007

**MATSE 101A (GN;IL) (EGEE 101A) Energy and the Environment (3)** Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.  
Effective: Fall 2007

**MATSE 112 (GN) Applied Materials Chemistry for Engineers (3)** Chemistry of materials with emphasis on intermolecular forces between atoms, molecules, ions, and dense materials and inorganic and organic physical chemistry. In most majors, this course is not a substitute for CHEM 013 or CHEM 112.  
Effective: Spring 2009  
Prerequisite: CHEM 110

**MATSE 201 Introduction to Materials Science (3)** Concepts of relationships between structure and thermal, optical, magnetic, electrical, and mechanical properties of metals, ceramics, glasses, and polymers.  
Effective: Summer 2007  
Prerequisite: CHEM 112;MATH 231

**MATSE 202 Introduction to Polymer Materials (3)** The materials science of organic or soft materials with an emphasis on synthetic and natural polymer.  
Effective: Spring 2012  
Prerequisite: CHEM 202MATH 231

**MATSE 259 Properties and Processing of Engineering Materials (3)** Relationship of structure and processing variables to the properties and service behavior of metals, polymers, and ceramics.  
Effective: Spring 2008  
Prerequisite: E MCH 213 orE MCH 210

**MATSE 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1994

**MATSE 400 Crystal Chemistry (3)** Principles of crystal chemistry applied to structures, structural defects and properties of organic, inorganic, intermetallic, and metallic crystals.  
Effective: Summer 2007  
Prerequisite: CHEM 112CHEM 113MATH 231MATH 251PHYS 214

**MATSE 401 Thermodynamics of Materials (3)** Review of equilibrium thermodynamics and applications to metallurgical and material systems.  
Effective: Fall 2012  
Prerequisite: CHEM 112

**MATSE 402 Materials Process Kinetics (3)** A treatment of process kinetics including chemical reaction kinetics and momentum, energy and mass transport.  
Effective: Fall 2012  
Prerequisite: MATH 251

**MATSE 403 (BIOE 443) Biomedical Materials (3)** Describe properties of materials and composites and their in vivo interactions.  
Effective: Spring 2007 Ending: Summer 2014  
Prerequisite: MATSE 201

**MATSE 403 (BME 443) Biomedical Materials (3)** Describe properties of materials and composites and their in vivo interactions.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MATSE 201 orCHEM 112 andMATH 230 orMATH 231



**MATSE 404 (IL) (BIOE 444) Surfaces and the Biological Response to Materials (3)** Focus is on the special properties of surfaces as an important causative and mediating agent in the biological response to materials.

Effective: Summer 2007 Ending: Fall 2014

Prerequisite: CHEM 111CHEM 113

**MATSE 404 (IL) (BME 444) Surfaces and the Biological Response to Materials (3)** Focus is on the special properties of surfaces as an important causative and mediating agent in the biological response to materials.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: CHEM 112 orMATSE 112

**MATSE 409 (NUC E 409) Nuclear Materials (3)** Nuclear reactor materials: relationship between changes in material properties and microstructural evolution of nuclear cladding and fuel under irradiation.

Effective: Summer 2002

Prerequisite: PHYS 214

**MATSE 410 Phase Relations in Materials Systems (3)** Phase rule; construction and interpretations of equilibrium diagrams; importance of nonequilibrium in materials.

Effective: Fall 2006 Ending: Summer 2014

Prerequisite: MATSE 201MATSE 401 Concurrent: MATSE 201 MATSE 400 MATSE 430

**MATSE 410 Phase Relations in Materials Systems (3)** Phase rule; construction and interpretations of equilibrium diagrams; importance of nonequilibrium in materials.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201MATSE 401

**MATSE 411 Processing of Ceramics (3)** Principles of ceramic processing, including powder preparation and characterization, forming operations, and the basic phenomena underlying these operations.

Effective: Fall 2005

Prerequisite: MATSE 400MATSE 402

**MATSE 412 Thermal Properties of Materials (3)** Generation of high temperatures, measurement of temperature, heat transfer and furnace design, thermal stability of ceramic materials, applied thermodynamics.

Effective: Fall 2005 Ending: Summer 2014

Prerequisite: MATSE 259 orMATSE 201 Concurrent: MATSE 401

**MATSE 412 Thermal Properties of Materials (3)** Generation of high temperatures, measurement of temperature, heat transfer and furnace design, thermal stability of ceramic materials, applied thermodynamics.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201 orMATSE 259MATSE 401 Concurrent: MATSE 401

**MATSE 413 Solid-State Materials (3)** Structures of metallic, ionic, and covalent solids, amorphous materials, and surfaces; electronic structure; electronic properties of solids and their manipulation.

Effective: Spring 2001

Prerequisite: or concurrent:MATSE 201

**MATSE 415 Introduction to Glass Science (3)** Composition, melting, fabrication, properties, and uses of glass; combinations of glass with metals and other materials.

Effective: Summer 2002

Prerequisite: MATSE 400MATSE 401MATSE 402MATSE 462

**MATSE 417 (E SC 417) Electrical and Magnetic Properties (3)** Electrical conductivity, dielectric properties, piezoelectric and ferroelectric phenomena; magnetic properties of ceramics.

Effective: Spring 2007 Ending: Fall 2014

Prerequisite: MATSE 400MATSE 402PHYS 214

**MATSE 417 (E SC 417) Electrical and Magnetic Properties (3)** Electrical conductivity, dielectric properties, piezoelectric and ferroelectric phenomena; magnetic properties of ceramics.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MATSE 400MATSE 413 Concurrent: MATSE 402

**MATSE 419 Computational Materials Science and Engineering (3)** Introduction to computational material science and engineering. Overview of the computational methods for materials, from atomistic to the continuum scale.

Effective: Spring 2012

Prerequisite: CMPSC 200

**MATSE 421 Corrosion Engineering (3)** Industrial forms of corrosion and preventive methods, and their description in terms of basic thermodynamic and kinetic considerations.

Effective: Summer 2007

Prerequisite: CHEM 112PHYS 212

**MATSE 422 Thermochemical Processing (3)** Physico-chemical aspects of high temperature extraction and processing of metals and alloys. Design and evaluation of processes and process options.

Effective: Summer 2002

Prerequisite: MATSE 401MATSE 402

**MATSE 424 Materials Selection and Design (1)** Introduction to the selection and design of materials for structural applications.

Effective: Summer 2002

Prerequisite: MATSE 201 orMATSE 259

**MATSE 425 Processing of Metals (3)** Modern methods of shaping metals in liquid and solid states: casting, joining,

powder and deformation processing. Design of new technology.

Effective: Fall 2006

Prerequisite: MATSE 402MATSE 410

**MATSE 426 (MN PR 426) Aqueous Processing (3)** A study of the chemical and engineering principles pertinent to metal processing in aqueous systems: hydrometallurgical extraction, plating, materials preparation.

Effective: Fall 2009

Prerequisite: EME 301 orMATSE 401

**MATSE 430 Materials Characterization (3)** Elements of crystallography and the characterization of crystalline and non-crystalline materials using x-ray diffraction, electron microscopic, and other instrumental techniques.

Effective: Spring 2001 Ending: Summer 2014

Prerequisite: PHYS 214

**MATSE 430 Materials Characterization (3)** Elements of crystallography and the characterization of crystalline and non-crystalline materials using x-ray diffraction, electron microscopic, and other instrumental techniques.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201MATSE 202 orMATSE 443

**MATSE 435 Optical Properties of Materials (3)** Electromagnetic spectrum, interaction of light with materials, color, thin film optical coatings, electro-, integrated and nonlinear optics.

Effective: Spring 1996

Prerequisite: MATSE 400

**MATSE 436 Mechanical Properties of Materials (3)** Fundamental relationships between structure and mechanical behavior of materials.

Effective: Fall 2012

Prerequisite: MATH 231MATH 250 orMATH 251MATSE 201 orMATSE 259PHYS 211 orE SC 314

**MATSE 440 (E MCH 440) Nondestructive Evaluation of Flaws (3)** Methods and limitations of nondestructive evaluation of mechanical flaws; optical, acoustical, electromagnetic, x-ray, radiography, thermography, and dye techniques.

Effective: Spring 2008

Prerequisite: E MCH 213 orE MCH 210H orE MCH 210

**MATSE 441 Polymeric Materials I (3)** Manufacture of industrially significant polymers together with discussion of their major chemical, physical, and mechanical properties.

Effective: Fall 2012

Prerequisite: CHEM 210MATH 231

**MATSE 443 Introduction to the Materials Science of Polymers (3)** Introduction to the nature and structure of high polymers. Characteristics of polymers and polymer systems.

Effective: Fall 2012

Prerequisite: CHEM 210MATH 231

**MATSE 444 Solid State Properties of Polymeric Materials (3)** Structure/property relationships in the bulk solid state of polymers. Characterization of bulk properties and structure.

Effective: Spring 2003

Prerequisite: MATSE 443

**MATSE 445 Thermodynamics, Microstructure, and Characterization of Polymers (3)** The properties of individual polymer chains. Theoretical and experimental techniques pertaining to the characterization of polymeric microstructure.

Effective: Fall 2002

Prerequisite: MATSE 443

**MATSE 445 Thermodynamics, Microstructure, and Characterization of Polymers (3)** The properties of individual polymer chains. Theoretical and experimental techniques pertaining to the characterization of polymeric microstructure.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 202 orMATSE 443

**MATSE 446 Mechanical and Electrical Properties of Polymers and Composites (3)** The mechanical (viscoelastic) and electric properties of polymers and poly-based composites.

Effective: Spring 2003 Ending: Summer 2014

Prerequisite: MATSE 443

**MATSE 446 Mechanical and Electrical Properties of Polymers and Composites (3)** The mechanical (viscoelastic) and electric properties of polymers and poly-based composites.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 202 orMATSE 443

**MATSE 447 Rheology and Processing of Polymers (3)** This course deals with the fluid mechanics, rheology, and processing of polymeric materials.

Effective: Fall 2002 Ending: Summer 2014

Prerequisite: MATSE 443

**MATSE 447 Rheology and Processing of Polymers (3)** This course deals with the fluid mechanics, rheology, and processing of polymeric materials.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 202 orMATSE 443

**MATSE 448 (CH E 442) Polymer Processing Technology (3)** Basic principles of polymer melt processing are reviewed and subsequently applied to the most important industrial processing operations.

Effective: Spring 2006

Prerequisite: MATSE 447 or CH E 302A

**MATSE 450 (E SC 450) Synthesis and Processing of Electronic and Photonic Materials (3)** The materials science of applying thin film coatings, etching, and bulk crystal growth; includes materials transport, accumulation, epitaxy, and defects.

Effective: Fall 2005

Prerequisite: MATSE 201 or E SC 414H sixth semester standing

**MATSE 455 Properties and Characterization of Electronic and Photonic Materials (3)** Materials characterization in general; electrical properties of crystals, contacts, films; optical properties of single phase materials, waveguide, and multilayer stacks.

Effective: Fall 2005

Prerequisite: MATSE 201 or E SC 414ME SC 314

**MATSE 460 Introductory Laboratory in Materials (1)** An introduction to comparative physical properties and characteristics of various materials including mechanical, electrical thermal, and structure/ morphology.

Effective: Spring 2001

Prerequisite: or concurrent: MATSE 201

**MATSE 462 General Properties Laboratory in Materials (1)** An introduction to comparative physical properties of various materials including mechanical, thermal electrical properties and the measurement of said properties.

Effective: Spring 2005

Prerequisite: MATSE 460

**MATSE 463 Characterization and Processing of Electronic and Photonic Materials Laboratory (1)** Provides experience with key processing methods for EPM materials and advanced characterization methods for EPM materials and simple device structures.

Effective: Spring 2009

Prerequisite: MATSE 400MATSE 430MATSE 450MATSE 455MATSE 460 Concurrent: MATSE 450 MATSE 455

**MATSE 468 Ceramics Laboratory III (1)** Cermaic processing and powder characteristics.

Effective: Spring 2009

Prerequisite: MATSE 462

**MATSE 471 Metallurgy Laboratory I (1)** A laboratory integrating experimental aspects of material contained in MATSE 402, 413, and 410, e.g. phase diagram determination, solidification micro- structures, etc.

Effective: Fall 2005

Prerequisite: MATSE 430

**MATSE 472 Metallurgy Laboratory II (1)** Application of principles of mechanical metallurgy, pyroprocessing, corrosion and metal processing.

Effective: Fall 2006

Prerequisite: MATSE 410MATSE 471

**MATSE 473 Polymeric Materials Laboratory--Synthesis (1)** Principles and practices of polymerization, including condensation, free radical (bulk, solution, suspension, emulsion), ionic, and Zeigler-Natta procedures.

Effective: Spring 2003

Prerequisite: MATSE 443

**MATSE 474 Polymeric Materials Laboratory--Characterization (1)** Principles and practices involved in determination of properties, structure and morphology, employing thermal, mechanical, spectroscopic, viscometric and computer techniques.

Effective: Spring 2003

Prerequisite: MATSE 443

**MATSE 475 (E SC 475) Particulate Materials Processing (3)** Fundamentals of processing particulate materials including production, characterization, handling, compaction, and sintering of metal, carbide, intermetallic, and composite powders.

Effective: Spring 2008

Prerequisite: E MCH 315E SC 414 or MATSE 259

**MATSE 483 (E SC 483) Simulation and Design of Nanostructures (3)** Introduction to computer simulation techniques and their applications at the physical/life sciences interface.

Effective: Fall 2007

Prerequisite: PHYS 214 or E SC 312MATH 230

**MATSE 484W (IL) International Internship in Materials: Research Definition and Methodology (3)** A course focused on international research, specific design and methodology, facilitated through the International Internship in Materials and Program.

Effective: Summer 2006

Prerequisite: Sixth-semester standing in Materials Science and Engineering; MATSE 201MATSE 460MATSE 492W  
satisfactory completion of cultural class from Office of Education Abroad

**MATSE 485W (IL) International Internship in Materials: Experimentation and Documentation (3)** A course focused on international research, specifically experimentation and documentation, facilitated through the International Internship in Materials Program.

Effective: Summer 2006

Prerequisite: Seventh-semester standing in Materials Science and Engineering; MATSE 484W ; satisfactory completion of cultural class from Office of Education Abroad

**MATSE 492W Materials Engineering Methodology and Design (3)** Designed to familiarize students with the literature and technology developments in the use of, and design with, materials in industrial applications.

Effective: Fall 2005 Ending: Summer 2014

Prerequisite: sixth semester standing in Materials Science and Engineering

**MATSE 492W Materials Engineering Methodology and Design (3)** Designed to familiarize students with the literature and technology developments in the use of, and design with, materials in industrial applications.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201MATSE 202MATSE 436 sixth semester standing in Materials Science and Engineering

**MATSE 493W Materials Science and Engineering Multidisciplinary Capstone Design Project (3)** This course focuses on multidisciplinary industry-sponsored and community service-based design projects offered in conjunction with the College of Engineering's Learning Factory.

Effective: Summer 2012

Prerequisite: MATSE 492W

**MATSE 494M Research and Design Senior Project (1-3)** Continuation of a research problem in materials culminating in a bound thesis describing the work.

Effective: Fall 2007

**MATSE 494W Research and Design Senior Project (1-3)** Continuation of a research problem in materials culminating in a bound thesis describing the work.

Effective: Spring 2006

**MATSE 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1994

**MATSE 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1994

**MATSE 497A Nanomedical Applications in Materials Science and Engineering (3)** This course will cover topics in MATSE of special interest for nanomedical applications. Topics include nanoparticle systems for drug delivery and bioimaging, interfaces in biological systems, and material interactions in the physiological environment.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: CHEM 112 orMATSE 112MATH 141BIOL 110 andBIOL 230W or equivalentCHEM 210 orCHEM 202MATSE 403 or equivalent or upon approval of Dr. Adair

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## Mathematics (MATH)

**MATH 001 Developmental Mathematics** (6) Arithmetic operations, ratios, proportions, percents; measurement; polynomial and rational expressions; exponents, radicals; equations, inequalities, systems of equations; graphing; applications. Students who have passed MATH 003 may not schedule this course for credit. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.  
Effective: Spring 1994

**MATH 002 Elementary Geometry With Problem Solving** (4) Geometric congruence, similarity, area, surface area, volume, introductory trigonometry; emphasis on logical reasoning skills and the solution of applied problems. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.  
Effective: Summer 2013  
Prerequisite: MATH 001 2 units of high school algebra or satisfactory performance on the mathematics placement examination

**MATH 003 Basic Skills** (3) Natural numbers; integers; rational numbers; decimals; ratio, proportion; percent; graphs; applications. Students who have passed MATH 001 may not schedule this course for credit. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.  
Effective: Spring 1992

MATH 004, 021 GQ, AND 022 GQ form a three-semester sequence in intermediate algebra, college algebra, and analytic geometry. MATH 026 GQ is a one-semester course in plane trigonometry. Students are placed in the appropriate course depending on the results of the mathematics FTCAE examinations.

**MATH 004 Intermediate Algebra** (3) Algebraic expressions; linear, absolute value equations and inequalities; lines; systems of linear equations; integral exponents; polynomials; factoring. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.  
Effective: Summer 2013  
Prerequisite: basic arithmetic skills or satisfactory performance on the mathematics placement examination

**MATH 017 (GQ) Finite Mathematics** (3) Introduction to logic, sets, probability.  
Effective: Summer 1988  
Prerequisite: 2 units of high school mathematics

**MATH 018 (GQ) Elementary Linear Algebra** (3) Linear functions; systems of equations; matrices; linear programming.  
Effective: Fall 1999  
Prerequisite: 2 units of high school mathematics

**MATH 021 (GQ) College Algebra I** (3) Quadratic equations; equations in quadratic form; word problems; graphing; algebraic fractions; negative and rational exponents; radicals.  
Effective: Summer 2013  
Prerequisite: MATH 004 or satisfactory performance on the mathematics placement examination

**MATH 022 (GQ) College Algebra II and Analytic Geometry** (3) Relations, functions, graphs; polynomial, rational functions, graphs; word problems; nonlinear inequalities; inverse functions; exponential, logarithmic functions; conic sections; simultaneous equations.  
Effective: Summer 2013  
Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination

**MATH 026 (GQ) Plane Trigonometry** (3) Trigonometric functions; solutions of triangles; trigonometric equations; identities.  
Effective: Summer 2013  
Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination; 1 unit of geometry

**MATH 030 (GQ) Problem Solving** (3) Concepts in problem solving; reducing new problems to old ones; techniques for attacking problems; building mathematical models.  
Effective: Spring 1994

**MATH 033 (GQ) Mathematics for Sustainability** (3) Mathematical analysis of sustainability; measurement, rates of change, risk and probability, networks; examples.  
Effective: Spring 2014  
Prerequisite: one unit of algebra or MATH 004

**MATH 034 (GQ) The Mathematics of Money** (3) Simple interest, simple discount, compound interest, annuities, investments, retirement plans, taxes, credit cards, and mortgages.  
Effective: Summer 2009  
Prerequisite: one unit of algebra or MATH 004

**MATH 035 (GQ) General View of Mathematics** (3) Survey of mathematical thought in logic, geometry, combinatorics, and chance.  
Effective: Summer 1992

**MATH 036 (GQ) Insights Into Mathematics** (3) Examples of mathematical applications in many areas including voting

theory, fair division, apportionment, and Euler and Hamilton circuits.

Effective: Fall 2008

Prerequisite: one unit of algebra or MATH 004

MATH 040 GQ covers all the topics in MATH 004, 021 GQ, 022 GQ, and 026 GQ in one semester, MATH 041 GQ covers the same topics in trigonometry and analytic geometry as MATH 040 GQ. These courses are designed to prepare students for MATH 140 GQ. Students are placed in the appropriate course depending upon the results of the mathematics placement examinations.

MATH 040 (GQ) **Algebra, Trigonometry, and Analytic Geometry** (5) Concepts of algebra; equations; inequalities; functions; graphs; polynomial and rational functions; exponential and logarithmic functions; trigonometry; analytic geometry; complex numbers.

Effective: Summer 2013

Prerequisite: satisfactory performance on the mathematics placement examination

MATH 041 (GQ) **Trigonometry and Analytic Geometry** (3-4) Straight lines; circles; functions and graphs; graphs of polynomial and rational functions; exponential and logarithmic functions; trigonometry; conic sections.

Effective: Summer 2013

Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination

MATH 081 (GQ) **Technical Mathematics I** (3) Algebraic expressions, equations, systems of equations, trigonometric functions, graphs, solution of triangles, vectors.

Effective: Summer 2013

Prerequisite: MATH 004 or satisfactory performance on the mathematics placement examination

MATH 082 (GQ) **Technical Mathematics II** (3) Exponents, radicals, complex numbers, theory of equations, inequalities, half angle and double angle formulas, inverse trigonometric functions, exponential, logarithm, conic sections.

Effective: Summer 1995

Prerequisite: MATH 081

MATH 083 (GQ) **Technical Calculus** (4) Limits, derivatives of algebraic functions, implicit differentiation, related rates, applied extrema problems, curve sketching, integration, numerical integration, applications of integration, integration techniques, differential equations.

Effective: Summer 1995

Prerequisite: MATH 082

MATH 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

MATH 097A **Math Tutorial** (1) Course designed to help students develop study skills and a strong foundation, in basic mathematics and to further their intellectual independence in MATH 021, 022, 026, 040, and 140.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

MATH 097C **Introduction Algebra Problem Solving** (4) Introduction Algebra Problem Solving is a college level introduction to algebra combined with individualized review of basic algebra.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: MATH 021

MATH 110 GQ and MATH 140 GQ, 141 GQ are two sequences that discuss differential and integral calculus. They differ in the areas where calculus is applied. The MATH 110 GQ, 111 GQ sequence includes applications from business: the engineering sciences. A student who wants to change from one sequence to another should consult with the chair of the mathematics department.

MATH 110 (GQ) **Techniques of Calculus I** (4) Functions, graphs, derivatives, integrals, techniques of differentiation and integration, exponentials, improper integrals, applications. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

Effective: Summer 2013

Prerequisite: MATH 022 or satisfactory performance on the mathematics placement examination

MATH 111 (GQ) **Techniques of Calculus II** (2) Analytic geometry, partial differentiation, maxima and minima, differential equations.

Effective: Summer 1988

Prerequisite: MATH 110

MATH 140 (GQ) **Calculus With Analytic Geometry I** (4) Functions, limits; analytic geometry; derivatives, differentials, applications; integrals, applications. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

Effective: Summer 2013

Prerequisite: MATH 022 MATH 026 ; or MATH 040 or MATH 041 or satisfactory performance on the mathematics placement examination

MATH 140A (GQ) **Calculus, Analytic Geometry, Algebra, and Trigonometry** (6) Review of algebra and trigonometry; analytic geometry; functions; limits; derivatives, differentials, applications; integrals, applications. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

Effective: Summer 2013

Prerequisite: satisfactory performance on the mathematics placement examination

MATH 140B (GQ) **Calculus and Biology I** (4) Functions, limits, analytic geometry; derivatives, differentials, applications

from biology; integrals, applications from biology. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

Effective: Summer 2013

Prerequisite: MATH 022MATH 026 ; orMATH 040 orMATH 041 or satisfactory performance on mathematics placement examination

**MATH 140E (GQ) Calculus with Engineering Applications I** (4) Functions; limits; analytic geometry; derivatives; differentials, applications; integrals, applications.

Effective: Summer 2013

Prerequisite: MATH 022MATH 026 ; orMATH 040 orMATH 041 or satisfactory performance in the mathematics placement examination

**MATH 140G (GQ) Calculus with Earth and Mineral Sciences Applications I** (4) Functions, limits, analytic geometry; derivatives, differentials, applications from the earth and mineral sciences; integrals, applications from the earth and mineral sciences. Students may only take one course for credit from MATH 110, 140, 140A, 140B, 140E, and 140G.

Effective: Summer 2013

Prerequisite: MATH 022MATH 026 ; orMATH 040 orMATH 041 or satisfactory performance on the mathematics placement examination

**MATH 140H (GQ) Honors Calculus with Analytic Geometry I** (4) Honors course in functions, limits; analytic geometry; derivatives, differentials, applications; integrals, applications. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

Effective: Summer 2013

Prerequisite: MATH 022MATH 026 ; orMATH 040 orMATH 041 or satisfactory performance on the mathematics placement examination

**MATH 141 (GQ) Calculus with Analytic Geometry II** (4) Derivatives, integrals, applications; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, and 141H.

Effective: Spring 1996

Prerequisite: MATH 140MATH 140AMATH 140B orMATH 140H

**MATH 141B (GQ) Calculus and Biology II** (4) Derivatives, integrals, applications from biology; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141 and 141B.

Effective: Spring 1996

Prerequisite: MATH 140B

**MATH 141E (GQ) Calculus with Engineering Applications II** (4) Integration, applications; sequences and series; parametric equations, application.

Effective: Fall 2001

Prerequisite: MATH 140MATH 140AMATH 140B orMATH 140E

**MATH 141G (GQ) Calculus with Earth and Mineral Sciences Applications II** (4) Derivatives, integrals, applications from the earth and mineral sciences; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, 141E, and 141G.

Effective: Summer 2005

Prerequisite: MATH 140MATH 140AMATH 140BMATH 140E orMATH 140G

**MATH 141H (GQ) Honors Calculus with Analytic Geometry II** (4) Honors course in derivatives, integrals, applications; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, and 141H.

Effective: Summer 2006

Prerequisite: MATH 140MATH 140AMATH 140B orMATH 140H

**MATH 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**MATH 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**MATH 200 (GQ) Problem Solving in Mathematics** (3) Fundamental concepts of arithmetic and geometry, including problem solving, number systems, and elementary number theory. For elementary and special education teacher certification candidates only. A student who has passed EDMTH 444 may not take MATH 200 for credit.

Effective: Summer 2009

**MATH 201 (GQ) Problem Solving in Mathematics II** (3) A continuation of MATH 200, this course studies the foundations of elementary school mathematics with an emphasis on problem solving.

Effective: Spring 2012

Prerequisite: completion of MATH 200 is suggested

**MATH 210 (GQ) Calculus with Engineering Technology Applications** (3) Topics in calculus with an emphasis on applications in engineering technology.

Effective: Spring 2013

Prerequisite: trigonometry and an introductory course in calculus

**MATH 211 (GQ) Intermediate Calculus and Differential Equations with Applications** (3) Topics in ordinary differential equations, linear algebra, complex numbers, Eigenvalue solutions and Laplace transform methods.

Effective: Spring 2013  
Prerequisite: MATH 210

**MATH 220 (GQ) Matrices** (2-3) Systems of linear equations; matrix algebra; eigenvalues and eigenvectors; linear systems of differential equations.  
Effective: Spring 2009  
Prerequisite: MATH 110 MATH 140 or MATH 140H

**MATH 220H (GQ) Honors Matrices** (2-3) Honors course in systems of linear equations; matrix algebra; eigenvalues and eigenvectors; linear systems of differential equations.  
Effective: Spring 2009  
Prerequisite: MATH 110 MATH 140 or MATH 140H

**MATH 230 Calculus and Vector Analysis** (4) Three-dimensional analytic geometry; vectors in space; partial differentiation; double and triple integrals; integral vector calculus. Students who have passed either Math 231 or 232 may not schedule Math 230 or 230H for credit.  
Effective: Spring 1996  
Prerequisite: MATH 141 or MATH 141H

**MATH 230H Honors Calculus and Vector Analysis** (4) Honors course in three-dimensional analytic geometry; vectors in space; partial differentiation; double and triple integrals; integral vector calculus. Students who have passed either MATH 231 or 232 may not schedule MATH 230 or 230H for credit.  
Effective: Spring 2006  
Prerequisite: MATH 141 or MATH 141H

**MATH 231 Calculus of Several Variables** (2) Analytic geometry in space; partial differentiation and applications. Students who have passed MATH 230 or MATH 230H may not schedule this course.  
Effective: Spring 1996  
Prerequisite: MATH 141 or MATH 141H

**MATH 231H Honors Calculus of Several Variables** (2) Honors course in analytic geometry in space; partial differentiation and applications. Students who have passed MATH 230 or MATH 230H may not schedule this course.  
Effective: Summer 2006  
Prerequisite: MATH 141 or MATH 141H

**MATH 232 Integral Vector Calculus** (2) Multidimensional analytic geometry, double and triple integrals; potential fields; flux; Green's, divergence and Stokes' theorems. Students who have passed MATH 230 may not schedule this course for credit.  
Effective: Spring 1996  
Prerequisite: MATH 231

**MATH 250 Ordinary Differential Equations** (3) First- and second-order equations; special functions; Laplace transform solutions; higher order equations. Students who have passed MATH 251 may not schedule this course for credit.  
Effective: Fall 1988  
Prerequisite: MATH 141

**MATH 251 Ordinary and Partial Differential Equations** (4) First- and second-order equations; special functions; Laplace transform solutions; higher order equations; Fourier series; partial differential equations.  
Effective: Fall 1988  
Prerequisite: MATH 141 or MATH 141H

**MATH 251H Honors Ordinary and Partial Differential Equations** (4) Honors course in first- and second-order equations; special functions; Laplace transform solutions; higher order equations; Fourier series; partial differential equations.  
Effective: Summer 2006  
Prerequisite: MATH 141 or MATH 141H

**MATH 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1995

**MATH 296 Independent Studies** (1-18) Creative projects, including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**MATH 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**MATH 310 Elementary Combinatorics** (3) Fundamental techniques of enumeration and construction of combinatorial structures, permutations, recurrences, inclusion-exclusion, permanents, 0, 1- matrices, Latin squares, combinatorial designs.  
Effective: Spring 1985  
Prerequisite: MATH 220

**MATH 310A Concepts in Combinatorics - Recitation** (1) Recitation for MATH 310H - Concepts in Combinatorics.  
Effective: Spring 2013  
Prerequisite: MATH 220 Concurrent: MATH 310H



**MATH 310H Honors Concepts of Combinatorics** (3) Honors version of elementary and enumerative combinatorics.  
Effective: Spring 2012  
Prerequisite: MATH 220

**MATH 311M Honors Concepts of Discrete Mathematics** (3) Basic methods of mathematical thinking and fundamental mathematical structures, primarily in the context of numbers, groups, and symmetries.  
Effective: Spring 2006  
Prerequisite: MATH 141

**MATH 311W Concepts of Discrete Mathematics** (3-4) Introduction to mathematical proofs; elementary number theory and group theory. Students who have passed CMPSC 360 may not schedule this course for credit.  
Effective: Spring 2007  
Prerequisite: MATH 141

**MATH 312 Concepts of Real Analysis** (3) An introduction to rigorous analytic proofs involving properties of real numbers, continuity, differentiation, integration, and infinite sequences and series.  
Effective: Spring 1994  
Prerequisite: MATH 141

**MATH 312A Honors Concepts of Real Analysis - Recitation** (1) A recitation component to MATH 312H, practice in problem solving.  
Effective: Fall 2012  
Prerequisite: MATH 140HMATH 311M Concurrent: MATH 312H

**MATH 312H Honors Concepts of Real Analysis** (3) Basic methods of mathematical thinking and fundamental structures, primarily in the context of infinite sets, real numbers, and metric spaces.  
Effective: Summer 2006  
Prerequisite: MATH 141

**MATH 313A Concepts of Geometry - Recitation** (1) A recitation component to Math 313H, practice in problem solving.  
Effective: Fall 2012  
Prerequisite: MATH 140HMATH 311M Concurrent: MATH 313H

**MATH 313H Concepts of Geometry** (3) Development thorough understanding and technical mastery of foundations of modern geometry.  
Effective: Summer 2011  
Prerequisite: MATH 140HMATH 311M Concurrent: MATH 312H MATH 312R MATH 313R

**MATH 314H PMASS Problem Solving Seminar** (1) Group work on challenging problems, discussions and project presentations.  
Effective: Summer 2011  
Prerequisite: MATH 140HMATH 311M Concurrent: MATH 312H MATH 312R MATH 313R MATH 313H MATH 315H

**MATH 315 Foundations of Mathematics** (3) A consideration of selected topics in the foundations of mathematics, with emphasis on development of basic meaning and concepts.  
Effective: Spring 2007  
Prerequisite: MATH 141

**MATH 315H PMASS Colloquium** (1) Bi-weekly lecture series with multiple invite speakers.  
Effective: Summer 2011  
Prerequisite: MATH 140HMATH 311M Concurrent: MATH 312H MATH 313R MATH 313H MATH 312R MATH 314H

**MATH 318 (STAT 318) Elementary Probability** (3) Combinatorial analysis, axioms of probability, conditional probability and independence, discrete and continuous random variables, expectation, limit theorems, additional topics. Students who have passed either MATH(STAT) 414 or 418 may not schedule this course for credit.  
Effective: Spring 1989  
Prerequisite: MATH 141

**MATH 319 (STAT 319) Applied Statistics in Science** (3) Statistical inference: principles and methods, estimation and testing hypotheses, regression and correlation analysis, analysis of variance, computer analysis. Students who have passed MATH(STAT) 415 may not schedule this course for credit.  
Effective: Spring 1989  
Prerequisite: MATH 318 or knowledge of basic probability

**MATH 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**MATH 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**MATH 401 Introduction to Analysis I** (3) Review of calculus, properties of real numbers, infinite series, uniform convergence, power series. Students who have passed Math. 403 may not schedule this course.  
Effective: Fall 1983  
Prerequisite: MATH 230 or MATH 231

**MATH 403 Classical Analysis I** (3) Topology of  $R^n$ , compactness, continuity of functions, uniform convergence, Arzela-Ascoli theorem in the plane, Stone-Wierstrass theorem.

Effective: Spring 1996  
Prerequisite: MATH 312

**MATH 403H Honors Classical Analysis I** (3) Development of a thorough understanding and technical mastery of foundations of classical analysis in the framework of metric spaces.  
Effective: Spring 2010  
Prerequisite: MATH 311MMATH 312H

**MATH 404 Classical Analysis II** (3) Differentiation of functions from  $R_n$  to  $R_m$ , implicit function theorem, Riemann integration, Fubini's theorem, Fourier analysis.  
Effective: Fall 1985  
Prerequisite: MATH 403

**MATH 405 Advanced Calculus for Engineers and Scientists I** (3) Vector calculus, linear algebra, ordinary and partial differential equations. Students who have passed MATH 411 or 412 may not take this course for credit.  
Effective: Spring 1994  
Prerequisite: MATH 231;MATH 250 orMATH 251

**MATH 406 Advanced Calculus for Engineers and Scientists II** (3) Complex analytic functions, sequences and series, residues, Fourier and Laplace transforms. Students who have passed MATH 421 may not take this course for credit.  
Effective: Spring 1994  
Prerequisite: MATH 405

**MATH 408 Advanced Calculus** (3) Differential and integral calculus of functions of several variables, line and surface integrals, infinite series, series of functions, power series.  
Effective: Spring 2007  
Prerequisite: MATH 141

**MATH 410 Complex Analysis for Mathematics and Engineering** (3) Complex analytic functions; Cauchy-Riemann equations; complex contour integrals; Cauchy's integral formula; Taylor and Laurent series; residue theory; applications in engineering.  
Effective: Summer 2014  
Prerequisite: MATH 230 orMATH 232

**MATH 411 Ordinary Differential Equations** (3) Linear ordinary differential equations; existence and uniqueness questions; series solutions; special functions; eigenvalue problems; Laplace transforms; additional topics and applications.  
Effective: Fall 1983  
Prerequisite: MATH 230 orMATH 231;MATH 250 orMATH 251

**MATH 412 Fourier Series and Partial Differential Equations** (3) Orthogonal systems and Fourier series; derivation and classification of partial differential equations; eigenvalue function method and its applications; additional topics.  
Effective: Spring 2009  
Prerequisite: MATH 230;MATH 250 orMATH 251

**MATH 414 (STAT 414) Introduction to Probability Theory** (3) Probability spaces, discrete and continuous random variables, transformations, expectations, generating functions, conditional distributions, law of large numbers, central limit theorems. Students may take only one course from MATH(STAT) 414 and 418 for credit.  
Effective: Fall 2001  
Prerequisite: MATH 230 orMATH 231

**MATH 415 (STAT 415) Introduction to Mathematical Statistics** (3) A theoretical treatment of statistical inference, including sufficiency, estimation, testing, regression, analysis of variance, and chi-square tests.  
Effective: Fall 1989  
Prerequisite: MATH 414

**MATH 416 (STAT 416) Stochastic Modeling** (3) Review of distribution models, probability generating functions, transforms, convolutions, Markov chains, equilibrium distributions, Poisson process, birth and death processes, estimation.  
Effective: Spring 1984  
Prerequisite: MATH 318 orMATH 414;MATH 230

**MATH 417 Qualitative Theory of Differential Equations** (3) Linear differential equations, stability of stationary solutions, ordinary bifurcation, exchange of stability, Hopf bifurcation, stability of periodic solutions, applications.  
Effective: Spring 2009  
Prerequisite: MATH 220;MATH 250 orMATH 251

**MATH 418 (STAT 418) Introduction to Probability and Stochastic Processes for Engineering** (3) Introduction to probability axioms, combinatorics, random variables, limit laws, and stochastic processes. Students may take only one course from MATH(STAT) 414 and 418 for credit.  
Effective: Fall 2011  
Prerequisite: MATH 230 orMATH 231

**MATH 419 (PHYS 419) Theoretical Mechanics** (3) Principles of Newtonian, Lagrangian, and Hamiltonian mechanics of particles with applications to vibrations, rotations, orbital motion, and collisions.  
Effective: Spring 2007  
Prerequisite: MATH 230 orMATH 231;MATH 250 orMATH 251;PHYS 212PHYS 213 andPHYS 214

**MATH 421 Complex Analysis** (3) Infinite sequences and series; algebra and geometry of complex numbers; analytic functions; integration; power series; residue calculus; conformal mapping, applications.  
Effective: Summer 1993  
Prerequisite: MATH 230MATH 232 orMATH 405;MATH 401 orMATH 403

**MATH 422 Wavelets and Fourier Analysis: Theory and Applications** (3) Fundamental mathematical issues of the theory of wavelets for senior undergraduate and graduate students in mathematics, engineering, physics, and computer science.  
Effective: Summer 2000

Prerequisite: complete one of the following: MATH 312 MATH 401 MATH 403 MATH 405 or MATH 412

**MATH 425 Introduction to Operations Research** (3) Nature of operations research, problem formulation, model construction, deriving solution from models, allocation problems, general linear allocation problem, inventory problems.  
Effective: Spring 2012

Prerequisite: MATH 141 and MATH 220

**MATH 426 Introduction to Modern Geometry** (3) Plane and space curves; space surfaces; curvature; intrinsic geometry of surfaces; Gauss-Bonnet theorem; covariant differentiation; tensor analysis.

Effective: Spring 1994

Prerequisite: MATH 401 or MATH 403

**MATH 427 Foundations of Geometry** (3) Euclidean and various non-Euclidean geometries and their development from postulate systems. Students who have passed MATH 427 may not schedule MATH 471.

Effective: Spring 1994

Prerequisite: MATH 230 or MATH 231

**MATH 428 Geometry for Teachers** (1) Research in mathematics education using ideas from Euclidean and non-Euclidean geometry. Students who have passed MATH 471 may not schedule MTHBD 478.

Effective: Spring 2007

Prerequisite: MATH 311W . Prerequisite or concurrent: MATH 427

**MATH 429 Introduction to Topology** (3) Metric spaces, topological spaces, separation axioms, product spaces, identification spaces, compactness, connectedness, fundamental group.

Effective: Spring 1994

Prerequisite: MATH 311W

**MATH 430 Linear Algebra and Discrete Models I** (3) Vector spaces, linear transformations, matrices determinants, characteristic values and vectors, systems of linear equations, applications to discrete models.

Effective: Spring 2010

Prerequisite: MATH 220

**MATH 431 Linear Algebra and Discrete Models II** (3) Vector spaces and linear transformations, matrices, determinants, characteristic values and vectors, systems of linear equations, applications to discrete models.

Effective: Spring 2007

Prerequisite: MATH 430

**MATH 435 Basic Abstract Algebra** (3) Elementary theory of groups, rings, and fields. Students who have passed MATH 435 may not schedule MATH 470.

Effective: Spring 2010

Prerequisite: MATH 311W or MATH 315

**MATH 436 Linear Algebra** (3) Vector spaces and linear transformations, canonical forms of matrices, elementary divisors, invariant factors; applications. Students who have passed MATH 436 may not schedule MATH 441.

Effective: Fall 1983

Prerequisite: MATH 311W

**MATH 437 Algebraic Geometry** (3) Study of curves in the plane defined by polynomial equations  $p(x,y) = 0$ . Projective equivalence, singular points, classification of cubics.

Effective: Spring 2009

Prerequisite: MATH 230 or MATH 231; MATH 311W

**MATH 441 Matrix Algebra** (3) Determinants, matrices, linear equations, characteristic roots, quadratic forms, vector spaces. Students who have passed Math 436 may not schedule this course.

Effective: Fall 1985

Prerequisite: MATH 220

**MATH 444 Mathematical Statistics and Applications I** (3) Distributions of random variables, special distributions, limiting distributions, sampling, statistical inference, point and interval estimation, orthogonal polynomials, and least squares.

Effective: Spring 2007

Prerequisite: MATH 141

**MATH 445 Mathematical Statistics and Applications II** (3) Further topics in point estimation, statistical hypotheses, other statistical tests, nonparametric methods.

Effective: Spring 2007

Prerequisite: MATH 444

**MATH 446 Introduction to Applied Statistics I** (3) Descriptive statistics, probability theory, discrete and continuous probability distributions, statistical inferences for means and proportions.

Effective: Spring 2007

Prerequisite: MATH 022 or MATH 040

**MATH 447 Introduction to Applied Statistics II** (3) Regression, correlation, analysis of variance, contingency tables, nonparametric methods, time series, index numbers.

Effective: Spring 2007

**MATH 449 Applied Ordinary Differential Equations** (3) Differential and difference equations and their application to biology, chemistry, and physics; techniques in dynamical systems theory.

Effective: Spring 2007

Prerequisite: MATH 250 or MATH 251

**MATH 450 Mathematical Modeling** (3) Constructing mathematical models of physical phenomena; topics include pendulum motion, polymer fluids, chemical reactions, waves, flight, and chaos.

Effective: Spring 2007

Prerequisite: MATH 315 and MATH 430 or MATH 405 or MATH 412

**MATH 451 (CMPSC 451) Numerical Computations** (3) Algorithms for interpolation, approximation, integration, nonlinear equations, linear systems, fast FOURIER transform, and differential equations emphasizing computational properties and implementation. Students may take only one course for credit from MATH 451 and 455.

Effective: Spring 2008

Prerequisite: 3 credits of programming; MATH 230 or MATH 231

**MATH 455 (CMPSC 455) Introduction to Numerical Analysis I** (3) Floating point computation, numerical rootfinding, interpolation, numerical quadrature, direct methods for linear systems. Students may take only one course for credit from MATH 451 and MATH 455.

Effective: Spring 2008

Prerequisite: CMPSC 201 CMPSC 202 or CMPSC 121; MATH 220; MATH 230 or MATH 231

**MATH 456 (CMPSC 456) Introduction to Numerical Analysis II** (3) Polynomial and piecewise polynomial approximation, matrix least squares problems, numerical solution of eigenvalue problems, numerical solution of ordinary differential equations.

Effective: Spring 2008

Prerequisite: MATH 455

**MATH 457 Introduction to Mathematical Logic** (3) Propositional logic, first-order predicate logic, axioms and rules of inference, structures, models, definability, completeness, compactness.

Effective: Summer 2011

Prerequisite: MATH 311W ; 3 additional credits in philosophy

**MATH 461 (PHYS 461) Theoretical Mechanics** (3) Continuation of Math.(Phys.) 419. Theoretical treatment of dynamics of a rigid body, theory of elasticity, aggregates of particles, wave motion, mechanics of fluids.

Effective: Fall 1986

Prerequisite: MATH 419

**MATH 465 Number Theory** (3) Elements, divisibility of numbers, congruences, residues, and forms.

Effective: Spring 2009

Prerequisite: MATH 311W

**MATH 467 (CMPSC 467) Factorization and Primality Testing** (3) Prime sieves, factoring, computer numeration systems, congruences, multiplicative functions, primitive roots, cryptography, quadratic residues. Students who have passed MATH 465 may not schedule this course.

Effective: Spring 1995

Prerequisite: MATH 311W

**MATH 468 Mathematical Coding Theory** (3) Shannon's theorem, block codes, linear codes, Hamming codes, Hadamard codes, Golay codes, Reed-Muller codes, bounds on codes, cyclic codes.

Effective: Fall 1983

Prerequisite: MATH 311W ; advanced calculus

**MATH 470 Algebra for Teachers** (3) An introduction to algebraic structures and to the axiomatic approach, including the elements of linear algebra. Designed for teachers and prospective teachers. Students who have passed Math 435 may not schedule this course.

Effective: Fall 1988

Prerequisite: MATH 311W

**MATH 471 Geometry for Teachers** (4) Problem solving oriented introduction to Euclidean and non-Euclidean geometries; construction problems and geometrical transformations via "Geometer's Sketchpad" software. Intended primarily for those seeking teacher certification in secondary mathematics. Students who have passed MATH 427 may not schedule this course.

Effective: Spring 1996

Prerequisite: MATH 311W

**MATH 475W (US;IL) History of Mathematics** (3) A global survey of the history of mathematics as viewed as a human response to cultural, political, economic, and societal pressures.

Effective: Spring 2012

Prerequisite: MATH 315 or MATH 311W

**MATH 479 (PHYS 479) Special and General Relativity** (3) Mathematical description, physical concepts, and experimental tests of special and general relativity.

Effective: Spring 2007

Prerequisite: PHYS 237 PHYS 400 PHYS 419; MATH 250 or MATH 251; MATH 230 or MATH 231

**MATH 482 Mathematical Methods of Operations Research** (3) Survey of linear and nonlinear programming; mathematics of optimization; queues; simulation.

Effective: Spring 2007

Prerequisite: MATH 220 MATH 230 STAT 301

**MATH 484 Linear Programs and Related Problems** (3) Introduction to theory and applications of linear programming; the simplex algorithm and newer methods of solution; duality theory.  
Effective: Spring 1987  
Prerequisite: MATH 220; MATH 230 or MATH 231

**MATH 485 Graph Theory** (3) Introduction to the theory and applications of graphs and directed graphs. Emphasis on the fundamental theorems and their proofs.  
Effective: Spring 1987  
Prerequisite: MATH 311W

**MATH 486 Mathematical Theory of Games** (3) Basic theorems, concepts, and methods in the mathematical study of games of strategy; determination of optimal play when possible.  
Effective: Spring 2006  
Prerequisite: MATH 220

**MATH 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1995

**MATH 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

**MATH 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2007  
Prerequisite: prior approval of proposed assignment by instructor

**MATH 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**MATH 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**MATH 497A Finite Fields and Applications** (4) This course will consist of an introduction to the theory of finite fields. We also discuss some of the many practical applications of finite fields. These applications will include algebraic coding theory for the error-free transmission of information, and cryptology for the secure transmission of information. Finite fields are also of great use in the construction of various kinds of combinatorial designs.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: acceptance into the MASS Program

**MATH 497B An Introduction to Dynamical Systems** (4) The theory of dynamical systems is a modern branch of mathematics. Its main objective is to analyze long-term behavior of systems that evolve over time. In this course, we will introduce the fundamental concepts and tools of dynamics and discuss an array of examples with gradual increase in complexity. The topics will include contractions, linear maps, differential equations, recurrence, equidistribution, hyperbolic systems, symbolic systems and coding, fractals, entropy, and chaos.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: acceptance into the MASS program

**MATH 497C Affine and Projective Geometries** (4) This course is an introduction to Geometry and its goal is to describe Geometry following Felix Klein's Erlangen program, that is an the action of the group of isometries. The emphasis is on Affine, Projective and non- Euclidean (Lobachevsky-Poincare hyperbolic geometries).  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: acceptance into the MASS program

**MATH 497D MASS Interdisciplinary Seminar** (3) The seminar is designed to focus on selected interdisciplinary topics in algebra, analysis and geometry to coordinate core courses and to prepare students to MASS Colloquium.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: acceptance into the MASS Program

**MATH 497E MASS Colloquium** (1) Cover selected topics in Mathematics.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: acceptance into MASS program

**MATH 497G MASS Research Project** (4) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: acceptance into the MASS program

**MATH 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

MATH 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

MATH 499A (IL) **Geometry and Mathematical Physics** (2) PSU-PKU International Undergraduate Summer School, 2014 in Beijing, China.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: MATH 220MATH 230MATH 250MATH 312

NOTE: Courses in computer science and statistics are listed separately.

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## Mathematics Education (MTHED)

**MTHED 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**MTHED 411 Teaching Secondary Mathematics I** (3) Conditions for learning mathematics; problem solving; subject matter types; curriculum; learning goals; nature and history of mathematics at secondary level  
Effective: Spring 2007  
Prerequisite: acceptance into Secondary Education/Mathematics Option certification program; C I 295 ; a grade of C or better in CMPSC 101 MATH 140 MATH 141 MATH 220 MATH 230 MATH 311W Concurrent: MTHED 427

**MTHED 412W Teaching Secondary Mathematics II** (3) Assessing learning and instruction; methods of evaluation and grading; long- term planning; accommodating needs of diverse learners; connecting theory and practice.  
Effective: Summer 2010  
Prerequisite: a grade of C or better in MTHED 411 Concurrent: C I 412W C I 495C

**MTHED 420 Teaching Mathematics in the Elementary Schools** (3) Strategies for teaching mathematics at the elementary school level; analysis of the philosophy and content of contemporary programs of instruction.  
Effective: Spring 2014  
Prerequisite: LL ED 400 LL ED 401 LL ED 402 ; a grade of C or better required in MATH 200 Concurrent: C I 495A or C I 495B ; SCIED 458 SS ED 430W

**MTHED 424 Contemporary School Mathematics Programs** (3) In-depth analysis of school mathematics programs and the factors and forces influencing them; contemporary curriculum developments.  
Effective: Summer 2010  
Prerequisite: MTHED 412W or MTHED 420

**MTHED 427 Teaching Mathematics in Technology-Intensive Environments** (3) Interaction among pedagogy, content, and technology in mathematics teaching and learning in technology-intensive environments; secondary, early college curricula; laboratory experience.  
Effective: Spring 2007  
Prerequisite: acceptance into Secondary Education/Mathematics Option certification program; C I 295 ; a grade of C or better in CMPSC 101 MATH 140 MATH 141 MATH 220 MATH 230 MATH 311W Concurrent: MTHED 411

**MTHED 430 Students' Mathematical Thinking** (3 per semester, maximum of 6) Develop abilities in planning, conducting, and interpreting mathematics interviews to gain an understanding of students' thinking processes and current knowledge.  
Effective: Summer 1994  
Prerequisite: C I 495DC I 495E or experience teaching mathematics

**MTHED 431 Data Analysis in Secondary School Mathematics** (3) Intense development of foundations of data analysis for secondary mathematics as a process using statistical concepts for predictions and inferences.  
Effective: Summer 2006  
Prerequisite: CMPSC 101 or equivalent; at least 18 credits of mathematics at or above the calculus level; acceptance into secondary mathematics certification program or permission of program

**MTHED 432 Mathematical Modeling in Secondary School Mathematics** (3) Students work from teaching and curricular perspective to explore and apply school and undergraduate mathematics to model real-world phenomena.  
Effective: Summer 2006  
Prerequisite: CMPSC 101 or equivalent; at least 18 credits of mathematics at or above the calculus level; acceptance into secondary mathematics certification program or permission of program

**MTHED 433 Function Concept in Secondary School Mathematics** (3) This course develops the concept of function as an essential topic that underlies and connects school and collegiate mathematics.  
Effective: Summer 2006  
Prerequisite: CMPSC 101 or equivalent; at least 18 credits of mathematics at or above the calculus level; acceptance into secondary mathematics certification program or permission of program

**MTHED 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**MTHED 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**MTHED 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

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## Mechanical Engineering (M E)

**M E 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1998

**M E 097S First Year Seminar** (1) This 1-credit first-year seminar course is offered concurrently with M E 443W. The course involves a hands-on laboratory with integrated discussions regarding the hybrid electric vehicle.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**M E 101S Toy Fundamentals: First-Year Seminar** (1) First-Year Seminar focusing on toy design and manufacture.  
Effective: Fall 1999

**M E 102S Smart Lego Robots & Design** (1) First-Year Seminar focusing on the development of technology exploration kits for middle-school-aged children.  
Effective: Fall 2004

**M E 105S Product Dissection A: Bicycles--First-Year Seminar** (1) A First-Year Seminar in which students analyze and disassemble a multi-speed bicycle.  
Effective: Fall 1999

**M E 106S Product Dissection B: Household Appliances--First-Year Seminar** (1) A First-Year Seminar in which students analyze and disassemble household appliances.  
Effective: Fall 1999

**M E 107S Product Dissection C: The Enigmatic Engine--First-Year Seminar** (1) A First-Year Seminar in which students analyze and disassemble a single-cylinder lawnmower engine.  
Effective: Fall 1999

**M E 190S Special Topics in Mechanical Engineering: First-Year Seminar** (1) A First-Year Seminar focusing on issues related to Mechanical Engineering.  
Effective: Fall 1999

**M E 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2008

**M E 201 Introduction to Thermal Science** (3) Application of the basic concepts of thermodynamics, fluid dynamics, and heat transfer to the solution of engineering problems.  
Effective: Fall 2007  
Prerequisite: CHEM 110

**M E 240 Product Dissection** (3) Dissection of products and processes; reverse engineering, examination of materials usage, manufacturing processes, design, invention, and consumer issues.  
Effective: Fall 2007  
Prerequisite: EDSGN 100PHYS 211

**M E 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1995

**M E 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2008

**M E 300 Engineering Thermodynamics I** (3) Basic thermodynamics concepts, properties of pure substances, first and second law analysis of systems and control volumes.  
Effective: Fall 2007 Ending: Fall 2014  
Prerequisite: CHEM 110MATH 141

**M E 300 Engineering Thermodynamics I** (3) Basic thermodynamics concepts, properties of pure substances, first and second law analysis of systems and control volumes.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: CHEM 110 Concurrent: MATH 141

**M E 302 Engineering Thermodynamics** (4) Engineering thermodynamics and heat transfer, with pertinent applications to devices important in mechanical engineering. For students in engineering science.  
Effective: Fall 2007 Ending: Fall 2014  
Prerequisite: CHEM 112PHYS 211 andMATH 230 orMATH 231



**M E 302 Engineering Thermodynamics and Heat Transfer** (4) Thermodynamics and Heat Transfer with pertinent applications to devices important in mechanical engineering. For students in engineering science.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: CHEM 110PHYS 211 andMATH 230 orMATH 231

**M E 308 Fluid Flow and Heat Transfer Laboratory** (1) Experimental work to enhance understanding of thermodynamics, fluid dynamics, and heat transfer.

Effective: Fall 2007

Prerequisite: M E 320 . Prerequisite or concurrent:M E 410

**M E 315 Heat Transfer Laboratory** (1) Application of the fundamental concepts associated with conduction, convection, and radiation to the actual measurements of heat transfer.

Effective: Fall 2007

Prerequisite: M E 320 . Prerequisite or concurrent:M E 345M E 410

**M E 320 Fluid Flow** (3) Thermodynamic and dynamic principles applied to fluid behavior; ideal, viscous, and compressible fluids under internal and external flow conditions.

Effective: Spring 2008

Prerequisite: E MCH 212MATH 251;M E 201 orM E 300;MATH 230 orMATH 231

**M E 325 Fluids Laboratory** (1) Laboratory experience with fluid mechanics measurement techniques: flow visualization, pressure measurement, hot-wire anemometry, laser Doppler anemometry, computer data acquisition.

Effective: Fall 2007

Prerequisite: M E 320M E 345

**M E 340 Mechanical Engineering Design Methodology** (3) The design process; problem definition, conceptual design, system design, detail design, evaluation and test, implementation, documentation and communication.

Effective: Fall 2012 Ending: Summer 2014

Prerequisite: EDSGN 100 ; Prerequisite or concurrent:M E 320 orBIOE 409;M E 360

**M E 340 Mechanical Engineering Design Methodology** (3) The design process; problem definition, conceptual design, system design, detail design, evaluation and test, implementation, documentation and communication.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: EDSGN 100 ; Prerequisite or concurrent:M E 320 orBME 409;M E 360

**M E 345 Instrumentation, Measurements, and Statistics** (4) Fundamentals of statistics, sensors, instrumentation, and measurement of mechanical phenomena such as temperature, flow, pressure, force, stress, displacement, and acceleration.

Effective: Spring 2008

Prerequisite: Prerequisite or concurrent:E E 212 orE E 211 or equivalent

**M E 345W Instrumentation, Measurements, and Statistics** (4) Measurement concepts, probability and statistics, error analysis; electro- mechanical transducers, applied electrical and mechanical measurements, electrical and electronics instruments, data acquisition and instrumentation systems.

Effective: Spring 2008

Prerequisite: Prerequisite or concurrent:E E 212 orE E 211 or equivalent

**M E 347 Computer-Aided Engineering** (3) Introduction to the tools and techniques of computer-aided design, including CAD, spreadsheets, numerical methods, and finite element analysis.

Effective: Spring 2008

Prerequisite: CMPSC 201 orCMPSC 202;EDSGN 100 orEDSGN 100S . Prerequisite or concurrent:E MCH 213MATH 220MATH 251

**M E 349 Intermediate Mechanics of Materials** (3) Intermediate topics in mechanics of materials with computer applications.

Effective: Summer 2011

Prerequisite: E MCH 213EDSGN 100S Prerequisite or concurrent:CMPSC 200MATH 220

**M E 355 Dynamic Systems Laboratory** (1) Experimental investigation of simple position, velocity, and temperature control systems with analog and digital controllers.

Effective: Spring 2011

Prerequisite: M E 345 ; Prerequisite or concurrent:M E 450

**M E 357 System Dynamics** (3) Mathematical modeling and analysis of linear dynamic systems; performance and design of simple controllers.

Effective: Fall 2011

Prerequisite: CMPSC 200E E 211 orE E 212MATH 251

**M E 360 Mechanical Design** (3) Specification of components such as shafts, bearings, and power transformers; optimal designs for operational, environmental, and manufacturing requirements.

Effective: Fall 2012

Prerequisite: CMPSC 200 Prerequisite or concurrent:E MCH 315

**M E 365 Materials Testing Laboratory** (1) Laboratory for materials testing, property identification and modification, failure analysis, and metallurgical testing.

Effective: Fall 2011

Prerequisite: Prerequisite or concurrent:MATSE 259

**M E 367 Machine Design** (3) Design and selection of machine components and connections. Stress analysis and modes of failure of materials used in machine components.

Effective: Fall 2011

Prerequisite: M E 349 Prerequisite or concurrent: MATSE 259

**M E 368 Materials Properties and Characterization** (4) Properties and characteristics of materials.

Effective: Spring 2008

Prerequisite: CHEM 110E MCH 213

**M E 370 Vibration of Mechanical Systems** (3) Modeling and analysis of vibration characteristics of mechanical systems with single degree and multiple degrees of freedom. Vibration control by isolation, absorption and balancing.

Effective: Spring 2011

Prerequisite: E MCH 212CMPSC 200MATH 220MATH 251

**M E 375 Vibrations Laboratory** (1) Experimental measurement and analysis of mechanical system dynamics.

Effective: Fall 2007

Prerequisite: or concurrent: M E 370M E 345

**M E 380 Machine Dynamics** (3) Kinematic analysis of mechanisms such as linkages, flywheels, cams and gears. Dynamic forces and vibrations of mechanisms.

Effective: Spring 2009

Prerequisite: E MCH 212MATH 251

**M E 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Fall 2007

Prerequisite: prior approval of proposed assignment by instructor

**M E 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

**M E 400 Thermodynamics of Propulsion and Power Systems** (3) Analysis and modeling of propulsion and power systems, including combustion, compressible flow through nozzles, chemical equilibrium, and moist air systems.

Effective: Fall 2007

Prerequisite: M E 300 and M E 320 ; Prerequisite or concurrent: M E 410

**M E 401 Refrigeration and Air Conditioning** (3) Theoretical principles, design, performance, and selection of various refrigeration and air-conditioning systems; building heat and cooling loads; solar heating.

Effective: Fall 2007

Prerequisite: M E 410

**M E 402 Power Plants** (3) A study of fossil-fuel steam generation and utility plants, including cogeneration, gas turbine, and combined cycles.

Effective: Fall 2007

Prerequisite: M E 410

**M E 403 Polymer Electrolyte Fuel Cell Engines** (3) Introduction to Fundamentals of Polymer Electrolyte Fuel Cells (PEFCs). Includes fundamentals of electrochemistry, thermodynamics, fluid mechanics, heat transfer materials, and manufacturing issues of PEFCs. A brief survey of other fuel cell types is also included.

Effective: Spring 2011

Prerequisite: M E 300 Prerequisite or concurrent: M E 320 Concurrent: M E 410 or equivalent

**M E 404 Gas Turbines** (3) Thermodynamic cycles relating to gas turbines; analysis and performance of compressors, combustion chambers, single- and multi-stage turbines; recent developments.

Effective: Fall 2007

Prerequisite: M E 320 or M E 302

**M E 405 Indoor Air Quality Engineering** (3) Prediction of the motion of contaminants (both gaseous particulate) in gas streams; analysis of ventilation systems and air pollution control systems; comparison of experimental sampling techniques.

Effective: Fall 2007

Prerequisite: M E 320 or equivalent

**M E 406 (NUC E 406) Introduction to Statistical Thermodynamics** (3) Statistical description of systems composed of large numbers of particles in the context of classical and quantum mechanics; basic concepts of probability theory and thermodynamics as they relate to statistical mechanics.

Effective: Fall 2007

Prerequisite: M E 300 or M E 201 or M E 302 or CH E 303; MATH 230 or MATH 231

**M E 408 Energy Systems** (3) Theory, analysis, design, selection, and application of energy conversion systems.

Effective: Fall 2011

Prerequisite: M E 320M E 410

**M E 410 Heat Transfer** (3) Thermal energy transfer mechanisms: conduction (steady, transient), convection (internal, external), radiation; lumped parameter method; heat exchangers; introduction to numerical methods.

Effective: Spring 2011

Prerequisite: AERSP 308AERSP 311C E 360 or M E 320; CMPSC 200 or CMPSC 202; MATH 220 or NUC E 309; MATH 251

**M E 411 Heat-Exchanger Design** (3) Thermal design and application of different heat-exchanger types, including surface selection and design optimization.

Effective: Fall 2007

Prerequisite: M E 410

**M E 420 Compressible Flow I** (3) Introductory compressible flow (gas dynamics), mathematical background, and physical concepts of isentropic flow, shock waves, expansion waves, and applications.

Effective: Fall 2007

Prerequisite: M E 320

**M E 421 Viscous Flow Analysis and Computation** (3) Apply analytical and computational methods to solve the differential equations describing fluid flow. Incompressible external flows past objects and internal flows in pipes and ducts are some problems considered.

Effective: Spring 2011

Prerequisite: M E 201M E 320AERSP 308AERSP 311 orC E 361;CMPSC 200 orCMPSC 201 orCMPSC 202;MATH 220;MATH 250 orMATH 251

**M E 422 Principles of Turbomachinery** (3) Application of Newton's laws of motion and basic laws of thermodynamics to analysis of fluid flow in turbomachinery.

Effective: Fall 2007

Prerequisite: M E 320

**M E 427 Incompressible Aerodynamics** (3) Analysis of lift and drag using potential flow theory, effects of viscosity on potential flow calculations, wind tunnel testing.

Effective: Fall 2007

Prerequisite: M E 320

**M E 428 Applied Computational Fluid Dynamics** (3) Introduction to theory and application of computational techniques for solving fluid flow and heat transfer.

Effective: Fall 2011

Prerequisite: M E 320M E 410

**M E 430 (EGEE 430) Introduction to Combustion** (3) Concepts related to laminar and turbulent premixed and nonpremixed combustion with applications to propulsion and stationary systems.

Effective: Fall 2009

Prerequisite: M E 201 orM E 300 orEME 301

**M E 431 Internal Combustion Engines** (3) Thermodynamic aspects of internal combustion engine design and performance; two- and four-stroke cycle, supercharged and non-supercharged, diesel and spark-ignition types.

Effective: Fall 2007

Prerequisite: M E 302

**M E 432 Rocket Propulsion** (3) Design and performance of rocket propulsion components and systems; thermodynamics, solid and liquid fuels, heat transfer, materials, controls, and instrumentation.

Effective: Fall 2007

Prerequisite: M E 320M E 410

**M E 433 Fundamentals of Air Pollution** (3) Natural and man-made sources of pollution; atmospheric dispersion; biological and health effects; control systems; legislation and regulations.

Effective: Fall 2007

Prerequisite: M E 201 orM E 300

**M E 440W Mechanical Systems Design Project** (3) Design and analysis of mechanical components and systems. Application of fundamental design and analysis methods to open ended engineering problems.

Effective: Fall 2007 Ending: Fall 2014

Prerequisite: ENGL 202CI E 312M E 360M E 370M E 340

**M E 440W Mechanical Systems Design Project** (3) Design and analysis of mechanical components and systems. Application of fundamental design and analysis methods to open ended engineering problems.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: M E 340;M E 360;M E 370 Concurrent: I E 312 ; ENGL 202C

**M E 441W Thermal Systems Design Project** (3) Design of thermal systems through component design and/or selection, system simulation and optimization. Assessment of system economics and energy efficiency.

Effective: Fall 2007 Ending: Fall 2014

Prerequisite: ENGL 202CM E 340M E 410

**M E 441W Thermal Systems Design Project** (3) Design of thermal systems through component design and/or selection, system simulation and optimization. Assessment of system economics and energy efficiency.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: M E 340;M E 410 Concurrent: ENGL 202C

**M E 442W Advanced Vehicle Design I** (2) Part one of a two course sequence; applications of design and analysis methods to open-ended advanced transportation vehicles. Two semester course; satisfies Senior Design or ME Technical Elective requirements (when combined with M E 443W).

Effective: Summer 2010 Ending: Fall 2014

Prerequisite: ENGL 202CI E 312M E 340M E 360M E 370 Concurrent: M E 410

**M E 442W Advanced Vehicle Design I** (2) Part one of a two course sequence; applications of design and analysis methods to open-ended advanced transportation vehicles. Two semester course; satisfies Senior Design or ME Technical Elective requirements (when combined with M E 443W).

Effective: Spring 2015 Future: Spring 2015

Prerequisite: M E 340C;M E 360;M E 370 Concurrent: M E 410 ; I E 312 ; ENGL 202C

**M E 443W Advanced Vehicle Design II** (1) Part two of a two course sequence; applications of design and analysis

methods to open-ended advanced transportation vehicles. Two semester course; satisfies Senior Design or ME Technical Elective requirements (when combined with M E 442W).

Effective: Summer 2010

Prerequisite: M E 442W

**M E 444 Engineering Optimization** (3) Problem formulation, algorithms and computer solution of various engineering optimization problems.

Effective: Spring 2010

Prerequisite: MATH 220MATH 230 orMATH 231CMPSC 201 orCMPSC 202 orCMPSC 200

**M E 445 Microcomputer Interfacing for Mechanical Engineers** (4) Interfacing of electro-mechanical systems to microcomputers for data acquisition, data analysis and digital control.

Effective: Fall 2007

Prerequisite: M E 345 and seventh-semester standing

**M E 446 (NUC E 446) Reliability and Risk Concepts in Design** (3) Introduction to reliability mathematics. Failure data collection and analysis. Components and systems reliability prediction. Effects of maintenance on reliability. Risk Analysis. Case studies in engineering applications.

Effective: Spring 2011

Prerequisite: MATH 250 orMATH 251;M E 345 orNUC E 309

**M E 448 Engineering Design Concepts** (3) Engineering design and modelling, engineering economic analysis techniques, technical communication skills, project planning and design.

Effective: Fall 2011

Prerequisite: M E 380 seventh-semester standing. Prerequisite or concurrent:M E 367M E 410

**M E 449 Mechanical Design Projects** (3) Group or individual design projects in the areas of mechanical engineering.

Effective: Fall 2007

Prerequisite: M E 448 eighth-semester standing

**M E 450 Modeling of Dynamic Systems** (3) Modeling and analysis of dynamic interactions in engineering systems. Classical and state variable methods; digital simulation; stability and dynamic response.

Effective: Fall 2007

Prerequisite: M E 370M E 345

**M E 452 Vehicle Road Dynamics** (3) Investigations of three-dimensional dynamics and design into the study of vehicle dynamics including tire forces, suspension, and stability.

Effective: Fall 2012

Prerequisite: prerequisite or concurrent:M E 450

**M E 455 Automatic Control Systems** (3) Dynamic analysis of systems involving automatic control of position, speed, power, flow, pressure, temperature, and other physical quantities.

Effective: Fall 2007

Prerequisite: M E 320M E 450

**M E 456 (I E 456) Industrial Robot Applications** (3) Introduction to robotics, with emphasis on robot selection, programming, and economic justification for manufacturing applications.

Effective: Spring 2011

Prerequisite: MATH 220;MATH 250 orMATH 251;I E 305 orM E 360;CMPSC 200 orCMPSC 201

**M E 460 Advanced Machine Design Problems** (3) Special machine design problems in unusual types of springs; gear problems and involutometry; cam design and application; multiple diameter shaft deflections and ball bearings.

Effective: Fall 2007

Prerequisite: M E 360M E 370

**M E 461 (E MCH 461) Finite Elements in Engineering** (3) Computer modeling and fundamental analysis of solid, fluid, and heat flow problems using existing computer codes.

Effective: Spring 2011

Prerequisite: E MCH 213E MCH 210H orE MCH 210;CMPSC 200CMPSC 201 orCMPSC 202

**M E 462 Lubrication in Machine Design** (3) Lubricants and lubrication with applications to design aspects of machines and mechanisms including bearings, gears, cams, and automotive engines.

Effective: Fall 2007

Prerequisite: MATH 251M E 360

**M E 465 Introduction to Manufacturing Laboratory** (1) A laboratory-based introduction to manufacturing processes including material removal, forming, casting and joining for metals and non-metals.

Effective: Fall 2011

Prerequisite: Prerequisite or concurrent:M E 468

**M E 467 Applied Finite Element Analysis** (3) Review of matrix algebra; discretization; finite element formulation; application of finite element computer codes.

Effective: Fall 2011

Prerequisite: M E 410 andM E 349

**M E 468 Engineering for Manufacturing** (3) Manufacturability, the selection of the most effective materials and processes, and quality assurance.

Effective: Spring 2009

Prerequisite: MATSE 259

**M E 469 Metallic Manufacturing Processes** (3) Principles of metal working and introduction to current theories; analysis

of deformation, joining, and metal removal processes.

Effective: Fall 2011

Prerequisite: M E 349 . Prerequisite or concurrent:M E 468

**M E 470 (E MCH 470) Analysis and Design in Vibration Engineering (3)** Application of Lagrange's equations to mechanical system modeling, multiple- degree-of-freedom systems, experimental and computer methods; some emphasis on design applications.

Effective: Spring 2008

Prerequisite: E MCH 212 orE MCH 212H;M E 370 orE SC 407H

**M E 471 Noise Control in Machinery (3)** Nature of noise sources in machine elements and systems. Propagation and reduction of noise. Effects of noise on man.

Effective: Fall 2007

Prerequisite: M E 320M E 370

**M E 480 Mechanism Design and Analysis (3)** Design and analysis of mechanical linkages including kinematic synthesis and dynamic analysis. Linkages for a variety of applications are considered.

Effective: Spring 2011

Prerequisite: E MCH 212 . Prerequisite or Concurrent:CMPSC 200

**M E 481 Introduction to Computer-Aided Analysis of Machine Dynamics (3)** Techniques and formulations for computer based kinematic and dynamic analyses of machines.

Effective: Spring 2011

Prerequisite: E MCH 212 ; Prerequisite or concurrent:CMPSC 200

**M E 491 Bioengineering Applications of Mechanical Engineering (3)** Application of mechanical engineering knowledge in the context of life sciences.

Effective: Fall 2011

Prerequisite: E E 211M E 320M E 357E MCH 213M E 349 or permission of program

**M E 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**M E 494H Senior Thesis (1-9)** Students must have approval of a thesis adviser before scheduling this course.

Effective: Spring 2007

Prerequisite: Junior or senior status in the University Scholars Program

**M E 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Fall 2007

Prerequisite: prior approval of proposed assignment by instructor

**M E 496 Independent Studies (1-18)** Creative projects, including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**M E 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**M E 497K (NUC E 497K) Thermal-Hydraulics of Two-Phase Flow in Energy Systems (3)** This course provides students with fundamental knowledge necessary for thermal-hydraulic analysis of single-phase and two-phase flow systems. The power reactor will be employed as a generic example of the thermal-hydraulic energy systems. In single-phase flow analysis, the one-dimensional thermal- hydraulic system analysis method, which is often employed by the industry's system analysis code, will be introduced for normal and off-normal plant operating conditions.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: M E 320

**M E 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2008

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## Mechanical Engineering Technology (MET)

**MET 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2007

**MET 105 Mechanical Systems** (3) Mechanical Systems with Laboratory is an introductory course for Engineering Technology major students to broadly introduce Mechanical Engineering Technology.  
Effective: Spring 2008

**MET 107 Computer Applications for Technologists** (3) Programming spreadsheets, data bases and presentation software for solutions of technical problems; introduction to languages allowing creation of program macros.  
Effective: Spring 2010  
Prerequisite: MATH 081 or MATH 022 or MATH 026 Concurrent: MATH 081 or MATH 022 or MATH 026

**MET 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2007

**MET 206 Dynamics** (3) Kinematics (particles and rigid bodies), kinetics, work-energy, impulse- momentum; select mechanisms associated with local industries.  
Effective: Fall 2008 Ending: Summer 2014  
Prerequisite: MCH T 111 Concurrent: MATH 083 or MATH 140

**MET 206 Dynamics** (3) Kinematics (particles and rigid bodies), kinetics, work-energy, impulse- momentum, and mechanisms.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MCH T 111; MATH 082 or MATH 022

**MET 210W Machine Design** (3) Design machine elements including bearings, springs, levers, shafts, gears, belts, and small mechanical devices; writing skills and computer applications.  
Effective: Spring 2008 Ending: Summer 2014  
Prerequisite: MET 206 or E MCH 212; MCH T 213 or E MCH 213 or ET 322 or EMET 322

**MET 210W Machine Design** (3) Design machine elements including bearings, springs, levers, shafts, gears, belts, and small mechanical devices; writing skills and computer applications.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MET 206 or E MCH 212 or PHYS 150 or PHYS 250 or PHYS 211; MCH T 213 or E MCH 213 or ET 322 or EMET 322

**MET 281 Elementary Thermo- and Fluid Dynamics** (4) Basic problems in compressible fluid flow. Laws of dynamics and thermodynamics, mechanical properties of fluids, elementary heat transfer.  
Effective: Spring 2007  
Prerequisite: or concurrent: MATH 083 PHYS 150 or PHYS 250

**MET 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2007

**MET 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2007

**MET 306 Computer-Aided Design** (3) Computer-aided drafting and design; computer software solutions to mechanical engineering technology design problems.  
Effective: Spring 2010  
Prerequisite: MET 107; EG T 121 or EG T 201 and EG T 205

**MET 308 Computer Aided Solid Modeling and Analysis** (3) Basic techniques necessary to perform Computer Aided Design and Analysis in three dimensions for machine components.  
Effective: Spring 2007

**MET 320 Strength of Materials II** (3) Principles of stress and strain in 3D, indeterminate structures, failure theory, and energy methods in solid mechanics.  
Effective: Spring 2014  
Prerequisite: E MCH 213 or MCH T 213

**MET 321 Analytical Techniques** (2) A study of engineering methods of problem formulation and solution; includes differential methods, dimensional analysis, and graphical analysis.  
Effective: Spring 2008  
Prerequisite: E MCH 212 or ET 321 MATH 140 Concurrent: integral calculus

**MET 330 Thermodynamics** (3) Introduction for technologists to the basic concepts and applications of thermodynamics.

Effective: Fall 2011

Prerequisite: PHYS 250 orPHYS 211 orPHYS 150 . Prerequisite or concurrent:CHEM 110;MATH 083 orMATH 140

**MET 331W Heat Transfer (4)** Introduction for technologists to the basic concepts and applications of heat transfer. Includes a thermodynamics and heat transfer laboratory.

Effective: Fall 2007

Prerequisite: M E 300 orMET 330 . Prerequisite or concurrent:MET 341

**MET 332 Thermal Engineering A (3)** Basic thermodynamic units, concepts, properties of ideal gases and vapors, first and second laws, gaseous mixtures, one-dimensional compressible flow.

Effective: Summer 2007

Prerequisite: CHEM 110CHEM 111MATH 140

**MET 336 Engineering Fluid Mechanics (3)** Thermal and dynamic principles applied to fluid behavior, ideal, viscous, and compressible fluids under internal and external flow conditions.

Effective: Spring 2008

Prerequisite: E MCH 211 Concurrent: Chemistry Physics Calculus

**MET 341 Mechanical Measurements and Instrumentation (3)** Measurement concepts, transducers, electronic-aided measurement, mechanical and electrical measurements. Intended for mechanical engineering technologists.

Effective: Spring 2012

Prerequisite: EET 105 orEET 100 orE E 211 orEET 320 andPHYS 151PHYS 211 orPHYS 250 Concurrent: PHYS 151 PHYS 212 or PHYS 251

**MET 342 Instrumentation (2)** Measuring system responses of first and second order instruments; fundamentals of mechanical measurements, including pressure, temperature, fluid flow, etc.

Effective: Spring 2007

**MET 358 Process Design Engineering (3)** Introduction to process design for production applications from job shop to world-class manufacturing environments.

Effective: Spring 2010

Prerequisite: IET 321 orIET 215 andIET 216

**MET 365 Design of Machine Elements (3)** Design of structural and mechanical elements with emphasis on theories of fatigue failure.

Effective: Fall 2008

Prerequisite: E MCH 213 orET 322

**MET 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2007

**MET 403 Advanced Mechanical Design (3)** Continuation of strength of materials and machine design, with emphasis on advanced methods of design and analysis of machine elements.

Effective: Spring 2007

Prerequisite: MET 365

**MET 415 Finite Element Analysis Applications I (3)** Solutions of advanced engineering design problems using finite elements. Intended for engineering technologists.

Effective: Spring 2014

Prerequisite: MET 320;EG T 121 orEG T 205

**MET 417 Finite Element Analysis (3)** Formulation and computer implementation of finite element models for solving problems in heat transfer, fluid flow, and solid mechanics.

Effective: Spring 2007

Prerequisite: MET 365

**MET 418 Finite Element Analysis for Plastics Design (3)** Solutions of advanced engineering problems using finite element and finite difference techniques; advanced topics in computer-aided manufacturing; problems in optimization and design.

Effective: Spring 2007

Prerequisite: MCH T 213PL ET 232PL ET 235 . Prerequisite or concurrent:PL ET 350

**MET 425 Finite Element Analysis Applications II (3)** Solutions of advanced engineering design problems using finite element methods.

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: MET 415

**MET 425 Finite Element Analysis Applications II (3)** Solutions of advanced engineering design problems using finite element methods.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MET 415

**MET 431 Heat Transfer (3)** Basic principles of conduction, convection, and radiation with applications.

Effective: Spring 2007

Prerequisite: MET 332

**MET 432 Fluid Power (3)** Principles of fluid flow, hydraulic components, and hydraulic circuits having application to industry.

Effective: Spring 2014

Prerequisite: M E 300 orMET 330 orMET 332 ; prerequisite or concurrent:MET 331W orMET 431

**MET 435 Building Energy Systems (3)** Analysis and design of components and systems for building heating and cooling; emphasis on applying the thermal sciences.

Effective: Spring 2007

Prerequisite: MET 332MET 336

**MET 436 Energy Conservation Systems (3)** Analysis of processes and systems for energy conversion, including power, refrigeration and air conditioning cycles, thermoelectric etc.

Effective: Spring 2013

Prerequisite: M E 300 orMET 330 orMET 332

**MET 438 Thermal Engineering B (3)** Applied thermodynamics of power cycles; refrigeration and air conditioning cycles; combustion; psychometrics; and gas mixtures.

Effective: Spring 2007

Prerequisite: MET 332

**MET 440 Vibrations for Technologists (3:)** Principles of basic vibration theory, vibration measurement, data acquisition and analysis, and the effective presentation of vibration data.

Effective: Fall 2011

Prerequisite: MET 206 orE MCH 212;MATH 211 orMATH 250;MET 341 . Prerequisite or concurrent:MET 415

**MET 441 Vibration Analysis (4)** Analysis of motion arising from lateral and torsional vibrations of systems; free and forced vibrations; damping; isolation; balancing.

Effective: Spring 2008

Prerequisite: E MCH 212MET 321

**MET 448 Mechanical Engineering Technology Laboratory B (2)** Laboratory exercises in the areas of instrumentation, strength of materials, fluid flow, vibrations, thermodynamics, etc.

Effective: Spring 2007

Prerequisite: MET 336MET 342ENGL 202C and senior standing

**MET 450 Manufacturing Engineering (3)** Design, analysis and operational issues related to improved productivity and efficiency in modern manufacturing systems.

Effective: Spring 2007

Prerequisite: MET 358

**MET 452 Rapid Prototyping (3)** Introduction to the production of prototypes directly from computer models.

Effective: Fall 2007

Prerequisite: IET 216MET 306

**MET 454 Automatic Controls (3)** An introduction to basic automatic control theory, practical applications of automatic controls to typical industrial machinery, HVAC equipment, etc.

Effective: Spring 2012

Prerequisite: E MCH 212 orET 321 orMET 206 andMET 321

**MET 455 Mechatronics (3)** Integration of mechanical and electronic systems implemented using data acquisition systems, sensors, actuators, signal conditioning, feedback controls, and programmable logic controllers.

Effective: Spring 2011

Prerequisite: EET 100 orEET 105 orEET 101 orE E 211;MET 210W orM E 367;MET 341 orM E 345W;MET 432 orM E 320

**MET 457 Lean Manufacturing (3)** Principles and methods of Lean Manufacturing currently used in modern industries.

Effective: Summer 2007

Prerequisite: 7th semester standing; andIE T 215 orM E 468 or permission of program

**MET 461 Advanced Machine Design (3)** Stress analysis, material selection, design of machine elements, design of connections, and computer-aided design.

Effective: Spring 2007

Prerequisite: MET 210WMET 415

**MET 462 Internal Combustion Engine Design (3)** The effect of operation requirements on design and construction of internal combustion engines; study of support systems and emissions control.

Effective: Spring 2007

Prerequisite: MET 332

**MET 470 Materials Engineering (3)** Study of material selection, material properties, material test methods, and special topics.

Effective: Fall 2011

Prerequisite: CHEM 110CHEM 111 . Prerequisite or concurrent:MET 415

**MET 480 Senior Capstone (1)** Career and professional topics; development of year-long senior project with industry.

Effective: Spring 2014 Ending: Fall 2014

Prerequisite: M E 300 orMET 330 . Prerequisite or concurrent:MET 415MET 470

**MET 480 Senior Capstone (1)** Career and professional topics; development of year-long senior project with industry.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: IE T 216MET 210WMET 306M E 300 orMET 330 . Prerequisite or concurrent:MET 415MET 470

**MET 481 Project Design (1)** Design of system or machine, including decision making, engineering analysis, layout, detail drawings, specifications, construction.



Effective: Spring 2007

Prerequisite: MET 365MET 431 and senior standing

**MET 485 Senior Industrial Project** (3) Individual or group design projects in mechanical design or materials.

Effective: Fall 2011

Prerequisite: MET 331WMET 470MET 480 . Prerequisite or concurrent:MET 425

**MET 486 Project Design** (3) Design of system or machine, including decision making, engineering analysis, layout, detail drawings, specifications, construction.

Effective: Spring 2007

Prerequisite: MET 365MET 431MET 481 and senior standing

**MET 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica or internships. Written and oral critique of activity required.

Effective: Spring 2007

Prerequisite: prior approval of proposed assignment by instructor

**MET 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2007

**MET 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2007

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## Mechanical Technology (MCH T)

**MCH T 111 Mechanics for Technology: Statics** (3) Forces; moments; resultants; two- and three-dimensional equilibrium of force systems; friction; centroids and moments of inertial of areas.

Effective: Fall 2008

Prerequisite: MATH 026 or MATH 081

**MCH T 112 Statics Laboratory** (1) Laboratory experimentation associated with basic engineering mechanics principles and concepts including forces, moments, equilibrium, trusses, frames, friction, and centroids.

Effective: Spring 2008

Prerequisite: MATH 026 or MATH 081 Concurrent: MCH T 111

**MCH T 212 Introduction to Dynamics** (3) Absolute and relative motion related to particles and simple linkages. Force-mass-acceleration, work-energy, and impulse-momentum solution techniques.

Effective: Spring 1996

Prerequisite: MCH T 111 . Prerequisite or concurrent: MATH 083

**MCH T 213 Strength and Properties of Materials** (3) Axial stress and strain; shear; torsion; beam stresses and deflections; combined axial and bending stresses; columns, ductility, resilience, and toughness.

Effective: Fall 2008

Prerequisite: MCH T 111 MATH 026 or MATH 081

**MCH T 214 Strength and Properties of Materials Laboratory** (1) Measurement of mechanical properties of materials; structural testing, data acquisition and analysis; technical laboratory report writing.

Effective: Fall 2013

Prerequisite: Prerequisite or concurrent: MCH T 213 or EMET 222

**MCH T 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 1997

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## Medieval Studies (MEDVL)

MEDVL 107 (GH;IL) (HIST 107) **Medieval Europe** (3) Rise and development of the civilization of medieval Europe from the decline of Rome to 1500.  
Effective: Spring 2006

MEDVL 108 (GH;IL) **Medieval Civilization** (3) An interdisciplinary introduction to literature, art, and thought of the Middle Ages.  
Effective: Spring 2006

MEDVL 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

MEDVL 199 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

MEDVL 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

MEDVL 299 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

MEDVL 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

MEDVL 399 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

MEDVL 411 (IL) (HIST 411) **Medieval Britain** (3) Political, cultural, and economic history of Britain from circa 400 to 1485 with an emphasis on the kingdom of England.  
Effective: Spring 2006  
Prerequisite: 6 credits in European history or medieval studies

MEDVL 413 (IL) (HIST 413) **Medieval Celtic Studies** (3) Celtic civilization from antiquity to the end of the middle ages.  
Effective: Spring 2006  
Prerequisite: 3 credits in medieval studies or in language literature or European history of the medieval period

MEDVL 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

MEDVL 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

MEDVL 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2002  
Prerequisite: prior approval of proposed assignments by instructor

MEDVL 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 1995

MEDVL 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

MEDVL 499 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005



## Meteorology (METEO)

METEO 002 (GN) **Our Changing Atmosphere: Personal and Societal Consequences** (3) A survey of meteorology emphasizing how the nature of our lives, individually/societally, depends upon atmospheric structure, quality, and processes.  
Effective: Spring 2003

METEO 003 (GN) **Introductory Meteorology** (3) Nontechnical treatment of fundamentals of modern meteorology and the effects of weather and climate. A student who took METEO 002 may take the laboratory part of this course for 1 credit only.  
Effective: Spring 2003

METEO 004 (GN) **Weather and Risk** (3) Non-technical introduction to the science and historical development of meteorology, and the role of weather forecasting as a tool for risk management by individuals, businesses, and societies.  
Effective: Summer 2007

METEO 005 (GN) **Severe and Unusual Weather** (3) Non-technical introduction to the physical processes important in the formation of various severe and unusual weather phenomena.  
Effective: Summer 2011

METEO 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2010

METEO 101 (GN) **Understanding Weather Forecasting** (3) Fundamental principles of synoptic and physical meteorology, satellite and radar imagery, and data analysis in the setting of mid-latitude weather forecasting.  
Effective: Fall 2001

METEO 122 (GN) (AGECO 122) **Atmospheric Environment: Growing in the Wind** (3) Students will learn about the effect of weather on plants, animals, and humans.  
Effective: Summer 2006

METEO 200A **Introduction to Weather Analysis I** (1.5) Introduction to the collection, display, and application of weather observations used by the operational meteorologist. Students who have passed METEO 201 may not schedule this course for credit.  
Effective: Fall 1998

METEO 200B **Introduction to Weather Analysis II** (1.5) Introduction to the collection, display, and application of numerical weather forecasts used by the operational meteorologist. Students who have passed MET EO 201 may not schedule this course for credit.  
Effective: Fall 1998  
Prerequisite: METEO 200A

METEO 201 **Introduction to Weather Analysis** (3) Introduction to the collection, display, and application of weather observations and numerical forecasts used by the operational meteorologists. Students who have passed both METEO 200A and 200B may not schedule this course for credit.  
Effective: Spring 1999

METEO 215 **Weather Forecast Preparation Laboratory** (0.5 per semester/maximum of 4) Forecast methods/data discussed prior to nightly weather forecast entry. Satisfactory performance will be determined by attendance and forecast accuracy.  
Effective: Spring 2011  
Concurrent: METEO 101 METEO 200A and METEO 200B or METEO 201

METEO 241 **Fundamentals of Tropical Forecasting** (3) Applying atmospheric principles to the tropics, with an emphasis on the development, structure, prediction and destructive impact of hurricanes.  
Effective: Spring 2004  
Prerequisite: METEO 101

METEO 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

METEO 297 **Special Topics** (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1989

**METEO 300 Fundamentals of Atmospheric Science** (4) An introduction to the fundamentals of atmospheric dynamics, physics, and chemistry.

Effective: Fall 2009

Prerequisite: CHEM 110PHYS 211 Concurrent: MATH 230 or MATH 231

**METEO 361 Fundamentals of Mesoscale Weather Forecasting** (3) Applying atmospheric principles to small-scale weather systems, with an emphasis on the conceptual modeling and short-range prediction of severe thunderstorms.

Effective: Spring 2004

Prerequisite: METEO 101

**METEO 395A Internship in Meteorological Communication** (3 per semester/maximum of 6) Meteorology internship focusing on communication of weather forecasts or other atmospheric information.

Effective: Summer 2010

Prerequisite: METEO 101 orMETEO 200A andMETEO 200B orMETEO 201 andMETEO 300

**METEO 395B Private Sector Meteorology Internship** (3 per semester/maximum of 6) Private sector internship focusing on atmospheric problems and applications.

Effective: Summer 2010

Prerequisite: METEO 101 orMETEO 200A andMETEO 200B orMETEO 201 andMETEO 300

**METEO 395C Internship in Meteorological Operations** (3 per semester/maximum of 6) Internship focusing on time-sensitive operational meteorological applications such as weather or climate forecasts.

Effective: Summer 2010

Prerequisite: METEO 101 orMETEO 200A andMETEO 200B orMETEO 201 andMETEO 300

**METEO 395D International Meteorological Internship** (3 per semester/maximum of 6) An internship in an international setting that focuses on applying meteorological knowledge.

Effective: Summer 2010

Prerequisite: METEO 101 orMETEO 200A andMETEO 200B orMETEO 201 andMETEO 300

**METEO 395E Off-Campus Meteorological Research Internship** (3 per semester/maximum of 6) Meteorological internship focusing on an off-campus research project.

Effective: Summer 2010

Prerequisite: METEO 101METEO 200A andMETEO 200B orMETEO 201 andMETEO 300

**METEO 410 Advanced Topics in Weather Forecasting** (3) Exploring highly specialized topics and techniques in weather forecasting that span from mesoscale to planetary spatial scales and short-term to long- range time scales.

Effective: Spring 2004

Prerequisite: METEO 101METEO 241METEO 361

**METEO 411 Synoptic Meteorology Laboratory** (4) Techniques of analyzing synoptic scale weather situations; introduction to weather forecasting.

Effective: Spring 2004

Prerequisite: METEO 101 orMETEO 200A andMETEO 200B orMETEO 201;MATH 230 orMATH 231 Prerequisite or concurrent:METEO 421 andMETEO 431

**METEO 413 Map Analysis** (3) Analysis of actual surface weather observations, with emphasis on the Norwegian cyclone model, missing or bad data, and mesoscale phenomena.

Effective: Fall 2002

Prerequisite: METEO 411

**METEO 414 Mesoscale Meteorology** (4) A survey of conceptual models and analysis techniques for mesoscale atmospheric features.

Effective: Summer 1996

Prerequisite: METEO 411

**METEO 415 Forecasting Practicum** (3) Modern techniques in weather analysis and forecasting.

Effective: Spring 2011

Prerequisite: METEO 411

**METEO 416 Advanced Forecasting** (3) Competitive, simulated, operational, real-time forecasting is covered.

Effective: Spring 1998

Prerequisite: METEO 414METEO 415

**METEO 418W Topics in Mesoscale Meteorology** (3) Topics in mesoscale meteorology will be investigated in an independent study environment through computer-based modules, papers, and semester project.

Effective: Fall 1995

Prerequisite: METEO 414

**METEO 419 Air Quality Forecasting** (3) Issues relating to the prediction and dispersion of air pollutants as discussed.

Effective: Summer 2010

Prerequisite: CHEM 110 andMETEO 003 orMETEO 101 orMETEO 200A andMETEO 201B orMETEO 201

**METEO 421 Atmospheric Dynamics** (4) Balanced and unbalanced flows, vorticity, circulation and potential vorticity, an introduction to wave dynamics and stability analysis, and a quantitative discussion of the general circulation.

Effective: Fall 2009

Prerequisite: METEO 300;MATH 230 orMATH 231 andMATH 232 Concurrent: METEO 431 MATH 251 PHYS 212

**METEO 422 Advanced Atmospheric Dynamics** (3) Survey of advanced dynamical topics including instabilities, numerical modeling, and others of current interest.

Effective: Fall 2009

Prerequisite: METEO 421

**METEO 431 Atmospheric Thermodynamics** (3) Classical thermodynamics applied to both the dry and the moist atmosphere.

Effective: Spring 2001

Prerequisite: PHYS 212

**METEO 434 Radar Meteorology** (3) Fundamental operating principles of radars, with application to observation of meteorological phenomena.

Effective: Fall 2001

Prerequisite: METEO 437 Concurrent: METEO 414

**METEO 436 Radiation and Climate** (3) Elements of earth-sun geometry, radiative transfer, photochemistry, remote sensing of the atmosphere, physical climatology, climate forcing.

Effective: Spring 2013

Prerequisite: METEO 300 Concurrent: METEO 431

**METEO 437 Atmospheric Chemistry and Cloud Physics** (3) Properties of aerosols and clouds, cloud nucleation and precipitation processes, atmospheric electricity, cloud and precipitation chemistry, biogeochemical cycles.

Effective: Spring 2013

Prerequisite: METEO 300 and METEO 431

**METEO 440W Principles of Atmospheric Measurements** (3) Theory and practices used in measurement and analysis of meteorological variables.

Effective: Fall 2010

Prerequisite: METEO 300 METEO 431 STAT 301 or STAT 401 or E B F 472

**METEO 446 Laboratory in Atmospheric Physics II** (1) Experimental practices in cloud and aerosol physics, atmospheric electricity, atmospheric chemistry, radar meteorology.

Effective: Spring 1991

Prerequisite: or concurrent: METEO 437

**METEO 451 Introduction to Physical Oceanography** (3) Air-sea interaction, wind-driven and thermohaline circulations, upwelling, El Nino, waves, and tides.

Effective: Spring 2007

Prerequisite: METEO 421

**METEO 452 Tropical Meteorology** (3) Atmospheric processes in the tropics; mass, heat, energy, momentum, and water vapor budgets, cumulus convection, hurricanes and other disturbances.

Effective: Fall 1983

Prerequisite: METEO 411 METEO 421

**METEO 454 Introduction to Micrometeorology** (3) Physical processes and their measurement in the lowest layers of the atmosphere; application to hydrology, plant systems, and air pollution.

Effective: Fall 2009

Prerequisite: METEO 421 and METEO 431 or EME 301

**METEO 455 Atmospheric Dispersion** (3) The basic principles of atmospheric flow, introduction to the modeling of turbulent diffusion, and the use of EPA dispersion models.

Effective: Spring 2011

Prerequisite: EME 301 C E 360 M E 320 METEO 454 or EGEE 470

**METEO 460 Weather Risk and Financial Markets** (3) This course will introduce the role that weather plays as a source of financial and operational risk for businesses, market and other institutions.

Effective: Spring 2012

Prerequisite: METEO 411; E B F 472 or STAT 301 or STAT 401; E B F 301 or E B F 473

**METEO 465 Middle Atmosphere Meteorology** (3) A topical survey of physical, chemical, and dynamical processes at work in the stratosphere and mesosphere (middle atmosphere).

Effective: Spring 1988

Prerequisite: METEO 421 METEO 431

**METEO 466 Planetary Atmospheres** (3) A survey of planetary atmospheres and the chemical and physical processes by which they form and evolve.

Effective: Spring 2001

Prerequisite: MATH 141 PHYS 211

**METEO 469 From Meteorology to Mitigation: Understanding Global Warming** (3) Introduction to global warming and climate change: the basic, science, projected impacts, and approaches to mitigation.

Effective: Summer 2010

Prerequisite: MATH 110

**METEO 470 Climate Dynamics** (3) The fundamental principles that govern Earth's climate and their relevance to past and future climate change.

Effective: Fall 2012

Prerequisite: METEO 300 METEO 421 METEO 431

**METEO 471W Observing Meteorological Phenomena** (3) Teaching the observational and interpretative skills needed to read the sky.

Effective: Spring 1999

Prerequisite: METEO 421 . Prerequisite or concurrent:METEO 436

**METEO 473 Application of Computers to Meteorology** (3) Application of statistical and numerical methods to practical problems in meteorology.

Effective: Spring 2008

Prerequisite: CMPSC 101CMPSC 201 orCMPSC 202

**METEO 474 Computer Methods of Meteorological Analysis and Forecasting** (3) Distribution of scalars and vectors; sampling; regression and correlation in two and three dimensions; time series, statistical forecasting; forecast verification.

Effective: Summer 2010

Prerequisite: STAT 301 orSTAT 401 orE B F 472

**METEO 477 (E E 477) Fundamentals of Remote Sensing Systems** (3) The review of fundamental physical properties leads into discussions of various techniques, including imaging, spectroscopy, radiometry, and active sensing.

Effective: Spring 2008

Prerequisite: E E 330 orMETEO 436

**METEO 480M Undergraduate Research** (3) A research thesis will be prepared. A written and oral presentation required.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: junior or senior standing as a Meteorology Major

**METEO 480W Undergraduate Research** (3) A research thesis will be prepared. A written and oral presentation required.

Effective: Summer 1991

Prerequisite: junior or senior standing as a Meteorology Major

**METEO 481 Weather Communications I** (3) Multi-instructor weather communications survey including forecasting, science teaching and writing, television and radio broadcasting, climate studies, forensics, industrial applications.

Effective: Spring 2004

Prerequisite: METEO 201 orMETEO 101

**METEO 482 Weather Communications II** (3) Multi-instructor workshop designed to mimic real-life applications of weather communications in industry, broadcasting, the courtroom, and the classroom.

Effective: Spring 2002

Prerequisite: METEO 481

**METEO 483 Weather Communications III** (3) Individualized course designed for in-depth study of weather communications in industry, broadcasting, the courtroom and/or the classroom.

Effective: Spring 2002

Prerequisite: METEO 411METEO 482

**METEO 486 Pennsylvania Climate Studies** (1-2 per semester/maximum of 3) An overview of the Pennsylvania State Climate Office and an introduction to various aspects of its operations.

Effective: Spring 2011

Prerequisite: METEO 101 orMETEO 200A andMETEO 200B orMETEO 201

**METEO 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2010

**METEO 495A Meteorology Communications Internship** (3 per semester/maximum of 6) Internship focusing on communication of weather forecasts or other meteorological information.

Effective: Summer 2010

Prerequisite: METEO 411

**METEO 495B Meteorology Private Sector Internship** (3 per semester/maximum of 6) Internship focusing on meteorological problems and applications pursued by private sector companies.

Effective: Summer 2010

Prerequisite: METEO 411

**METEO 495C Meteorological Operations Internship** (3 per semester/maximum of 6) Internship focusing on time-sensitive meteorological applications such as weather or climate forecasts that are produced.

Effective: Summer 2010

Prerequisite: METEO 411

**METEO 495D Meteorological International Internship** (3 per semester/maximum of 6) Meteorological internship in an international setting.

Effective: Summer 2010

Prerequisite: 6 credits of 400-level Meteorology coursework

**METEO 495E Meteorological Off-Campus Research Internship** (3 per semester/maximum of 6) Off-campus meteorological internship focusing on a research project.

Effective: Summer 2010

Prerequisite: 9 credits of 400-level Meteorology coursework

**METEO 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**METEO 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject



which may be topical or of special interest.  
Effective: Fall 1983

**METEO 497A Professional Development in the Atmospheric Sciences** (1) Geared towards rising juniors, this one-credit course will offer practical advice and ample opportunities for reflection about one's standing within the major of Meteorology. The course will help to develop students professionally for a career in the atmospheric sciences and help to put them in the best possible position for their next step after graduate, be it a treasured job or graduate school. Topics will include professionalism and ethics, the value of improving presentation and writing skills, applying to graduate schools, career counseling, developing professional reference, etc. There will be guest speakers, including successful alumni, university staff and others whose participation will enhance the value of the class.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: 5th semester standing

**METEO 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

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## Microbiology (MICRB)

**MICRB 106 (GN) Elementary Microbiology** (3) Importance of microorganisms in health and disease, agriculture, and industry; descriptive course for students not planning advanced study in microbiology. The combination of MICRB 106 GN and 107 GN must be taken to receive General Education credit in biology.

Students must take a combination of MICRB 106 GN and 107 GN to receive General Education credit in biology. Effective: Spring 2002

**MICRB 107 (GN) Elementary Microbiology Laboratory** (1) Selected techniques used to observe, identify and count bacteria; effects of chemical and physical agents on microorganisms. The combination of MICRB 106 GN and 107 GN must be taken to receive General Education credit in biology.

Students must take a combination of MICRB 106 GN and 107 GN to receive General Education credit in biology. Effective: Spring 2002

Prerequisite: or concurrent: MICRB 106

**MICRB 150 Introductory Medical Laboratory Technology** (4) Introduction to basic principles and procedures of clinical laboratory work. Practicum emphasizes proper collection, handling, and preparation of biological samples.

Effective: Spring 2000

Prerequisite: admission to 2-MLT program

**MICRB 151A Seminar and Practicum for Medical Laboratory Technicians--Clinical Chemistry** (7) Basic principles and procedures for measuring chemical components of blood and other body fluids.

Effective: Summer 2007 Ending: Summer 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**MICRB 151A Clinical Chemistry for Medical Laboratory Technicians** (5) Basic principles and procedures for measuring chemical components of blood and other body fluids.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**MICRB 151B Hematology for Medical Laboratory Technicians** (5) Blood cell identification and analysis. Related procedures for diagnosing normal or disease states of blood cells and coagulation.

Effective: Summer 2014

**MICRB 151C Seminar and Practicum for Medical Laboratory Technicians--Hematology** (6) Red and white blood cell identification and enumeration. Related procedures for diagnosing normal or disease states.

Effective: Summer 2007 Ending: Summer 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**MICRB 151C Immunohematology and Serology for Medical Laboratory Technicians** (4) Antigen-antibody interactions of diagnostic importance. Immunologic principles and procedures necessary for the transfusion of blood products.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**MICRB 151D Seminar and Practicum for Medical Laboratory Technicians--Immunohematology** (4) Immunologic considerations necessary for the transfusion of blood and blood products.

Effective: Summer 2007 Ending: Summer 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**MICRB 151D Clinical Chemistry Practicum** (2) Supervised experience at affiliated clinical laboratory. Focus is on the practical application of clinical chemistry procedures. Phlebotomy.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Prerequisite or concurrent: MICRB 151A

**MICRB 151E Seminar and practicum for Medical Laboratory Technicians--Urinalysis** (2) Identification of cellular and crystalline urinary sediments. Qualitative chemical analysis of urine.

Effective: Summer 2007 Ending: Summer 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**MICRB 151E Hematology Practicum** (2) Supervised experience at affiliated clinical laboratory. Focus is on the practical application of hematology and coagulation procedures.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Prerequisite or concurrent: MICRB 151B

**MICRB 151F Seminar and Practicum for Medical Laboratory Technicians--Immunology/ Serology** (2)

Antigen-antibody interactions of diagnostic importance; methods used to identify and quantify antigen-antibody complexes.

Effective: Summer 2007 Ending: Summer 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**MICRB 151F Immunohematology Practicum** (2) Supervised experience at affiliated clinical laboratory. Focus is on the practical application of immunohematology procedures.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Prerequisite or concurrent: MICRB 151C

**MICRB 151G Clinical Microbiology and Body Fluids Practicum** (2) Supervised experience at affiliated clinical laboratory. Focus is on the practical application of microbiology procedures and body fluid analysis.

Effective: Summer 2014

Prerequisite: Prerequisite or concurrent: MICRB 151W

**MICRB 151W Seminar and Practicum for Medical Laboratory Technicians--Clinical Microbiology** (6) Properties of normal and abnormal human microbial flora and procedures for their identification.

Effective: Summer 2007 Ending: Summer 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**MICRB 151W Clinical Microbiology and Body Fluid Analysis for Medical Laboratory Technicians** (5) Properties of normal and abnormal microbial flora and procedures for their identification. Analysis of urine and other body fluids.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**MICRB 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**MICRB 201 Introductory Microbiology** (3) Elementary principles of microbial and viral structure, reproduction, genetics and physiology; relationship to food, water, soil, industrial and disease processes.

Effective: Summer 2007

Prerequisite: CHEM 110

**MICRB 201H Introductory Microbiology** (3) Elementary principles of microbial and viral structure, reproduction, genetics and physiology; relationship to food, water, soil, industrial and disease processes.

Effective: Summer 2007

Prerequisite: CHEM 110

**MICRB 202 Introductory Microbiology Laboratory** (2) Qualitative and quantitative techniques with regard to recognition of bacteria and their processes on a microscopic, colonial, and physiological basis.

Effective: Summer 2007

Prerequisite: CHEM 110 . Prerequisite or concurrent: MICRB 201

**MICRB 251 (B M B 251) Molecular and Cell Biology I** (3) Biomolecules, genetic mechanisms, organization of cells and their organelles, DNA replication, protein synthesis, membranes, the cell nucleus, energy conversion.

Effective: Summer 2007

Prerequisite: CHEM 112

**MICRB 252 (B M B 252) Molecular and Cell Biology II** (3) Continuation of BIOCH/B M B/MICRB 251: cytoskeleton, cell growth, division, adhesion, signalling, germ cells, differentiation, immune system, nervous system, plant cells.

Effective: Spring 1995

Prerequisite: MICRB 251

**MICRB 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1996

**MICRB 398 Special Topics** (1-9) Formal courses give infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2009

**MICRB 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**MICRB 401 Microbial Physiology and Structure** (3) Physiology and structure of bacteria important in microbiological research. Designed for science majors.

Effective: Summer 2007

Prerequisite: CHEM 202 or CHEM 210; MICRB 201MICRB 202

**MICRB 405A Seminar and Practicum in Medical Technology** (8) Chemistry. Fundamental principles and the quantitative measurement of chemical components in the blood and other body fluids.

Effective: Fall 1987

**MICRB 405B Seminar and Practicum in Medical Technology** (1) Urinalysis. Identification of cellular and noncellular urinary sediments. Qualitative chemical analysis of urine.

Effective: Fall 1988

**MICRB 405C Seminar and Practicum in Medical Technology** (6) Hematology. Principles of red and white blood cell development. Identification of normal and pathological conditions.

Effective: Fall 1988

**MICRB 405D Seminar and Practicum in Medical Technology** (5) Immunohematology. Immunologic and genetic principles governing the transfusion of blood and blood products.

Effective: Fall 1987

MICRB 405E **Seminar and Practicum in Medical Technology** (7) Microbiology. Identification of normal and abnormal microbial flora from various locations on and within the human body.  
Effective: Fall 1987

MICRB 405F **Seminar and Practicum in Medical Technology** (3) Serology-Immunology. Immunological principles and their application in the identification of present or past disease states of the human.  
Effective: Fall 1987

MICRB 408 **Laboratory Instructional Practice** (1-2) Participation in the instruction of undergraduate laboratory courses, including classroom preparation; discussion of principles and objectives of each exercise.  
Effective: Spring 1994  
Prerequisite: 8 credits in microbiology and permission of department head

MICRB 410 **Principles of Immunology** (3) Theories of immunity; focuses on the basis for the acquired immune response at the organ, cell, and molecular levels.  
Effective: Summer 1998  
Prerequisite: B M B 251MICRB 201 orMICRB 251

MICRB 411 **Survey of Microbiology Literature** (1 per semester) An introduction to readings and oral presentations in microbiology.  
Effective: Spring 1994  
Prerequisite: 8 credits in microbiology courses

MICRB 412 **Medical Microbiology** (3) Characteristics, methods of identification, and pathogenesis of bacteria that cause human disease; principles of disease dynamics and control.  
Effective: Fall 1993  
Prerequisite: MICRB 201

MICRB 413 **Microbial Diversity** (2) survey of microorganisms having special adaptive mechanisms for life in common and unique environments; topics include ecology, evolution, and bioremediation.  
Effective: Spring 1997  
Prerequisite: MICRB 201MICRB 202

MICRB 415 **General Virology: Bacterial and Animal Viruses** (3) The interaction of different types of viruses with bacterial and animal cells, including mechanisms of infection and viral synthesis.  
Effective: Summer 2000  
Prerequisite: B M B 251B M B 252 orBIOL 110BIOL 230W;MICRB 201

MICRB 416 (BIOTC 416) **Microbial Biotechnology** (2) Fundamentals of applied biotechnology; the use of microorganisms in the synthesis of biologically-important and industrially-useful products.  
Effective: Summer 2012  
Prerequisite: MICRB 201MICRB 202;B M B 442

MICRB 421W **Laboratory of General and Applied Microbiology** (3) Laboratory exercises demonstrating fundamental techniques and principles of experimentation of general and applied microbiology.  
Effective: Spring 2001  
Prerequisite: MICRB 201MICRB 202

MICRB 422 **Medical Microbiology Laboratory** (2) Laboratory exercises demonstrating properties and classification of medically important microorganisms and techniques used in their identification.  
Effective: Fall 1993  
Prerequisite: MICRB 202 Concurrent: MICRB 412

MICRB 432 (B M B 432, VB SC 432) **Advanced Immunology: Signaling in the Immune System** (3) The study of signaling pathways that regulate the immune response.  
Effective: Fall 2007  
Prerequisite: B M B 400MICRB 410

MICRB 435 (B M B 435, VB SC 435) **Viral Pathogenesis** (2) A study of the molecular, immunological and pathological aspects of viral diseases as well as laboratory methods of diagnosis.  
Effective: Fall 2007  
Prerequisite: MICRB 201;B M B 251 andB M B 252 orBIOL 110 andBIOL 230W

MICRB 447 **Laboratory in Molecular Immunology** (1) Laboratory in molecular techniques to assay antigens, antibodies, and receptor sites.  
Effective: Fall 1995  
Prerequisite: MICRB 410

MICRB 450 (B M B 450) **Microbial/Molecular Genetics** (2) Genetic phenomena, with emphasis on molecular mechanisms: gene transfer, recombination, gene conversion, gene fusion, suppression, transposons.  
Effective: Fall 2010  
Prerequisite: BIOL 222 orBIOL 322MICRB 201

MICRB 460 (B M B 460) **Cell Growth and Differentiation** (3) Mechanisms and regulation of protein trafficking, organelle biosynthesis, cell development, signaling and cell cycle control. Emphasizes experimental design and analysis.  
Effective: Spring 2006  
Prerequisite: B M B 252

MICRB 480 (B M B 480) **Tumor Viruses and Oncogenes** (3) Oncogenes, DNA and RNA tumor viruses, and relevant experimental techniques with emphasis on molecular basis of carcinogenesis and gene regulation.

Effective: Spring 2001

Prerequisite: or concurrent: MICRB 415 MICRB 435 or MICRB 460

MICRB 496 **Independent Studies** (1-18) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

MICRB 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1995

MICRB 497H **Challenging Dogmas: How Major Discoveries in Microbiology Revolutionized Biology** (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

MICRB 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 1995

MICRB 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Mineral Engineering (MIN E)

MIN E 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1999

MIN E 415 **Management in the Mineral Industries for Environmental, Legal, and Health and Safety Problems** (3) Mineral industries management and labor structure analyzed, with emphasis on environmental, health and safety, and legal aspects.

Effective: Spring 1999

Prerequisite: sixth-semester standing

MIN E 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 1999

MIN E 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1999

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## Mineral Processing (MN PR)

**MN PR 301 Elements of Mineral Processing** (3) Introduction to mineral process engineering. Sampling, sizing, comminution, physical and chemical processes, applications to industrial practice. Pollution control.  
Effective: Summer 2007

Prerequisite: CHEM 110 orCHEM 106;MATH 141

**MN PR 401 Mineral Process Engineering** (3) Unit operations for processing particulate materials: comminution, screening, classification, slurry pumping, thickening, filtration, etc.; application to mineral processing plant design.  
Effective: Spring 2001

Prerequisite: MN PR 301MATH 250 orMATH 251

**MN PR 413 Mineral Processing Laboratory** (1) A laboratory study of the chemical and physical principles involved in practical mineral processing operations.

Effective: Spring 1999

Prerequisite: or concurrent:MN PR 301

**MN PR 424 Coal Preparation** (3) Unit operations, flowsheets, and testing methods used in preparation of coal.

Effective: Spring 1999

Prerequisite: MN PR 301

**MN PR 425 Interfacial Phenomena and Flotation** (3) Surface and interfacial phenomena related to flotation agglomeration, flocculation, and dispersion of particles. Application to mineral separation and related processes.

Effective: Fall 2009

Prerequisite: EME 301;MATH 250 orMATH 251;MN PR 301

**MN PR 426 (MATSE 426) Aqueous Processing** (3) A study of the chemical and engineering principles pertinent to metal processing in aqueous systems: hydrometallurgical extraction, plating, materials preparation.

Effective: Fall 2009

Prerequisite: EME 301 orMATSE 401

**MN PR 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 1999

**MN PR 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1999

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## Mining (MNG)

**MNG 223 Mineral Land and Mine Surveying** (2) Surveying theory and practice applied to mineral lands and mines, traversing, leveling, mapping, underground surveying, microcomputer drafting and graphics.

Effective: Spring 2013 Ending: Summer 2014

Prerequisite: ED&G 100EG T 101 or E G 010 ; 1/2 unit of secondary school trigonometry

**MNG 223 Mineral Land and Mine Surveying** (2) Surveying theory and practice applied to mineral lands and mines, traversing, leveling, mapping, underground surveying, microcomputer drafting and graphics.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: 2nd semester standing; 1/2 unit of secondary school trigonometry

**MNG 230 Introduction to Mining Engineering** (3) Examination, development, and exploitation of mineral deposits; mining methods; unit operations; mining equipment; fundamentals of explosives.

Effective: Spring 2012

**MNG 331 Rock Mechanics** (3) Ground stresses, laboratory rock properties, laboratory and field instrumentation, rock mass characteristics, subsidence, slope stability, design of mine workings.

Effective: Fall 2012

Prerequisite: E MCH 210

**MNG 401 Introduction to Mining Operations** (1) An introduction to underground and surface mining methods; selection of extraction equipment; relevant auxiliary operations. Not intended for Mining Engineering majors.

Effective: Spring 2008

Prerequisite: E MCH 211

**MNG 404 Mine Materials Handling Systems** (2) Analysis and design of materials-handling systems in mining, such as belt conveyors, locomotives, and hoisting.

Effective: Spring 2011

**MNG 410 Underground Mining** (3) Underground mine design; extraction techniques; description of auxiliary operations as they relate to the mining methods.

Effective: Fall 2012

Prerequisite: MNG 404MNG 422MNG 331

**MNG 411 Mine Systems Engineering** (2) Applied operations research and systems methods for decision making in mine operations; time and systems studies to improve productivity.

Effective: Spring 1999

Prerequisite: MNG 404

**MNG 412 Mineral Property Evaluation** (3) Ore reserve estimation using statistics and geostatistics, mine cost estimation, engineering economy concepts applied to mineral deposits.

Effective: Spring 1999

Prerequisite: MNG 030

**MNG 422 Mine Ventilation and Air Conditioning** (3) Quality, quantity, and temperature-humidity control of the mine atmosphere; general mine environmental control.

Effective: Fall 2007

Prerequisite: C E 360MNG 030 . Prerequisite or concurrent: M E 300

**MNG 441 Surface Mining Systems and Design** (3) Design of surface mining for noncoal and coal minerals; emphasis on quarry and strip mining planning parameters: unit operations, systems, haulroads, draglines, spoil stability, reclamation, legal requirements, and health and safety.

Effective: Spring 1999

Prerequisite: MN PR 301MNG 030

**MNG 451W Mining Engineering Project** (1-5) Independent and integrative design and report of specific mine evaluation, layout, equipment selection, environmental control, permitting, and financial analysis.

Effective: Spring 1999

Prerequisite: seventh-semester standing in mining engineering plus six months of mining work experience

**MNG 460 Mine Maintenance Engineering** (3) Mine maintenance system design; maintenance planning and management; safety and cost analysis of maintenance programs.

Effective: Spring 1999

**MNG 470 Mining and Geologic Structures** (3) Study of geologic structures and their impacts on mining operations.

Effective: Summer 2009

Prerequisite: GEOSC 001GEOSC 201

**MNG 497 Special Topics** (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or term.

Effective: Spring 2008





## Mining Technology (MNG T)

**MNG T 030 Introduction to Mining Technology** (2) Examination, development, exploitation of mineral deposits; history of mining, common mining methods, operation methods, equipment types, explosives fundamentals.  
Effective: Spring 2006

**MNG T 100 Mining Technology Orientation** (1) Introduction to the underground mining industry including history, terminology, current mining equipment and methods, regulations, organization.  
Effective: Spring 2006

**MNG T 110 Mining Administration and Law** (3) Introduction to mine organization and management structure, and government regulations regarding permitting, reporting and recordkeeping.  
Effective: Spring 2006

**MNG T 202 Mining Ventilation** (3) Introduction to mine ventilation systems at mine face, mine gases and use of gas detection equipment, state and federal regulations.  
Effective: Summer 2007  
Prerequisite: CHEM 101PHYS 150MNG T 030

**MNG T 203 Introduction to Strata Control** (1) Review basic concepts of geology and impact of geologic features on mining con conditions; introduce strata control theory and methods. (Nominal first 5 weeks of spring semester)  
Effective: Spring 2006  
Prerequisite: MNG T 030

**MNG T 204 Mine Plant Technology** (3) Electrical, transportation, ventilation, and other systems required to operate underground coal mine, and to transport and process coal.  
Effective: Spring 2006  
Prerequisite: PHYS 150

**MNG T 205W Mining Systems Technology** (3) Comparison of mining methods with focus on preventative maintenance, coal transport, and estimating production and manpower needs.  
Effective: Summer 2006  
Prerequisite: MNG T 030

**MNG T 207 Electric Mine Machine Circuits** (3) Application of electric power and safety issues related to the installation and maintenance of circuits and various power control devices.  
Effective: Spring 2006  
Prerequisite: MNG T 204

**MNG T 208 Mine Power Distribution** (3) Topics of high voltage circuits, underground transmission, power stations, power conversion, safety regulations and power devices.  
Effective: Spring 2006  
Prerequisite: MNG T 204

**MNG T 209 Mine Machinery Control Methods** (2) Basic principles and applications of solid state, variable frequency, PLC, electro hydraulic and networked controls in mine machinery.  
Effective: Spring 2006  
Prerequisite: PHYS 150MNG T 030MATH 082

**MNG T 210 Mine Machine Dynamics** (3) Operation and interaction of mechanized equipment used at the coal face including common electrical, hydraulic and mechanical systems.  
Effective: Spring 2006  
Prerequisite: PHYS 150

**MNG T 211 Practicum in Mining Technology** (3) Field and shop techniques in procedures of electrical, mechanical and ventilation phases of mine maintenance  
Effective: Spring 2006  
Prerequisite: MNG T 204

**MNG T 213 Strata Control Methods** (3) Introduce pillar-design parameters, roof control planning, roof bolting, standing supports, rib stability, floor condition problems, and longwall strata control.  
Effective: Spring 2011  
Prerequisite: GEOSC 020

**MNG T 214 Mining Management I** (3) Leadership skill development for supervisors, managing change, tools to plan, organize, control, communicate and monitor effectively.  
Effective: Spring 2006

**MNG T 215 Mining Management II** (3) Financial management, effective meeting management, critical thinking, project management and cost and risk control.  
Effective: Spring 2006  
Prerequisite: MNG T 214

**MNG T 216 Mine Regulations and Laws** (3) State and federal mining regulations and application to underground coal

mines. Relationship with company policies and consequences of non-compliance.

Effective: Spring 2006

Prerequisite: MNG T 110

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## Music (MUSIC)

Individual instruction in technique, literature, and pedagogy is offered in six categories covering eighteen instruments:

BRASS: Trumpet, French horn, trombone, euphonium, tuba

KEYBOARD: Piano, organ

STRINGS: Violin, viola, violoncello, doublebass

WOODWINDS: Flute, oboe, clarinet, bassoon, saxophone

PERCUSSION

VOICE

For each instrument individual instruction is offered to different types of students at different levels:

Primary instrument: Student in B.A. (Music) and B.S. (Music Ed) Levels I-VII

Performance instrument: Students in B.Mus. Level I-VII

Secondary instrument: Nonmajor students or others using this as secondary instrument.

The courses are designated according to a particular pattern for identification on the student's transcript and in the *Schedule of Classes*. Applied music fees are required for individualized instruction: \$175 for a 1-credit course; \$250 for a 2-credit course; \$250 for a 3-credit course. Examples of listings:

Course Abbrev	Number & Suffix	Instrument	Type of Student	Level	Credit	Fee
BRASS	100J	TRUMPET:	Secondary:		1	\$175
	110J	TRUMPET:	Secondary:		2	\$250
BRASS	120J	TRUMPET:	Primary:	Level I	2	\$250
	170J	TRUMPET:	Primary:	Level II	2	\$250
BRASS	200J	TRUMPET:	Primary:	Level III	2	\$250
	270J	TRUMPET:	Primary:	Level IV	2	\$250
BRASS	320J	TRUMPET:	Primary:	Level V	2	\$250
	370J	TRUMPET:	Primary:	Level VI	2	\$250
BRASS	420J	TRUMPET:	Primary:	Level VII	2	\$250
	470J	TRUMPET:	Primary:	Level VIII	2	\$250
BRASS	130J	TRUMPET:	Performance:	Level I	3	\$250
	180J	TRUMPET:	Performance:	Level II	3	\$250
BRASS	230J	TRUMPET:	Performance:	Level III	3	\$250
	280J	TRUMPET:	Performance:	Level IV	3	\$250
BRASS	330J	TRUMPET:	Performance:	Level V	3	\$250
	380J	TRUMPET:	Performance:	Level VI	3	\$250
BRASS	430J	TRUMPET:	Performance:	Level VII	3	\$250
	480J	TRUMPET:	Performance:	Level VIII	3	\$250

MUSIC 004 (GA) **Film Music** (3) An introductory examination of music's role in Hollywood narrative film from the classic era (1930s and 1940s) to the present.  
Effective: Summer 2009

MUSIC 005 (GA) **An Introduction to Western Music** (3) A general survey of art music in western society, highlighting important composers and stylistic developments.  
Effective: Spring 2004

MUSIC 005S (GA) **An Introduction to Western Music** (3) A general survey of art music in western society, highlighting important composers and stylistic developments.  
Effective: Summer 2006

MUSIC 007 (GA;US) **Evolution of Jazz** (3) Study of the origins and development of jazz as an art form.  
Effective: Summer 2005

MUSIC 008 (GA) **Rudiments of Music** (3) Introduction to the elements of music: notation, scales, meter, rhythm, intervals; basic chord structure.  
Effective: Fall 2004

MUSIC 009 (GA;IL) **Introduction to World Musics** (3) An overview of the music of India, China, Japan, Indonesia, Africa, and the Middle East.  
Effective: Summer 2005

MUSIC 011 (GA) **Under the Hood: How Classical Music Works** (3) An introductory examination of classical music, drawing together aspects of theory and repertoire to understand how the music works.  
Effective: Summer 2013

MUSIC 040S **First-Year Seminar in Music Education** (1) Introduction to the University, the School of Music, the music education degree program, and the music teaching profession.  
Effective: Fall 2006

MUSIC 050 (GA) **Beginning Piano: Non-Music Major** (1) Introduction to the keyboard, notation, chord progressions, transposition, improvisation, and simple accompanying techniques for the non-music major. An additional fee is required for this course.  
Effective: Fall 2004

MUSIC 051 (GA) **Intermediate Class Piano: Non-Music Major** (1) Instruction in harmonizing melodies, accompanying techniques, improvisation, and repertoire.  
Effective: Fall 2004  
Prerequisite: MUSIC 050 or placement audition

MUSIC 052 (GA) **Voice CLass: Non-Music Major** (1) Group study emphasizing development of rudimentary skills and their recreational use in a range of popular and art music.  
Effective: Fall 2004

MUSIC 053 (GA) **Class Voice Practicum** (1) Voice study in group and individual formats, supervised by in-class lessons and discussions, enhanced by additional individual instruction with pedagogy students.  
Effective: Fall 2004  
Prerequisite: audition

MUSIC 054 (GA) **Beginning Class Guitar: Non-Music Major** (1) Class instruction in guitar for non-music majors.  
Effective: Fall 2004

MUSIC 076 **Chamber Orchestra** (1 per semester, maximum of 8) Chamber orchestra rehearsal and performance.  
Effective: Spring 2001  
Prerequisite: audition

MUSIC 077 (GA) **Philharmonic Orchestra** (1 per semester/maximum of 8) Orchestra rehearsal and performance.  
Effective: Fall 2004  
Prerequisite: audition

MUSIC 078 (GA) **Symphonic Wind Ensemble** (1 per semester/maximum of 8) Rehearsal and performance of wind repertoire and concert band literature.  
Effective: Fall 2004  
Prerequisite: audition

MUSIC 079 **Pep Band** (1 per semester/maximum of 4) A band to perform at selected athletic events.  
Effective: Spring 2001  
Prerequisite: audition

MUSIC 080 (GA) **Symphonic Band** (1 per semester/maximum of 8) Rehearsal and performance of symphonic band literature. A select group using standard instrumentation.  
Effective: Fall 2004  
Prerequisite: audition

MUSIC 081 (GA) **Marching Blue Band** (1 per semester/maximum of 4) Rehearsal and performance of appropriate music and maneuvers for football games and related events.  
Effective: Fall 2004  
Prerequisite: audition

MUSIC 082 (GA) **Concert Band** (1 per semester/maximum of 8) Rehearsal and performance of concert band literature.  
Effective: Fall 2004  
Prerequisite: audition

**MUSIC 083 (GA) Campus Band** (1 per semester/maximum of 8) Rehearsal and performance of concert band literature.

Effective: Spring 2002

Prerequisite: audition

**MUSIC 084 (GA) Jazz Ensemble** (1 per semester/maximum of 8) Survey and performance of historic and contemporary big band styles.

Effective: Fall 2004

Prerequisite: audition

**MUSIC 086 (GA) Percussion Ensemble** (1 per semester/maximum of 8) Study and performance of percussion chamber music in various instrumental combinations, focusing on the classical and contemporary repertoire.

Effective: Spring 2004

Prerequisite: audition

**MUSIC 087 Mallet Ensemble** (1) Study and performance of music for keyboard percussion instruments.

Effective: Spring 2001

Prerequisite: audition

**MUSIC 088 (GA) Campus Choir** (1 per semester/maximum of 8) Building skills needed for successful choral singing including vocal production, sight singing, ear training, and music fundamentals.

Effective: Fall 2001

**MUSIC 089 (GA) University Choir** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of 100-150 voices.

Effective: Spring 2004

Prerequisite: audition

**MUSIC 090 (GA) Glee Club** (1 per semester/maximum of 8) Rehearsal and performance of music composed for male voices from the sixteenth to the twentieth centuries, including sacred and secular compositions.

Effective: Spring 2004

Prerequisite: audition

**MUSIC 091 (GA) Oriana Singers** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire for treble voices from the sixteenth to twentieth centuries, including sacred and secular compositions.

Effective: Spring 2004

Prerequisite: audition

**MUSIC 092 (GA) Chamber Music for Voices** (1 per semester/maximum of 8) Select groups of singers performing choral chamber music.

Effective: Spring 2004

Prerequisite: audition

**MUSIC 093 (GA;US;IL) Essence of Joy** (1 per semester, maximum of 8) Rehearsal and performance of choral repertoire from the African/American tradition.

Effective: Spring 2006

Prerequisite: audition

**MUSIC 094 (GA) Women's Chorale** (1 per semester, maximum of 8) Rehearsal and performance of treble choral literature.

Effective: Spring 2004

Prerequisite: audition

**MUSIC 100 (GA) Campus Orchestra** (1 per semester/maximum of 10) Rehearsal and performance orchestral literature.

Effective: Fall 2012

Prerequisite: audition

**MUSIC 101 Music Common Hour** (1) Student and faculty recitals, master classes, lectures by faculty and guests, and Common Hour attendance.

Effective: Fall 1985

**MUSIC 103 (GA) Concert Choir** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of approximately sixty voices.

Effective: Spring 2004

Prerequisite: audition

**MUSIC 104 (GA) Chamber Singers** (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of approximately twenty-four voices.

Effective: Spring 2004

Prerequisite: audition

**MUSIC 106 (GA) Early Music Ensemble** (1 per semester/maximum of 8) Ensemble for the performance and study of Baroque or early music on instruments of the era.

Effective: Spring 2004

Prerequisite: audition

**MUSIC 109 (GA) The Music of the Beatles** (3) This course will consider the music of the Beatles by examining how John Lennon, Paul McCartney, and George Harrison developed as songwriters.

Effective: Spring 2013

**MUSIC 110 Keyboard Skills I: Music Major** (1) Introduction to the keyboard, chord progressions, transposition, improvisation, and simple accompanying techniques.  
Effective: Fall 1985

**MUSIC 112 Guitar Techniques I** (0.5) Performance and teaching techniques for guitar.  
Effective: Spring 2008

**MUSIC 113 Music Theatre--Class Voice I** (1) Group study emphasizing development of sound vocal and musicianship skills fundamental for music theatre.

Effective: Spring 2001

Prerequisite: admission into the School of Theatre with intent to major in Music Theatre

**MUSIC 114 Music Theatre--Class Voice II** (1) Group study emphasizing development of sound vocal and musicianship skills fundamental for music theatre.

Effective: Spring 2001

Prerequisite: MUSIC 113

**MUSIC 115 Beginning Voice Class** (1) Class voice emphasizing the fundamentals of healthy singing technique. For Music Majors only.

Effective: Fall 2011

**MUSIC 116 Intermediate Voice Class** (1 per semester/maximum of 4) Class voice, emphasizing pedagogical experiences and techniques for public school music classrooms. For Music Majors only.

Effective: Fall 2011

**MUSIC 119S First-Year Music Seminar** (2) Individual applied instruction and group activities; orientation, area recitals, and studio classes as required by instructor.

Effective: Summer 1999

Prerequisite: permission of instructor

**MUSIC 121 Basic Musicianship I** (1) Elementary sight singing and dictation.

Effective: Fall 1989

Prerequisite: ability to reproduce simple rhythm and tonal patterns Concurrent: MUSIC 131

**MUSIC 122 Basic Musicianship II** (1) Continuation of Music 121.

Effective: Fall 1989

Prerequisite: MUSIC 121 Concurrent: MUSIC 132

**MUSIC 129S First-Year Performance Seminar** (3) Individual applied instruction and group activities; orientation, area recitals, and studio classes as required by instructor.

Effective: Summer 1999

Prerequisite: permission of instructor

**MUSIC 131 Music Theory I** (2) Review of rudiments; introduction to the fundamental linear and vertical features of tonal music, integration of written and aural skills.

Effective: Fall 1989

Prerequisite: ability to read musical notation; knowledge of musical rudiments. Concurrent: MUSIC 121

**MUSIC 132 Music Theory II** (2) Continuation of Music 131.

Effective: Fall 1989

Prerequisite: MUSIC 131 Concurrent: MUSIC 122

**MUSIC 151 Brass Techniques I** (1) Introduction to basic performance techniques on brass instruments; teaching strategies and materials for use in a heterogeneous instrument setting.

Effective: Fall 2007

**MUSIC 152 Percussion Techniques I** (1) Introduction to basic performance techniques on percussion instruments; teaching strategies and materials for use in a heterogeneous instrument setting.

Effective: Fall 2007

**MUSIC 153 String Techniques I** (1) Performance techniques on stringed instruments for music education majors.

Effective: Fall 2007

**MUSIC 154 Woodwind Techniques I** (1) Performance and teaching techniques for woodwind instruments.

Effective: Fall 2007

**MUSIC 162 (IL) Introduction to Music History** (2) An introduction to Western music history and world music of selected cultures through the study of representative works.

Effective: Spring 2006

Concurrent: MUSIC 132

**MUSIC 170 Keyboard Skills II: Music Major** (1) Instruction in secondary chord progressions, transposition, improvisation, accompanying techniques, simple score reading.

Effective: Fall 1985

Prerequisite: MUSIC 050MUSIC 110 or placement audition

**MUSIC 173S First-Year Composition Seminar** (2) Individual composition instruction for freshman composition majors (Fall semester) and group activities.

Effective: Summer 1999

Prerequisite: admission to the BM degree in Composition

**MUSIC 174J Composition II** (2) Composition instruction for first-year composition majors.

Effective: Fall 2012

**MUSIC 181 Jazz Improvisation I** (2) A study of the fundamentals of jazz theory, harmonic functions, and their applications to jazz improvisation.

Effective: Fall 1991

Prerequisite: MUSIC 132

**MUSIC 182 Jazz Improvisation II** (2) A study of advanced harmonic concepts and their application to jazz improvisation.

Effective: Summer 1986

Prerequisite: MUSIC 181

**MUSIC 190 (GA) Chamber Music for Strings** (1 per semester/maximum of 8) Preparation for performance of advanced chamber music literature involving primarily string instruments--string quartets, piano trios, clarinet quintets.

Effective: Spring 2004

Prerequisite: permission of instructor

**MUSIC 191 (GA) Chamber Music for Woodwinds** (1 per semester/maximum of 8) Preparation for performance of advanced chamber music literature involving primarily woodwind instruments--woodwind quintets and quartets.

Effective: Spring 2004

Prerequisite: permission of instructor

**MUSIC 192 (GA) Chamber Music for Brass** (1 per semester/maximum of 8) Preparation for performance of advanced chamber music literature involving primarily brass instruments--brass quartets and quintets.

Effective: Spring 2004

Prerequisite: permission of instructor

**MUSIC 193 Sonata Duos** (1 per semester/maximum of 8) Preparation for performance of advanced sonata literature for various individual instruments with keyboard.

Effective: Fall 1983

Prerequisite: permission of instructor

**MUSIC 194 Studio and Recital Accompanying** (1 per semester/maximum of 8) Keyboard accompaniment of student soloists in the studio and in public performance under faculty supervision.

Effective: Fall 1983

Prerequisite: KEYBD 120J or KEYBD 130J or consent of supervising faculty member

**MUSIC 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

**MUSIC 210 Keyboard Skills III: Music Major** (1) Playing accompaniments from chord symbols and full notation, transposition, improvisation, modulation, score-reading, and standard literature.

Effective: Fall 1985

Prerequisite: MUSIC 170 or placement audition

**MUSIC 212 Guitar Techniques II** (1) Intermediate performance and teaching techniques for guitar.

Effective: Summer 2006

Prerequisite: MUSIC 112

**MUSIC 216 Care and Nuture of Young Singing Voices** (0.5) The nature of singing voices in children from birth through adolescence; strategies for helping all children become successful singers.

Effective: Summer 2006

**MUSIC 221 Basic Musicianship III** (1) Intermediate sight singing and dictation.

Effective: Fall 1991

Prerequisite: MUSIC 122 Prerequisite or concurrent: MUSIC 231

**MUSIC 222 Basic Musicianship IV** (1) Continuation of Music 221.

Effective: Spring 1997

Prerequisite: MUSIC 221 . Prerequisite or concurrent:

**MUSIC 231 Music Theory III** (2) Intermediate concepts of tonal theory.

Effective: Fall 1989

Prerequisite: MUSIC 132

**MUSIC 241 Music for Classroom Teachers** (3) Development of competencies for guiding musical experiences of children in the elementary classroom.

Effective: Spring 2001

Prerequisite: for students in the K-6 Teacher Certification Program only

**MUSIC 251A Brass Techniques II: Trumpet** (0.5) A class setting in which trumpet performance techniques,



teaching/diagnostic strategies, instructional materials, and literature are taught, practiced, and developed.

Effective: Summer 2006

Prerequisite: MUSIC 151

**MUSIC 251B Brass Techniques II: Horn (0.5)** A class setting in which horn performance techniques, teaching/diagnostic strategies, instructional materials, and literature are taught, practiced, and developed.

Effective: Summer 2006

Prerequisite: MUSIC 151

**MUSIC 251C Brass Techniques II: Trombone (0.5)** A class setting in which trombone performance techniques, teaching/diagnostic strategies, instructional materials, and literature are taught, practiced, and developed.

Effective: Summer 2006

Prerequisite: MUSIC 151

**MUSIC 251D Brass Techniques II: Euphonium/Tuba (0.5)** A class setting in which euphonium and tuba performance techniques, teaching/ diagnostic strategies, instructional materials, and literature are taught, practiced, and developed.

Effective: Summer 2006

Prerequisite: MUSIC 151

**MUSIC 253 String Techniques II (0.5-1 per semester/maximum of 2)** Performance techniques on violin, viola, cello or string bass for music education majors.

Effective: Spring 2013

Prerequisite: MUSIC 153

**MUSIC 254A Woodwind Techniques II: Flute (0.5)** Performance and teaching techniques and materials selection for flute.

Effective: Summer 2006

Prerequisite: MUSIC 154

**MUSIC 254B Woodwind Techniques II: Oboe (0.5)** Performance and teaching techniques and materials selection for oboe.

Effective: Summer 2006

Prerequisite: MUSIC 154

**MUSIC 254C Woodwind Techniques II: Clarinet (0.5)** Performance and teaching techniques and materials selection for clarinet.

Effective: Summer 2006

Prerequisite: MUSIC 154

**MUSIC 254D Woodwind Techniques II: Saxophone (0.5)** Performance and teaching techniques and materials selection for saxophone.

Effective: Summer 2006

Prerequisite: MUSIC 154

**MUSIC 254E Woodwind Techniques II: Bassoon (0.5)** Performance and teaching techniques and materials selection for bassoon.

Effective: Summer 2006

Prerequisite: MUSIC 154

**MUSIC 261 (GA;IL) Survey of Music History I (3)** A survey of music history to 1750, with readings, listening, and lecture.

Effective: Spring 2012

Prerequisite: MUSIC 131MUSIC 162

**MUSIC 262 (GA;IL) Survey of Music History II (3)** A survey of music history from 1750 to the present, with readings, listening, and lecture.

Effective: Spring 2012

Prerequisite: MUSIC 132MUSIC 162

**MUSIC 266 Basic Conducting (1)** Basic instruction and practicum in conducting, both choral and instrumental.

Effective: Fall 1993

Prerequisite: MUSIC 221MUSIC 231

**MUSIC 267 Techniques of Composition (2)** Basic instruction in the techniques of composition in all idioms.

Effective: Fall 1993

Prerequisite: or concurrent:MUSIC 231

**MUSIC 270 Keyboard Skills IV: Music Major (1)** Instruction in secondary chord progressions, transposition, improvisation, accompanying techniques, score reading.

Effective: Summer 1987

Prerequisite: MUSIC 210 or placement audition

**MUSIC 273J Composition III (2)** Composition instruction for second-year composition majors.

Effective: Fall 2012

Prerequisite: MUSIC 174J

**MUSIC 274J Composition IV (2)** Composition instruction for second-year composition majors.

Effective: Fall 2012

Prerequisite: MUSIC 273J

**MUSIC 295A Early Field Experience in Music Education (1)** Observation of music learning and teaching processes, development of basic teaching skills and reflective behaviors.

Effective: Spring 2008

Prerequisite: fourth semester standingMUSIC 115MUSIC 210

**MUSIC 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**MUSIC 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**MUSIC 297A Choral Conducting Practicum** (1) For undergraduates who create their own choirs from the membership of Penn State ensembles.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**MUSIC 297B Choral Conducting Project** (1) For students who serve as assistants and interns with non-Penn State ensembles.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**MUSIC 297E (PSYCH 297E) Introduction to Music Therapy** (3) Introductory course in music therapy to study the populations served by this form of therapy and its basic techniques.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**MUSIC 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**MUSIC 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

**MUSIC 312 Performance of Diverse Musical Styles** (1) Exploration of world instruments and singing through performance and study.  
Effective: Summer 2006

**MUSIC 331 Tonal Analysis** (2) Introduction to standard procedures of tonal analysis, including concepts of form and structure.  
Effective: Spring 1997  
Prerequisite: MUSIC 221MUSIC 231

**MUSIC 332 Analysis of Twentieth Century Music** (2) Application of analytical techniques and compositional theories to music of the twentieth century.  
Effective: Summer 1996  
Prerequisite: MUSIC 331

**MUSIC 336 Orchestration** (2) Scoring for the orchestra.  
Effective: Spring 1988  
Prerequisite: MUSIC 222MUSIC 232

**MUSIC 340 Music Learning and Development** (2) Application of psychological principles to teaching of music, including curriculum design and contemporary practices in music education.  
Effective: Fall 2008  
Prerequisite: acceptance into Teacher Education Degree Program in Music Concurrent: MUSIC 341 MUSIC 395A

**MUSIC 341 Instructional Materials in Music** (2) Exploration of instructional materials and repertoire for use in K-12 music settings. Limited to Music Education majors who have been accepted into the Teacher Education Degree Program in Music.  
Effective: Summer 2006  
Concurrent: MUSIC 340 MUSIC 395A

**MUSIC 345 Instrucational Practices in Music** (2) For music education students to learn about instrucational techniques and practices for music performance and general music classes.  
Effective: Summer 2006  
Prerequisite: MUSIC 340MUSIC 341MUSIC 395A piano and voice proficiencies passed. Concurrent: MUSIC 395B

**MUSIC 366 Intermediate Conducting** (1) Intermediate instruction in conducting; conducting techniques specific to instrumental or choral music; introduction to rehearsal technique.  
Effective: Fall 2008  
Prerequisite: MUSIC 266MUSIC 270MUSIC 331

**MUSIC 373J Composition V** (3) Composition instruction for third-year position majors.  
Effective: Fall 2012  
Prerequisite: MUSIC 274J

**MUSIC 374J Composition VI** (3) Composition instruction for third-year composition majors.  
Effective: Fall 2012  
Prerequisite: MUSIC 373J

**MUSIC 387 Language Diction for Singers: Italian and English** (1) Intensive drill in the pronunciation, phonetic transcription, and singing of Italian and English.

Effective: Summer 1991

Prerequisite: VOICE 170J or VOICE 180J or 2 semesters of VOICE 100J or VOICE 110J

**MUSIC 388 Language Diction for Singers: French** (1) Intensive drill in the pronunciation, phonetic transcription, and singing of French.

Effective: Spring 1987

Prerequisite: VOICE 170J or VOICE 180J or two semesters of VOICE 100J or VOICE 110J

**MUSIC 389 Language Diction for Singers: German** (1) Intensive drill in the pronunciation, phonetic transcription, and singing of German.

Effective: Spring 1987

Prerequisite: VOICE 170J or VOICE 180J or two semesters of VOICE 100J or VOICE 110J

**MUSIC 395A Cohort Practicum I** (1) Observation and pre-service experience in the schools. Limited to Music Education Majors.

Effective: Fall 2008

Prerequisite: Acceptance into Teacher Education Degree Program in Music Concurrent: MUSIC 340 MUSIC 341

**MUSIC 395B Cohort Practicum II** (1) Observation and teaching experiences in a variety of musical instruction settings.

Effective: Spring 2009

Prerequisite: MUSIC 341 MUSIC 395A piano proficiency passed Concurrent: MUSIC 345

**MUSIC 395C Practicum in Music Teaching** (1 per semester/maximum of 5) Field experiences in music teaching for undergraduate music education majors.

Effective: Spring 2013

Prerequisite: acceptance into the School of Music Concurrent: MUSIC 344

**MUSIC 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

**MUSIC 400J Solo Recital** (1) Required recital for Performer's Certificate.

Effective: Fall 2012

Prerequisite: permission of the director of the school of music

**MUSIC 412 Jazz Pedagogy** (2) The development of advanced skills in pedagogy for teaching jazz bands.

Effective: Summer 1994

Prerequisite: admission to the Music Education program or certification

**MUSIC 414 String Pedagogy** (1-2) The development of skills in pedagogy for teaching strings.

Effective: Spring 1992

Prerequisite: completion of 300-level strings course

**MUSIC 415 Woodwind Pedagogy** (1-2) The development of skills in pedagogy for teaching woodwinds.

Effective: Spring 1992

Prerequisite: completion of 300-level woodwind course

**MUSIC 416 Brass Pedagogy** (1-2) The development of skills in pedagogy for teaching brass.

Effective: Spring 1992

Prerequisite: completion of 300-level brass course

**MUSIC 417 Percussion Pedagogy** (1-2) The development of advanced skills in pedagogy for teaching percussion.

Effective: Summer 1992

Prerequisite: MUSIC 152; PERCN 320J or PERCN 330J or permission of instructor

**MUSIC 418 Voice Pedagogy** (2) Analysis of techniques of teaching voice and studies of related music literature and pedagogical writings.

Effective: Spring 2004

Prerequisite: VOICE 270J or VOICE 280J ; or four semesters of VOICE 100J or VOICE 110J

**MUSIC 419 Piano Pedagogy I** (2) Analysis of beginning teaching methods and teaching strategies for children.

Effective: Spring 1997

Prerequisite: KEYBD 270 or KEYBD 280; MUSIC 331

**MUSIC 420 Song Writing and Recording** (3) Song composition, arranging and recording in a variety of style genres.

Effective: Spring 2011

Prerequisite: INART 258 MUSIC 232

**MUSIC 421 Jazz Combo Class** (1 per semester/maximum of 8) Study and performance of small group jazz.

Effective: Fall 2013

Prerequisite: MUSIC 181

**MUSIC 422 Jazz Harmony and Arranging** (3) Analysis and composition of jazz tunes and chord progressions; instrumental and vocal arranging in the jazz idiom.

Effective: Fall 1983

Prerequisite: MUSIC 222 MUSIC 232

**MUSIC 424 Piano Pedagogy II** (2) Analysis of techniques of teaching intermediate-early advanced level piano and studies of music literature and pedagogical writings.

Effective: Spring 1997

Prerequisite: KEYBD 270 or KEYBD 280; MUSIC 331

**MUSIC 425 Advanced Voice Pedagogy** (2) Analysis of techniques of teaching voice, supervised teaching, studies of studio materials and related topics.

Effective: Spring 2004

Prerequisite: MUSIC 418

**MUSIC 429 Aural Review for Graduate Students** (1) An intensive review of the aural skills required for a theoretical understanding of 18th- and 19th-century music.

Effective: Summer 1994

Prerequisite: MUSIC 221 or undergraduate core in music theory at an accredited university

**MUSIC 431 ADVANCED TONAL ANALYSIS** (2-3) Advanced techniques of musical analysis.

Effective: Fall 1996

Prerequisite: MUSIC 331

**MUSIC 432 Graduate Review of Twentieth-Century Analysis** (2-3) The theory and analysis of style in music of the twentieth century.

Effective: Fall 1997

Prerequisite: MUSIC 262; MUSIC 331

**MUSIC 433 Advanced Analysis of Twentieth Century Music** (2-3) In-depth studies of selected twentieth-century repertoires and/or analytical models.

Effective: Summer 1996

Prerequisite: MUSIC 262; MUSIC 332

**MUSIC 435 Score Reading** (1) Introduction in score reading at the keyboard.

Effective: Spring 1991

Prerequisite: MUSIC 232 ; piano proficiency passed

**MUSIC 441W Emphasis in Elementary General and Choral Music** (3) Selection and application of materials, methods, teaching and assessment strategies for elementary general and choral music settings.

Effective: Spring 2011

Prerequisite: MUSIC 345; MUSIC 395B

**MUSIC 442W Emphasis in Secondary General Music** (3) Emphasis in teaching in secondary general music settings.

Effective: Fall 2013

Prerequisite: Limited to Music Education Majors. MUSIC 345; MUSIC 395B

**MUSIC 444W Emphasis in Elementary and Intermediate Band** (3) Examination and application of teaching strategies and materials for students planning to teach band in the elementary and middle schools.

Effective: Spring 2011

Prerequisite: MUSIC 345; MUSIC 395A; MUSIC 366 piano proficiency passes

**MUSIC 445W Emphasis in High School Band** (3) Examination and application of teaching strategies and materials for students planning to teach high school bands.

Effective: Spring 2011

Prerequisite: MUSIC 345; MUSIC 395B

**MUSIC 446W Emphasis in Strings and Orchestra** (3) Development of teaching techniques for instructing elementary and secondary string/orchestra student musicians for music education majors.

Effective: Spring 2011

Prerequisite: MUSIC 345; MUSIC 395B

**MUSIC 450 Teaching Marching Band** (2) Traditional and contemporary drill design principles, show development strategies, instructional techniques, and organizational procedures involved in teaching marching band.

Effective: Fall 2007

Prerequisite: MUSIC 345 or three years collegiate marching band experience or permission of program

**MUSIC 451 Computer Programming for Musicians** (3 per semester/maximum of 12) In-depth study of music programming techniques.

Effective: Spring 2011

Prerequisite: INART 258A; MUSIC 455 or permission of program

**MUSIC 452 Computer Music Synthesis** (3) Use of sound synthesis software for music creation.

Effective: Spring 2013

Prerequisite: INART 258A and INART 050

**MUSIC 453 Recording Studio Training** (1) Training in how to use a professional multi-track recording studio.

Effective: Summer 2013

Prerequisite: permission of program and successful completion of two of the following: INART 050; THEA 484; MUSIC 420; MUSIC 458

**MUSIC 455 Technology in Music** (1-3:1.5:1.5) Survey of how musical information is stored and processed in computer systems.

Effective: Spring 2008

Prerequisite: CMPSC 100; CMPSC 101; CMPSC 121 or MUSIC 231

**MUSIC 458 Electronic Music Composition** (3) An introduction to the art of composition in the electronic audio medium.

Effective: Spring 2011

Prerequisite: INART 258A

**MUSIC 460 Teaching Musical Cultures** (2) Exploration of the world's musical cultures and the implication of and procedures for teaching multicultural music. Limited to upper division music majors or permission of program.

Effective: Summer 2006

Prerequisite: MUSIC 262 or permission of program

**MUSIC 461W Studies in Music History: Antiquity to 1600** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from antiquity to 1600, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 261MUSIC 331

**MUSIC 462W Studies in Music History: 1550-1750** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1550-1750, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 261MUSIC 331

**MUSIC 463W Studies in Music History: 1700-1900** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1700-1900, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 262MUSIC 331

**MUSIC 464W Studies in Music History: 1850-Present** (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1850 to the present, with emphasis on writing and research.

Effective: Fall 2010

Prerequisite: MUSIC 262MUSIC 332

**MUSIC 465 Advanced Conducting I** (3) Advanced instruction in conducting; conducting techniques specific to instrumental or choral music; emphasis on score study and rehearsal technique.

Effective: Summer 1994

Prerequisite: MUSIC 366

**MUSIC 466 Advanced Conducting II** (2 per semester/maximum of 8) Standard scores of symphonies, tone poems, operas, oratorios, and shorter vocal and instrumental works studied from the viewpoint of the conductor.

Effective: Spring 1995

Prerequisite: MUSIC 465

**MUSIC 467 Opera Workshop** (1-3 per semester/maximum of 6) History, analysis, and production of operas from sixteenth century to present.

Effective: Spring 2001

Prerequisite: audition

**MUSIC 468 Acting for Singers** (2 per semester/maximum of 4) To help students develop authentic and specific characters/portrayals on stage through physical and emotional awareness.

Effective: Fall 2008

Prerequisite: Must be currently enrolled for voice jury track at the level of V220J or higher or register with permission of the program

**MUSIC 471 Structural and Sixteenth-Century Counterpoint** (2) Advanced species counterpoint and its application to the sixteenth-century style.

Effective: Fall 1983

Prerequisite: MUSIC 222MUSIC 232

**MUSIC 472 Eighteenth-Century Counterpoint** (2) Imitative and nonimitative counterpoint in the style of Bach.

Effective: Fall 1983

Prerequisite: MUSIC 222MUSIC 232

**MUSIC 473J Composition VII** (3) Composition instruction for fourth-year composition majors.

Effective: Fall 2012

Prerequisite: MUSIC 374J

**MUSIC 474J Composition VIII** (3) Composition instruction for fourth-year composition majors.

Effective: Fall 2012

Prerequisite: MUSIC 473J

**MUSIC 476W B.A. Senior Project** (3) A semester project appropriate to student's option in B.A. program (e.g., research paper, performance with program notes, or related paper).

Effective: Spring 1992

Prerequisite: seventh-semester standing

**MUSIC 478 Vocal Literature** (3) Introduction to the literature for solo voice in opera, oratorio, cantata, art song, and chamber music from the baroque to the present.

Effective: Spring 1997

Prerequisite: MUSIC 262MUSIC 331

**MUSIC 480 Opera Literature** (3) Studies in the development of the opera from 1600 to the present, treating both libretto and music.

Effective: Spring 1997

Prerequisite: MUSIC 262MUSIC 331

**MUSIC 481 Keyboard Literature** (3) Studies in the development of keyboard music and instruments; a survey of all eras

using listening, analysis, and performance.

Effective: Spring 1997

Prerequisite: MUSIC 262MUSIC 331

**MUSIC 483 Seminar in Voice Pedagogy** (2) Survey of literature relevant to the teaching of voice from historical sources through recent pedagogical scholarship.

Effective: Spring 2004

Prerequisite: MUSIC 418

**MUSIC 485 Chamber Music Literature** (3) Survey of chamber music for strings, winds, and brass instruments from the mid-16th century to the present day.

Effective: Spring 1997

Prerequisite: MUSIC 262MUSIC 331

**MUSIC 487 Orchestral Literature** (3) Survey of orchestral literature.

Effective: Spring 1997

Prerequisite: MUSIC 262MUSIC 331

**MUSIC 488 Studies in the Major Performance Area** (1-2) Selected studies in music literature specific to the student's major performance area. Will include research, analysis and performance.

Effective: Spring 2011

**MUSIC 489 Studio and Recital Accompaniment** (1 per semester/maximum of 4) Advanced keyboard accompaniment of student soloists in the studio and in public performance under faculty supervision.

Effective: Fall 1983

Prerequisite: MUSIC 194 or permission of instructor

**MUSIC 491 Advanced Chamber Ensemble** (1 per semester/maximum of 4) Preparation and performance of advanced chamber music.

Effective: Spring 2014

Prerequisite: MUSIC 190MUSIC 191 or equivalent and permission of program

**MUSIC 493 Sonata Duos** (1 per semester/maximum of 4) Preparation for performance of advanced sonata literature for various individual instruments with keyboard.

Effective: Fall 1983

Prerequisite: MUSIC 193 or equivalent; permission of instructor

**MUSIC 494 Research Topics** (1-3 per semester/maximum of 6) Supervised research leading to senior thesis or project.

Effective: Fall 2012

**MUSIC 494H Research Topics** (1-3 per semester/maximum of 6) Supervised research leading to senior thesis or project.

Effective: Fall 2012

**MUSIC 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2013

**MUSIC 495A Student Teaching: General Music** (5-7) Observation and teaching under supervision.

Effective: Fall 2001

Prerequisite: completion of all courses in the major with a grade of "C" or better Concurrent: MUSIC 442

**MUSIC 495B Student Teaching: Choral Music** (5-7) Observation and teaching under supervision.

Effective: Fall 2001

Prerequisite: completion of all courses in the major with a grade of "C" or better Concurrent: MUSIC 443

**MUSIC 495C Student Teaching: Instrumental Music** (5-7) Observation and teaching under supervision.

Effective: Fall 2001

Prerequisite: completion of all courses in the major with a grade of "C" or better Concurrent: MUSIC 444

**MUSIC 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**MUSIC 496H Independent Studies - Honors** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2011

**MUSIC 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**MUSIC 497A Survey Music History I** (3) For graduate students who need remedial work in music history.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**MUSIC 497A Survey Music History (3)** For graduate students who need remedial work in music history.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**MUSIC 497B Double Bass Excerpts (1)** This course is designed to study in depth a series of double bass excerpts from standard orchestral and opera repertoire. We will look at how to prepare a mock audition behind a screen at the end of the semester.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**MUSIC 497B Double Bass Excerpts (1)** This course is designed to study in depth a series of double bass excerpts from standard orchestral and opera repertoire. We will look at how to prepare a mock audition behind a screen at the end of the semester.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**MUSIC 497C Viola Orchestral Excerpts (1)** An introduction to excerpts from the viola parts of standard orchestral literature required for professional orchestral auditions.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**MUSIC 497C Viola Orchestral Excerpts (1)** An introduction to excerpts from the viola parts of standard orchestral literature required for professional orchestral auditions.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**MUSIC 497D Review of Harmony/Analysis (2)** Devoted to in-depth study of tonal harmony and analysis, beginning with a review of diatonic progressions and continuing with chromatic harmony.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**MUSIC 497D History of Electroacoustic Music (3)** A history of electroacoustic music as a consequence of developments in culture and technology from 1880 to present.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**MUSIC 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**MUSIC 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

Last Import from UCM: May 31, 2014 3:00 AM

## Music - Brass (BRASS)

**BRASS 100J (GA) Trumpet: Secondary** (1 per semester, maximum of 8) Individual instruction in trumpet one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

**BRASS 101J (GA) French Horn: Secondary** (1 per semester, maximum of 8) Individual instruction in French horn one-half hour per week. For students who qualify.

Effective: Fall 2004

Prerequisite: permission of instructor

**BRASS 102J (GA) Trombone: Secondary** (1 per semester, maximum of 8) Individual instruction in trombone one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

**BRASS 103J (GA) Euphonium: Secondary** (1 per semester, maximum of 8) Individual instruction in euphonium/baritone one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

**BRASS 104J (GA) Tuba: Secondary** (1 per semester, maximum of 8) Individual instruction in tuba one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

**BRASS 110J (GA) Trumpet: Secondary** (2 per semester, maximum of 16) Individual instruction in trumpet one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

**BRASS 111J (GA) French Horn: Secondary** (2 per semester, maximum of 16) Individual instruction in French horn one hour per week. For students who qualify.

Effective: Fall 2004

Prerequisite: permission of instructor

**BRASS 112J (GA) Trombone: Secondary** (2 per semester, maximum of 16) Individual instruction in trombone one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

**BRASS 113J (GA) Euphonium: Secondary** (2 per semester, maximum of 16) Individual instruction in euphonium/baritone one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

**BRASS 114J (GA) Tuba: Secondary** (2 per semester, maximum of 16) Individual instruction in tuba one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

**BRASS 120J Trumpet: Primary I** (2) Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**BRASS 121J French Horn: Primary I** (2) Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**BRASS 122J Trombone: Primary I** (2) Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**BRASS 123J Euphonium: Primary I** (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**BRASS 124J Tuba: Primary I** (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**BRASS 130J Trumpet: Performance I** (3) Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

Effective: Fall 1983



Prerequisite: acceptance into program by faculty jury

**BRASS 131J French Horn: Performance I (3)** Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**BRASS 132J Trombone: Performance I (3)** Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**BRASS 133J Euphonium: Performance I (3)** Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**BRASS 134J Tuba: Performance I (3)** Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**BRASS 170J Trumpet: Primary II (2)** Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 120J and permission of faculty jury

**BRASS 171J French Horn: Primary II (2)** Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 121J and permission of faculty jury

**BRASS 172J Trombone: Primary II (2)** Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 122J and permission of jury

**BRASS 173J Euphonium: Primary II (2)** Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 123J and permission of faculty jury

**BRASS 174J Tuba: Primary II (2)** Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 124J and permission of faculty jury

**BRASS 180J Trumpet: Performance II (3)** Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

Effective: Fall 1983

Prerequisite: BRASS 130J and permission of faculty jury

**BRASS 181J French Horn: Performance II (3)** Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

Effective: Fall 1983

Prerequisite: BRASS 131J and permission of faculty jury

**BRASS 182J Trombone: Performance II (3)** Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

Effective: Fall 1983

Prerequisite: BRASS 132J and permission of faculty jury

**BRASS 183J Euphonium: Performance II (3)** Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

Effective: Fall 1983

Prerequisite: BRASS 133J and permission of faculty jury

**BRASS 184J Tuba: Performance II (3)** Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

Effective: Fall 1983

Prerequisite: BRASS 134J and permission of faculty jury

**BRASS 220J Trumpet: Primary III (2)** Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 170J and permission of faculty jury

**BRASS 221J French Horn: Primary III (2)** Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 171J and permission of faculty jury

**BRASS 222J Trombone: Primary III (2)** Individual instruction in trombone one hour per week. For School of Music B.A. and

B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 172J and permission of faculty jury

**BRASS 223J Euphonium: Primary III** (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 173J and permission of faculty jury

**BRASS 224J Tuba: Primary III** (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B. S. majors.

Effective: Fall 1983

Prerequisite: BRASS 174J and permission of faculty jury

**BRASS 230J Trumpet: Performance III** (3) Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

Effective: Fall 1983

Prerequisite: BRASS 180J and permission of faculty jury

**BRASS 231J French Horn: Performance III** (3) Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

Effective: Fall 1983

Prerequisite: BRASS 181J and permission of faculty jury

**BRASS 232J Trombone: Performance III** (3) Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

Effective: Fall 1983

Prerequisite: BRASS 182J and permission of faculty jury

**BRASS 233J Euphonium: Performance III** (3) Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

Effective: Fall 1983

Prerequisite: BRASS 183J and permission of faculty jury

**BRASS 234J Tuba: Performance III** (3) Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

Effective: Fall 1983

Prerequisite: BRASS 184J and permission of faculty jury

**BRASS 270J Trumpet: Primary IV** (2) Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 220J and permission of faculty jury

**BRASS 271J French Horn: Primary IV** (2) Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 221J and permission of faculty jury

**BRASS 272J Trombone: Primary IV** (2) Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 222J and permission of faculty jury

**BRASS 273J Euphonium: Primary IV** (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 223J and permission of faculty jury

**BRASS 274J Tuba: Primary IV** (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 224J and permission of faculty jury

**BRASS 280J Trumpet: Performance IV** (3) individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

Effective: Fall 1983

Prerequisite: BRASS 230J and permission of faculty jury

**BRASS 281J French Horn: Performance IV** (3) Individual instruction in French Horn one hour per week. For B.Mus. French Horn performance majors.

Effective: Fall 1983

Prerequisite: BRASS 231J and permission of faculty jury

**BRASS 282J Trombone: Performance IV** (3) Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

Effective: Fall 1983

Prerequisite: BRASS 232J and permission of faculty jury

**BRASS 283J Euphonium: Performance IV** (3) Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

Effective: Fall 1983

Prerequisite: BRASS 233J and permission of faculty jury

**BRASS 284J Tuba: Performance IV (3)** Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

Effective: Fall 1983

Prerequisite: BRASS 234J and permission of faculty jury

**BRASS 320J Trumpet: Primary V (2)** Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 270J and permission of faculty jury

**BRASS 321J French Horn: Primary V (2)** Individual instruction in French Horn one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 271J and permission of faculty jury

**BRASS 322J Trombone: Primary V (2)** Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 272J and permission of faculty jury

**BRASS 323J Euphonium: Primary V (2)** Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 273J and permission of faculty jury

**BRASS 324J Tuba: Primary V (2)** Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 274J and permission of faculty jury

**BRASS 330J Trumpet: Performance V (3)** Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

Effective: Fall 1983

Prerequisite: BRASS 280J and permission of faculty jury

**BRASS 331J French Horn: Performance V (3)** Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

Effective: Fall 1983

Prerequisite: BRASS 281J and permission of faculty jury

**BRASS 332J Trombone: Performance V (3)** Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

Effective: Fall 1983

Prerequisite: BRASS 282J and permission of faculty jury

**BRASS 333J Euphonium: Performance V (3)** Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

Effective: Fall 1983

Prerequisite: BRASS 283J and permission of faculty jury

**BRASS 334J Tuba: Performance V (3)** Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

Effective: Fall 1983

Prerequisite: BRASS 284J and permission of faculty jury

**BRASS 370J Trumpet: Primary VI (2)** Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 320J and permission of faculty jury

**BRASS 371J French Horn: Primary VI (2)** Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 321J and permission of faculty jury

**BRASS 372J Trombone: Primary VI (2)** Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 322J and permission of faculty jury

**BRASS 373J Euphonium: Primary VI (2)** Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 323J and permission of faculty jury

**BRASS 374J Tuba: Primary VI (2)** Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 324J and permission of faculty jury

**BRASS 380J Trumpet: Performance VI (3)** Individual instruction in trumpet one hour per week. For B.Mus. trumpet

performance majors.

Effective: Fall 1983

Prerequisite: BRASS 330J and permission of faculty jury

**BRASS 381J French Horn: Performance VI** (3) Individual instruction of French horn one hour per week. For B.Mus. French horn performance majors.

Effective: Fall 1983

Prerequisite: BRASS 331J and permission of faculty jury

**BRASS 382J Trombone: Performance VI** (3) Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

Effective: Fall 1983

Prerequisite: BRASS 332J and permission of faculty jury

**BRASS 383J Euphonium: Performance VI** (3) Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

Effective: Fall 1983

Prerequisite: BRASS 333J and permission of faculty jury

**BRASS 384J Tuba: Performance VI** (3) Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

Effective: Fall 1983

Prerequisite: BRASS 334J and permission of faculty jury

**BRASS 420J Trumpet: Primary VII** (2) Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 370J and permission of faculty jury

**BRASS 421J French Horn: Primary VII** (2) Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 321J and permission of faculty jury

**BRASS 422J Trombone: Primary VII** (2) Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 372J and permission of faculty jury

**BRASS 423J Euphonium: Primary VII** (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 373J and permission of faculty jury

**BRASS 424J Tuba: Primary VII** (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: BRASS 374J and permission of faculty jury

**BRASS 430J Trumpet: Performance VII** (3) Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

Effective: Fall 1983

Prerequisite: BRASS 380J and permission of faculty jury

**BRASS 431J French Horn: Performance VII** (3) Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

Effective: Fall 1983

Prerequisite: BRASS 381J and permission of faculty jury

**BRASS 432J Trombone: Performance VII** (3) Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

Effective: Fall 1983

Prerequisite: BRASS 382J and permission of faculty jury

**BRASS 433J Euphonium: Performance VII** (3) Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

Effective: Fall 1983

Prerequisite: BRASS 383J and permission of faculty jury

**BRASS 434J Tuba: Performance VII** (3) Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

Effective: Fall 1983

Prerequisite: BRASS 384J and permission of faculty jury

**BRASS 470J Trumpet: Primary VIII** (2) Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 420J and permission of faculty jury

**BRASS 471J French Horn: Primary VIII** (2) Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 421J and permission of faculty jury

**BRASS 472J Trombone: Primary VIII** (2) Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 422J and permission of faculty jury

**BRASS 473J Euphonium: Primary VIII** (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 423J and permission of faculty jury

**BRASS 474J Tuba: Primary VIII** (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: BRASS 424J and permission of faculty jury

**BRASS 480J Trumpet: Performance VIII** (3) Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

Effective: Fall 1983

Prerequisite: BRASS 430J and permission of faculty jury

**BRASS 481J French Horn: Performance VIII** (3) Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

Effective: Fall 1983

Prerequisite: BRASS 431J and permission of faculty jury

**BRASS 482J Trombone: Performance VIII** (3) Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

Effective: Fall 1983

Prerequisite: BRASS 432J and permission of faculty jury

**BRASS 483J Euphonium: Performance VIII** (3) Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

Effective: Fall 1983

Prerequisite: BRASS 433J and permission of faculty jury

**BRASS 484J Tuba: Performance VIII** (3) Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

Effective: Fall 1983

Prerequisite: BRASS 434J and permission of faculty jury

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## Music - Keyboard (KEYBD)

KEYBD 100J (GA) **Piano: Secondary** (1 per semester, maximum of 8) Individual instruction in piano one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

KEYBD 101J (GA) **Organ: Secondary** (1 per semester, maximum of 8) Individual instruction in pipe organ one-half hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

KEYBD 110J (GA) **Piano: Secondary** (2 per semester, maximum of 16) Individual instruction in piano one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

KEYBD 111J (GA) **Organ: Secondary** (2 per semester, maximum of 16) Individual instruction in pipe organ one hour per week.

Effective: Fall 2004

Prerequisite: permission of instructor

KEYBD 120J **Piano: Primary I** (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

KEYBD 121J **Organ: Primary I** (2) Individual instruction in pipe organ one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

KEYBD 130J **Piano: Performance I** (3) Individual instruction in piano one hour per week. For B.Mus. performance majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

KEYBD 170J **Piano: Primary II** (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: KEYBD 120J and permission of faculty jury

KEYBD 180J **Piano: Performance II** (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

Effective: Fall 1983

Prerequisite: KEYBD 130J and permission of faculty jury

KEYBD 220J **Piano: Primary III** (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: KEYBD 170J and permission of faculty jury

KEYBD 230J **Piano: Performance III** (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

Effective: Fall 1983

Prerequisite: KEYBD 180J and permission of faculty jury

KEYBD 270J **Piano: Primary IV** (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: KEYBD 220J and permission of faculty jury

KEYBD 280J **Piano: Performance IV** (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

Effective: Fall 1983

Prerequisite: KEYBD 230J and permission of faculty jury

KEYBD 320J **Piano: Primary V** (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: KEYBD 270J and permission of faculty jury

KEYBD 330J **Piano: Performance V** (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

Effective: Fall 1983

Prerequisite: KEYBD 280J and permission of faculty jury

KEYBD 370J **Piano: Primary VI** (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: KEYBD 320J and permission of faculty jury

KEYBD 380J **Piano: Performance VI** (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

Effective: Fall 1983

Prerequisite: KEYBD 330J and permission of faculty jury

KEYBD 420J **Piano: Primary VII** (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: KEYBD 370J and permission of faculty jury

KEYBD 430J **Piano: Performance VII** (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

Effective: Fall 1983

Prerequisite: KEYBD 380J and permission of faculty jury

KEYBD 470J **Piano: Primary VIII** (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: KEYBD 420J and permission of faculty jury

KEYBD 480J **Piano: Performance VIII** (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

Effective: Fall 1983

Prerequisite: KEYBD 430J and permission of faculty jury

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## Music - Percussion (PERCN)

PERCN 100J (GA) **Percussion: Secondary** (1 per semester, maximum of 8) Individual instruction in percussion one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

PERCN 110J (GA) **Percussion: Secondary** (2 per semester, maximum of 16) Individual instruction in percussion one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

PERCN 120J **Percussion: Primary I** (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: Acceptance into program by faculty jury

PERCN 130J **Percussion: Performance I** (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

Effective: Fall 1983

Prerequisite: acceptance into program by permission of faculty jury

PERCN 170J **Percussion: Primary II** (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: PERCN 120J and permission of faculty jury

PERCN 180J **Percussion: Performance II** (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

Effective: Fall 1983

Prerequisite: PERCN 130J and permission of faculty jury

PERCN 220J **Percussion: Primary III** (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: PERCN 170J and permission of faculty jury

PERCN 230J **Percussion: Performance III** (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

Effective: Fall 1983

Prerequisite: PERCN 180J and permission of faculty jury

PERCN 270J **Percussion: Primary IV** (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: PERCN 220J and permission of faculty jury

PERCN 280J **Percussion: Performance IV** (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

Effective: Fall 1983

Prerequisite: PERCN 230J and permission of faculty jury

PERCN 320J **Percussion: Primary V** (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: PERCN 270J and permission of faculty jury

PERCN 330J **Percussion: Performance V** (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

Effective: Fall 1983

Prerequisite: PERCN 280J and permission of faculty jury

PERCN 370J **Percussion: Primary VI** (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: PERCN 320J and permission of faculty jury

PERCN 380J **Percussion: Performance VI** (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

Effective: Fall 1983

Prerequisite: PERCN 330J and permission of faculty jury

PERCN 420J **Percussion: Primary VII** (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: PERCN 370J and permission of faculty jury

PERCN 430J **Percussion: Performance VII** (3) Individual instruction in percussion one hour per week. For B.Mus.



percussion majors.

Effective: Fall 1983

Prerequisite: PERCN 380J and permission of faculty jury

PERCN 470J **Percussion: Primary VIII** (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: PERCN 420J and permission of faculty jury

PERCN 480J **Percussion: Performance VIII** (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

Effective: Fall 1983

Prerequisite: PERCN 430J and permission of faculty jury

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## Music - String (STRNG)

STRNG 100J (GA) **Violin: Secondary** (1 per semester, maximum of 8) Individual instruction in violin one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 101J (GA) **Viola: Secondary** (1 per semester, maximum of 8) Individual instruction in viola one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 102J (GA) **Violoncello: Secondary** (1 per semester, maximum of 8) Individual instruction in violoncello one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 103J (GA) **Double Bass: Secondary** (1 per semester, maximum of 8) Individual instruction in double bass one-half hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 110J (GA) **Violin: Secondary** (2 per semester, maximum of 16) Individual instruction in violin one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 111J (GA) **Viola: Secondary** (2 per semester, maximum of 16) Individual instruction in viola one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 112J (GA) **Violoncello: Secondary** (2 per semester, maximum of 16) Individual instruction in violoncello one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 113J (GA) **Double Bass: Secondary** (2 per semester, maximum of 16) Individual instruction in double bass one hour per week.

Effective: Spring 2004

Prerequisite: permission of instructor

STRNG 120J **Violin: Primary I** (2) Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

STRNG 121J **Viola: Primary I** (2) Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: permission of instructor

STRNG 122J **Violoncello: Primary I** (2) Individualized instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

STRNG 123J **Double Bass: Primary I** (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

STRNG 130J **Violin: Performance I** (3) Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

STRNG 131J **Viola: Performance I** (3) Individual instruction in viola one hour per week. For B.Mus. guitar performance majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

STRNG 132J **Violoncello: Performance I** (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

STRNG 133J **Double Bass: Performance I** (3) Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**STRNG 170J Violin: Primary II (2)** Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.  
Effective: Fall 1983  
Prerequisite: STRNG 120J and permission of faculty jury

**STRNG 171J Viola: Primary II (2)** Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.  
Effective: Fall 1983  
Prerequisite: STRNG 121J and permission of faculty jury

**STRNG 172J Violoncello: Primary II (2)** Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.  
Effective: Fall 1983  
Prerequisite: STRNG 122J and permission of faculty jury

**STRNG 173J Double Bass: Primary II (2)** Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.  
Effective: Fall 1983  
Prerequisite: STRNG 123J and permission of faculty jury

**STRNG 180J Violin: Performance II (3)** Individual instruction in violin one hour per week. For B.Mus. violin performance major.  
Effective: Fall 1983  
Prerequisite: STRNG 130J and permission of faculty jury

**STRNG 181J Viola: Performance II (3)** Individual instruction in viola one hour per week. For B.Mus. viola performance majors.  
Effective: Fall 1983  
Prerequisite: STRNG 131J and permission of faculty jury

**STRNG 182J Violoncello: Performance II (3)** Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.  
Effective: Fall 1983  
Prerequisite: STRNG 132J and permission of faculty jury

**STRNG 183J Double Bass: Performance II (3)** Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.  
Effective: Fall 1983  
Prerequisite: STRNG 133J and permission of faculty jury

**STRNG 220J Violin: Primary III (2)** Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.  
Effective: Fall 1983  
Prerequisite: STRNG 170J and permission of faculty jury

**STRNG 221J Viola: Primary III (2)** Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.  
Effective: Fall 1983  
Prerequisite: STRNG 171J and permission of faculty jury

**STRNG 222J Violoncello: Primary III (2)** Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.  
Effective: Fall 1983  
Prerequisite: STRNG 172J and permission of faculty jury

**STRNG 223J Double Bass: Primary III (2)** Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.  
Effective: Fall 1983  
Prerequisite: STRNG 173J and permission of faculty jury

**STRNG 230J Violin: Performance III (3)** Individual instruction in violin one hour per week. For B.Mus. violin performance majors.  
Effective: Fall 1983  
Prerequisite: STRNG 180J and permission of faculty jury

**STRNG 231J Viola: Performance III (3)** Individual instruction in viola one hour per week. For B.Mus. viola performance majors.  
Effective: Fall 1983  
Prerequisite: STRNG 181J and permission of faculty jury

**STRNG 232J Violoncello: Performance III (3)** Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.  
Effective: Fall 1983  
Prerequisite: STRNG 182J and permission of faculty jury

**STRNG 233J Double Bass: Performance III (3)** Individual instruction in double bass one hour per week. For B.Mus. double bass majors.  
Effective: Fall 1983  
Prerequisite: STRNG 183J and permission of faculty jury

**STRNG 270J Violin: Primary IV** (2) Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 220J and permission of faculty jury

**STRNG 271J Viola: Primary IV** (2) Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 221J and permission of faculty jury

**STRNG 272J Violoncello: Primary IV** (2) Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 222J and permission of faculty jury

**STRNG 273J Double Bass: Primary IV** (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 223J and permission of faculty jury

**STRNG 280J Violin: Performance IV** (3) Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

Effective: Fall 1983

Prerequisite: STRNG 230J and permission of faculty jury

**STRNG 281J Viola: Performance IV** (3) Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

Effective: Fall 1983

Prerequisite: STRNG 231J and permission of faculty jury

**STRNG 282J Violoncello: Performance IV** (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

Effective: Fall 1983

Prerequisite: STRNG 232J and permission of faculty jury

**STRNG 283J Double Bass: Performance IV** (3) Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

Effective: Fall 1983

Prerequisite: STRNG 233J and permission of faculty jury

**STRNG 320J Violin: Primary V** (2) Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 270J and permission of faculty jury

**STRNG 321J Viola: Primary V** (2) Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 271J and permission of faculty jury

**STRNG 322J Violoncello: Primary V** (2) Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 272J and permission of faculty jury

**STRNG 323J Double Bass: Primary V** (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 273J and permission of faculty jury

**STRNG 330J Violin: Performance V** (3) Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

Effective: Fall 1983

Prerequisite: STRNG 280J and permission of faculty jury

**STRNG 331J Viola: Performance V** (3) Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

Effective: Fall 1983

Prerequisite: STRNG 281J and permission of faculty jury

**STRNG 332J Violoncello: Performance V** (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

Effective: Fall 1983

Prerequisite: STRNG 282J and permission of faculty jury

**STRNG 333J Double Bass: Performance V** (3) Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

Effective: Fall 1983

Prerequisite: STRNG 283J and permission of faculty jury

**STRNG 370J Violin: Primary VI** (2) Individual instruction in violin one hour per week. For School of Music B.A. and B.S.

majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 320J and permission of faculty jury

**STRNG 371J Viola: Primary VI (2)** Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 322J and permission of faculty jury

**STRNG 372J Violoncello: Primary VI (2)** Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 322J and permission of faculty jury

**STRNG 373J Double Bass: Primary VI (2)** Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 323J and permission of faculty jury

**STRNG 380J Violin: Performance VI (3)** Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

Effective: Fall 1983

Prerequisite: STRNG 330J and permission of faculty jury

**STRNG 381J Viola: Performance VI (3)** Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

Effective: Fall 1983

Prerequisite: STRNG 331J and permission of faculty jury

**STRNG 382J Violoncello: Performance VI (3)** Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

Effective: Fall 1983

Prerequisite: STRNG 332J and permission of faculty jury

**STRNG 383J Double Bass: Performance VI (3)** Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

Effective: Fall 1983

Prerequisite: STRNG 333J and permission of faculty jury

**STRNG 420J Violin: Primary VII (2)** Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 370J and permission of faculty jury

**STRNG 421J Viola: Primary VII (2)** Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 371J and permission of faculty jury

**STRNG 422J Violoncello: Primary VII (2)** Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 372J and permission of faculty jury

**STRNG 423J Double Bass: Primary VII (2)** Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 373J and permission of faculty jury

**STRNG 430J Violin: Performance VII (3)** Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

Effective: Fall 1983

Prerequisite: STRNG 380J and permission of faculty jury

**STRNG 431J Viola: Performance VII (3)** Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

Effective: Fall 1983

Prerequisite: STRNG 381J and permission of faculty jury

**STRNG 432J Violoncello: Performance VII (3)** Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

Effective: Fall 1983

Prerequisite: STRNG 382J and permission of faculty jury

**STRNG 433J Double Bass: Performance VII (3)** Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

Effective: Fall 1983

Prerequisite: STRNG 383J and permission of faculty jury

**STRNG 470J Violin: Primary VIII (2)** Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 420J and permission of faculty jury

STRNG 471J **Viola: Primary VIII** (2) Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 421J and permission of faculty jury

STRNG 472J **Violoncello: Primary VIII** (2) Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 422J and permission of faculty jury

STRNG 473J **Double Bass: Primary VIII** (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

Effective: Fall 1983

Prerequisite: STRNG 423J and permission of faculty jury

STRNG 480J **Violin: Performance VIII** (3) Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

Effective: Fall 1983

Prerequisite: STRNG 430J and permission of faculty jury

STRNG 481J **Viola: Performance VIII** (3) Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

Effective: Fall 1983

Prerequisite: STRNG 431J and permission of faculty jury

STRNG 482J **Violoncello: Performance VIII** (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

Effective: Fall 1983

Prerequisite: STRNG 432J and permission of faculty jury

STRNG 483J **Double Bass: Performance VIII** (3) Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

Effective: Fall 1983

Prerequisite: STRNG 433J and permission of faculty jury

Last Import from UCM: May 31, 2014 3:00 AM

## Music - Voice (VOICE)

VOICE 100J (GA) **Voice: Secondary** (1 per semester, maximum of 8) Individual instruction in voice one-half hour per week.  
Effective: Spring 2004  
Prerequisite: permission of instructor

VOICE 110J (GA) **Voice: Secondary** (2 per semester, maximum of 16) Individual instruction in voice one hour per week.  
Effective: Spring 2004  
Prerequisite: permission of instructor

VOICE 120J **Voice: Primary I** (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

VOICE 130J **Voice: Performance I** (3) Individual instruction in voice one hour per week. For B.Mus voice performance majors.  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury permission

VOICE 170J **Voice: Primary II** (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.  
Effective: Fall 1983  
Prerequisite: VOICE 120J and permission of faculty jury

VOICE 180J **Voice: Performance II** (3) Individual instruction in voice one hour per week. For B.Mus voice performance majors.  
Effective: Fall 1983  
Prerequisite: VOICE 130J and permission of faculty jury

VOICE 212J **Music Theatre Voice I** (1) Individual instruction in voice. Intended for Theatre Arts BFA-Music Theatre Option students.  
Effective: Summer 1995  
Prerequisite: acceptance into program by faculty jury and successful completion of MUSIC 113-114

VOICE 220J **Voice: Primary III** (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.  
Effective: Fall 1983  
Prerequisite: VOICE 170J and permission of faculty jury

VOICE 230J **Voice: Performance III** (3) Individual instruction in voice one hour per week. For B.Music voice performance majors.  
Effective: Fall 1983  
Prerequisite: VOICE 180J and permission of faculty jury

VOICE 262J **Music Theatre Voice II** (1) Individual instruction in voice. Intended for Theatre Arts BFA-Music Theatre Option students.  
Effective: Summer 1995  
Prerequisite: acceptance into program by faculty jury and successful completion of MUSIC 113-114

VOICE 270J **Voice: Primary IV** (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.  
Effective: Fall 1983  
Prerequisite: VOICE 220J and permission of faculty jury

VOICE 280J **Voice: Performance IV** (3) Individual instruction in voice one hour per week. For B.Mus. voice performance majors.  
Effective: Fall 1983  
Prerequisite: VOICE 230J and permission of faculty jury

VOICE 312J **Music Theatre Voice III** (1) Individual instruction in voice. Intended for Theatre Arts BFA-Music Theatre Option students.  
Effective: Summer 1995  
Prerequisite: acceptance into program by faculty jury and successful completion of MUSIC 113-114

VOICE 320J **Voice: Primary V** (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.  
Effective: Fall 1983  
Prerequisite: VOICE 270J and permission of faculty jury

VOICE 330J **Voice: Performance V** (3) Individual instruction in voice one hour per week. For B.Mus. voice performance majors.  
Effective: Fall 1983  
Prerequisite: VOICE 280J and permission of faculty jury

VOICE 362J **Music Theatre Voice IV** (1) Individual instruction in voice. Intended for Theatre Arts BFA-Music Theatre Option students.  
Effective: Summer 1995

Prerequisite: acceptance into program by faculty jury and successful completion of MUSIC 113-114

**VOICE 370J Voice: Primary VI** (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: VOICE 320J and permission of faculty jury

**VOICE 380J Voice: Performance VI** (3) Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

Effective: Fall 1983

Prerequisite: VOICE 330J and permission of faculty jury

**VOICE 412J Musical Theatre Voice V** (2) Individual instruction in voice. Intended for Theatre BFA in Music Theatre students.

Effective: Fall 2006

Prerequisite: admission into Theatre BFA in Musical Theatre

**VOICE 420J Voice: Primary VII** (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: VOICE 370J and permission of faculty jury

**VOICE 430J Voice: Performance VII** (3) Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

Effective: Fall 1983

Prerequisite: VOICE 380J and permission of faculty jury

**VOICE 462J Musical Theatre Voice VI** (2) Individual instruction in voice. Intended for Theatre BFA in Music Theatre students.

Effective: Fall 2006

Prerequisite: Admission into Theatre BFA in Musical Theatre

**VOICE 470J Voice: Primary VIII** (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: VOICE 420J and permission of faculty jury

**VOICE 480J Voice: Performance VIII** (3) Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

Effective: Fall 1983

Prerequisite: VOICE 430J and permission of faculty jury

Last Import from UCM: May 31, 2014 3:00 AM



## Music - Woodwinds (WWNDS)

WWNDS 100J (GA) **Flute: Secondary** (1 per semester, maximum of 8) Individual instruction in flute one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 101J (GA) **Oboe: Secondary** (1 per semester, maximum of 8) Individual instruction in oboe one-half hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 102J (GA) **Clarinet: Secondary** (1 per semester, maximum of 8) Individual instruction in clarinet one-half hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 103J (GA) **Bassoon: Secondary** (1 per semester, maximum of 8) Individual instruction in bassoon one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 104J (GA) **Saxophone: Secondary** (1 per semester, maximum of 8) Individual instruction in saxophone one-half hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 110J (GA) **Flute: Secondary** (2 per semester, maximum of 16) Individual instruction in flute one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 111J (GA) **Oboe: Secondary** (2 per semester, maximum of 16) Individual instruction in oboe one hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 112J (GA) **Clarinet: Secondary** (2 per semester, maximum of 16) Individual instruction in clarinet one hour per week. For both music and non-music students.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 113J (GA) **Bassoon: Secondary** (2 per semester, maximum of 16) Individual instruction in bassoon one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 114J (GA) **Saxophone: Secondary** (2 per semester, maximum of 16) Individual instruction in saxophone one hour per week. For both music and non-music majors.

Effective: Spring 2004

Prerequisite: permission of instructor

WWNDS 120J **Flute: Primary I** (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

WWNDS 121J **Oboe: Primary I** (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: permission of faculty jury

WWNDS 122J **Clarinet: Primary I** (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: permission of faculty jury

WWNDS 123J **Bassoon: Primary I** (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

WWNDS 124J **Saxophone Primary I** (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

WWNDS 130J **Flute: Performance I** (3) Individual instruction in flute one hour per week. For B.Mus. flute performance

majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

WWNDS 131J **Oboe: Performance I** (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

Effective: Fall 1983

Prerequisite: permission of faculty jury

WWNDS 132J **Clarinet: Performance I** (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

Effective: Fall 1983

Prerequisite: permission of faculty jury

WWNDS 133J **Bassoon: Performance I** (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

WWNDS 134J **Saxophone: Performance I** (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

WWNDS 170J **Flute: Primary II** (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 120J and permission of faculty jury

WWNDS 171J **Oboe: Primary II** (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 121J and permission of faculty jury

WWNDS 172J **Clarinet: Primary II** (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 122J and permission of faculty jury

WWNDS 173J **Bassoon: Primary II** (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 123J and permission of faculty jury

WWNDS 174J **Saxophone: Primary II** (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 124J and permission of faculty jury

WWNDS 180J **Flute: Performance II** (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 130J and permission of faculty jury

WWNDS 181J **Oboe: Performance II** (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

Effective: Fall 1983

Prerequisite: WWNDS 131J and permission of faculty jury

WWNDS 182J **Clarinet: Performance II** (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinetmajors.

Effective: Fall 1983

Prerequisite: WWNDS 132J and permission of faculty jury

WWNDS 183J **Bassoon: Performance II** (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 133J and permission of faculty jury

WWNDS 184J **Saxophone: Performance II** (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 134J and permission of faculty jury

WWNDS 220J **Flute: Primary III** (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 170J and permission of faculty jury

WWNDS 221J **Oboe: Primary III** (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 171J and permission of faculty jury

WWNDS 222J **Clarinet: Primary III** (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S.

majors.

Effective: Fall 1983

Prerequisite: WWNDS 172J and permission of faculty jury

WWNDS 223J **Bassoon: Primary III** (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 173J and permission of faculty jury

WWNDS 224J **Saxophone: Primary III** (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 174J and permission of faculty jury

WWNDS 230J **Flute: Performance III** (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 180J and permission of faculty jury

WWNDS 231J **Oboe: Performance III** (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

Effective: Fall 1983

Prerequisite: WWNDS 181J and permission of faculty jury

WWNDS 232J **Clarinet: Performance III** (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

Effective: Fall 1983

Prerequisite: WWNDS 182J and permission of faculty jury

WWNDS 233J **Bassoon: Performance III** (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 183J and permission of faculty jury

WWNDS 234J **Saxophone: Performance III** (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 184J and permission of faculty jury

WWNDS 270J **Flute: Primary IV** (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 220J and permission of faculty jury

WWNDS 271J **Oboe: Primary IV** (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 221J and permission of faculty jury

WWNDS 272J **Clarinet: Primary IV** (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 222J and permission of faculty jury

WWNDS 273J **Bassoon: Primary IV** (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 223J and permission of faculty jury

WWNDS 274J **Saxophone: Primary IV** (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 224J and permission of faculty jury

WWNDS 280J **Flute: Performance IV** (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 230J and permission of faculty jury

WWNDS 281J **Oboe: Performance IV** (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

Effective: Fall 1983

Prerequisite: WWNDS 231J and permission of faculty jury

WWNDS 282J **Clarinet: Performance IV** (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

Effective: Fall 1983

Prerequisite: WWNDS 232J and permission of faculty jury

WWNDS 283J **Bassoon: Performance IV** (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 233J and permission of faculty jury

WWNDS 284J **Saxophone: Performance IV** (3) Individual instruction in saxophone one hour per week. For B.Mus.

saxophone performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 234J and permission of faculty jury

**WWNDS 320J Flute: Primary V (2)** Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 270J and permission of faculty jury

**WWNDS 321J Oboe: Primary V (2)** Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 271J and permission of faculty jury

**WWNDS 322J Clarinet: Primary V (2)** Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 272J and permission of faculty jury

**WWNDS 323J Bassoon: Primary V (2)** Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 273J and permission of faculty jury

**WWNDS 324J Saxophone: Primary V (2)** Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 274J and permission of faculty jury

**WWNDS 330J Flute: Performance V (3)** Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 280J and permission of faculty jury

**WWNDS 331J Oboe: Performance V (3)** Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

Effective: Fall 1983

Prerequisite: WWNDS 281J and permission of faculty jury

**WWNDS 332J Clarinet: Performance V (3)** Individual instruction in clarinet one hour per week. For B.Mus. clarinetmajors.

Effective: Fall 1983

Prerequisite: WWNDS 282J and permission of faculty jury

**WWNDS 333J Bassoon: Performance V (3)** Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 283J and permission of faculty jury

**WWNDS 334J Saxophone: Performance V (3)** Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 284J and permission of faculty jury

**WWNDS 370J Flute: Primary VI (2)** Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 320J and permission of faculty jury

**WWNDS 371J Oboe: Primary VI (2)** Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 321J and permission of faculty jury

**WWNDS 372J Clarinet: Primary VI (2)** Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 322J and permission of faculty jury

**WWNDS 373J Bassoon: Primary VI (2)** Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 323J and permission of faculty jury

**WWNDS 374J Saxophone: Primary VI (2)** Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 324J and permission of faculty jury

**WWNDS 380J Flute: Performance VI (3)** Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 330J and permission of faculty jury

WWNDS 381J **Oboe: Performance VI** (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

Effective: Fall 1983

Prerequisite: WWNDS 331J and permission of faculty jury

WWNDS 382J **Clarinet: Performance VI** (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

Effective: Fall 1983

Prerequisite: WWNDS 332J and permission of faculty jury

WWNDS 383J **Bassoon: Performance VI** (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 333J and permission of faculty jury

WWNDS 384J **Saxophone: Performance VI** (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 334J and permission of faculty jury

WWNDS 420J **Flute: Primary VII** (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 370J and permission of faculty jury

WWNDS 421J **Oboe: Primary VII** (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 371J and permission of faculty jury

WWNDS 422J **Clarinet: Primary VII** (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 372J and permission of faculty jury

WWNDS 423J **Bassoon: Primary VII** (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 373J and permission of faculty jury

WWNDS 424J **Saxophone: Primary VII** (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 374J and permission of faculty jury

WWNDS 430J **Flute: Performance VII** (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 380J and permission of faculty jury

WWNDS 431J **Oboe: Performance VII** (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

Effective: Fall 1983

Prerequisite: WWNDS 381J and permission of faculty jury

WWNDS 432J **Clarinet: Performance VII** (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

Effective: Fall 1983

Prerequisite: WWNDS 382J and permission of faculty jury

WWNDS 433J **Bassoon: Performance VII** (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 383J and permission of faculty jury

WWNDS 434J **Saxophone: Performance VII** (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 384J and permission of faculty jury

WWNDS 470J **Flute: Primary VIII** (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 420J and permission of faculty jury

WWNDS 471J **Oboe: Primary VIII** (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 421J and permission of faculty jury

WWNDS 472J **Clarinet: Primary VIII** (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 422J and permission of faculty jury

WWNDS 473J **Bassoon: Primary VIII** (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 423J and permission of faculty jury

WWNDS 474J **Saxophone: Primary VIII** (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

Effective: Fall 1983

Prerequisite: WWNDS 424J and permission of faculty jury

WWNDS 480J **Flute: Performance VIII** (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 430J and permission of faculty jury

WWNDS 481J **Oboe: Performance VIII** (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

Effective: Fall 1983

Prerequisite: WWNDS 431J and permission of faculty jury

WWNDS 482J **Clarinet: Performance VIII** (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

Effective: Fall 1983

Prerequisite: WWNDS 432J and permission of faculty jury

WWNDS 483J **Bassoon: Performance VIII** (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 433J and permission of faculty jury

WWNDS 484J **Saxophone: Performance VIII** (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

Effective: Fall 1983

Prerequisite: WWNDS 434J and permission of faculty jury

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## **Music Education (MU ED)**

MU ED 440 **Music Learning and Development** (2) Psychological principles related to music learning processes and applications of those to teaching music.

Effective: Spring 2010

Prerequisite: permission of program

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## **Nanofabrication Manufacturing Technology (NMT)**

**NMT 210W Introduction to Nanofabrication Manufacturing Technology** (3) This course provides an overview of basic Nanofabrication Manufacturing Technology for Engineering and Technology students. The course will give the student an overview of atomic physics and the use of atoms to build devices and machines.

Effective: Fall 2003

Prerequisite: E E T 101 Concurrent: STAT 200 CHEM 012

**NMT 250 Introduction to Nanotechnology Quality Control and Quality Assurance** (1) Overview of basic quality control and quality assurance methods used by the Nanotechnology industry.

Effective: Spring 2005

Prerequisite: STAT 200NMT 210W

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## Navy (NAVSC)

NAVSC 101 **Introduction to Naval Science** (2) Introduction to naval organization, customs, military law, ships, aircraft, and Marine Corps and Navy career paths.  
Effective: Fall 1983 Ending: Summer 2014

NAVSC 101 **Introduction to Naval Science** (3) Introduction to naval organization, customs, military law, ships, aircraft, and Marine Corps and Navy career paths.  
Effective: Fall 2014 Future: Fall 2014

NAVSC 102 **Sea Power and Maritime Affairs** (3) Historical evolution of sea power and its effects on world history; current U.S. maritime strategy for employment of naval forces.  
Effective: Spring 1994

NAVSC 204 **Leadership and Management I** (2) Managerial thought and behavioral theories, with emphasis on how they apply to the naval organization.  
Effective: Spring 1993 Ending: Summer 2014

NAVSC 204 **Leadership and Management** (3) Managerial thought and behavioral theories, with emphasis on how they apply to the naval organization.  
Effective: Fall 2014 Future: Fall 2014

NAVSC 205 **Navigation** (3) Theory and principles of all types of piloting and navigation, including a practicum emphasizing correct documentation and plotting.  
Effective: Spring 2006

NAVSC 311 **Evolution of Warfare** (2) Survey of development of military strategy, tactics, principles of war, and weaponry through the ages and recent U.S. applications.  
Effective: Fall 1992 Ending: Summer 2014

NAVSC 311 **Evolution of Warfare** (3) Survey of development of military strategy, tactics, principles of war, and weaponry through the ages and recent U.S. applications.  
Effective: Fall 2014 Future: Fall 2014

NAVSC 313 **Marine Corps Leadership Theory and Techniques** (2) Introduction to Marine Corps leadership theory and techniques and their application to military-related practical skills and subject matter.  
Effective: Fall 1992 Ending: Summer 2014

NAVSC 313 **Marine Corps Leadership Theory and Techniques** (3) Introduction to Marine Corps leadership theory and techniques and their application to military-related practical skills and subject matter.  
Effective: Fall 2014 Future: Fall 2014

NAVSC 322 **Naval Ships Systems I--Naval Engineering** (3) Principles and applications of engineering concepts to ship construction, stability, and propulsion and auxiliary systems.  
Effective: Fall 1992

NAVSC 323 **Naval Ships Systems II--Weapons** (3) An analysis of electromagnetic wave theory, principles of underwater sound propagation, electro-optic theory, and weapons control systems.  
Effective: Spring 2006  
Prerequisite: NAVSC 322

NAVSC 401 **Naval Operations and Seamanship** (3) Introduction to naval operations; the theory and principles of the rules of the road; use of the maneuvering board.  
Effective: Fall 2006  
Prerequisite: NAVSC 205

NAVSC 402 **Leadership and Management II** (2) The Navy's Resource Management Program (personnel management), counseling techniques, military justice, prevention of substance abuse, and naval correspondence and publications.  
Effective: Fall 1983 Ending: Summer 2014  
Prerequisite: NAVSC 401

NAVSC 402 **Leadership and Ethics** (3) The Navy's Resource Management Program (personnel management), counseling techniques, military justice, prevention of substance abuse, and naval correspondence and publications.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: NAVSC 401

NAVSC 411 **Amphibious Warfare** (2) A historical survey and evaluation of twentieth-century amphibious warfare

operations.

Effective: Fall 1992 Ending: Summer 2014

Prerequisite: 6 credits of Navy ROTC courses

NAVSC 411 **Amphibious Warfare** (3) A historical survey and evaluation of twentieth-century amphibious warfare operations.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: 6 credits of Navy ROTC courses

NOTE: Candidates for regular commission in the Navy will gain practicum work during two afloat summer cruises.

Candidates for Regular commission in the Marine Corps will gain practicum work during one afloat summer cruise and one Marine Corps cruise at a Marine Corps base.

Additionally, the summer between the sophomore and junior years includes career orientation and training on vocational specialties in the Navy and Marine Corps.

Candidates for Reserve commissions in the navy and the Marine Corps will gain practicum work during one afloat summer cruise or one cruise at a Marine Corps base, respectively.

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## Nuclear Engineering (NUC E)

NUC E 001S **Atomic Adventures: First-Year Seminar** (1) First-year seminar exploring the interesting and exciting world of nuclear science and its applications.  
Effective: Fall 1999

NUC E 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1998

NUC E 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2008

NUC E 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

NUC E 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

NUC E 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2008

NUC E 301 **Fundamentals of Reactor Physics** (4) Nuclear reactions and interactions relevant to nuclear engineering including fission, cross-sections, reaction rate calculations, energy depositions rates, and radioactive decay.  
Effective: Spring 2001  
Prerequisite: MATH 230MATH 251PHYS 214

NUC E 302 **Introduction to Reactor Design** (4) Static and dynamic reactor theory applied to basic reactor design problems.  
Effective: Spring 2001  
Prerequisite: NUC E 301NUC E 309

NUC E 309 **Analytical Techniques for Nuclear Concept** (3) This course is an introduction to many of the analytical techniques used in the nuclear engineering discipline.  
Effective: Summer 1993  
Prerequisite: MATH 230MATH 251

NUC E 310W **Issues in Nuclear Engineering** (2) Societal and technical issues facing nuclear engineers, including safety, operations, waste, regulation, public acceptance, economics, ethics, and radiation.  
Effective: Fall 2001  
Prerequisite: fifth-semester standing

NUC E 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

NUC E 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2008

NUC E 401 **Introduction to Nuclear Engineering** (3) Fundamental concepts of nuclear engineering, including fission, reactor theory, shielding, and radioisotopes; intended for other than nuclear engineering students.  
Effective: Fall 2001  
Prerequisite: MATH 250 orMATH 251

NUC E 403 **Advanced Reactor Design** (3) Physical principles and computational methods for reactor analysis and design. Multigroup diffusion theory; determination of fast and thermal group constants; cell calculations for heterogeneous core lattices.  
Effective: Fall 1983  
Prerequisite: NUC E 302

NUC E 405 (CHEM 406) **Nuclear and Radiochemistry** (3) Theory of radioactive decay processes, nuclear properties and structure, nuclear reactions, interactions of radiation with matter, biological effects of radiation.  
Effective: Spring 2007  
Prerequisite: CHEM 452 orPHYS 237 orNUC E 301

NUC E 406 (M E 406) **Introduction to Statistical Thermodynamics** (3) Statistical description of systems composed of large numbers of particles in the context of classical and quantum mechanics; basic concepts of probability theory and thermodynamics as they relate to statistical mechanics.

Effective: Fall 2007

Prerequisite: M E 300 or M E 201 or M E 202 or CH E 303; MATH 230 or MATH 231

NUC E 408 **Radiation Shielding** (3) Radiation sources in reactor systems; attenuation of gamma rays and neutrons; point kernel methods; deep penetration theories; Monte Carlo methods.

Effective: Spring 1985

Prerequisite: NUC E 301

NUC E 409 (MATSE 409) **Nuclear Materials** (3) Nuclear reactor materials: relationship between changes in material properties and microstructural evolution of nuclear cladding and fuel under irradiation.

Effective: Spring 2003

Prerequisite: PHYS 214

NUC E 420 **Radiological Safety** (3) Ionizing radiation, biological effects, radiation measurement, dose computational techniques, local and federal regulations, exposure control.

Effective: Spring 1997

Prerequisite: NUC E 301 or NUC E 405

NUC E 428 **Radioactive Waste Control** (3) Nature, sources, and control of radioactive wastes; theory and practice of disposal processes.

Effective: Spring 1997

Prerequisite: NUC E 301 or NUC E 405

NUC E 430 **Design Principles of Reactor Systems** (3) Nuclear power cycles; heat removal problems; kinetic behavior of nuclear systems; material and structural design problems.

Effective: Fall 2007

Prerequisite: M E 410; NUC E 301 or NUC E 401

NUC E 431W **Nuclear Reactor Core Design Synthesis** (4) Technical and economic optimization of nuclear systems.

Effective: Spring 1994

Prerequisite: ENGL 202C; NUC E 403; NUC E 430

NUC E 446 (M E 446) **Reliability and Risk Concepts in Design** (3) Introduction to reliability mathematics. Failure data collection and analysis. Components and systems reliability prediction. Effects of maintenance on reliability. Risk Analysis. Case studies in engineering applications.

Effective: Spring 2011

Prerequisite: MATH 250 or MATH 251; M E 345 or NUC E 309

NUC E 450 **Radiation Detection and Measurement** (3) Theory and laboratory applications of radiation detectors, including proton, neutron, charged particle detectors, NIM devices, and pulse-height analysis.

Effective: Spring 2001

Prerequisite: NUC E 301 or NUC E 405; NUC E 309

NUC E 451 **Experiments in Reactor Physics** (3) Acquisition and processing of nuclear and atomic data; application to nucleonic phenomena of importance in nuclear engineering.

Effective: Spring 2008

Prerequisite: E E 212; NUC E 450

NUC E 470 **Power Plant Simulation** (3) Basic knowledge necessary for intelligent simulation and interpretation of simulations of transients in nuclear power plants.

Effective: Fall 2007

Prerequisite: M E 320; MATH 251; NUC E 302

NUC E 490 (AERSP 490, E E 471) **Introduction to Plasmas** (3) Plasma oscillations; collisional phenomena; transport properties; orbit theory; typical electric discharge phenomena.

Effective: Spring 2008

Prerequisite: E E 361 or PHYS 467

NUC E 494H **Senior Thesis** (1-9) Students must have approval of a thesis adviser before scheduling this course.

Effective: Spring 2007

Prerequisite: Junior or senior status in the University Scholars Program

NUC E 496 **Independent studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

NUC E 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

NUC E 497A **Fundamentals of Nuclear Engineering** (3) An intensive course providing introduction to Nuclear Engineering to undergraduate co-op students, non-NucE graduate, and returning students.

Effective: Summer 2014 Ending: Summer 2014

NUC E 497A **Fundamentals of Nuclear Engineering** (3) An intensive course providing introduction to Nuclear Engineering to undergraduate co-op students, non-NucE graduate students, and returning students.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**NUC E 497D Radiation Detection Measurement Lab** (1) Theory and laboratory applications of radiation detectors, including proton, neutron, charged particle detectors, NIM devices, and pulse-height analysis.  
Effective: Summer 2014 Ending: Summer 2014

**NUC E 497K (M E 497K) Thermal-Hydraulics of Two-Phase Flow in Energy Systems** (3) This course provides students with fundamental knowledge necessary for thermal-hydraulic analysis of single-phase and two-phase flow systems. The power reactor will be employed as a generic example of the thermal-hydraulic energy systems. In single-phase flow analysis, the one-dimensional thermal- hydraulic system analysis method, which is often employed by the industry's systems analysis code, will be introduced for normal and off-normal plant operating conditions.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: M E 320

**NUC E 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2008

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## Nursing (NURS)

**NURS 111S (US;IL) Nursing Roles** (4) Introduction to nursing roles/process with emphasis on societal norms and multicultural influences on health care needs.

Effective: Spring 2011

Prerequisite: admission to 2NURS major

**NURS 112 Health Patterns/Nursing Interventions** (4) Emphasis on individual health patterns and selected nursing interventions.

Effective: Spring 2011

Prerequisite: NURS 111S

**NURS 113 Nursing Care During Childbearing Years** (3) Emphasis on childbearing family through prenatal, intrapartal, postpartal and neonatal periods.

Effective: Spring 2013

Prerequisite: NURS 112;HD FS 129 orPSYCH 212

**NURS 114 Nursing Care During Childrearing Years** (3) Emphasis on infancy through young adulthood with common and well- defined health problems, with integrated nursing content.

Effective: Spring 2013

Prerequisite: NURS 112;HD FS 129 orPSYCH 212

**NURS 115 Medications and the Elderly Client** (1) Nursing implications of medication therapy with the elderly client.

Effective: Fall 2008

**NURS 116 Clinical Immersion I: Introduction to Concepts of Illness** (2) Clinical immersion course that utilizes clinical experiences and seminars to develop clinical competency.

Effective: Summer 2010

Prerequisite: NURS 112

**NURS 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2008

**NURS 200M Understanding and Applying Nursing Research** (3) Introduction to methods and philosophy of empirical inquiry as applied to research in nursing and application to practice.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: STAT 200 orSTAT 250NURS 225 ; orSTAT 250 andNURS 390 for NURN major

**NURS 200W Understanding and Applying Nursing Research** (3) Introduction to methods and philosophy of empirical inquiry as applied to research in nursing and application to practice.

Effective: Spring 2011

Prerequisite: STAT 200 orSTAT 250NURS 225 ; orSTAT 250 andNURS 390 for NURN major

**NURS 203 (GHA) First Aid and CPR** (3) An introductory first aid course designed to provide the basic knowledge and skills to provide assistance to someone injured/ill.

Effective: Fall 2008

**NURS 211 Pathophysiology I - Nursing Interventions** (5) Caring for middle-aged adult with acute/chronic alterations in resp/cardio and musculoskeletal dysfunction.

Effective: Spring 2013

Prerequisite: all 100-level required NURS courses must be completed;BIOL 129;BIOL 141 andBIOL 142

**NURS 212 Pathophysiology II - Nursing Interventions** (4) Caring for middle-aged adults with acute/chronic alterations in metabolism, reproduction, oncology and immunology.

Effective: Spring 2013

Prerequisite: all 100-level required NURS courses must be completed;BIOL 129;BIOL 141 andBIOL 142 ; prerequisite or concurrent:NURS 211

**NURS 213 Pathophysiology III - Nursing Interventions** (5) Care for adults with complex physical and dysfunctional health patterns.

Effective: Spring 2013

Prerequisite: NURS 211NURS 212MICRB 106 andMICRB 107

**NURS 214W Nursing Care of Clients with Psychiatric/Mental Health Disorders** (3) Emphasis on care of adults with emotional or dysfunctional mental health patterns.

Effective: Spring 2013

Prerequisite: NURS 211NURS 212PSYCH 100

**NURS 216 Clinical Immersion II: Introduction to Concepts of Leadership** (2) Clinical immersion course focusing on patient care and clinical seminars to develop leadership and clinical competencies.

Effective: Spring 2013

Prerequisite: NURS 211NURS 212MICRB 106 andMICRB 107

**NURS 225 Pathophysiology** (3) Designed to explore the illness component of health with emphasis on the

pathophysiological and psychosocial aspects.

Effective: Spring 2011

Prerequisite: NURS 250NURS 251BIOL 129BIOL 141

**NURS 230 Introduction to the Fundamentals of Nursing (4)** Introduction to the nursing process, clinical competencies and psychosocial skills.

Effective: Spring 2011

Prerequisite: NURS 250NURS 251

**NURS 245 (GS) Violence and the Impact on Society (3)** Interdisciplinary discussion of violence, its perpetrators, victims and its impact on society as well as possible solutions for violence reduction.

Effective: Spring 2010

**NURS 250 (US) Professional Role Dev I: Intro to Professional Issues in Nursing Practice and Nursing Informatics (2)** Introduction to professional nursing practice and health-related issues emphasizing application of nursing informatics.

Effective: Spring 2011

Prerequisite: BIOL 129BIOL 141

**NURS 251 Health Assessment (3)** Designed to broaden the student's knowledge and skills in health assessment and physical examination across the lifespan.

Effective: Spring 2011

Prerequisite: BIOL 129BIOL 141 ; orNURS 111S andNURS 112 for Associate Degree Majors; or eligibility for NURN major for RNs.

**NURS 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 2008

**NURS 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2008

**NURS 298 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2008

**NURS 300H Honors Seminar in Nursing (3-12)** Seminar activities on selected topics in nursing.

Effective: Spring 2011

Prerequisite: NURS 250NURS 225NURS 230NURS 251 admission to the Honors Program

**NURS 301 Nursing Care of the Adult Client Requiring Medical-Surgical Intervention (4)** Therapeutic nursing care of the adult client in a variety of primarily medical-surgical settings.

Effective: Spring 2011

Prerequisite: NURS 225NURS 230

**NURS 303 Clinical Application of Laboratory Tests (1)** A study of the background, meaning, and nursing implications of laboratory test results.

Effective: Spring 2011

Prerequisite: NURS 250NURS 225NURS 230NURS 251

**NURS 305 Introduction to Pharmacological Concepts (3)** Study of basic concepts of pharmacology and relevant nursing implications.

Effective: Spring 2011

Prerequisite: NURS 225NURS 230 ; or approval of program Concurrent: NURS 301 NURS 310

**NURS 306 Nursing Care of Children and Adolescents (3)** Common health problems and nursing intervention for children and adolescents.

Effective: Spring 2011

Prerequisite: NURS 225NURS 230NURS 305

**NURS 310 Therapeutic Nursing Care of the Older Adult Client in a Variety of Settings (3)** Nursing concerns and intervention in promoting the health of the older adult.

Effective: Spring 2011

Prerequisite: NURS 225NURS 230

**NURS 320 Nursing Care of the Childbearing Family and Gynecological Client (3)** Therapeutic nursing care of the childbearing family and gynecological client.

Effective: Spring 2011

Prerequisite: NURS 225NURS 230NURS 305

**NURS 350 Professional Role Development II: Ethics, Legal and Genetic Issues (2)** The study of the interaction of ethical, legal, and genetic concepts as they apply to current health care practice.

Effective: Summer 2010

Prerequisite: NURS 305

**NURS 357 Introduction to Nursing Informatics (3)** An introduction to nursing informatics focusing on technology applications to the nursing profession.

Effective: Spring 2011

Prerequisite: NURS 301NURS 306NURS 310NURS 320 ; or eligibility for NURN major

**NURS 390 (US) Transition and the Professional Nursing Role (3)** Transition to baccalaureate education and professional nursing practice, emphasizing leadership, management, and issues influencing nursing education and practice.

Effective: Fall 2008

Prerequisite: eligibility for NURN major

**NURS 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2008

**NURS 398 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2008

**NURS 401 (IL) Concepts of Health (3)** Exploration of current and ancient concepts of health and their respective modes of intervention.

Effective: Fall 2008

Prerequisite: PSYCH 100 orSOC 001

**NURS 402 (US;IL) Holistic Health (3)** Examination of emerging conceptualizations of health and therapy based on a holistic view of human beings.

Effective: Fall 2008

Prerequisite: NURS 401

**NURS 403 School Health and Emergency Care of Children and Adolescents (3)** Techniques for higher-level care for school health and emergency situations and application-based education.

Effective: Spring 2010

Prerequisite: BIOL 129BIOL 141HD FS 129

**NURS 404 Cardiac Dysrhythmias: Interpretation, Treatment, and Nursing Management (1)** An introductory course with a focus on dysrhythmia recognition and interpretation of abnormal 12-lead electrocardiograms (EKG, ECG).

Effective: Fall 2008

Prerequisite: BIOL 141BIOL 129 or equivalent or approval of program

**NURS 405A Nursing Care of the Adult Client with Complex Health Problems: Part A (4)** In-depth study of care of patients with acute and complex health problems, utilizing evidence based practice.

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**NURS 405B Nursing Care of the Adult Client with Complex Health Problems: Part B (4)** In-depth study of care of patients with acute and complex health problems, utilizing evidence based practice.

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**NURS 407 Drugs of Abuse and Mental Health Issues (3)** Examines the health care needs across the lifespan of clients who have an alcohol or other drug disorder.

Effective: Fall 2008

Prerequisite: BB H 143 orPSYCH 100 or approval of program

**NURS 408 Clinical Application of Pharmacological Concepts (1)** Study of the application of pharmacological concepts to the clinical setting.

Effective: Spring 2011

Prerequisite: NURS 305NURS 301NURS 310NURS 320

**NURS 409 Introduction to Forensic Nursing (3)** Provides an introduction to the forensic health sciences, forensic nursing, and the nursing role in the scientific investigation of violence.

Effective: Spring 2011

Prerequisite: NURS 250NURS 225NURS 230

**NURS 410 Forensic Evidence Collection and Preservation (3)** Examines forensic nurse's role recognizing injuries/patterns of injury. Evidence collection procedures are examined from collection to courtroom presentation.

Effective: Spring 2013

Prerequisite: Prerequisite or concurrent:NURS 245 andNURS 409

**NURS 411 Seminar in Forensic Nursing (3)** Seminar to discuss current topics, trends and research related to forensic nursing.

Effective: Spring 2013

Prerequisite: Current and Valid RN License; Prerequisite or concurrent:NURS 410

**NURS 415 (US;IL) Community and Family Health Nursing (4)** Therapeutic nursing care and health promotion concepts to families, groups and populations in the community.

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**NURS 417 (US;IL) Family and Community Health Concepts (4)** Study of the concepts of family and community based nursing care emphasizing multicultural influences on health practices.

Effective: Fall 2008



Prerequisite: NURS 390 and current and valid RN license; Prerequisite or concurrent: NURS 357

**NURS 420 Mental Health Nursing (4)** Emphasizes clinical application of mental health theory in nursing care of patients with acute and chronic mental health problems.

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**NURS 430 Organization and Administration for the Nurse Manager (3)** Introduction to organizational theory and principles of practice in the administration of nursing services and patient care.

Effective: Spring 2013

Prerequisite: RN license or eligible for NURN major

**NURS 431 Data Management for Nurse Managers (3)** Analysis of information systems to manage nursing service organizations; includes financial management, the budgeting processes, and productivity measurement.

Effective: Spring 2013

Prerequisite: Prerequisite or concurrent: NURS 430 and permission of the program

**NURS 432 Nursing Management of Human Resources (3)** Human resource management and related factors in nursing service organizations.

Effective: Spring 2013

Prerequisite: Prerequisite or concurrent: NURS 430 and permission of the program

**NURS 433 Seminar for Nurse Managers (3)** Course focuses on the application of management principles in the role of the nurse manager.

Effective: Spring 2013

Prerequisite: Prerequisite or concurrent: NURS 430 and permission of the program

**NURS 440 Trauma/Critical Care Nursing (3)** Focuses on the impact of and the nursing care of persons experiencing acute trauma and/or critical illness.

Effective: Spring 2011

Prerequisite: NURS 301 NURS 310 NURS 320 or approval of nursing program

**NURS 450A Professional Role Development III: Leadership and Management (2)** Study of leadership roles and various styles of nursing management and their implications for the professional nurse.

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**NURS 450B Professional Role Development III: Clinical Capstone (3)** Senior level clinical capstone course that emphasizes the integration and application of theory and evidence based practice.

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**NURS 452 (US) (BB H 452, WMNST 452) Women's Health Issues (3)** Exploration of major health issues concerning women today, with an emphasis on social, cultural, and medical influences.

Effective: Fall 2013

Prerequisite: BIOL 141 or PSYCH 100 or WMNST 100

**NURS 458 Ethical Challenges in Healthcare Informatics (3)** A case based collaboratory designed for the exploration and analysis of the ethical dilemmas facing healthcare informatics practitioners.

Effective: Spring 2011

**NURS 459 Legal and Professional Issues in School Nursing (3)** Legal and professional issues of school nurses and delivery impact of health care in school environment.

Effective: Spring 2010

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129

**NURS 460 Advanced Concepts in Clinical Nursing Informatics (3)** An exploration of clinical informatics tools to support informatics practice.

Effective: Summer 2012

Prerequisite: NURS 357 and NURS 458 Concurrent: NURS 458

**NURS 461 Perioperative Nursing (4)** Comprehensive introduction regarding fundamental principles and practices of the Operating Room Nurse when managing the care of the surgical patient.

Effective: Summer 2011

Prerequisite: RN license required

**NURS 462 Psychotropic Drugs and Children/Adolescents (1)** Study of psychotropic medications used to treat children and adolescents, including indications, actions, adverse reactions and implications for school nurses.

Effective: Summer 2011

Prerequisite: RN license or permission of program

**NURS 463 Compassionate Counseling for Children/Adolescents Dealing with Dying, Death, Other Life Crises (3)** Explores issues involving dying, death and life crises which occur in today's world and affect school communities.

Effective: Spring 2013

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129

**NURS 464 (US;IL) Dying and Death (3)** Explores attitudes toward death and dying; concept of grief; responsibilities to the dying person and the family.

Effective: Fall 2008

Prerequisite: PSYCH 100 or SOC 001

**NURS 465 Health Concepts for Adults with Complex Health Care Needs** (3) In-depth study and application of the theoretical principles and roles of adult clients and families with complex healthcare needs.

Effective: Spring 2011

Prerequisite: NURS 390 and current and valid RN license; Prerequisite or concurrent: NURS 357

**NURS 467 Medication Update and Health Teaching Interventions for School Nurses** (1) Study of current pharmacologic concepts, including health teaching, prescribed for acute and chronic conditions commonly encountered in school nursing.

Effective: Summer 2011

Prerequisite: RN license or permission of program

**NURS 468 Client Education Strategies for Nurses and Other Health Care Providers** (3) Explores current and emerging roles of client education in the knowledge era.

Effective: Summer 2011

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129 300-level standing or approval of the program

**NURS 470 Autism Spectrum Disorders: Care Overview** (1) Overview of autism spectrum disorders including resources related to children with autism spectrum disorders.

Effective: Spring 2013

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129 or program approval

**NURS 471 Issues in Bullying for Health Professionals** (1) Explores the impact of bullying on individuals, schools, teachers, families, of the target and the bully.

Effective: Summer 2012

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129 or approval of program

**NURS 472 Relational Aggression in the Healthcare Setting** (3) An exploration of research and interventions for relational aggression in the healthcare setting.

Effective: Summer 2013

Prerequisite: enrolled NURN majors; completion or concurrent enrollment in NURS 350 or NURS 211

**NURS 475 Integrated Concepts in Nursing Practice** (3) Project-based capstone course for application of nursing concepts to health promotion/disease prevention in populations.

Effective: Spring 2011

Prerequisite: NURS 417 ; and current and valid RN license

**NURS 492 Emergency Care and Safety** (3) A comprehensive first aid course designed to provide knowledge of prehospital emergency care at the First Responder level.

Effective: Fall 2008

Prerequisite: BIOL 141 BIOL 129 or equivalent or approval of program

**NURS 494H Honors Thesis** (1-6 per semester/maximum of 6) Independent honors research project related to student's interests directed by faculty supervisor and culminating in production of thesis.

Effective: Summer 2010

Prerequisite: approval of honors thesis adviser

**NURS 495 Nursing Study in Specialized Setting** (1-12) Designed to provide student with in-depth study and practice in clinical specialty area of choice.

Effective: Fall 2008

Prerequisite: seventh-semester standing

**NURS 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 2008

**NURS 496A NURS 496A Graduate Nurse Residency 1** (1) This course is designed to support newly graduated nurses in their development as professional nurses and members of the health care team. This course covers a portion of the content from the UHC/ANCC Nurse Residency program through monthly seminars on: critical thinking skills, leadership development, communication strategies and patient safety. Sessions will be 2.5 hours in length.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: Associate degree in Nursing or a diploma from an accredited Hospital sponsored School of Nursing

**NURS 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2008

**NURS 497A Business of Nursing** (3) Teaches students basic business principles as they apply to nursing and health related entrepreneur.

Effective: Summer 2014 Ending: Summer 2014

**NURS 497B Complexity Science, Health, and Education** (3) Provides an introduction to Complexity Science; its interdisciplinary presence in basic science, social science, education, management, and healthcare professions; and its specific relevance for transformation in nursing.

Effective: Summer 2014 Ending: Summer 2014

**NURS 497C Human Diversity Among School-Aged Youth** (2) Overview of human diversity among school-aged youth:

including strategies for improving the health and well-being of young people through comprehensive school health programs.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129 or permission of program

**NURS 497D Development of Personality Disorder Traits: School Youth Through Young Adult (1)** Overview of development of personality disorder traits and psychosocial problems of school-aged youth; includes prevention and treatment strategies.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129 or permission of program

**NURS 497E Neurological Assessment Skills for the School Nurse (1)** This course offers a basic review of the neurological system. Additionally, the course offers specific information on seizures and concussion injuries related to the school age child. Students will examine various neurological assessment scales. Resources for families, staff, and community will be offered. Strategies and interventions for the prevention of head injuries will also be explored.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129

**NURS 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2008

**NURS 499 (IL) Foreign Study--Nursing (1-9)** Study of nursing issues in a foreign country.

Effective: Fall 2008

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## Nutrition (NUTR)

NUTR 100 (GHA) **Contemporary Nutrition Concerns** (1.5) Interpretation of nutrition principles in relation to contemporary problems in selecting a diet to promote a healthy lifestyle. Students who have received credit for NUTR 151 or NUTR 251 may not schedule this course.  
Effective: Spring 2004

NUTR 111 (GH;US) (HIST 111) **American Food System: History, Technology and Culture** (3) A cultural analysis of the evolution of U.S. agricultural production and food consumption patterns, the food industry and food marketing.  
Effective: Fall 2013

NUTR 115 **Theory of Exercise and Nutrition for Weight Control** (1) Nutrition application for responsible weight control.  
Effective: Spring 2005  
Concurrent: ESACT 115

NUTR 119 **Elementary Foods** (3) Basic principles and fundamental processes underlying food preparation. For non-nutrition majors only.  
Effective: Spring 1992

NUTR 120 **Food Preparation** (3) Scientific principles of basic food preparation, with an emphasis on the physical and chemical aspects.  
Effective: Summer 2007  
Prerequisite: CHEM 202

NUTR 170 **Careers in Nutrition** (1) Nutrition professionals describe career paths and opportunities for graduates in applied and science options; strategies for making effective career decisions.  
Effective: Summer 1996

NUTR 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

NUTR 251 (GHA) **Introductory Principles of Nutrition** (3) The nutrients: food sources and physiological functions as related to human growth and well-being throughout life; current nutrition issues. Students who have passed NUTR 151 may not schedule this course.  
Effective: Spring 2004

NUTR 252 **Diet Therapy and Nutrition Care in Disease** (4) Principles of nutrition care to meet therapeutic needs, inpatient care, and rehabilitation.  
Effective: Summer 2011  
Prerequisite: NUTR 251

NUTR 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 1992

NUTR 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1992

NUTR 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

NUTR 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

NUTR 358 **Assessment of Nutritional Status** (2) Introduction to purpose, methods, and scientific basis for assessment of nutritional status in total health care for individuals and groups.  
Effective: Fall 2002  
Prerequisite: NUTR 251

NUTR 359 **Nutrition Assessment Theory and Practice** (2) Introduction to purpose, methods, and scientific basis for assessment of nutritional status and use of tools in a practice setting.  
Effective: Summer 1993  
Prerequisite: NUTR 151 or NUTR 251

NUTR 360 **Disseminating Nutrition Information** (3) Theory and practice of providing nutrition information across the lifespan. Open only to Health and Human Development majors.

Effective: Fall 2002

Prerequisite: NUTR 251

**NUTR 370 Profession of Dietetics** (1) Introduction to the profession of dietetics including laws, regulations and standards affecting practice, and preparation for post-baccalaureate degree training.

Effective: Spring 1992

Prerequisite: senior standing in Nutrition or Hotel Restaurant and Institutional Management

**NUTR 371 Dietetic Internship Application Development** (1) Provides Dietetic Option majors with techniques and information to specify and implement post-graduation educational and career plans in dietetics.

Effective: Summer 2012

Prerequisite: senior standing in Nutritional Sciences or Hotel Restaurant and Institutional Management Concurrent: NUTR 370

**NUTR 375 Nutrition Peer Education Training** (2) To train students accepted into the HealthWorks Peer Education Program, to provide reliable nutrition information to their peers.

Effective: Spring 2000

Prerequisite: NUTR 251 . Prerequisite or concurrent: NUTR 360

**NUTR 380 Leadership Principles in Nutrition Services** (3) Issues impacting delivery of nutrition services in health care environments, including, health care systems, management theories, decisions making, and leadership.

Effective: Summer 2005

Prerequisite: NUTR 100 or NUTR 251

**NUTR 386 Managing Quality in Food and Nutrition Services** (3) Application and integration of management theory to quality attainment in food and nutrition services.

Effective: Spring 2010 Ending: Summer 2014

Prerequisite: HRIM 329 Concurrent: HRIM 330

**NUTR 386 Managing Quality in Food and Nutrition Services** (3) Application and integration of management theory to quality attainment in food and nutrition services.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 329 Concurrent: HRIM 330

**NUTR 391 Introduction to Professional Nutrition Experience** (1) Provides dietetics students with an introduction to the skills necessary to obtain and complete an advanced field experience in nutrition.

Effective: Summer 2012

Prerequisite: sophomore or junior standing in Nutritional Sciences Dietetics option

**NUTR 395 Nutrition Field Experience** (1-6) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity is required.

Effective: Spring 1992

Prerequisite: NUTR 251 ; fourth-semester standing

**NUTR 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**NUTR 400 Introduction to Nutrition Counseling** (1) No description.

Effective: Fall 1998

Prerequisite: NUTR 358 . Prerequisite or concurrent: NUTR 446

**NUTR 401 Nutrition Clinic Practicum** (1-3) To provide qualified nutrition students with the opportunity to practically apply nutrition counseling skills in a supervised environment.

Effective: Spring 2002

Prerequisite: NUTR 400

**NUTR 407 Nutrition for Exercise and Sports** (3) Interactions between nutrition, food selection, and timing of eating as they apply to exercise training and recreational physical activity.

Effective: Summer 2012

Prerequisite: NUTR 251

**NUTR 421 (US;IL) Food Culture and Health Trends** (3) Social-political, historic, and geographic roots of food patterns, featuring specific cuisine areas and nutritional disease patterns; includes foods laboratory.

Effective: Summer 2005

Prerequisite: NUTR 119 or NUTR 120; NUTR 151 or NUTR 251

**NUTR 425 (IL) Global Nutrition Problems: Health, Science, and Ethics** (3) Examines causes of malnutrition and health problems in low-income countries; explores international cultures and ethical issues related to hunger.

Effective: Spring 2013

Prerequisite: NUTR 251

**NUTR 430 (IL) (S T S 430) Global Food Strategies: Problems and Prospects for Reducing World Hunger** (3)

Technological, social, and political solutions to providing basic food needs; food resources, population, and the environment; current issues.

Effective: Summer 2005

**NUTR 445 Nutrient Metabolism I** (3) Nutrients, their sources, metabolism, interrelationships and requirements with focus on carbohydrates, lipids, and proteins.

Effective: Spring 2001

Prerequisite: B M B 211BIOL 141NUTR 251

**NUTR 446 Nutrient Metabolism II** (3) Continuation of NUTR 445; nutrients, their sources, metabolism, inter- relationships and requirements with focus on vitamins and minerals.

Effective: Summer 1994

Prerequisite: NUTR 445

**NUTR 451 Nutrition throughout the Life Cycle** (3) Application of basic principles of nutrition to nutritional and physiological needs throughout the life cycle from prenatal to aging.

Effective: Spring 2001

Prerequisite: NUTR 358NUTR 445 . Prerequisite or concurrent:NUTR 446

**NUTR 452 Nutritional Aspects of Disease** (3) Disturbances in metabolism related to human disease processes; principles of nutrition in therapy.

Effective: Spring 1995

Prerequisite: NUTR 446

**NUTR 453 Diet in Disease** (3) Nutrient and energy controlled diet programs. Implications for nutrition counseling and education.

Effective: Spring 1995

Prerequisite: or concurrent:NUTR 452

**NUTR 456 (US) Community Nutrition** (3) Programs and policies of nutrition-related activities of community agencies; factors pertinent to nutrition education; relationship of cultural and social identity to foods and nutrition.

Effective: Fall 2012

Prerequisite: NUTR 251

**NUTR 490W Nutrition Seminar** (3) Use of selected materials from the scientific literature to prepare a term paper and an oral report.

Effective: Spring 1995

Prerequisite: or concurrent:NUTR 452

**NUTR 494H Senior Honors Thesis** (1-6) Independent study related to a student's interests directed by a faculty supervisor and culminating in the production of a thesis.

Effective: Summer 2006

Prerequisite: approval of honors thesis advisor

**NUTR 495 Advanced Field Experience in Nutrition** (1-6) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity is required.

Effective: Spring 2001

Prerequisite: NUTR 456

**NUTR 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 1992

**NUTR 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1992

**NUTR 497A Eating and Weight Disorders** (3) This course will discuss theories and controversies in the literature on eating and weight disorders. Part of the course will be lecture based and will provide background on the diagnosis, causes, consequences, and treatment of eating and weight-related disorders. Part of the course will be reading and discussion-based where you will be required to read classic, historical, and scientific research papers and participate in critical discussions about these papers in class. Eating and weight disorders that will be covered include both classic disorders (e.g. anorexia nervosa and bulimia nervosa) as well as more recently identified disorders (e.g. binge eating disorder, night eating syndrome). We will also discuss obesity and its relationship to disordered eating. Students will be evaluated by exams, quizzes, assignments, and class participation. The assessments will include a critical interview with an individual who has struggled with eating and weight-related disorders.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: NUTR 251 andNUTR 358

**NUTR 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**NUTR 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Occupational Therapy (O T)

O T 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2000

O T 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2000

O T 100S **Structural Foundations of Occupational Therapy** (1) An overview of the structural foundations of the occupational therapy profession.  
Effective: Spring 2011

O T 101 **Conceptual Foundations of Occupational Therapy Practice** (2) An overview of the conceptual foundations of occupational therapy practice. Observation of therapists in treatment settings.  
Effective: Fall 2013  
Prerequisite: O T 100S or current

O T 103 (US) **Occupational Performance Across the Life Span** (3) Analysis of occupations from birth to death including descriptions of occupational performance and factors which influence performance.  
Effective: Spring 2011  
Prerequisite: O T 100SO T 101

O T 105W **Group Process Across The Lifespan** (3) Group dynamics and interactions analyzed across the lifespan and practice settings. Interventions designed and facilitated by students.  
Effective: Fall 2013  
Prerequisite: O T 103 Concurrent: PSYCH 100

O T 107 **Activity Analysis: Assistive Technologies and Methods of Adaptation** (3) Assistive technologies and methods of adaptation analyzed; selection criteria, methodologies, proper use, and precautions presented.  
Effective: Fall 2013  
Prerequisite: O T 103

O T 107H **Activity Analysis: Assistive Technologies and Methods of Adaptation** (3) Assistive technologies and methods of adaptation analyzed; selection criteria, methodologies, proper use, and precautions presented.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: O T 103

O T 109 **Management and Ethics in Occupational Therapy** (3) Consideration of basic management, ethics, and support tasks significant to the role of the occupational therapy assistant.  
Effective: Spring 2013  
Prerequisite: O T 103

O T 195A **Level I Fieldwork Experience** (1) Practicum related to 100 level occupational therapy assistant coursework.  
Effective: Spring 2013

O T 195B **Level I Fieldwork Experience** (1) Practicum related to 200 level occupational therapy assistant coursework.  
Effective: Spring 2013  
Prerequisite: O T 195A

O T 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2000

O T 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2000

O T 201 **Clinical Reasoning and Documentation in Occupational Therapy** (3) Clinical reasoning strategies in occupational therapy practice. Practical application will include case-based reasoning, multi-faceted strategies, and selected formats of documentation.  
Effective: Fall 2013  
Prerequisite: O T 105WO T 107 or consent of program

O T 202 **Occupational Therapy for Developmental Disabilities** (3) Occupational therapy evaluation, intervention, and documentation for pediatric/developmental disability practice.  
Effective: Fall 2013  
Prerequisite: BIOL 129BIOL 141BIOL 142HD FS 129O T 105WO T 107

O T 204 **Occupational Therapy for Behavioral Health** (3) Occupational therapy evaluation, intervention, documentation, and the importance of engagement in occupations with a focus on behavioral health and well-being.

Effective: Fall 2013

Prerequisite: BIOL 129BIOL 141BIOL 142HD FS 129O T 105WO T 107

**O T 206 Occupational Therapy for Physical Disabilities (4)** Occupational therapy evaluation, intervention, documentation methods for physical disability practice.

Effective: Fall 2013

Prerequisite: BIOL 129BIOL 141BIOL 142HD FS 129O T 105WO T 107

**O T 295A Field Experience in Occupational Therapy I (1-6 per semester/maximum of 6)** Part I of supervised experience in select occupational therapy settings in the role of an occupational therapy assistant; seminars included.

Effective: Fall 2013

Prerequisite: satisfactory completion of all didactic course work

**O T 295B Field Experience in Occupational Therapy II (1-6 per semester/maximum of 6)** Part II of supervised experience in select occupational therapy settings in the role of an occupational therapy assistant; seminars included.

Effective: Fall 2013

Prerequisite: successful completion of all didactic course work and successful completion of OT 295A

**O T 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2000

**O T 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2000

**O T 298 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2000

**O T 401 Conceptual Foundations of Occupational Therapy and Occupational Adaptations (2)** Analysis of philosophies and frames of reference for occupational therapy practice, emphasizing occupational functioning, the adaptation process, and occupational environments. Occupational Therapy majors only.

Effective: Spring 2000

**O T 410 Environmental and Technological Influences on Occupational Adaptation and Performance (3)** Impact of occupational environments on functioning and technological adaptation for mastery over the environment.

Effective: Summer 2011

**O T 411 Occupational Therapy Management and Professional Ethics (3)** Ethical, managerial, fiscal, and legal responsibilities of program administration, supervision, practice, delivery, and professional development.

Effective: Spring 2000

Prerequisite: O T 401

**O T 412W Introduction to Research (3)** Introduction to quantitative and qualitative research process relative to occupational therapy.

Effective: Summer 2011

Prerequisite: STAT 200 or STAT 250

**O T 495A Level I Fieldwork Experience (1 per semester, maximum of 3)** Practicum in 3 of 5 areas: occupational therapy evaluation procedures; environmental and technological adaptation; program design; management issues; selected topics.

Effective: Spring 2000

Prerequisite: concurrent with occupational therapy didactic course work

**O T 495B Fieldwork Level II Part 1 (6)** Three month practical educational experience facilitating clinical reasoning and application of professional knowledge, behaviors, values, and skills.

Effective: Spring 2000

Prerequisite: completion of O T 495A and all didactic course work

**O T 495C Fieldwork Level II Part 2 (6)** Three month practical educational experience facilitating clinical reasoning and application of professional knowledge, behaviors, values, and skills.

Effective: Spring 2000

Prerequisite: successful completing of O T 495B

**O T 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2000

**O T 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2000

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## Organiz Leadership (OLEAD)

**OLEAD 100 (GS) Introduction to Leadership (3)** This course introduces key leadership concepts and practices based on current theory and research. It is designed to help students to discover the knowledge and skills that are characteristic of effective leaders.

Effective: Summer 2012

**OLEAD 409 Leadership Development: A Life-Long Learning Perspective (3)** The course examines the continuing influence of social and environmental factors in shaping leadership and leadership development.

Effective: Summer 2012

Prerequisite: 6th semester standing

**OLEAD 464 (LER 464) Communication Skills for Leaders in Groups and Organizations (3)** Theory-and research-based communication skills for leaders dealing with work-related problems in contemporary groups and organizations.

Effective: Spring 2013

**OLEAD 465 (LER 465) Collective Decision Making (3)** Application of theories of decision making to work-related issues in groups and organizations requiring collective resolution action.

Effective: Spring 2013

**OLEAD 495 OLEAD Internship (1-12)** Supervised practicum in organizational leadership.

Effective: Spring 2014

**OLEAD 496 Independent Study (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2014

Prerequisite: OLEAD 100

**OLEAD 497 Special Topics (1-9)** Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2014

Prerequisite: OLEAD 100

**OLEAD 497A Women in Leadership (3)** Skills and competencies needed for effective leadership may change/vary from one era to another, one culture to another and one industry to another. Researchers and leaders themselves do not agree on a definition or "leader" of the skills/competencies that establish an effective leader. One might say that "what it takes to be an effective leader" is relative to the situation. Through the review of literature and research on leadership in general; review of literature and research on women in leadership; problem-solving in leadership scenarios; and self-assessment, students will develop a working definition of leadership and identify and develop leadership traits/competencies to encourage more women to be successful, future leaders.

Effective: Summer 2014 Ending: Summer 2014

**OLEAD 497A Women in Leadership (3)** Skills and competencies needed for effective leadership may change/vary from one era to another, one culture to another and one industry to another. Researchers and leaders themselves do not agree on a definition or "leader" of the skills/competencies that establish an effective leader. One might say that "what it takes to be an effective leader" is relative to the situation. Through the review of literature and research on leadership in general; review of literature and research on women in leadership; problem-solving in leadership scenarios; and self-assessment, students will develop a working definition of leadership and identify and develop leadership traits/competencies to encourage more women to be successful, future leaders.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**OLEAD 497B Leadership in a Global Context (3)** This course will explore the science and practice of leadership across the globe. In particular cross-cultural differences in leadership styles and methods from around the planet will be examined. An emphasis will be made on gaining knowledge of various cultural perspectives from around the world. That knowledge will then be used to examine successful leadership interactions between diverse cultures.

Effective: Summer 2014 Ending: Summer 2014

**OLEAD 497B Leadership in a Global Context (3)** This course will explore the science and practice of leadership across the globe. In particular cross-cultural differences in leadership styles and methods from around the planet will be examined. An emphasis will be made on gaining knowledge of various cultural perspectives from around the world. That knowledge will then be used to examine successful leadership interactions between diverse cultures.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

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## Penn State First-Year Seminar (PSU)

**PSU 001 First-Year Seminar Abington** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999

**PSU 002 First-Year Seminar Agricultural Science** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999

**PSU 003 First-Year Seminar Altoona** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999

**PSU 005 First-Year Seminar Berks** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999

**PSU 006 First-Year Seminar Business** (1-3) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Fall 2004

**PSU 006T First-Year Seminar Business** (1-3) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Fall 2007

**PSU 007 First-Year Seminar Behrend** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999

**PSU 008 First-Year Seminar University College** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999 Ending: Fall 2014

**PSU 008 First-Year Seminar University College** (1-3) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 2015 Future: Spring 2015

**PSU 008S First-Year Seminar University College** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 2000 Ending: Fall 2014

**PSU 008S First-Year Seminar University College** (1-3) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 2015 Future: Spring 2015

**PSU 008T First-Year Seminar Univeristy College** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Fall 1999 Ending: Fall 2014

**PSU 008T First-Year Seminar Univeristy College** (1-3) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 2015 Future: Spring 2015

**PSU 009 First-Year Seminar Communications** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999

**PSU 009T First-Year Seminar Communications** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 2006

**PSU 011 First-Year Seminar Education** (1) Facilitate student's adjustment to the high expectations, demanding workload,

increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999

PSU 012 **First-Year Seminar Engineering** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999

PSU 014 **First-Year Seminar Health and Human Development** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999

PSU 015 **First-Year Seminar Liberal Arts** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999

PSU 016 **First-Year Seminar Science** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Spring 1999

PSU 017 **First-Year Seminar College of Information Sciences and Technology** (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.  
Effective: Fall 2007

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## Petroleum and Natural Gas Engineering (P N G)

P N G 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1999

P N G 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1999

P N G 405 **Rock and Fluid Properties** (3) Reservoir rock properties, rock and fluid properties (interaction between rock and fluids), flow behavior in reservoir, and fluid properties.  
Effective: Spring 2002  
Prerequisite: PHYS 211

P N G 406 **Rock and Fluid Laboratory** (1) Systematic study of oil reservoir rocks and fluids; their interrelation applied to petroleum engineering.  
Effective: Spring 2001  
Prerequisite: PHYS 211 Concurrent: P N G 405

P N G 410 **Applied Reservoir Engineering** (3) Analysis and prediction of reservoir performance by use of material balance and steady and nonsteady state flow equations.  
Effective: Spring 2001  
Prerequisite: P N G 405P N G 406PHYS 211

P N G 411 **Introduction to Petroleum and Natural Gas Extraction** (1) Introduction to the design and implementation of the systems used in the extraction of oil and gas. Not intended for petroleum and natural gas engineering majors.  
Effective: Spring 2001  
Prerequisite: PHYS 211

P N G 420 **Applied Reservoir Analysis and Secondary Recovery** (4) Application of material balance equations/transient flow solutions to water influx problems; displacement theory as it applies to design/behavior of flooding.  
Effective: Spring 2008  
Prerequisite: P N G 410;CMPSC 201 orCMPSC 202

P N G 425 **Principles of Well Testing and Evaluation** (3) Mathematical basis for pressure analysis. Theory and practice of pressure testing techniques.  
Effective: Spring 1999  
Prerequisite: MATH 251P N G 420

P N G 430 **Reservoir Modeling** (3) The numerical simulation of petroleum reservoir processes by the use of models; scaling criteria and network flow.  
Effective: Spring 2008  
Prerequisite: MATH 251P N G 410;CMPSC 201 orCMPSC 202

P N G 440W **Formation Evaluation** (3) Study of those methods used to evaluate the engineering properties of oil and gas bearing reservoir formations.  
Effective: Spring 1999  
Prerequisite: P N G 405P N G 406

P N G 450 **Drilling Design and Production Engineering** (3) Design and analysis of oil-field drilling operations and equipment.  
Effective: Spring 2001  
Prerequisite: C E 360E MCH 210

P N G 451 **Drilling Laboratory** (1) Practice in well-control procedures. Measurement of drilling fluid properties.  
Effective: Spring 2014  
Prerequisite: EME 303E MCH 210 Concurrent: P N G 450

P N G 475 **Petroleum Engineering Design** (3) Design and selection of mechanical components used in the production of fluids from subsurface reservoirs.  
Effective: Spring 2001  
Prerequisite: E MCH 210

P N G 480 **Production Process Engineering** (3) Analysis and evaluation of surface production processes, fluid separation, storage, measurement, treating, custody transfer, transmission, disposal, corrosion, and other operations.  
Effective: Spring 2014  
Prerequisite: EME 301EME 303

P N G 482 **Production Engineering Laboratory** (1) Measurement and analyses of the physical and chemical properties of hydrocarbon fluid systems in a production environment.  
Effective: Spring 2014  
Prerequisite: EME 301EME 303 Concurrent: P N G 480

P N G 489 **Engineering Evaluation of Oil and Gas Properties** (3) Application of present worth and rate-of-return analysis; reserve calculations; decline curve analysis; uncertainty and risk analysis to engineering project design and

evaluation.

Effective: Spring 2011

Prerequisite: ECON 102

**P N G 490 Introduction to Petroleum Engineering Design** (1) Introduction to the concepts of engineering design as applied to petroleum and natural gas projects.

Effective: Spring 2014

Prerequisite: ECON 102P N G 405EME 460

**P N G 491 Reservoir Engineering Design** (1) Application of the concepts of reservoir and drilling engineering to petroleum engineering design projects.

Effective: Spring 2011

Prerequisite: ECON 102P N G 410P N G 450P N G 490

**P N G 492 Petroleum Engineering Capstone Design** (1) Integration of petroleum and natural gas engineering concepts to project design.

Effective: Fall 2001

Prerequisite: P N G 491

**P N G 494 Thesis** (1-6) A problem in petroleum engineering involving review of the literature and experimental data obtained in the field or laboratory.

Effective: Spring 1999

**P N G 494H Thesis** (1-6) A problem in petroleum engineering involving review of the literature and experimental data obtained in the field or laboratory.

Effective: Fall 2007

**P N G 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Fall 2007

**P N G 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1999

**P N G 497A Wild Well Control** (1) Students are taught the theory of well control in the first session, and in the second and third session make use of the simulator to mimic operating conditions.

Effective: Summer 2014 Ending: Summer 2014

**P N G 497A SPE Petrobowl Preparation** (1) To learn the general knowledge and history of the petroleum engineering, geosciences, and petroleum industry; to get familiar with the SPE petrobowl competition format.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**P N G 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1999

NOTE: Courses in the use of X-ray diffraction, electron microscopy, and spectroscopy in petroleum and natural gas studies are listed under MATERIALS SCIENCE and GEOLOGICAL SCIENCES.

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## Philosophy (PHIL)

PHIL 001 (GH) **Basic Problems of Philosophy** (3) Introduction to central philosophical themes, including the mind/body problem, the existence of God, ethical problems, the nature of reality.  
Students may take only one course for General Education credit from PHIL 001 GH or 004 GH. Effective: Spring 2000

PHIL 002 (GH) **Philosophy, Politics, and Social Theory** (3) Examines relations between political and social organizations, the justification and limits of the state, and issues concerning individuality and community.  
Effective: Fall 2003

PHIL 003 (GH) **Persons, Moral Values and the Good Life** (3) Major ethical positions and assumptions regarding questions of freedom, choice, obligation, and conflicts in contemporary moral conduct, values, and reasoning.  
Effective: Fall 2004

PHIL 005 (GH) **Philosophy, Art, and Film** (3) Explores relations between images and reality, representation and culture, and beauty and politics through film, artworks, and aesthetic theories.  
Effective: Spring 2002

PHIL 006 (GH;IL) (CMLIT 006) **Philosophy and Literature in Western Culture** (3) Explores fundamental issues of human existence through the traditions of western literature and philosophy.  
Effective: Spring 2006

PHIL 007 (GH;IL) **Asian Philosophy** (3) Introduction to philosophical, moral, and aesthetic teachings of Asian traditions such as Hinduism, Buddhism (including Zen), Taoism, Confucianism, and Shintoism.  
Effective: Summer 2005

PHIL 008 (GH) (WMNST 008) **Philosophy and Feminism** (3) Explores diverse feminist philosophies of culture and knowledge, and examines gender's role in accounts of reality, truth, morality, and justice.  
Effective: Spring 2006

PHIL 009 (GH;US) **Philosophy, Race, and Diversity** (3) Critically examines the significance of race and cultural diversity for, and in, understandings of reality, knowledge, truth, morality, and justice.  
Effective: Summer 2005

PHIL 009U (GH;US) **Philosophy, Race, and Diversity** (3) Critically examines the significance of race and cultural diversity for, and in, understandings of reality, knowledge, truth, morality, and justice.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PHIL 010 (GH) **Critical Thinking** (3) Discussion of the validity, soundness, and fallacies of everyday language use and reasoning; informal logic; and manipulative arguments and propaganda.  
Effective: Fall 2003

PHIL 010S (GH) **Critical Thinking** (3) Discussion of the validity, soundness, and fallacies of everyday language use and reasoning; informal logic; and manipulative arguments and propaganda.  
Effective: Spring 2005

PHIL 011 (GH) **Philosophy, Science, and Truth** (3) Examines the philosophical foundations of natural scientific inquiry, knowledge, objectivity, and the relation of scientific truth to common sense.  
Effective: Fall 2003

PHIL 012 (GQ) **Symbolic Logic** (3) Formal logical structures of propositions and arguments; mechanical tests and proof techniques for logically necessary truth and deductive validity.  
Effective: Fall 1998

PHIL 013 (GH) **Philosophy, Nature, and the Environment** (3) Studies competing historical and contemporary conceptions of nature, their philosophical foundations, and their implications for environmental problems and public policy.  
Effective: Fall 2003

PHIL 014 (GH;US) **Philosophy of Love and Sex** (3) Explores Western theories and attitudes concerning intimacy and examines various ethical issues involving love and sex.  
Effective: Summer 2005

PHIL 083S (GH) **First-Year Seminar in Philosophy** (3) Critical introduction to philosophical issues in ethics, social and

political theory, religion, art, metaphysics, and epistemology.  
Effective: Summer 1999

**PHIL 098 Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

**PHIL 100 (GH) The Meaning of Human Existence** (3) Explores differing views of the significance of human life, the meaning of freedom, and the way to a meaningful life.  
Effective: Fall 2003

**PHIL 101 (GH) Pragmatism and American Philosophy** (3) An introduction to American thought and its relation to American culture, with a focus on the development of pragmatism.  
Effective: Fall 2003

**PHIL 102 (GH) Existentialism and European Philosophy** (3) Introduction to European philosophy and issues of life, death, meaning, and absurdity, with a focus on existentialism and its development.  
Effective: Fall 2003

**PHIL 102H (GH) Existentialism and European Philosophy** (3) Introduction to European philosophy and issues of life, death, meaning, and absurdity, with a focus on existentialism and its development.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**PHIL 103 (GH) Introduction to Ethics** (3) Ethical theory about virtue, duty, autonomy, and life quality applied to moral problems, including character, violence, oppression, abortion, and suicide.  
Effective: Fall 2003

**PHIL 103W (GH) Introduction to Ethics** (3) Ethical theory about virtue, duty, autonomy, and life quality applied to moral problems, including character, violence, oppression, abortion, and suicide.  
Effective: Fall 1998  
Prerequisite: ENGL 015 or ENGL 030

**PHIL 105 (GH) Introduction to Philosophy of Law and Legal Ethics** (3) Historical and contemporary philosophies of law; concepts of responsibility, property, rights, and justice; and ethical issues in legal practice.  
Effective: Fall 2003

**PHIL 106 (GH) Introduction to Business Ethics** (3) Studies ethical foundations of business and ethical problems in business practices such as advertising, international trade, labor relations, and marketing.  
Effective: Fall 2003

**PHIL 107 (GH) (S T S 107) Introduction to Philosophy of Technology** (3) The character of technology; its relation to human values; philosophical assumptions in its development; and how it transforms the world.  
Effective: Spring 2004

**PHIL 108 (GH) Introduction to Social and Political Philosophy** (3) Critical introduction to political authority, rights, justice, community, inequality, power, pluralism, and other contemporary, social, and political issues.  
Effective: Fall 2003

**PHIL 108W (GH) Introduction to Social and Political Philosophy** (3) Critical introduction to political authority, rights, justice, community, inequality, power, pluralism, and other contemporary, social, and political issues.  
Effective: Summer 1998  
Prerequisite: ENGL 015 or ENGL 030

**PHIL 109 (GH) Introduction to Aesthetics** (3) Examines the nature of art and aesthetic experience, art's relation to beauty and truth, and the nature of creativity.  
Effective: Fall 2003

**PHIL 109H (GH) Introduction to Aesthetics** (3) Examines the nature of art and aesthetic experience, art's relation to beauty and truth, and the nature of creativity.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**PHIL 110 (GH) Introduction to Philosophy of Science** (3) Examines science's assumptions about knowledge and reality, the relation between science and culture, and the nature of scientific progress.  
Effective: Fall 2003

**PHIL 113 (GH) Introduction to Philosophy of Literature** (3) Examines philosophical ideas in literature, literary forms in philosophies, style and genre, and relation of philosophy, literature, writing, and culture.



Effective: Fall 2003

**PHIL 115 (GH) Introduction to Philosophy and Education (3)** Examines the nature and goals of education, the philosophical foundations of educational theories, and their economic, political, and cultural implications.  
Effective: Fall 2003

**PHIL 118 (GH) Introduction to Environmental Philosophy (3)** Considers the moral status of the environment and applies ethical theory to issues such as preservation, hunger, pollution, and sustainability.  
Effective: Fall 2003

**PHIL 119 (GH) Ethical Leadership (3)** Introduction to philosophical theories of ethics and leadership. Uses literary and biographical texts in developing skills of application.  
Effective: Summer 2007

**PHIL 122 (GH) Introduction to Philosophy of History (3)** Examines methodological foundations and interpretations of history, the objectivity of history, and the issue of history as design or chance.  
Effective: Fall 2003

**PHIL 123 (GH) Introduction to Ethics in Media and Journalism (3)** Studies ethical problems, human values, and politics in differing media forms and the ways media shape such problems and values.  
Effective: Fall 2003

**PHIL 124 (GH) Introduction to Philosophy of Religion (3)** Explores the meaning of religious belief and experience, the existence of God, ideas of spirituality, and the question of immortality.  
Effective: Fall 2003  
Prerequisite: third-semester standing

**PHIL 125 (GH) Introduction to Theories of Knowledge (3)** Historical and contemporary views on the foundations and conditions of knowledge, belief, justification, and truth, conception, perception, and interpretation.  
Effective: Fall 2003

**PHIL 125W (GH) Introduction to Theories of Knowledge (3)** Historical and contemporary views on the foundations and conditions of knowledge, belief, justification, and truth, conception, perception, and interpretation.  
Effective: Summer 1998  
Prerequisite: ENGL 015 or ENGL 030

**PHIL 126 (GH) Introduction to Metaphysics (3)** Explores the nature of being and reality, the problem of free will and the mind/body problem, identity, and causality.  
Effective: Fall 2003

**PHIL 126W (GH) Introduction to Metaphysics (3)** Explores the nature of being and reality, the problem of free will and the mind/body problem, identity, and causality.  
Effective: Summer 1998  
Prerequisite: ENGL 015 or ENGL 030

**PHIL 127 (GH) Introduction to Philosophy of Mind (3)** Problems and concepts of mind and consciousness including mind-brain identification, the nature of subjectivity, identity, and artificial intelligence.  
Effective: Fall 2003

**PHIL 129 (GH) Introduction to Philosophy of Language (3)** Studies the nature of meaning in language, how we acquire language, communication, signs, and language as descriptive of reality.  
Effective: Fall 2003

**PHIL 132 (GH) (RL ST 131) Introduction to Bioethics (3)** Studies questions of ethics in relation to biotechnology research and implementation, genetic engineering, medicine, animal and human rights.  
Effective: Fall 2003

**PHIL 197 Special topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

**PHIL 198 Special topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

**PHIL 199 (IL) Foreign Study--Philosophy (1-12)** Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PHIL 200 (GH) (CAMS 200) **Ancient Philosophy** (3) Examines the thought and influence of major Western thinkers from the pre-Socratics to the neo-Platonists, emphasizing Plato and Aristotle.  
Effective: Fall 2003

PHIL 201 (GH) **Medieval Philosophy** (3) Examines the thought and influence of major Western thinkers from the fourth to the fifteenth centuries, emphasizing Augustine and Aquinas.  
Effective: Fall 2003

PHIL 202 (GH) **Modern Philosophy** (3) Examines the thought and influence of major Western thinkers from Descartes to Kant, emphasizing rationalism and empiricism, and critical philosophy.  
Effective: Fall 2003

PHIL 203 (GH) **Nineteenth Century Philosophy** (3) Examines the thought and influence of major Western thinkers from Hegel to Nietzsche, including Marx, Kierkegaard, and Schopenhauer.  
Effective: Fall 2003

PHIL 204 (GH) **Twentieth Century Philosophy** (3) Examines the thought and influence of major Western thinkers of the century, including pragmatists, phenomenologists, existentialists, critical theorists, and feminists.  
Effective: Fall 2003

PHIL 208 (GH) **Contemporary Philosophy** (3) Recent trends in philosophical thought and culture, hybrid philosophies, and the philosophical landscape of the future.  
Effective: Fall 2003

PHIL 221 (GH) **Philosophy of Science** (3) An inquiry into the form and function of concepts, laws, theories, and into the character of scientific explanation and prediction.  
Effective: Fall 2003

PHIL 233 (GH) (S T S 233) **Ethics and the Design of Technology** (3) Ethics and individual and group decision-making in the design of technology including design projects and specific attention to institutional ethics.  
Effective: Spring 2004

PHIL 280H (GH) (FD SC 280H) **Food, Values, and Health** (3) The perceived relationship between food and health, emphasizing the conceptual nature of both; and how values contribute to the relationship.  
Effective: Spring 2007

PHIL 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

PHIL 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

PHIL 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

PHIL 298 **Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

PHIL 299 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PHIL 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

PHIL 398 **Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2001

PHIL 399 (IL) **Foreign Study--Philosophy** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**PHIL 401 (AM ST 421) American Philosophy** (3) Survey of key figures and movements in American thought including the Transcendentalists, the Pragmatists, and contemporary developments.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy or 6 credits of philosophy at the 200-level or 5th semester standing

**PHIL 402 European Philosophy** (3 per semester, maximum of 6) Survey of key figures and movements of Europe, including phenomenology, existentialism, structuralism and post-structuralism, and critical theory.

Effective: Fall 2007

Prerequisite: PHIL 102 6 credits of philosophy at the 200 level or 5th semester standing

**PHIL 403 Environmental Ethics** (3) Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level or 5th semester standing

**PHIL 403H Environmental Ethics** (3) Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level or 5th semester standing

**PHIL 405 Philosophy of Law** (3) Examines philosophical views of the nature of law, legal ethics, law and society through questions regarding definition, interpretation, and institutions.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 105 or 6 credits of philosophy at the 200 level or 5th semester standing

**PHIL 406 Business Ethics** (3) Examines the moral justification of business practices and economic systems through critical analyses of case studies and applied ethical theories.

Effective: Summer 1998

Prerequisite: fifth-semester standing

**PHIL 407 (S T S 407) Technology and Human Values** (3) Interrelationships of twentieth-century technological change and human values. Emphasis on the social and ethical aspects of technological progress.

Effective: Spring 1999

Prerequisite: 9 credits of philosophy including PHIL 107 or 6 credits of philosophy at the 200 level

**PHIL 408W Social and Political Philosophy** (3) Historical and philosophical foundations of political organization, authority, and justice, and contemporary issues of rights, community, and culture.

Effective: Fall 1998

Prerequisite: 9 credits in philosophy including PHIL 108 or 6 credits at the 200 level

**PHIL 409 Aesthetics** (3) Studies concepts of beauty, truth, value, representation, production and reproduction, and reality through philosophical theory and works of art.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 109 or 6 credits of philosophy at the 200 level or 3 credits of art or 5th semester standing

**PHIL 410 Philosophy of Science** (3) Historical and contemporary foundational and methodological issues such as causality, relativity and epistemological relativism, teleology, and the nature of reality.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 110 or 6 credits of philosophy at the 200 level

**PHIL 413 Philosophy of Literature** (3) Discusses truth, belief, illusion, imagination and creativity through philosophical literature, as well as problems of philosophical writing.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 113 or 6 credits of philosophy at the 200 level

**PHIL 416 Philosophy of Social Science** (3) Examines the philosophical nature and foundations of methodology, structures and objects, value-neutrality and objectivity in the social sciences.

Effective: Summer 2013

Prerequisite: 9 credits of philosophy including or 6 credits of philosophy at the 200 level

**PHIL 418 Ethics** (3) Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level or 5th semester standing

**PHIL 418W Ethics** (3) Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level

**PHIL 424 Philosophy of Religion** (3) Examines the relation between faith and reason, the nature of religious experience, the problem of evil, the existence of God.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 124 or 6 credits of philosophy at the 200 level or 5th semester standing

**PHIL 425W Epistemology** (3) The nature of cognition and perception, the conditions of experience, and the justification and truth of belief.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 125 or 6 credits of philosophy at the 200 level; in addition to ENGL 015 or ENGL 030

**PHIL 426W Metaphysics** (3) Examines the nature of reality, the existence of freedom, and the nature of matter, mind, and values.

Effective: Summer 1998

Prerequisite: 9 credits in philosophy including PHIL 126 or 6 credits of philosophy at the 200 level

**PHIL 427 Philosophy of Mind** (3) Investigates problems of mind from the standpoint of traditional metaphysical views, modern scientific psychology, neuroscience, and artificial intelligence.

Effective: Spring 1999

Prerequisite: 9 credits of philosophy including PHIL 127 or 6 credits of philosophy at the 200 level

**PHIL 432 (S T S 432) Medical and Health Care Ethics** (3) Examines ethical, political, and social issues in the research, implementation, and practice of medicine, medical technologies, and healthcare.

Effective: Fall 1998

Prerequisite: fifth-semester standing

**PHIL 433 (S T S 433) Ethics in Science and Engineering** (3) Ethical issues arising in the practice of science and engineering and their philosophical analysis.

Effective: Fall 1995

**PHIL 435 (S T S 435) The Interrelation of Science, Philosophy, and Religion** (3) The historical and transformative interactions between science and Western philosophical and religious views of nature, humanity, and God.

Effective: Spring 1996

**PHIL 437 (IL) World Philosophies and Cultures** (3) Philosophical traditions, problems, and authors in African, Asian, Middle- Eastern, Native American, or other non-Western cultures and intellectual traditions.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including 6 credits of philosophy at the 200 level or 5th semester standing

**PHIL 438 (WMNST 438) Feminist Philosophy** (3) Examines the central currents of feminist philosophy, selected problems and concepts regarding difference, gender and sex, identity, and political culture.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including 6 credits of philosophy at the 200-level or 5th semester standing

**PHIL 439 (IL) Asian Philosophies and Issues** (3) Exploration of the traditions, problems, and authors of one or more of the philosophical systems of Buddhism, Hinduism, Taoism, and Confucianism.

Effective: Fall 2007

Prerequisite: PHIL 007 9 credits in philosophy including PHIL 007 or 5th semester standing

**PHIL 441 Capstone Course in Philosophy** (3) This course is intended as the Capstone Course for Philosophy majors and is to be taken during their senior year or during the last semester of their junior year.

Effective: Spring 2011

Prerequisite: 6th semester standing and up

**PHIL 453 Topics in Ancient Philosophy** (3 per semester, maximum of 6) Examines the philosophy of central figures in ancient philosophy from the pre-Socratics to the post-Aristotelians and Neoplatonists.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 200 or 6 credits of philosophy at the 200 level

**PHIL 455 Topics in Modern Philosophy** (3 per semester, maximum of 6) Descartes to Kant, including mind and reality, space and time, God and nature, morality and autonomy.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 202 or 6 credits of philosophy at the 200 level

**PHIL 456 Topics in Nineteenth Century Philosophy** (3 per semester, maximum of 6) Hegel to Nietzsche, including nature and spirit, history and human nature, ideology and morality.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 203 or 6 credits of philosophy at the 200 level

**PHIL 457 Topics in Twentieth Century Philosophy** (3 per semester, maximum of 6) Topics in the philosophy of figures such as Husserl, James, Russell, Wittgenstein, Heidegger, Merleau-Ponty, and Dewey.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 204 or 6 credits of philosophy at the 200 level or 5th semester standing

**PHIL 458 Topics in Contemporary Philosophy** (3 per semester, maximum of 6) Topics in the philosophy of contemporary figures such as Foucault, Habermas, Rorty, Derrida, Rawls, Davidson, and MacIntyre.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 208 or 6 credits of philosophy at the 200 level

**PHIL 460 (US;IL) (AF AM 460) African American Philosophy** (3) Major works by African American Philosophers, on topics

of race, freedom, citizenship, nationhood, law and society.

Effective: Spring 2013

Prerequisite: AF AM 100 or PHIL 009 and 5th semester standing

**PHIL 461 Plato** (3 per semester, maximum of 6) Examines the metaphysics, epistemology, politics, aesthetics, and moral theory of this central figure in the history of philosophy.

Effective: Spring 1999

Prerequisite: 9 credits of philosophy including PHIL 200 or 6 credits of philosophy at the 200 level

**PHIL 473 German Idealism** (3 per semester, maximum of 6) Critically examines the philosophy of central German idealists, including Kant, Fichte, Schelling, and Hegel, and its impact on later philosophy.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including either PHIL 202 or PHIL 203 or 6 credits of philosophy at the 200 level

**PHIL 474 Kant** (3 per semester, maximum of 6) Critical examination of the metaphysics, epistemology, aesthetics, legal and moral philosophy, and influence of Immanuel Kant.

Effective: Fall 1998

Prerequisite: 9 credits in philosophy including PHIL 202 or 6 credits of philosophy at the 200 level

**PHIL 476 Hegel** (3 per semester, maximum of 6) Critical examination of the metaphysics, moral theory, epistemology, and philosophy of history of this central figure of 19th-century philosophy.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 203 or 6 credits of philosophy at the 200 level

**PHIL 479 Critical Theory** (3 per semester, maximum of 6) Examines the ontology, political and social thought of the Frankfurt School from Horkheimer and Adorno to Marcuse and Habermas.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including either PHIL 203 or 6 credits of philosophy at the 200 level

**PHIL 485 Heidegger** (3 per semester, maximum of 6) Studies Heidegger's metaphysical thought from his early to later works regarding being, history, subjectivity, aesthetics, language, and his influence.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 402 or 6 credits of philosophy at the 200 level

**PHIL 486 Wittgenstein** (3 per semester, maximum of 6) Examines Wittgenstein's early and late work, including logical atomism, meaning, language games, forms of life, and the private-language argument.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 204 or 6 credits of philosophy at the 200 level

**PHIL 487 Analytic Philosophy** (3 per semester, maximum of 6) Analytic philosophy's founding by Frege, Russell, Moore, Wittgenstein; and its contemporary development by Quine, Kripke, Dummett, and Davidson.

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 202 or PHIL 204 along with 3 credits of philosophy at the 200 level

**PHIL 490 Dewey** (3 per semester, maximum of 6) Critically examines the metaphysics, epistemology, ethics, logic, aesthetics, education theory, and social and political philosophy of this major American pragmatist.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 401 or 6 credits of philosophy at the 200-level

**PHIL 491 Merleau-Ponty** (3 per semester, maximum of 6) Merleau-Ponty's phenomenological anti-dualism through his studies on the body and the flesh, aesthetics, political philosophy, and late ontology.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 402 or 6 credits of philosophy at the 200-level

**PHIL 493 Phenomenology and Hermeneutics** (3 per semester, maximum of 6) Studies major figures and issues in phenomenology and hermeneutics, focussing on the work of Husserl, Gadamer, Heidegger, Merleau-Ponty, and Levinas.

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 202 and PHIL 204

**PHIL 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

**PHIL 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**PHIL 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**PHIL 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**PHIL 498 Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2001

PHIL 499 (IL) **Foreign Study--Philosophy** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Photography (PHOTO)

PHOTO 099 (IL) **Foreign Studies--Photo** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012

PHOTO 100 (GA) **Introduction to Photography** (3) An introduction to the aesthetics, history, and science of photography including practical and critical approaches to the art of photography.  
Effective: Spring 2006

PHOTO 199 (IL) **Foreign Studies--Photo** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012

PHOTO 200 **Photo Studio I** (3) A beginning level course that explores the fundamentals of photography.  
Effective: Spring 2006  
Prerequisite: PHOTO 100

PHOTO 201 (ART H 250) **A Chronological Survey of Photography** (3) A survey of photography's place and influence in a social, cultural, and historical context.  
Effective: Spring 2006

PHOTO 210 **Introduction to Architectural Photography** (2) Exploration of approaches to photographing architectural interiors, exteriors, and architectural models.  
Effective: Summer 2007  
Prerequisite: Students in Architecture or by permission of the program.

PHOTO 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2006

PHOTO 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2006

PHOTO 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2006

PHOTO 299 (IL) **Foreign Studies--Photo** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012

PHOTO 300 **Photo Studio II** (4) An intermediate course that explores advanced processes and applications in digital photography, digital image processing, and photographic inkjet printing.  
Effective: Spring 2006  
Prerequisite: PHOTO 200

PHOTO 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2006

PHOTO 399 (IL) **Foreign Studies--Photo** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2012

PHOTO 400 **Digital Photography in the Studio** (4) Concepts and technology of the digital photography studio; large format digital cameras, electronic studio lighting and digital printing.  
Effective: Fall 2006  
Prerequisite: PHOTO 200

PHOTO 402 **Photographic Narratives** (4 per semester/maximum of 8) The development of a photographic project that leads to the creation of a handmade book.  
Effective: Fall 2006  
Prerequisite: PHOTO 200

PHOTO 403 **Photo Assemblage** (4) Collage making through collecting and assembling found materials, including photography; origins of photographic manipulation and contemporary uses.  
Effective: Fall 2006

PHOTO 405 **Creative Projects in Photography** (4 per semester/maximum of 8) Special individual problems related to

photographic vision.

Effective: Fall 2006

Prerequisite: PHOTO 201PHOTO 300

**PHOTO 406 Product Photography (2)** This advanced level course will explore the practices of photographing products for print and product advertising.

Effective: Summer 2011

Prerequisite: PHOTO 200

**PHOTO 407 Portrait Photography (2)** This advanced level course investigates contemporary portrait photography and traditional and modern styles of photographic lighting.

Effective: Summer 2011

Prerequisite: PHOTO 200

**PHOTO 410 Photographing Motion and Athletic Events (2)** A practicum course in photographing sports and athletic events.

Effective: Summer 2007

Prerequisite: PHOTO 200

**PHOTO 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 2006

**PHOTO 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2006

**PHOTO 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2006

**PHOTO 497A Photography Fact + Fiction (4)** Photography's association with truth and accuracy alongside its history of manipulation and fakery are creatively questioned and explored.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**PHOTO 499 (IL) Foreign Studies--Photo (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2012

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## Physical Science (PH SC)

PH SC 440 **Applied Solid State and Optical Processes** (3) This course covers the solid state physics and material science prerequisite to understand today microelectronic and optoelectronic devices.

Effective: Summer 2013

Prerequisite: PHYS 237PHYS 410

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## Physical Therapy (P T)

**P T 100 Physical Therapist Assistant--Introduction** (3) Orientation to the field of physical therapy, historical background of the profession, professional ethics, medical terminology, and patient care techniques.

Effective: Fall 2004

Prerequisite: a grade of C or better inBIOL 129

**P T 100S Physical Therapist Assistant-Introduction** (3) Orientation to the field of physical therapy, historical background of the profession, professional ethics, medical terminology, and patient care techniques with First Year Seminar requirements.

Effective: Spring 2012

Prerequisite: a grade of C or better inBIOL 129

**P T 101S Introduction to Computer Skills for the PTA** (1) Introduction to basic computer skills for the physical therapist assistant.

Effective: Fall 2011

**P T 150 Physical Therapist Assistant Procedures I** (2) General considerations for basic physical therapy modalities including their indications, contraindications, skill development and practical application.

Effective: Fall 2004

Prerequisite: a grade of C or better inP T 100BIOL 141BIOL 142P T 384

**P T 160 Therapeutic Exercise I** (3) Introduction to the principles of exercise in the treatment of disease and injury.

Effective: Fall 2004

Prerequisite: a grade of C or better inBIOL 129BIOL 141BIOL 142P T 100P T 384

**P T 201 Licensure Preparation for the PTA** (1) Preparation for the national PTA licensure examination.

Effective: Fall 2004

Prerequisite: a grade of C or better inP T 100 andP T 384

**P T 202 Pediatric PT** (1) A study of physical therapy as it applies to pediatric patients.

Effective: Summer 2003

Prerequisite: P T 100P T 384

**P T 203 The Rehabilitation of the Lower Extremity Amputee** (1) Students will be introduced to the rehabilitation process involved with a patient who has a lower extremity amputation.

Effective: Summer 2003

Prerequisite: P T 100P T 384

**P T 204 Seminar in Physical Therapy** (1) Specialized physical therapy topics investigated in the framework of clinic visitations and presentations by clinical experts.

Effective: Fall 2004

Prerequisite: a grade of C or better inP T 100 andP T 384

**P T 205 Human Musculature** (1-2) Comprehensive review of Human Musculature.

Effective: Fall 2004

Prerequisite: a grade of C or better inP T 100P T 384 andBIOL 129

**P T 250 Physical Therapist Assistant--Procedures II** (4) General considerations for advanced physical therapy modalities including their indications, contraindications, skill development and practical application.

Effective: Fall 2004

Prerequisite: a grade of C or better inP T 150P T 160P T 270P T 384P T 395EP T 395W

**P T 260 Therapeutic Exercise--II** (3) Advanced principles of exercise in the treatment of disease and injury.

Effective: Fall 2004

Prerequisite: a grade of C or better inBIOL 141BIOL 142P T 150P T 160P T 270P T 384P T 395EP T 395W

**P T 270 Pathophysiology** (3) Introduction to medical and post-operative conditions and/or disease states most frequently treated by physical therapy modalities.

Effective: Fall 2004

Prerequisite: a grade of C or better inBIOL 141BIOL 142P T 100P T 384

**P T 270A (IL) Pathophysiology** (3) Introduction to medical and post-operative conditions and/or disease states most frequently treated by physical therapy modalities.

Effective: Fall 2005

Prerequisite: a grade of C or better inBIOL 141BIOL 142P T 100P T 384

**P T 270W Pathophysiology** (3) Introduction to the study of disease and those conditions most often treated by physical therapy methods; basic signs, symptoms, and causes of disease and conditions will be covered.

Effective: Fall 2004

Prerequisite: a grade of C or better inBIOL 141BIOL 142P T 100P T 384

**P T 280 Rehabilitation** (4) Examination of techniques and laboratory experiences in rehabilitation techniques for the physically challenged.

Effective: Fall 2004

Prerequisite: a grade of C or better inBIOL 141BIOL 142P T 150P T 160P T 270P T 384

P T 280W **Rehabilitation** (4) Examination of techniques and laboratory experiences in rehabilitation techniques for the physically challenged.

Effective: Fall 2004

Prerequisite: a grade of C or better inBIOL 141BIOL 142P T 150P T 160P T 270P T 384P T 395E

P T 290 **Professional Issues in Clinical Practice** (1) Introduction of professional issues related to the physical therapist assistant's role in practice, including documentation, billing, communication, and professionalism.

Effective: Summer 2014

Prerequisite: a grade of C or better inBIOL 141BIOL 142P T 100 andP T 384

P T 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2000

P T 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2000

P T 384 **Applied Kinesiology** (4) Study of anatomical structure, body movement. Characteristic muscle action and motion will be analyzed in relation to physical therapy context.

Effective: Fall 2004

Prerequisite: a grade of C or better inBIOL 129BIOL 141BIOL 142P T 100

P T 395E **Physical Therapist Assistant--Practicum I** (4) The practice of physical therapist assistant skills in a clinical setting under the direct supervision of a physical therapist.

Effective: Fall 2004 Ending: Fall 2014

Prerequisite: a grade of C or better inP T 150P T 160P T 250P T 260P T 270 orP T 270WP T 384

P T 395E **Physical Therapist Assistant--Practicum I** (3) The practice of physical therapist assistant skills in a clinical setting under the direct supervision of a physical therapist.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: a grade of C or better inBIOL 141BIOL 142P T 100P T 150P T 160P T 270 orP T 270W orP T 270A

P T 395F **Physical Therapist Assistant--Practicum II** (4) The practice of physical therapist assistant skills in a clinical setting under the direct supervision of a registered physical therapist.

Effective: Fall 2004

Prerequisite: a grade of C or better inP T 250P T 260P T 280P T 280WP T 395E orP T 395W

P T 395G **Physical Therapist Assistant--Practicum III** (4) The practice of physical therapist assistant skills in a clinical setting under the direct supervision of a registered physical therapist.

Effective: Fall 2004

Prerequisite: a grade of C or better inP T 250P T 260P T 280P T 280WP T 395E orP T 395W

P T 395W **Physical Therapist Assistant--Practicum I** (4) The practice of physical therapist assistant skills in a clinical setting under the direct supervision of a physical therapist.

Effective: Fall 2004 Ending: Fall 2014

Prerequisite: a grade of C or better inBIOL 141BIOL 142P T 384

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## Physics (PHYS)

PHYS 001 (GN) **The Science of Physics** (3) Historical development and significance of major concepts, with emphasis on the nature of physics and its role in modern life. (For students in non-mathematical fields.)  
Effective: Fall 2004

PHYS 001H (GN) **The Science of Physics** (3) Historical development and significance of major concepts, with emphasis on the nature of physics and its role in modern life. (For students in non-mathematical fields.)  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PHYS 010 (GN) **Physics Behind the Headlines** (3) Select topics in modern physics with emphasis on understanding science related articles in the news (For students in non-mathematical fields.)  
Effective: Summer 2013

PHYS 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1994

PHYS 097A **Concepts in Mechanics** (3) This is a 9-week remedial course for students who have struggled during the first five weeks of PHYS 211. PHYS 097 will concentrate on basic skills in physics (including kinematic analysis and vector operations) as well as associated mathematics (including algebra, trigonometry, and calculus). If the student has demonstrated a reasonable effort to learn the material in PHYS 211, then the current instructor of PHYS 211 will sign the student into PHYS 097.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PHYS 150 (GN) **Technical Physics I** (3) Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.  
Effective: Spring 2007  
Prerequisite: 1 1/2 units of algebra. Prerequisite or concurrent: MATH 021 or MATH 081

PHYS 150L (GN) **Technical Physics I** (3) Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.  
Effective: Summer 1994

PHYS 150P (GN) **Technical Physics I** (3) Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.  
Effective: Summer 1994

PHYS 151 (GN) **Technical Physics II** (3) Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.  
Effective: Fall 2001  
Prerequisite: PHYS 150

PHYS 151H (GN) **Technical Physics II** (3) Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: PHYS 150

PHYS 151L (GN) **Technical Physics II** (3) Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.  
Effective: Fall 2001  
Prerequisite: PHYS 150

PHYS 151P **Technical Physics II** (3) Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.  
Effective: Fall 2001  
Prerequisite: PHYS 150

PHYS 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2007

PHYS 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PHYS 211 (GN) **General Physics: Mechanics** (4) Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation.  
Effective: Fall 1999

Concurrent: MATH 140

**PHYS 211H (GN) General Physics: Mechanics (4)** Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, rotation, and oscillations.

Effective: Spring 2012

Concurrent: MATH 140

**PHYS 211L (GN) General Physics: Mechanics (0-4)** Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation. NOTE: UP offers for 0 credits; Altoona offers for 4 credits.

Effective: Fall 2000

Concurrent: MATH 140

**PHYS 211P General Physics: Mechanics (0)** Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation.

Effective: Spring 1999

Concurrent: MATH 140

**PHYS 211R (GN) General Physics: Mechanics (4)** Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation.

Effective: Spring 1999

Concurrent: MATH 140

**PHYS 212 (GN) General Physics: Electricity and Magnetism (4)** Calculus-based study of the basic concepts of electricity and magnetism.

Effective: Fall 1999

Prerequisite: MATH 140PHYS 211 Concurrent: MATH 141

**PHYS 212H (GN) General Physics: Electricity and Magnetism (4)** Calculus-based study of the basic concepts of electricity and magnetism.

Effective: Summer 2012

Prerequisite: MATH 140PHYS 211 Concurrent: MATH 141

**PHYS 212L (GN) General Physics: Electricity and Magnetism (0-4)** Calculus-based study of the basic concepts of electricity and magnetism. NOTE: UP offers for 0 credits; Altoona offers for 4 credits.

Effective: Fall 2000

Prerequisite: MATH 140PHYS 211 Concurrent: MATH 141

**PHYS 212P General Physics: Electricity and Magnetism (0)** Calculus-based study of the basic concepts of electricity and magnetism.

Effective: Spring 1999

Prerequisite: MATH 140PHYS 211 Concurrent: MATH 141

**PHYS 212R (GN) General Physics: Electricity and Magnetism (4)** Calculus-based study of the basic concepts of electricity and magnetism.

Effective: Spring 2000

Prerequisite: MATH 140PHYS 211 Concurrent: MATH 141

**PHYS 213 (GN) General Physics: Fluids and Thermal Physics (2)** Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

Effective: Fall 1999

Prerequisite: MATH 140PHYS 211 Concurrent: MATH 141

**PHYS 213L (GN) General Physics: Fluids and Thermal Physics (0)** Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

Effective: Fall 1999

Prerequisite: MATH 140PHYS 211 Concurrent: MATH 141

**PHYS 213R (GN) General Physics: Fluids and Thermal Physics (2)** Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

Effective: Fall 1999

Prerequisite: MATH 140PHYS 211 Concurrent: MATH 141

**PHYS 214 (GN) General Physics: Wave Motion and Quantum Physics (2)** Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

Effective: Spring 2004

Prerequisite: MATH 141PHYS 211 andPHYS 212

**PHYS 214L (GN) General Physics: Wave Motion and Quantum Physics (0)** Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

Effective: Spring 2004

Prerequisite: MATH 141PHYS 211 andPHYS 212

**PHYS 214R (GN) General Physics: Wave Motion and Quantum Physics (2)** Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

Effective: Spring 2004

Prerequisite: MATH 141PHYS 211 andPHYS 212

**PHYS 230 Introduction to Relativity (3)** Introduction to special and general relativity including space-time diagrams and relativistic kinematics, length contraction, time dilation, equivalence principles, curved space and cosmology.

Effective: Summer 2006

Prerequisite: PHYS 212MATH 141 . Prerequisite or concurrent:MATH 220MATH 230 orMATH 231

**PHYS 237 Introduction to Modern Physics** (3) Relativity and quantum theory applied to selected topics in atomic, molecular, solid state, and nuclear physics.

Effective: Spring 2007

Prerequisite: PHYS 212 Concurrent: PHYS 214

**PHYS 237H Introduction to Modern Physics** (3) Relativity and quantum theory applied to selected topics in atomic, molecular, solid state, and nuclear physics.

Effective: Summer 2012

Prerequisite: PHYS 212 Concurrent: PHYS 214

**PHYS 250 (GN) Introductory Physics I** (4) Selected topics in mechanics, heat, and sound.

Effective: Fall 2002

Prerequisite: MATH 022MATH 026 ; orMATH 040 ; orMATH 041 or satisfactory performance on the mathematics proficiency examination

**PHYS 250L (GN) Introductory Physics I** (0-4) Selected topics in mechanics, heat, and sound.

Effective: Spring 2010

Prerequisite: MATH 022MATH 026 ; orMATH 040 ; orMATH 041 or satisfactory performance on the mathematics proficiency examination

**PHYS 250P (GN) Introductory Physics I** (0) Selected topics in mechanics, heat, and sound.

Effective: Fall 2002

Prerequisite: MATH 022MATH 026 ; orMATH 040 ; orMATH 041 or satisfactory performance on the mathematics proficiency examination

**PHYS 250R (GN) Introductory Physics I** (4) Selected topics in mechanics, heat, and sound.

Effective: Fall 2002

Prerequisite: MATH 022MATH 026 ; orMATH 040 ; orMATH 041 or satisfactory performance on the mathematics proficiency examination

**PHYS 251 (GN) Introductory Physics II** (4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2002

Prerequisite: PHYS 250

**PHYS 251H (GN) Introductory Physics II** (4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: PHYS 250

**PHYS 251L (GN) Introductory Physics II** (0-4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2010

Prerequisite: PHYS 250

**PHYS 251P (GN) Introductory Physics II** (0) Selected topics in light, electricity, and magnetism.

Effective: Fall 2002

Prerequisite: PHYS 250

**PHYS 251R (GN) Introductory Physics II** (4) Selected topics in light, electricity, and magnetism.

Effective: Fall 2002

Prerequisite: PHYS 250

**PHYS 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**PHYS 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**PHYS 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2007

**PHYS 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**PHYS 400 Intermediate Electricity and Magnetism I** (3-4) Electrostatics and magnetostatics in vacuum; electrical and magnetic properties of matter; electrodynamics, Maxwell's equations, conservation laws, electromagnetic waves and radiation.

Effective: Fall 2012 Ending: Summer 2014

Prerequisite: PHYS 212PHYS 213 andPHYS 214;MATH 250 orMATH 251;MATH 231 orMATH 230 Concurrent: MATH 230 OR MATH 231 ; PHYS 204

**PHYS 400 Intermediate Electricity and Magnetism** (3-4) Electrostatics and magnetostatics in vacuum; electrical and magnetic properties of matter; electrodynamics, Maxwell's equations, conservation laws, electromagnetic waves and radiation.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: PHYS 212PHYS 213 andPHYS 214;MATH 250 orMATH 251;MATH 231 orMATH 230

**PHYS 402 Electronics for Scientists** (4) Circuit and network theory; active devices; amplifiers; introduction to digital electronics; noise theory.

Effective: Spring 2007

Prerequisite: MATH 250 orMATH 251;PHYS 212PHYS 213 andPHYS 214

**PHYS 406 Subatomic Physics** (3) Introductory treatment of elementary particles, fundamental strong and electroweak interactions, nuclear structure, accelerators, particle detection, nuclear astrophysics.

Effective: Spring 1995

Prerequisite: PHYS 410

**PHYS 410 Introduction to Quantum Mechanics I** (3-4) Basic postulates; Schrodinger wave equation; stationary states; variational method; scattering in one dimension; orbital angular momentum; hydrogen atom; numerical methods.

Effective: Spring 2007

Prerequisite: MATH 250 orMATH 251;MATH 230 orMATH 231;PHYS 237

**PHYS 411 Introduction to Quantum Mechanics II** (3) General theory of angular momentum; approximation methods; scattering theory; radiation theory; applications to atomic, molecular, condensed matter, nuclear and particle physics.

Effective: Spring 1994

Prerequisite: PHYS 410

**PHYS 412 Solid State Physics I** (3) Crystal symmetry, x-ray structure analysis, lattice vibrations, thermal properties, free electron transport theory, elementary one-electron quantum theory of solids.

Effective: Fall 1986

Prerequisite: MATH 230 orMATH 231 Concurrent: PHYS 410

**PHYS 413 Solid State Physics II** (3) Quantum theory of electronic and optical properties of solids, semiconductors, dielectrics, magnetic properties, crystal imperfections, low- temperature effects, and superconductivity.

Effective: Fall 1986

Prerequisite: PHYS 412

**PHYS 414 Solid State Physics** (3) Crystal structure; reciprocal lattice; X-ray diffraction; lattice vibrations; thermal properties; free electron gas model; energy bands; semiconductors; magnetism.

Effective: Spring 2007

Prerequisite: MATH 230PHYS 237

**PHYS 419 (MATH 419) Theoretical Mechanics** (3) Principles of Newtonian, Lagrangian, and Hamiltonian mechanics of particles with applications to vibrations, rotations, orbital motion, and collisions.

Effective: Spring 2007

Prerequisite: MATH 230 orMATH 231;MATH 250 orMATH 251;PHYS 212PHYS 213 andPHYS 214

**PHYS 420 Thermal Physics** (3) Basic postulates of statistical mechanics and thermodynamics, microscopic quantum states and macroscopic parameters; partition functions; Maxwell- Boltzmann and quantum statistics.

Effective: Spring 2007

Prerequisite: MATH 230 orMATH 231;MATH 250 orMATH 251;PHYS 237

**PHYS 421W Research Methods in Physics** (3) Methodology focusing on the theory of measurement and experiment design.

Effective: Spring 2007

Prerequisite: PHYS 237

**PHYS 443 Intermediate Acoustics** (3) Vibration and simple vibrating systems, sound wave propagation, acoustic instruments, recent developments.

Effective: Fall 1999

Prerequisite: MATH 251PHYS 212PHYS 213 andPHYS 214 ; orPHYS 203 orPHYS 204

**PHYS 444 Topics in Contemporary Physics** (2) Modern research topics and career opportunities in physics; employment, graduate education, and tailoring the physics curriculum to meet career goals.

Effective: Spring 2007

Prerequisite: PHYS 237 and 3 credits of physics at the 400 level

**PHYS 446 The Year in Physics: A Seminar on the Latest Research** (1) Discussion recent research in physics.

Effective: Spring 2007

Prerequisite: PHYS 211

**PHYS 457 Experimental Physics** (1-3) Selected experiments in various fields of physics.

Effective: Spring 2007

Prerequisite: PHYS 212 rPHYS 213PHYS 214 andPHYS 237

**PHYS 457W Experimental Physics** (3) Selected experiments in various fields in physics.

Effective: Spring 2007

Prerequisite: PHYS 212PHYS 213PHYS 214 andPHYS 237

**PHYS 458 Intermediate Optics** (4) Geometrical and physical optics: theory of lens systems, aberrations, apertures, interference, diffraction, polarization.

Effective: Spring 2007

Prerequisite: PHYS 212PHYS 213PHYS 214;MATH 250 orMATH 251;MATH 230 orMATH 231

**PHYS 461 (MATH 461) Theoretical Mechanics** (3) Continuation of Math.(Phys.) 419. Theoretical treatment of dynamics of a rigid body, theory of elasticity, aggregates of particles, wave motion, mechanics of fluids.

Effective: Fall 1986  
Prerequisite: MATH 419

**PHYS 462 Applications of Physics in Medicine** (3) Applications of physics in human physiology and in instrumentation for medical diagnosis and treatment.

Effective: Summer 2002

Prerequisite: PHYS 211PHYS 212PHYS 213 andPHYS 214 ; orPHYS 250PHYS 251

**PHYS 472 Elements of Nuclear Physics and its Applications to Medical Imaging and Treatments** (3) Introduction to the theory of nuclei, interactions with fast particles, and applications to medical imaging and radiation oncology.

Effective: Spring 2012

Prerequisite: PHYS 211PHYS 212PHYS 213PHYS 214 andPHYS 237

**PHYS 479 (MATH 479) Special and General Relativity** (3) Mathematical description, physical concepts, and experimental tests of special and general relativity.

Effective: Spring 2007

Prerequisite: PHYS 237PHYS 400PHYS 419;MATH 250 orMATH 251;MATH 230 orMATH 231

**PHYS 494 Physics Research Project** (1-12) Investigation of an original research problem, including a literature search.

Preparation of a formal thesis is optional.

Effective: Spring 2007

**PHYS 494H Physics Research Project** (1-12) Investigation of an original research problem, including a literature search.

Preparation of a formal thesis is optional.

Effective: Fall 2007

**PHYS 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2007

Prerequisite: prior approval of proposed assignment by instructor

**PHYS 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**PHYS 496H Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

**PHYS 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**PHYS 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Plant (PLANT)

PLANT 461 **Emerging Issues in Plant Sciences** (3) A discussion-based capstone course that elucidates the current and up-and-coming issues in the plant sciences.

Effective: Fall 2013

Prerequisite: AGRO 028 or HORT 101 AGECO 201 or BIOL 127 or HORT 202 ENT 313 and SOILS 101

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## Plastics Engineering Technology (PL ET)

PL ET 050 **Computer Applications for Plastics Engineering Technology** (2) Programming, spreadsheets for the solution of technical problems, internet access for background and support information, formatting professional reports, creating presentations.

Effective: Spring 2006

PL ET 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

PL ET 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

PL ET 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

PL ET 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

PL ET 205 **Introduction to Plastics** (3) Introduction to the plastics industry including fundamental aspects of plastic materials and processing; introduces the chemical influence on mechanical and flow properties of plastic materials.

Effective: Summer 2007

Prerequisite: MATH 040MATH 082MATH 140 . Prerequisite or concurrent:CHEM 110

PL ET 206W **Plastic Materials and Properties** (3) Coverage of the most common commercial plastics including their additives, fillers, and fibers; includes common physical tests used to determine material characteristics; writing intensive.

Effective: Spring 2011

Prerequisite: PL ET 205

PL ET 222 **Introduction to Plastics Processing** (4) Introduction to plastic processing methods, materials, tooling, design, and equipment. Safe operation and practices are emphasized.

Effective: Summer 2005

PL ET 225 **Instrumentation, Control, & Automation for Plastics** (2) Instrumentation, control and automation basics & strategies for plastics processing.

Effective: Summer 2005

Prerequisite: MATH 081 ; Prerequisite or concurrent:PL ET 222

PL ET 227 **Plastics Processing & Statistical Methods** (4) Study of advanced issues in plastics processing, such as design of experiments and SPC/SQC will be covered.

Effective: Summer 2005

Prerequisite: PL ET 205PL ET 222 ; Prerequisite or concurrent:PL ET 225

PL ET 232 **Introduction to Part and Tool Design** (3) CAD techniques for designing plastic products and related tooling.

Effective: Spring 2007

Prerequisite: EG T 121 Prerequisite or concurrent:PL ET 222

PL ET 235 **Tool Design & Machining** (2) Study of the methods used to create the tooling used in plastics fabrication and the methods of maintaining tooling.

Effective: Summer 2005

Prerequisite: PL ET 222 ; Prerequisite or concurrent:PL ET 232

PL ET 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1992

PL ET 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1992

PL ET 304 **Plastic Material Properties and Applications** (3) Synthesis, polymerization, and characterization of thermoplastic and thermoset polymeric materials.

Effective: Summer 2005

Prerequisite: PL ET 206W

PL ET 323 **Packaging Processes** (3) In-depth studies and laboratory experiments will be conducted on processes such as

blow molding, thermoforming, extrusion and other packaging processes.

Effective: Summer 2005

Prerequisite: PL ET 225PL ET 227PL ET 304

**PL ET 330 Advanced Tooling & Rheology** (4) Tooling design strategies are developed considering a material's physical and rheological influences on processing and part formation.

Effective: Summer 2005

Prerequisite: PL ET 206WPL ET 227PL ET 232PL ET 235PHYS 250

**PL ET 345 Heat Transfer** (2) Fundamentals of heat transfer including conduction, convection, and radiation.

Effective: Spring 2010

Prerequisite: PL ET 366

**PL ET 350 Design of Plastic Parts** (4) Designing plastic parts utilizing CAD, FEA, and CAE technologies for the design and for structural, dimensional, and process evaluation and optimization.

Effective: Spring 2007

Prerequisite: MCH T 213PL ET 232PL ET 304PL ET 330 . Prerequisite or concurrent:MET 418

**PL ET 366 Fluid and Thermal Sciences** (3) Fundamentals of thermodynamic principles, fluid statics, and fluid dynamics.

Effective: Spring 2006

Prerequisite: MATH 083PHYS 250PL ET 222PL ET 227 . Prerequisite or concurrent:PL ET 330

**PL ET 380 Introduction to Plastic Medical Devices** (1) Introduction to plastic medical devices and their manufacture. Also covers the regulatory requirements of plastic medical devices.

Effective: Summer 2011

Prerequisite: PL ET 205PL ET 222

**PL ET 397 Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

**PL ET 425 Automation for Plastics Processes** (2) Control methods, sensors, and other hardware used in the manufacture of plastic products.

Effective: Spring 2014

**PL ET 430 Packaging Design & Materials** (2) Study of design and materials for plastic packaging including blow molded, thermoformed and extruded products.

Effective: Summer 2005

Prerequisite: Prerequisite or concurrent:PL ET 304PL ET 330

**PL ET 460 Advanced Computer Applications in Plastics Design** (3) Advanced applications of computer-aided design, computer-aided manufacturing, computer-aided engineering, and finite element analysis to plastic product development.

Effective: Spring 2014

Prerequisite: PL ET 350

**PL ET 462 Advanced Injection Molding** (3) New and advanced injection molding technologies, implementing statistical methods such as design of experiments.

Effective: Summer 2005

Prerequisite: PL ET 225PL ET 227PL ET 330

**PL ET 464 Plastics Failure Analysis** (3) Fundamentals of Plastics Materials Process and Design Failure Analysis.

Effective: Summer 2005

Prerequisite: PL ET 304

**PL ET 465 Advanced CAE for Plastics II** (3) Advanced Computer-Aided Engineering techniques for plastic part design.

Effective: Spring 2007

Prerequisite: PL ET 345PL ET 350MET 418

**PL ET 467 Secondary Operations** (3) Fundamentals of decoration and assembly methods used in the plastics industry.

Effective: Summer 2005

Prerequisite: Seventh semester standing

**PL ET 468 Rapid Commercialization** (3) Techniques to help get plastic products to market quicker and to build solids and surface modeling skills.

Effective: Summer 2005

Prerequisite: PL ET 350

**PL ET 477 Novel and Emerging Technologies** (2) Study of novel and emerging technology in plastics.

Effective: Spring 2013

Prerequisite: PL ET 323PL ET 350

**PL ET 481 Plastic Product Development** (3) This course provides students with an in-depth overview of the integrated new product development process.

Effective: Summer 2011

Prerequisite: PL ET 350

**PL ET 482 Medical Product Development** (1) This course provides students with medical device development requirements and processes. The course is to be taken in conjunction with PL ET 481 as both courses will utilize a semester project to invent and design a new product. Over the course of the semester students will review the FDA

classifications, filing requirements, and recommended practices for medical device development. This knowledge will be applied and practiced through the semester projects. Students will learn techniques for Failure Modes and Effects Analysis and how to properly document and manage product change through the development process.

Effective: Summer 2011

Prerequisite: PL ET 380PL ET 350 Concurrent: PL ET 481

PL ET 483 **Plastics in Medical Applications** (3) This course focuses on plastics materials and properties and how they meet the unique medical application and device requirements.

Effective: Summer 2011

Prerequisite: PL ET 304PL ET 380

PL ET 484 **Medical Manufacturing Methods** (3) This course provides instruction in the methods and practices used in the manufacturing of plastic devices in the medical industry.

Effective: Summer 2011

Prerequisite: PL ET 380

PL ET 494A **Plastics Projects** (1-12) Supervised student activities on research and/or design projects identified on an individual or small group basis. A specific title may be used in each instance and will be entered on the student's transcript.

Effective: Spring 2012

Prerequisite: or concurrent: MET 418PL ET 350PL ET 323

PL ET 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica or internships. Written and oral critique of activity required.

Effective: Summer 1992

Prerequisite: prior approval of proposed assignment by instructor

PL ET 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1992

PL ET 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1992

PL ET 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2010

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## Plnt Path&Envi Micro (PPEM)

**PPEM 120 (GN) The Fungal Jungle: A Mycological Safari From Truffles to Slime Molds** (3) This course is an introduction to the world of fungi and their impact on humans and the environment around us.  
Effective: Spring 2014

**PPEM 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2014

**PPEM 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2014

**PPEM 297A Mushroom Cultivation** (3) Two hours of lecture and one 2-hour laboratory per week. The course will review the history of US mushroom production as well as describe current US and global cultivation. The biology and cultivation requirements will be discussed for the most commonly produced mushrooms (i.e. Agaricus, Pleurotus, Lentinula Maitake, Hericium). Laboratories will consist of producing edible mushrooms following current industrial, large scale practices as well as introducing students to the more traditional cultivation methodologies. Students will be involved with substrate preparation, spawning, crop incubation, watering and harvesting during the class. A trip to visit several commercial Pennsylvania mushroom farms will be encouraged.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**PPEM 300 (GN) Horticultural Crop Diseases** (3) Diseases of horticultural crops are examined stressing their cause, diagnosis, management and national and international importance.  
Effective: Spring 2014  
Prerequisite: 3 credits in a biological science

**PPEM 318 Diseases of Forest and Shade Trees** (2) Introduction to diagnosis and management of forest and shade tree diseases.  
Effective: Spring 2014

**PPEM 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2014

**PPEM 405 Microbe-Plant Interactions: Plant Disease and Biological Control** (3) Survey of microbe-plant interactions causing plant disease, mechanisms of pathogenesis, disease management, and microbial and molecular biological control strategies.  
Effective: Spring 2014  
Prerequisite: BIOL 110

**PPEM 412 Turfgrass Disease Management** (3) Introduction to biology of turfgrass pathogens and management of cool- and warm-season turfgrass disease.  
Effective: Spring 2014  
Prerequisite: TURF 230TURF 235CHEM 101 orCHEM 110BIOL 127

**PPEM 416 Plant Virology: Molecules to Populations** (3) An exploration of the molecular biology and population dynamics of the virus-plant interaction.  
Effective: Spring 2014  
Prerequisite: BIOL 110BIOL 120

**PPEM 417 Phytobacteriology** (3) How bacterial pathogens infect plants and evade plant immune responses.  
Effective: Spring 2014  
Prerequisite: BIOL 110;BIOL 222 orBIOL 322;B M B 211 orMICRB 201 orMICRB 251 orB M B 251

**PPEM 419 Plant Nematology** (2) The biology of plant pathogenic nematodes, the diseases they cause, and their control.  
Effective: Spring 2014  
Prerequisite: BIOL 110BIOL 120

**PPEM 425 (BIOL 425) Biology of Fungi** (4) A survey of the biological diversity of fungi, stressing evolution, ecology, disease, morphology, life histories, and importance to humans.  
Effective: Spring 2014  
Prerequisite: fifth-semester or graduate standing in a biological sciences major with six credits completed in the major

**PPEM 427 Mycotoxins: Effects of Fungal Toxins on Human and Animal Health** (3) Description and history of mycotoxins. Mycotoxin formation, occurrence, control, economic and social impacts, and regulatory issues.  
Effective: Spring 2014  
Prerequisite: BIOL 110 orBIOL 011 andBIOL 012;CHEM 112CHEM 113

**PPEM 430 (E R M 430) Air Pollution Impacts to Terrestrial Ecosystems** (3) An overview of direct and indirect effects of

air pollution on terrestrial plants and ecosystems.

Effective: Summer 2014

Prerequisite: BIOL 220WFOR 308

PPEM 454 **Virus Ecology** (3) Virus ecology describes how viruses interact with their hosts, and how those interactions modulate the hosts' interactions with their environment.

Effective: Spring 2014

Prerequisite: BIOL 110 or equivalent

PPEM 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2014

PPEM 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2014

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## Polish (POL)

POL 197 **Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1995

POL 199 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

POL 299 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

POL 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

POL 399 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

POL 499 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Political Science (PL SC)

PL SC 001 (GS) **Introduction to American National Government** (3) Introduction to development and nature of American political culture, constitutional/structural arrangements, electoral/policy processes; sources of conflict and consensus. Effective: Spring 2002

PL SC 001H (GS) **Introduction to American National Government** (3) Introduction to development and nature of American political culture, constitutional/structural arrangements, electoral/policy processes; sources of conflict and consensus. Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PL SC 001S (GS) **Introduction to American National Government** (3) Introduction to development and nature of American political culture, constitutional/structural arrangements, electoral/policy processes; sources of conflict and consensus. Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PL SC 002 **American Public Policy** (3) Examination of selected areas of public policy in America. Analysis of policy content, alternatives, and impact. Effective: Fall 1983  
Prerequisite: PL SC 001

PL SC 003 (GS;IL) **Introduction to Comparative Politics** (3) Introduction to study of comparative government and politics: normative/ empirical theories; government functions in modern societies; representative structures and processes. Effective: Fall 2007

PL SC 003U (GS;IL) **Introduction to Comparative Politics** (3) Introduction to study of comparative government and politics: normative/ empirical theories; government functions in modern societies; representative structures and processes. Effective: Summer 2012

PL SC 007 (GS) **Contemporary Political Ideologies** (3) Critical analysis of contemporary political ideologies such as liberalism, conservatism, socialism, anarchism, fascism, feminism, and environmentalism. Effective: Fall 2004

PL SC 014 (GS;IL) **International Relations** (3) Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200. Effective: Fall 2007

PL SC 014U (GS;IL) **International Relations** (3) Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200. Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PL SC 014U (GS;IL) **International Relations** (3) Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200. Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

PL SC 017 (GS) **Introduction to Political Theory** (3) Introduction to basic issues in political theory through analysis of selected major political thinkers. Effective: Spring 2003

PL SC 017W (GS) **Introduction to Political Theory** (3) Introduction to basic issues in political theory through analysis of selected major political thinkers. Effective: Spring 2001

PL SC 020 (GS;IL) **Comparative Politics--Western Europe** (3) Comparative analysis of political cultures, interest groups, parties, and decision-making processes in principal Western European political systems. Effective: Fall 2007

PL SC 022 (GS;IL) **Politics of the Developing Areas** (3) The impact of colonialism, nationalism, and development policy on the political culture, structure, and transformation of post-colonial regimes. Effective: Spring 2010



PL SC 060 (GS;IL) (ANTH 060, J ST 060, SOC 060) **Society and Cultures in Modern Israel** (3) An introduction to the society and cultures of the State of Israel from 1948 to the present.  
Effective: Summer 2006

PL SC 083S (GS) **First-Year Seminar in Political Science** (3) Exploration of current topics of interest in political science, international relations, and/or political theory.  
Effective: Summer 1999

PL SC 091 **Introduction to Peace and Conflict Studies** (3) Introduction to theory and practice concerning major contemporary issues of peace and conflict; includes anthropological, technological, psychological, and economic perspectives.  
Effective: Spring 2013

PL SC 110 (GS;US) **Rights in America** (3) This course explores the historical and contemporary struggles of particular groups within American society to expand their rights.  
Effective: Summer 2006

PL SC 111 (GH) **Debating the Purpose of Government** (3) Students will become acquainted with a variety of political theories and debate their usefulness in considering contemporary political controversies.  
Effective: Summer 2012

PL SC 112 (GS) **Ethics in Citizenship, Politics, and Government** (3) An examination of choices we make as citizens, elected officials or people who carry out the work of government.  
Effective: Summer 2013

PL SC 123 (GS;US;IL) **Ethnic and Racial Politics** (3) Political movements among United States ethnic and racial groups; government policies on race and ethnicity; comparison to other culturally diverse countries.  
Effective: Fall 2007  
Prerequisite: PL SC 001 or PL SC 003

PL SC 125 **Pennsylvania Government and Politics** (3) Pennsylvania political processes; executive, legislative, judicial decision-making, and electoral behavior; selected public policies.  
Effective: Fall 1984

PL SC 130 (GS;US) **American Political Campaigns and Elections** (3) Methods and strategies of American political campaigns: polls, political consultants, parties, and the media.  
Effective: Fall 2007

PL SC 132 (GS;IL) **The Politics of International Intolerance** (3) Introductory course emphasizing psychological, historical, and political aspects of global intolerance towards minorities.  
Effective: Fall 2007

PL SC 135 (GS) (S T S 135) **The Politics of the Ecological Crisis** (3) The political implications of the increasing scarcity of many of the world's resources.  
Effective: Spring 2001

PL SC 137 **United States Intelligence and Policy Making** (3) The policy making process in the United States foreign intelligence and security policy; emphasis on the period following World War II.  
Effective: Spring 2001

PL SC 140 (GS) **Contemporary Controversies in International Relations** (3) Contemporary issues of international security presented rigorously using analytical tools of international relations and political science.  
Effective: Summer 2009

PL SC 155 **Understanding Tyranny** (3) Exploration of the rationales, methods, and consequences of highly repressive political regimes through novels, films, and memoirs.  
Effective: Summer 1996

PL SC 177 (GS) **Politics and Government in Washington DC** (1-3) The course centers on a Spring Break trip to Washington DC, with students meeting on campus before and after the trip.  
Effective: Fall 2007

PL SC 178 **Organized Crime, Law, and Politics** (3) This course will address laws, politics, and policies related to organized crime issues.  
Effective: Spring 2014

PL SC 197 **Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

PL SC 199 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PL SC 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

PL SC 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

PL SC 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

PL SC 299 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PL SC 300H **Introduction to Independent Thesis Research** (3) Introduction to research design, principles of social science research, and development on honors theses research proposal.  
Effective: Fall 2008

PL SC 306H **Senior Thesis Writing Workshop** (1 per semester, maximum of 3) This seminar supports the writing and editing of senior honors theses.  
Effective: Fall 2005

PL SC 308 **Introduction to Political Research** (3) Introduction to conceptualization, research design, and measurement in political research.  
Effective: Fall 2009  
Prerequisite: any 3 credits in Political Science

PL SC 309 **Quantitative Political Analysis** (3) Data analysis and statistical applications in political research, including data processing; inferential statistics; contingency analysis; correlation and regression; multivariate analysis.  
Effective: Fall 2009  
Prerequisite: any 3 credits in political science

PL SC 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

PL SC 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

PL SC 399 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PL SC 403 **The Legislative Process** (3) Analysis of the policy process within the legislative system; the effects of environmental factors on policy alternatives and legislative decision making.  
Effective: Spring 2001  
Prerequisite: PL SC 001 or PL SC 003

PL SC 405 **The American Presidency** (3) An examination of the selection methods for, and powers of, the American presidency, as well as other chief executives.  
Effective: Fall 1983  
Prerequisite: PL SC 001

PL SC 409 (CAS 409) **Democratic Deliberation** (3) Explores the theory and practice of democratic deliberation in elections, town meetings, juries, legislatures, and other public institutions.  
Effective: Spring 2014  
Prerequisite: CAS 137CAS 175CAS 201CAS 202CAS 216CAS 250CAS 272 or PL SC 001PL SC 017PL SC 112PL SC 130

PL SC 410 **Strategy and Politics** (3) This course examines political behavior using social choice theory and game theory.  
Effective: Spring 2013  
Prerequisite: PL SC 001PL SC 003 or PL SC 014

- PL SC 411W **Principles of International Cooperation** (3) An exploration of the forces that make conflict, or cooperation, more likely in international relations.  
Effective: Summer 2006  
Prerequisite: PL SC 014
- PL SC 412 **International Political Economy** (3) The transnational politics of trade, investment, aid, raw materials, and the environment; nation-states, multinational corporations, and the U.N.  
Effective: Spring 2011  
Prerequisite: ECON 102ECON 104ECON 014I B 303 orBUS 364
- PL SC 413 **The Rise and Fall of the Soviet Union** (3) Background, organization, and operation of the Communist Party and the government of the Soviet Union.  
Effective: Spring 2001  
Prerequisite: 3 credits from:PL SC 003PL SC 014PL SC 155 orRUS 100
- PL SC 414 **Dictators and Their Demise** (3) Dictators and Their Demise examines the political economy of authoritarian rule.  
Effective: Summer 2011  
Prerequisite: PL SC 003
- PL SC 415 **International Organization: Political and Security Functions** (3) Theory and evolution of international organization; political and security functions of the United Nations and regional organizations.  
Effective: Spring 2003  
Prerequisite: PL SC 014
- PL SC 417 **American Local Government and Administration** (3) Organization, powers, functions, and problems of American cities and metropolitan areas; modern trends and developments.  
Effective: Winter 1978  
Prerequisite: PL SC 001
- PL SC 418 **International Relations Theory** (3) A survey of traditional and contemporary conceptual frameworks and theoretical approaches for the analysis of international relations.  
Effective: Winter 1978  
Prerequisite: PL SC 014
- PL SC 418W **International Relations Theory** (3) A survey of traditional and contemporary conceptual frameworks and theoretical approaches for the analysis of international relations.  
Effective: Spring 1999  
Prerequisite: PL SC 014
- PL SC 419 **The Bureaucratic State** (3) Overview of structural, technological, decision-making, behavioral, and political subsystems of bureaucracy; emphasis on bureaucratic dynamics within larger environmental, interorganizational contexts.  
Effective: Fall 2007  
Prerequisite: PL SC 001PL SC 002 orPUBPL 304W
- PL SC 420 **State Making** (3) Students learn about how national states arise, expand the territory and population they control, and persist or fail.  
Effective: Summer 2013  
Prerequisite: PL SC 003 orPL SC 014
- PL SC 422 **Comparative Urban Politics** (3) Relationships between structure and evolution of city systems and patterns of political behavior.  
Effective: Spring 2001  
Prerequisite: PL SC 003PL SC 020PL SC 022 orPL SC 417
- PL SC 423 **Post-Soviet Politics** (3) Aspects of political transition and institutions of the fifteen Soviet successor republics; emphasis on Russia and republican confederation.  
Effective: Fall 2007  
Prerequisite: PL SC 003PL SC 155 orRUS 100
- PL SC 424 **Topics in Comparative Government and Institutions** (3) Topics in the comparative analysis of representative contemporary Western and non-Western governmental institutions.  
Effective: Fall 2007  
Prerequisite: 3 credits fromPL SC 003PL SC 020PL SC 022
- PL SC 425 **Government and Politics of the American States** (3) Comparative analysis of political processes; executive, legislative, and judicial decision making and behavior; examination of systems functioning; selected public policies.  
Effective: Winter 1978  
Prerequisite: PL SC 001
- PL SC 426 **Political Parties and Interest Groups** (3) Interest group basis of American politics, analysis of party and group behavior in electoral politics and the policy process.  
Effective: Fall 1983  
Prerequisite: PL SC 001
- PL SC 427 **Political Opinion** (3) Nature and development of mass attitudes and opinions; political socialization; voting behavior; relation between opinions and public policy.  
Effective: Spring 2001  
Prerequisite: PL SC 001
- PL SC 428 (US;IL) (WMNST 428) **Gender and Politics** (3) Gender in politics in the United States and around the world; major

areas of women and politics research.

Effective: Fall 2007

Prerequisite: 3 credits in political science or women's studies

**PL SC 429 Analysis of Electoral Politics (3)** The new politics, its technology, and the strategic perspectives that underlie it.

Effective: Spring 2007

Prerequisite: PL SC 001

**PL SC 430 Selected Works in the History of Political Theory (3)** Detailed examination and analysis of a selected major work, thinker, or tradition in the history of political theory.

Effective: Spring 1998

Prerequisite: PL SC 017 or PL SC 007

**PL SC 430W Selected Works in the History of Political Theory (3)** Detailed examination and analysis of a selected major work, thinker, or tradition in the history of political theory.

Effective: Spring 2008

Prerequisite: PL SC 017 or PL SC 007

**PL SC 431 Ancient, Medieval, and Renaissance Political Theories (3)** Political theories of Plato and Aristotle; selected Greek, Roman, medieval, and Renaissance theorists through Machiavelli.

Effective: Spring 2003

Prerequisite: PL SC 017 or PL SC 007

**PL SC 432 Modern and Contemporary Political Theories (3)** Political theories of the seventeenth through the twentieth centuries, including Hobbes, Locke, Rousseau, Marx, Mill, Mosca, Weber, and selected theorists.

Effective: Spring 2003

Prerequisite: PL SC 017 or PL SC 007

**PL SC 433 Political Foundations of the Early American Republic (3)** The course introduces students to the major political and philosophical movements that influenced the founders of the early American republic.

Effective: Summer 2008

Prerequisite: PL SC 001 or HIST 020 or PL SC 017

**PL SC 434 (IL) (AFR 434) War and Development in Africa (3)** This course will examine the relationship between war and development in sub-Saharan Africa in the post colonial era.

Effective: Fall 2012

Prerequisite: PL SC 014 PL SC 003 AFR 110

**PL SC 435 Foundations of American Political Theory (3)** Political theories of colonial, revolutionary, and constitutional periods presented through works of selected thinkers and analysis of particular political problems.

Effective: Spring 2001

Prerequisite: PL SC 001 PL SC 017 or PL SC 007

**PL SC 435W Foundations of American Political Theory (3)** Political theories of the revolutionary and constitutional periods presented through works of selected political thinkers and political issues.

Effective: Spring 2001

Prerequisite: PL SC 001 PL SC 017 or PL SC 007

**PL SC 436 Civil Wars (3)** This course examines factors influencing the onset, duration, severity, termination, recurrence, and consequences of civil wars around the world.

Effective: Spring 2012

Prerequisite: PL SC 003 or PL SC 014

**PL SC 437 War in World Politics (3)** Causes, resolution, and consequences of crises and wars; testing theories of conflict using both case and statistical studies.

Effective: Summer 1997

Prerequisite: PL SC 014

**PL SC 438 National Security Policies (3)** Impact of national security on U.S. government and foreign policy; roles and interaction of President, Congress, government agencies, interest groups.

Effective: Spring 2001

Prerequisite: PL SC 001 or PL SC 014

**PL SC 439 (CRIMJ 439) The Politics of Terrorism (3)** Analysis of political terrorism as a violent alternative for peaceful change and traditional warfare in the nuclear age.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or PL SC 014 or permission of program

**PL SC 440 (US;IL) (AFR 440, I B 440) Globalization and Its Implications (3)** This course explores the socioeconomic implications of globalization.

Effective: Spring 2013

Prerequisite: AF AM 100 or AFR 110 or PL SC 003 or PL SC 014 or PL SC 020 or PL SC 022

**PL SC 441 Transnational Corporations and Other Organizations in International Relations (3)** Analysis of the effects of transnational actor behavior on international relations.

Effective: Fall 2007

Prerequisite: ECON 333I B 303 PL SC 014 or BUS 364

**PL SC 442 American Foreign Policy (3)** Principles of American foreign policy; processes of policy formulation; roles of the President, Congress, the State Department, and other government agencies.

Effective: Spring 2001  
Prerequisite: PL SC 014

PL SC 443 (IL) (AFR 443) **Ethnic Conflict in Africa** (3) This course explores the various causes and impacts of ethnic conflicts in the African context.

Effective: Spring 2013

Prerequisite: AF AM 100AFR 110PL SC 001PL SC 003PL SC 007PL SC 014PL SC 017PL SC 020 orAFRAS 301

PL SC 444 **Government and the Economy** (3) Interactions of governmental and economic activity in American life. Survey of governmental (national, state, local) promotional, regulatory, and ownership policies.

Effective: Winter 1978

Prerequisite: 3 credits in political science or economics

PL SC 445Y (US) (AF AM 445Y, LER 445Y) **Politics of Affirmative Action** (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

Effective: Fall 2012

Prerequisite: AAA S 100 level course andPL SC 001 orPL SC 007

PL SC 450H **Genocide and Tyranny** (3) This course focuses on the conceptualization and socio-political determinants of genocide and tyrannical regimes, with an emphasis on the Holocaust.

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: PL SC 003PL SC 007 orPL SC 014

PL SC 450H (J ST 450H) **Genocide and Tyranny** (3) This course focuses on the conceptualization and socio-political determinants of genocide and tyrannical regimes, with an emphasis on the Holocaust.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: PL SC 003PL SC 007 orPL SC 014 orHIST 121

PL SC 452 **Government and Politics of Central Europe** (3) Politics and society in the Communist Era, the revolutions of 1989, and problems of adjustment to democracy and market.

Effective: Fall 2007

Prerequisite: PL SC 003PL SC 020PL SC 022 orPL SC 155

PL SC 453 (IL) **Political Processes in Underdeveloped Systems** (3) Comparative analysis of the political, social, and economic problems characteristic of underdeveloped systems.

Effective: Fall 2007

Prerequisite: PL SC 003PL SC 020 orPL SC 022

PL SC 454 (IL) (AFR 454) **Government and Politics of Africa** (3) Contemporary African politics, institutions, and ideologies; patterns of change, social forces, and nation building in selected African states.

Effective: Fall 2012

Prerequisite: 3 credits from:AFR 110PL SC 003PL SC 020 orPL SC 022

PL SC 455 **Governments and Politics of Western Europe** (3) Comparative analysis of political and governmental structures of major West European nations; main functions and processes of such structures.

Effective: Spring 2001

Prerequisite: PL SC 003 orPL SC 020

PL SC 456 **Politics and Institutions of Latin-American Nations** (3) Social forces and processes, governmental institutions, foreign policies of major states of Latin America.

Effective: Spring 2001

Prerequisite: HIST 179PL SC 003PL SC 020 orPL SC 022

PL SC 457 **International Politics of Latin America** (3-6) Relationships among the nations of Latin America and the social forces which determine and shape their direction.

Effective: Spring 2001

Prerequisite: HIST 179PL SC 003PL SC 014PL SC 020 orPL SC 022

PL SC 458 **Government and Politics of East Asia** (3-6) Examination of political institutions, democratic and communist revolution, political leadership, political processes of major states of East Asia.

Effective: Summer 1996

Prerequisite: 3 credits fromPL SC 003PL SC 020PL SC 022

PL SC 459 (IL) (AFR 459) **Culture and World Politics** (3) Role of culture in world politics.

Effective: Spring 2013

PL SC 460 (S T S 460) **Science, Technology, and Public Policy** (3) The all-pervasive importance of science and technology policy in modern societies and mechanisms and processes by which it is made.

Effective: Spring 1995

Prerequisite: 3 credits in natural sciences or engineering 3 credits in social and behavioral sciences

PL SC 461 (IL) **Politics of the European Union** (3) This course introduces students to the history, institutions and politics of the European Union.

Effective: Spring 2011

Prerequisite: PL SC 003 orPL SC 020

PL SC 462 **Marxist and Socialist Political Theory** (3) Analysis of major problems and key works in the Marxist and Socialist tradition; dialectical materialism, alienation, class warfare, etc.

Effective: Spring 2001

Prerequisite: PL SC 017PL SC 007PL SC 413 orPL SC 452

PL SC 464 (IL) (AFR 464) **Globalization, Extractive Industries, and Conflict in Africa** (3) Socioeconomic and environmental impacts of extractive industries in Africa.  
Effective: Fall 2012

Prerequisite: AFR 110 or at least one of the following: PL SC 003 or PL SC 014 or PL SC 022

PL SC 466 **Political Psychology** (3) An interdisciplinary investigation of the major topics and debates characterizing the subfield of political psychology.

Effective: Spring 2014

Prerequisite: PL SC 001 PL SC 003 PL SC 014 or PSYCH 100

PL SC 467 **International Relations of the Middle East** (3) The international relations of the Middle East, stressing national security policies of regional and outside actors, and major contemporary conflicts.

Effective: Spring 1985

Prerequisite: PL SC 014 or HIST 181

PL SC 469 (IL) (ASIA 469) **Government and Politics of South Asia** (3) This course offers an overview of the politics of modern South Asia with specific focus on Afghanistan, India and Pakistan.

Effective: Summer 2014

Prerequisite: PL SC 003 PL SC 014 PL SC 022 or ASIA 100

PL SC 470W **Legal Brief Writing** (3) Writing of legal briefs as practiced in American courts.

Effective: Spring 1998

Prerequisite: PL SC 001

PL SC 471 **American Constitutional Law** (3) The origins of judicial review, landmark decisions of the Supreme Court, and their impact on the American form of government.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 472 **The American Legal Process** (3) Analysis of the roles, procedures, and policies characterizing the American legal system.

Effective: Spring 2001

Prerequisite: PL SC 001

PL SC 473 **American Judicial Behavior** (3) Analyzes behavior of judges and other participants in the legal process; examines how and why courts function as policymaking bodies.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 474 **Civil Liberties and Due Process** (3) Fundamental problems relating to civil liberties and due process.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 480W **Congress and the Presidency** (3) Basic characteristics and processes of the national legislature and executive; roles and interaction of these institutions in the policy process.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 481 **Global Political Economy** (3) This course examines states, markets, power, production, and the relations between the various transnational agents who act in these areas. Students may not receive credit for PL SC 481 and PL SC 412.

Effective: Spring 2007

Prerequisite: PL SC 014 or INTST 100

PL SC 482 **American State and Urban Politics** (3) Explores basic characteristics and processes of American state and urban politics; nature of intergovernmental relations involving these governmental levels.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 484W **The Foreign Policy of Soviet Successor States** (3) Relations between Russia and The Newly Independent States (NIS); Russia's relations with selected foreign states and political institutions; regional impact of the NIS in Baltic, Asian, and Central Asian areas.

Effective: Fall 2007

Prerequisite: PL SC 003

PL SC 486 (IL) (HIST 489, ASIA 489) **International Culture in East Asia** (3) Study of the role of culture in East Asian regional and East-West international relations.

Effective: Summer 2013

Prerequisite: any one of the following: HIST 172 HIST 174 HIST 175 HIST 480 HIST 481 HIST 483 HIST 484 HIST 485 HIST 486

PL SC 487 **International Law and Organizations** (3) Major topics and issues of international law with special attention to institutional arrangements (international organizations) through which that law operates.

Effective: Fall 2007

Prerequisite: PL SC 003 or PL SC 014

PL SC 488 **Comparative Public Policy** (3) Comparative methodology and public policy implementation in postindustrial societies; selected case studies of policy output.

Effective: Fall 2007

Prerequisite: PL SC 003

PL SC 489 **Public Administration** (3) A survey of the major approaches to the management of most governmental agencies.

Effective: Fall 2007

Prerequisite: PL SC 001

PL SC 490 **Policy Making and Evaluation** (3) Advanced analysis of public policy, emphasizing policy evaluation and the factors that determine policy success and failure.

Effective: Fall 2007

Prerequisite: PL SC 001PL SC 002 orPUBPL 304W

PL SC 491 **Peace and Conflict Studies Seminar** (3) Advanced study of major contemporary issues of peace and conflict; includes anthropological, technological, psychological, and economic perspectives.

Effective: Spring 2013

Prerequisite: PL SC 014PL SC 091

PL SC 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

PL SC 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

PL SC 495 **Political Science Internship** (1-6) Combining experience in government offices, related agencies, or law firms, with appropriate readings and a research paper/report.

Effective: Fall 2007

Prerequisite: prior consent of supervisor adviser or department head; applicable departmental internship requirements such as satisfactory completion of required 300- or 400-level courses appropriate for the internship program selected

PL SC 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

PL SC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

PL SC 497A **Democracy and Its Impacts** (3) Does democracy matter? Do democratic countries grow faster than dictatorships, or provide more public benefits to their people? Do they invest more in health and education? Are incomes more equal in democratic states? Are democracies less corrupt? This course focuses on differences in government policies and performance across different regime types, to determine whether democratic regimes outpace autocracies. Given the amounts of international aid devoted to democracy promotion around the globe, the topic should be relevant for anyone interested in foreign aid, international development, or the impacts of transitions from dictatorship to democracy.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PL SC 497B **The Psychology of Terrorism** (3) This class introduces students to the study of terrorism from a psychological perspective. That is, the study of the thoughts and the behaviors of those individuals who use fear to attain their goals, and those individuals who are victims of fear-driven compliance. We will explore the psychological processes that create a terrorist, the motivation for individual terrorists, terrorist organizations and their leaders, which may greatly differ. Students will learn about recruitment and indoctrination and gain an understanding of the socio-political conditions that propagate terrorist organizations and serve as recruitment tools for terrorists. Students will learn to "think" like a terrorist, in order to better understand their motives, their objectives, the methods used to achieve their objectives, and how to defeat them.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PL SC 497C **Religion and War in World Politics** (3) This course examines the relationship between religion and war in world politics in the modern era. Religion has become increasingly important in the relations within and between states; however, it has been an under-studied topic in world politics. This class focuses on the salience of religion in world politics; specifically, it examines the role of religion in warfare (primarily, but not exclusively international warfare). In this course, we will evaluate the extent to which religious motivation(s) of leaders (and followers), religious characteristics of states, and religious justifications generate armed conflicts; and also attempt to determine the extent to which presumable "religious wars" are different from "non-religious" (or "secular") wars. Although the class will examine the topic broadly, particular attention will be paid to more systematic studies and findings regarding these issues.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PL SC 497D **Politics and the Media** (3) This course is designed to introduce students to the interactive dynamics of the news media and the political system. We focus primarily on the news media as it is the dominant medium for political communication. Theoretical concerns include the type of information systems necessary for a healthy and vibrant democratic culture. We also examine the relationship between the historical development of mass media and its impact on democratic communication. Other topics addressed include media bias, framing journalistic norms and routines, and government regulation. Finally, we are in the midst of a profound transformation of the news media - largely influenced by the Internet - and understanding the implication of the changing nature of the news provide insight for the future of

American democracy.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**PL SC 497E Government and Politics of South Asia (3)** This course will present an overview of the politics of modern South Asia focusing on Afghanistan, India and Pakistan. We will then begin our exploration of South Asian politics by studying the impact of the British colonial experience, the rise of nationalism and the emergence of independent nation states in South Asia. In order to develop a broad understanding of the political and economic experience of the region we will spend time analyzing the 3 countries individually. Additionally, we will explore in detail three important themes in Political Science. First, the state of economic development in these countries. Second, the relationship between identity politics and violence. Third, international relations of these countries focusing on terrorism and nuclear policy.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**PL SC 497F Democratization in Asia (3)** This seminar addresses the literature on democracy and democratization and then applies it in Asia. Since 1974, over thirty countries around the world started a transition toward democracy. As a result of these democratic events, comparative scholars have studied these, and earlier transition cases, to understand why some countries become democratic while others do not, and why some new democracies show signs of considering while others collapse. This seminar, then, addresses the recent work in the field of democratization. First, we will review works that define and measure key concepts, such as authoritarianism, democracy, and democratic consolidation. Then, we will consider a range of factors to explain the installation, consolidation, or failure of democracy in specific Asian countries. The goal of this seminar are three-fold.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**PL SC 497H Working with & Communicating Information in Data Instructor (3)** This course will give honors students the skills needed to find data, prepare it for analysis, engage in simple forms of data analysis that illustrate relationships, and interpret substantively the results of their analyses. No statistical background is assumed. Particular attention will be given to developing data visualization skills that allow students to effectively communicate the results of their analyses to others. Data used in the course will cover a variety of substantive fields in political science including such topics as the causes of war, death penalty, elections in the US and cross nationally, campaign speeches. Additional topics will come from other fields such as global health, economics, and the geography. These skills will develop student facility to work with data in a variety of courses, senior honors project and upon graduation in the workforce.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**PL SC 499 (IL) Foreign Study--Government (1-12)** Study, in selected foreign countries, of political institutions.

Effective: Summer 2005

Prerequisite: PL SC 003 3 credits in economics history political science or sociology

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## Portuguese (PORT)

PORT 001 **Elementary Portuguese I** (4) For beginners. Grammar, with reading and writing of simple Portuguese; oral and aural work stressed.  
Effective: Spring 1987

PORT 002 **Elementary Portuguese II** (4) Grammar, reading, and conversation continued; special emphasis on the language, literature, and life of Brazil.  
Effective: Spring 1988  
Prerequisite: PORT 001

PORT 003 **Intermediate Portuguese** (4) Grammar, reading, composition, and conversation.  
Effective: Winter 1978  
Prerequisite: PORT 002

PORT 051 **Elementary Intensive Portuguese for Graduate Students I** (3) Intensive introduction to Portuguese: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: graduate standing

PORT 052 **Elementary Intensive Portuguese for Graduate Students II** (3) Intensive introduction to Portuguese: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: PORT 051 and graduate standing

PORT 053 **Intermediate Intensive Portuguese for Graduate Students** (3) Continued intensive study of Portuguese at the intermediate level: reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: PORT 052 or equivalent and graduate standing

PORT 197 **Special topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

PORT 197C (SPAN 197C) **Portuguese for Learners of Spanish** (3) This course is designed for learners of Spanish who wish to acquire Portuguese at an accelerated pace.  
Effective: Summer 2014 Ending: Summer 2014

PORT 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PORT 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

PORT 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PORT 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

PORT 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

PORT 405 **Advanced Composition and Conversation** (3) Intended to strengthen the advanced student's ability to speak, read, and write in modern Brazilian Portuguese.  
Effective: Summer 1981  
Prerequisite: PORT 003

PORT 476 **Brazilian Literature, The Modern Era (1880 to the Present)** (3) A survey of the major texts of Brazilian literature from romanticism to the present.  
Effective: Summer 1991  
Prerequisite: PORT 003

PORT 480 **The Brazilian Novel** (3) A survey of the Brazilian novel from its origins to the present.  
Effective: Spring 1993  
Prerequisite: PORT 003PORT 405

PORT 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or

small-group basis.  
Effective: Summer 1994

PORT 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

PORT 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

PORT 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

PORT 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Psychology (PSYCH)

PSYCH 083S (GS) **First-Year Seminar in Psychology** (3) Scientific, societal, and individual implications of contemporary psychological theory.  
Effective: Spring 2007

PSYCH 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

PSYCH 100 (GS) **Introductory Psychology** (3) Introduction to general psychology; principles of human behavior and their applications.  
Effective: Spring 2007

PSYCH 100H (GS) **Introductory Psychology** (3) Introduction to general psychology; principles of human behavior and their applications.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PSYCH 100H (GS) **Introductory Psychology** (3) Introduction to general psychology; principles of human behavior and their applications.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

PSYCH 100S (GS) **Introductory Psychology** (3) Introduction to general psychology; principles of human behavior and their applications.  
Effective: Spring 2007

PSYCH 105 **Psychology as a Science and Profession** (3) Overview of history and methods of psychology as a science and profession; applications and ethical issues in psychology.  
Effective: Spring 2007  
Prerequisite: PSYCH 100

PSYCH 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

PSYCH 199 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

PSYCH 200 (GQ) **Elementary Statistics in Psychology** (4) Frequency distributions and graphs; measures of central tendency and variability; normal probability curve; elementary sampling and reliability; correlations; simple regression equations.  
Effective: Spring 2011  
Prerequisite: PSYCH 100;MATH 021

PSYCH 212 (GS) **Introduction to Developmental Psychology** (3) Developmental principles; physical growth; linguistic, intellectual, emotional, and social development from infancy to maturity.  
Effective: Spring 2007  
Prerequisite: PSYCH 100

PSYCH 212H (GS) **Introduction to Developmental Psychology** (3) Developmental principles; physical growth; linguistic, intellectual, emotional, and social development from infancy to maturity.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: PSYCH 100

PSYCH 212H (GS) **Introduction to Developmental Psychology** (3) Developmental principles; physical growth; linguistic, intellectual, emotional, and social development from infancy to maturity.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: PSYCH 100

PSYCH 221 (GS) **Introduction to Social Psychology** (3) Research and theory on topics including interpersonal attraction, aggression, helping, attitudes, attribution, cooperation, competition, and groups, from a psychological perspective.  
Effective: Spring 2007  
Prerequisite: PSYCH 100

PSYCH 230 (GS) **Introduction to Psychologies of Religion** (3) Introduction to major Western psychologies of religion (James, Freud, Jung) and to subsequent extensions of and departures from them.  
Effective: Fall 2012

PSYCH 231 (GS;US) **Introduction to the Psychology of Gender** (3) Psychological study of gender in historical and

contemporary perspective. Role of gender in development, self-concept, social relations, and mental health.

Effective: Spring 2007

Prerequisite: PSYCH 100

**PSYCH 232 (GS;US;IL) Cross-Cultural Psychology (3)** This course examines how ethnic and cultural background influences patterns of human thought and behavior.

Effective: Spring 2007

Prerequisite: PSYCH 100

**PSYCH 238 (GS) Introduction to Personality Psychology (3)** Past and recent conceptualizations of key issues and root ideas of personality psychology.

Effective: Spring 2007

Prerequisite: PSYCH 100

**PSYCH 243 (GS) Introduction to Well-being and Positive Psychology (3)** Applying psychological knowledge to develop and maintain effective personal adjustment and well-being and positive social relations.

Effective: Spring 2007

Prerequisite: PSYCH 100

**PSYCH 244 (GS) Introduction to the Psychology of Human Factors Engineering (3)** Introductory course in engineering/human factors psychology, emphasizing the application of core psychological principles and research to designing products and systems.

Effective: Spring 2009

Prerequisite: PSYCH 100 or 3 credits of GS

**PSYCH 253 (GS) Introduction to Psychology of Perception (3)** Survey of human perception and processing of perceptual information, with some reference to animal literature. Emphasizes vision and audition.

Effective: Spring 2007

Prerequisite: PSYCH 100

**PSYCH 256 (GS) Introduction to Cognitive Psychology (3)** Introduction to study of such higher mental processes as thinking and reasoning, imagery, concept formation, problem solving, and skilled performance.

Effective: Spring 2007

Prerequisite: PSYCH 100

**PSYCH 260 (BB H 203) Neurological Bases of Human Behavior (3)** An introduction to biopsychology, emphasizing the structure and function of the human brain.

Effective: Spring 2007

**PSYCH 260A (GS) Neurological Bases of Human Behavior (3)** An introduction to biopsychology, emphasizing the structure and function of the human brain. Students may take only one course for credit from PSY 203 and PSY 203A.

Effective: Spring 2007

Prerequisite: PSYCH 100

**PSYCH 261 (GS) Introduction to Psychology of Learning (3)** A general survey of the learning area, including animal and human experiments, with the applicability of learning principles being discussed.

Effective: Spring 2007

Prerequisite: PSYCH 100

**PSYCH 268 Animal Minds (3)** This course considers the cognitive and communicative abilities of animals, especially primates, as compared with humans.

Effective: Spring 2007

**PSYCH 269 Evolutionary Psychology (3)** Survey of evolutionary perspectives in current psychological research.

Effective: Spring 2008

Prerequisite: PSYCH 100;ANTH 021BI SC 002BIOL 133 orBIOL 222

**PSYCH 270 Introduction to Abnormal Psychology (3)** Overview of assessment, causes, and treatments of psychological disorders.

Effective: Spring 2007

Prerequisite: PSYCH 100

**PSYCH 281 (GS) Introduction to Industrial-Organizational Psychology (3)** Personnel selection, training, accident prevention, morale, and organizational behavior.

Effective: Spring 2007

Prerequisite: PSYCH 100

**PSYCH 294 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2007

**PSYCH 295 Internship (1-18)** Supervised off-campus nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2007

**PSYCH 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1985

PSYCH 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2007

PSYCH 297E (MUSIC 297E) **Introduction to Music Therapy** (3) Introductory course in music therapy to study the populations served by this form of therapy and its basic techniques.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

PSYCH 299 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

PSYCH 300H **Honors Course in Psychology** (1-6) Individual study and seminar in selected phases of psychology.  
Effective: Spring 2007  
Prerequisite: invitation of Program Honors Committee

PSYCH 301W **Basic Research Methods in Psychology** (4) Introduction to methods of psychological research, with special attention to hypothesis formation and testing, threats to validity, and data presentation.  
Effective: Spring 2007  
Prerequisite: PSYCH 100; PSYCH 200 or STAT 200

PSYCH 370 (US) **Psychology of the Differently-Abled** (3) This course familiarizes students with the needs and abilities of people with varying physical challenges through academic and experimental exercises.  
Effective: Spring 2007  
Prerequisite: PSYCH 100

PSYCH 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2007  
Prerequisite: prior approval of proposed assignment by instructor

PSYCH 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

PSYCH 399 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

PSYCH 400 **Intermediate Experimental Design** (3) Design and analysis of experiments on human and animal behavior, including application of the t, F, chi-square, and binomial distributions.  
Effective: Spring 2007  
Prerequisite: PSYCH 200 or STAT 200

PSYCH 404 (EDPSY 450) **Principles of Measurement** (3) Scale transformation, norms, standardization, validation procedures, estimation of reliability.  
Effective: Spring 2007  
Prerequisite: EDPSY 400; PSYCH 100 or PSYCH 200; STAT 200

PSYCH 405 **Mathematical Psychology** (3) Formalized psychological theories including models of social, biological, cognitive, and learning phenomena.  
Effective: Spring 2007  
Prerequisite: MATH 040 or equivalent; PSYCH 200 or STAT 200

PSYCH 406W **Advanced Research Projects in Psychology** (4) Advanced methodology focusing on the logic and practice of research culminating in the completion of a student designed research project.  
Effective: Spring 2007  
Prerequisite: PSYCH 301W

PSYCH 407 **Advanced Research Methods in Psychology** (3) Advanced methodology focusing on the logic and practice of research in a selected content area of psychology.  
Effective: Spring 2007  
Prerequisite: PSYCH 100; PSYCH 200 or STAT 200; PSYCH 301W

PSYCH 408 **Program Evaluation** (3) Examination of the theories and practice of program evaluation; emphasis on applied work utilizing a wide range of evaluation approaches.  
Effective: Spring 2007  
Prerequisite: PSYCH 100 or SOC 001; PSYCH 200 or STAT 200; PSYCH 301W

PSYCH 410 **Child Development** (3) Study of the psychology of the growing person from conception through adolescence, focusing more on periods up to middle childhood.  
Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH

PSYCH 412 **Adolescence** (3) Physical, cognitive, and personality development during adolescence.

Effective: Spring 2007  
Prerequisite: PSYCH 100

**PSYCH 413 Cognitive Development** (3) Development of reasoning and related cognitive skills, such as perception and language.

Effective: Spring 2007  
Prerequisite: PSYCH 100PSYCH 212

**PSYCH 414 Social and Personality Development** (3) Development of social and personality attributes.

Effective: Spring 2007  
Prerequisite: PSYCH 100PSYCH 212

**PSYCH 415 Topics in Developmental Psychology** (3) Special topics in developmental psychology.

Effective: Spring 2007  
Prerequisite: PSYCH 413 orPSYCH 414

**PSYCH 416 (HD FS 445) Development Throughout Adulthood** (3) Processes of development and change of behavior from early adulthood through old age, emphasizing theory, method, and empirical research.

Effective: Spring 2007  
Prerequisite: HD FS 249 orPSYCH 100;HD FS 312W orPSYCH 301W;PSYCH 200STAT 200 or 3 credits of statistics ; 6 credits in HD FS PSYCH or SOC.

**PSYCH 419 Psychology and a Sustainable World** (3) Students study relationships between humans and the natural world and psychological factors contributing to environmental problems and sustainable solutions.

Effective: Summer 2011  
Prerequisite: PSYCH 100PSYCH 221

**PSYCH 420 Advanced Social Psychology** (3) In depth study of selected research areas in human social behavior.

Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH

**PSYCH 421 Self and Social Judgment** (3) Individual's perceptions, evaluations, and decision-making strategies about themselves, others, and social situations or issues.

Effective: Spring 2007  
Prerequisite: PSYCH 100PSYCH 221

**PSYCH 422 Human Sexuality** (3) Psychological influences on human sexual behavior such as love, sexual orientation, gender, intercourse, contraception, sexually transmitted diseases, dysfunctions, and paraphilias.

Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH

**PSYCH 423 Social Psychology of Interpersonal/Intergroup Relationships** (3) In-depth study of relationships among individuals (e.g., intimate relationships) or groups (e.g., prejudice, cooperation, competition, aggression, and negotiation).

Effective: Spring 2007  
Prerequisite: PSYCH 100PSYCH 221

**PSYCH 424 Applied Social Psychology** (3) Application of social psychological theories and research methods to field settings and to the study of social issues.

Effective: Spring 2007  
Prerequisite: PSYCH 100PSYCH 221

**PSYCH 425 Psychology of Human Emotion** (3) Reviews, critiques, and applies major historical and contemporary psychological theories of emotion experience, understanding, and expression.

Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH

**PSYCH 426 (LING 429) Language and Thought** (3) Relations between language and cognition; cognitive implications of normal and impaired language development; cognition and bilingualism.

Effective: Spring 2007  
Prerequisite: PSYCH 100 orLING 001 orLING 100

**PSYCH 427 (LING 446) L1 Acquisition** (3) How children learn their first language; psycholinguistic aspects of lexical, syntactic, semantic, and phonological development.

Effective: Spring 2010  
Prerequisite: LING 100 orPSYCH 002 or permission of program

**PSYCH 432 (US) Multicultural Psychology in America** (3) This course focuses on the central role of culture, race, and ethnicity in the human condition.

Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH

**PSYCH 434 (GAME 434) Psychology of Gaming** (3) Upper level course examining the core psychological principles as they apply to topic of games.

Effective: Spring 2014

**PSYCH 436 Humanistic, Existential, and Religious Approaches to Psychology** (3) Existential, humanistic, and religious approaches to the psychology of experience, consciousness and will.

Effective: Fall 2012  
Prerequisite: PSYCH 100 orRL ST 001

**PSYCH 438 Personality Theory** (3) Personality theories and their application to social and personality development and personality dynamics.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits PSYCH

**PSYCH 439 History and Systems of Psychology** (3) Historical antecedents to scientific psychology; development of contemporary psychological theories and research areas from the formal establishment of psychology.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**PSYCH 441 Health Psychology** (3) Overview of the field with an emphasis on how psychological research contributes to an understanding of health and behavior.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**PSYCH 443 Treatment and Education in Developmental Disabilities** (3) Covers etiology, classification, intervention (treatment and education), ethical and legal issues related to individuals with developmental disabilities.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**PSYCH 444 Engineering Psychology** (3) Methods and results of experimental psychology pertinent to problems which involve man-machine relationships.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of GQ or PSYCH

**PSYCH 445 Forensic Psychology** (3) Relations between psychological theory and research and the law, legal processes, and social policy.

Effective: Spring 2007

Prerequisite: PSYCH 100;PSYCH 238PSYCH 243 orPSYCH 270

**PSYCH 450 Psychology of Consciousness** (3) Introduction to psychological and physiological aspects of consciousness as related to brain function and clinical psychology.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**PSYCH 451 Psychology of Action** (3) Basic and applied science of action, from psychological, computational, and physiological perspectives.

Effective: Spring 2007

Prerequisite: PSYCH 100PSYCH 256

**PSYCH 452 Learning and Memory** (3) General survey of learning and memory processes as revealed in experimental work with animals and humans.

Effective: Spring 2007

Prerequisite: PSYCH 100PSYCH 256

**PSYCH 456 Advanced Cognitive Psychology** (3) In depth study of complex mental processes: thinking, problem-solving, imagery, symbolic behavior, information-processing, attention, artificial intelligence, and language.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**PSYCH 457 (LING 457) Psychology of Language** (3) Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.

Effective: Fall 2013 Ending: Summer 2014

Prerequisite: LING 100

**PSYCH 457 (LING 457) Psychology of Language** (3) Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: PSYCH 100 orLING 100

**PSYCH 458 Visual Cognition** (3) Overview of concepts and methods in cognitive visual-spatial processing.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**PSYCH 459 Attention and Information Processing** (3) An examination of attentional processes. Contemporary informational processing approaches will be emphasized.

Effective: Spring 2007

Prerequisite: PSYCH 100;PSYCH 200 orSTAT 200 ; 3 credits 400-level PSYCH

**PSYCH 460 Comparative Psychology** (3) Behavior from standpoint of phylogenetic growth and development; biological implications; comparison of different types of animals, including man.

Effective: Spring 2007

Prerequisite: PSYCH 100;PSYCH 260

**PSYCH 461 Advanced Conditioning and Learning** (3) An examination of basic learning processes that have been determined within the context of classical, instrumental, and operant learning situations.

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

- PSYCH 462 Physiological Psychology** (3) Study of the biological bases of behavior and experience, including the anatomy and physiology of the brain and nervous system.  
Effective: Spring 2007  
Prerequisite: PSYCH 100; PSYCH 260 or 3 credits of BIOL
- PSYCH 464 Behavior Genetics** (3) Survey of gene mechanisms and gene-environment interactions in the determination of behavior; emphasis on deviant human behavior.  
Effective: Spring 2008  
Prerequisite: PSYCH 100; ANTH 021BI SC 002BIOL 133 or BIOL 222
- PSYCH 470 Abnormal Psychology** (3) Causes, dynamics, symptoms, and treatment of neuroses, psychoses, personality disorders, and other psychological disorders of adulthood.  
Effective: Spring 2007  
Prerequisite: PSYCH 100; PSYCH 238 PSYCH 243 or PSYCH 270
- PSYCH 471 Psychology of Adjustment and Social Relationships** (3) Theory and application of psychological principles to problems in personal and social adjustment.  
Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH
- PSYCH 473 Behavior Modification** (3) Principles of advanced behavior modification techniques.  
Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH
- PSYCH 474 Psychological Intervention in Childhood** (3) Psychology of personal relationships in school situations.  
Effective: Spring 2007  
Prerequisite: PSYCH 100; PSYCH 212 PSYCH 238 PSYCH 243 or PSYCH 270
- PSYCH 475 Psychology of Fear and Stress** (3) Description and evaluation of major trends in research on stress and fear in humans and other animals.  
Effective: Spring 2007  
Prerequisite: PSYCH 100 3 credits of BIOL statistics PSYCH 200 or STAT 200
- PSYCH 476 Child Psychopathology** (3) Etiology, diagnosis, and facilitation of adjustment of the mentally retarded, gifted, physically handicapped, and emotionally disturbed child.  
Effective: Spring 2007  
Prerequisite: PSYCH 100; PSYCH 212 PSYCH 238 PSYCH 243 or PSYCH 270
- PSYCH 477 Mental Health Practicum with Children** (3) Overview of interventions for children at risk for mental health disorders; emphasis on intervention strategies, program evaluation, and applied skills.  
Effective: Spring 2007  
Prerequisite: PSYCH 100 permission of program
- PSYCH 478 Clinical Neuropsychology** (3) Overview of functional human neuroanatomy and clinical neuropsychology, with emphasis on origin, assessment, and treatment of human brain damage.  
Effective: Spring 2007  
Prerequisite: PSYCH 100 PSYCH 260
- PSYCH 479 (US) (WMNST 471) The Psychology of Gender** (3) Theories and research on gender differences and gender roles. Emphasis on women's and men's current positions in society.  
Effective: Spring 2007  
Prerequisite: PSYCH 100 PSYCH 221
- PSYCH 481 Introduction to Clinical Psychology** (3) Diagnostic procedures, treatment approaches, occupational settings, and ethical considerations relevant to the profession of the clinical psychologist.  
Effective: Spring 2007  
Prerequisite: PSYCH 100; PSYCH 238 PSYCH 243 or PSYCH 270
- PSYCH 482 Selection and Assessment in Organizations** (3) Background in personnel testing, performance measurement, selection strategies, with emphasis on validity and measurement reliability.  
Effective: Spring 2007  
Prerequisite: PSYCH 100 PSYCH 200 or STAT 200 PSYCH 281
- PSYCH 484 Work Attitudes and Motivation** (3) Survey of theory and research with respect to attitudes, morale, and motivation of employees and management.  
Effective: Spring 2007  
Prerequisite: PSYCH 100; PSYCH 200 or STAT 200 or 6 credits of GQ
- PSYCH 485 Leadership in Work Settings** (3) Review of research and application of behavior principles in the areas of management and supervision.  
Effective: Spring 2007  
Prerequisite: PSYCH 100; PSYCH 281 or 3 credits MGMT
- PSYCH 489 Professional Development in Psychology** (1) Develop post-graduation plan for use of psychology major; develop professional presentation style.  
Effective: Summer 2014  
Prerequisite: PSYCH 301W Concurrent: PSYCH 406W or PSYCH 490
- PSYCH 490 Senior Seminar in Psychology** (3) Capstone experience for senior psychology majors; review of current research literature; topics vary.  
Effective: Spring 2007



Prerequisite: PSYCH 301W 6 credits 400-level PSY senior Psychology major

**PSYCH 491H Honors Thesis** (3) An opportunity to pursue an advanced research thesis or project to integrate studies within psychology.

Effective: Spring 2007

Prerequisite: HONOR 301H senior standing and permission of the program

**PSYCH 492 Current Topics in Psychology** (3) Current topics addressing significant contemporary developments in psychology.

Effective: Spring 2007

Prerequisite: PSYCH 100

**PSYCH 493 Senior Thesis** (3-6) Supervised senior thesis research in psychology.

Effective: Spring 2007

Prerequisite: approval of a thesis adviser in the department seventh-semester standing

**PSYCH 494 Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2007

**PSYCH 494H Research Projects** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**PSYCH 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1998

Prerequisite: prior approval of proposed assignment by instructor

**PSYCH 495K Practicum with Hi-Risk Youth and Children** (3) Overview of interventions for children at risk for mental health disorders; emphasis on intervention strategies, program evaluation, and applied skills.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: PSYCH 477

**PSYCH 495P Animal Research Practicum** (3) The primary objective of this course is to provide students with a unique hands-on experience conducting research with nonhuman primates. Within this objective are three main goals: 1) To familiarize students to the day-to-day work involved in conducting behavioral experiments with animals; 2) To increase students knowledge of select topics in animal communication and cognition. This course builds on material taught in Psych 268 (Animal Minds), though that course is not a prerequisite; and 3) To provide students with experience reading and evaluating primary source scientific papers, with the eventual goal of having the students author their own APA-style paper at the end of the course. There are two main components of this course offering. The first component consists of lab work. Students will be expected to put in a minimum of 7 hours per week working with cotton-top tamarin (*Saguinus oedipus*) monkeys in a laboratory setting.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: prior approval of proposed assignment by instructor

**PSYCH 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1985

**PSYCH 496A Teaching Assistant for PSYCH 200** (1-6) Teaching Assistant will attend all regular meetings of PSYCH 200 including the spss labs, offer office hours each week, conduct review session prior to each exam, assist students and faculty as needed in class, and assist with lab attendant duties.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: PSYCH 200/PSYCH 301 and PSYCH 406

**PSYCH 496B Teaching Assistant for Research Methods in Psychology** (1-6) Student will work as a teaching assistant for PSYCH 301, Research Methods. Duties will include student guidance. Student will also teach 20 mini- lessons.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: PSYCH 200/PSYCH 301

**PSYCH 496C Psychology Teaching Assistant** (3) Undergraduate TA for psychology course. Includes administrative work, holding office hours to assist students, and lesson preparation.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**PSYCH 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1991

**PSYCH 497A Psychology of Gaming** (3) Applies the field of psychology to understand and improve the world of games by applying different theories, to understand how humans interact with games and how games have evolved.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**PSYCH 499 (IL) Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2007

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## Public Administration (P ADM)

P ADM 401 **Introduction to Homeland Security** (3) This course provides foundational knowledge about homeland security, including policy, organization, and legal issues in the American context.  
Effective: Summer 2008

P ADM 404 **Homeland Security and Defense in Practice** (3) This course analyzes, evaluates, and critiques homeland security plans in practice.  
Effective: Summer 2008  
Prerequisite: P ADM 401

P ADM 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1993

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## Public Health Preparedness (PHP)

PHP 410 (HLS 410) **Public Health Preparedness for Disaster and Terrorist Emergencies I** (3) Analyzes the history of terrorism and explores the preparation and response to specific terrorist threats, natural disasters, and conventional catastrophes.

Effective: Fall 2010

Prerequisite: Undergraduate Students BIOL 011 and BIOL 012 or CHEM 110 and CHEM 111 or MICRB 106 and MICRB 107 ; Graduate Students - Enrollment in the MHS program the Post- Baccalaureate Credit Certificate in Homeland Security or permission from the instructor.

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## Public Policy (PUBPL)

**PUBPL 201 Introduction to Homeland Security** (3) An introduction to homeland security, and defense, with a focus on policy, legal issues, organization, and administration.  
Effective: Summer 2011

**PUBPL 241 (CRIMJ 241) Computer Applications in Public Affairs/Criminal Justice** (3) Introduction to computer applications for criminal justice and public affairs agencies.  
Effective: Spring 2004

**PUBPL 304W Public Policy Analysis** (3) The use of analytic models for describing and explaining the forces shaping policy and the consequence of policy decisions.  
Effective: Spring 2004

**PUBPL 305 Leadership Studies** (3) Exposure to a wide range of leadership issues that will bring students to a new understanding of leadership as responsibility.  
Effective: Spring 1999  
Prerequisite: fourth-semester standing

**PUBPL 306 Introduction to Crisis and Emergency Management** (3) An introduction to emergency management in mitigating, preparing for, responding to and recovering from hazards.  
Effective: Summer 2011

**PUBPL 325 (AMSTD 325) American Political Culture** (3) Study of political culture in the United States.  
Effective: Spring 2003  
Prerequisite: 3 credits American Studies Political Science Public Policy or Sociology

**PUBPL 415 (CRIMJ 415) Drug Control Policy in Comparative Perspective** (3) Examines the history of drug control policy in the United States; comparisons and contrasts with other countries' experiences.  
Effective: Summer 2004  
Prerequisite: CRIMJ 200 orPL SC 001 orPL SC 014 orSOC 001

**PUBPL 475 Critical Infrastructure Protection** (3) This course provides knowledge about protection of critical infrastructure as an aspect of homeland security.  
Effective: Summer 2011  
Prerequisite: 5th semester standing

**PUBPL 480 Seminar in Urban Policy** (3) Work in this course will focus upon governmental institutions and public policy problems in metropolitan areas.  
Effective: Fall 1998  
Prerequisite: seventh-semester standing

**PUBPL 481 Seminar in Environmental Policy** (3) Fundamentals of evolution; impacts on natural resources; interaction of environmental issues, current decision-making process policy, enforcement mechanisms; future actions.  
Effective: Fall 1983  
Prerequisite: seventh-semester standing

**PUBPL 482 Seminar in Health Policy** (3) Introduction to policy analysis of issues of current interest and importance to public administrators in the health industry.  
Effective: Fall 1983  
Prerequisite: seventh-semester standing

**PUBPL 483 Seminar in National Security Policy** (3) Course will examine the inter-relationship of foreign, military and economic policy.  
Effective: Fall 1983  
Prerequisite: seventh-semester standing

**PUBPL 485 Seminar in Welfare Policy** (3) Course examines the origins, development, and impact of welfare programs.  
Effective: Fall 1998  
Prerequisite: seventh-semester standing

**PUBPL 490 Seminar in Public Policy** (3) A survey of the major policy issues, actors and institutions involved in the policy-making system of contemporary society. (May be repeated for credit.)  
Effective: Fall 1983  
Prerequisite: seventh-semester standing

**PUBPL 495 Internship** (3-12) Experience in a public service agency related to knowledge gained through academic course work, reading, and discussion.  
Effective: Fall 2012  
Prerequisite: fifth-semester standing

**PUBPL 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 1983

PUBPL 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2010

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## Quality Control (Q C)

Q C 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

Q C 098 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

Q C 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

Q C 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

Q C 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

Q C 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

Q C 450 **Quality Control and Quality Improvement** (3) Review of quality control and improvement methods including SPC applications, acceptance sampling, regression analysis, and design of experiments.  
Effective: Spring 2007  
Prerequisite: MATH 141 or MATH 210

Q C 460 **Introduction to Six Sigma** (3) Introduction to Six Sigma philosophy with case studies of the Define-Measure-Analyze-Improve-Control (DMAIC) Process and an emphasis on selection and application of statistical tools.  
Effective: Summer 2012  
Prerequisite: MATH 141 or MATH 210 6th semester standing

Q C 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

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## Quality and Manufacturing Management (QMM)

**QMM 491 Introduction to Business Concepts for Manufacturing** (3) Introduction to business, topics in marketing, accounting, and finance for nonbusiness students in manufacturing management.

Effective: Fall 2001

Prerequisite: students taking this course CAN NOT be a Business major and must be in their senior year

**QMM 492 Introduction to Engineering Design Principles** (3) Engineering principles including different engineering fields, graphics, design, solid modeling and failure analysis.

Effective: Fall 2001

Prerequisite: students taking this course CAN NOT be an Engineering major and must be in their senior year

**QMM 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 2008

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## Quantification (QUANT)

QUANT 310 **Mathematical Methods in the Social and Managerial Sciences** (3) Functions (linear and nonlinear), systems of linear equations, matrix algebra, introductory differential calculus, applications in business and economics.

Effective: Fall 1983

Prerequisite: college algebra

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## Radiological Sciences (RADSC)

**RADSC 101 Radiographic Introduction and Procedures/Lab I** (4) Radiology history, basic radiation protection principles, medical terminology, introduction to radiography and radiographic procedures/lab.  
Effective: Fall 2002

**RADSC 102 Radiographic Procedures/Lab II** (4) Continuation of Radiographic Procedures/Lab I to include appendicular skeleton and introduction to head work.  
Effective: Fall 2002  
Prerequisite: RADSC 101RADSC 110

**RADSC 103 Radiographic Procedures/Lab III** (3) Continuation of Radiographic Procedures/Lab II to include digestive, urinary, and biliary systems and facial bone work.  
Effective: Fall 2002  
Prerequisite: RADSC 102

**RADSC 110 Patient Care in Radiologic Sciences** (3) Basic concepts of routine and emergency patient care procedures addressed from the radiographer's perspective.  
Effective: Spring 2002

**RADSC 204 Radiographic Exposure I** (3) Fundamental knowledge base of factors that govern and influence the production and recording of radiologic images.  
Effective: Fall 2002  
Prerequisite: RADSC 103

**RADSC 205 Radiographic Exposure II** (3) Continuation of exposure factors concerning radiographic imaging; film, electronic imaging, processing, quality assurance and related areas will be emphasized.  
Effective: Fall 2002  
Prerequisite: RADSC 204

**RADSC 206 Advanced Radiographic Procedures** (3) Emphasis on specialized positioning and advanced radiographic procedures; includes introduction to cross-sectional anatomy.  
Effective: Fall 2002  
Prerequisite: BIOL 141RADSC 205

**RADSC 207 Registry Review** (4) Registry Review includes material from all radiological science courses, with emphasis on National Certification Examination, and career planning.  
Effective: Fall 2002  
Prerequisite: RADSC 206

**RADSC 210W Radiographic Pathology** (3) Writing intensive study of theories of disease causation and the pathophysiologic disorders compromising health systems with emphasis on radiographic presentation.  
Effective: Fall 2002  
Prerequisite: BIOL 129BIOL 141

**RADSC 220 Radiation Biology and Protection** (3) Study the principles of interaction of radiation with living systems, effects on cells and tissues, biological response, and radiation protection.  
Effective: Spring 2002

**RADSC 230 Radiographic Physics** (3) Basic knowledge of atomic structure, characteristics of radiation, x-ray production, photon interactions, circuitry, imaging equipment and quality control.  
Effective: Spring 2002

**RADSC 240 Pharmacology and Drug Administration** (2) Basic concepts of pharmacology, the basic techniques of venipuncture, and the administration of diagnostic contrast agents and/or intravenous medications.  
Effective: Spring 2002  
Prerequisite: BIOL 141RADSC 110

**RADSC 295 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2002  
Prerequisite: prior approval of proposed assignment by instructor

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## Railroad Transp Engineer (RTE)

**RTE 195 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2011

**RTE 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2011

**RTE 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2011

**RTE 294 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2011

**RTE 295 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2011

**RTE 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2011

**RTE 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2011

**RTE 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2011

**RTE 301 Railroad Industry Overview and Economic Regulation** (3) This course explores the relationship between railroads and customers, competitors, and the political, regulatory, and economic environment.  
Effective: Spring 2011  
Prerequisite: ECON 102 Concurrent: RTE 303

**RTE 302 Railroad Track Location, Construction and Maintenance** (3) Principles of railroad track location, alignment, elements and safety regulations.  
Effective: Spring 2011  
Prerequisite: C E 310C E 336 Concurrent: C E 335 C E 360

**RTE 303 Railroad Operation and Safety** (3) Basics of rail operations, including the role of terminals and safety principles.  
Effective: Spring 2011  
Concurrent: RTE 301

**RTE 305 Railroad Communications and Signals** (3) Principles of the separation of trains, including signals, interlocking, and communications.  
Effective: Spring 2011  
Prerequisite: PHYS 212CMPSC 201 orCMPSC 202 Concurrent: RTE 303

**RTE 402 Railroad Operations Practicum** (3) Practicum (lectures, supervised field work, laboratories) exploring practical problems in rail operations and safety.  
Effective: Spring 2011  
Prerequisite: RTE 303RTE 305

**RTE 403 Railroad Track Practicum** (3) Practicum (lectures, labs, supervised field experiences) exploring the construction and repair of track.  
Effective: Spring 2011  
Prerequisite: RTE 302C E 310 Concurrent: C E 333W C E 335

**RTE 404 Railroad Mechanical Practicum** (3) Practicum (lectures, labs, supervised field experiences) examining the repair of locomotives and cars.  
Effective: Spring 2011  
Prerequisite: RTE 303PHYS 211PHYS 212E MCH 213

**RTE 406 Railroad Capstone Project** (4) Capstone project to integrate course knowledge in a team-based project.  
Effective: Spring 2011  
Prerequisite: C E 333WRTE 305RTE 402RTE 403RTE 404C E 332 7th semester standing

RTE 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2011

RTE 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2011

RTE 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2011

RTE 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2011

RTE 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2011

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## Recreation, Park and Tourism Management (RPTM)

**RPTM 100S Introduction to Golf Management** (2) First year seminar for students enrolled in the Professional Golf Management option of RPTM.  
Effective: Summer 2014

**RPTM 101 Introduction to Recreation Services** (2) Introduction to discipline and exploration of professional career models/ paths, historical development of profession, expectations and opportunities in recreation services.  
Effective: Spring 2005

**RPTM 120 (GS;US;IL) Leisure and Human Behavior** (3) Leisure from historical and contemporary perspectives, including forces shaping leisure behavior, and relationships among leisure, the environment, and social institutions.  
Effective: Spring 2010

**RPTM 140 (SCIED 140) Outdoor School Field Experience** (2 per semester/maximum of 6) To provide students with educational leadership skills and teaching opportunities working with children in an outdoor residential camp setting.  
Effective: Summer 2013  
Prerequisite: Students must apply for and be accepted into the Outdoor School Field Experience.

**RPTM 199 (IL) Foreign Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2013

**RPTM 210 Introduction to Commercial Recreation and Tourism** (2) Historical and contemporary perspectives of the field of commercial recreation and tourism.  
Effective: Spring 2005

**RPTM 230 Teambuilding Facilitation** (3) Learn leadership and teambuilding skills to facilitate group dynamics and adventure, team activities.  
Effective: Summer 2004

**RPTM 236 Leadership and Group Dynamics in Recreation Services** (3) Supervision in recreation services, including theories, strategies, group dynamics, applied leadership and decision-making skills.  
Effective: Spring 2005

**RPTM 277 (US) Inclusive Leisure Services** (3) Review of leisure services and programs designed to be inclusive of individuals from underrepresented groups and overview of professional, legal, and ethical issues.  
Effective: Fall 2013

**RPTM 295A Introduction to Golf Management** (1-4) Introduction to various phases of golf operations in public, private, municipal, or military settings.  
Effective: Spring 2005  
Prerequisite: 2.00 cumulative grade point average

**RPTM 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 2005

**RPTM 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 2005

**RPTM 297B Interpreting Halloween to Children** (2) Learn to interpret the natural origins of Halloween to visitors attending the annual Shaver's Creek Fall Harvest Festival featuring Children's Halloween Trail - an interactive family event.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 297C Urban Service Experience** (2) Ursa Major - one of the most recognized constellations in the sky - never sinks below the horizon, providing a constant bearing to the North Star. The URSA Urban Service Experience will provide you with the direction to start your journey at Penn State. Since 2000, this -2-credit Penn State student orientation program - held in Philadelphia - has provided incoming first-year students with an opportunity to participate in community service projects while making friendships that will ease the transition from home to college. Working side-by-side with other incoming Penn State students, the participants will learn about the benefits of serving a community and become more aware of the needs of those appreciating their service.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 297D Sustainable Tourism and the Environment** (1) Human impact on natural resources and sustainable tourism in the South Pacific. This course is a prerequisite for the winter break RPTM Study Abroad Program.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 297E Field Studies and Sustainable Tourism** (0.5) Human Impact on natural resources and sustainable tourism.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: RPTM 297D

**RPTM 297E Outdoor School Instructor** (1-3) Outdoor School is a field experience class and you must be accepted as a instructor before being registered. Must have completed 2 weeks of ODS as a counselor to be considered. Contact Ellen Will for an application @ eeb11@psu.edu  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: must have completed 2 weeks of ODS as a counselor to be considered

**RPTM 297F Mental Training FO** (1) This course is designed to systematically teach golfers mental strategies and focusing techniques associated with performance excellence in golf.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 297G Wilderness First Aid Course** (1) The WFA is the perfect course for the outdoor enthusiast or trip leader who wants a basic level of first aid training for short trips with family, friends, and outdoor groups. It also meets the ACA guidelines. Upon successful completion of the course, you will receive a SOLO WFA certification, which is good for two years. For further information on this course visit: <http://www.soloschools.com/index.cfm?event=course.wfa>  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 297I Peer Education for Sustainability** (3) The course provides an immerse experience in peer education for sustainability. Peer education embraces the idea that members of the community, rather than outside experts, are in the best position to encourage choices for sustainable living.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 297S RPTM 297S - First Year Seminar** (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 299 (IL) Foreign Studies** (1-12 per semester/maximum of 12) Foreign Studies in RPTM.  
Effective: Summer 2012  
Prerequisite: RPTM 199

**RPTM 300Y (IL) Tourism and Leisure Behavior** (3) Examination of the impact of recreational sociocultural, governmental, economic, and physical environment on the leisure traveler within the tourism industry.  
Effective: Summer 2005

**RPTM 320 Recreation Resource Planning and Management** (3) Relationship between leisure behavior and natural environment. Exploration of natural resources which enhance leisure.  
Effective: Spring 2005

**RPTM 325 Principles of Environmental Interpretation** (3) Introduction, history, practice, and principles of contemporary interpretive activities common to natural and cultural history program sites.  
Effective: Spring 2005

**RPTM 326 Natural History Interpretation** (3) Methods, techniques, resources to acquire knowledge of natural history. Field identification, projects of an applied nature, and seasonal application.  
Effective: Spring 2005  
Prerequisite: RPTM 325

**RPTM 327 Cultural History Interpretation** (3) Methods, skills, and techniques necessary for the programming of historical sites and areas.  
Effective: Spring 2005  
Prerequisite: RPTM 325

**RPTM 330 Adventure-Based Program Leadership** (3) Both theoretical and experiential components are included as the role of the leader in outdoor adventure programs is examined.  
Effective: Spring 2005

**RPTM 334 Non-profit Recreation Agency Operations** (3) Recreation agencies in voluntary and semiprivate sectors will be investigated through membership strategies, fund raising, volunteer management, etc. case studies.  
Effective: Spring 2005  
Prerequisite: or concurrent: RPTM 356

**RPTM 356 Programming in Recreation Services** (3) Translating agency philosophy and policy into understanding of organization, management, implementation, and evaluation of programming in recreation services.  
Effective: Spring 2005  
Prerequisite: or concurrent: RPTM 101 RPTM 236 ; fifth-semester standing

**RPTM 360 Golf Operations Management (3)** The course will focus on business planning, budgeting, inventory management, and financial controls within golf operations.

Effective: Spring 2005

Prerequisite: MGMT 100

**RPTM 370 Introduction to Arena Management (3)** Introduction to arena and facilities management including operations, budgeting, marketing and staffing. Course is taught on site at a sports/ entertainment arena (ex: the Bryce Jordan Center).

Effective: Summer 2012

Prerequisite: RPTM 120

**RPTM 394 Orientation to Internship (1)** Plan and prepare for internship in Recreation Services. Analyze career opportunities, internship process, and associated requirements. For RPTM majors only.

Effective: Spring 2005

Prerequisite: fifth-semester standing

**RPTM 395B Participation in Golf Management (1-4)** Practical individual involvement in selected golf operations in public, private, municipal, or military settings.

Effective: Spring 2005

Prerequisite: RPTM 295A ; 2.00 cumulative grade point average

**RPTM 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2005

**RPTM 397A Social and Environmental Sustainability: Applications in the Tourism Industry (3)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 397G Intermediate Golf Instruction and Business (2)** This course serves as a laboratory for examining effective teaching and learning strategies and explains how to develop and practice strategies suitable for providing instruction to intermediate players.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 397K Administration Golf Operation II (2)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 397S First Year Seminar (1)** This First Year Seminar is designed to introduce first year students who have participated in AURORA programs to the academic and social culture of Penn State University. The objective of the class is to help you engage with academic, social, and personal resources available at Penn State and in the community and to facilitate your transition to college life.

Effective: Summer 2014 Ending: Summer 2014

**RPTM 397S AURORA First Year Seminar (1)** This First Year Seminar is designed to introduce first year students who have participated in ORION or USE to the academic and social culture of Penn State University. The objective of the class is to help you engage with academic, social, and personal resources available to Penn State and in the community and to facilitate your transition to college life. (limited to ORION and USRA participants)

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 399 (IL) Foreign Studies (1-12 per semester/maximum of 12)** Foreign Studies in RPTM.

Effective: Summer 2012

Prerequisite: RPTM 199

**RPTM 410 Marketing of Recreation Services (3)** Theoretical/practical application of marketing/advertising strategies in the development/delivery of recreation services.

Effective: Spring 2005

Prerequisite: fifth-semester standing or above

**RPTM 415 Commercial Recreation Management (3)** Planning, developing, and managing profit-oriented recreation opportunities.

Effective: Spring 2005

Prerequisite: RPTM 210 and RPTM 410

**RPTM 425 Principles of Interpretive Materials (3)** Principles, practices, application of non-personal interpretive activities common to natural/cultural history, including exhibits, audio-visual and illustrative materials.

Effective: Spring 2005

Prerequisite: RPTM 325

**RPTM 430 Environmental Education Methods and Materials (3)** Methods and materials for developing, implementing, and evaluating environmental education programs within formal and non-formal educational settings.

Effective: Summer 2011

Prerequisite: AEE 100 or RPTM 325

**RPTM 433W Program Evaluation and Research in Recreation Services (3)** Systematic, structured problem-solving

process for decision making in recreation and parks. Research techniques/evaluation procedures; quantitative, qualitative methodologies; deductive, inductive reasoning.

Effective: Spring 2005

Prerequisite: RPTM 356 3 credits in statistics

**RPTM 435 Recreation Facilities Planning and Management** (3) Planning and management of selected facilities with emphasis upon maintenance, activity, and support provisions.

Effective: Spring 2005

Prerequisite: fifth-semester standing or above

**RPTM 440 Adventure-based Programming and Administration** (3) Utilization of wilderness/backcountry environments and participant challenge; history, models, theories; survey of organizations; program design, administration; and issues.

Effective: Spring 2005

Prerequisite: or concurrent: RPTM 330 or RPTM 356

**RPTM 460 Political and Legal Aspects of Recreation Services** (3) Role of local, state, federal government in provision of recreation services. Legislative and judicial systems.

Effective: Spring 2005

Prerequisite: RPTM 101

**RPTM 470 Recreation and Park Management** (3) Management of recreation and park services in public/non-profit settings; planning, budgeting fiscal development, resources allocation, decision-making, computer applications.

Effective: Spring 2005

Prerequisite: RPTM 320

**RPTM 480 Senior Management Seminar** (1) Current management issues will be examined relative to professional management strategies, ethics, and leadership in leisure services.

Effective: Spring 2005

Prerequisite: sixth-semester standing in RPTM

**RPTM 494H Senior Honors Thesis** (1-6 per semester/maximum of 6) Senior Honors Thesis

Effective: Summer 2011

**RPTM 495A Internship in Recreation Services** (12) Meet educational objectives through participation in organized practical experience; direct observation and professional supervision in full-time work experience.

Effective: Spring 2005

Prerequisite: RPTM 394 ; seventh-semester standing; 300 hours practical experience; and a 2.0 grade-point average; current and valid certification in advanced first aid and cardiopulmonary resuscitation

**RPTM 495B Internship in Golf Management** (1-4) Observation and participation under supervision in golf operations in public, private, municipal, or military settings.

Effective: Spring 2005

Prerequisite: RPTM 395B ; 2.00 cumulative grade point average; current and valid certification in advanced first aid and cardiopulmonary resuscitation

**RPTM 495C Internship in Golf Management** (1-4) Observation and participation under supervision in golf operations in public, private, municipal, or military settings.

Effective: Spring 2005

Prerequisite: RPTM 495B ; 2.00 cumulative grade point average

**RPTM 495D Internship in Golf Management** (1-4) Observation and participation under supervision in golf operations in public, private, municipal, or military settings.

Effective: Spring 2005

Prerequisite: RPTM 495C ; 2.00 cumulative grade point average

**RPTM 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2005

**RPTM 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2005

**RPTM 497I Canoeing Leadership** (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 497J Peer Mentoring** (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: RPTM 356

**RPTM 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2006



**RPTM 498D Backpacking Leadership** (2) This course will introduce students to backpacking leadership skills, including pre-trip planning; selection, use, and care of equipment; and backcountry travel techniques. Participants will also learn the value of leadership, teamwork, and communication; human impacts on the environment; and development of a personal connection to the environment. Students will have an opportunity to practice leadership skills and to plan and lead to a two-day backpacking trip.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 498F Rock Climbing Leadership** (3) This course will help students develop a working knowledge of the history and philosophies of rock climbing; the foundations of physically and mentally preparing for the sport of climbing; the basic equipment needs for climbing in an indoor setting; ways to manage the inherent risks of the sport; how and when to use and teach many basic climbing techniques; AMGA standard practice for climbing in a gym setting; and the current trends in climbing as a sport. Students will earn an American Mountain Guiding Association (AMGA) Climbing Wall Instructor Certification.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 498G Player Development/Tournament Golf** (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**RPTM 499 (IL) Foreign Studies** (1-12 per semester/maximum of 12) Foreign Studies in RPTM.

Effective: Summer 2012

Prerequisite: RPTM 199

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## Rehabilitation (REHAB)

REHAB 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 2003

Last Import from UCM: May 31, 2014 3:00 AM

## Rehabilitation and Human Services (RHS)

**RHS 096 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2011

**RHS 097 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2011

**RHS 100 (GS;US;IL) Introduction to Disability Culture** (3) Social and cultural contexts of disability on both a micro and macro levels will be examined.  
Effective: Fall 2011

**RHS 196 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2011

**RHS 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2011

**RHS 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2011

**RHS 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2011

**RHS 300 Introduction to Rehabilitation and Human Services** (3) Disability, public and private rehabilitation agencies, case management; resources for training; observations in rehabilitation settings.  
Effective: Summer 2011  
Prerequisite: 6 credits in psychology sociology human development and family studies and/or crime law and justice

**RHS 301 Introduction to Counseling as a Profession** (3) Overview of the counseling theories that are often used in human service and rehabilitation practices.  
Effective: Summer 2011

**RHS 302 Client Assessment in Rehabilitation and Human Services** (3) Provides a practical understanding and skills to utilize assessment in the helping process.  
Effective: Summer 2011  
Prerequisite: 3 credits in statistics Concurrent: 3 credits in statistics

**RHS 303 Group Work in Rehabilitation Practice and Human Services** (3) An overview of essential elements and dynamics for conducting groups and various team-related activities will be the major focus.  
Effective: Summer 2011  
Prerequisite: 6 credits in psychology sociology or human development

**RHS 396 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2011

**RHS 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2011

**RHS 400W Case Management and Communication Skills** (3) Principles and practices of obtaining, recording, evaluating, and utilizing case data in rehabilitation planning; implementation of rehabilitation plans.  
Effective: Summer 2011  
Prerequisite: RHS 300

**RHS 401 Community Mental Health Practice and Services** (3) Community mental health roles, historical points, current trends, and ethical standards; funding and impact on service provision.  
Effective: Summer 2011  
Prerequisite: 6 credits in psychology and/or sociology

**RHS 402 Children and Families in Rehabilitation Settings and Human Services** (3) Contemporary family issues, child

development, legal considerations, cultural and familial factors within rehabilitation and human services practice will be addressed.

Effective: Summer 2011

Prerequisite: RHS 301

**RHS 403 Medical Aspects of Disability** (3) Common disabling illnesses, injuries, and congenital defects; their symptomatology, prognosis, and treatment; implications for personal, social, and vocational adjustment.

Effective: Summer 2011

Prerequisite: 6 credits in psychology and/or sociology

**RHS 428 Rehabilitation Corrections** (3) An overview of rehabilitation in different correctional settings focusing on history, classification, risk assessment, intervention strategies, and community reentry.

Effective: Summer 2012

Prerequisite: RHS 300

**RHS 495A Rehabilitation and Human Services Internship** (15) Full-time practicum in rehabilitation and related human services agencies and institutions providing psychosocial, vocational, educational, and/or residential services to people with disabilities.

Effective: Summer 2011

Prerequisite: students must have successfully completed all other required coursework for the major (grade of "C" or higher) as well as fulfilled general education requirements.

**RHS 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2011

**RHS 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2011

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## Religious Studies (RL ST)

RL ST 001 (GH;US;IL) **Introduction to World Religions** (3) An historical and comparative survey of the principal beliefs and practices of the world's major religions.  
Effective: Summer 2005

RL ST 003 (GH;US;IL) **Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.  
Effective: Summer 2005 Ending: Fall 2014

RL ST 003 (GH;US;IL) (ASIA 003) **Introduction to the Religions of the East** (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.  
Effective: Spring 2015 Future: Spring 2015

RL ST 004 (GH;US;IL) (CAMS 004, J ST 004) **Jewish and Christian Foundations** (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationships to culture.  
Effective: Summer 2005

RL ST 007 **Inner Lives in Religious Biography** (3) Reading and discussion of selected autobiographical and biographical statements to discover and compare different forms of spirituality.  
Effective: Fall 1983

RL ST 012 (GH;IL) (CAMS 012, J ST 012) **Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.  
Effective: Summer 2005

RL ST 012U (GH;IL) (CAMS 012U, J ST 012U) **Lands of the Bible** (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

RL ST 044 (GH;IL) (CAMS 044) **Ancient Near Eastern and Egyptian Mythology** (3) Survey of major ancient Mediterranean myths, gods, and goddesses in their cultural contexts; influence on later cultures.  
Effective: Summer 2005

RL ST 070 (GH;IL) (CAMS 070, J ST 070) **Prophecy: The Near East Then and Now** (3) Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.  
Effective: Summer 2007

RL ST 083S (GH) **First-Year Seminar in Religious Studies** (3) Critical approaches to the dimensions and directions in Religious Studies.  
Effective: Summer 1999

RL ST 090 (GH;IL) (CAMS 090, J ST 090) **Archaeology of Jerusalem: Past and Present** (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.  
Effective: Summer 2005

RL ST 101 (GH;IL) **Comparative Religion** (3) Comparative or historical analysis of religious factors--worship, theology, ethics, scriptures, etc., in two or more religious traditions.  
Effective: Summer 2005

RL ST 102 (GH;IL) (CAMS 102, HIST 102, J ST 102) **Canaan and Israel in Antiquity** (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.  
Effective: Summer 2005

RL ST 103 (GH;US;IL) **Introduction to Hinduism** (3) Historical development of Hinduism to the present.  
Effective: Summer 2005 Ending: Fall 2014

RL ST 103 (GH;US;IL) (ASIA 103) **Introduction to Hinduism** (3) Historical development of Hinduism to the present.  
Effective: Spring 2015 Future: Spring 2015

RL ST 104 (GH;US;IL) **Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

Effective: Summer 2005 Ending: Fall 2014

RL ST 104 (GH;US;IL) (ASIA 104) **Introduction to Buddhism** (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.  
Effective: Spring 2015 Future: Spring 2015

RL ST 105 (GH;US;IL) **Buddhism in the Western World** (3) A general survey of the development of Buddhism as a religious tradition in the West, focusing especially on America.  
Effective: Summer 2005

RL ST 106 (GH;IL) (J ST 106) **Mysticism** (3) A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.  
Effective: Spring 2012

RL ST 107 (GH;US;IL) **Introduction to Islam** (3) Community and message of the early movement; development of authoritative structures and traditions; proliferation of sects; theology and creeds; mysticism.  
Effective: Spring 2006

RL ST 108 (GH;IL) **Muhammad and the Qur'an** (3) History of the Qur'an and its interpretation by the early Muslim community; life of Muhammad and his role within Islam.  
Effective: Fall 2010

RL ST 110 (GH;US;IL) (CAMS 110, J ST 110) **Hebrew Bible: Old Testament** (3) Introduction to the history, literature, and religion of ancient Israel.  
Effective: Summer 2005

RL ST 111 (GH;IL) (CAMS 111, J ST 111) **Early Judaism** (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.  
Effective: Summer 2005

RL ST 114 (GH;US;IL) (J ST 114) **Modern Judaism** (3) Trends in Jewish life and thought since the French revolution; Judaism's responses to the challenge of modernity.  
Effective: Summer 2005

RL ST 115 (GH;US) (HIST 115, J ST 115) **American Jewish History and Culture** (3) Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.  
Effective: Summer 2006

RL ST 116 (GH;IL) **Muslims in America** (3) This course is a study of Muslims from multiple racial, cultural, and national perspectives; it explores what it means to be a Muslim in America.  
Effective: Summer 2010

RL ST 120 (GH) (CAMS 120, J ST 120) **New Testament** (3) Introduction to the history, literature, and religion of early Christianity in its Jewish-Hellenistic setting.  
Effective: Spring 2004

RL ST 120H (GH) (CAMS 120H, J ST 120H) **New Testament** (3) Introduction to the history, literature, and religion of early Christianity in its Jewish-Hellenistic setting.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

RL ST 121 **Jesus of Nazareth** (3) An historical critical examination of the life and message of Jesus of Nazareth.  
Effective: Spring 1995

RL ST 122 (GH;IL) (CAMS 122, J ST 122) **Apocalypse and Beyond** (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.  
Effective: Summer 2014

RL ST 123 (GH;IL) (CAMS 123, J ST 123) **Ancient Monotheisms: Judaism, Christianity, Islam** (3) Examines the origins and early development of the three major monotheisms of ancient Near East: Judaism, Christianity, and Islam.  
Effective: Summer 2014

RL ST 124 (GH;US;IL) (CAMS 124, J ST 124) **Early and Medieval Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.  
Effective: Summer 2005

RL ST 125W (GH) **Modern Christianity** (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the sixteenth century to the present.  
Effective: Summer 1995

RL ST 130 (GH) **The Ethics of Western Religion** (3) History of theological-social ethics of the Judaeo-Christian tradition.  
Effective: Summer 1995

RL ST 131 (GH) (PHIL 132) **Introduction to Bioethics** (3) Studies questions of ethics in relation to biotechnology research and implementation, genetic engineering, medicine, animal and human rights.  
Effective: Spring 2003

RL ST 132W **Sects and Cults** (3) The origins, beliefs, and practices of new or dissenting religious groups and their relationship to the dominant religious culture.  
Effective: Spring 1994

RL ST 134 (GH;IL) (CAMS 134, J ST 134) **Archaeology of Biblical Israel** (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.  
Effective: Summer 2005

RL ST 137 (GH;US;IL) (WMNST 137, J ST 137) **Women and Religion** (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.  
Effective: Fall 2012  
Prerequisite: third-semester standing

RL ST 140Y (GH;US) (AM ST 140Y) **Religion in American Life and Thought** (3) The function, contributions, tensions, and perspectives of religion in American culture.  
Effective: Summer 2005

RL ST 145 (GH;US;IL) (AF AM 145) **African American Religion** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2013 Ending: Fall 2014

RL ST 145 (GH;US;IL) (AF AM 145) **African American Religions and Spirituality** (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.  
Effective: Spring 2015 Future: Spring 2015

RL ST 146 (GH;US) (AF AM 146) **The Life and Thought of Martin Luther King, Jr.** (3) A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.  
Effective: Spring 2013

RL ST 147 (GH;US) (AF AM 147) **The Life and Thought of Malcolm X** (3) The life of Malcolm X/EI Hajj Malik EI Shabazz (1925-1965) and his social, political, economic, and moral thought.  
Effective: Fall 2013

RL ST 153 (GH;IL) (CAMS 153, J ST 153) **Dead Sea Scrolls** (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.  
Effective: Summer 2014

RL ST 160 (GH;IL) (CAMS 160, J ST 160) **Sacrifice in Ancient Religions** (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.  
Effective: Summer 2014

RL ST 165 (IL) (ARAB 165, HIST 165) **Introduction to Islamic Civilization** (3) Islamic history, culture, religious life c.600-1500 C.E.  
Effective: Spring 2006

RL ST 181 (IL) **Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.  
Effective: Spring 2006 Ending: Fall 2014

RL ST 181 (IL) (ASIA 181) **Introduction to the Religions of China and Japan** (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.  
Effective: Spring 2015 Future: Spring 2015

RL ST 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.

Effective: Spring 1995

RL ST 197H (ANTH 197H, HIST 197H) **Religions and Society in Russia** (1) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

RL ST 235 (US;IL) (HIST 235, J ST 235) **The Church and the Jews** (3) Examination of the relationship between Western church and the Jews from the First Century to Enlightenment.

Effective: Spring 2006

RL ST 280 (GH;IL) (WMNST 280, J ST 280) **WOMEN AND JUDAISM** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.

Effective: Spring 2006

RL ST 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

RL ST 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

RL ST 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

RL ST 400 **Theories of Religion** (3) Comparative and interdisciplinary study of two or more systematic theories of religion: anthropological, psychological, sociological, philosophical/theological.

Effective: Fall 1983

Prerequisite: 6 credits in religious studies or seventh-semester standing

RL ST 405 (IL) (J ST 405) **Ancient Jewish Traditions and Modern Food Movements** (3) Jewish laws, customs and attitudes with regard to food production, agricultural policy and eating from biblical to modern times.

Effective: Spring 2012

RL ST 407Y (IL) (HIST 409Y, J ST 409Y) **European Anti-Semitism from Antiquity to the Present** (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.

Effective: Summer 2005

RL ST 408 (US;IL) **Hindu Studies** (3) Special topics in Hindu studies.

Effective: Summer 2005

Prerequisite: 3 credits in religious studies

RL ST 409 (US;IL) **Buddhist Studies** (3) Special topics in Buddhist studies.

Effective: Spring 2006

Prerequisite: 3 credits in religious studies

RL ST 410 (US;IL) (HIST 410, J ST 410) **Jews in the Medieval World** (3) Trends in medieval Jewish society under Islam and Western Christendom.

Effective: Spring 2006

RL ST 411 (US;IL) (J ST 411) **Jewish Studies** (3) Study of the life and thought of a particular period or movement in the history of Judaism.

Effective: Spring 2006

Prerequisite: 3 credits in religious studies

RL ST 412 (J ST 412) **American Judaism** (3) The development of Jewish religion and culture in America from the colonial era to the present.

Effective: Summer 1999

Prerequisite: HEBR 010 or J ST 010

RL ST 420 **Major Christian Thinkers** (3) Systematic inquiry into the religious thought of one or more Christian thinkers, such as Paul, Augustine, Luther, Calvin, Kierkegaard, or Tillich.

Effective: Fall 1983

Prerequisite: 3 credits in religious studies

RL ST 422 (AM ST 422) **Religion and American Culture** (3 per semester/maximum of 6) Selected topics, problems, or historical movements in American religion. Relation between religion and American culture.

Effective: Summer 1996



RL ST 424H (HIST 424H, J ST 424H) **Monotheism and the Birth of the West** (3) The birth of monotheism and its relation to social organization, the idea of individuality, and science.  
Effective: Fall 2012  
Prerequisite: RL ST 004RL ST 102RL ST 110 orRL ST 120

RL ST 440Y (US;IL) **The Orthodox Christian Tradition** (3) History, culture, and beliefs of the Eastern Orthodox religious tradition with special reference to Russia.  
Effective: Summer 2011  
Prerequisite: RL ST 004RL ST 124RL ST 125RUS 100 orRUS 110

RL ST 461 (US;IL) (SOC 461) **Sociology of Religion** (3) Contemporary religion in the global perspectives: beliefs, structure, and function of major religious traditions, denominations, and cults.  
Effective: Fall 2013  
Prerequisite: 3 credits of sociology or religious studies

RL ST 471Y (IL) (HIST 471Y) **Classical Islamic Civilization, 600-1258** (3) Pre-Islamic Arabia; Muhammad; Arab conquest; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.  
Effective: Spring 2006

RL ST 478 (J ST 478) **Ethics After the Holocaust** (3) Explores the philosophical effects of the Holocaust for thinking about the primary question: Is ethics possible?  
Effective: Summer 2012  
Prerequisite: one course in Jewish Studies or Philosophy

RL ST 483 (IL) **Zen Buddhism** (3) The development and current state of Zen Buddhist thought and practice.  
Effective: Spring 2006  
Prerequisite: HIST 172HIST 173HIST 174HIST 175PHIL 111RL ST 003RL ST 104 orRL ST 181

RL ST 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

RL ST 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

RL ST 495 **Internship** (1-18) Supervised off-campus, non-group instruction, including field experience, practica, or internships.  
Effective: Summer 2004  
Prerequisite: prior approval of proposed assignment by instructor

RL ST 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

RL ST 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

RL ST 499 (IL) **Foreign Study--Religious Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Risk Management (R M)

**R M 100 Real Estate Practice** (3) Study of real estate to enable individuals to make successful transactions and decisions. May not be used to satisfy Smeal College baccalaureate degree requirements.

Effective: Spring 2012

Prerequisite: not available to students who have taken R M 303

**R M 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2012

**R M 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

**R M 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2012

**R M 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2012

**R M 301 Risk and Decisions** (3) Introduction to decision-making under uncertainty. Mathematical probability and statistics, decision theory and game theory will be studied.

Effective: Summer 2011

Prerequisite: B A 301 or FIN 301; MATH 110 or MATH 140; STAT 200 or SCM 200

**R M 302 Risk and Insurance** (3) Introduction to the principles and methods of handling business and personal risks; emphasis on insurance techniques.

Effective: Spring 2012

Prerequisite: fourth-semester standing

**R M 303 Real Estate Fundamentals** (3) Introduction to urban real estate; economic forces affecting property rights; real estate markets and finance; land-use analysis; government policies.

Effective: Spring 2012

Prerequisite: 4th semester standing

**R M 320W Risk Management and Insurance** (3) Goals and methods of risk management. Commercial insurance and alternative risk transfer (ART) methods in addition to the characteristics of insurance markets and intermediaries used by risk managers.

Effective: Summer 2011

Prerequisite: R M 301

**R M 330W Real Estate Risk Analysis** (3) Risk and value associated with real estate decision making, which includes purchasing, leasing renovation, financing, and investing.

Effective: Summer 2011

Prerequisite: R M 301

**R M 395 Internship** (1-3) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2012

Prerequisite: prior approval of proposed assignment by instructor

**R M 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2012

**R M 401 Fundamentals of Private Pensions** (3) Analysis of pension regulation, funding, vesting, retirement annuities under insured and self-insured plans, actuarial cost analysis, plan termination insurance.

Effective: Spring 2012

Prerequisite: R M 302 or R M 320W

**R M 405 Corporate Risk Management** (3) Risk management for firms and organizations; loss control, risk transfer, and loss financing alternatives; Corporate employee benefit program design and financing.

Effective: Spring 2012

Prerequisite: R M 302 or R M 320W

**R M 410 Compound Interest and Annuities** (3) Compound interest and annuity functions; equations of value; determination of yield rates; construction of tables.

Effective: Spring 2012

Prerequisite: Prerequisite or concurrent: R M 301; MATH 414 or STAT 414

**R M 411 Actuarial Mathematics I** (3) A study of the mathematical theory of life contingencies; single-life functions and their applications.

Effective: Spring 2012

Prerequisite: R M 410;STAT 414 orMATH 414

R M 412 **Actuarial Mathematics II** (3) Joint-life and survivor-life functions, population life tables, and multiple decrement theory, with applications to disability and retirement problems.

Effective: Spring 2012

Prerequisite: R M 411

R M 415 **Modeling for Actuarial Science** (3) Modeling for Actuarial Science, including models of interest rates, used to price liabilities, and models of stock prices and options used to price Employee Options and Cash Balance Accounts.

Effective: Summer 2011

Prerequisite: R M 410

R M 420 **Property and Casualty Insurance** (3) Actuarial methods and concepts used to develop manual rates for property and casualty insurance.

Effective: Spring 2012

Prerequisite: R M 320W orR M 330W

R M 424 (B LAW 424) **Real Estate Law** (3) Analysis of contemporary law applicable to various types of ownership interests and rights, methods of transferring ownership, and use of real property.

Effective: Spring 2012

Prerequisite: B LAW 341 orB LAW 243

R M 425 (B LAW 425) **Business and Environmental Regulation** (3) Examines the interplay between environmental regulation and commercial activities, including property interests.

Effective: Spring 2012

Prerequisite: B LAW 341 orB LAW 243

R M 430 **Life and Health Insurance** (3) Industrial organization of the US life-health insurance industry; economic issues related to organizational structure, operational functions, and the supply and demand for life-health products.

Effective: Spring 2012

Prerequisite: R M 302 orR M 320W

R M 450 **Contemporary Issues in Real Estate Markets** (3) Historical performance, land use issues, market valuation, real estate development, public policy issues.

Effective: Spring 2012

Prerequisite: R M 303 orR M 330W

R M 460 (FIN 460) **Real Estate Financial Analysis** (3) Debt and equity financing capital structure, "creative financing," risk analysis, corporate asset management.

Effective: Spring 2012

Prerequisite: FIN 305W orR M 303 orR M 330W

R M 470 (FIN 470) **Real Estate and Capital Markets** (3) Analysis of publicly-traded real estate of both the equity, (REITs) and debt (MBSs) sides. The course also provides international perspectives.

Effective: Spring 2012

Prerequisite: FIN 305W orR M 303 orR M 330W

R M 480 (I B 480) **International Real Estate Markets** (3) International perspectives on real estate as property, evaluation of land use regulations, and differences in real estate markets across countries.

Effective: Fall 2013

Prerequisite: R M 303 orR M 330W

R M 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2012

R M 494H **Honors Research Project** (1-6) Supervised honor student research projects identified on an individual or small-group basis.

Effective: Spring 2012

R M 496 **Independent Studies** (1-18) Creative Projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

R M 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 2012

R M 497A **Real Estate Case Competition** (2) A Smeal team competes to analyze, create investment strategy and present power point presentation at collegiate competition.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

R M 497B **Risk, Strategy, and Decision Making** (3) One of the key ways that a business attempts to manage the risk it anticipates in markets is through its business strategy. Strategy, in turn, emerges from a series of decisions guided by the insights and biases of people as well as various forces/factors in the firm (e.g., culture, politics, technology, etc.). In this course, we look at each of these critical elements separately and then together. We also not only explore descriptions and

examples of what emerges, but also how to navigate these complex processes and interrelationships in better ways.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

R M 497B (B LAW 497A) **Entertainment Law** (3) Provide students with an understanding of fundamental issues in entertainment law that arise in a business context.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

R M 497C **Risk, Strategy, and Decision Making** (3) An overview of the growth of the financial industry in the U.S. economy and the globalization of financial markets. It will look at the role of government, consumers, mortgage companies, the rating agencies and the banking sector in the creation of the housing bubble The impact of certain financial derivatives on the global economy in general and specific countries in particular will be explored. Through readings of key players involved in the crisis, it will identify risk management issues that are important to this case and look at proposed remedies designed to avoid future problems.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

R M 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2012

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## Romanian (ROM)

ROM 296 **Independent Studies** (1-18) Creative projects, includes research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 1998

ROM 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1998

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## Rural Sociology (R SOC)

R SOC 011 (GS;US) **Introductory Rural Sociology** (3) Basic sociological concepts applied to rural societal institutions and rural communities; causes and consequences of rural social change.  
Students may take only one course for General Education credit from R SOC 011 GS or SOC 001 GS. Effective: Summer 2013

R SOC 134 (GN) (AGECO 134) **Sustainable Agriculture Science and Policy** (3) The science, socio-economics, and politics of managing food and fiber production systems. Sustainability implications of current practices and future options.  
Effective: Summer 2013

R SOC 296 **Independent Studies** (1-18) Creative projects, including research and design which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

R SOC 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

R SOC 327 (S T S 327) **Natural Resources, Science, Ethics, and Society** (3) The purpose of this course is to enable students to become competent critical thinkers about the state of natural resources through greater understanding of scientific, discourse formation, and the ethical dimensions of natural resources issues.  
Effective: Summer 2013 Ending: Summer 2014

R SOC 417 (CED 417) **Power, Conflict, and Community Decision Making** (3) Impact of institutions on human interdependence and behavior, the structure of power, and community decision making and public policy.  
Effective: Summer 2013 Ending: Summer 2014  
Prerequisite: R SOC 011 or SOC 001

R SOC 420 (US;IL) (CED 420, WMNST 420) **Women in Developing Countries** (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.  
Effective: Summer 2013 Ending: Summer 2014

R SOC 452 **Rural Organization** (3) Social organization and change in rural communities; use of sociological principles in analysis of rural problems and rural development.  
Effective: Summer 2013 Ending: Fall 2014  
Prerequisite: 6 credits in rural sociology sociology or psychology

R SOC 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

R SOC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

R SOC 499 (IL) **Foreign Study--Rural Sociology** (1-12) Study in selected countries of rural social institutions and current rural sociological problems.  
Effective: Summer 2013

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## Russian (RUS)

**RUS 001 Elementary Russian I** (4) Audio-lingual approach to basic Russian; writing. Students who have received high school credit for two or more years of Russian may not schedule this course for credit, without the permission of the department.  
Effective: Fall 1985

**RUS 002 Elementary Russian II** (4) Audio-lingual approach to basic Russian continued; writing. Students who have received high school credit for four years of Russian may not schedule this course for credit, without the permission of the department.  
Effective: Fall 1985  
Prerequisite: RUS 001

**RUS 003 Intermediate Russian** (4) Emphasis on reading unsimplified texts; composition; grammatical analysis.  
Effective: Fall 1985  
Prerequisite: RUS 002

**RUS 051 Elementary Intensive Russian for Graduate Students I** (3) Intensive introduction to Russian: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: graduate standing

**RUS 052 Elementary Intensive Russian for Graduate Students II** (3) Intensive introduction to Russian: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: RUS 051 and graduate standing

**RUS 053 Intermediate Intensive Russian for Graduate Students** (3) Continued intensive study of Russian at the intermediate level: reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: RUS 052 or equivalent and graduate standing

**RUS 083S (GH;US;IL) First-Year Seminar in Russian** (3) Russia's cultural past and present.  
Effective: Summer 2005

**RUS 099 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**RUS 100 (GH;IL) Russian Culture and Civilization** (3) The Russian people from the tenth century to present times; their literature, arts, music, science, and philosophy. In English.  
Effective: Summer 2005

**RUS 110 (GH;IL) Russian Folklore** (3) Study of bylina, lyrical and historical songs, folktales, drama, ceremonial poetry, chants, charms, proverbs, and mythology of Russia. In English.  
Effective: Summer 2005

**RUS 141Y (IL) Russian Literature in English Translation: 1800-1870** (3) Pushkin, Lermontov, Gogol, the critics, Turgenev, Dostoevsky, Tolstoy. Writing assignments will serve as a major way of exploring subject matter.  
Effective: Spring 2006

**RUS 142Y (IL) Russian Literature in English Translation: 1870 to Present** (3) Dostoevsky, Tolstoy, Chekhov, Gorky, symbolists, selected Soviet authors. Writing assignments will serve as a major way of exploring subject matter.  
Effective: Spring 2006

**RUS 143 (GH;IL) (GER 143) The Culture of Stalinism and Nazism** (3) The culture of Stalinist Russia and Nazi Germany in comparative perspective.  
Effective: Summer 2005

**RUS 196 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2004

**RUS 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1995

**RUS 199 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**RUS 200 (IL) Intermediate Russian II (4)** A continuation of intermediate Russian with a comprehensive grammar review and focus on reading, writing and speaking Russian.

Effective: Spring 2013

Prerequisite: RUS 003 or permission of program

**RUS 204 (IL) Intermediate Russian II (4)** Intensive practice of Russian reading, writing, listening and speaking; review of Russian grammar.

Effective: Summer 2011

Prerequisite: RUS 003

**RUS 214 (IL) Intermediate Russian III (4)** Intensive practice of Russian reading, writing, listening and speaking; review of Russian grammar.

Effective: Summer 2011

Prerequisite: RUS 003

**RUS 294 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

**RUS 296 Independent Studies (1-18)** Creative projects, including research design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1986

**RUS 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1986

**RUS 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**RUS 304 (IL) Readings in Russian III (3)** Extensive reading of contemporary Russian texts, including articles from Soviet press and short fiction.

Effective: Spring 2006

Prerequisite: 6 credits of Russian at the 200 level

**RUS 305 (IL) Advanced Russian Conversation (3)** Discussion and role-playing based on real-life situations and current events; supervised by a native speaker.

Effective: Spring 2006

Prerequisite: RUS 204RUS 214

**RUS 360 (IL) Advanced Russian Grammar (3)** Russian morphology and syntax on an advanced level.

Effective: Spring 2006

Prerequisite: 6 credits of Russian at the 200 level

**RUS 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

**RUS 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

**RUS 400 (IL) Senior Seminar in Russian Culture (3)** Senior seminar devoted to topics in Russian culture; conducted in Russian.

Effective: Spring 2006

Prerequisite: RUS 204RUS 214RUS 304

**RUS 401 Advanced Russian A (3)** Advanced Russian grammar, conversation, and composition.

Effective: Summer 2012

Prerequisite: RUS 200

**RUS 402 Advanced Russian B (3)** Advanced Russian grammar, conversation, and composition.

Effective: Summer 2012

Prerequisite: RUS 200

**RUS 403 Advanced Russian Conversation and Composition (3)** A conversation and composition course that includes situational topics as well as complex academic discourse.

Effective: Summer 2013

Prerequisite: RUS 200 or permission of program Concurrent: RUS 400 RUS 401 RUS 402 RUS 405 RUS 412

**RUS 404 Advanced Reading and Composition (3)** Advanced Russian Reading and Composition.

Effective: Summer 2012

Prerequisite: RUS 401RUS 402 orRUS 403

**RUS 405 (IL) Seminar in Russian Literature (3-6 per semester/maximum of 6)** Readings in classical Russian literature;



Topics vary.

Effective: Summer 2012

Prerequisite: RUS 401RUS 402 orRUS 403

RUS 406 (IL) **Russian Film** (3) Conversation and Composition based on classical Russian films.

Effective: Summer 2012

Prerequisite: RUS 401RUS 402 orRUS 403

RUS 410 (IL) **Heritage Russian 1** (3) Introductory course for heritage speakers of limited linguistic proficiency aiming at teaching basic reading, writing, and grammar skills in Russian.

Effective: Summer 2014

Prerequisite: basic speaking proficiency in Russian; placement test and consent of instructor

RUS 412 (IL) **Russian Translation** (3 per semester/maximum of 6) Translation from Russian into English of complex texts from the humanities, social sciences, and technical fields.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 426 (IL) **Dostoevsky** (3) Study of representative works by Dostoevsky in the original Russian.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 427 (IL) **Tolstoy** (3) Study of representative works by Tolstoy in the original Russian.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 460 (IL) **Linguistic Analysis of Contemporary Russian** (3) Detailed study of the phonology, morphology, and syntax of Modern Standard Russian and the major dialects.

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

RUS 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

RUS 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

RUS 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

RUS 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

RUS 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## School Psychology (S PSY)

S PSY 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2011

S PSY 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

S PSY 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2011

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## School of Science, Engineering, and Technology (SSET)

**SSET 295 Internship** (1-18) Supervised off-campus, individual training including practical field experiences or internships where written and oral critique of the activity is required.

Effective: Summer 2003

Prerequisite: prior approval of the proposed assignment by the program

**SSET 395 Internship** (1-18) Supervised off-campus, individual training including practical field experiences or internships where written and oral critique of the activity is required.

Effective: Summer 2003

Prerequisite: prior approval of the proposed assignment by the program

**SSET 495 Internship** (1-18) Supervised off-campus, individual training including practical field experiences of internships where written and oral critique of the activity is required.

Effective: Summer 2003

Prerequisite: prior approval of the proposed assignment by the program

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## Science (SC)

**SC 100 Introduction to Research** (1) Introduces essential elements of laboratory safety, laboratory techniques, research ethics, and scientific communication skills. Especially for undergraduate research students.  
Effective: Summer 2004

**SC 101 (AG 100) Job Placement Skills and Strategies** (1) Strategies and skills designed to identify career/life goals and implement career decisions.  
Effective: Fall 2010

**SC 200 (GN) Science in Our World: Certainty and Controversy** (3) A science appreciation course, aimed at making non-scientists more informed consumers of science.  
Effective: Summer 2010

**SC 201 Medical Professions** (1) Learn about the different medical professions and related subjects.  
Effective: Summer 2008

**SC 210 Sophomore Science Seminar** (2) Covers topics related to success in upper level courses including critical thinking, library resources, reading primary literature, and communication skills.  
Effective: Summer 2004

**SC 294 Research Project Courses** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 1994

**SC 295 Science Co-op Work Experience I** (1-3) A supervised work experience where the student is employed in a scientific position. To be offered for SA/UN grading.  
Effective: Spring 2007  
Prerequisite: acceptance into the Eberly College of Science co-op program

**SC 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2005

**SC 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1991

**SC 297B Seminars for Freshman** (1) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SC 297C Science Pedagogy for Learning Assistants** (1-3) Effective facilitation of group work and content discourse requires a working knowledge of research based pedagogical practices as well as an understanding of how students learn. This course provides Learning Assistants with the background to carry out and understand their role in the educational team and how they can influence classroom climate and facilitate group work.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SC 297D Millennium Seminar** (0) Weekly Millennium Scholars Program Meetings and seminars.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SC 395 Science Co-op Work Experience II** (1-3) A supervised work experience where the student is employed in a scientific position. To be offered for SA/UN grading.  
Effective: Spring 2007  
Prerequisite: SC 295

**SC 400 Consequences of Science** (1) A series of lecture/discussions in which science faculty members show the social implications of their research specialty.  
Effective: Winter 1978

**SC 401 Basic Science and Disease** (1) Clinical aspects of various disease and how basic scientific information contributes towards understanding and treating disease.  
Effective: Summer 2008  
Prerequisite: 4th semester standing or higher standing plus 3 credits in biology and 3 credits in chemistry

**SC 402 Science-Related Employment: Corporate Organization, Opportunities, and Expectations** (1-3 per

semester/maximum of 3) Present undergraduate and graduate students with information and skills necessary for success in science-related job positions available in industry.

Effective: Spring 2011

Prerequisite: 5th semester standing or permission of program

**SC 476 Human Dimensions of Health Care (3)** Field experience in five or more medical settings; complementary exposure to the scientific literature; weekly discussions.

Effective: Spring 2011

Prerequisite: 5th semester standing;BIOL 230W andBIOL 240W or equivalent; approval of health sciences committee or coordinator

**SC 494 Research Project Courses (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 1994

**SC 494H Research Project Courses (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**SC 495 Science Co-op Work Experience III (1-3)** A supervised work experience where the student is employed in a scientific position. To be offered for SA/UN grading.

Effective: Spring 2007

Prerequisite: SC 395

**SC 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1996

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## Science Education (SCIED)

**SCIED 110 (ENGR 110) Introduction to Engineering for Educators (3)** This course focuses on physics content, engineering design principles, and elementary science education pedagogy.  
Effective: Spring 2014

**SCIED 140 (RPTM 140) Outdoor School Field Experience (2 per semester/maximum of 6)** To provide students with educational leadership skills and teaching opportunities working with children in an outdoor residential camp setting.  
Effective: Summer 2013  
Prerequisite: Students must apply for and be accepted into the Outdoor School Field Experience.

**SCIED 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1996

**SCIED 297B (EARTH 297B) Fundamental of Climate Science (3)** Address the meaning, variability and change of climate over time as a result of natural and man-made processes. Course is geared toward elementary ed majors but could be appropriate for EMS students interested in reform-based science education.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SCIED 298 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

**SCIED 410 Using Technology to Enhance Science Teaching (3)** This course explores contemporary practice and research associated with applications of technology to enhance science learning and teaching.  
Effective: Summer 2000  
Prerequisite: admission to one of the science teaching options in SECED

**SCIED 411 Teaching Secondary Science I (3)** Introduction to teaching secondary school science, including curriculum, learning theory, media, evaluation as they relate to student progress.  
Effective: Spring 1994  
Prerequisite: C I 295 ; appropriate courses for certification option and approval of department

**SCIED 412 Teaching Secondary Science II (3)** Implementation of science instruction using a variety of modern approaches.  
Effective: Spring 2001  
Prerequisite: SCIED 410SCIED 411 Concurrent: C I 412W

**SCIED 455 Field Natural History for Teachers (3)** Ecologically oriented field study course to provide teachers with basic knowledge of natural science resources in school environments.  
Effective: Winter 1978  
Prerequisite: 3 credits in biological science

**SCIED 457 Environmental Science Education (3)** Philosophy, techniques, and skills for teaching environmental science, including curriculum development, fieldwork, and the use of appropriate technologies.  
Effective: Fall 2003  
Prerequisite: 3 credits of calculus 9 credits of sciences 400-level teaching methods course

**SCIED 458 Teaching Science in the Elementary School (3)** Interpreting children's science experiences and guiding development of their scientific concepts; a briefing of science content material and its use.  
Effective: Spring 2014  
Prerequisite: LL ED 400LL ED 401LL ED 402 three credits each in biological earth and physical sciences Concurrent: C I 495A OR C I 495B ; MTHED 420 SS ED 430W

**SCIED 470 Selected Studies in Science Education (1-6)** Intensive work on particular issues, trends, or developments in science education for elementary and secondary school teachers.  
Effective: Winter 1978  
Prerequisite: Instructional I certification and teaching experience

**SCIED 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**SCIED 496A Teaching Science to Children in Informal Settings (1.5)** Independent Study for TESLA students.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SCIED 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

SCIED 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1992

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## Science, Engineering, and Technology (SE&T)

SE&T 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1992

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## Science, Technology, and Society (S T S)

S T S 047 (SOC 047) **Wilderness, Technology, and Society** (3) Impact of developments in science, literature, and art on changing attitudes toward nature; consequences for conservation, preservation, environmental ethics.  
Effective: Spring 1991

S T S 055 (GN) (AERSP 055) **Space Science and Technology** (3) The science and technology of space exploration and exploitation; physical principles; research and development; history, space policy, and social implications.  
Effective: Spring 1994

S T S 100 (GH) **Science, Technology, and Culture** (3) A survey of the development and culture of science, technology, and medicine in world history.  
Effective: Spring 2011

S T S 101 (GH) **Modern Science, Technology, and Human values** (3) Relationships of science and technology to human aspirations, values, and arts.  
Effective: Spring 1996

S T S 105 (GHA) (FD SC 105) **Food Facts and Fads** (3) Impact on society and the individual of modern food technology, food laws, additives, etc.; historical, current, and futuristic aspects.  
Effective: Spring 2004

S T S 107 (GH) (PHIL 107) **Introduction to Philosophy of Technology** (3) The character of technology; its relation to human values; philosophical assumptions in its development; and how it transforms the world.  
Effective: Spring 2004

S T S 122 (GH) (HIST 122) **History of Science I** (3) A history of science and culture from Stonehenge to the scientific revolution.  
Effective: Spring 2005 Ending: Summer 2014

S T S 122 (GH) **History of Science I** (3) A history of science and culture from Stonehenge to the scientific revolution.  
Effective: Fall 2014 Future: Fall 2014

S T S 123 (GH) (HIST 123) **History of Science II** (3) A history of science and culture from the scientific revolution to the present.  
Effective: Spring 2004 Ending: Summer 2014

S T S 123 (GH) **History of Science II** (3) A history of science and culture from the scientific revolution to the present.  
Effective: Fall 2014 Future: Fall 2014

S T S 124 (GH;US;IL) (HIST 124) **History of Western Medicine** (3) This course explores the history of health, illness, and medicine in western society.  
Effective: Summer 2008

S T S 130 **World Food Problems** (1-3) Critical examination of data sources, issues, and perspectives concerning contributions of science, technology, and society in resolving world food problems.  
Effective: Spring 1991

S T S 130H **World Food Problems** (1-3) Critical examination of data sources, issues, and perspectives concerning contributions of science, technology, and society in resolving world food problems.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

S T S 135 (GS) (PL SC 135) **The Politics of the Ecological Crisis** (3) The political implications of the increasing scarcity of many of the world's resources.  
Effective: Spring 2001

S T S 150 (GN;IL) (EM SC 150) **Out of the Fiery Furnace** (3) A history of materials, energy, and humans, with emphasis on their interrelationships. For nontechnical students.  
Effective: Spring 2006

S T S 151 (GS;US) (HIST 151) **Technology and Society in American History** (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.  
Effective: Spring 2006

S T S 151S (GS;US) (HIST 151S) **Technology and Society in American History** (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.  
Effective: Spring 2006

S T S 157 (US) (WMNST 157) **Science, Technology, and Gender** (3) The role of women and gender in science, technology, and engineering.  
Effective: Fall 2011

S T S 200 (GS) **Critical Issues in Science, Technology, and Society** (3) An overview of interactions between science, technology, and society from social sciences and humanities perspectives.  
Effective: Spring 1995

S T S 200S (GS) **Critical Issues in Science, Technology, and Society** (3) An overview of interactions between science, technology, and society from social sciences and humanities perspectives.  
Effective: Summer 1999

S T S 201 (GN) **Climate Change, Energy, and Biodiversity** (3) Studies of global warming, energy options, and biodiversity; their interrelations as sciences and as societal issues.  
Effective: Summer 1994

S T S 201H (GN) **Climate Change, Energy, and Biodiversity** (3) Studies of global warming, energy options, and biodiversity; their interrelations as sciences and as societal issues.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

S T S 233 (GH) (PHIL 233) **Ethics and the Design of Technology** (3) Ethics and individual and group decision-making in the design of technology including design projects and specific attention to institutional ethics.  
Effective: Spring 2004

S T S 235 (GH) **Science and Religion** (3) This course investigates the relationship between science and religion in multiple cultures.  
Effective: Spring 2009  
Prerequisite: completion of a basic composition course or the equivalent S T S 100 or S T S 101 or completion of 30 credits of coursework

S T S 245 (GS;IL) **Globalization, Technology, and Ethics** (3) An investigation of technology and ethics in the globalized world from contemporary, socio-cultural, and historical perspectives.  
Effective: Summer 2008

S T S 327 (R SOC 327) **Natural Resources, Science, Ethics, and Society** (3) The purpose of this course is to enable students to become competent critical thinkers about the state of natural resources through greater understanding of scientific, discourse formation, and the ethical dimensions of natural resources issues.  
Effective: Fall 2011 Ending: Summer 2014

S T S 407 (PHIL 407) **Technology and Human Values** (3) Interrelationships of twentieth-century technological change and human values. Emphasis on the social and ethical aspects of technological progress.  
Effective: Spring 1999  
Prerequisite: 9 credits in philosophy including PHIL 107 or 6 credits of philosophy at the 200 level

S T S 408 (COMM 408) **Cultural Foundations of Communications** (3) Examination of oral, scribal, print, industrial and electronic cultures; analysis of impact of technology on communications and social structure.  
Effective: Spring 2009  
Prerequisite: select 3 credits from COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 W COMM 320 COMM 370 ; or 3 credits of S T S

S T S 416 (US;IL) (AF AM 416, WMNST 416) **Race, Gender and Science** (3) The class will focus on race and gender as products of science, and how societal values shape scientific activity.  
Effective: Spring 2013  
Prerequisite: 6 credits in S T S WMNST or AAA S

S T S 420 (EM SC 420, SOC 420) **Energy and Modern Society** (3) Technology and economics of energy resources, production, and consumption; environmental factors, exhaustion, new technology.  
Effective: Spring 1991

S T S 427W (CED 427W) **Society and Natural Resources** (3) Analysis of the relationship between societal development and enhancement and natural resources.  
Effective: Fall 2013  
Prerequisite: R SOC 011 or SOC 001

S T S 428 (IL) (HIST 428) **The Darwinian Revolution** (3) The origins and implications of evolutionary theory.

Effective: Spring 2006

Prerequisite: An introductory Science course and a history course.

S T S 430 (IL) (NUTR 430) **Global Food Strategies: Problems and Prospects for Reducing World Hunger** (3) Technological, social, and political solutions to providing basic food needs; food resources, population, and the environment; current issues.

Effective: Summer 2005

S T S 432 (PHIL 432) **Medical and Health Care Ethics** (3) Examines ethical, political, and social issues in the research, implementation, and practice of medicine, medical technologies, and healthcare.

Effective: Fall 1998

Prerequisite: fifth-semester standing

S T S 433 (PHIL 433) **Ethics in Science and Engineering** (3) Ethical issues arising in the practice of science and engineering and their philosophical analysis.

Effective: Fall 1995

S T S 435 (PHIL 435) **The Interrelation of Science, Philosophy, and Religion** (3) The historical and transformative interactions between science and Western philosophical and religious views of nature, humanity, and God.

Effective: Spring 1996

S T S 457 (US;IL) (HIST 457, WMNST 457) **The History of Women in Science** (3) Critical analysis of the role women, gender, and minorities have played in the natural sciences.

Effective: Spring 2013

Prerequisite: HIST 116HIST 117WMNST 100WMNST 106 orWMNST 157

S T S 460 (PL SC 460) **Science, Technology, and Public Policy** (3) The all-pervasive importance of science and technology policy in modern societies and mechanisms and processes by which it is made.

Effective: Spring 1995

Prerequisite: three credits in Natural Sciences or Engineering three credits in Social and Behavioral Sciences

S T S 470 **Technology Assessment and Transfer** (3) Nature of technology assessment and technology transfer in product design and development process from federal and university labs, and internationally.

Effective: Summer 1996

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## Security & Risk Analy (SRA)

**SRA 001S First-Year Seminar in Security and Risk Analysis** (1) Provides introduction to the field of Security and Risk Analysis and assessments of key skills.  
Effective: Summer 2006

**SRA 099 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Fall 2011

**SRA 111 (GS) Introduction to Security and Risk Analysis** (3) This introductory course spans areas of security, risk, and analysis covering contexts in government agencies and business organizations.  
Effective: Spring 2008

**SRA 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2011

**SRA 211 Threat of Terrorism and Crime** (3) Provides overview of nature, scope, and seriousness of threats to security as a result of terrorism and crime.  
Effective: Summer 2006  
Prerequisite: SRA 111

**SRA 211H Threat of Terrorism and Crime** (3) Provides overview of nature, scope, and seriousness of threats to security as a result of terrorism and crime.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: SRA 111

**SRA 221 Overview of Information Security** (3) Provides an understanding of the overview of information security including security architecture, access control, and internet secure applications.  
Effective: Summer 2006  
Prerequisite: SRA 111IST 110CMPSC 101

**SRA 231 Decision Theory and Analysis** (3) Provides an overview of decision theoretical and analytical concepts and tools in the security risk analysis field.  
Effective: Summer 2006  
Prerequisite: SRA 211STAT 200

**SRA 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2011

**SRA 311 Risk Management: Assessment and Mitigation** (3) Assessment and mitigation of security vulnerabilities for people, organizations, industry sectors, and the nation.  
Effective: Summer 2006  
Prerequisite: SRA 231

**SRA 321 The Role of Information and Intelligence** (3) The Role of information and intelligence introduces students to the architecture and policies of the U.S. Intelligence Community (IC) and examines how U.S. intelligence policies and practices relate to overall U.S. foreign policy objectives and are influenced by today's global environment and emerging technologies. The course examines the users and processes of IC, participants of Competitive Intelligence, and comparative intelligence communities.  
Effective: Summer 2011  
Prerequisite: SRA 111SRA 211SRA 231

**SRA 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2011

**SRA 397E Security Economics and Privacy Behaviors** (3) Explore the economic incentives for security attacks and appropriate security defenses; apply methods from the economic and behavioral sciences to current privacy and security challenges.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**SRA 433 Deception and Counterdeception** (3) Deception tactics, technologies and procedures and approaches to counterdeception analysis.  
Effective: Summer 2011  
Prerequisite: SRA 211SRA 221SRA 231SRA 311

**SRA 440W Security and Risk Analysis Capstone Course** (3) The Security and Risk Analysis Capstone course is designed to provide IST students enrolled in the SRA major to experience a semester-long security and risk problem-solving

experience, providing realistic security dilemmas requiring a solution process that is well suited for teamwork and collaboration.

Effective: Spring 2014

Prerequisite: SRA 221 and SRA 311; ENGL 202C or ENGL 202D seventh-semester standing (this course is intended for seniors) and the five common course requirements plus at least three of the required courses in an option

**SRA 468 Visual Analytics for Security Intelligence (3)** Introduce visual analytic techniques for security informatics and intelligence. It covers analytical techniques on visualizing threats, risk, and vulnerability.

Effective: Spring 2008

Prerequisite: IST 110SRA 111

**SRA 471 Informatics, Risk, and the Post-Modern World (3)** Provides in-depth study of how security informatics is influenced by the risk and post-modern culture.

Effective: Spring 2008

Prerequisite: IST 110SRA 231

**SRA 472 Integration of Privacy and Security (3)** Exploration of technological, operational, organizational and regulatory issues related to maintenance of individual privacy, confidentiality of organizations, and information protection.

Effective: Spring 2008

Prerequisite: SRA 211 or SRA 221 or equivalent

**SRA 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2007

**SRA 497A Statistical Analysis for Information Sciences (3)** Intermediate-level statistics course emphasizing understanding hypothesis testing and experimental design, a broad array of statistical techniques applied to data analysis, and computer tools to support testing and analysis; specifically applied to information sciences and technology applications.

Effective: Summer 2014 Ending: Summer 2014

**SRA 497A Statistical Analysis for Information Sciences (3)** Intermediate-level statistics course emphasizing understanding hypothesis testing and experimental design, a broad array of statistical techniques applied to data analysis, and computer tools to support testing and analysis; specifically applied to information sciences and technology applications.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SRA 497A Statistical Analysis for Information Sciences (3)** Intermediate-level statistics course emphasizing understanding hypothesis testing and experimental design, a broad array of statistical techniques applied to data analysis, and computer tools to support testing analysis; specifically applied to information sciences and technology applications.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**SRA 497C Crisis Informatics (3)** We will examine how technologies have played a role in saving lives; specifically technologies used toward emergency and disaster response.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

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## Serbo-Croatian (S CR)

S CR 199 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

S CR 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

S CR 299 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

S CR 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

S CR 399 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

S CR 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

S CR 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

S CR 499 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Slavic (SLAV)

SLAV 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SLAV 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1995

SLAV 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SLAV 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

SLAV 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Spring 1983

SLAV 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1990

SLAV 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SLAV 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

SLAV 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SLAV 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

SLAV 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

SLAV 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1998

SLAV 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Social Science (SO SC)

SO SC 001 (GS) **Urbanization** (3) An overview of the social sciences, including an interdisciplinary analysis of the urban process.

Effective: Summer 1995

SO SC 297 **Special Topics** (1-9) Formal courses given infrequently to explore in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

SO SC 480W **Quantitative Methods in the Social Sciences** (4) Students will learn to conduct, analyze and write up quantitative social scientific research according to appropriate professional standards.

Effective: Spring 2008

Prerequisite: permission of program

SO SC 481 **Qualitative Research Methods in the Social Sciences** (4) Students will learn how to conduct, analyze and write up qualitative social research according to appropriate professional standards.

Effective: Spring 2008

Prerequisite: permission of program

SO SC 492 **Current Topics in the Social Sciences** (3) This course allows for various current topics to be offered as suitable to the needs of the program.

Effective: Spring 2008

Prerequisite: permission of program

SO SC 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Spring 2008

SO SC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2008

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## Social Studies Education (SS ED)

SS ED 200 (US) **American Heritage** (3) Essentials of American Heritage for heritage interpretative education applications.  
Effective: Spring 2012

Prerequisite: any U.S. History selection (3 credits) suggested HIST 020

SS ED 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

SS ED 411 **Teaching Secondary Social Studies I** (3) Methods for teaching social studies in secondary grades; nature of social studies, content and learning outcomes, instructional strategies and planning.

Effective: Fall 2011

Prerequisite: C I 295ECON 104GEOG 010HIST 020HIST 021PL SC 001 ; plus 6 credits of other Option Requirements (Prescribed Courses Additions Courses Supporting Courses and Related Areas Concentration)

SS ED 412W **Teaching Secondary Social Studies II** (3) Writing-intensive course focusing on study of the social studies teacher's role in planning instruction; strategies for teaching.

Effective: Summer 2010

Prerequisite: SS ED 411 Concurrent: C I 412W

SS ED 430W **Teaching Social Studies in the Elementary Grades** (3) Principles underlying use of social studies in the elementary school; practical demonstration of desirable methods.

Effective: Spring 2014

Prerequisite: LL ED 400LL ED 401LL ED 402 nine credits in history and the social sciences Concurrent: C I 495A OR C I 495B ; MTHED 420 SCIED 458

SS ED 470 **Issues in Social Studies Education** (1-6) Concentration on particular issues, trends, and developments in the social studies.

Effective: Winter 1978

Prerequisite: Instructional I certificate and teaching experience

SS ED 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

SS ED 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

SS ED 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1992

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## Sociology (SOC)

**SOC 001 (GS) Introductory Sociology (3)** The nature and characteristics of human societies and social life. Students may take only one course for General Education credit from SOC 001 GS or R SOC 011 GS. Effective: Spring 2003

**SOC 001S (GS) Introductory Sociology (3)** The nature and characteristics of human societies and social life. Effective: Spring 2006

**SOC 001W (GS) Introductory Sociology (3)** The nature and characteristics of human societies and social life. Effective: Fall 1998

**SOC 003 (GS) Introductory Social Psychology (3)** The impact of the social environment on perception, attitudes, and behavior. Effective: Spring 2003

**SOC 003H (GS) Honors Introduction to Social Psychology (3)** This is an honors course that enables students to learn, apply, and evaluate basic social psychology concepts, theories, and research. Effective: Summer 2011

**SOC 005 (GS) Social Problems (3)** Current social problems such as economic, racial, and gender inequalities; social deviance and crime; population, environmental, energy, and health problems. Effective: Spring 2003

**SOC 005H (GS) Social Problems (3)** Current social problems such as economic, racial, and gender inequalities; social deviance and crime; population, environmental, energy, and health problems. Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SOC 007 Introduction to Social Research (3)** Fundamental concepts and problems in social science research; design, measurement, sampling, causation, validity, interpretation. Effective: Spring 2001

**SOC 012 (GS) (CRIMJ 012, CRIM 012) Criminology (3)** Explanations and measurement of crime; criminal law; characteristics of criminals and victims; violent, property, white-collar, organized, and sexual crimes. Effective: Spring 2008

**SOC 012H (GS) (CRIM 012H) Criminology (3)** Explanations and measurement of crime; criminal law; characteristics of criminals and victims; violent, property, white-collar, organized, and sexual crimes. Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SOC 013 (GS) (CRIMJ 013) Juvenile Delinquency (3)** Juvenile conduct, causes of delinquency, current methods of treatment; organization and function of agencies concerned with delinquency. Effective: Spring 2008

**SOC 015 (GS) Urban Sociology (3)** City growth and decline; impact of city life on individuals, families, neighborhoods, and government; urban life-styles. Effective: Summer 1995

**SOC 019 (GS) Sociology of Popular Culture (3)** Students are introduced to the sociological study of how popular culture is produced, consumed, and experienced. Effective: Spring 2014

**SOC 023 (GS) Population and Policy Issues (3)** Local, national, and international population trends; basic techniques of demographic analysis; population problems; implications for public planning and policy. Effective: Fall 2004

**SOC 023H (GS) Population and Policy Issues (3)** Local, national, and international population trends; basic techniques of demographic analysis; population problems; implications for public planning and policy. Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SOC 030 (GS) Sociology of the Family (3)** Family structure and interaction; functions of the family as an institution; cross-cultural comparisons. Students may take only one course for General Education credit from SOC 030 or HD FS 129. Effective: Spring 2003

SOC 030H (GS) **Sociology of the Family** (3) Family structure and interaction; functions of the family as an institution; cross-cultural comparisons. Students may take only one course for General Education credit from SOC 030 or HD FS 129. Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

SOC 035 **Sociology of Aging** (3) Introduction to the sociological study of aging. Effective: Spring 2000

SOC 047 (S T S 047) **Wilderness, Technology, and Society** (3) Impact of developments in science, literature, and art on changing attitudes toward nature; consequences for conservation, preservation, environmental ethics. Effective: Fall 1983

SOC 055 (GS) **Work in Modern Society** (3) The nature of work in varied occupational and organizational settings; current trends and work life in the future. Effective: Summer 1995

SOC 060 (GS;IL) (ANTH 060, J ST 060, PL SC 060) **Society and Cultures in Modern Israel** (3) An introduction to the society and cultures of the State of Israel from 1948 to the present. Effective: Summer 2006

SOC 083S (GS) **First-Year Seminar in Sociology** (3) Critical approaches to issues in the structure of society. Effective: Summer 1999

SOC 103 (US) (AF AM 103, WMNST 103) **Racism and Sexism** (3) Critical analysis of the structure of race and gender inequality in the contemporary United States. Effective: Spring 2013

SOC 109 **Sociological Perspectives** (3) Intensive and critical analysis of the bases of the social order, change, values, knowledge, and conflict. Effective: Spring 2001

SOC 110 (GS;US) (WMNST 110) **Sociology of Gender** (3) Changing sex role expectations and behavior for men and women in contemporary society. Effective: Summer 2005

SOC 119 (GS;US) **Race and Ethnic Relations** (4) Historical patterns and current status of racial and ethnic groups; inequality, competition, and conflict; social movements; government policy. Effective: Summer 2005

SOC 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest. Effective: Spring 1995

SOC 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction. Effective: Summer 2010

SOC 201 (GS) (CRIM 201) **Persumed Innocent? Social Science of Wrongful Conviction** (3) Social science of how wrongful convictions occur; disparities in the criminal justice system; risks, factors, and policies. Effective: Summer 2014

SOC 207 **Research Methods in Sociology** (3) Experiential-based course covering the four main social research methods: available data, survey research, experiments, and field research. Effective: Spring 2001  
Prerequisite: 3 credits in Sociology

SOC 209 (GS;IL) (AFR 209) **Poverty in Africa** (3) The course examines the causes, consequences, and dynamics of poverty in African countries. Effective: Fall 2013

SOC 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis. Effective: Summer 1994

SOC 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which will fall outside the scope of formal courses. Effective: Fall 1983

**SOC 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**SOC 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.  
Effective: Spring 1995

**SOC 299 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Spring 2007

**SOC 300 Preceptorship in Sociology** (1-8, maximum of 4 per semester) Supervised experience as a teaching assistant under the supervision of an approved faculty member.  
Effective: Spring 2003  
Prerequisite: 3 credits in course work related to the subject of the course

**SOC 309 Sociology of Health** (3) Sociological concepts and principles operative in public and private areas of health and illness, including cultural, ethnic, and ecological factors.  
Effective: Spring 2001  
Prerequisite: 3 credits in Sociology

**SOC 381H Junior Honors Seminar in Sociology** (1) Supervised experience in planning the honors thesis and a sociological career.  
Effective: Spring 1999  
Prerequisite: sociology major junior standing and admission to the Schreyer Honors College

**SOC 395 Internship** (1-6) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.  
Effective: Fall 1981  
Prerequisite: prior approval of proposed assignment by instructor

**SOC 400W Senior Research Seminar** (3) Major concepts and principles of sociology through reading, data analysis, and writing. Capstone course for senior Sociology majors.  
Effective: Fall 2001  
Prerequisite: SOC 470

**SOC 403 Advanced Social Psychology** (3) Analysis of the major theoretical approaches and research findings of contemporary social psychology.  
Effective: Fall 1983  
Prerequisite: SOC 003

**SOC 404 Social Influence and Small Groups** (3) The study of social influence, leadership and status, and social cohesion and commitment processes in small groups.  
Effective: Spring 2007  
Prerequisite: SOC 003 or PSYCH 420

**SOC 405 Sociological Theory** (3) Overview of the development of sociological theory; current issues and controversies.  
Effective: Spring 2001  
Prerequisite: 3 credits in the Sociology

**SOC 406 (CRIMJ 406, CRIM 406) Sociology of Deviance** (3) Theory and research concerning deviant behaviors and lifestyles viewed as significant departures from a group's normative expectations.  
Effective: Spring 2008  
Prerequisite: SOC 012SOC 013 or SOC 005 or permission of program

**SOC 408 Urban Ecology** (3) Spatial and temporal aspects of urban structure; urban growth, neighborhoods, racial and ethnic groups, mental illness; cross-cultural perspectives.  
Effective: Fall 1983  
Prerequisite: 3 credits in sociology

**SOC 409 (US) (AF AM 409) Racial and Ethnic Inequality in America** (3) The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.  
Effective: Fall 2012  
Prerequisite: 3 credits in Sociology

**SOC 411 (US) (HD FS 416) Racial and Ethnic Diversity and the American Family** (3) This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States.  
Effective: Spring 2005  
Prerequisite: 3 credits in sociology

**SOC 412 (CRIMJ 412, CRIM 412) Crime, Social Control, and the Legal System** (3) Legal and extralegal control; public opinion on crime; criminal justice and correctional processes; legal sanctions; control strategies. Field trip.  
Effective: Spring 2008  
Prerequisite: SOC 012SOC 013 or SOC 005

**SOC 413 (CRIM 413, CRIMJ 413) Advanced Criminological Theory** (3) This course provides an in-depth look at theories

of crime and examines influential empirical studies designed to these theories.

Effective: Spring 2008

Prerequisite: SOC 012CRIMJ 250W

SOC 414 (CRIMJ 414, CRIM 414) **Criminal Careers and the Organization of Crime** (3) Research on and theory of criminal careers and crime organizations, emphasizing recruitment and disengagement; offender characteristics and life-styles; policy implications.

Effective: Spring 2008

Prerequisite: SOC 012SOC 013 orSOC 005

SOC 416 (US) (EDTHP 416) **Sociology of Education** (3) The theoretical, conceptual, and descriptive contributions of sociology to education.

Effective: Spring 2006

Prerequisite: 3 credits in Sociology

SOC 419 (US) **Race and Public Policy** (3) Seminar format course in which sociological theory and research are applied to current race policy issues.

Effective: Spring 2006

Prerequisite: 3 credits in Sociology

SOC 420 (EM SC 420, S T S 420) **Energy and Modern Society** (3) Technology and economics of energy resources, production, and consumption; environmental factors, exhaustion, new technology.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

SOC 422 **World Population Diversity** (3) Survey of world diversity in national population growth/composition; the impacts of demographic change on the economic/social life of nations/people.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

SOC 423 **Social Demography** (3) Social demographic perspectives on fertility, mortality, morbidity, migration, population density, demographic transitions, social mobility, family, the aged, and minorities.

Effective: Spring 2001

Prerequisite: SOC 023 orSOC 422

SOC 424 **Social Change** (3) Critical review of classical and recent theories of social change, emphasizing the transformations occurring in the modern world.

Effective: Fall 1983

Prerequisite: 3 credits in sociology

SOC 424H **Social Change** (3) Critical review of classical and recent theories of social change, emphasizing the transformations occurring in the modern world.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 3 credits in sociology

SOC 425 **Social Conflict** (3) An analysis of the variables affecting intergroup and international conflict and cooperation.

Effective: Fall 2007

Prerequisite: general behavioral science general psychology or general sociology

SOC 428 **Homelessness in America** (3) Survey of social science research on homelessness in the contemporary United States.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

SOC 429 **Social Stratification** (3) Structure and dynamics of class, caste, and status systems; class differentials and social mobility; current theoretical and methodological issues.

Effective: Winter 1978

Prerequisite: 3 credits in sociology

SOC 430 **Family in Cross-Cultural Perspective** (3) Sociological analysis of family systems in various cultures and subcultures.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

SOC 431 (HD FS 431) **Family Disorganization: Stress Points in the Contemporary Family** (3) Focuses on divorce, remarriage, incest, family violence as well as problems associated with family formation and parent-child relations.

Effective: Spring 1994

Prerequisite: 6 credits of human development and family studies psychology or sociology

SOC 432 **Social Movements** (3) Why and how people mobilize to promote or retard social change. Factors predicting success or failure of social movements.

Effective: Fall 1983

Prerequisite: 3 credits in sociology

SOC 435 (HD FS 434) **Perspectives on Aging** (3) An analysis of the demographic, social, and cultural factors affecting the aged population in American society.

Effective: Fall 2007

Prerequisite: 3 credits in Sociology

SOC 440 (HD FS 440) **Family Policy** (3) An in-depth examination of family policy.

Effective: Spring 2007

Prerequisite: 3 credits of SOC or HD FS

**SOC 445 U.S. Immigration** (3) This class examines theories of U.S. immigration and immigrant adaptation, effects of immigration, and policy.

Effective: Spring 2012

Prerequisite: 3 credits in Sociology

**SOC 446 Political Sociology** (3) Sociological analysis of types of political organization and their relations with other elements of social life.

Effective: Winter 1978

Prerequisite: 3 credits in sociology

**SOC 448 Environmental Sociology** (3) Examination of the relationship between the physical environment and society.

Effective: Fall 2007

Prerequisite: 60 credits at least 9 of which are in the social sciences graduate status or permission of the program

**SOC 449 Environmental Movements** (3) Comparative exploration of environmental movements within the context of classical and new social movement theory.

Effective: Fall 2007

Prerequisite: 90 credits at least 9 of which are in the social sciences or which include SOCIO/CMPSY 470 graduate status or permission of the program

**SOC 450 Justice and the Environment** (3) Considers notions of justice in relation to environmental philosophy, environmental movements, and general environmental concerns.

Effective: Fall 2007

Prerequisite: 90 credits graduate status or permission of the program

**SOC 454 (US) The City in Postindustrial Society** (3) Postindustrial social organization in the United States and Europe; consequences for metropolitan social stratification, community power, and environmental quality.

Effective: Spring 2006

Prerequisite: 3 credits in Sociology

**SOC 455 Work and Occupations** (3) Work and occupational life in modern society; work in the past, present, and future.

Effective: Fall 1983

Prerequisite: 3 credits in sociology

**SOC 456 (WMNST 456) Gender, Occupations, and Professions** (3) The role of gender in shaping contemporary North American patterns of employment, occupational roles, and statuses.

Effective: Spring 2013

Prerequisite: WMNST 100 or 3 credits in Sociology

**SOC 457 (US;IL) (ANTH 457, J ST 457) Jewish Communities: Identity, Survival, and Transformation in Unexpected Places** (3) Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement.

Effective: Summer 2006

Prerequisite: ANTH 001 or ANTH 045HEBR 010J ST 010SOC 001SOC 005SOC 007SOC 015

**SOC 461 (US;IL) (RL ST 461) Sociology of Religion** (3) Contemporary religion in the global perspective: beliefs, structure, and function of major religious traditions, denominations, and cults.

Effective: Fall 2013

Prerequisite: 3 credits in sociology or religious studies

**SOC 467 (CRIM 467, CRIMJ 467) Law and Society** (3) Law and society studies the social origins of law and legal systems; occupational careers, and decision-making of legal officials.

Effective: Spring 2008

Prerequisite: CRIMJ 100 or CRIMJ 113 or permission of program

**SOC 468 Mood-Altering Substances in Society** (3) Perspectives of cultures throughout the world toward mood-altering substances are reviewed in light of public policy, benefits, and problems.

Effective: Fall 2007

**SOC 469 Techniques in Small Group Facilitation** (1-4 per semester/maximum of 12) This course is the training course for students working as facilitators with the World in Conversation Project.

Effective: Fall 2013

Prerequisite: SOC 119 and SOC 300

**SOC 470 Intermediate Social Statistics** (4) Descriptive and inferential statistics in social research: central tendency and variation, normal distribution, measures of association, confidence intervals, hypothesis testing.

Effective: Fall 2001

Prerequisite: SOC 207

**SOC 471 Qualitative Research Methods in Sociology** (3) Theory, methods, and practice of qualitative data collection, including observation, participant observation, interviewing; supervised projects in natural settings.

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

**SOC 481H Senior Honors Seminar in Sociology** (1) Supervised experience in planning and writing the honors thesis.

Effective: Spring 1999

Prerequisite: sociology major senior standing and admission to the Schreyer Honors College

**SOC 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

**SOC 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

**SOC 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2000  
Prerequisite: prior approval of proposed assignment by instructor

**SOC 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Fall 1983

**SOC 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Fall 1983

**SOC 499 (IL) Foreign Study--Sociology** (2-6) Study, in selected foreign countries, of groups, institutions, and social problems.  
Effective: Summer 2005  
Prerequisite: 3 credits in Sociology

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## **Sociology-CI (SOCIO)**

SOCIO 476 **Sociology of Science and Technology** (3) Examines the constitutive relationship between society, science and technology and ethical concerns arising from these relationships.

Effective: Spring 2003

Prerequisite: 60 credits at least 6 of which are in the social sciences or graduate status or permission of the program

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## Software Engineering (SWENG)

**SWENG 295 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**SWENG 311 Object-Oriented Software Design and Construction** (3) Design, documentation, testing, and construction of software using software engineering strategies embodied in object-oriented programming languages.

Effective: Spring 2008

Prerequisite: CMPSC 122

**SWENG 395 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**SWENG 396 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2010

**SWENG 397 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 2010

**SWENG 399 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2010

**SWENG 400 Introduction to Software Engineering Studio** (3) Provides an introduction to the principles of software engineering and includes complementary instruction in one programming language.

Effective: Summer 1999

Prerequisite: senior standing or above

**SWENG 411 Software Engineering** (3) Software engineering principles including life cycle, dependability, process modeling, project management, requires specification, design analysis, implementation, testing, and maintenance.

Effective: Spring 2008

Prerequisite: CMPSC 122 Concurrent: SWENG 311

**SWENG 421 Software Architecture** (3) The analysis and design of software systems using canonical design patterns.

Effective: Summer 2008

Prerequisite: SWENG 411

**SWENG 431 Software Verification, Validation, and Testing** (3) Introduction to methods of software verification, validation, and testing; mathematical foundations of testing, reliability models; statistical testing.

Effective: Spring 2008

Prerequisite: SWENG 411; STAT 301

**SWENG 452W Embedded Real Time Systems** (3) The design and implementation of real time systems.

Effective: Summer 2008

Prerequisite: CMPSC 472 or CMPSC 473 or CMPEN 441

**SWENG 465 Web Services** (3) This course introduces the students to a contemporary computing paradigm called "service-oriented computing."

Effective: Spring 2011

Prerequisite: SWENG 311 or CMPSC 221

**SWENG 480 Software Engineering Design** (3) Concepts of engineering ethics, economy, and project management, senior capstone project selection, and technical communication skills.

Effective: Spring 2009

Prerequisite: SWENG 431

**SWENG 481 Software Engineering Project** (3) Capstone group design projects in software engineering.

Effective: Spring 2008

Prerequisite: SWENG 480

**SWENG 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 2010

**SWENG 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

SWENG 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2010

SWENG 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1999

SWENG 497A **Special Topics: Software Documentation** (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2014 Ending: Summer 2014

SWENG 497B **Special Topics: Tools and Processes for Software Engineers** (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2014 Ending: Summer 2014

SWENG 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2010

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## Soil Science (SOILS)

**SOILS 071 (GN;IL) Environmental Sustainability (3)** An introduction to environmental science, exploring sustainable human- environment interactions with examples from environmental soil science.  
Effective: Summer 2013

**SOILS 101 (GN) Introductory Soil Science (3)** A study of soil properties and processes and relationships to land use, plant growth, environmental quality, and society.  
Effective: Summer 2013

**SOILS 102 Introductory Soil Science Laboratory (1)** Laboratory exercise and field trips designed to develop student competency in soil description, analysis, and assessment.  
Effective: Summer 2013  
Prerequisite: SOILS 101 Concurrent: SOILS 101

**SOILS 190 Professional Development in Environmental Soil Science (1)** Development of learning goals and an introduction to faculty and alumni contacts, student portfolios, the senior thesis, and internship opportunities.  
Effective: Summer 2013

**SOILS 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

**SOILS 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

**SOILS 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

**SOILS 401 Soil Composition and Physical Properties (3)** Advanced study of mineralogical and physical properties of soils which affect soil-plant-water relationships.  
Effective: Summer 2013  
Prerequisite: SOILS 101

**SOILS 402 Soil Nutrient Behavior and Management (3)** Chemical and biological behavior of soil nutrients; management for plant availability and fate in the environment. Laboratory emphasizes soil testing and soil-plant relationships.  
Effective: Summer 2013  
Prerequisite: CHEM 112SOILS 101

**SOILS 403 Soil Morphology Practicum (2 per semester/maximum of 4)** Students develop field skills to describe soil morphology, classify soils, and make land use interpretations.  
Effective: Summer 2013  
Prerequisite: SOILS 101 or equivalent

**SOILS 404 Urban Soils (3)** This course introduces the student to natural and human-influenced soils.  
Effective: Summer 2013  
Prerequisite: SOILS 101

**SOILS 405 (GEOSC 405) Hydropedology (3)** Soil and water interactions across scales, integrated studies of landscape-soil-water relationships, fundamental processes of water flow and chemical transport.  
Effective: Summer 2013  
Prerequisite: SOILS 101

**SOILS 412W Soil Ecology (3)** Introduction to soil organisms; includes interactions between organisms, their processes, and metabolism with a major focus on microorganisms.  
Effective: Summer 2013  
Prerequisite: BIOL 011BIOL 127 orBIOL 110

**SOILS 416 Soil Genesis, Classification, and Mapping (4)** Lecture and laboratory course on the genesis of soils, their classification, mapping, and interpretation for land use.  
Effective: Summer 2013  
Prerequisite: SOILS 101

**SOILS 418 (AGECO 418, AN SC 418) Nutrient Management in Agricultural Systems (3)** Comprehensive review of nutrient flow in animal agricultural systems, environmental regulations, and environmental stewardship practices.  
Effective: Summer 2013

**SOILS 419 (GEOSC 418) Soil Environmental Chemistry (3)** Introduction to chemical constituents and processes occurring in soils. Topics include mineral weathering, soil solution chemistry and adsorption of solutes.

Effective: Summer 2013  
Prerequisite: CHEM 112

**SOILS 420 Remediation of Contaminated Soils (3)** Basic principles and technical aspects of remediation of contaminated soils.

Effective: Summer 2013  
Prerequisite: SOILS 101

**SOILS 422 Natural Resources Conservation and Community Sustainability (3)** Conservation, land-use, and community (soil, water, air, plants, animals, and humans) impacting quality of life and sense of place.

Effective: Summer 2013  
Prerequisite: SOILS 101

**SOILS 450 Environmental Geographic Information Systems (3)** Use of geographic information systems (GIS) and digital spatial databases to characterize landscapes for environmental assessment and management.

Effective: Summer 2013  
Prerequisite: SOILS 101

**SOILS 489 Supervised Experience in College Teaching (1-3)** Participate with instructors in teaching an undergraduate soil science course; assist with teaching and evaluation and with development of instructional materials.

Effective: Summer 2013  
Prerequisite: SOILS 101 approval of instructor

**SOILS 490 (AGRO 490) Colloquium (1)** Continuing written and oral presentations developed by students in consultation with the course instructor.

Effective: Summer 2013  
Prerequisite: seventh-semester standing

**SOILS 494 Senior Thesis (1-6)** Supervised data collection and analysis on a topic of interest to the student culminating in a formal thesis.

Effective: Summer 2013  
Prerequisite: permission of the course coordinator

**SOILS 494H Senior Thesis (1-6)** Supervised data collection and analysis on a topic of interest to the student culminating in a formal thesis.

Effective: Summer 2013  
Prerequisite: permission of the course coordinator

**SOILS 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Summer 2013  
Prerequisite: prior approval of proposed assignment by instructor

**SOILS 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2013

**SOILS 497 Special Topics (1-9)** Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

**SOILS 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

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## Spanish (SPAN)

**SPAN 001 Elementary Spanish I** (4) Audio-lingual approach to basic Spanish; writing. Students who have received high school credit for two or more years of Spanish may not schedule this course for credit, without the permission of the department.  
Effective: Fall 1985

**SPAN 001H Elementary Spanish I** (4) Audio-lingual approach to basic Spanish; writing. Students who have received high school credit for two or more years of Spanish may not schedule this course for credit, without the permission of the department.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SPAN 002 Elementary Spanish II** (4) Audio-lingual approach to basic Spanish continued; writing. Students who have received high school credit for four years of Spanish may not schedule this course for credit, without the permission of the department.  
Effective: Fall 1985  
Prerequisite: SPAN 001

**SPAN 002H Elementary Spanish II** (4) Audio-lingual approach to basic Spanish continued; writing. Students who have received high school credit for four years of Spanish may not schedule this course for credit, without the permission of the department.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: SPAN 001

**SPAN 003 Intermediate Spanish** (4) Audio-lingual review of structure; writing; reading.  
Effective: Fall 1985  
Prerequisite: SPAN 002

**SPAN 010 Intensive Spanish** (6) Basic Spanish grammar, oral, aural, and writing skills (essentially equivalent to SPAN 001 and first half of SPAN 002).  
Effective: Fall 1988

**SPAN 020 Intensive Spanish** (6) Basic and intermediate Spanish grammar, oral, aural, and writing skills (essentially equivalent to second half of SPAN 002 and all of SPAN 003).  
Effective: Fall 1988  
Prerequisite: SPAN 010

**SPAN 051 Elementary Intensive Spanish for Graduate Students I** (3) Intensive introduction to Spanish: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: graduate standing

**SPAN 052 Elementary Intensive Spanish for Graduate Students II** (3) Intensive introduction to Spanish: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: SPAN 051 or equivalent and graduate standing

**SPAN 053 Intermediate Intensive Spanish for Graduate Students** (3) Continued intensive study of Spanish at the intermediate level: reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: SPAN 052 or equivalent and graduate standing

**SPAN 083S (GH;IL) First-Year Seminar in Hispanic Literatures and Cultures** (3) Introduction to the study of Hispanic literatures and cultures.  
Effective: Summer 2005

**SPAN 099 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

**SPAN 100 Intermediate Grammar and Composition** (3) An intermediate level grammar review that also incorporates directed and original composition exercises.  
Effective: Summer 1996  
Prerequisite: SPAN 003 or placement

**SPAN 100A Intermediate Grammar and Composition for Spanish Bilinguals** (3) A review of grammar and practice with composition focusing on needs and problems specific to Spanish-speaking bilinguals.  
Effective: Spring 1996  
Prerequisite: placement

**SPAN 105 Elementary Spanish I for Students in the Agricultural Sciences** (4) The course covers basic Spanish, grammar, and oral, aural, and writing skills for students in the Agricultural Sciences. Students who have received high school credit for two or more years of Spanish may not schedule this course for credit without the permission of the

instructor. This course does not count toward Spanish majors or the Spanish minor.  
Effective: Spring 2014

**SPAN 106 Elementary Spanish II for Students in the Agricultural Sciences** (4) Further development of basic Spanish skills and the cultural awareness needed to work with Spanish speakers in the agricultural industries.  
Effective: Spring 2014  
Prerequisite: SPAN 105

**SPAN 110 Intermediate Conversation** (3) Practice in oral expression in Spanish, with emphasis on aural comprehension, idiomatic usage, and fluency. Use of journalistic materials.  
Effective: Winter 1978  
Prerequisite: SPAN 003 or placement

**SPAN 120 Intermediate Reading** (3) Emphasis on rapid reading comprehension. Selected readings from contemporary Hispanic literature, social sciences, current events, etc.  
Effective: Winter 1978  
Prerequisite: SPAN 003 or placement

**SPAN 130 (GH;IL) Iberian Civilization** (3) Spanish and Portuguese life from the medieval period to the present; literature, the arts, and contemporary problems in historical perspective.  
Effective: Spring 2006

**SPAN 131 (GH;US;IL) Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.  
Effective: Summer 2005

**SPAN 131U (GH;US;IL) Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SPAN 131Y (GH;US;IL) Ibero-American Civilization** (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.  
Effective: Summer 2005

**SPAN 132 (IL) (AF AM 132, AFR 132) Afro-Hispanic Civilization** (3) A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America.  
Effective: Spring 2013

**SPAN 197 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1995

**SPAN 197A Medical Spanish: Health Issues and Cultural Awareness** (3) This course is designed to develop oral and written communication skills using specialized vocabulary in the health care field. In addition, the course incorporates contemporary and essential cultural aspects of the health of the Hispanic population residing in the United States.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: SPAN 003

**SPAN 197A Medical Spanish: Health Issues and Cultural Awareness** (3) This course is designed to develop oral and written communication skills using specialized vocabulary in the health care field. Completing course achieves 15th credit level proficiency and is designed to replace SPAN 100 for students going in to any major that has a medical or health component.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: SPAN 003

**SPAN 197B Spanish in the Media** (3) Content-based course for Spanish majors aimed to develop communication skills through a focus on mass media in Hispanic culture. This online course is a perfect match for double majors in Spanish and Media (Advertising/Public Relations, Media Studies, Journalism, etc). This course is restricted to students who are Communication majors or pre-majors.  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: SPAN 003

**SPAN 197B Spanish in the Media** (3) This course is designed to develop skills through a focus on mass media in Hispanic culture. Completing course achieves 15th credit level proficiency and is designed to replace SPAN 100 but ONLY for students going in to Communication majors.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: SPAN 003

**SPAN 197C (PORT 197C) Portuguese for Learners for Spanish** (3) This course is designed for learners of Spanish who wish to acquire Portuguese at an accelerated pace.  
Effective: Summer 2014 Ending: Summer 2014

**SPAN 197D Catalan** (3) Intensive introduction to the Catalan language and culture.

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: basic reading knowledge of another Romance language (Spanish French Italian Portuguese or Romanian)

**SPAN 199 (IL) Foreign Study--Beginning Conversational Spanish (3)** Grammar review and practice in oral expression and aural comprehension.

Effective: Summer 2005

**SPAN 200 Intensive Grammar and Composition (3)** Intensive grammar review; composition. Designed primarily for majors and prospective majors.

Effective: Spring 2001

Prerequisite: SPAN 100 or by placement

**SPAN 210 Readings in Iberian Civilization (3)** Intermediate level Spanish readings dealing with Iberian life from pre-historic times to the present.

Effective: Spring 1993

Prerequisite: SPAN 200

**SPAN 215 Introduction to Spanish Linguistics (3)** Introduction to the fundamental components of linguistics using data from the Spanish language.

Effective: Summer 2006

Prerequisite: SPAN 100

**SPAN 220 Readings in Ibero-American Civilization (3)** Intermediate level Spanish readings dealing with Ibero-American life from the pre-conquest to the present.

Effective: Spring 1992

Prerequisite: SPAN 200

**SPAN 230 (GH) Masterpieces of Spanish Literature in English Translation (3)** Study of works and authors of international importance; lectures, readings, and written works in English.

Effective: Spring 2003

**SPAN 253W Introduction to Hispanic Literature (3)** Introduction to generic distinctions, critical methods, and approaches to Hispanic literature.

Effective: Spring 2008

Prerequisite: SPAN 100 and SPAN 110

**SPAN 294 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

**SPAN 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**SPAN 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**SPAN 297A Sport and Modernity in Latin America (3)** This course will provide an interpretative framework for understanding the enormous success of sport in Latin America and its larger role in the global economic and geopolitical landscape.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SPAN 299 (IL) Foreign Study--Intermediate Conversational Spanish (3)** Grammar review and practice in oral expression and aural comprehension.

Effective: Summer 2005

**SPAN 300 Advanced Grammar and Composition Through Reading (3)** Development of advanced grammar and composition skills through reading texts by native speakers and adapting their techniques for original compositions.

Effective: Spring 2013

Prerequisite: SPAN 200

**SPAN 301 Advanced Writing and Stylistics in Spanish for Spanish Speakers (3)** This course will enhance writing proficiency in Spanish of Spanish speaking students by targeting common problems characteristic of Spanish speakers.

Effective: Spring 2008

Prerequisite: SPAN 100A

**SPAN 305 Spanish for Social Services (3)** Practical Spanish for social workers, medical personnel, law enforcement officers, etc.; emphasis on Puerto Rican vocabulary, idiom, and pronunciation.

Effective: Spring 2001

Prerequisite: SPAN 200

**SPAN 314 Spanish Sounds (3)** Spanish phonetics and phonemics; systematic means of correcting pronunciation defects; other audio-lingual applications.

Effective: Spring 2015 Future: Spring 2015  
Prerequisite: SPAN 200SPAN 215

SPAN 315 (GH;US) (LTNST 315) **Spanish and Spanish-speakers in the U.S.** (3) In this course, we investigate various aspects of the language(s) and language behaviors of U.S. Latinos.  
Effective: Summer 2006

SPAN 316 **Spanish Morphology and Syntax** (3) Analysis of Spanish word structure (morphology) and its relationship to syntactic structures.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: SPAN 200SPAN 215

SPAN 326 (GH;US) **Reading the Border/Lands** (3) This course examines representations of the U.S.-Mexico border in relation to the actual geographic space.  
Effective: Summer 2011

SPAN 353 **Survey of Spanish Literature before 1700** (3) Selected major works of prose, poetry, and drama from the Middle Ages to the end of the seventeenth century.  
Effective: Spring 2008  
Prerequisite: SPAN 253W

SPAN 354 **Survey of Spanish Literature Since 1700** (3) Selected major works of prose, poetry, and drama from the eighteenth century to the present.  
Effective: Spring 2008  
Prerequisite: SPAN 253W

SPAN 355 **Survey of Spanish American Literature through "Modernismo"** (3) Selected major works of prose, poetry, and drama from the discovery through "modernismo".  
Effective: Spring 2008  
Prerequisite: SPAN 253W

SPAN 356 **Survey of Spanish American Literature after "Modernismo"** (3) Historical survey of the major figures and periods in Spanish American literature after "modernismo".  
Effective: Spring 2008  
Prerequisite: SPAN 253W

SPAN 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

SPAN 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1999

SPAN 399 (IL) **Foreign Study--Spanish** (1-12) Advanced training in Spanish language skills.  
Effective: Summer 2005  
Prerequisite: SPAN 003

SPAN 410 **Advanced Oral Expression and Communication** (3) Emphasis on achieving practical command of spoken Spanish and the comprehension of native speech. Use of journalistic materials.  
Effective: Fall 1995  
Prerequisite: SPAN 200

SPAN 412 **Translation** (3) Techniques of oral and written translation from Spanish to English and vice versa, particularly for business, literature, and social work.  
Effective: Spring 2008  
Prerequisite: SPAN 300

SPAN 413 **Interpretation** (3) Introduction to the art of interpretation, with particular attention to the professions for which it is most commonly required.  
Effective: Summer 2012  
Prerequisite: SPAN 412

SPAN 414 **Spanish Phonology** (3) Spanish phonetics and phonemics; systematic means of correcting pronunciation defects; other audio-lingual applications.  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: SPAN 200SPAN 215

SPAN 415 **Spanish Morphology and Syntax** (3) The Spanish grammatical system; analysis of morphemic units and their organization into syntactic structures.  
Effective: Spring 2013 Ending: Summer 2014  
Prerequisite: SPAN 200SPAN 215

SPAN 418 **The Evolution of Spanish** (3) The emergence and development of the sounds and forms of Spanish.  
Effective: Spring 2013  
Prerequisite: SPAN 200SPAN 215



**SPAN 420 Spanish for Business and International Trade** (3) Introduction to the Spanish of international business and to the social and cultural norms of negotiation in Spanish-speaking countries.

Effective: Spring 2008

Prerequisite: SPAN 300

**SPAN 439 Don Quijote** (3) Thorough study of the masterpiece, including its sources, genesis, language, style, success, and influence.

Effective: Spring 2013

Prerequisite: SPAN 253W

**SPAN 440 Teaching of Romance Languages** (3) Theories of second language acquisition. Current classroom practices in the teaching of Romance languages.

Effective: Spring 2001

Prerequisite: SPAN 200

**SPAN 472 The Contemporary Spanish American Novel** (3) The regionalist and social novel since 1910, together with the social background.

Effective: Spring 2013

Prerequisite: SPAN 253W

**SPAN 474 Many Mexicos** (3) Overview of Mexican literature, culture and history from pre-colonial period to present.

Effective: Summer 2013

Prerequisite: SPAN 253W

**SPAN 476 Masterpieces of Spanish American Literature** (3) Reading, analysis, and discussion of selected major works representative of Spanish American prose and poetry.

Effective: Spring 2013

Prerequisite: SPAN 253W

**SPAN 479 (GH;US) (LTNST 479) U.S. Latina/o Culture en Espanol** (3) The history, culture, art, and social issues of Latinos in the United States.

Effective: Summer 2014

Prerequisite: SPAN 253W

**SPAN 488 War, Revolution, and the Struggles for Modernity: Spain 1898-1939** (3) This course, conducted in Spanish, examines Spanish literature from 1898 to 1939.

Effective: Summer 2014

Prerequisite: SPAN 253W

**SPAN 490 Masterpieces of Spanish Prose** (3) Reading, analysis, and discussion of selected masterpieces of Spanish novels, short stories, etc.

Effective: Spring 2013

Prerequisite: SPAN 253W

**SPAN 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

**SPAN 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

**SPAN 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**SPAN 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**SPAN 497A Contemporary Youth Cultures in Latin America** (3) Music bazaars, DJs and rave parties, and "barras de futbol," are only some of the manifestations associated with young people in Latin American literature, film, and music. In this course, we will compare different youth cultures in Latin America in terms of their productions and representations in the public sphere.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SPAN 497B Language Variation Across the Spanish-Speaking World** (3) Esta o ehta? Yo digo o digo yo? We will discuss language variation across the Spanish-speaking world with a focus on phonology and morphosyntax. We will also discuss bilingualism and different varieties of Spanish spoken in the U.S., and will work with data sets to illustrate the methodologies used for studying language variation.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SPAN 497C Latino Culture en Espanol** (3) This is an overview of literature and culture, in Spanish, created within the United States. We will read fiction, essays and film, but also consider poetry, travel accounts, visual art and performances, and cultural practice and sociological issues (like "quinceaneras" and soccer leagues) in order to discuss some of the

following themes particular to the Hispanic experience within the U.S.: immigration and transnationalism; the imaginary homeland; families and assimilation; conflicted identity; language and a sense of place.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

SPAN 499 (IL) **Foreign Study--Spanish** (1-12) Contemporary Spanish life and civilization. Emphasis on post-Civil War period: literature, arts, and sociopolitical problems.

Effective: Summer 2005

Prerequisite: SPAN 100SPAN 110 orSPAN 120

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## Special Education (SPLED)

**SPLED 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2011

**SPLED 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

**SPLED 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2011

**SPLED 395W Observing in Exceptional Settings** (3) Observations of exceptional persons and techniques used by their teachers in a variety of settings, e.g., school, day care, vocational.  
Effective: Summer 2011

Prerequisite: EDPSY 101 . PA Act 34 clearance required. In addition non-Pennsylvania residents must provide evidence of an FBI background information check. (Forms: 228 Chambers) Concurrent: SPLED 425

**SPLED 400 Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management** (4) Legal issues, learner characteristics, collaboration skills, assessment, and behavior management related to educating students with disability in inclusive settings.  
Effective: Summer 2011

Prerequisite: EDPSY 014 and EDPSY 010 or relevant child development course (e.g. HD FS 229 HD FS 239). Fifth semester standing or higher

**SPLED 401 Motivating Exceptional Learners** (4) Group and individual techniques to promote student task engagement and prosocial behavior.  
Effective: Summer 2011

Prerequisite: or concurrent: a grade of C or better required in SPLED 395W

**SPLED 402 Human Rights: Historical and Current Issues in Special Education** (3) Litigation, legislation, regulation, and advocacy issues impacting on educational and related services for individuals with academic and/or physical disabilities.  
Effective: Summer 2011

Prerequisite: or concurrent: SPLED 400 or SPLED 425

**SPLED 403A Evidence-Based Instruction for Elementary Students with Disabilities in Reading, Math, and Writing** (3) Evidence-based methods for design, delivery, and adaption of instruction for elementary students with disabilities in reading, mathematics, and writing.  
Effective: Summer 2011

Prerequisite: SPLED 400

**SPLED 403B Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings** (3) Evidence-based methods for designing, delivering, and adapting instruction for students with disabilities in inclusive secondary education settings.  
Effective: Summer 2011

Prerequisite: SPLED 400

**SPLED 404 Working with Families and Professionals in Special Education** (3) Strategies for productive interactions between special educators and others such as colleagues, employers, parents, service providers, professionals, and students.  
Effective: Summer 2011

Prerequisite: or concurrent: a grade of C or better required in SPLED 425

**SPLED 408 (EDPSY 408) Meeting Instructional Needs of English Language Learners with Special Needs** (3) The course content and activities focus on instruction and assessment for English Language Learners with special needs.  
Effective: Summer 2011

Prerequisite: EDPSY 010 EDPSY 014 Prerequisite or concurrent: SPLED 395W SPLED 425

**SPLED 409A Fundamental Literacy Skills for Students with Special Needs** (3) Effective reading curriculum and teaching methods to teach students with special needs.  
Effective: Summer 2011

Prerequisite: A grade of C or better required in SPLED 425 SPLED 395W SPLED 401 SPLED 412 SPLED 454 SPLED 495E

Concurrent: SPLED 495G

**SPLED 409B Writing and Content Literacy for Students with Special Needs** (3) Effective curriculum and materials for teaching writing and content literacy to students with special needs.  
Effective: Summer 2011

Prerequisite: a grade of C or better required in SPLED 425 SPLED 395W SPLED 401 SPLED 409A SPLED 412 SPLED 454 SPLED 495E Concurrent: SPLED 495G

**SPLED 409C Mathematics Instruction for Students with Special Needs** (3) Research-based practices for teaching mathematics skills to students with special needs.

Effective: Summer 2011

Prerequisite: a grade of C or better required in SPLED 425 SPLED 395W SPLED 401 SPLED 409A SPLED 412 SPLED 454 SPLED 495E Concurrent: SPLED 495G

**SPLED 411 Intervention for Students with Severe Disabilities** (3) Assessment, teaching strategies, curricula, materials, and assistive techniques for use with individuals having severe disabilities (mental and physical).

Effective: Summer 2011

Prerequisite: a grade of C or better required in SPLED 395W SPLED 401 SPLED 425 Concurrent: a grade of C or better in SPLED 495E

**SPLED 412 Instruction for Students with Mild Disabilities** (4) Appropriate teaching strategies, curriculum sequences, and materials selection and evaluation for children with mild special needs.

Effective: Summer 2011

Prerequisite: a grade of C or better required in SPLED 395W SPLED 401 SPLED 425 SPLED 454 Concurrent: a grade of C or better required in SPLED 454

**SPLED 415 Early Special Education** (3-4) Includes early identification methods, assessment, curricula, parent involvement, and program evaluation for exceptional preschoolers in mainstreamed or segregated settings.

Effective: Summer 2011

Prerequisite: a grade of C or better required in the following courses SPLED 454 ; a course in child development

**SPLED 418 Technologies for Persons with Disabilities** (2) Sensory aids, communication systems, computer systems, expert systems, simulations, and other technologies for students who are academically or physically challenged.

Effective: Summer 2011

Prerequisite: SPLED 400 or SPLED 425

**SPLED 419 Assistive Technology for General Education Teachers** (2-3) Strategies to support use of assistive technologies by students with disabilities in general education classrooms.

Effective: Summer 2012

Prerequisite: SPLED 400 SPLED 403A or SPLED 403B

**SPLED 425 Foundations of Special Education, Etiologies, Law, and Implications for Practice** (4) An introduction to exceptional individuals being served in special education programs across the life span.

Effective: Fall 2011

Prerequisite: admission into the SPLED Undergraduate or Graduate Program.

**SPLED 430 Foundational Skills for Working with Students with Special Education Needs in General Education Classrooms** (1) Introduction to working with students with special education needs in the general education classroom, including history and legal foundation.

Effective: Summer 2011

Prerequisite: teacher certification or permission of instructor

**SPLED 431 Evidenced-Based Methods for Monitoring Student Progress and Making Instructional Decisions** (2)

Evidence-based methods for assessing student progress and making data-based instructional decisions.

Effective: Summer 2011

Prerequisite: SPLED 430

**SPLED 432 Evidence-Based Practices for Inclusive Behavior Management** (2) Managing and motivating learners with special needs in general education settings based upon principles of Applied Behavior Analysis.

Effective: Summer 2011

Prerequisite: SPLED 430 SPLED 431

**SPLED 433 Effective and Explicit Instruction for Students with Learning Difficulties** (2) Evidence-based methods for designing, delivering, and adapting academic instruction for students with mild, moderate, and severe learning difficulties.

Effective: Summer 2011

Prerequisite: SPLED 430

**SPLED 434A Evidence-Based Practices for Inclusive Elementary Classrooms** (2) Evidence-based methods to effectively serve special needs students in elementary general education settings, including reading, writing, and mathematics instruction.

Effective: Summer 2011

Prerequisite: SPLED 430 SPLED 431 SPLED 432 SPLED 433

**SPLED 434B Evidenced-Based Practices for Inclusive Secondary Classrooms** (2) Evidence-based methods to effectively serve special needs students in secondary general education settings.

Effective: Summer 2011

Prerequisite: SPLED 430 SPLED 431 SPLED 432 SPLED 433

**SPLED 444 Inclusive Education and Assessment** (6) Knowledge and skills needed to educate students with special needs in urban schools.

Effective: Summer 2011

Prerequisite: ELEDM 400 Concurrent: URBED 395W

**SPLED 454 Assessment for Instruction** (4) Orientation to evaluation of special students with emphasis on the creation, use, and interpretation of teacher-made assessment procedures.

Effective: Summer 2011

Prerequisite: a grade of C or better required in EDPSY 101 Concurrent: a grade of C or better in SPLED 412

**SPLED 460A Fundamentals of Reading Instruction in Special Education** (3) Topics include the interactive nature of reading, recent findings of the National Reading Panel, explicit instruction principles and reading assessments.

Effective: Summer 2011

**SPLED 460B Teaching and Assessing Reading Skills of Students with Special Needs (3)** Topics include methods for assessing and teaching reading skills including fluency, word level decoding and comprehension.

Effective: Summer 2011

Prerequisite: SPLED 460A

**SPLED 460C Specialized Reading Applications in Special Education (3)** Topics include methods for assessing and teaching reading skills in vocational competence, functional reading, reading for students with sensory impairment.

Effective: Summer 2011

Prerequisite: SPLED 460A and SPLED 460B

**SPLED 461 Introduction to Autism Spectrum Disorders: Issues and Concerns (3)** Overview of issues, characteristics, and evidenced-based assessment strategies, and approaches for individuals with autism/PDD.

Effective: Spring 2013

Prerequisite: EDPSY 010 or EDPSY 014 or equivalent or admission into the Professional Development Certificate in Autism or relevant child development course

**SPLED 462 Autism and Applied Behavior Analysis (3)** This course addresses principles of applied behavior analysis and empiricism related to instruction and special issues affecting individuals with autism.

Effective: Spring 2013

Prerequisite: 4th semester standing or higher

**SPLED 463 Communication and Social Competence (3)** Overview of deficits and strategies in speech, language, and communication across the Autism Spectrum Disorder.

Effective: Summer 2011

Prerequisite: SPLED 461

**SPLED 464 Assessment and Curriculum (3)** Overview of screening, diagnosis, and identification of skills in developmental domains and curricula for individuals with autism.

Effective: Summer 2011

Prerequisite: SPLED 461

**SPLED 465 Asperger Syndrome (1)** Characteristics, assessment, intervention, and curricula for individuals with Asperger syndrome. Emphasis will be given to social skill development.

Effective: Summer 2011

**SPLED 495E Experience with Exceptional Children (3)** Supervised activities with exceptional children in a variety of possible settings, e.g., schools, institutions, day care centers, vocational settings.

Effective: Summer 2011

Prerequisite: a grade of C or better required in SPLED 395 WS LED 401 SPLED 425 SPLED 454 . PA Act 34 clearance required. In addition non-Pennsylvania residents must provide evidence of an FBI background information check. (Forms: 228 Chambers) Concurrent: a grade of C or better in SPLED 411 SPLED 412

**SPLED 495F Practicum in Special Education (15)** Teaching experience with mildly/moderately disabled children in age appropriate settings, e.g., infant/preschools, schools, vocational/job sites.

Effective: Summer 2011

Prerequisite: a grade of C or better required in SPLED 495G . PA Act 34 clearance required. In addition non-Pennsylvania residents must provide evidence of an FBI background information check. (Forms: 228 Chambers)

**SPLED 495G Experience with an Integrated Inclusion Classroom (4)** Supervised teaching in integrated general classrooms with activities in assessment, diagnosis, and direct intervention with students in need or with disabilities.

Effective: Summer 2011

Prerequisite: a grade of C or better required in SPLED 425 SPLED 395 WS LED 401 SPLED 412 SPLED 454 SPLED 495E . PA Act 34 clearance required. In addition non-Pennsylvania residents must provide evidence of an FBI background information check (Forms: 228 Chambers). Concurrent: a grade of C or better required in SPLED 409

**SPLED 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2011

**SPLED 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2011

**SPLED 497A Assistive Technology for Persons with Disabilities (1)** Sensory aids, communication systems, computer systems, expert systems, simulations, and other technologies for students who are academically or physically challenged.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**SPLED 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2011

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## Statistics (STAT)

STAT 100 (GQ) **Statistical Concepts and Reasoning** (3) Introduction to the art and science of decision making in the presence of uncertainty.  
Effective: Summer 1988

STAT 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

STAT 200 (GQ) **Elementary Statistics** (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.  
Effective: Summer 1988 Ending: Summer 2014  
Prerequisite: 2 units in algebra

STAT 200 (GQ) **Elementary Statistics** (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Placement into MATH 021 or higher

STAT 200H (GQ) **Elementary Statistics** (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: Placement into MATH 021 or higher

STAT 220 **Basic Statistics for Quantitative Students** (3) Descriptive statistics, probability, binomial and normal distributions, one and two sample models, introduction to regression, ANOVA and contingency tables. Students may only take one course from STAT 200, 220, and 250 for credit.  
Effective: Summer 1994  
Prerequisite: MATH 140

STAT 240 (GQ) **Introduction to Biometry** (3) Statistical analysis, sampling, and experimentation in the agricultural sciences; data collection, descriptive statistics, statistical inference, regression, one factor AOV, probability. Students may take only one course from STAT 200, 220, 240, 250 for credit.  
Effective: Spring 2005 Ending: Summer 2014  
Prerequisite: 3 credits in mathematics

STAT 240 (GQ) **Introduction to Biometry** (3) Statistical analysis, sampling, and experimentation in the agricultural sciences; data collection, descriptive statistics, statistical inference, regression, one factor AOV, probability. Students may take only one course from STAT 200, 220, 240, 250 for credit.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Placement into MATH 021 or higher

STAT 250 (GQ) **Introduction to Biostatistics** (3) Statistical analysis and interpretation of data in the biological sciences; probability; distributions; statistical inference for one- and two-sample problems.  
Effective: Spring 2001 Ending: Summer 2014  
Prerequisite: 3 credits in mathematics

STAT 250 (GQ) **Introduction to Biostatistics** (3) Statistical analysis and interpretation of data in the biological sciences; probability; distributions; statistical inference for one- and two-sample problems.  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Placement into MATH 021 or higher

STAT 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Fall 2007

STAT 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1994

STAT 301 (GQ) **Statistical Analysis I** (3) Probability concepts; nature of statistical methods; elementary distribution and sampling theory; fundamental ideas relative to estimation and testing hypotheses.  
Effective: Summer 1988  
Prerequisite: 3 credits of calculus

STAT 318 (MATH 318) **Elementary Probability** (3) Combinatorial analysis, axioms of probability, conditional probability and independence, discrete and continuous random variables, expectation, limit theorems, additional topics. Students who have passed either STAT(MATH) 414 or 418 may not schedule this course for credit.  
Effective: Spring 1989  
Prerequisite: MATH 141

STAT 319 (MATH 319) **Applied Statistics in Science** (3) Statistical inference: principles and methods, estimation and testing hypotheses, regression and correlation analysis, analysis of variance, computer analysis. Students who have passed

STAT (MATH) 415 may not schedule this course for credit.

Effective: Spring 1989

Prerequisite: STAT 318 or knowledge of basic probability

STAT 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

STAT 401 **Experimental Methods** (3) Random variables; probability density functions; estimation; statistical tests, t-tests; correlation; simple linear regression; one-way analysis of variance; randomized blocks.

Effective: Spring 1988

Prerequisite: MATH 111 or MATH 141

STAT 402 **Statistical Analysis II** (3) Two-sample problems, single and multifactor ANOVA, simple and multiple regression, categorical data.

Effective: Fall 2007

Prerequisite: STAT 301 . 400 level needed for honors program

STAT 414 (MATH 414) **Introduction to Probability Theory** (3) Probability spaces, discrete and continuous random variables, transformations, expectations, generating functions, conditional distributions, law of large numbers, central limit theorems. Students may take only one course from STAT(MATH) 414 and 418.

Effective: Fall 2001

Prerequisite: MATH 230 or MATH 231

STAT 415 (MATH 415) **Introduction to Mathematical Statistics** (3) A theoretical treatment of statistical inference, including sufficiency, estimation, testing, regression, analysis of variance, and chi-square tests.

Effective: Fall 1989

Prerequisite: MATH 414

STAT 416 (MATH 416) **Stochastic Modeling** (3) Review of distribution models, probability generating functions, transforms, convolutions, Markov chains, equilibrium distributions, Poisson process, birth and death processes, estimation.

Effective: Spring 1984

Prerequisite: STAT 318 or STAT 414; MATH 230

STAT 418 (MATH 418) **Introduction to Probability and Stochastic Processes for Engineering** (3) Introduction to probability axioms, combinatorics, random variables, limit laws, and stochastic processes. Students may take only one course from MATH(STAT) 414 and 418 for credit.

Effective: Fall 2011

Prerequisite: MATH 230 or MATH 231

STAT 440 **Computational Statistics** (3) Topics related to computing in statistics, including numerical linear algebra, optimization, simulation, numerical integration, and bootstrapping.

Effective: Spring 2006

Prerequisite: STAT 200 or equivalent STAT 415 MATH 220

STAT 460 **Intermediate Applied Statistics** (3) Review of hypothesis testing, goodness-of-fit tests, regression, correlation analysis, completely randomized designs, randomized complete block designs, latin squares.

Effective: Fall 2006

Prerequisite: STAT 200 STAT 220 STAT 240 STAT 250 STAT 301 or STAT 401

STAT 461 **Analysis of Variance** (3) Analysis of variance for single and multifactor designs; response surface methodology.

Effective: Fall 2007

Prerequisite: STAT 200 STAT 220 STAT 240 STAT 250 STAT 301 or STAT 401

STAT 462 **Applied Regression Analysis** (3) Introduction to linear and multiple regression; correlation; choice of models, stepwise regression, nonlinear regression.

Effective: Fall 2006

Prerequisite: STAT 200 STAT 220 STAT 240 STAT 250 STAT 301 or STAT 401

STAT 463 **Applied Time Series Analysis** (3) Identification of models for empirical data collected over time; use of models in forecasting.

Effective: Spring 2006

Prerequisite: STAT 462

STAT 464 **Applied Nonparametric Statistics** (3) Tests based on nominal and ordinal data for both related and independent samples. Chi-square tests, correlation.

Effective: Fall 2006

Prerequisite: STAT 200 STAT 220 STAT 240 STAT 250 STAT 301 or STAT 401

STAT 466 **Survey Sampling** (3) Introduction to design and analysis of sample surveys, including questionnaire design, data collection, sampling methods, and ratio and regression estimation.

Effective: Spring 2006

Prerequisite: STAT 200 STAT 220 STAT 240 STAT 250 STAT 301 or STAT 401

STAT 470W **Problem Solving and Communication in Applied Statistics** (3) Provide problem solving and communication skills through development of writing ability, interaction with peers and the SCC, and oral presentations.

Effective: Spring 2000

Prerequisite: STAT 460 STAT 462 STAT 480

STAT 480 **Introduction to SAS** (1) Introduction to SAS with emphasis on reading, manipulating and summarizing data.



Effective: Spring 2008

Prerequisite: 3 credits in statistics

**STAT 481 Intermediate SAS for Data Management** (1) Intermediate SAS for data management.

Effective: Summer 2007

Prerequisite: STAT 480

**STAT 482 Advanced Topics in SAS** (1) Advanced statistical procedures in SAS, including ANOVA, GLM, CORR, REG, MANOVA, FACTOR, DISCRIM, LOGISTIC, MIXED, GRAPH, EXPORT, and SQL. Credit can not be received for both STAT 482 and STAT 480/481/483.

Effective: Summer 2009

Prerequisite: STAT 480 and STAT 481

**STAT 483 Statistical Analysis System Programming** (3) Introduction, intermediate, and advanced topics in SAS. Credit can not be received for both STAT 483 and STAT 480/481/482.

Effective: Summer 2009

Prerequisite: 3 credits in statistics

**STAT 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small group basis.

Effective: Fall 2007

Prerequisite: 6 credits in statistics

**STAT 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small group basis.

Effective: Fall 2007

Prerequisite: 6 CREDITS IN STATISTICS

**STAT 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships.

Effective: Fall 2007

Prerequisite: 6 credits in statistics

**STAT 496 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**STAT 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**STAT 497C Topics in Stat Computing with R** (1) Topics: I) Basic background on R II) Manipulating data I III) Finding help IV) Simple univariate data V) importing data VI) Documenting your work VI) Manipulating data II VII) Repetitive tasks - loops and the apply () family (IX) visual data X) Basic analysis (as much as possible we'll work with real data.)

Effective: Summer 2014 Ending: Summer 2014

**STAT 497C Topics in Stat Computing with R** (1) Topics: 1) Basic background on R II) Manipulating data I III) Finding help V) Simple univariate data V) importing data VI) Documenting your work VI) Manipulating data II VII) Repetitive tasks - loops and the apply () family (IX) visual data X) Basic analysis (as much as possible we'll work with real data.)

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**STAT 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Supply Chain Mgmt (SCM)

SCM 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007

SCM 200 (GQ) **Introduction to Statistics for Business** (4) Topics include descriptive statistics, probability distributions, statistical inference, regression and correlation, and forecasting.

Effective: Summer 2013

Prerequisite: MATH 021 or higher or satisfactory score on the mathematics placement examination

SCM 200H (GQ) **Honors Introduction to Statistics for Business** (4) Topics include descriptive statistics, probability distributions, statistical inference, regression and correlation, and forecasting.

Effective: Spring 2011

Prerequisite: MATH 021 or higher or satisfactory score on the mathematics FTCA examination

SCM 200H (GQ) **Honors Introduction to Statistics for Business** (4) Topics include descriptive statistics, probability distributions, statistical inference, regression and correlation, and forecasting.

Effective: Summer 2013

Prerequisite: MATH 021 or higher or satisfactory score on the mathematics placement examination

SCM 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

SCM 301 **Supply Chain Management** (3) Supply chain management concepts, principles, and methodologies.

Effective: Spring 2011

Prerequisite: ACCTG 211ECON 102SCM 200 orSTAT 200 ; limited to students in baccalaureate status

SCM 301H **Supply Chain Management** (3) Supply chain management concepts, principles, and methodologies.

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: ACCTG 211ECON 102SCM 200 orSTAT 200 ; limited to students in baccalaureate status

SCM 310 **Introduction to Operations Management** (3) An introduction to the strategic importance and the analytic tools of operations management. Not available to baccalaureate business students in Smeal.

Effective: Spring 2007

Prerequisite: SCM 200 orSTAT 200 or permission of the program; fifth semester standing

SCM 320 **Transport Systems** (3) Strategic role of freight transportation systems and services in supply chain networks.

Not available to baccalaureate business students in Smeal.

Effective: Spring 2008

Prerequisite: SCM 301 orMKTG 301

SCM 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2007

SCM 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 2007

SCM 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2007

SCM 400 **Transport Planning** (3) Advanced study of transport systems in supply chain networks.

Effective: Spring 2007

Prerequisite: B A 302 andSCM 404

SCM 404 **Demand Fulfillment** (3) Analysis of demand fulfillment and the role of distribution operations management in the supply chain.

Effective: Spring 2011

Prerequisite: B A 302 orSCM 301

SCM 405 **Manufacturing and Services Strategies** (3) Investigates manufacturing and services strategies in supply chain networks.

Effective: Spring 2011

Prerequisite: SCM 301 orB A 302

SCM 406 **Strategic Procurement** (3) Analysis of strategic procurement in the supply chain.

Effective: Summer 2011

Prerequisite: B A 302 orSCM 301

SCM 416 **Warehousing and Terminal Management** (3) Administration of warehouse and terminal functions in logistics systems, with analysis of customer service, forecasting, inventory, investment, design, and operation. Not available to baccalaureate business students in Smeal.

Effective: Spring 2007  
Prerequisite: SCM 301

**SCM 421 Supply Chain Analytics** (3) Models and Methodologies for supply chain analysis.  
Effective: Spring 2011  
Prerequisite: SCM 404 or SCM 405 or SCM 406

**SCM 435 International Logistics** (3) Design and operation of global supply chain networks. Not available to baccalaureate business students in Smeal.  
Effective: Spring 2007  
Prerequisite: SCM 301 and SCM 320

**SCM 445 Operations Planning and Control** (3) Aggregate production planning procedures, disaggregation methods in hierarchical production planning, master production scheduling, material requirements planning, lot-sizing, and capacity planning. Not available to baccalaureate business students in Smeal.  
Effective: Fall 2012  
Prerequisite: SCM 301

**SCM 450W Strategic Design and Management of Supply Chains** (3) Strategic design and management of supply chains.  
Effective: Fall 2011  
Prerequisite: SCM 421

**SCM 455 Logistics Systems Analysis and Design** (3) Customer service, inventory management, transportation, warehousing, purchasing, international logistics, site location planning and analysis, and total cost analysis.  
Effective: Spring 2007  
Prerequisite: SCM 301 or SCM 310

**SCM 456 Supply Chain Risk Analysis** (3) Business processes are modeled as a network of queues using discrete-event simulation and analyzed model outcomes using statistical methods.  
Effective: Spring 2007  
Prerequisite: SCM 200 and B A 302

**SCM 460 Purchasing and Materials Management** (3) Purchasing policies, procedures, order specifications and agreements, supplier selection, and the role of purchasing in production planning and inventory management. Not available to baccalaureate business students in Smeal.  
Effective: Spring 2007  
Prerequisite: SCM 301 or SCM 310

**SCM 465 Electronic Business Management** (3) A problem-based exploration of the various electronic business tools and technologies required to efficiently manage a supply chain. Not available to baccalaureate business students in Smeal.  
Effective: Spring 2007  
Prerequisite: SCM 301 or SCM 310

**SCM 494 Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2007

**SCM 494H Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Spring 2008

**SCM 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2007

**SCM 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2007

**SCM 497A Logistics Case Study Analysis** (3) This course will introduce students to the case analysis method with an emphasis on logistics. Students will learn to a) identify the type of case and the most important questions to be addressed, b) identify required information, relevant data sources and appropriate analytical methods, and c) develop and make effective presentations of key case study findings and recommendations. The course will follow the basic approach to case analysis described in Ellet (2007), and will emphasize quantitative practice exercises done by groups of students.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: permission of the program

**SCM 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 2007

**SCM 499 (IL) Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2007



## Surveying (SUR)

**SUR 111 Plane Surveying** (4) Plane surveying principles; basic measurement statistics; use and care of equipment; traversing, area, and coordinate computations; differential leveling; RTK-GPS measurements.

Effective: Spring 2012

Prerequisite: or concurrent: MATH 026 or MATH 040 or MATH 140

**SUR 162 Methods in Large Scale Mapping** (3) CAD applications in mapping; data collection using traditional and satellite techniques; map compilation; COGO.

Effective: Spring 2012

Prerequisite: SUR 111 EDSGN 100

**SUR 212 Route and Construction Surveying** (4) Circular, compound, spiral horizontal curves; equal, unequal tangent vertical curves; alignments, earthwork; control, building, pipe, street, and as-built construction surveys.

Effective: Summer 2011

Prerequisite: SUR 162

**SUR 222 Photogrammetry** (3) Basic principles of metric photogrammetry with single and stereopair photos; coordinate transformations; map production with stereo imagery; flight planning. Lab.

Effective: Fall 2013

Prerequisite: Prerequisite or concurrent: SUR 162

**SUR 241 Surveying Measurement Analysis** (3) Statistical error analysis of surveying measurements; propagation of random errors; confidence intervals and statistical testing. Lab.

Effective: Spring 2001

Prerequisite: SUR 111 Concurrent: MATH 083 or MATH 140

**SUR 262 Coordinate Systems in Map Projections** (2) Introduction to coordinate systems used in the Lambert, Mercator, Transverse Mercator, and UTM map projections; reduction of surveying observations.

Effective: Fall 2013

Prerequisite: Prerequisite or concurrent: MATH 110 or MATH 140; SUR 162

**SUR 272 Cadastral Surveying** (3) Evolution of land records systems; PLS: property ownership and conveyancing; common and statute law; rules of construction; boundary location procedures.

Effective: Fall 1993

Prerequisite: SUR 111

**SUR 296 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 1997

**SUR 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2007

**SUR 313 Integrated Surveying** (3) Control, boundary, mapping and construction surveys; survey planning, coordinating; report and record map preparation.

Effective: Spring 2012

Prerequisite: SUR 162 Concurrent: SUR 212 SUR 272

**SUR 341 Adjustment Computations** (3) Matrix methods in least squares; random error propagation; observation equation model; conditions between parameters; basic post-adjustment statistical analysis.

Effective: Fall 2013

Prerequisite: SUR 262 ; Prerequisite or concurrent: CMPSC 201 STAT 401 SUR 241

**SUR 351 Geodetic Models** (3) Three dimensional geodesy; computations on the ellipsoid; map projections; reduction of observations and elements of physical geodesy.

Effective: Fall 2013

Prerequisite: MATH 141 SUR 262

**SUR 362 Introduction to Geospatial Information Engineering** (3) Basic concepts in geographic information engineering; spatial reference frame-works; map and text data; digital environments; software and hardware plat-forms.

Effective: Spring 2012

Prerequisite: SUR 162 SUR 272 Concurrent: MATH 110 or MATH 140 SUR 222

**SUR 372W Legal Aspects of Land Surveying** (3) Legal research; rules of evidence including classification and evaluation; unwritten rights; land description composition; easements.

Effective: Spring 1994

Prerequisite: SUR 272

**SUR 381 Stormwater Hydraulics and Hydrology** (4) Hydraulics: statics, continuity, energy, friction; hydrology: rainfall, abstractions, travel time, runoff; stormwater design: sewers, culverts, basins, erosion; municipal regulations.

Effective: Summer 2011

Prerequisite: MATH 141 6th semester standing Concurrent: PHYS 213

**SUR 422 Digital Photogrammetry** (3) Mathematical methods for processing digital imagery, creating digital elevation

models and ortho-photographs, and applications in spatial data infrastructure.

Effective: Summer 2011

Prerequisite: MATH 220SUR 362

**SUR 441 Data Analysis and Project Design** (3) Post least squares adjustment analysis of control networks, statistical testing, blunder detection, network design considerations, and computer optimization techniques.

Effective: Summer 1994

Prerequisite: STAT 401 orSTAT 451SUR 341

**SUR 455 Precise Positioning Systems** (3) Stellar coordinate systems; geodetic reference coordinate systems; satellite orbital theory; global positioning systems; pseudo-ranging; GPS vector adjustments.

Effective: Summer 1994

Prerequisite: SUR 351 . Prerequisite or concurrent:SUR 441

**SUR 462 Parcel-Based Geospatial Information Systems** (3) Acquisition processing of land parcel data; development of land information system and applications in geospatial information technology.

Effective: Summer 2011

Prerequisite: SUR 362SUR 372W

**SUR 471 Professional Aspects of Land Surveying** (3) Ethical issues and legal limits of practice; surveyor as an expert witness; surveyor-client relationship; responsibilities to the profession.

Effective: Summer 1994

Prerequisite: SUR 372W

**SUR 482 Land Development Design** (3) The land development process; geometric, environmental, aesthetic aspects of development; local regulatory requirements; preparation of final plat and report.

Effective: Fall 2013

Prerequisite: SUR 212SUR 372W ; Prerequisite or concurrent:SUR 381

**SUR 490 Seminar in Surveying** (1) Individual or group work in surveying.

Effective: Summer 1994

Prerequisite: senior standing

**SUR 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 1993

**SUR 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1993

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## **Sustainability (SUST)**

SUST 200 (GS) **Foundations of Leadership in Sustainability** (3) Science, ethics, and leadership in social, environmental, and economic sustainability.  
Effective: Spring 2012

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## Swahili (SWA)

SWA 001 **Elementary Swahili I** (4) Listening, speaking, reading, writing Swahili: an introduction for beginners; basic structures and vocabulary; cultural elements.  
Effective: Spring 1995

SWA 002 **Elementary Swahili II** (4) Listening, speaking, reading, and writing Swahili; structures and vocabulary; cultural elements.  
Effective: Spring 1995  
Prerequisite: SWA 001

SWA 003 **Intermediate Swahili** (4) Further development of listening, speaking, reading, and writing skills in Swahili: structures and vocabulary; cultural elements.  
Effective: Spring 1995  
Prerequisite: SWA 002

SWA 051 **Elementary Intensive Swahili for Graduate Students I** (3) Intensive introduction to Swahili: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: graduate standing

SWA 052 **Elementary Intensive Swahili for Graduate Students II** (3) Intensive introduction to Swahili: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: SWA 051 and graduate standing

SWA 053 **Intermediate Intensive Swahili for Graduate Students** (3) Continued intensive study of Swahili at the intermediate level: reading, writing, speaking, listening, cultural contexts.  
Effective: Summer 2008  
Prerequisite: SWA 052 or equivalent and graduate standing

SWA 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

SWA 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SWA 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

SWA 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SWA 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

SWA 295 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 1995  
Prerequisite: prior approval of proposed assignment by instructor

SWA 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 1995

SWA 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

SWA 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SWA 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor



SWA 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

SWA 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

SWA 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

SWA 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Fall 2007

SWA 496 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 1995

SWA 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

SWA 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## **Systems Engineering (SYSEN)**

SYSEN 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Spring 1999

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## Telecommunications (TELCM)

TELCM 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

TELCM 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 1997

TELCM 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

TELCM 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 1992

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## Theatre (THEA)

**THEA 001S First-Year Seminar: Theatre Production Practices** (1) An orientation to the School of Theatre production practices, resources, faculty, and practicum.

Effective: Spring 2006

Prerequisite: admission into Theatre Program

**THEA 080 (GA) Pit Orchestra** (1-3 per semester/maximum of 3) Rehearsal and performance of contemporary and historical musical theatre styles, including operetta and light opera.

Effective: Summer 2008

Prerequisite: audition

**THEA 100 (GA;US;IL) The Art of the Theatre** (3) An experiential survey of all aspects of the living theatre, as presented by a resident company of theatre artists.

Effective: Spring 2006

**THEA 102 (GA) Fundamentals of Acting** (3) Introduction to the art and craft of acting for non-theatre majors.

Effective: Fall 2003

**THEA 103 Fundamentals of Directing** (3) Training and experience in basic skills of directing. Designed for non-theatre majors.

Effective: Fall 1983

**THEA 104 Fundamentals of Theatre Production** (3) Training and experience in basic skills of technical theatre. Designed for non-theatre majors.

Effective: Fall 1983

**THEA 105 (GA) Introduction to Theatre** (3) An introduction and overview of the history, craft, and art of the theatre to foster an informed appreciation of theatrical events. This course is an alternate to THEA 100.

Effective: Spring 2003

**THEA 107 (GA) Introduction to Dramatic Structure** (3) An introduction to structural analysis in dramatic literature.

Effective: Summer 2011

**THEA 110 Playscript Analysis** (3) Theory and method of playscript analysis for the general theatre student.

Effective: Fall 1983

**THEA 112 (GA) Introduction to Musical Theatre** (3) A survey of music theatre as an art form.

Effective: Spring 2012

**THEA 113 Musical Theatre Theory I** (3) Studies in the fundamentals of music notation and sight-singing.

Effective: Summer 2000

Prerequisite: admission into Musical Theatre Option

**THEA 114 Music Theatre: Form and Analysis** (3) A survey of music theatre as an art form.

Effective: Summer 1993

Prerequisite: admission into Musical Theatre Option

**THEA 115 B.F.A. Acting Foundations** (2) Fundamental aspects of training the actor's body, voice, mental focus, and imagination.

Effective: Summer 2005

Prerequisite: admission to B.F.A. in Musical Theatre

**THEA 120 Acting I** (3) Fundamental skills and training in acting. Emphasis on physical/vocal awareness and the nature of dramatic communication. Theatre majors only.

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

**THEA 121 Fundamentals of Acting II** (3) This course is a continuation of THEA 120 and designed to build upon the basic foundation of acting.

Effective: Summer 2012

Prerequisite: THEA 120

**THEA 130 Introduction to Theatre Scenic and Costume Technology** (3) Introduction to the methods, materials, equipment, concepts and processes involved in the construction of scenery and costumes for the theatre.

Effective: Summer 2005

**THEA 131 Introduction to Theatre Sound and Lighting Technology** (3) Introduction to the methods, materials, equipment, facilities, concepts and processes used to create theatre lighting and sound.

Effective: Summer 2005

**THEA 146 Basic Theatrical Makeup** (2) Both straight and corrective makeup, with character and styling techniques for stage, film, and television.  
Effective: Summer 1989

**THEA 150 Fundamentals of Design for the Theatre** (3) Exploration of the philosophy and technique of scenic, costume, and lighting design.  
Effective: Spring 2008

**THEA 170 Introduction to Stage Lighting Production Techniques** (3) Introduction to theatre lighting facilities, equipment, and practice. Practical experience with major productions.  
Effective: Fall 1998  
Prerequisite: THEA 150

**THEA 180 Introduction to Stagecraft** (3) Introduction to methods, materials, equipment, facilities, and concepts used in scenery construction for the Theatre. Practical experience with departmental productions.  
Effective: Fall 1998  
Prerequisite: THEA 150

**THEA 189 (GA) Theatre Production Practicum** (1 per semester/maximum of 6)\* Supervised experience in theatre by crew participation in University theatre productions. For non-theatre students only.  
Effective: Spring 2004

**THEA 198 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1994

**THEA 199 (IL) Foreign Studies--Theatre Arts** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005  
Prerequisite: approval by department

**THEA 200 Script Analysis** (2) An introduction to script analysis for theatre majors, which focus on full text analysis as a foundation for area specific analysis. Two styles of analysis (contextual and structural) are studied.  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

**THEA 202 Beginning Scene Study** (3) Introduction to the fundamentals of scene study through readings, improvisations, exercises and scene work.  
Effective: Spring 2012  
Prerequisite: THEA 102 and enrollment in the Theatre Minor

**THEA 207 (GA;US) Gender and Theatre** (3) A study of theatre and drama literature as formed by issues of gender, race, and ethnic background.  
Effective: Summer 2005

**THEA 208 (GA;US;IL) (AF AM 208) Workshop: Theatre in Diverse Cultures** (3) A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples.  
Effective: Spring 2013

**THEA 208S (GA;US;IL) Workshop: Theatre in Diverse Cultures** (3) A performance-oriented class, which explores the historic and contemporary theatrical works of various culturally diverse peoples.  
Effective: Summer 2005

**THEA 209 Hip Hop Theatre** (3) Hip Hop Theatre defines and explores Hip Hop as an art form. The student will explore Hip Hop culture through Hip Hop Theatre aesthetics: Emceeing, DeJaying, Beat boxing, graffiti art, and dance.  
Effective: Summer 2012

**THEA 210 Hip Hop Theatre Performance Workshop** (3 per semester/maximum of 9) Hip Hop Theatre Performance Workshop expands on the Hip Hop Theatre lecture component and experience from Hip Hop Theatre, and delves more into a performance and workshop structure. Students will apply themes studied in Hip Hop THEA 209 or DANCE 271 to this course, which focuses on performance experiences.  
Effective: Summer 2012  
Prerequisite: THEA 209 or DANCE 271 or permission of the program

**THEA 212 Musical Theatre Theory II** (3) Intermediate studies in diatonic harmony, analysis, sight-singing and dictation.  
Effective: Summer 2000  
Prerequisite: THEA 113 THEA 114 and admission into Musical Theatre Option

**THEA 214 Musical Theatre Theory III** (3) Advanced studies in the technique and practice of chromatic harmonic analysis and sight-singing.

Effective: Summer 2000

Prerequisite: THEA 113THEA 114THEA 212

**THEA 220 Acting II** (3) Principles of acting through improvisation, exercises, and character analysis, with emphasis on basic skills of voice and movement. For theatre majors only.

Effective: Spring 2001

Prerequisite: THEA 120

**THEA 221 Acting III** (3) A continuation of Thea. 220. For Theatre majors only.

Effective: Spring 2008

Prerequisite: THEA 130 orTHEA 131 and School of Theatre approval

**THEA 222 Acting Laboratory** (2) Laboratory experience in student-directed scenes and/or one-act plays.

Effective: Spring 2014

Prerequisite: THEA 120

**THEA 223 Musical Theatre Performance I** (2) Studio training in the unique performance skills, repertoire and business of professional music theatre.

Effective: Spring 2006

Prerequisite: THEA 114THEA 115THEA 116THEA 212 admission into Musical Theatre option

**THEA 224 Musical Theatre Performance II** (2) Studio training in the unique performance skills, repertoire and business of professional music theatre.

Effective: Spring 2006

Prerequisite: THEA 223 admission into Musical Theatre Option

**THEA 225A B.F.A. Acting Studio I** (2) Exercises to develop truthful listening and responding as a foundation for acting studio scene study.

Effective: Summer 2005

Prerequisite: THEA 115 and admission to B.F.A. in Musical Theatre Concurrent: THEA 225B and THEA 225C

**THEA 225B B.F.A. Movement Studio I** (2) Introduction to techniques to condition the actor and improve physical awareness and self-use.

Effective: Summer 2005

Prerequisite: THEA 115 Concurrent: THEA 225A and THEA 225C

**THEA 225C B.F.A. Voice/Speech Studio I** (2) Introduction to actor voice and speech training.

Effective: Summer 2005

Prerequisite: THEA 115 Concurrent: THEA 225A and THEA 225B

**THEA 250 Introduction to Scene Design** (3) Introduction to the history, processes, materials, and concepts involved in designing scenery for the theatre.

Effective: Summer 2005

Prerequisite: THEA 130THEA 131 prerequisite or concurrent:THEA 251

**THEA 251 Theatre Drafting Techniques** (2) Introduction to drafting of floor plans, section drawings, construction graphics, and mechanical perspective for the theatre.

Effective: Spring 2001

**THEA 252 Design Presentation Techniques** (1) Media and materials exploration; sketching, rendering, and modeling methods.

Effective: Fall 1983

**THEA 253 Scene Painting** (1) Introduction to painting scenery for the theatre; methods and materials.

Effective: Fall 1983

**THEA 260 Introduction to Costume Design** (3) Introduction to costume design process through character analysis and the use of color, line, and texture.

Effective: Spring 2006

**THEA 261 Introduction to Costume Construction Techniques** (3) Intermediate study of the methods, materials, equipment, concepts and processes involved in the construction of costumes for the theatre.

Effective: Summer 2005

Prerequisite: THEA 130

**THEA 270 Introduction to Lighting Design** (3 per semester/maximum of 99) This course will focus on helping each student to develop a design process that takes them from script to stage.

Effective: Spring 2006

**THEA 280 Introduction to Technical Direction for the Theatre** (3) Introduction to the methods, materials, equipment, facilities, concepts and processes associated with Technical Direction for the Theatre.

Effective: Summer 2005

Prerequisite: THEA 130THEA 131

**THEA 282 (GA) Production Practicum** (3--may repeat once for a total of 6) Introduction to all aspects of theatre production--analysis, design, construction, production, performance--for non-theatre majors.

Effective: Spring 2000

**THEA 285 Introduction to Sound Design** (3) An introduction to sound design for the theatre.

Effective: Spring 2011

Prerequisite: INART 258A or THEA 150

**THEA 289 Theatre Production Practicum** (1 per semester/maximum of 3) Supervised experience in production techniques.

Effective: Summer 2000

**THEA 296 Independent Studies** (1-18) Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**THEA 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a subject which may be topical or of special interest.

Effective: Fall 1983

**THEA 298 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1994

**THEA 299 (IL) Foreign Studies--Theatre Arts** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2014

**THEA 321 Scene Study II** (3) A continuation of THEA 320.

Effective: Spring 2013

Prerequisite: THEA 420 and approval by department

**THEA 322 Voice and Speech I** (2) Vocal techniques for the actor: articulation, voice control, support, and projection.

Effective: Spring 1990

Prerequisite: THEA 120

**THEA 324 Movement for Actors I** (2) Techniques and skills in physical expression, awareness, control, and stage movement.

Effective: Spring 1990

Prerequisite: THEA 120

**THEA 325 Movement for Actors II** (2) Continuation of THEA 324.

Effective: Spring 1990

Prerequisite: THEA 324

**THEA 326 Music Theatre Performance Workshop** (1 per semester/maximum of 3) Performance studies in cabaret, revue, and club environments.

Effective: Spring 2008

Prerequisite: DANCE 234 THEA 224 audition enrollment in Musical Theatre Option

**THEA 327 Musical Theatre Auditions** (2) Research and preparation of auditions for work in professional musical theatre venues.

Effective: Summer 2004

Prerequisite: THEA 224

**THEA 398 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Summer 1994

**THEA 399 (IL) Foreign Studies--Theatre Arts** (1-12) Courses offered in foreign countries by individuals or group instruction.

Effective: Summer 2014

**THEA 400 Advanced Theatre Projects** (1-6 per semester) Individual and group-directed study of in-depth projects involving reading, discussion, performance, and critical analysis by faculty.

Effective: Spring 1991

Prerequisite: seventh-semester standing or 12 credits in theatre or related areas

**THEA 401Y (IL) Theatre History I: Ancient to 1700** (3) Survey of drama and theatre from primitive rites through the Renaissance.

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

**THEA 402 Theatre History II: From 1700 to Present** (3) Survey of European drama and theatre from the eighteenth century through the modern period.

Effective: Spring 2012  
Prerequisite: THEA 401Y

**THEA 405 (US) Theatre History: American Theatre (3)** Survey of American drama and theatre from the colonial period to the present.  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

**THEA 407 (US) (WMNST 407) Women and Theatre (3)** A study of theatre practice and dramatic literature as informed by issues of gender, race, and ethnic background.  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

**THEA 408 (US) History of American Musical Theatre (3)** A survey of the history of American musical theatre presented in a social, cultural, and aesthetic perspective.  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

**THEA 410 Play Analysis (3)** Advanced skills in textual analysis of plays and screenplays.  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

**THEA 412 (US;IL) (AF AM 412) African American Theatre (3)** Exploration of the development of African American theatre from its roots in Africa through the diaspora, to the present time.  
Effective: Spring 2013  
Prerequisite: THEA 100 or THEA 105

**THEA 420 Scene Study I (3 per semester/maximum of 9)** Advanced monologue and scene study techniques. Principal focus on realism.  
Effective: Spring 2013  
Prerequisite: THEA 221 AND APPROVAL BY THE DEPARTMENT

**THEA 423 Musical Theatre Performance III (2)** Studio training in the unique performance skills, repertoire and business of professional musical theatre.  
Effective: Spring 2006  
Prerequisite: THEA 224 seventh-semester standing in the Musical Theatre Option

**THEA 424 Musical Theatre Performance IV (2)** Studio training in the unique performance skills, repertoire and business of professional musical theatre.  
Effective: Spring 2006  
Prerequisite: THEA 423

**THEA 425A B.F.A. Acting Studio II (2)** Scene Study  
Effective: Summer 2005  
Prerequisite: THEA 115 THEA 225A Concurrent: THEA 425C

**THEA 425C B.F.A. Voice/Speech Studio II (2)** Advanced voice and speech training for BFA Musical Theatre students.  
Effective: Summer 2005  
Prerequisite: THEA 225C Concurrent: THEA 425A

**THEA 426 Children's Theatre (3)** Theories and practice of theatre for children.  
Effective: Spring 2001  
Prerequisite: THEA 150 THEA 220

**THEA 427A B.F.A. Acting Studio III (2)** Continuation of THEA 425A  
Effective: Summer 2005  
Prerequisite: THEA 425A Concurrent: THEA 427C

**THEA 427C B.F.A. Voice/Speech Studio III (2)** Stage Dialect Studies  
Effective: Summer 2005  
Prerequisite: THEA 425C Concurrent: THEA 427A

**THEA 429 Theatre Performance Practicum (1-3 per semester)** Supervised experience in rehearsal and performance of significant roles.  
Effective: Fall 1983  
Prerequisite: admission by audition only

**THEA 434 Introduction to Directing (3)** Introduction to principles and procedures of play direction.  
Effective: Summer 2012  
Prerequisite: THEA 114 or THEA 410; THEA 170 or THEA 180

**THEA 436 Directorial Processes (3)** Preparing a play for production including the scoring of the script, developing ground plan, casting, and staging projects in American realism.  
Effective: Spring 1991  
Prerequisite: THEA 434 and approval of instructor prior to registration

**THEA 437 Artistic Staff for Production (1-6)** To provide students with experience in choreography, dramaturgy, combat, staging, voice/speech, musical direction, assisting in direction, for major productions.  
Effective: Summer 1989  
Prerequisite: approval of the proposed assignment by the instructor prior to registration

**THEA 440 Principles of Playwriting (3 per semester/maximum of 6)** Structure, dramatic effect, characterization, and



dialogue; the writing, reading, and criticism of original one-act plays.

Effective: Spring 2013

Prerequisite: THEA 100 or THEA 105

**THEA 447 Make-Up Design for Production** (1-6) Materials, research, preparation, design, execution of make-up for major University Theatre productions.

Effective: Summer 1989

Prerequisite: approval of proposed assignment by the instructor prior to registration

**THEA 450 Advanced Topics in Scene Design** (3 per semester/maximum of 6) Design emphasis on a variety of production techniques, genre, and styles.

Effective: Spring 2006

Prerequisite: THEA 250 or portfolio review

**THEA 451 Drafting, Drawing, and Painting for the Theatre** (1) Drafting, freehand drawing including perspective methods and property development, rendering techniques, and painters' elevations.

Effective: Summer 1993

Prerequisite: THEA 251 THEA 252 and prior approval of instructor; first-year MFA theatre candidacy

**THEA 453 Advanced Scene Painting** (1 per semester, maximum of 12) Practicum study in painting techniques currently in professional use. Exploration of tools, available paints, and texturing materials.

Effective: Spring 1991

Prerequisite: THEA 253

**THEA 454 Period Research for the Theatre** (3) History of decor, styles, and movements in art and architecture.

Effective: Summer 1993

Prerequisite: BFA theatre arts candidacy or permission of instructor

**THEA 456 Scenic Projects for Production** (1 per semester, maximum of 6) Special projects for production; painting, properties, design assistance.

Effective: Summer 1993

Prerequisite: approval of proposed projects by instructor prior to registration

**THEA 457 Scene Design for Production** (1 per semester/maximum of 6) Design and execution of production projects.

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

**THEA 458 Digital Imaging for the Theatre** (1) Introduction to imaging software and its application in theatrical design and production.

Effective: Summer 2005

Prerequisite: Design or Visual Arts major or permission of program

**THEA 459 Theatre Portfolio & Business Practices** (2) Life as a professional theatre designer. Contracts, taxes, record-keeping, resumes, portfolios, interviewing, job hunting, and legal considerations.

Effective: Spring 2006

Prerequisite: B.F.A. Theatre candidacy

**THEA 460 Advanced Topics in Costume Design** (3 per semester/maximum of 6) Developing and executing a design concept in a variety of the performing arts.

Effective: Spring 2006

Prerequisite: THEA 260 THEA 464

**THEA 461 Advanced Topics in Costume Construction and Technology** (3 per semester/maximum of 6) A specialized course in advanced costume construction techniques and theatrical costume technologies.

Effective: Spring 2006

Prerequisite: THEA 261

**THEA 464 History of Fashion** (3) Survey of dress from Egyptian period to contemporary fashion.

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

**THEA 465 History of Fashion II** (3) Survey of dress from 1800 to contemporary fashion.

Effective: Summer 2004

Prerequisite: THEA 100 or THEA 105

**THEA 466 Costume Construction for Production** (1 per semester/maximum of 6) Execution of production projects in construction and shop management.

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

**THEA 467 Costume Design for Production** (1 per semester/maximum of 6) Design and execution of production design projects.

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

**THEA 470 Advanced Topics in Lighting Design** (3 per semester/maximum of 6) Advanced Topics in Lighting Design will rotate through opera, dance, non-traditional spaces, architecture, advanced technology, and color theory.

Effective: Spring 2006

Prerequisite: THEA 270

**THEA 471 Stagelighting Design II** (3) Advanced training through lectures and laboratory experience with color, shape,

and form as it relates to the specifics of illumination.

Effective: Summer 1993

Prerequisite: THEA 470

**THEA 472 Lighting Technology** (3) An introduction to the basics of electricity, dimmer protocols, lightboard programming, lighting paperwork, and master electrician & assistant lighting design practices.

Effective: Summer 2005

Prerequisite: THEA 270 or equivalent

**THEA 477 Lighting Design for Production** (1 per semester/maximum of 6) Design and execution of design projects.

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

**THEA 480 Advanced Topics in Technical Direction for the Theatre** (3 per semester/maximum of 6) Advanced study of the methods, materials, equipment, facilities, concepts and processes associated with Technical Direction for the Theatre.

Effective: Summer 2005

Prerequisite: THEA 280

**THEA 480B Technical Production IV** (3) Discussion of problems of the technical director: personnel management, time management, scheduling, budgeting, purchasing, and the technical drawing of production.

Effective: Spring 1995

Prerequisite: THEA 381

**THEA 481 Stage and Production Management** (3) Production planning, scheduling, assignment of personnel, rehearsal procedures, and budgeting.

Effective: Fall 1983

Prerequisite: THEA 170THEA 180

**THEA 482 Technical Production - Rigging** (3) In-depth exploration of current rigging techniques used in entertainment.

Effective: Fall 2013

**THEA 484 Sound Recording Techniques** (3) Multi-track audio recording and post production techniques.

Effective: Spring 2011

Prerequisite: INART 258A orTHEA 285

**THEA 485 Sound for Theatre Production** (3 per semester/maximum of 6) Aesthetics of live and recorded sound; recording and editing techniques for the stage.

Effective: Fall 2012

Prerequisite: THEA 100THEA 150

**THEA 486 Stage Management for Production** (1-9) Stage manager for University Theatre production.

Effective: Summer 1996

Prerequisite: approval of proposed assignment by instructor prior to registration

**THEA 487 Technical Projects for Production** (1 per semester/maximum of 6) Execution of practical production projects.

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

**THEA 489 Theatre Production Practicum** (1 per semester) Supervised experience in production techniques. For theatre majors only.

Effective: Summer 2012

Prerequisite: THEA 160 orTHEA 180

**THEA 494H Research Projects - Honors** (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Spring 2012

**THEA 495 Internship Practicum** (1-6 per semester/maximum of 12) Professional field experience in theatre performance, production, and management assignments.

Effective: Fall 1983

Prerequisite: approval of internship by instructor prior to registration

**THEA 496 Independent Studies** (1-18) Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 1983

**THEA 496H Independent Studies - Honors** (1-18) Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2012

**THEA 497 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Fall 1983

**THEA 497A Professional Training Internship** (1) Off-site professional training in specific program-related area.

Effective: Summer 2014 Ending: Summer 2014

**THEA 497B Advanced Acting Studio for Musical Theatre** (3) Acting studio for advanced Musical Theatre students.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: permission of MT program

**THEA 497C Acting for Camera** (3) Camera acting workshop for advanced actors.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**THEA 497F Theatre Workshop** (2) Production project.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: permission of program

**THEA 497J Comedy Writing Workshop** (3) A writing workshop in the comedy genre.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**THEA 497K Writer's Room** (3) Workshop for students writing the script for the School of Theatre/College of Communications sitcom.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**THEA 498 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 1994

**THEA 499 (IL) Foreign Studies--Theatre Arts** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005  
Prerequisite: approval by department

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## Training and Development (TRDEV)

TRDEV 460 **Foundations in Training and Development** (3) Roles in training and development, relationships between training and development and other organizational structures, and the principles of training design.  
Effective: Spring 1986

TRDEV 465 **Performance Analysis** (3) This course involves the systematic analysis of employee performance in organizations to identify performance problems, diagnose causes, and specify solutions.  
Effective: Spring 2005 Ending: Fall 2014  
Prerequisite: TRDEV 460TRDEV 418 or permission of the program

TRDEV 470 **Human Resource Development Tools and Techniques** (3) Examination of contemporary strategies, tools, and techniques for designing human resource functions to promote employee learning and performance within organizations.  
Effective: Spring 2005 Ending: Fall 2014  
Prerequisite: TRDEV 460TRDEV 418 or permission of the program

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## Turfgrass (TURF)

**TURF 100 Introduction to Turfgrass Management** (3) Introduction to turfgrass species, establishment, maintenance, and pest control of turfgrass species used for sports, lawn/utility turf, and golf courses.  
Effective: Summer 2013

**TURF 230 Turfgrass Pesticides** (1) Course covers chemical toxicity, formulations, environmental fate, labels, MSDS, calibration, IPM, safety, handling, storage, and Pennsylvania certification and regulations.  
Effective: Summer 2013

**TURF 235 The Turfgrass** (3) Characterization of the primary plant species used for sports, lawn and utility turf; includes turfgrass morphology, environmental adaptation, and cultural requirements.  
Effective: Summer 2013

**TURF 238 (HORT 238) Turf and Ornamental Weed Control** (3) Students will be introduced to the development of integrated weed management strategies utilizing a variety of cultural and chemical methods.  
Effective: Fall 2013

**TURF 295 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Spring 2013  
Prerequisite: prior approval of proposed assignment by instructor

**TURF 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Summer 2013

**TURF 425 Turfgrass Cultural Systems** (3) A study of turfgrass maintenance practices and how their interrelationships can be utilized to develop management systems.  
Effective: Summer 2013  
Prerequisite: SOILS 101TURF 235

**TURF 434 Turfgrass Edaphology** (3) Characterization of soil physical properties for the establishment and maintenance of sports turf; includes root-zone construction.  
Effective: Summer 2013  
Prerequisite: SOILS 101TURF 235

**TURF 435 Turfgrass Nutrition** (4) Study of turfgrass nutrition and growth; emphasizing constructed and mineral soil fertility, nutrient uptake and function, and fertilizer use efficiency.  
Effective: Summer 2013  
Prerequisite: SOILS 101TURF 235

**TURF 436W Case Studies in Turfgrass Management** (3) Case study and discussion considering integrated management of selected turfgrass sites; emphasis on problem analysis, principle application, and decision making.  
Effective: Spring 2014  
Prerequisite: TURF 238TURF 425

**TURF 489 Supervised Experience in College Teaching** (1-3) Participate with instructors in teaching and undergraduate turfgrass course. Assist with teaching an evaluation and with development of instructional materials.  
Effective: Summer 2013  
Prerequisite: TURF 235

**TURF 490 Colloquium** (1) Oral presentations developed by students in consultation with the course instructor.  
Effective: Summer 2013  
Prerequisite: seventh semester standing

**TURF 495 Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 2013  
Prerequisite: prior approval of proposed assignment by instructor

**TURF 496 Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Summer 2013

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## Ukrainian (UKR)

UKR 001 **Elementary Ukrainian I** (4) Reading, writing, and speaking Ukrainian.  
Effective: Summer 1991

UKR 002 **Elementary Ukrainian II** (4) Reading, writing, and speaking Ukrainian.  
Effective: Summer 1991  
Prerequisite: UKR 001

UKR 003 **Intermediate Ukrainian** (4) Reading, writing, and speaking Ukrainian.  
Effective: Summer 1991  
Prerequisite: UKR 002

UKR 099 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

UKR 100 (GH;IL) **Ukrainian Culture and Civilization** (3) Survey of Ukrainian culture and civilization from the Middle Ages to the present.  
Effective: Summer 2005

UKR 196 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.  
Effective: Spring 2004

UKR 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Spring 1995

UKR 199 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

UKR 204 **Readings in Ukrainian** (3) Readings in Ukrainian literature and journalism.  
Effective: Summer 1991  
Prerequisite: UKR 003

UKR 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

UKR 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

UKR 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

UKR 399 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

UKR 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small group basis.  
Effective: Summer 1994

UKR 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small group basis.  
Effective: Fall 2007

UKR 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

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## Veterinary and Biomedical Sciences (VB SC)

VB SC 050S **Mechanisms of Disease** (3) Introduction to the study of disease pathogenesis and careers in Animal Health Research and Service.  
Effective: Fall 2007

VB SC 097 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

VB SC 101 **Careers in Veterinary Medicine and the Allied Professions** (1) Exploring career pathways in veterinary medicine and the allied health industry.  
Effective: Summer 2011

VB SC 130 (GHA) **Understanding Human Disease** (3) An explanation of disease mechanisms, enabling non-scientists to better understand medical journalism and apply basic medical principles to everyday life.  
Effective: Summer 2014

VB SC 211 (GN) **The Immune System and Disease** (3) Introduction to the immune system that emphasizes the immune response to infection and consequences of a defective immune response.  
Effective: Fall 2007

VB SC 230 **The Science of Poisons** (3) An introduction to toxicology using real world examples to highlight the impact of toxicants on environmental, biochemical and physiological processes.  
Effective: Summer 2012  
Prerequisite: CHEM 110BIOL 110

VB SC 231 **Introduction to Cancer Research and Medicine** (3) An understanding of the terminology, basic concepts, techniques, multidisciplinary approaches and challenges in cancer research and medicine.  
Effective: Spring 2011  
Prerequisite: BIOL 110

VB SC 280 **Current Issues in Veterinary Medicine** (2) Discussion of the social, ethical and economic aspects of current and emerging issues related to animal ownership and veterinary medicine.  
Effective: Fall 2010

VB SC 290H **Undergraduate Research Colloquium** (1) Presentations by appropriate faculty on research opportunities for undergraduates.  
Effective: Spring 2014  
Prerequisite: permission of program

VB SC 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.  
Effective: Fall 2007

VB SC 303 **Principles of Animal Disease** (3) Principles involved in the causes of animal diseases; control measures, including sanitation and hygiene.  
Effective: Fall 2007 Ending: Fall 2014  
Prerequisite: MICRB 106 orMICRB 201 . Prerequisite or concurrent:AN SC 301

VB SC 330 **Introduction to Molecular Pharmacology** (3) An introduction to the basic principles of pharmacology, drug development and use.  
Effective: Summer 2007  
Prerequisite: CHEM 201CHEM 202BIOL 110B M B 211;BIOL 230 orB M B 251

VB SC 395 **Internship** (1-10) Independent study and supervised field experience related to the student's professional interest. Limited to students in animal agriculture majors.  
Effective: Fall 2007  
Prerequisite: fifth-semester standing in an animal agriculture major; approval by department of proposed plan before registration

VB SC 402W (ENT 402W) **Biology of Animal Parasites** (3) An introduction to animal parasitology. Emphasis placed on host/parasite interactions, parasites of zoonotic importance, control programs and taxonomy.  
Effective: Spring 2010  
Prerequisite: BIOL 110

VB SC 403 **Principles of Animal Disease Control** (3) Principles of disease control based on knowledge of the multiple causes of animal disease.  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: MICRB 106 orMICRB 201 . Prerequisite or concurrent:AN SC 301

VB SC 405 **Laboratory Animal Science** (3) Principles involved in maintaining laboratory animals. Emphasis is on management, preventive medicine, and surgical considerations used in laboratory animal colonies.

Effective: Spring 2009

Prerequisite: AN SC 201AN SC 301BIOL 110

VB SC 407 **Dairy Herd Health Programs** (2) A discussion of health programs for dairy herds to assist in the control of infectious and metabolic diseases of dairy animals.

Effective: Fall 2007

Prerequisite: AN SC 301AN SC 310AN SC 427AN SC 431W

VB SC 409 **Wildlife Diseases** (3) An introduction to wildlife diseases emphasizing their impact on wildlife, domestic animals and humans in today's world.

Effective: Spring 2013

Prerequisite: BIOL 110W F S 209

VB SC 418 **Bacterial Pathogenesis** (2) Study of molecular interactions between bacterial pathogens and their hosts.

Effective: Fall 2007

Prerequisite: MICRB 201MICRB 410

VB SC 420 **General Animal Pathology** (3) Nature and mechanisms of the disease process including degenerations, growth disturbances, inflammation, host-parasite relationships and neoplasia.

Effective: Fall 2007

Prerequisite: AN SC 423 orBIOL 472MICRB 201AN SC 301

VB SC 421 (BIOL 421) **Comparative Anatomy of Vertebrates** (4) The comparative anatomy of representative vertebrate animals, discussed from a descriptive and an evolutionary viewpoint.

Effective: Spring 2008

Prerequisite: BIOL 240W

VB SC 423W **Pathology of Nutritional and Metabolic Diseases** (3) Overview of nutritional and metabolic diseases of animals integrating concepts from biochemical and physiologic aberrations to clinical applications.

Effective: Spring 2008

Prerequisite: B M B 211 orB M B 401AN SC 301 or equivalent nutrition course

VB SC 425 (AN SC 425) **Principles of Avian Diseases** (3) Principles of pathogenesis and control of diseases in poultry and other avian populations. Case material used where appropriate.

Effective: Spring 2009

Prerequisite: AN SC 201BIOL 110MICRB 201

VB SC 430 **Principles of Toxicology** (3) Introduction to the biomedical aspects of toxicology with emphasis on the mechanisms and fate of chemical interaction with biological systems.

Effective: Fall 2007

Prerequisite: BIOL 110BIOL 240W;B M B 211 orB M B 401

VB SC 431 (E R M 431) **Environmental Toxicology** (3) Effects of pollutants on animal health at the chemical, physical, and cellular level.

Effective: Spring 2011

Prerequisite: BIOL 110CHEM 110CHEM 112

VB SC 432 (B M B 432, MICRB 432) **Advanced Immunology: Signaling in the Immune System** (3) The study of signaling pathways that regulate the immune response.

Effective: Fall 2007

Prerequisite: B M B 400MICRB 410

VB SC 433 (B M B 433) **Molecular and Cellular Toxicology** (3) In-depth coverage of processes by which drugs/chemicals interact with biological systems and the experimental approaches used to study these interactions.

Effective: Fall 2007

Prerequisite: B M B 401

VB SC 435 (B M B 435, MICRB 435) **Viral Pathogenesis** (2) A study of the molecular, immunological, and pathological aspects of viral diseases as well as laboratory methods of diagnosis.

Effective: Fall 2007

Prerequisite: MICRB 201;B M B 251 andB M B 252 orBIOL 110 andBIOL 230W

VB SC 444 **Epidemiology of Infectious Diseases** (3) An introduction to epidemiology of infectious diseases with emphasis on understanding epidemiologic concepts for identifying, preventing and controlling infectious diseases.

Effective: Fall 2007

Prerequisite: BIOL 220STAT 200 orSTAT 250

VB SC 445 **Molecular Epidemiology of Infectious Diseases** (3) A discussion and practicum of the molecular laboratory techniques used to study molecular epidemiology of infectious diseases.

Effective: Fall 2007

Prerequisite: BIOL 220STAT 200 orSTAT 250 andVB SC 444

VB SC 448W **Current Topics in Immunology** (3) Study of current approaches and questions driving research in immunology and infectious diseases.

Effective: Fall 2007

Prerequisite: MICRB 410B M B 400

VB SC 451 **Immunotoxicology of Drugs and Chemicals** (3) An in depth discussion of the effect of xenobiotics and drugs on host immune mechanisms.



Effective: Fall 2012

Prerequisite: MICRB 201 orB M B 251

VB SC 494H **Honors Thesis** (1-6 per semester/maximum of 6) Independent study directed by a faculty supervisor that culminates in the production of a Veterinary and Biomedical Sciences honors thesis.

Effective: Summer 2013

Prerequisite: junior or senior status in the Schreyer Honors College and permission of the Veterinary and Biomedical Sciences honors advisor

VB SC 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Fall 2007

VB SC 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Effective: Fall 2007

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## Wildlife (WILDL)

(These courses are offered only at the DuBois Campus as part of the two-year Wildlife Technology major.)

**WILDL 101 Introduction to Wildlife Management** (3) Basic principles of wildlife management. Introduction to general ecology and wildlife population dynamics.  
Effective: Summer 2013

**WILDL 103 Animal Identification** (3) Identification of mammals, birds, reptiles, and amphibians; introduction to their life histories.  
Effective: Summer 2013

**WILDL 106S Wildlife Management Techniques** (4) Overview of laboratory and field techniques for natural resource research and management.  
Effective: Summer 2013  
Prerequisite: WILDL 101

**WILDL 204 Wildlife Mensuration** (4) Estimation and analysis of animal populations and their habitats, including sampling considerations and basic biometry.  
Effective: Summer 2013  
Prerequisite: 3 credits in mathematics

**WILDL 207 Outdoor Recreation** (3) Sociology, history, and economics of recreational demand; recreational areas and management procedures.  
Effective: Summer 2013

**WILDL 208M Terrestrial Wildlife Management** (3) Ecological characteristics and manipulation of terrestrial habitats; control of wildlife populations.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: FORT 150FORT 160WILDL 101WILDL 103WILDL 106WILDL 204

**WILDL 208W Terrestrial Wildlife Management** (3) Ecological characteristics and manipulation of terrestrial habitats; control of wildlife populations.  
Effective: Summer 2013  
Prerequisite: FORT 150FORT 160WILDL 101WILDL 103WILDL 106WILDL 204

**WILDL 209 Animal Handling and Care** (4) Techniques in capturing, marking, and maintaining wild animals in captivity. Wildlife physiology, parasitology, and necropsy procedures are covered.  
Effective: Summer 2013  
Prerequisite: WILDL 101

**WILDL 211 Aerial Photo Interpretation** (4) Techniques of photo interpretation; type mapping of wildlife environments; photo censusing of wild animals.  
Effective: Summer 2013

**WILDL 213 Wetlands and Fisheries Management** (3) Introduction to basic limnology. Ecology and management of swamp, marsh, pond, and stream habitats and their animal populations.  
Effective: Summer 2013  
Prerequisite: WILDL 101WILDL 103WILDL 106WILDL 204

**WILDL 295 Internship in Wildlife Technology** (1-6) Supervised off-campus field experience related to student's major.  
Effective: Summer 2013  
Prerequisite: prior approval of proposed assignment by instructor.

**WILDL 296 Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 2013

**WILDL 297 Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 2013

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## Wildlife and Fisheries Science (W F S)

W F S 209 (GN) **Wildlife and Fisheries Conservation** (3) Survey of current and historical issues in wildlife and fisheries conservation; emphasis on vertebrate biodiversity, habitat management and protection, and populations.

Effective: Summer 2013

Prerequisite: BIOL 110 or BIOL 240W

W F S 296 **Independent Studies** (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Effective: Summer 2013

W F S 299 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Spring 2014

W F S 300 **The Vertebrates** (2) Overview of the evolution, systematics, ecology, and behavior of the subphylum vertebrata.

Effective: Summer 2013

Prerequisite: BIOL 110

W F S 301 **Vertebrate Laboratory** (2) Overview of the anatomy, identification, collection, and preservation of the vertebrates.

Effective: Summer 2013

Prerequisite: or concurrent: W F S 209; W F S 300

W F S 310 **Wildlife and Fisheries Measurements** (3) Introduction to field and laboratory approaches for collecting, analyzing, and communicating data regarding wildlife and fish populations and their habitats.

Effective: Summer 2013

Prerequisite: or concurrent: W F S 209; STAT 240

W F S 406 **Ornithology Laboratory** (1) Laboratory and field identification of Pennsylvania birds, avian ecology and behavior, field survey techniques.

Effective: Summer 2013 Ending: Summer 2014

Prerequisite: or concurrent: W F S 209; W F S 407

W F S 406 **Ornithology Laboratory** (2) Laboratory and field identification of Pennsylvania birds, avian ecology and behavior, field survey techniques.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: or concurrent: W F S 209; W F S 407

W F S 407 **Ornithology** (3) Introduction to the biology, ecology, adaptations, and conservation of birds.

Effective: Summer 2013

Prerequisite: BIOL 110; W F S 209

W F S 408 **Mammalogy** (3) Identification, systematics, characteristics, adaptations, ecology, behavior, natural history and conservation, and socio-economic aspects of mammals.

Effective: Summer 2013

Prerequisite: BIOL 110

W F S 409 **Mammalogy Laboratory** (1) Laboratory and field identification of mammals, ecology and behavior of mammals, field survey techniques.

Effective: Summer 2013 Ending: Summer 2014

Prerequisite: or concurrent: W F S 209; W F S 408

W F S 409 **Mammalogy Laboratory** (2) Laboratory and field identification of mammals, ecology and behavior of mammals, field survey techniques.

Effective: Fall 2014 Future: Fall 2014

Prerequisite: or concurrent: W F S 209; W F S 408

W F S 410 **General Fishery Science** (3) Introduction to the study, management, and uses of fish populations; methods of investigation, culture, and harvest of fishes.

Effective: Summer 2013

Prerequisite: BIOL 210 or W F S 209

W F S 422 **Ecology of Fishes** (3) Role of fishes in aquatic communities and general ecosystems. Environmental factors influencing fish as individuals, populations, and communities.

Effective: Summer 2013

Prerequisite: BIOL 220W or W F S 209

W F S 430 (FOR 430) **Conservation Biology** (3) The application of biological principles to issues in the conservation of biodiversity.

Effective: Summer 2013

Prerequisite: BIOL 220W or FOR 308

W F S 435 (E R M 435) **Limnology** (3) Biogeochemistry and natural history of freshwater ecosystems.

Effective: Summer 2013

Prerequisite: BIOL 110; BIOL 220W; CHEM 110

W F S 436 (E R M 436) **Limnological Methods** (3) Application of current methodologies to evaluate the biological, chemical, and physical characteristics of aquatic ecosystems.

Effective: Summer 2013

Prerequisite: BIOL 110 and CHEM 110

W F S 440 **Natural Resources Public Relations** (3) The course prepares students to integrate public relations concepts with principles of natural resources management at the community level.

Effective: Summer 2013

Prerequisite: CAS 100 seventh-semester standing and 6 credits of W F S FOR or R P M

W F S 446 **Wildlife and Fisheries Population Dynamics** (3) Concepts and estimation of mammalian, avian, and fish populations; processes of mortality, natality, growth, and regulation.

Effective: Summer 2013

Prerequisite: W F S 209

W F S 447W **Wildlife Management** (3) Management of renewable wildlife resources by applying ecological concepts, habitat evaluation, and decision-making; writing and editing reports are emphasized.

Effective: Summer 2013

Prerequisite: W F S 209 or W F S 309

W F S 450 (E R M 450) **Wetland Conservation** (3) Wetland types, classification, functions and values; hydrology, soils, and plants; introduction to wetland identification and delineation; wetland regulations.

Effective: Summer 2013

Prerequisite: E R M 300 or W F S 209

W F S 452 **Ichthyology** (2) Study of the structure, taxonomy, systematics, and natural history of freshwater and marine fishes.

Effective: Summer 2013

Prerequisite: BIOL 110BIOL 240W

W F S 453 **Ichthyology Laboratory** (2) Identification of fishes, major fish families, use of keys.

Effective: Summer 2013

Prerequisite: BIOL 110BIOL 240W . Prerequisite or concurrent:W F S 452

W F S 454 **Field Ichthyology** (2) Introduction to collection and field identification of the fishes of Pennsylvania.

Effective: Summer 2013

Prerequisite: BIOL 110BIOL 240W

W F S 460 **Wildlife Behavior** (3) Scholarly discussion and critique of history, concepts, and application of wildlife behavioral concepts to conservation issues.

Effective: Summer 2013

Prerequisite: at least 6 credits in general wildlife or biology

W F S 462 **Amphibians and Reptiles** (3) Critique of global evolution and conservation of amphibians and reptiles, focusing on Northeastern U.S. natural history and ecology.

Effective: Summer 2013

Prerequisite: 5th semester standing or higher and 6 credits of general biology

W F S 463W **Fishery Management** (3) Management of sport and commercial fisheries, including biological, political, social, and economic factors; regulations and other management techniques.

Effective: Summer 2013

Prerequisite: W F S 209W F S 300W F S 301W F S 310

W F S 495 **Wildlife/Fisheries Internship** (1-6) Supervised field experience related to the student's major.

Effective: Summer 2013

Prerequisite: approval of proposed assignment by instructor prior to registration

W F S 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2013

W F S 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

W F S 497A **Animal Welfare** (3) Understanding animal welfare and promoting animal well-being in farmed, wild and captive animals, and implications for policy, legislation and conservation.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 110W F S 209

W F S 499 (IL) **Foreign Studies** (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

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## Women's Studies (WMNST)

WMNST 001S (GS;US;IL) **Introduction to Women's Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.  
Effective: Fall 2009

WMNST 008 (GH) (PHIL 008) **Philosophy and Feminism** (3) Explores diverse feminist philosophies of culture and knowledge, and examines gender's role in accounts of reality, truth, morality, and justice.  
Effective: Spring 2006

WMNST 083S (GH;US;IL) **First-Year Seminar in Women's Studies** (3) Critical approaches to the dimensions and directions in Women's Studies.  
Effective: Summer 2005

WMNST 100 (GS;US;IL) **Introduction to Women's and Gender Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.  
Effective: Spring 2013

WMNST 100U (GS;US;IL) **Introduction to Women's and Gender Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

WMNST 100U (GS;US;IL) **Introduction to Women's and Gender Studies** (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

WMNST 101 (GH;US) (AF AM 101) **The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.  
Effective: Spring 2013

WMNST 101U (GH;US) (AF AM 101U) **The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

WMNST 101U (GH;US) (AF AM 101U) **The African American Woman** (3) The sociological, historical and political experiences of African American women, their roles and contributions to society.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

WMNST 102 (GH;IL) (AF AM 102) **Women of Color: Cross-Cultural Perspective** (3) Global examination of value systems of women of color; attention to minority ethnic groups in the United States and developing countries.  
Effective: Spring 2013

WMNST 103 (US) (AF AM 103, SOC 103) **Racism and Sexism** (3) Critical analysis of the structure of race and gender inequality in the contemporary United States.  
Effective: Spring 2013

WMNST 104 (GH;US) (AM ST 104) **Women and the American Experience** (3) Selected aspects of the role of women in United States history and culture from colonial to modern times.  
Effective: Summer 2005

WMNST 106 (GH;US;IL) **Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.  
Effective: Spring 2013

WMNST 106U (GH;US;IL) **Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

WMNST 106U (GH;US;IL) **Representing Women and Gender in Literature, Art and Popular Cultures** (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

WMNST 110 (GS;US) (SOC 110) **Sociology of Gender** (3) Changing sex role expectations and behavior for men and women

in contemporary society.  
Effective: Summer 2005

WMNST 116 (GS;US;IL) (HIST 116) **Family and Sex Roles in Modern History** (3) Historical perspectives on the Western family since 1500: gender roles, marriage, sexuality, child rearing, and old age; emphasis on United States.  
Effective: Spring 2006

WMNST 117 (GH;US;IL) (HIST 117) **Women in Modern History** (3) Modernization and women: changing images and roles since mid-eighteenth century in the family, workshop, politics, society. Cross-cultural comparisons.  
Effective: Summer 2005

WMNST 136 (US) (LER 136) **Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.  
Effective: Spring 2008

WMNST 136U (US) (LER 136U) **Race, Gender, and Employment** (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

WMNST 137 (GH;US;IL) (RL ST 137, J ST 137) **Women and Religion** (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.  
Effective: Fall 2012  
Prerequisite: third-semester standing

WMNST 157 (US) (S T S 157) **Science, Technology, and Gender** (3) The role of women and gender in science, technology, and engineering.  
Effective: Fall 2011

WMNST 166 (GH;US) (HIST 166) **History of Sexuality** (3) Discusses the ideas, practices, and identities surrounding sexuality over several centuries in a variety of contexts, focusing primarily on the US.  
Effective: Summer 2012  
Prerequisite: one introductory level course in History or Women's Studies

WMNST 194 (GH;US;IL) (ENGL 194) **Women Writers** (3) Short stories, novels, poetry, drama, and essays by British, American, and other English-speaking women writers.  
Effective: Summer 2005

WMNST 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Spring 1995

WMNST 197A (CAMS 197A) **Women in Greece and Rome** (3) This course is an introductory survey of the life and status of women in the Classical world as represented in literature, art, and historical sources.  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

WMNST 199 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

WMNST 200 (GS;IL) **Global Feminisms** (3) This course examines the diverse contents and forms of "feminism" worldwide, emphasizing women's engagement with unequal, unjust, impacts of globalization.  
Effective: Summer 2012

WMNST 202 (GS;IL) (AFR 202) **Gender Dynamics in Africa** (3) Critical analysis of multidisciplinary research on relations between men and women in Africa and critique of Western feminist theories.  
Effective: Fall 2012

WMNST 205 (US) (COMM 205) **Women, Minorities, and the Media** (3) Analysis of historical, economic, legal, political, and social implications of the relationship between women, minorities, and the mass media.  
Effective: Summer 2005 Ending: Fall 2014

WMNST 205 (GS;US) (COMM 205) **Gender, Diversity and the Media** (3) Explores the relationship between media and society through critical analysis of its role in social reality.  
Effective: Spring 2015 Future: Spring 2015

WMNST 225 (GA;GH) (ENGL 225, ART H 225) **Sexuality and Modern Visual Culture** (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.  
Effective: Summer 2009

WMNST 227 (GH;US;IL) (ENGL 227) **Introduction to Culture and Sexuality** (3) A course addressing the relationships between sexuality, literature, and culture.  
Effective: Spring 2013  
Prerequisite: ENGL 015 or ENGL 030

WMNST 235 (US) (IST 235) **Gender and the Global Information Technology Sector** (3) Integrates information technology and gender studies. Overview issues and socio-cultural shaping of gender in the IT field.  
Effective: Summer 2013

WMNST 245 (GH;US) (ENGL 245) **Introduction to Lesbian and Gay Studies** (3) An introduction to the study of sex and (homo) sexual identity across a wide range of disciplines and methodologies.  
Effective: Spring 2013

WMNST 250 (US) (HD FS 250) **Sexual Identity Over the Lifespan** (3) Concepts of affectional and sexual orientation over lifespan, with emphasis on lesbian and gay male personal, family, and community adaptation.  
Effective: Summer 2005  
Prerequisite: 3 credits in Hd FS or 3 credits in behavioral sciences

WMNST 270 (FR 270) **Race and Gender in Literature Translated from French** (3) A critical presentation, taught in English, of changing ideas and values on race and gender in French and Francophone literatures.  
Effective: Spring 2005  
Prerequisite: FR 351

WMNST 280 (GH;IL) (RL ST 280, J ST 280) **Women and Judaism** (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.  
Effective: Fall 2006

WMNST 294 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.  
Effective: Summer 1994

WMNST 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1986

WMNST 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1984

WMNST 299 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

WMNST 300 (US) (LTNST 300) **Latinas in the US: Gender Culture and Society** (3) This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latina feminisms in the United States.  
Effective: Spring 2013  
Prerequisite: LTNST 100 or WMNST 100

WMNST 301 (GH;US;IL) **Sexualities, Gender and Power: Feminist Thought and Politics** (3) An interdisciplinary survey of historical and contemporary feminist theories in both the United States and international contexts.  
Effective: Spring 2013  
Prerequisite: WMNST 100 or WMNST 106

WMNST 364 (GS;US) (AF AM 364) **Black & White Sexuality** (3) This course explains how narrow ways of thinking limit our understanding of the diverse expressions of human sexuality.  
Effective: Fall 2012

WMNST 395 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.  
Effective: Summer 1996

WMNST 399 (IL) **Foreign Studies** (12) Courses offered in foreign countries by individual or group instruction.  
Effective: Summer 2005

WMNST 400 (US;IL) **Debates in Contemporary Feminism** (3) Consideration of feminist theories of women's experience in transforming understanding, reconceptualizing old problems, raising new ones, and expanding traditional disciplines.  
Effective: Spring 2013  
Prerequisite: WMNST 301

WMNST 401 **Doing Feminism: Theory and Practice** (3) Advanced analysis of feminist theory and the nature of its

integration (sometimes uneasily) within feminist movements and practices.

Effective: Spring 2013

Prerequisite: WMNST 100 or WMNST 106 or WMNST 005 and WMNST 301

WMNST 407 (US) (THEA 407) **Women and Theatre** (3) A study of theatre practice and dramatic literature as informed by issues of gender, race, and ethnic background.

Effective: Summer 2005

Prerequisite: THEA 100

WMNST 412 (EDTHP 412) **Education and the Status of Women** (3) An examination of the relationship of education to the status of women in American society.

Effective: Spring 2005

WMNST 416 (US;IL) (AF AM 416, S T S 416) **Race, Gender and Science** (3) The class will focus on race and gender as products of science, and how societal values shape scientific activity.

Effective: Spring 2013

Prerequisite: 6 credits in S T S WMNST or AAA S

WMNST 420 (US;IL) (R SOC 420, CED 420) **Women in Developing Countries** (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

Effective: Fall 2009 Ending: Summer 2014

WMNST 420 (US;IL) (CED 420) **Women in Developing Countries** (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

Effective: Fall 2014 Future: Fall 2014

WMNST 421 (IL) (HIST 421) **The History of European Women** (3) European women's lives from the Middle Ages to the present.

Effective: Spring 2013

Prerequisite: WMNST 100 WMNST 106 WMNST 116 or WMNST 117

WMNST 423 (US) (CRIMJ 423, CRIM 423) **Sexual and Domestic Violence** (3) Legal, sociological, and psychological perspectives of sexual and domestic violence.

Effective: Spring 2008

Prerequisite: CRIM 100

WMNST 424 (US) (KINES 424) **Women and Sport** (3) An interdisciplinary approach to contemporary issues related to women and sport from historical, physiological, psychological, and sociological perspectives.

Effective: Spring 2013

Prerequisite: PSYCH 100 PSYCH 231 PSYCH 479 SOC 001 or WMNST 100

WMNST 426Y (US;IL) (GEOG 426Y) **Gender Geographies** (3) Description and explanation of the links between gender relations and spatial structures; gender and work, social services, and neighborhood activism.

Effective: Fall 2013

Prerequisite: GEOG 020 GEOG 126 GEOG 120 WMNST 100

WMNST 428 (US;IL) (PL SC 428) **Gender and Politics** (3) Gender in politics in the United States and around the world; major areas of women and politics research.

Effective: Fall 2007

Prerequisite: 3 credits in political science or women's studies

WMNST 430 (US) (AM ST 430) **Women in American Society** (3) A historical study of women's roles and experiences in the United States.

Effective: Spring 2008

Prerequisite: 6 credits of American Studies Sociology or Women's Studies

WMNST 438 (PHIL 438) **Feminist Philosophy** (3) Examines the central currents of feminist philosophy, selected problems and concepts regarding difference, gender and sex, identity, and political culture.

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including 6 credits of philosophy of the 200-level or 5th semester standing

WMNST 452 (US) (BB H 452, NURS 452) **Women's Health Issues** (3) Exploration of major health issues concerning women today, with an emphasis on social, cultural, and medical influences.

Effective: Fall 2013

Prerequisite: BIOL 141 or PSYCH 100 or WMNST 100

WMNST 453 (US) (CRIM 453, CRIMJ 453) **Women and the Criminal Justice System** (3) This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system.

Effective: Spring 2013

Prerequisite: CRIMJ 100 or WMNST 100

WMNST 455 (US) (CAS 455) **Gender Roles in Communication** (3) Explores the literature on gender research in the discipline of human communication.

Effective: Summer 2005

Prerequisite: CAS 202

WMNST 456 (SOC 456) **Gender, Occupations, and Professions** (3) The role of gender in shaping contemporary North American patterns of employment, occupational roles, and statuses.



Effective: Spring 2013

Prerequisite: WMNST 100 or 3 credits in Sociology

WMNST 457 (US;IL) (HIST 457, S T S 457) **The History of Women in Science** (3) Critical analysis of the roles women, gender, and minorities have played in the natural sciences.

Effective: Spring 2013

Prerequisite: WMNST 100WMNST 106WMNST 157WMNST 116 orWMNST 117

WMNST 458 (GS) (BB H 458) **Critical Issues in Reproduction** (3) Examination and analysis of the new reproductive technologies from the standpoint of medical ethics, feminism, and sociocultural influences.

Effective: Fall 2013

Prerequisite: BIOL 141 orPSYCH 100 orWMNST 100

WMNST 462 (US) (ENGL 462) **Reading Black, Reading Feminist** (3) Female identity and its construction in textual representations of gender, class, color, and cultural difference in English-language literatures.

Effective: Summer 2005

Prerequisite: ENGL 015 orENGL 030

WMNST 464 (US) (BE SC 464) **Feminine/Masculine** (3) Study of sex role learning; investigating feminine/masculine labeling; implications for contemporary society.

Effective: Spring 2008

Prerequisite: general psychology or general sociology

WMNST 466 (US;IL) (HIST 466) **Lesbian and Gay History** (3) Critical exploration of the history of sexuality, focusing especially on the emergence of modern lesbian and gay identities.

Effective: Spring 2013

Prerequisite: WMNST 100WMNST 117

WMNST 471 (US) (PSYCH 479) **The Psychology of Gender** (3) Theories and research on gender differences and gender roles. Emphasis on women's and men's current positions in society.

Effective: Spring 2007

Prerequisite: PSYCH 100PSYCH 221

WMNST 472 (LER 472) **Work-Life Practices and Policies** (3) Explore the causes and consequences of conflicts between work, family, and other life commitments, and how these may be resolved.

Effective: Spring 2008

Prerequisite: 3 credits of LER

WMNST 489 (ENGL 489) **British Women Writers** (3) A study of selected British women writers.

Effective: Spring 2008

Prerequisite: 6 credits of ENGL

WMNST 490 (US;IL) (ENGL 490) **Women Writers and Their Worlds** (3) American and British literature written from the perspective of women.

Effective: Summer 2005

Prerequisite: ENGL 015 orENGL 030

WMNST 491 (AM ST 476, ENGL 492) **American Women Writers** (3) A study of selected American women writers.

Effective: Spring 2008

Prerequisite: 6 credits of ENGL

WMNST 492W **Current Feminist Issues** (3) Critical analysis of major contemporary feminist research and writing in the arts, humanities, social and natural sciences.

Effective: Spring 2002

Prerequisite: WMNST 301WMNST 302

WMNST 494 **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Summer 1994

WMNST 494H **Research Project** (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

Effective: Fall 2007

WMNST 495 **Internship** (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Effective: Spring 1998

Prerequisite: prior approval of proposed assignment by instructor

WMNST 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside scope of formal courses.

Effective: Fall 1983

WMNST 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1984

WMNST 497A (J ST 497A, HIST 497C) **Gender and Autobiography in Modern Jewish History** (3) In this course we will read autobiographies critically and carefully in examining the tremendous changes wrought by modernity in the Jewish community.

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

WMNST 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2005

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## Wood Products (W P)

W P 200W **Professional Careers in Forest Resources** (3) Introduction to managing forests for products and services to meet human needs; developing career goals and an academic plan.

Effective: Spring 2014

Concurrent: W P 203

W P 203 **Anatomical Properties of Wood** (1) Provide information on tree form/growth, cell wall formation/composition, structure of wood/bark cells; macroscopic/microscopic identification of hardwood/softwood cells.

Effective: Summer 2013

W P 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Spring 2014

W P 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Spring 1993

W P 337 **Wood Technology** (2) An introduction to forest tree structure, function, and growth and the identification of important commercial hardwoods and softwoods.

Effective: Summer 2013

Prerequisite: W P 203

W P 412 **Wood in Structures** (3) Behavior and design of solid, laminated, and plywood wood beams, trusses, columns, and foundations. Wood construction details.

Effective: Summer 2013

Prerequisite: W P 200WW P 203

W P 416 **Wood Industries Management Development** (3) Managerial concepts and issues important to forest products organizations will help prepare students to assume management-level positions.

Effective: Summer 2013

Prerequisite: W P 200W

W P 417 **Wood Products Manufacturing Systems and Processes** (4) Description of systems and processes used in the manufacture of wood products.

Effective: Summer 2013

Prerequisite: W P 200WW P 203 and sixth-semester standing

W P 418 **Chemical Processing of Wood** (4) Principles and practices of basic operations in converting wood and wood waste into useful chemicals and modified cellulose products.

Effective: Summer 2013

Prerequisite: W P 200WW P 203

W P 438 **Business Concepts for Wood Manufacturing** (4) The course will cover manufacturing strategies and related financial measures in a wood production environment.

Effective: Summer 2013

Prerequisite: W P 200W

W P 460 **Wood Products Industrial Environmental Control** (3) Wood products industrial environmental control technologies and strategies for pollution abatement.

Effective: Summer 2013

Prerequisite: fifth semester standing

W P 495 **Wood Products Internship** (1-6) Supervised field experience related to the student's major.

Effective: Summer 2013

Prerequisite: approval of proposed assignment by instructor prior to registration.

W P 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 2013

W P 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 2013

W P 499 (IL) **Foreign Studies** (1-12) Courses offered in foreign countries by individual or group instruction.

Effective: Summer 2013

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## Workforce Education and Development (WF ED)

WF ED 001 **Education for Work: Trends and Issues** (3) Overview of the history and philosophies of education for employment, current issues, and school to work transition system.  
Effective: Summer 1996

WF ED 100 **Orientation to Teaching Vocational Industrial Education/Health Occupations Education Subjects** (2) Basic elements of preparing to teach vocational trade and industrial/health occupations education subjects in the schools of Pennsylvania.  
Effective: Summer 1996

WF ED 101 **Early Field Experience in Teaching Vocational Industrial Education/Health Occupations Education Subjects** (1) Discussion and observation of in-school practices to aid the student in making vocational industrial education/health occupations education career decisions.  
Effective: Summer 1996

WF ED 105 **Integrated Curriculum Implementation** (3) Occupational analysis for instructional planning; emphasis on instructional methods to deliver a competency based program in an integrated learning environment.  
Effective: Summer 1996  
Prerequisite: EDPSY 014

WF ED 106 **Program and Facilities Management** (3) Organization and management of learning laboratory to facilitate the delivery of a competency based program in a safe environment.  
Effective: Fall 2001

WF ED 197 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1996

WF ED 198 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1996

WF ED 207W **Assessment Techniques** (3) Assessment, recording, and reporting of learning in an integrated competency based vocational education system.  
Effective: Summer 1996  
Prerequisite: WF ED 105

WF ED 270 **Introduction to Industrial Training** (3) Overview of training profession. Introduction to economic and psychological foundations. Examination of relationship of industrial training to education.  
Effective: Spring 2003

WF ED 296 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.  
Effective: Summer 1996

WF ED 297 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1996

WF ED 298 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.  
Effective: Summer 1996

WF ED 310 **Leadership Competencies for Supervisors** (3) Designed to teach contemporary supervisory leadership competencies for mid-career learners with front-line supervisory responsibilities in the workplace.  
Effective: Summer 2011  
Prerequisite: two years of work experience or fourth-semester standing or prior approval by instructor

WF ED 323 **Vocational Student Organizations** (3) Methods in originating, managing, and advising vocational student organizations.  
Effective: Summer 1996

WF ED 395A **Trade and Industrial Occupational Experience** (1-8 per semester/maximum of 24) Individual work experience in manufacturing environment or skilled craft area to develop professional competence in specific occupation.  
Effective: Summer 1996

Prerequisite: completion of an occupational learning period in the field of certification or field of specialization

WF ED 395B **Occupational Home Economics Work Experience** (1-8 per semester, maximum of 24) Individual work experience in service occupations such as food service, textile production, or child care.

Effective: Summer 1996 Ending: Fall 2014

Prerequisite: completion of a two-year formal learning period in the field of specialization

WF ED 395B **Occupational Resources Competence** (1-8 per semester, maximum of 24) An analysis of competence in the workplace within occupations providing resources usage and management-related experience.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: completion of a two-year formal learning period in the field of specialization

WF ED 395C **Health Occupations Work Experience** (1-8 per semester, maximum of 24) Individual work experience in an allied or professional healthcare setting.

Effective: Summer 1996 Ending: Fall 2014

Prerequisite: completion of a two-year formal learning period in the field of specialization

WF ED 395C **Occupational and Professional Competence** (1-8 per semester, maximum of 24) A comprehensive analysis of the skills, abilities and experiences related to professional competence within the world-of-work.

Effective: Spring 2015 Future: Spring 2015

Prerequisite: completion of a two-year formal learning period in the field of specialization

WF ED 395D **Occupational Work Experience** (1-8 per semester, maximum of 24) Individual work experience in the manufacturing, health, service, or financial arena.

Effective: Summer 1996

WF ED 397 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1996

WF ED 398 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1996

WF ED 402 **Supervision of Vocational Education** (3) For administrators, supervisors, and teachers responsible for improvement of instruction through supervision or for students preparing for supervisory work.

Effective: Fall 2001

WF ED 405 (ENGR 405) **Project Management for Professionals** (3) Covers the essential concepts and skills needed to make effective contributions on projects, on time and within budget.

Effective: Spring 2014

Prerequisite: two years of work experience or fourth-semester standing or prior approval by instructor

WF ED 410 **Leadership Competencies for Professionals** (3) Designed to teach contemporary professional leadership competencies for workforce professionals who do not currently have supervisory responsibilities.

Effective: Summer 2011

Prerequisite: two years of work experience or fourth-semester standing or prior approval by instructor

WF ED 411 **Occupational Safety and Health for Workforce Education and Development Professionals** (3) This course assists participants in creating and supporting workplaces and educational environments free of occupational safety and health hazards.

Effective: Spring 2014

Prerequisite: a minimum of 2 years work experience or 4th semester standing

WF ED 413 **Vocational Education for Special-Needs Learners** (3) Introduction to program modifications, supplementary services, and resources required for special-needs learners in vocational and practical arts education programs.

Effective: Fall 2001

WF ED 424 (CN ED 424) **Facilitating Career Development** (3) This course provides individuals with relevant skills and knowledge to assist others in planning careers and obtaining meaningful work.

Effective: Summer 2012

Prerequisite: courses in Psychology Human Development and/or Education preferred

WF ED 441 **Conceptual and Legal Bases for Cooperative Vocational Education** (2) History, conceptual and legal bases for a cooperative vocational education program.

Effective: Summer 1996

Prerequisite: WF ED 445

WF ED 442 **Operating Cooperative Vocational Education Programs** (2) Student and training station selection, training plan and related subject development, records and reporting systems, school-industry coordination.

Effective: Summer 1996

Prerequisite: WF ED 441

WF ED 445 **Vocational Guidance** (3) Problems and possibilities of vocational guidance; the field of guidance and guidance literature; methods of field work; school guidance techniques.

Effective: Summer 1996

Prerequisite: WF ED 105 ; fourth-semester standing

WF ED 450 (US;IL) **Cultural Diversity in the Workplace** (3) Provides opportunities for students to explore different cultures and mores that are changing the dynamics of the workplace.  
Effective: Fall 2006

WF ED 451 **Lean-Sigma for Professionals** (3) The course focuses on essential lean and six sigma concepts to improve processes in any industry.

Effective: Summer 2013

Prerequisite: two years of relevant work experience or fourth semester standing or prior approval by program

WF ED 471 **Training in Industry and Business** (3) Appraisal of training functions and development of competencies in work analysis, design, development, delivery, and evaluation of training.

Effective: Spring 2001

Prerequisite: seventh-semester standing or higher

WF ED 495 **Internship** (1-6) Supervised off-campus, nongroup instruction including field experiences, practicums, or internships. Written and oral critique of activity required.

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

WF ED 495A **Cooperative Education Practicum** (2) Validation of competencies learned in prerequisite courses during interaction with professional staff while functioning under the supervision of a certified cooperative coordinator.

Effective: Summer 1996

Prerequisite: WF ED 445

WF ED 495C **Student Teaching** (10) Supervised observation and practice teaching in approved vocational industrial schools/health occupations education settings.

Effective: Spring 1997

Prerequisite: successful completion of occupational competency evaluation. PA Act 34 clearance required. In addition non-Pennsylvania residents must provide evidence of an FBI background information check. (Forms: 228 Chambers)

WF ED 495D **Instructional Internship in Industrial Training** (5) Supervised internship in industrial training. Interns will be expected to perform instructional duties in industrial environments.

Effective: Summer 1996

Prerequisite: WF ED 105WF ED 106WF ED 207WWF ED 270WF ED 471 ; successful completion of occupational competency examination

WF ED 496 **Independent Studies** (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Effective: Summer 1996

WF ED 497 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1996

WF ED 498 **Special Topics** (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Effective: Summer 1996

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## World Languages Education (WL ED)

**WL ED 295A Early Field Experience for World Languages Teacher Preparation** (3) Selected observation of schooling situations in Pre-K-1st grade settings focusing on language acquisition/language teaching.

Effective: Summer 2004

Prerequisite: Third-semester standing; PA Act 34 and Act 151 Clearances required; FBI background information check; and Professional Liability Insurance. Concurrent: WL ED 300

**WL ED 300 Foundations of Second Language Teaching** (3) Critical understanding of basic concepts and principles in second language acquisition and teaching.

Effective: Summer 2004

Concurrent: WL ED 295A

**WL ED 399A Language Learning Through Study Abroad** (3) Use of online technologies during study abroad to promote language and culture learning and to consider implications for teaching.

Effective: Summer 2012

Prerequisite: WL ED 300

**WL ED 400 Foundations of Language in Second Language Teaching** (3) Critical understanding of basic concepts and principles in second language acquisition and teaching.

Effective: Summer 2004

Prerequisite: PA Instructional I or II teaching certificate

**WL ED 411 Methods of Teaching World Languages in Grades 1-5** (3) Exploration of the complexity of teaching World Languages and development of curricular designs for teaching in grades 1-5 schools.

Effective: Summer 2004

Prerequisite: EDPSY 014EDTHP 115WL ED 295AWL ED 300 Concurrent: WL ED 495B

**WL ED 412W Methods of Teaching World Languages in Grades 6-12** (3) Exploring the complexity of teaching World Languages and development of curricular designs for teaching World Languages in grades 6-12.

Effective: Spring 2010

Prerequisite: WL ED 411WL ED 495B Concurrent: WL ED 495C

**WL ED 444 (CI ED 444) Language, Culture and the Classroom: Issues for Practitioners** (3) Critical understanding of cultural linguistic diversity to facilitate the inclusion of English Language Learners in a globalized classroom.

Effective: Fall 2007

Prerequisite: WL ED 300 orWL ED 400

**WL ED 483 Evaluating Schools Performances and Programs with English Language Learners (ELLs)** (3)

Using/adapting multiple techniques to asses English Language Learners (ELLs) language and other school subjects.

Effective: Summer 2004

Prerequisite: WL ED 300 orWL ED 400

**WL ED 495B Field Experience for World Languages Teacher Preparation in Grades 1-5** (3) Practicum. Prospective World Language teachers demonstrate knowledge on second language learning/teaching and educational theories (Grades 1-5).

Effective: Spring 2009

Prerequisite: EDPSY 014EDTHP 115WL ED 295AWL ED 300 ; PA Act 34 and Act 151 Clearances required; FBI background information check; and Professional Liability insurance. Concurrent: WL ED 411

**WL ED 495C Field Experience for World Languages Teacher Preparation in Grades 6-12** (3) Practicum. Prospective World Language teachers demonstrate knowledge on second language learning/teaching and educational theories (Grades 6-12).

Effective: Spring 2009

Prerequisite: WL ED 411;WL ED 495B ; PA Act 34 and Act 151 Clearances required; FBI background information check; and Professional Liability insurance. Concurrent: WL ED 412

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## Long Course Descriptions

### Accounting (ACCTG)

**ACCTG 151** Introductory Financial Accounting I (3) Basic concepts, principles, and practices for the recording, summarizing, and interpreting of accounting data.

#### Introductory Financial Accounting I (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 152** Introductory Financial Accounting II (3) Accounting for partnerships, corporations, cash flows, certain liabilities and assets, and the analysis of financial statements.

#### Introductory Financial Accounting II (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1995  
Prerequisite: ACCTG 151

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 160** Cost Accounting (3) Use of standard cost accounting procedures to present cost and budget statements as a means of providing managerial control. Students may not receive credit for both ACCTG 160 and ACCTG 404.

#### Cost Accounting (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 151ACCTG 152

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 197** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

#### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### Foreign Studies (1-12)

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 201** Introductory Financial Accounting (3) Fundamentals of the collection, recording summarization, and interpretation of accounting data.

**ACCTG 201 Introductory Financial Accounting (3)**

This course is designed as an introductory course providing the first steps to an understanding of the basic principles of accounting from a financial perspective. Because business administration students need to understand the basic principles of financial accounting as fundamental to their field, they need to be grounded in the knowledge of basic concepts, principles, and practices for the recording, summarizing, and interpreting of accounting data. Specifically, acknowledge of accounting for partnerships, corporations, cash flows, certain liabilities and assets, and the analysis of financial statements are presented. Some financial accounting methods, theory and concepts as well as problem analysis in applying concepts to financial statements is also introduced.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 211 Financial and Managerial Accounting for Decision Making (4)** Introduction to the role of accounting numbers in the process of managing a business and in investor decision making.

**ACCTG 211 Financial and Managerial Accounting for Decision Making (4)**

The objective of this course is to introduce students to the discipline of accounting through an introduction to two of accounting's sub-disciplines, financial and managerial accounting. The more specific purpose is to provide students a basic understanding of the role of financial and managerial accounting information in the decisions of capital market participants external to a business enterprise (e.g., stockholders, banks, financial analysts, prospective stockholders), and in the decisions of those who manage business enterprises. Accounting information has an important role in the resource allocation process in our socio-economic system as a whole, as well as in each individual business enterprise. This course provides students an understanding of (1) the nature of the accounting function, and (2) how the information in accounting reports are used by various decision makers in their resource allocation decisions.

In this course students will develop an understanding of (a) the five activity dimensions of accounting (the collection, recording, analysis, interpretation and reporting of information to decision makers for (mainly) their investment decisions), (b) the issues surrounding the five activity dimensions, (c) the environment in which accounting is practiced, and (d) what information is used in a number of specific decision situations, and how such information is used in such decision situations. The analysis, interpretation and decision-making orientation of this course includes a study of the procedural (mechanical and processing) aspects of the recording activity dimension which is an important means to the end --where the end is the analysis and interpretation of the information, and the reports produced by the recording/processing part of accounting. Through this focus on the recording activity dimension, students will obtain an understanding of (a) the nature and quality (strengths and weaknesses) of accounting information, (b) how to proceed in analyzing and interpreting accounting information, and (c) numerous other aspects of financial and managerial accounting.

This course is an important background course for all business majors, as well as for numerous non-business majors.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MATH 021 or 1.5 units of high school algebra

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 211H Financial and Managerial Accounting for Decision Making (4)** Introduction to the role of accounting numbers in the process of managing a business and in investor decision making.

**ACCTG 211H Financial and Managerial Accounting for Decision Making (4)**

The objective of this course is to introduce students to the discipline of accounting through an introduction to two of accounting's sub-disciplines, financial and managerial accounting. The more specific purpose is to provide students a basic understanding of the role of financial and managerial accounting information in the decisions of capital market participants external to a business enterprise (e.g., stockholders, banks, financial analysts, prospective stockholders), and in the decisions of those who manage business enterprises. Accounting information has an important role in the resource allocation process in our socio-economic system as a whole, as well as in each individual business enterprise. This course provides students an understanding of (1) the nature of the accounting function, and (2) how the information in accounting reports are used by various decision makers in their resource allocation decisions.

In this course students will develop an understanding of (a) the five activity dimensions of accounting (the collection, recording, analysis, interpretation and reporting of information to decision makers for (mainly) their investment decisions), (b) the issues surrounding the five activity dimensions, (c) the environment in which accounting is practiced, and (d) what information is used in a number of specific decision situations, and how such information is used in such decision situations. The analysis, interpretation and decision-making orientation of this course includes a study of the procedural (mechanical and processing) aspects of the recording activity dimension which is an important means to the end --where the end is the analysis and interpretation of the information, and the reports produced by the

recording/processing part of accounting. Through this focus on the recording activity dimension, students will obtain an understanding of (a) the nature and quality (strengths and weaknesses) of accounting information, (b) how to proceed in analyzing and interpreting accounting information, and (c) numerous other aspects of financial and managerial accounting.

This course is an important background course for all business majors, as well as for numerous non-business majors. For accounting majors it is a prerequisite for ACCTG 306, 404, and 471.

The course format consists of lectures, outside reading, class discussion, projects and homework assignments.

The semester grade for this course will be determined by a weighted average of performance on mainly exams, quizzes, projects and participation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MATH 021 or 1.5 units of high school algebra

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small group basis.

### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 305** Financial Statements and Management Decisions (4) Impact of management's financing, investing, and operating decisions on GAAP- based financial statements. Students who have passed ACNTG 310 or 311 may not take this course for credit.

**ACCTG 305 Financial Statements and Managerial Decisions (4)**

This course is a one-semester alternative to the traditional two-semester intermediate accounting sequence (ACCTG 371 and 472) intended for the non-accounting major. Students who have passed ACCTG 371 or 472 may not take this course for credit. It is a required course for the Finance major. It will also substitute for ACCTG 371 in meeting the requirements for an Accounting minor, and serve as a business supporting course for students in other School of Business majors. Students will gain a fundamental understanding of the information conveyed in the financial statements and, as a result, develop an appreciation for its usefulness and limitations in decision making. They will also develop the prerequisite knowledge base necessary to conduct financial statement analysis as required in Level I of the Chartered Financial Analyst (CFA) exam. A financial statement user decision-making perspective, rather than the accountant/preparer approach found in the traditional intermediate accounting course, is emphasized. Student success in meeting the learning objectives will be assessed through a combination of exams, homework problems, and assignments. The comprehensive final exam will test the student's comprehension of the relevant material.

**Faculty Members Proposing Course:** Timothy R. Smaby and David T. Doran

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 211FIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 310 Federal Taxation I (3)** Study of income determination concepts for individuals and corporations, impact of taxation on decisions, elementary research techniques, and ethical standards.

ACCTG 310

**ACCTG 310 Principles of Taxation (3)**

This course is directed to the study of concepts relative to: (a) the determination of taxable income and tax liability, (b) the influence of tax considerations on the decisions of taxpayers, and (c) elementary tax research techniques. Primary emphasis is given to concepts that are fundamental to the federal taxation of income with respect to business entities. Also, basic aspects of the taxation of individuals are introduced.

The objectives of this course are to enable students to do the following:

- 1) apply basic tax rules and regulations to compute the taxable income and federal income tax liability for corporate and individual taxpayers,
- 2) incorporate tax costs and tax benefits into calculations of the net present value of cash inflows and outflows from taxable activities,
- 3) recognize tax planning opportunities or problems inherent in common transactions, and
- 4) appreciate the impact of the basis of accounting on both tax and financial reporting.

Typical topics include sources of authority, structure of an income tax, property transactions, choice of entity, distribution of income, selection of jurisdiction, means of financing, and taxation of individuals. Students should be familiar with basic accounting concepts, should understand the nature of financial instruments, and should be able to apply the concept of present value and future value in estimating cash inflows and outflows.

This is a required course for accounting majors and, for many of them, the only tax course that they take. Other students who meet the prerequisite requirements may take this course as an elective. Also, this principles course in taxation is a prerequisite requirement for an advanced course in taxation.

Evaluation is based primarily on periodic examinations. No special facilities are required. However, students have on-line access to tax laws and regulations, tax cases, and administrative guidance. This course is generally offered every semester with enrollments of twenty to thirty students per section.

**Faculty Member Proposing Course:** Jean Harris

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 211 or FIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 311 Accounting Systems and Control (3)** Introduction to accounting procedures to gather, to aggregate, and to report accounting data to managers and to external readers.

**ACCTG 311 Accounting Information Systems (3)**

This course pertains to the study of accounting information systems as an important part of a firm's total information systems. The accounting cycle, as the key process providing financial information to management, is thoroughly reviewed and documented. Emphasis is given to the importance of computer-based accounting information systems in supporting internal controls and improving financial reporting, asset security and efficiency and effectiveness of performance. Course objectives: 1.) to understand the accounting model and specifically, the accounting cycle within a business entity; 2.) to

process business and accounting transactions and complete the accounting cycle within a computer-based accounting information system; 3.) to analyze accounting information and related internal controls within a computer-based accounting information system; 4.) to examine relevant ethical issues; 5.) to gain an appreciation for evolving technology advancements, such as ERP's and e-commerce, and their impact on the accounting cycle and internal controls. This is a prescribed course for majors in Accounting and it serves as a foundation and prerequisite for most 300-level and 400-level accounting courses. Students will be evaluated based on performance on exams, computer-based accounting system project, and periodic homework assignments. Typically, 50% or more of student's grade is based on performance on exams. Course will be taught in either a technology classroom with computers for all students or periodic sessions in the computer lab. [Students will require consistent access to a computer to complete computer-based accounting system project].

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995  
Prerequisite: ACCTG 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 312 Accounting Technology Lab (3)** Hands-on course to teach accounting software, applications of spreadsheets and databases in accounting, and surveying of underlying database theory.

### **ACCTG 312 Accounting Technology Lab (3)**

This is a hands-on course to teach accounting software, applications of spreadsheets and databases in accounting, and surveying of underlying database theory.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 305 or ACCTG 371

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 340 Cost Accounting (3)** Accounting for manufacturing concerns; actual and standard cost systems, and managerial uses of cost data.

### **Cost Accounting (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 211 or ACCTG 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 371 Intermediate Accounting I (4)** Financial accounting methods, theory and concepts; analysis of problems in applying concepts to financial statements and asset accounts.

### **Intermediate Accounting I (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 403** Auditing (3) Financial compliance, internal, and operational audits; standards and procedures; sampling; EDP auditing; professional issues; application of concepts through written responses.

**ACCTG 403 Auditing (3)**

Financial statement, regulatory and contract compliance, internal and operational audits, professional standards and ethical conduct; statistical and judgmental sampling; the audit-impact of information technology; audit risk and internal control structure evaluation; application of procedures in transaction cycles; audit reporting; professional issues.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 371 or ACCTG 471

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 403W** Auditing (3) Financial, compliance, internal, and operational audits; standards and procedures; sampling; EDP auditing; professional issues; application of concepts through written responses.

**ACCTG 403W Auditing (3)**

Financial statement, regulatory and contract compliance, internal and operational audits, professional standards and ethical conduct; statistical and judgmental sampling; the audit-impact of information technology; audit risk and internal control structure evaluation; application of procedures in transaction cycles; audit reporting; professional issues.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 371 or ACCTG 471

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 404** Managerial Accounting: Economic Perspective (3) Accounting techniques as planning, control, and motivating devices in business and other organizations; accounting data for decision making and performance evaluation.

**ACCTG 404 Managerial Accounting (3)**

This course emphasizes the use of accounting information for internal purposes as opposed to the external disclosure focus of the financial accounting course. The cost covers the vocabulary and mechanics of cost accounting and the design of management accounting systems for planning and controlling operations, and for motivating personnel. The course integrates accounting with ideas from data analysis, decision analysis, finance, microeconomics, and operations management. The themes stressed throughout the course will be the notion that information is costly; the circumstances that necessitate cost allocation, the idea that different costs and different allocation schemes apply for different purposes; and fundamentals of incentive and compensation plans. Among the topics covered are cost behavior, cost-volume analysis, relevant costs, and the use of cost information for decision making. The course will rely on lectures and

discussion of case studies.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2011  
 Prerequisite: ACCTG 211SCM 200 orSTAT 200ECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 405** Principles of Taxation I (3) Elements of tax policy and tax-planning concepts for personal and business decision making; with emphasis on taxation of individuals.

### **ACCTG 405 Principles of Taxation (3)**

Introduction to Taxation, is the first course that undergraduate accounting majors take that is devoted entirely to taxation. Although the course is intended for accounting majors, the content is relevant to finance majors seeking elective courses. The objective of the course is to provide students with a basic understanding of the concepts, terminology, and decision-making skills specific to the discipline of taxation that are germane to the professional development of those preparing for a career in accounting. Although the course surveys the many forms of taxation that are found in industrialized societies, and the comparisons thereof, the main focus is on the federal income taxation of individuals. However, coverage is provided regarding the manner in which the taxation of individuals relates to corporate and partnership entities. ACCTG 405 is related to other accounting courses through its coverage of income concepts, and micro-economic principles. The former compares differences in the measurement of financial accounting income with the manner in which income is determined according to the tax laws. The latter emphasizes business decision-making principles that are important in the managerial portion of the accounting program. The course covers topics that illustrate fundamental tax strategies and how such enable taxpayers to achieve business and personal economic objectives. The assessment process in ACCTG 405 incorporates examinations, homework assignments, and individual and group projects. The exams are combinations of objective questions and open-ended problems. Exams are often given in the evening. Course learning aids include a text book, on-line tax research services, spreadsheet software, and a packet of handouts prepared by instructors to keep the classes updated on the many changes in the tax laws that occur each year.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: ACCTG 211;B A 301 orFIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 406** Principles of Taxation II (3) Impact of federal tax structure on business decisions, research methodology, tax planning; ethical considerations of tax practice.

### **Principles of Taxation II (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: ACCTG 405

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 410** Federal Taxation II (3) An examination of the rules and forms used to compute the federal tax liability of corporations and partners.

### **Federal Taxation II (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: ACCTG 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 411** Accounting Practicum: VITA (3) Introduces students to practical aspects of tax preparation through the IRS' VITA program and completion of a tax research project.

### **Accounting Practicum: VITA (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None



Effective: Spring 2008  
Prerequisite: ACCTG 310

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 422 Accounting Systems (3)** Understanding flow and documentation of accounting information and internal controls in the context of accounting cycles.

### **ACCTG 422 Accounting Systems (3)**

This course primarily investigates accounting transactions cycles-processes and procedures by which an organization's financial information is recorded, processed, reported, and disposed of. The processes covered in this course range from manual to fully automated and Web-enabled systems. The documentation and analysis of the accounting cycles for the revenue, expenditure, conversion, and managerial reporting areas are explored via flowcharts and narrative descriptions. The concepts of files, transaction updates, editing, and reporting in the automated accounting systems are explored. The course also covers internal controls in the manual and automated systems. Additional topics may include fraud examination, applicable laws and regulations, and computerized auditing.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 312

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 426 Financial Statement Analysis (3)** The exploration of conventional and advanced methods of analyzing financial statements, including the assessment of earnings quality.

### **ACCTG 426 Financial Statement Analysis (3)**

The objective of this course is to explore conventional and advanced analytical methods of analyzing financial statements. Expanding on the material covered in the principles of accounting and principles of finance courses and using actual financial statements, students:

- review and apply the traditional methods for analyzing financial statements, such as ratio analysis, trend analysis, and common-size analysis,
- apply advanced tools for analyzing financial statements, such as financial distress prediction models and earning manipulation prediction models, and
- evaluate accounting policies and disclosures and their impact on the financial statements through the assessment of earnings quality.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: FIN 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 431 Advanced Auditing (3)** Examination of legal liability, EDP, statistical sampling, SEC reporting, internal control, and financial reporting in specialized industries.

### **Advanced Auditing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 403 or ACCTG 403W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 432 Accounting Information Systems (3)** Systems analysis tools and techniques; internal control concepts; development of computer control procedures.

### **ACCTG 432 Accounting Information Systems (3)**

Accounting data are utilized as information in making decisions and as a control mechanism. The focus of this course, however, will be upon the actual production of accounting data.

The purpose of the course is to learn how accountants collect relevant data and transform them into reports appropriate for managers and external readers. Procedural details will focus first on the traditional accounting cycle and the journal entries for business transactions and events. Then we shall examine in detail the principle accounting cycles: sales cycle,

cash receipts cycle, purchases cycle, cash disbursements cycle, payroll cycle, facilities cycle, general ledger cycle, production cycle.

For each cycle, you should be able to explain the relation of the accounting process to the business enterprise, the basic journal entries, the basic internal control features, and the document flow.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: ACCTG 371 or ACCTG 471/MIS 204

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 440 Advanced Management Accounting (3)** Management accounting topics such as decision models, quantitative techniques, variance analysis, and their use in accounting.

### **ACCTG 440 Advanced Management Accounting (3)**

An in-depth examination of accounting techniques used within modern organizations. The course is designed for students interested in pursuing careers in corporate accounting or financial management.

The portfolio of managerial accounting procedures, including cost measurement and allocation, budgeting practices, transfer pricing, and variance analyses appropriate to an organization's unique circumstances are derived. The student will learn to apply psychological and sociological theories of behavior to practical problems of control and to apply quantitative methods and models to managerial decision-making. Other topics covered by the course may include, financial management of working capital, long-term assets and liabilities; techniques for managing inventory; and strategic cost management including inter-organizational cost management.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: ACCTG 340 or ACCTG 404

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 450 Advanced Accounting (3)** Accounting theory and practice for business combinations, branches, international operations, partnerships, consolidated financial statements, corporate liquidations, nonprofit organizations, estates, and trusts.

### **Advanced Accounting (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: ACCTG 472

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 461 (IL) International Accounting (3)** Study of international accounting issues with emphasis on need, use, and interpretation of financial accounting required in global business environment.

### **International Accounting (3)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: ACCTG 471 and ACCTG 472

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 462 Governmental and Not-for-Profit Accounting (3)** Provides an understanding of governmental and not-for-profit accounting theory, procedures, and financial statements.

### **Governmental and Not-for-Profit Accounting (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: ACCTG 311 or ACCTG 471

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 463 Accounting Theory (3)** An analysis of the development of accounting theory and its current and future impact on accounting.

**Accounting Theory (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 471

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 471 Intermediate Financial Accounting I (3)** Theory and practice issues in income concepts and value measurement; GAAP; revenues, costs, assets, liabilities, and equities.

**ACCTG 471 Intermediate Accounting I (3)**

This course provides students with an understanding of generally accepted accounting principles and procedures so that they properly account for and present information in financial statements prepared for external users. The student should acquire a complete understanding of the accounting issues relating to cash, receivables, inventory, plant assets, natural resources, and intangibles. The student should be able to evaluate alternative accounting methods and choose the methods which will best convey the financial information related to the above areas. The student should be able to apply appropriate generally accepted accounting principles and procedures to account for transactions related to the above asset areas. The student should be able to demonstrate an understanding of the transaction analysis, recording, classification, summarization, and reporting procedures in the accounting cycle, and an understanding of the information contained in the financial statements. Finally, student should be able to demonstrate written communication skills required of accountants.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 211 or ACCTG 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 472 Intermediate Financial Accounting II (3)** Off-balance-sheet financing; special issues in cost capitalization, liabilities, and equities; matching; funds flow statements; statement analysis; inflation accounting.

**Intermediate Financial Accounting II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ACCTG 371 or ACCTG 471

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 473 Advanced Financial Accounting (3)** Reporting for multi-corporate enterprises, business combinations, quasi-reorganizations, and selected contemporary reporting problems.

**ACCTG 473 Advanced Financial Accounting (3)**

This course explores four major topics: accounting for business combinations, introduction to derivatives and special purpose entities, accounting for foreign currency transactions and consolidating foreign subsidiaries, and ethics and policy issues for the profession.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: ACCTG 472

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 481 Financial Statement Analysis: Accounting Based Evaluation and Decision Making (3)** An accounting based evaluation and decision making approach to analyzing financial statements by studying business and firm valuation.

**ACCTG 481 Financial Statement Analysis (3)**

The proposed course in financial statement analysis is structured to improve the student's ability to extract and interpret information from actual financial statements and to expose the student to how financial statement information is integrated into equity valuation and credit analysis. The course would not only rely upon textbook-based and lecture-based learning, but also emphasize case-based learning.

The course will consist of two main sections. The first will deal with accounting and business analysis. This part will explore the types of financial information data typically available for publicly traded companies and introduce a model of the economic drivers of company performance. It would incorporate some technical accounting as well as some standards business economics/strategy concepts. Students will be forced to recast financial statements that they believe do not reflect the underlying economic state of the company. Financial reporting issues relating to revenue and expense recognition, leases and consolidations will be discussed.

The other section of the course will deal with firm valuation. Students would be exposed to some standard approaches to equity valuation and the analysis activities underlying these approaches. Aspects of valuation that would be covered in this section of the course are financial ratio analysis, forecasting, pro-forma statements, cost of capital and valuation methods.

The course will rely on lectures and extensive use of case studies.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: or concurrent:ACCTG 472

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 483 Forensic Accounting (3)** Study of investigative accounting, consulting and litigation support activities undertaken in forensic accounting engagements.

**ACCTG 483 Forensic Accounting (3)**

ACCTG 483 is the exploration of the broad discipline known as "forensic accounting," which includes a variety of investigative accounting, valuation, damage assessment and litigation support services. Forensic accounting is an evolving discipline which is distinguished from assurance services in that it does not involve reporting on the fairness of financial statements. It generally involves the investigation and analysis of financial data for some specific purpose – obtaining an in-depth understanding of information that enables the forensic accountant to prove, disprove or at least confidently speculate about allegations related to the information and to report those findings objectively.

Forensic accountants are involved in presenting analyses that might be valuable for such things as settling legal disputes, calculating economic damages, valuing intellectual property, determining the extent of damage or loss due to fraud, or tracing elusive assets or revenue sources. A forensic accountant might also participate in pro-active engagements such as the development of systems and procedures to prevent fraud.

The first part of the course deals with the technical and ethical framework of forensic accounting and focuses on the understanding of forensic and investigative accounting including investigation methodology, the nature of fraud, fraud risk factors, financial statement fraud, litigation support and dispute resolution services and development of the skills needed in those professional activities. These skills include the ability to integrate knowledge of accounting, finance, economics, business law and other business disciplines in gathering, analyzing and evaluating evidence and drawing conclusions. The second part of the course focuses on forensic accounting investigation and analysis of financial information in connection with litigation, dispute resolution, estimation of economic damages, or other specific objectives, and the preparation of comprehensive, objective reports of findings and conclusions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: or concurrent:ACCTG 472;ACCTG 403 orACCTG 403W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 489 Seminar in Accounting (3)** New trends and concepts in accounting; applications and impact on problem solving and decision making.

**Seminar in Accounting (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 494H** Research Project (1-3 per semester/maximum of 6) Supervised student activities on research projects identified on an individual or small-group basis.

**ACCTG 494H Research Project (1-6)**

ACCTG 494H, Senior Honors Thesis in Accounting - Investigation of an original problem area associated with accounting, including literature review. A thesis topic must be approved and a thesis supervisor must be identified before the course may be scheduled. Students sign up for three credits in each of their last two semesters for a total of six credits.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 496A** Advanced Accounting (1-6) Accounting theory and practice for business combinations, branches, international ops, partnerships, corporate liquidations, non-profits, estates, and trusts.

**Advanced Accounting (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014  
Prerequisite: ACCTG 472

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 497A** Hot Tax Topics (3) The course will highlight principles and concepts in US international tax, trusts, and estates, and estate planning.

**Hot Tax Topics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 497B** Financial Reporting in Special Industries (3) Covers definitions, measurements and disclosures for revenues, expenses, assets, and liabilities not traditionally covered by financial accounting courses.

**Financial Reporting in Special Industries (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: ACCTG 471

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. .

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACCTG 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Acoustics (ACS)**

**ACS 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACS 402** Introduction to Acoustics (3) Basic principles of acoustics and perception of sound; fundamentals of applications: electroacoustic transducers, noise measurement and control, architectural and building acoustics, underwater sound. Offered for science and engineering majors.

### **Introduction to Acoustics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PHYS 203

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACS 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ACS 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Adult Education (ADTED)**

**ADTED 100S** Adult Learners in the University (1) Opportunity to develop effective learning strategies while exploring critical issues related to adults entering or returning to higher education.

**ADTED 100S First Year Seminar Adult Learners in the University (1)**  
(FYS)

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course is designed for the adult learner who is entering the university for the first time, or who is returning after an absence from studies. In this course we will help you: develop or renew effective study skills, learning strategies, and time management tools that will help you succeed as a Penn State student; identify useful university resources; learn effective writing skills and hone critical reading abilities to meet the requirements of academic coursework. Practice your public speaking skills so you will feel more confident and articulate.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 297** Special Topics (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 456** Introduction to Family Literacy (3) Introduces family literacy concepts, models, and components supporting families; adult, child, and parent education, interactive literacy activities, and case management.

### **ADTED 456 Introduction to Family Literacy (3)**

This 3-credit course examines the concept of family literacy and different models and services that support families. Students will review the main parts of family literacy services and programs that support vulnerable families: adult education, early childhood education, parent education, interactive literacy activities, case management, and collaboration with partners who provide services to families (such as libraries, community centers, school districts, one-stop services, Head Start.) The course attends to issues such as racial/ethnic, cultural, and linguistic diversity among families, continuous program improvement, and professional development.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Associate Degree or 60 undergraduate credits

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 456** Introduction to Family Literacy (3) Introduces family literacy concepts, models, and components supporting families; adult, child, and parent education, interactive literacy activities, and case management.

### **ADTED 456 Introduction to Family Literacy (3)**

This 3-credit course examines the concept of family literacy and different models and services that support families. Students will review the main parts of family literacy services and programs that support vulnerable families: adult education, early childhood education, parent education, interactive literacy activities, case management, and collaboration with partners who provide services to families (such as libraries, community centers, school districts, one-stop services, Head Start.) The course attends to issues such as racial/ethnic, cultural, and linguistic diversity among families, continuous program improvement, and professional development.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Associate Degree or 60 undergraduate credits

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 457** Adult Literacy (3) Surveys adult basic and literacy education research, theory, programming, and instruction; highlights learners' roles as parents, workers, and community members.

### **ADTED 457 Adult Literacy (3)**

This 3-credit course explores adult literacy research, theory, programming, and instructional practices in the context of family literacy. The course examines the role of adult education as it pertains to adult learners' needs and their roles as parents, workers, and community members. The course addresses a broad range of topics, including adult learning theories, considerations for English language learners, reading and numeracy, health literacy, workforce and corrections



education, and transitioning adults to postsecondary education or training. Readings and activities will draw on theoretical and practical aspects of adult education and family literacy literature.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Associate Degree or 60 undergraduate credits

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 457 Adult Literacy (3)** Surveys adult basic and literacy education research, theory, programming, and instruction; highlights learners' roles as parents, workers, and community members.

### **ADTED 457 Adult Literacy (3)**

This 3-credit course explores adult literacy research, theory, programming, and instructional practices in the context of family literacy. The course examines the role of adult education as it pertains to adult learners' needs and their roles as parents, workers, and community members. The course addresses a broad range of topics, including adult learning theories, considerations for English language learners, reading and numeracy, health literacy, workforce and corrections education, and transitioning adults to postsecondary education or training. Readings and activities will draw on theoretical and practical aspects of adult education and family literacy literature.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Associate Degree or 60 undergraduate credits

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 458 Early Literacy Development (3)** Focuses on young children's language and literacy development, including parental and staff support, grounded in scientifically based reading research.

### **ADTED 458 Early Literacy Development (3)**

This is a three-credit, post-baccalaureate course that focuses on young children's language and literacy development. This course examines research related to how children acquire language, reading, and writing skills, as well as how family partnerships between the home and school can further support language and literacy development and children's academic success. This course will cover a wide array of topics related to language and literacy development, including the influence of play and technology, the impact of read-alouds on literacy development, and the role of racial/ethnic and cultural diversity in learning. Students will examine early literacy development through a series of activities and readings.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Associate degree or 60 undergraduate credits

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 458 Early Literacy Development (3)** Focuses on young children's language and literacy development, including parental and staff support, grounded in scientifically based reading research.

### **ADTED 458 Early Literacy Development (3)**

This is a three-credit, post-baccalaureate course that focuses on young children's language and literacy development. This course examines research related to how children acquire language, reading, and writing skills, as well as how family partnerships between the home and school can further support language and literacy development and children's academic success. This course will cover a wide array of topics related to language and literacy development, including the influence of play and technology, the impact of read-alouds on literacy development, and the role of racial/ethnic and cultural diversity in learning. Students will examine early literacy development through a series of activities and readings.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Associate degree or 60 undergraduate credits

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 459** Interactive Literacy and Parental Involvement: Supporting Academic Success (3) Explores parental involvement in education and parent-child literacy activities that support children's language and literacy development, especially among diverse families.

**ADTED 459 Interactive Literacy: Parents and Children (3)**

Interactive Literacy: Parents and Children is one of five 3-credit courses in the 15-credit Certificate in Family Literacy developed by the Goodling Institute for Research in Family Literacy in the College of Education in partnership with the National Center for Family Literacy (Louisville, KY). It is offered during the summer and fall semesters to about 20 students per class. The course is 15 weeks in length, entirely online, and cohort-based. Study materials are both web- and print-based. Students work in teams for most of their assignments although they are also expected to produce a portfolio of individual application activities. An Associate's Degree or 60 baccalaureate credits at an accredited institution are required to enter the course. Technological requirements, registration, and other support are provided. The courses focuses on the component of family literacy in which the low-literate parents engage in language and literacy development activities with their young children (birth to age 8). During interactive literacy the teachers both model and supervise the literacy interactions. Students learn to use planned and intentional activities that are developmentally appropriate for the children. They also learn how to teach the parent the necessary interaction skills as well as how to debrief the parents afterwards. They also learn how to assess the literacy interactions between parents and their children.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Associate Degree or 60 undergraduate credits

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 459** Interactive Literacy and Parental Involvement: Supporting Academic Success (3) Explores parental involvement in education and parent-child literacy activities that support children's language and literacy development, especially among diverse families.

**ADTED 459 Interactive Literacy: Parents and Children (3)**

Interactive Literacy: Parents and Children is one of five 3-credit courses in the 15-credit Certificate in Family Literacy developed by the Goodling Institute for Research in Family Literacy in the College of Education in partnership with the National Center for Family Literacy (Louisville, KY). It is offered during the summer and fall semesters to about 20 students per class. The course is 15 weeks in length, entirely online, and cohort-based. Study materials are both web- and print-based. Students work in teams for most of their assignments although they are also expected to produce a portfolio of individual application activities. An Associate's Degree or 60 baccalaureate credits at an accredited institution are required to enter the course. Technological requirements, registration, and other support are provided. The courses focuses on the component of family literacy in which the low-literate parents engage in language and literacy development activities with their young children (birth to age 8). During interactive literacy the teachers both model and supervise the literacy interactions. Students learn to use planned and intentional activities that are developmentally appropriate for the children. They also learn how to teach the parent the necessary interaction skills as well as how to debrief the parents afterwards. They also learn how to assess the literacy interactions between parents and their children.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Associate Degree or 60 undergraduate credits

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 460** Introduction to Adult Education (3) History, methods, agencies, program areas, and problems of adult education in the United States.

**Introduction to Adult Education (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 470** (CI ED 470) Introduction to Distance Education (3) An introduction to the history, philosophy, organizations, learning theories, and instructional procedures used in American and foreign distance education.

### **Introduction to Distance Education (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 496** Independent Studies (1-18) Creative projects supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 497** Special Topics (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ADTED 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Aerospace Engineering (AERSP)**

**AERSP 001S** Aerospace Explorer--First-Year Seminar (1) First-Year Seminar explores aerodynamics, structural mechanics, flight mechanics, rotorcraft systems, high performance computers, air/space propulsion, and space systems.

### **AERSP 001S Aerospace Explorer--First-Year Seminar (1) (FYS)**

Aerospace Engineering deals with vehicles that fly -- airplanes, sailplanes, jets, helicopters, rockets, satellites, the space shuttle, space stations, etc. Students with an interest in these subjects can learn more about the variety of challenges and opportunities in the aerospace field through the small-class environment of the Aerospace Explorer First-Year Seminar.

An introduction to both the academic major and career paths in Aerospace Engineering, this seminar deals with the design, analysis and operation of aircraft and space vehicles. Students will learn about aerodynamics, structural mechanics, flight mechanics, rotorcraft systems, high performance computers, air-breathing propulsion, space propulsion, and space systems. The classes will include presentations by the Aerospace Engineering faculty, tours of the Aerospace Engineering laboratories, and presentations by student officers in the Penn State chapters of the American Institute of Aeronautics and Astronautics (AIAA) and the American Helicopter Society (AHS), as well as introductions to the

use of scientific plotting, graphing, and analysis software.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 055 (GN) (S T S 055) Space Science and Technology (3)** The science and technology of space exploration and exploitation; physical principles; research and development; history, space policy, and social implications.

**Space Science and Technology (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 097 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 097S First Year Seminar - Hands on Helicopter (1)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**First Year Seminar - Hands on Helicopter (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 199 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 204H Flight Vehicle Design and Fabrication I (2 per semester/maximum of 8)** Integrated project management, design, fabrication, testing, and flight evaluation of an advanced composite flight vehicle.

**Flight Vehicle Design and Fabrication I (2 per semester/maximum of 8)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 301 Aerospace Structures (3)** Aerospace structural design concepts, flight safety. Stiffness, strength, stability of thin-walled structures under combined loads. Energy methods, finite element analysis.

**AERSP 301 Aerospace Structures (3)**

AERSP 301 covers essential topics in aerospace structures. The objectives of the course are to help students: 1) appreciate the roles that structures and structural materials play in aerospace vehicles; 2) understand general design concepts for aerospace structures: vehicles, components, and materials; 3) develop the analysis tools and skills needed to analyze the performance of aerospace structures; and 4) gain experience identifying, formulating, and solving aerospace structural engineering problems.

AERSP 301 builds on structural mechanics topics covered in PHYS 211, E MCH 011 & 013 (or 210), and E MCH 215 & 216. It prepares students for study of advanced topics such as plates and shells, composites, structural stability, finite element analysis, structural dynamics, and aeroelasticity. It also provides students with the basic background needed to contribute effectively to multidisciplinary trade studies in vehicle design activities.

AERSP 301 begins with an overview of the general features of flight vehicle structures, with emphasis on thin-walled members and advanced materials. Then, the implications of assured safety of flight for structural design are explored, leading to coverage of: load cases, flight envelopes, load factors, factors of safety, kinds of structural failures, and margins of safety. Topics in structural analysis proceed from an initial review of topics in elasticity, structural materials, and beam bending. Then, the deflection and stress responses of thin-walled beams under transverse shear and torsional loading are addressed. More than a third of the course is devoted to energy principles and the development of the finite element method of structural analysis. The course finishes with a treatment of the structural stability of beams and panels, a key topic with respect to the behavior of thin-walled aerospace structures.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: E MCH 210 or E MCH 213 . Prerequisite or concurrent: AERSP 313

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 304 Dynamics and Control of Aerospace Systems (3)** Vibrations of single, multiple, and infinite degree-of-freedom systems; operational methods applied to aerospace vehicles; design of controllers.

**Dynamics and Control of Aerospace Systems (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: AERSP 313 E MCH 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 305W Aerospace Technology Laboratory (3)** Experiments in measurement systems, aerodynamics, aerospace structures, dynamics and control, and propulsion, technical report writing and presentations.

**AERSP 305W Aerospace Technology Laboratory (3)**

AERSP 305W is a junior-level experimental laboratory course in Aerospace Engineering. The purpose of this course is to expose students to the key principles and methods of experimentation as related to the field of aerospace engineering. Students learn the fundamentals of measurement techniques to determine quantities such as temperature, force, pressure, displacement, velocity, acceleration and strain in various laboratory situations. The course employs weekly "set-up" experiments that provide an opportunity for students to familiarize themselves with modern measurement techniques and gain valuable experience regarding the calibration and use of aerospace engineering research equipment. Students are expected to apply their knowledge of mathematics, science, and engineering in order to complete successfully the experiments encountered in the laboratory. The subsequent interpretation and analysis of the laboratory data requires the use of standard engineering tools and practices. Students work in lab groups to process data and then identify, formulate, and solve engineering questions associated with the experimental results.

Throughout the semester, students communicate their knowledge and understanding of the course material through a series of class assignments, written technical reports, and one final exam. Because writing and revising laboratory reports significantly enhances the understanding and interpretation of the research data, this course is "writing-intensive." As

such, students are expected to improve their writing skills as they gain experience writing abstracts, informal reports and formal reports. Peer review of reports helps students to recognize good writing, and to learn how to provide constructive criticism. The course instructor provides written feedback for revised formal reports, and the quality of writing is a factor in determining final grades.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: Prerequisite or concurrent: AERSP 301AERSP 311ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 306 Aeronautics (3)** Lift and drag characteristics of aircraft; propulsion systems; airplane performance; introduction to stability and control.

### **Aeronautics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1989

Prerequisite: AERSP 311AERSP 313

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 308 Mechanics of Fluids (3)** Kinetics and dynamics of fluids; perfect fluid theory using complex variables; introduction to viscous flow theory; fundamentals of compressible flow.

### **Mechanics of Fluids (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 212 or E MCH 212H; MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 309 Astronautics (3)** Introduction to space and space flight; laws of particle mechanics; orbits and trajectories; space vehicles and propulsion.

### **AERSP 309 Astronautics (3)**

This course, required for aerospace engineering majors, focuses primarily on the dynamics of spaceflight, including both orbital and attitude (orientation) motion of spacecraft. Topics include: three-dimensional rotational kinematics (direction cosine matrices, vector components in different coordinate systems, Euler angles, the angular velocity vector, and velocity and acceleration in different reference frames), three-dimensional particle dynamics (Newton's laws of particle motion, energy, angular momentum, and systems of particles), two-body orbital mechanics (Newton's law of universal gravitation, the orbit equation, conic sections and orbit terminology, Kepler's equation, classical orbital elements, and representations of satellite position and velocity), orbital maneuvers and transfers (impulsive maneuvers, Hohmann transfers, simple inclination changes, and relative motion between spacecraft), rigid-body dynamics (angular momentum and energy, the inertia matrix, principal-axis system, Euler's equations of rigid-body motion, torque-free motion, and effects of external torques), rocket performance (the rocket equation, specific impulse, estimating propellant requirements for a mission, and a survey of propulsion technology), and the space environment (standard atmosphere, simple radiative heat-transfer analysis, the Van Allen radiation belts, meteors and debris hazards).

The course relies upon a sound understanding of mechanics, matrix algebra and vector calculus. Assignments include analytical and numerical problems, some of which require computer programming.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: E MCH 212MATH 250;CMPSC 201 orCMPSC 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 311 Aerodynamics I (3)** Fluid statics and kinematics; fluid dynamics of inviscid and viscous flows; Navier-Stokes equations; introduction to boundary layers.

### **AERSP 311 Aerodynamics I (3)**

This is a first course in incompressible inviscid and viscous flows. It includes an introduction to fluids, fluid statics and hydrostatics. Fluid kinematics, including Eulerian versus Lagrangian viewpoint, steady versus unsteady flows, volume and

mass flow rates, vorticity and circulation, and streamlines are described. Derivation of the governing equations for the conservation of mass, momentum and energy is presented. Dimensional analysis is covered. Potential flow with and without the effects of viscosity is analyzed. A derivation and exact solutions of the Navier-Stokes equations are given and boundary layers are introduced. This is the first of a two course sequence in aerodynamics, where both courses are required for senior-year propulsion and design courses. Evaluation of student performance will be by two midterm exams worth approximately 25% each, a final exam worth approximately 35% and weekly homework assignments worth approximately 15%.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 212MATH 250CMPSC 201 orCMPSC 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 312 Aerodynamics II (3)** Fluid mechanics of viscous and compressible flows, laminar boundary layers, turbulent flows, isentropic flows, shock waves, supersonic life and drag.

### **AERSP 312 Aerodynamics II (3)**

Exact solutions of the Navier-Stokes equations for unsteady flow. Boundary layers solved by the methods of Blasius, Falkner-Skan and Thwaites. Boundary layer stability and transition to turbulence. Turbulent flow and solution methods. Fluid flow measurement techniques and numerical methods. Derivation of the governing equations for the conservation of mass, momentum and energy for compressible flow. Steady one-dimensional isentropic flow. Normal, traveling and oblique shock waves. Compressible flow with area change and converging-diverging nozzle flows. Prandtl-Meyer expansions and supersonic life and drag. One-dimensional flow with friction or heat transfer. Unsteady and linearized compressible flow. Introduction to the method of characteristics. This is the second of a two course sequence in aerodynamics and is a prerequisite for senior level courses in propulsion and design. Evaluation of student performance will be by two midterm exams worth approximately 25% each, a final exam worth approximately 35% and weekly homework assignments worth approximately 15%.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: AERSP 311AERSP 313M E 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 313 Aerospace Analysis (3)** Mathematical methods applied to aerospace engineering: Fourier series, ordinary and partial differential equations, complex variables, numerical methods, data analysis.

### **AERSP 313 Aerospace Analysis (3)**

This course is designed to reinforce the mathematical concepts learned in the prerequisite mathematics and computer science courses and to present new mathematical material that is necessary for aeronautics, astronautics, dynamics and control, and fluid dynamics analysis. In practice, analytical and numerical approaches to problems solving are complementary, hence, this course will emphasize a combined analytical and numerical treatment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MATH 220MATH 230MATH 250;CMPSC 201 orCMPSC 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 399 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 401A** Spacecraft Design--Preliminary (3) Conceptual and preliminary design of a spacecraft, its constituent subsystems, and related systems, to satisfy a given set of specifications.

**AERSP 401A Spacecraft Design - Preliminary (3)**

AERSP 401A is the first of a two-semester sequence of senior capstone design courses. In this course, students will begin to learn the design process, complete a conceptual design, and to begin a preliminary design of a spacecraft, working in teams. This process is inherently multidisciplinary, requiring the use of engineering practices in such subjects as structures, dynamics, electrical and thermal systems, propulsion, controls, and information systems. In addition to the technical design content, this course seeks to enhance students' skills in verbal and written communications, ethical thinking, and the team approach to design, which is widely used in industry and government. Classes (115 minutes each, twice weekly) include lecture and time for team meetings. Students are evaluated on the technical merit of the designs (presented in written and oral reports), as well as their ability to function on a team.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: AERSP 309 . Prerequisite or concurrent: AERSP 450

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 401B Spacecraft Design--Detailed (2)** Detailed design of the constituent subsystems and related support systems for a spacecraft.

**AERSP 401B Spacecraft Design -- Detailed (2)**

AERSP 401B is the second of a two-semester sequence of senior capstone design courses. In this course, students work in teams, continuing the design process begun in AERSP 401A. This process is inherently multidisciplinary, requiring the use of engineering practices in such subjects as structures, dynamics, electrical and thermal systems, propulsion, controls, and information systems. In addition to the technical design content, this course seeks to enhance students' skills in verbal and written communications, and the team approach to design, which is widely used in industry and government. Classes (115 minutes each, twice weekly) include lecture and time for team meetings.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: AERSP 301AERSP 401A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 402A Aircraft Design--Preliminary (3)** Conceptual and preliminary design of an aircraft, its constituent subsystems, and related systems, to satisfy a given set of specifications.

**AERSP 402A Aircraft Design -- Preliminary (3)**

AERSP 402A is the first of a two-semester sequence of senior capstone design courses. In this course, students will complete the preliminary design for an aircraft such that it satisfies the assigned specifications. Students completing this course will have the ability to design a system, component, or process to meet desired needs in aircraft systems; they will have the ability to function on multi-disciplinary teams; and they will have the ability to identify, formulate, and solve engineering problems. In addition, students will have the background to help determine what the ethical responsibilities are to themselves, to employers, and to society. Classes (115 minutes each, twice weekly) include lecture and time for team meetings.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: AERSP 306 . Prerequisite or concurrent: AERSP 413

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 402B Aircraft Design--Detailed (2)** Detailed design of the constituent subsystems and related support systems for an aircraft.

**AERSP 402B Aircraft Design - Detailed (2)**

AERSP 402B is the second of a two-semester sequence of senior capstone design courses. In this course, students will complete the detailed design for an aircraft, and all of its constituent and related support systems, such that it satisfies the assigned specifications. Students completing this course will have the ability to design a system, component, or process to meet desired needs in aircraft systems; they will have the ability to function on multi-disciplinary teams; and they will have the ability to identify, formulate, and solve the associated engineering problems. Classes (115 minutes each, twice weekly) include lecture and time for team meetings.



General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: AERSP 301AERSP 402A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 404H** Flight Vehicle Design and Fabrication II (3 per semester/maximum of 12) Project management, design, fabrication, aerodynamic and structural testing, and flight evaluation of an advanced composite flight vehicle.

**Flight Vehicle Design and Fabrication II (3 per semester/maximum of 12)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2000  
 Prerequisite: AERSP 204H

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 405** Experimental Methods and Projects (3) Experimental methods involving a variety of aerospace engineering topics; teams of students focus on advanced measurement techniques and project engineering.

**AERSP 405 Experimental Methods and Projects (3)**

This is a senior-level elective laboratory course that builds on AERSP 305W "Aerospace Technology Laboratory." The first part of AERSP 405 addresses the engineering of typical data acquisition systems through a series of lectures and laboratory experiments. Data acquisition and processing are covered as they relate to a broad range of engineering experiments. Several sessions in the laboratory provide students with hands-on experience with data acquisition, followed by computer program exercises to complete the assignments. Initially the lectures are twice a week (75 minutes each). This activity comprises approximately 20 % of the total course.

The major portion of the course introduces students to "real-world" projects in engineering and laboratory research. Students work in teams to identify, formulate, plan and solve engineering problems associated with a design or system, the completion of an experiment, or an extensive computational simulation requiring a team of students. Teams of 2 to 4 students are assigned, following student input on preferences from a list of proposed projects. Students learn, through practice, the methodology of team project engineering. The teams each develop goals for the semester's project, performed following a careful work breakdown analysis with realistic time estimations and scheduling. Many of the projects involve the design and completion of an experiment. As part of the project, students will assemble, analyze and interpret relevant data, and prepare progress and final reports (written and oral). The reports should contain graphs that go with the text to provide the necessary data interpretation. The topics in the projects have application to a variety of research programs currently underway at Penn State. At the initiation of the project activity, lectures on principles of project planning including Gantt chart preparation, work breakdown structures and critical path considerations are presented. Common best practices for the preparation of project proposals, reports, presentations and general record keeping are discussed.

Overall meetings with the course instructor become bi-weekly once the projects are underway. Many of the projects also have knowledgeable graduate student or faculty consultants to assist with project planning and implementation. Project consultants conduct occasional individual review meetings with each team. Much of the project coordination work is undertaken within the regularly scheduled hours for the course. The class meetings include a combination of informal presentations by the students and, occasionally, the instructor on important technical issues. Considerable class time is spent discussing the goals and progress of individual tasks, and each student gives several brief oral presentations.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2012  
 Prerequisite: AERSP 305W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 407** Aerodynamics of V/STOL Aircraft (3) Rotary wing aircraft; VTOL and STOL performance; propeller-wing combinations; jet flap; high lift devices.

**Aerodynamics of V/STOL Aircraft (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 1984  
 Prerequisite: AERSP 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 410** Aerospace Propulsion (3) Analysis and performance characteristics of reciprocating engine, turbo-jet, turbo-prop, turbo-fan, ram-jets, and chemical rockets. Aerothermodynamics of inlets, combustors, and turbomachinery.

**Aerospace Propulsion (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: AERSP 312

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 412** Turbulent Flow (3) Homogeneous turbulence; spectral transfer of energy, viscous dissipation; turbulent shear flow: mixing-length theory, eddy viscosity, scaling laws, energy budget.

**Turbulent Flow (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Winter 1978  
Prerequisite: one course in fluid mechanics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 413** Stability and Control of Aircraft (3) Static and dynamic stability and control of aircraft; open and closed loop systems.

**Stability and Control of Aircraft (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1989  
Prerequisite: AERSP 304AERSP 306

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 420** Principles of Flight Testing (3) In-flight and analytical studies of airplane performance, stability, and control; reduction of data; instrumentation; flight test techniques.

**Principles of Flight Testing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: AERSP 306

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 423** Introduction to Numerical Methods in Fluid Dynamics (3) Finite difference methods applied to solving viscous/inviscid fluid dynamics problems, error control, numerical stability.

**Introduction to Numerical Methods in Fluid Dynamics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: AERSP 312 or M E 320; MATH 250 or MATH 251; CMPSC 201 or CMPSC 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 424** Advanced Computer Programming (3) Engineering and scientific programming topics: object oriented programming, parallel programming, and various modern languages (e.g. C++, Java, and Ada).

**AERSP 424 Advanced Computer Programming (3)**

This course presents an advanced view of computer programming, mainly using Java, C++, and Ada95. The use of current operating systems (e.g. Linux and Unix) and compilers (e.g. gcc) will also be presented. Object Oriented Programming will also be discussed in detail. Object Oriented Programming is quite different than functional or procedural programming, and it is difficult to learn on your own. The differences and similarities between Java and C++ and Ada95 will also be discussed. Hands-on programming will be a key part of the course. This course is one of the Core Courses for the

Graduate Minor in High Performance Computing, and will also be a technical elective in Aerospace Engineering.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: CMPSC 201 or CMPSC 202; MATH 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 425 Theory of Flight (3)** Advanced wing and airfoil theory, conformal mapping, slender body theory.

### **Theory of Flight (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2001  
 Prerequisite: AERSP 306

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 430 Space Propulsion and Power Systems (3)** Analysis and performance of chemical and nuclear rockets, electric propulsion systems. Introduction to solar, chemical, thermoelectric, and nuclear power sources.

### **Space Propulsion and Power Systems (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: AERSP 410 or M E 432

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 440 Introduction to Software Engineering for Aerospace Engineers (3)** Software engineering for safety- and mission-critical systems, including requirements, management, processes, designs, programming, validation/ verification, and other aspects of software development.

### **AERSP 440 Introduction to Software Engineering for Aerospace Engineers (3)**

This course is an introduction to software engineering. Software engineering includes all aspects of professional software production, and is especially important for safety-critical and mission-critical software. It includes documentation, management, processes, requirements, design models, computer programs, validation, verification, and other aspects of the development process.

Aerospace systems, including aircraft, spacecraft, onboard avionics, ground-based systems, flight simulators, and air transportation systems, rely heavily on software. Software is a major cost of all aerospace systems. For example, the Boeing 777 has more than 1000 onboard processors and more than 4 million lines of software which is primarily written in Ada. The F/A-22 fighter has more than 2 million lines of software onboard, and much of this is Ada also.

Aerospace systems also demand a level of reliability far beyond that of most other systems, which means the software must be designed using rigorous mission-critical and safety-critical procedures, which makes the software quite unique compared to most other software. The FAA and DOD are both involved in certifying aircraft software, for example, through the DO-178B and DOD-2168 standards.

This course is a required option in Aerospace Engineering (take one of AERSP 440, E E 305, or E E 210). If not taken to satisfy that requirement, it can be used as a technical elective.

This course is a required option in Aerospace Engineering (take one of AERSP 440, E E 305, or E E 210). If not taken to satisfy that requirement, it can be used as a technical elective.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: CMPSC 201 or CMPSC 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 450 Orbit and Attitude Control of Spacecraft (3)** Principles of mechanics and vector analysis applied to basic concepts of satellite motion and control, rocket ballistics, and gyroscopic instruments.

### **Orbit and Attitude Control of Spacecraft (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1987  
Prerequisite: AERSP 304AERSP 309

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 460 Aerospace Control Systems (3)** Design and analysis of feedback control systems for aerospace applications; stability, root locus, time- and frequency-domain, state-space methods.

### **AERSP 460 Aerospace Control Systems (3)**

This course is an introduction to the design and analysis of feedback control systems as applied to aerospace systems. The course covers control theory that is commonly used in the aerospace industry and presents practical applications of this theory to aerospace systems. The course does not emphasize rigorous mathematical derivation, but instead emphasizes the application of control theory. It provides a comprehensive overview of classical control theory and single-input/single-output (SISO) design methods. The course also presents an introduction to modern control theory and multi-input/multi-output (MIMO) design methods. Aerospace examples and applications are emphasized throughout the course.

The course builds upon a required junior-level course in system dynamics and controls (AERSP 304), which provides students with basic dynamic system theory and a brief introduction to feedback control. The course also supplements required senior-level courses in either aircraft or spacecraft dynamics (AERSP 413 and 450) which provides background on vehicle dynamics. AERSP 460 provides an additional level of depth in dynamics and control theory, and prepares students for entry-level work or graduate studies involving the design of automatic control systems for aircraft and spacecraft.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: AERSP 304

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 470 Advanced Aerospace Structures (3)** Design and analysis of aerospace structures. Plates and sandwich panels; composite materials; structural dynamics; aeroelasticity; damage tolerance.

### **AERSP 470 Advanced Aerospace Structures (3)**

AERSP 470 covers important topics in aerospace structures beyond basic stress and deflection analysis of thin-walled beams. The objectives of the course are to help students: 1) appreciate the roles that structures and structural materials play in aerospace vehicles; 2) understand general design concepts for aerospace structures: vehicles, components, and materials; 3) develop the analysis tools and skills needed to analyze the static and dynamic performance of aerospace structures; and 4) gain experience identifying, formulating, and solving aerospace structural engineering problems.

AERSP 470 builds on structural, dynamics, and aerodynamics topics covered in PHYS 211, E MCH 011 & 013 (or 210), E MCH 215 & 216, AERSP 301, AERSP 306, and AERSP 304. It prepares students for entry-level work or graduate study in the analysis and design of aerospace structures. It also provides students with the strong background needed to contribute effectively to multidisciplinary trade studies in vehicle design activities.

AERSP 417 begins with a review of the general features of flight vehicle structures and aerospace structural design concepts. Then, the deflection and stress responses of flat plates and sandwich panels under lateral and in-plane loading are addressed. About a third of the course is devoted to the behavior of advanced composite panels, and another third to structural dynamics and aeroelasticity. The course finishes with treatments of joining and damage tolerance, both key topics with respect to the design of aerospace structures.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: AERSP 301 . Prerequisite or concurrent: AERSP 304E MCH 315

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 473 (E MCH 473) Composites Processing (3)** An introduction to the principles of mechanics governing manufacturing, computer-aided design, and testing of composite materials and structures.

### **Composites Processing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1988  
Prerequisite: E MCH 471

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 490** (E E 471, NUC E 490) Introduction to Plasmas (3) Plasma oscillations; collisional phenomena; transport properties; orbit theory; typical electric discharge phenomena.

**Introduction to Plasmas (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E E 330 or PHYS 467

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 492** (E E 472) Space Astronomy and Introduction to Space Science (3) The physical nature of the objects in the solar system; the earth's atmosphere, ionosphere, radiation belts, magnetosphere, and orbital mechanics.

**Space Astronomy and Introduction to Space Science (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E E 330 or PHYS 400

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 494** Aerospace Undergraduate Thesis (1-3 per semester/maximum of 6) Individual problem investigations reported in written thesis and seminar lectures. Cooperative research with faculty guidance on topics of current interest.

**Aerospace Undergraduate Thesis (1-3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 494H** Aerospace Undergraduate Thesis (1-3 per semester/maximum of 6) Individual problem investigations reported in written thesis and seminar lectures. Cooperative research with faculty guidance on topics of current interest.

**Aerospace Undergraduate Thesis (1-3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 497D** Autonomous Underwater Vehicle (AUV) Design (1.5) Students taking this course will design and build an autonomous underwater vehicle (AUV) capable of carrying out simple tasks (e.g. find and mark or retrieve small objects) in water depths less than 30'. Component technologies include underwater proposers, vehicle attitude control, acoustic and optical sensing, ballast control for vehicle stability, beacon-based position estimation, simple manipulators, power system design and control.

### **Autonomous Underwater Vehicle (AUV) Design (1.5)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AERSP 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Afr Amer Studies (AF AM)**

**AF AM 083S** (GH;US;IL) First-Year Seminar in African American Studies (3) Cultural, philosophical, economic, political, and global dynamics of the Black experience in the United States and the Diaspora.

### **First-Year Seminar in African American Studies (3)**

General Education: GH

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Fall 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 100** (GS;US) Living While Black: Themes in African American Thought and Experience (3) What it means to be Black in America by engaging with questions about identity and authenticity, freedom and unfreedom, radicalism and reform, gender and sexuality, and the role of music in African American life.

### **AF AM 100 Living While Black: Themes in African American Thought and Experience (3)**

This course introduces some of the major themes that have emerged from the experiences, expressions, and reflections of African-descended peoples in the Americas. Exploring these themes will reveal that black life is a distinctive phenomenon within the context of the larger historical and cultural narrative of the Americas. The course will use texts from major African American intellectuals and artists to uncover the major issues that have shaped black life in the Americas. Some of the themes and writers explored include "identity and authenticity" as illustrated in the works of W.E.B. DuBois and Audre Lorde; "freedom and unfreedom" using the works of Frederick Douglass and Angela Davis; "radicalism

or reform" as expressed in the works of Booker T. Washington, Bayard Rustin, David Walker, and Claudia Jones; "gender and sexuality" as expressed in the work of John Oliver Killens, bell hooks, and Francis Ellen Watkins Harper; "songs in the key of black life" as seen in the work of Ralph Ellison, Farah Jasmine Griffin, Amiri Baraka, and Tricia Rose; "love, the spirit, and the word," in the works of James Cone, Toni Morrison, Nikki Giovanni, and James Baldwin; and "the black planet," as described in the writings of Langston Hughes, Marcus Garvey, and Lorraine Hansberry. These authors represent the key debates in African American life and thought and illustrate the wide range of intellectual, cultural, political, and artistic expression that has defined black life in modern America. This course provides a beginning foundation for understanding the various meanings of the lived experiences of Black people in the Americas in the twentieth century.

General Education: GS  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 100 (GS;US) Living While Black: Themes in African American Thought and Experience (3)** What it means to be Black in America by engaging with questions about identity and authenticity, freedom and unfreedom, radicalism and reform, gender and sexuality, and the role of music in African American life.

### **AF AM 100 Living While Black: Themes in African American Thought and Experience (3)**

This course introduces some of the major themes that have emerged from the experiences, expressions, and reflections of African-descended peoples in the Americas. Exploring these themes will reveal that black life is a distinctive phenomenon within the context of the larger historical and cultural narrative of the Americas. The course will use texts from major African American intellectuals and artists to uncover the major issues that have shaped black life in the Americas. Some of the themes and writers explored include "identity and authenticity" as illustrated in the works of W.E.B. DuBois and Audre Lorde; "freedom and unfreedom" using the works of Frederick Douglass and Angela Davis; "radicalism or reform" as expressed in the works of Booker T. Washington, Bayard Rustin, David Walker, and Claudia Jones; "gender and sexuality" as expressed in the work of John Oliver Killens, bell hooks, and Francis Ellen Watkins Harper; "songs in the key of black life" as seen in the work of Ralph Ellison, Farah Jasmine Griffin, Amiri Baraka, and Tricia Rose; "love, the spirit, and the word," in the works of James Cone, Toni Morrison, Nikki Giovanni, and James Baldwin; and "the black planet," as described in the writings of Langston Hughes, Marcus Garvey, and Lorraine Hansberry. These authors represent the key debates in African American life and thought and illustrate the wide range of intellectual, cultural, political, and artistic expression that has defined black life in modern America. This course provides a beginning foundation for understanding the various meanings of the lived experiences of Black people in the Americas in the twentieth century.

General Education: GS  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 101 (GH;US) (WMNST 101) The African American Woman (3)** The sociological, historical, and political experiences of African American women, their roles and contributions to society.

### **The African American Woman (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 101U (GH;US) (WMNST 101U) The African American Woman (3)** The sociological, historical, and political experiences of African American women, their roles and contributions to society.

### **The African American Woman (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 101U** (GH;US) (WMNST 101U) The African American Woman (3) The sociological, historical, and political experiences of African American women, their roles and contributions to society.

**The African American Woman (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 102** (GH;IL) (WMNST 102) Women of Color: Cross-Cultural Perspective (3) Global examination of value systems of women of color; attention to minority ethnic groups in the United States and developing countries.

**Women of Color: Cross-Cultural Perspective (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 103** (US) (SOC 103, WMNST 103) Racism and Sexism (3) Critical analysis of the structure of race and gender in the contemporary United States.

**Racism and Sexism (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 110** (GH;US) Introduction to African American Studies (3) An introductory survey of African American Studies practice and scholarship, focused on the major methods, figures, texts, and debates that define the field.

**Introduction to African American Studies (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 110U** (GH;US) Introduction to African American Studies (3) An introductory survey of African American Studies practice and scholarship, focused on the major methods, figures, texts, and debates that define the field.

**Introduction to African American Studies (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 126** (GA;US) (INART 126) The Popular Arts in America: The History of Hip-Hop (3) An examination of the roots, development, and significance of hip-hop in our culture.

**The Popular Arts in America: The History of Hip-Hop (3)**

General Education: GA  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2014



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 132** (IL) (SPAN 132, AFR 132) Afro-Hispanic Civilization (3) A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America.

**Afro-Hispanic Civilization (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 139** (GH;US) (ENGL 139) Black American Literature (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

**Black American Literature (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 145** (GH;US;IL) (RL ST 145) African American Religion (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.

**African American Religion (3)**

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 146** (GH;US) (RL ST 146) The Life and Thought of Martin Luther King, Jr. (3) A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.

**The Life and Thought of Martin Luther King, Jr. (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 147** (GH;US) (RL ST 147) The Life and Thought of Malcolm X (3) The life of Malcolm X/El Hajj Malik El Shabazz (1925-1965) and his social, political, economic, and moral thought.

**The Life and Thought of Malcolm X (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 152** (GH;US;IL) (HIST 152) African American History (3) African roots; colonial and revolutionary experiences; slavery and abolitionism; civil war and reconstruction; accommodation and protest; the new militancy.

**African American History (3)**

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities

Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 197** Special Topics (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9 per semester/maximum of 9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 199** Foreign Studies (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12 per semester/maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 208** (GA;US;IL) (THEA 208) Theatre Workshop in Diverse Cultures (3) A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples.

**Theatre Workshop in Diverse Cultures (3)**

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 210** (GH;US) (HIST 210) Freedom's First Generation: African American Life and Work, 1865 to World War II (3) The course will explore the context and events that shaped African American life over the period 1896-1932.

**AF AM (HIST) 210 Freedom's First Generation: African American Life and Work, 1865 to World War II (3)**  
(GH;US)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the emergence of the Atlantic World Black Diaspora from the 15th through the 19th centuries with the United States as its central focus. We begin with a brief discussion of African societies at the beginning of the Transatlantic Slave trade, discussing the various ethnicities, cultures, societies, and states. We then discuss the emergence of the TST and its consequences for the forging of the modern world and its centrality to the rise of modern capitalism. The forced migration of over 10 million people of African descent resulted in a massive dispersal of various cultures, ideas, religious systems, foods, crops, and ideologies--all of which formed the Black Diaspora. We look at the centrality of these various cultures and ideas to the successful rise of the American colonies, including the skills that Africans brought to the emerging staple crop economies, the knowledge of plants, foods, crops, and healing practices. We look at both the evolution of American slave societies in the North and the South, as well as the rise of Free Black communities. We use documents and readings to understand the multiple contributions of African Americans to science, literature, and music. Of major importance is the formation of slave communities, kinship networks, the rise of an African American religion, and various forms of resistance to slavery that included running away, daily forms of resistance, and actual slave revolts. We also discuss the rise of a special form of "slave politics" that shapes evolving notions of freedom. In addition to discussions of southern and northern slave society, we also look at the role of free blacks in the antebellum reform movements, especially the abolitionist movement. The course concludes with the coming of the Civil War and a discussion of the multiple ways that African Americans played a role in accelerating the road to war and in facilitating their own emancipation.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities and Social and Behavioral Sciences

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100HIST 021

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 210 (GH;US) (HIST 210) Freedom's First Generation: African American Life and Work, 1865 to World War II (3)** The course will explore the context and events that shaped African American life over the period 1896-1932.

**AF AM (HIST) 210 Freedom's First Generation: African American Life and Work, 1865 to World War II (3)**  
**(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the emergence of the Atlantic World Black Diaspora from the 15th through the 19th centuries with the United States as its central focus. We begin with a brief discussion of African societies at the beginning of the Transatlantic Slave trade, discussing the various ethnicities, cultures, societies, and states. We then discuss the emergence of the TST and its consequences for the forging of the modern world and its centrality to the rise of modern capitalism. The forced migration of over 10 million people of African descent resulted in a massive dispersal of various cultures, ideas, religious systems, foods, crops, and ideologies--all of which formed the Black Diaspora. We look at the centrality of these various cultures and ideas to the successful rise of the American colonies, including the skills that Africans brought to the emerging staple crop economies, the knowledge of plants, foods, crops, and healing practices. We look at both the evolution of American slave societies in the North and the South, as well as the rise of Free Black communities. We use documents and readings to understand the multiple contributions of African Americans to science, literature, and music. Of major importance is the formation of slave communities, kinship networks, the rise of an African American religion, and various forms of resistance to slavery that included running away, daily forms of resistance, and actual slave revolts. We also discuss the rise of a special form of "slave politics" that shapes evolving notions of freedom. In addition to discussions of southern and northern slave society, we also look at the role of free blacks in the antebellum reform movements, especially the abolitionist movement. The course concludes with the coming of the Civil War and a discussion of the multiple ways that African Americans played a role in accelerating the road to war and in facilitating their own emancipation.

General Education: GH

Diversity: US

Bachelor of Arts: Humanities and Social and Behavioral Sciences

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100HIST 021

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 211 (GH;US;IL) (HIST 211) Slavery and Freedom in the Black Atlantic (3)** The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.

**AF AM (HIST) 211 Slavery and Freedom in the Black Atlantic (3)**  
**(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the emergence of the Atlantic World Black Diaspora from the 15th through the 19th centuries with the United States as its central focus. We begin with a brief discussion of African societies at the beginning of the Transatlantic Slave trade, discussing the various ethnicities, cultures, societies, and states. We then discuss the emergence of the TST and its consequences for the forging of the modern world and its centrality to the rise of modern capitalism. The forced migration of over 10 million people of African descent resulted in a massive dispersal of various cultures, ideas, religious systems, foods, crops, and ideologies--all of which formed the Black Diaspora. We look at the centrality of these various cultures and ideas to the successful rise of the American colonies, including the skills that Africans brought to the emerging staple crop economies, the knowledge of plants, foods, crops, and healing practices. We look at both the evolution of American slave societies in the North and the South, as well as the rise of Free Black communities. We use documents and readings to understand the multiple contributions of African Americans to science, literature, and music. Of major importance is the formation of slave communities, kinship networks, the rise of an African American religion, and various forms of resistance to slavery that included running away, daily forms of resistance, and actual slave revolts. We also discuss the rise of a special form of "slave politics" that shapes evolving notions of freedom. In addition to discussions of southern and northern slave society, we also look at the role of free blacks in the antebellum reform movements, especially the abolitionist movement. The course concludes with the coming of the Civil War and a discussion of the multiple ways that African Americans played a role in accelerating the road to war and in facilitating their own emancipation.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 211 (GH;US;IL) (HIST 211) Slavery and Freedom in the Black Atlantic (3)** The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.

**AF AM (HIST) 211 Slavery and Freedom in the Black Atlantic (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the emergence of the Atlantic World Black Diaspora from the 15th through the 19th centuries with the United States as its central focus. We begin with a brief discussion of African societies at the beginning of the Transatlantic Slave trade, discussing the various ethnicities, cultures, societies, and states. We then discuss the emergence of the TST and its consequences for the forging of the modern world and its centrality to the rise of modern capitalism. The forced migration of over 10 million people of African descent resulted in a massive dispersal of various cultures, ideas, religious systems, foods, crops, and ideologies--all of which formed the Black Diaspora. We look at the centrality of these various cultures and ideas to the successful rise of the American colonies, including the skills that Africans brought to the emerging staple crop economies, the knowledge of plants, foods, crops, and healing practices. We look at both the evolution of American slave societies in the North and the South, as well as the rise of Free Black communities. We use documents and readings to understand the multiple contributions of African Americans to science, literature, and music. Of major importance is the formation of slave communities, kinship networks, the rise of an African American religion, and various forms of resistance to slavery that included running away, daily forms of resistance, and actual slave revolts. We also discuss the rise of a special form of "slave politics" that shapes evolving notions of freedom. In addition to discussions of southern and northern slave society, we also look at the role of free blacks in the antebellum reform movements, especially the abolitionist movement. The course concludes with the coming of the Civil War and a discussion of the multiple ways that African Americans played a role in accelerating the road to war and in facilitating their own emancipation.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 212 (US) African Americans in the New Jim Crow Era, 1968-present (3)** An examination of Black political, economic, social, and cultural life in America from the era of colonization to 1905.

**AF AM 212 African Americans in the New Jim Crow Era, 1968-present (3)**  
(US)

This course covers the Black experience after the 1960s and the post-World War II Civil Rights Movement ended in the late 1960s. It begins with a brief overview of the major events and achievements of the Civil Rights Movement and its waning that followed in the wake of the Vietnam War and the social upheaval of the late 1960s. The course focuses on the Black experience during the rightward shift in American politics, culture, and society in the last one third of the 20th century and the beginning decades of the 21st century. We look at the disintegration of the Democratic Party that grew out of the party's support of the Civil Rights Movement, the War on Poverty, and the Vietnam War. We discuss the recreation of the Republican Party that followed a southern strategy to rebuild the party on the racism and discontent of white people in the southern rim and in white suburbia throughout the nation. The new Republican Party pursued a new state's rights philosophy that fused with a growing libertarianism that rejected a strong federal government and was hostile to any efforts to address social justice issues in American society. We discuss the efforts of the New Right Republicans and the newly formed Democratic Leadership Conference of the Democratic Party to dismantle many of the achievements of the Civil Rights Movement, focusing on welfare reform, new sentencing laws, the privatization of the prison system and public education, all changes that forged a New Jim Crow society. We look at the role of black elected officials in this process, discussing the various differences between black members of the Democratic Leadership Conference, and those of the Progressive Black political groups. There were major political achievements in terms of more black elected officials, the Jesse Jackson Presidential Campaign, and the election of Barack Obama. However, the late 20th and early 21st Centuries were marked by growing class and racial inequality, perhaps made most visible by Hurricane Katrina when the entire world saw the consequences of decades of conservative policies that favored the rich over the poor. We discuss the popular notion of a post-racial and color blind society and the contradictions it embodies. The course ends with a discussion of newly emerging grassroots efforts to address issues such as environmental racism, school inequality and the schoolhouse to jailhouse track, police brutality, and the prison industrial complex. We discuss how African Americans today may build on the struggles and insights from the past to forge a stronger and more just future.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 212 (US)** African Americans in the New Jim Crow Era, 1968-present (3) An examination of Black political, economic, social, and cultural life in America from the era of colonization to 1905.

**AF AM 212 African Americans in the New Jim Crow Era, 1968-present (3)  
(US)**

This course covers the Black experience after the 1960s and the post-World War II Civil Rights Movement ended in the late 1960s. It begins with a brief overview of the major events and achievements of the Civil Rights Movement and its waning that followed in the wake of the Vietnam War and the social upheaval of the late 1960s. The course focuses on the the Black experience during the rightward shift in American politics, culture, and society in the last one third of the 20th century and the beginning decades of the 21st century. We look at the disintegration of the Democratic Party that grew out of the party's support of the Civil Rights Movement, the War on Poverty, and the Vietnam War. We discuss the recreation of the Republican Party that followed a southern strategy to rebuild the party on the racism and discontent of white people in the southern rim and in white suburbia throughout the nation. The new Republican Party pursued a new state's rights philosophy that fused with a growing libertarianism that rejected a strong federal government and was hostile to any efforts to address social justice issues in American society. We discuss the efforts of the New Right Republicans and the newly formed Democratic Leadership Conference of the Democratic Party to dismantle many of the achievements of the Civil Rights Movement, focusing on welfare reform, new sentencing laws, the privatization of the prison system and public education, all changes that forged a New Jim Crow society. We look at the role of black elected officials in this process, discussing the various differences between black members of the Democratic Leadership Conference, and those of the Progressive Black political groups. There were major political achievements in terms of more black elected officials, the Jesse Jackson Presidential Campaign, and the election of Barack Obama. However, the late 20th and early 21st Centuries were marked by growing class and racial inequality, perhaps made most visible by Hurricane Katrina when the entire world saw the consequences of decades of conservative policies that favored the rich over the poor. We discuss the popular notion of a post-racial and color blind society and the contradictions it embodies. The course ends with a discussion of newly emerging grassroots efforts to address issues such as environmental racism, school inequality and the schoolhouse to jailhouse track, police brutality, and the prison industrial complex. We discuss how African Americans today may build on the struggles and insights from the past to forge a stronger and more just future.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 235 (US) (ENGL 235)** From Folk Shouts and Work Songs to Hip Hop Poetry (3) The origins, forms, and function of the oral folk tradition of African Americans.

**AF AM (ENGL) 235 From Folk Shouts and Songs to Hip Hop Poetry (3)  
(US)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course contemplates connections between African oral traditions and contemporary trends in Black poetry—including hip-hop and spoken word poetry. The central objective of the course is to examine the degree to which the most contemporary forms of African American poetry continue to function as folk expression; it provides an opportunity for students to examine the oral roots of African American literature in general and contemporary hip-hop and spoken word poetry, in particular. Music, particularly the Blues and Jazz, will be a prominent feature of this class as we try to discover the peculiarities of Black poetry. Students will begin by comparing African and African American folk forms such as proverbs and epic poetry, continue with early African American poets such as Phyllis Wheatley, George Moses Horton, Frances Ellen Watkins Harper, and Paul Laurence Dunbar, and continue through the 20th century with the poetry of the Harlem Renaissance and Black Arts Movement to contemporary Hip-Hop and Spoken Word, including Def Poetry Jam recordings. Background readings will include important essays (such as James Weldon Johnson's "Preface to the Book of Negro Poetry" and Langston Hughes's "The Negro Artist and the Racial Mountain") that reveal the kinds of aesthetic issues African American artists faced in crafting their art in the face of a dominant culture that consistently questioned their capacity for artistic production. Students will listen as Margaret Walker reads her famous poem, "For My People," and they will consider the importance of the Black Arts Movement, its poets and critics to the development of contemporary hip-hop and spoken word poetry. Other course materials will include videotaped interviews and poetry readings. Readings would come from an appropriate anthology and/or a combination of other appropriate texts selected by the instructor.

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**AF AM 235 (US) (ENGL 235) From Folk Shouts and Work Songs to Hip Hop Poetry (3)** The origins, forms, and function of the oral folk tradition of African Americans.

**AF AM (ENGL) 235 From Folk Shouts and Songs to Hip Hop Poetry (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course contemplates connections between African oral traditions and contemporary trends in Black poetry—including hip-hop and spoken word poetry. The central objective of the course is to examine the degree to which the most contemporary forms of African American poetry continue to function as folk expression; it provides an opportunity for students to examine the oral roots of African American literature in general and contemporary hip-hop and spoken word poetry, in particular. Music, particularly the Blues and Jazz, will be a prominent feature of this class as we try to discover the peculiarities of Black poetry. Students will begin by comparing African and African American folk forms such as proverbs and epic poetry, continue with early African American poets such as Phyllis Wheatley, George Moses Horton, Frances Ellen Watkins Harper, and Paul Laurence Dunbar, and continue through the 20th century with the poetry of the Harlem Renaissance and Black Arts Movement to contemporary Hip-Hop and Spoken Word, including Def Poetry Jam recordings. Background readings will include important essays (such as James Weldon Johnson's "Preface to the Book of Negro Poetry" and Langston Hughes's "The Negro Artist and the Racial Mountain") that reveal the kinds of aesthetic issues African American artists faced in crafting their art in the face of a dominant culture that consistently questioned their capacity for artistic production. Students will listen as Margaret Walker reads her famous poem, "For My People," and they will consider the importance of the Black Arts Movement, its poets and critics to the development of contemporary hip-hop and spoken word poetry. Other course materials will include videotaped interviews and poetry readings. Readings would come from an appropriate anthology and/or a combination of other appropriate texts selected by the instructor.

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 250 (GH;IL) (HIST 250) Introduction to the Modern Caribbean (3)** A survey course which, explores the historical evolution and emergence of the modern Caribbean.

**Introduction to the Modern Caribbean (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities and Social and Behavioral Sciences

Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 280 (GH;US) Historical Ethnography of Freedom (3)** Studies the Underground Railroad movement to guide slaves to freedom, and public heritage surrounding this institution. Students use ethnographic approaches.

**AF AM 280 Historical Ethnography of Freedom (3)  
(GH;US)**

The course will introduce students to the origins, impact, and changing public interpretations of Underground Railroad. The Underground Railroad was a movement to secretly rescue slaves and send them to places of freedom in the northern states and territories, and Canada. Students will learn about the origins, leaders, and locales of this multi-racial movement. The course assignments will include scholarly readings, as well as research locating historic materials that shed light on the Underground Railroad. Course text and research materials will include historical studies, as well as newspapers, census materials, church records, and rare books that shed facts on the Underground Railroad. Students will be challenged to weigh stereotypical views about the Underground Railroad in scholarship and public life against the literature, historical documents, and places they discover that were actually associated with local and national Underground Railroad activities.

General Education: GH

Diversity: US

Bachelor of Arts: None

Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 294** Research Project (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12 per semester/maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 297** Special Topics (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9 per semester/maximum of 9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 297A** From Harlem to Hip-Hop: The Meanings of Black Music (1 per semester/maximum of 9) This course is a survey of the evolution of Black American music from the Harlem renaissance to Hip-Hop in the 21st century.

**From Harlem to Hip-Hop: The Meanings of Black Music (1 per semester/maximum of 9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 299** Foreign Studies (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12 per semester/maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 302 (US)** (BB H 302) Diversity and Health (3) Exam the relationship of diverse personal and sociocultural factors to health, like socioeconomic class, race-ethnicity, gender, age, and sexual orientation.

**Diversity and Health (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: PSYCH 100 or SOC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 364 (GS;US)** (WMNST 364) Black & White Sexuality (3) This course explains how narrow ways of thinking limit our understanding of the diverse expressions of human sexuality.

**Black & White Sexuality (3)**

General Education: GS  
Diversity: US  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 395** Internship (1-18 per semester/maximum of 18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships.

**Internship (1-18 per semester/maximum of 18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 397** Special Topics (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9 per semester/maximum of 9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 399** Foreign Studies (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12 per semester/maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 401** Afro-American Studies Seminar (3) A seminar examining theoretical and methodological issues in Afro-American Studies.

**Afro-American Studies Seminar (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: AF AM 100AF AM 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 409 (US)** (SOC 409) Racial and Ethnic Inequality in America (3) The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.

**Racial and Ethnic Inequality in America (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2013  
Prerequisite: SOC 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 409U (US)** Racial and Ethnic Inequality in America (3) The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.

**Racial and Ethnic Inequality in America (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science



Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: SOC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 410** Spirit, Space, Survival: Contemporary Black Women (3) How recent Black women have used spirit and space to survive.

**Spirit, Space, Survival: Contemporary Black Women (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: AF AM 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 412** (US;IL) (THEA 412) African American Theatre (3) Exploration of the development of African American theatre from its roots in Africa through the Diaspora to the present time.

**African American Theatre (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: THEA 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 416** (US;IL) (S T S 416, WMNST 416) Race, Gender and Science (3) The class will focus on race and gender as products of science, and how societal values shape scientific activity.

**Race, Gender and Science (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: 6 credits in S T S WMNST or AAA S

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 422** (US) (CAS 422) Contemporary African American Communication (3) A focused study on the continuities between African and African American culture and communication.

**Contemporary African American Communication (3)**

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2013

Prerequisite: CAS 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 431** (US;IL) (HIST 431) Black Liberation and American Foreign Policy (3) This course deals with American foreign policy and Black liberation in Africa since 1945.

**Black Liberation and American Foreign Policy (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: AF AM 100AFR 192;PL SC 001 orPL SC 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 432** (IL) (HIST 432) Between Nation and Empire: The Caribbean in the 20th Century (3) An exploration of the political evolution of the Caribbean Region over the course of the 20th Century.

**Between Nation and Empire: The Caribbean in the 20th Century (3)**

General Education: None

Diversity: IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2012  
 Prerequisite: AF AM 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 445Y (US)** (LER 445Y, PL SC 445Y) Politics of Affirmative Action (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

### **Politics of Affirmative Action (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2012  
 Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 460 (US;IL)** (PHIL 460) African American Philosophy (3) Major works by African American Philosophers, on topics of race, freedom, citizenship, nationhood, law and society.

### **African American Philosophy (3)**

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: AF AM 100 or PHIL 009 and 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 465 (US)** (HIST 465) The Post-World War II Civil Rights Movement (3) The civil rights struggle and its impact upon American politics.

### **AF AM (HIST) 465 The Post-World War II Civil Rights Movement (3) (US)**

This course focuses on the post-World War II Civil Rights Movement. It begins with a discussion of the "Long Civil Rights Movement," briefly looking at the roots of the movement in the labor movement and social struggles of the Great Depression and World War II. We then turn to the impact of World War II on African Americans, the growing militancy during the war, the struggles over segregation in the military, the growing role of blacks in the labor movement, and the growing link between African Americans and the rising anti-imperial movements that accelerated after the war. We discuss the role of African Americans in the Cold War and the struggles over the role of Communism and Socialism in the emerging Civil Rights Movement. The course is broken down into key topics of the movement years: the rise of localized grassroots movements all over the United States that were led by local people who sought to challenge school segregation, political disfranchisement, poor housing conditions, police brutality, and job discrimination. While legal disfranchisement and segregation existed solely in the southern states, the entire country practiced both and black people suffered the consequences universally. Much time is spent on the more famous southern civil rights movement, with discussions of the Emmett Till Murder of 1955; the Montgomery Bus Boycott and the rise of Martin Luther King, Jr. and the Southern Christian Leadership Conference; and the Little Rock Crisis of 1957. The beginning of the 1960s saw the creation of the Student Non-Violent Coordinating Committee and the emergence of key women leaders in the struggle such as Mrs. Ella Baker, Mrs. Fannie Lou Hamer, Mrs. Rosa Parks, and Mrs. Septima Clark, to name only a few. We discuss key moments in the 1960s, beginning with SNCC and CORE and the Freedom Rides, the SCLC in Birmingham and Albany; the March on Washington, the 1964 Mississippi Freedom Summer and the murders of Chaney, Goodman, Schwerner, and Medgar Evers; the 1965 Selma to Montgomery March, and the final passage of the 1964 Civil Rights Act and the 1965 Voting Rights Act. The emphasis on the southern struggle is on the local, ordinary people who achieved extraordinary things.

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: AF AM 100 HIST 021 HIST 152 PL SC 001 or PL SC 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 465 (US)** (HIST 465) The Post-World War II Civil Rights Movement (3) The civil rights struggle and its impact upon American politics.

### **AF AM (HIST) 465 The Post-World War II Civil Rights Movement (3) (US)**

This course focuses on the post-World War II Civil Rights Movement. It begins with a discussion of the "Long Civil Rights Movement," briefly looking at the roots of the movement in the labor movement and social struggles of the Great Depression and World War II. We then turn to the impact of World War II on African Americans, the growing militancy during the war, the struggles over segregation in the military, the growing role of blacks in the labor movement, and the growing link between African Americans and the rising anti-imperial movements that accelerated after the war. We discuss the role of African Americans in the Cold War and the struggles over the role of Communism and Socialism in the emerging Civil Rights Movement. The course is broken down into key topics of the movement years: the rise of localized grassroots movements all over the United States that were led by local people who sought to challenge school segregation, political disfranchisement, poor housing conditions, police brutality, and job discrimination. While legal disfranchisement and segregation existed solely in the southern states, the entire country practiced both and black people suffered the consequences universally. Much time is spent on the more famous southern civil rights movement, with discussions of the Emmett Till Murder of 1955; the Montgomery Bus Boycott and the rise of Martin Luther King, Jr. and the Southern Christian Leadership Conference; and the Little Rock Crisis of 1957. The beginning of the 1960s saw the creation of the Student Non-Violent Coordinating Committee and the emergence of key women leaders in the struggle such as Mrs. Ella Baker, Mrs. Fannie Lou Hamer, Mrs. Rosa Parks, and Mrs. Septima Clark, to name only a few. We discuss key moments in the 1960s, beginning with SNCC and CORE and the Freedom Rides, the SCLC in Birmingham and Albany; the March on Washington, the 1964 Mississippi Freedom Summer and the murders of Chaney, Goodman, Schwerner, and Medgar Evers; the 1965 Selma to Montgomery March, and the final passage of the 1964 Civil Rights Act and the 1965 Voting Rights Act. The emphasis on the southern struggle is on the local, ordinary people who achieved extraordinary things.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100HIST 021HIST 152PL SC 001 or PL SC 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 469 (US) (ENGL 469) Slavery and the Literary Imagination (3)** The impact of slavery on the petitions, poetry, slave narratives, autobiographies, and novels of African Americans.

### **Slavery and the Literary Imagination (3)**

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Fall 2012

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 494 Research Project (1-12 per semester/maximum of 12)** Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12 per semester/maximum of 12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 494H Research Project (1-12 per semester/maximum of 12)** Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12 per semester/maximum of 12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 495 Internship (1-18 per semester/maximum of 18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships.

### **Internship (1-18 per semester/maximum of 18)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 496** Independent Studies (1-18 per semester/maximum of 18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18 per semester/maximum of 18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 497** Special Topics (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9 per semester/maximum of 9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 497A** Hurricane Katrina: Lessons & Legacy (3) This course covers the influence of Hurricane Katrina disaster and New Orleans to US culture, public life, race relations, and history.

**Hurricane Katrina: Lessons & Legacy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AF AM 499** Foreign Studies (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12 per semester/maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **African Studies (AFR)**

**AFR 105** (GN;IL) (EARTH 105) Environments of Africa: Geology and Climate Change (3) Significant natural features of Africa as related to human endeavor; case studies include the Nile, climate change, natural resources.

**Environments of Africa: Geology and Climate Change (3)**

General Education: GN  
Diversity: IL  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 110** (GS;IL) Introduction to Contemporary Africa (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.

**Introduction to Contemporary Africa (3)**

General Education: GS  
Diversity: IL  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 110U** (GS;IL) Introduction to Contemporary Africa (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.

**Introduction to Contemporary Africa (3)**

General Education: GS  
Diversity: IL  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 110U** (GS;IL) Introduction to Contemporary Africa (3) Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa.

**Introduction to Contemporary Africa (3)**

General Education: GS  
Diversity: IL  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 132** (IL) (AF AM 132, SPAN 132) Afro-Hispanic Civilization (3) A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America.

**Afro-Hispanic Civilization (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 150** (GH;IL) Africa in Cinema (3) The study of the image of Africa as seen in fiction and non-fictional feature length films, ethnographic and documentary films.

**Africa in Cinema (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 191** (GH;IL) (HIST 191) Early African History (3) Explores important economic and cultural transformations in the making of early African empires from 1 MBC to 1750.

**Early African History (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 192** (GH;IL) (HIST 192) Modern African History (3) Impact of the slave trade, expansion of Islam, colonial conquest, social and cultural transformations, resistance, nationalism, and independence.

**Modern African History (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 202** (GS;IL) (WMNST 202) Gender Dynamics in Africa (3) Critical analysis of multidisciplinary research on relations between men and women in Africa and critique of Western feminist theories.

**Gender Dynamics in Africa (3)**

General Education: GS  
Diversity: IL  
Bachelor of Arts: Other Cultures  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 209** (GS;IL) (SOC 209) Poverty in Africa (3) The course examines the causes, consequences, and dynamics of poverty in African countries.

**Poverty in Africa (3)**

General Education: GS  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 297** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 306** (IL) Health and Illness in African and Black Diaspora: Cultural Anthropology (3) The course explores anthropological approaches to health, mental and physical illness, in African Worlds and Black Diaspora.

**Health and Illness in African and Black Diaspora: Cultural Anthropology (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AFR 110  
Concurrent: Poverty in Africa

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 335** (IL) (ART H 335) African Art (3) Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa.

**African Art (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Arts  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 397** Special Topics (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9 per semester/maximum of 9)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 399 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 403** South Africa Today (3) A course examining the South African government's policy of apartheid: its history, why it exists, how it works, and the prospects for change.

**South Africa Today (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: AAA S 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 405** African Studies Methodologies (3) Multidisciplinary research techniques for studying in and about Africa.

**African Studies Methodologies (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 434 (IL)** (PL SC 434) War and Development in Africa (3) This course will examine the relationship between war and development in sub-Saharan Africa in the post colonial era.

**War and Development in Africa (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: PL SC 014 or PL SC 003 or AFR 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 440 (US;IL)** (PL SC 440, I B 440) Globalization and Its Implications (3) This course explores the socioeconomic implications of globalization.

**Globalization and Its Implications (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2013  
Prerequisite: AF AM 100 or AFR 110 or PL SC 003 or PL SC 014 or PL SC 020 or PL SC 022

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 443 (IL)** (PL SC 443) Ethnic Conflict in Africa (3) This course explores the various causes and impacts of ethnic conflicts in the African context.

**Ethnic Conflict in Africa (3)**

General Education: None  
Diversity: IL



Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2013

Prerequisite: AF AM 100AFR 110PL SC 001PL SC 003PL SC 007PL SC 014PL SC 017PL SC 020 orAFRAS 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 446 (IL) (ART H 446)** Topics in African Art (3 per semester/maximum of 9) Topics vary from "Arts of Eastern and Southern Africa" to "Art of West Africa."

**Topics in African Art (3 per semester/maximum of 9)**

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Spring 2014

Prerequisite: 3 credits of Art History

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 447 (IL) (ART H 447)** Topics in the Art of the African Diaspora (3 per semester/maximum of 6) Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

**Topics in the Art of the African Diaspora (3 per semester/maximum of 6)**

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Spring 2014

Prerequisite: 3 credits of Art History

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 454 (IL) (PL SC 454)** Government and Politics of Africa (3) Contemporary African Politics, institutions, and ideologies; patterns of change, social forces, and nation building in selected African states.

**Government and Politics of Africa (3)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: 3 credits from:AFR 110PL SC 003PL SC 020 orPL SC 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 459 (IL) (PL SC 459)** Culture and World Politics (3) Role of culture in world politics.

**Culture and World Politics (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2013

Prerequisite: PL SC 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 464 (IL) (PL SC 464)** Globalization, Extractive Industries, and Conflict in Africa (3) Socioeconomic and environmental impacts of extractive industries in Africa.

**Globalization, Extractive Industries, and Conflict in Africa (3)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: AFR 110 or at least one of the following:PL SC 003 orPL SC 014 orPL SC 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AFR 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **African and African American Studies (AAA S)**

**AAA S 003** Scholarship and Community (1) Introduction to college life for new students in a designated residential community to help them optimize their Penn State experience.

#### **Scholarship and Community (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: students must be participating in the Pennypacker Experience to take this course

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AAA S 297C** (DANCE 297C) Introduction to Afro-Brazilian, Afro-Caribbean and West African Dances (3) Movement of the Orixas, Afro Brazilian dance, movements of the Caribbean, and contemporary West African dances.

**Introduction to Afro-Brazilian, Afro-Caribbean and West African Dances (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AAA S 397** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AAA S 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Agribusiness Management (AG BM)**

**AG BM 101** (GS) Economic Principles of Agribusiness Decision Making (3) Introduction to economic principles and their application to real world examples of agribusiness management issues.

**Economic Principles of Agribusiness Decision Making (3)**

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 102** Economics of the Food System (3) Introduction to topics designed to develop an understanding of how the food production, processing, and marketing system works and evolves.

**Economics of the Food System (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 106** Agribusiness Problem Solving (3) Development of quantitative problem solving skills applied to specific examples of agribusiness management problems, using EXCEL spreadsheets.

**AG BM 106 Agribusiness Problem Solving (3)**

The goal of this course is to develop agribusiness problem solving skills. These skills include optimization, marginal

analysis, time discounting, and measuring efficiency. Examples will be implemented using Microsoft EXCEL spreadsheets rather than algebra, calculus and abstract mathematics. This course, then, plays an important role by building skills for use in later agribusiness management courses as well as teaching important problem solving skills to non-majors who want to learn quantitative economics problem-solving skills in the context of agribusiness management.

Material will be organized according to the course topics areas: optimization, marginal analysis, time discounting, and efficiently measurement. Each topic area presentation will rely on specific examples of agribusiness management problems. The first lecture of each week will be a standard lecture emphasizing concepts, presented in a passive learning format. The second lecture of each week will be presented in a technology classroom with spreadsheet examples being worked out by the professor in front of the class, who will guide the students. The third lecture of each week will be taught in a computer laboratory, with students solving the problems actively, but with supervision. Problem solving skills will be reinforced by assigning problem sets for students to do on their own after the computer laboratory experience. It is permitted for students to submit identical labs but problem sets should not be identical.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AG BM 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 200** Introduction to Agricultural Business Management (3) Application of management principles and processes to agricultural business firms in their planning and operating in domestic and international markets.

### **AG BM 200 Introduction to Agricultural Business Management (3)**

AG BM 200 is the course for people who wish to combine a technical major with an interest in the business management of agricultural and food based businesses. This is the combination of skills that employers most desire when they look for potential employees.

Examples from a variety of industries in agribusiness are used to present the principles of business management. In addition, emphasis is also given to exploring the institutions, and issues such as food safety and biotechnology that are unique to managers in the agribusiness sector. The presentation of the material in an agricultural and food context enhances your chances for learning so you can become more "employer ready." Regardless of your major, most people will find themselves as business managers some time during their careers because they will have to manage time, money and people. The material you will learn in this class focuses on the principles of agribusiness management. Principles endure and are always applicable regardless of when and where you apply them. When you have completed AG BM 200 successfully you will have a firm grasp of the critical agribusiness management skills you will need to successfully handle just about any management situation you might face.

**NO PRIOR BUSINESS EXPERIENCE IS REQUIRED OR EXPECTED OF THOSE TAKING THIS COURSE.**

AG BM 200 deals primarily with the principles of agribusiness management. I will not be teaching you the material in the book. Classroom time will be spent discussing and applying the reading material and decision cases that were assigned for that day. This approach will allow us to cover more material in greater depth. It should enhance your learning because it will engage your higher level thinking skills.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 220** Agribusiness Sales and Marketing (3) Principles underlying the sales process and practical application for selling situations in agribusiness. Role of selling in the total marketing process.

### **AG BM 220 Agribusiness Sales and Marketing (3)**

Students take an applied approach in this course, to fulfill the course objective of learning skills in sales and marketing. The topics presented in the course are organized as they would appear in a corporate sales training program. Class activities include discussing and solving selected case situations that illustrate or amplify assigned text readings. Lectures and audio-visual presentations cover specific aspects of the selling process, from prospective new customers to the servicing of customers after the sale. A major focus is on role-playing exercises, trying to convince another student acting as a buyer to undertake a particular course of action. Each student is expected to take an active part in the role-playing exercises. During the course students participate in as both buyer and seller. A student peer evaluation comprises a portion of the grade on each role-playing exercise which is videotaped for purposes of critique.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 302** Food Product Marketing (3) Analysis of economic and psychological determinants of the demand for food; marketing decisions in an increasingly consumer-driven food system.

#### **Food Product Marketing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AG BM 101AG BM 102AG BM 106

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 308W** Strategic Decision Making in Agribusiness (3) Utilize case studies to investigate strategic decision making among agribusiness firms, highlighting how information and market power shape strategies.

#### **AG BM 308W Strategic Decision Making in Agribusiness (3)**

This course is designed to analyze strategic decision making among agribusiness firms and other economic agents in a market environment characterized by imperfect information and market power. The course draws upon game theory and other strategic decision tools to analyze four broad types of strategic decisions, each of which corresponds with the four main parts of the course: 1) Strategic Decisions Between Rival Firms: Focusing on firm decisions made between rivals with full information, part one includes the following topics and strategies: limit pricing, entry deterrence, predatory pricing, excess capacity, wars of attrition, strategic commitment, tit-for-tat pricing, and retaliation. 2) Strategic Firm Decisions in an Uncertain World: Focusing on firm decisions made with incomplete information, part two, includes topics on probabilities, expected value and expected utility, learning curves, investment decisions, flexibility, and option value. 3) Strategic Decisions Between Unequal Partners: Focusing on firm decisions made between unequal partners with asymmetric information, part three includes topics on vertical coordination, incentive compensation, franchising, and auctions. 4) Cooperation and Strategic Alliances: Part four investigates how firms can overcome informational problems described above through the use of strategic partnerships. This writing, intensive course will rely on both class lectures and a substantial amount of class discussion. The course content will feature eight to ten industry applications and case studies of individual companies to reinforce economic theory.

#### Learning Objectives - Students will:

- Classify practical agribusiness problems by the type of available information - full, incomplete, or imperfect and by the nature of market power in an industry.
- Construct and analyze game trees and other representative models of strategic decisions facing businesses and employees.
- Solve strategic business problems using economic models based on game theory and other economic principles.
- Write business-style memos and reports that summarize a business decision, plan, or solution that is supported by economic analysis.

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AG BM 101AG BM 102AG BM 106

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 320 Markets and Prices: Analysis and Forecasting (3)** Understand how prices are determined; develop the skill to analyze and forecast how prices change as the underlying conditions change.

**AG BM 320 Markets and Prices: Analysis and Forecasting (3)**

In AG BM 320, Markets and Prices: Analysis and Forecasting, students learn how prices are determined and learn how to analyze and forecast how prices change as the underlying conditions change. This involves learning those tools that are used to analyze and understand how commodity markets work and how prices are determined. The class mixes theory with practical knowledge and examples, and aims to create a balanced representation of the tools used in market analysis. The students learn how to find data, manipulate it and analyze and apply these skills to test the validity of simple economic models, to forecast commodity prices, to understand market trends and learn the use of derivative instruments to manage price risk.

One objective of this class is to improve the understanding of economic modeling and to increase the familiarity of students when applying statistical functions and regression analysis to solve applied problems. These core competencies rely on previous knowledge of basic statistic tools and data manipulation. In the process, students will learn to analyze market fundamentals and better understand those forces that affect prices. This will also help them better understand supply and demand and the ability of market participants to adjust to changing conditions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AG BM 101AG BM 102 andAG BM 106;SCM 200 orSTAT 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 338 (IL) Agribusiness in the Global Economy (3)** Managing agribusinesses in the global food industry, international food product marketing, key public institution and policies affecting food trade.

**Agribusiness in the Global Economy (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AG BM 101AG BM 102AG BM 106

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 407 Farm Planning and Financial Management (3)** Economic principles applied to the management of farms, with particular emphasis on the financial aspects of management.

**Farm Planning and Financial Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AG BM 101AG BM 106

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 408 Financial Decision Making for Agribusiness (3)** Develop financial management and business analysis skills, integrating previous course work and finance training; principles of financial management, planning, control.

**Financial Decision Making for Agribusiness (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AG BM 308WB A 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 420 Agribusiness Markets & Prices (3)** Understand and forecast price level and volatility for commodities, differentiated products, services. Why markets work and why they may not.

**Agribusiness Markets & Prices (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: 6 credits in Agribusiness Management Business Administration Agricultural Economics and/or Economics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 440 Food Product Innovation Management (3)** A problem-based course designed to enhance decision-making skills in the context of industry's approach to developing new food products.

**Food Product Innovation Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AG BM 302 or junior/senior standing in Food Science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 460 Managing the Food System (3)** Firm management in the food system; coordination with suppliers and customers, including supply chain management, strategic thinking, risk management.

**Managing the Food System (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AG BM 320AG BM 338

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 470A (INTAG 470A) Comparing Agricultural and Food Systems in the US and France: Lecture (2.5)** Explore key differences and similarities in the food and agricultural systems of the United States and France.

**AG BM (INTAG) 470A Comparing Agricultural and Food Systems in the US and France: Lecture (2.5)**

This course is designed to explore key similarities and differences in the food and agricultural systems of the United States and France. It introduces students to a number of overarching food and agricultural topics that pertain to both countries, and students explore and analyze these key issues from both countries' perspective. These overarching topics include the structure of agricultural and environmental policies, the use agricultural land for biofuel production, organic agriculture, food safety, attitudes and policies surrounding the use of genetically modified crops, the role of large agribusiness firms, attitudes towards diet and health, and several others important topics. Students conduct background reading on these topics, hear lectures -- sometimes from guest presenters -- that frame the topics from both the U.S. and France's perspective, and write reports on specific crops or foods that expose key similarities and differences between the two food systems. Finally, students pick one crop or food for an oral presentation that contains background information on how that crop fits into the two food systems, U.S. and France, and analyzes the key issues that relate to the overarching topics already identified.

This course has two components that must be taken in partnership: 470A (FOOD SYS US/FRANCE I) and 470B (FOOD SYS US/FRANCE II). The first is a classroom-based course, and meets regularly during the semester. The second is a two-week component that takes place after the end of the semester. In this second component, after traveling to France, students hear presentations from the French perspective on the overarching topics identified earlier and also explore the topics first hand via field trips to farms, wholesale markets, retail markets, and other places relevant to the French food system. This component is organized by a host university, AgroParisTech. For these two weeks, students live in dorms within the city of Paris. Knowledge of French is not required.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: INTAG 100 or 3 credits in social or behavioral sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 470B (INTAG 470B) Comparing Agricultural and Food Systems in the US and France: Travel (0.5)** Explore key differences and similarities in the food and agricultural systems of the United States and France.

**AG BM (INTAG) 470B Comparing Agricultural and Food Systems in the US and France: Travel (0.5)**

This course is designed to explore key similarities and differences in the food and agricultural systems of the United States and France. It introduces students to a number of overarching food and agricultural topics that pertain to both countries, and students explore and analyze these key issues from both countries' perspective. These overarching topics include the structure of agricultural and environmental policies, the use agricultural land for biofuel production, organic agriculture, food safety, attitudes and policies surrounding the use of genetically modified crops, the role of large agribusiness firms, attitudes towards diet and health, and several others important topics. Students conduct background reading on these topics, hear lectures -- sometimes from guest presenters -- that frame the topics from both the U.S. and France's perspective, and write reports on specific crops or foods that expose key similarities and differences between the two food systems. Finally, students pick one crop or food for an oral presentation that contains background information on how that crop fits into the two food systems, U.S. and France, and analyzes the key issues that relate to the overarching topics already identified.

This course has two components that must be taken in partnership: 470A (FOOD SYS US/France I) and 470B (FOOD SYS US/France II). The first is a classroom-based course, and meets regularly during the semester. The second is a two-week component that takes place after the end of the semester. In this second component, after traveling to France, students hear presentations from the French perspective on the overarching topics identified earlier and also explore the topics first hand via field trips to farms, wholesale markets, retail markets, and other places relevant to the French food system. This component is organized by a host university, AgroParisTech. For these two weeks, students live in dorms within the city of Paris. Knowledge of French is not required.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014  
 Prerequisite: INTAG 470A or AG BM 470A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 495A** Internship in Agribusiness and Rural Development (1-6) Supervised field experience in an agribusiness or rural development setting.

#### **Internship in Agribusiness and Rural Development (1-6)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013  
 Prerequisite: prior approval by department

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 495B** Internship in International Agribusiness (6) Supervised field experience related to student's major, minor, or option.

#### **Internship in International Agribusiness (6)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013  
 Prerequisite: prior approval by department

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None



Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 499 (IL)** Foreign Studies - Agribusiness Management (1-12) Study in selected countries of agricultural economic institutions and current agricultural economic problems.

### **Foreign Studies - Agribusiness Management (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG BM 499I (IL)** (INTAG 499I) Exploring Greek Food Systems (0.5) Travel to Thessaloniki and surrounding sites. Learn about food systems in Greece, how economic issues are affecting agriculture, and the history and culture of the country. The trip concludes in Athens.

### **Exploring Greek Food Systems (0.5)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2014 Ending: Summer 2014  
 Prerequisite: INTAG 499G or AG BM 499G

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Agricultural Communications (AGCOM)**

**AGCOM 462W** Advanced Agricultural Writing (3) Practice in journalistic writing strategies to report scientific and technical information in the agricultural/environmental sciences to general audiences.

### **AGCOM 462W Advanced Agricultural Writing (3)**

Advanced Agricultural Writing focuses on scientific and technical topics in the agricultural/environmental sciences and public policy issues related to such subjects for the print media. Instructional objectives include:

- To learn and practice diverse forms of writing for general audiences, including brief news articles and feature formats, such as process, human interest, policy, and news reporting in the agricultural/environmental sciences.
- To recognize and use standard journalistic conventions, including grammar, mechanics, usage, and style.
- To develop an understanding of a writer's responsibilities and obligations within the context of journalistic ethical standards.
- To analyze and evaluate situations that require writing in order to respond appropriately to the needs and interests of general as well as specialized audiences.
- To develop feature writing skills through extensive writing and revising exercises.

Student evaluation is based on writing assignments and class participation, particularly contributions to the peer review process. Every writing assignment (with the exception of short in-class exercises) is critiqued in peer response groups in class. Before the first draft of a feature article or query letter is due, the class develops a criteria sheet that is specific to the diverse forms of writing students are doing. The day the first draft is due, the class divides into peer response groups and, using the criteria sheet, provide feedback for each writer. The instructor also offers feedback on drafts of each article. Only final drafts are evaluated and graded by the instructor.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013  
 Prerequisite: a grade of C or better required in COMM 260W or equivalent coursework

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGCOM 495** Internship (1-3) Supervised field experiences related to student's professional interest in agricultural communications; limited to minors in agricultural communications.

### **Internship (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: a grade of C or better required in COMM 260W ; and prior approval of the professor-in-charge of Minor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Agricultural Economics (AG EC)

**AG EC 430** Principles of Community Economic Development (3) Concepts, strategies and techniques of local economic analysis, planning and development; case studies and decision-making exercises.

### AG EC (CEDEV) 430 Principles of Economic Development Planning (3)

This course is designed to introduce the issues giving rise to concern for rural and regional economies, and the theories, concepts and tools of rural and regional economic development. The goal is to integrate theory and practice and apply them to economic development problems. Tools are presented in a "how to" manner. Topics include current issues in rural economies; the economic view of rural development; business retention, expansion and location; entrepreneurship and its role in the economy; understanding the local economic structure and the forces of change; introduction to economic growth theories; export base theory and economic base analysis; the role of labor and capital in development; techniques of market area, central place, shift-share and input-output analysis; policies of local economic development and growth.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013 Ending: Summer 2014

Prerequisite: introductory course in economics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Agricultural Science (AG SC)

**AG SC 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### Independent Studies (1-18)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG SC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### Special Topics (1-9)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG SC 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### Special Topics (1-9)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG SC 299** (IL) Foreign Studies (1-12 per semester/maximum of 24) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12 per semester/maximum of 24)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG SC 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG SC 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG SC 495** Internship (1-10) Independent study and supervised field experience related to the student's professional interest. Intended for Agricultural Science majors.

**Internship (1-10)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: fifth-semester standing in the Agricultural Science major with a G.P.A. of 2.00 or greater and prior approval of proposed plan before registration

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG SC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG SC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG SC 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG SC 499** (IL) Foreign Studies (1-12 per semester/maximum of 24) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12 per semester/maximum of 24)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Agricultural Systems Management (A S M)**

**A S M 101** Mechanization Principles for Production Agriculture (3) Applying engineering and mechanization principles for selection and application of agricultural equipment, structural environmental control, and soil and water conservation.

#### **Mechanization Principles for Production Agriculture (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 210** Turfgrass and Outdoor Power Equipment Systems Management (2) Management of turfgrass and outdoor power equipment (OPE) systems. Application of mechanical systems in the turfgrass and OPE industry.

#### **A S M 210 Turfgrass and Outdoor Power Equipment Systems Management (2)**

A S M 210, *Turfgrass and Outdoor Power Equipment Systems Management*, is a 2 credit course that explores the technology aspects of turfgrass and outdoor power equipment systems as they relate to equipment management. Topics to be covered include: gasoline and diesel engine operation and troubleshooting, electrical and hydraulic system principles and components, machinery management concepts and systems, equipment and chemical safety, and reel and rotary blade theory and sharpening. Students will use a hands-on approach to reinforce the concepts of these topics. Activities will focus on the concerns of a turfgrass or outdoor power equipment manager.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: MATH 021 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 217** Landscape Soil and Water Management (3) Landscape soil and water management and practices including irrigation, hydrology, erosion, open channel, drainage, and impoundments.

#### **A S M 217 Landscape Soil and Water Management (3)**

A S M 217 is a service course developed entirely to meet the needs of the Landscape Contractors and Landscape Architecture programs. This course is also elected by a few students in Turf and Soil Science and Horticulture. The first six weeks of this course are devoted to the design, layout and management of landscape irrigation systems. Proper selection

of sprinklers, irrigation system management and scheduling, control systems and pressure considerations are covered at a level appropriate for the Landscape Contractors and Landscape Architecture juniors and seniors. The second portion of the course focuses on understanding the rainfall-runoff relationships and their influence on soil erosion and sedimentation on landscape sites, especially during construction activities. Students learn how to develop erosion and sedimentation control plans including channels, sedimentation basins and sediment traps. Students also learn to predict soil erosion and understand the impacts of adding wet (continuously water-filled) basins to landscapes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 307** Golf Course Irrigation and Drainage (3) Golf course irrigation systems; including sprinkler selection; piping; control systems; scheduling. Surface and subsurface drainage topics. Note: Students may not take both A S M 217 and A S M 307 for credit.

#### **A S M 307 Golf Course Irrigation and Drainage (3)**

A S M 307 is a course developed to instruct students, interested in working in the golf course management profession, about water management. The primary clientele is expected to be Turfgrass Science students. The two large topic areas are irrigation and drainage. About 70 percent of the course is devoted to irrigation topics with a strong concentration on golf course irrigation applications. The discussion starts with sprinkler characteristics and selection and continues to where sprinklers should be placed to be most efficient and effective. Once sprinklers have been properly located, a management scheme is developed that leads to an efficient piping and control system. The management scheme must take into account the highly variable turfgrass evapotranspiration and soil characteristics, plus the personal desires of the turf manager. This is followed with how to most effectively layout and size the piping system so all sprinklers will receive water at their recommended pressure. This is followed by a discussion about pumps, their characteristics and limitations. Students are asked to compute the two primary pump selection parameters. The irrigation section is concluded with the introduction of several additional topics such as thrust blocking, venting, draining the irrigation system for winter storage, etc. All students are required to develop or analyze an irrigation system for a 9-hole golf course. This is a semester-long project that constitutes a major portion of their grade. Following the irrigation, we spend two to three weeks discussing golf course drainage. We discuss classical surface and subsurface drainage and then introduce the details of how classical drainage is applied to recreation areas and golf courses. Drainage is about 30% of the course. In addition to the project, students are evaluated using two exams and weekly homework.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: MATH 021/SOILS 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 309** (E R M 309) Measurement & Monitoring of Hydrologic Systems (3) Introduction to measurement and monitoring equipment/techniques commonly used in analyses and design of hydrologic systems.

**A S M (E R M) 309 Measurement & Monitoring of Hydrologic Systems (3)**

This course will provide students the opportunity to learn and apply basic measurement techniques that serve as critical tools in professional practice in water resources. Mapping development and use serves as a critical aspect of water resources engineering and planning, and a major portion of this course will focus on the fundamentals of surveying and translation of surveyed data into useful maps and engineering drawings. Students will learn the theory that underpins basic surveying and then apply this theory in actual survey practice. Autocad serves as a primary software tool used in engineering design and water resources planning, and students will be afforded opportunities to use Autocad to present and process various watershed- and survey-based data. Geographic information system (GIS) techniques will also be investigated as a tool to process, record, analyze, and display various spatial data commonly used in water resources planning and engineering design. Students will learn the basic techniques and processes used to transfer data between GIS and Autocad, both of which are commonly used in practice. The course will also investigate the instrumentation, techniques, and theory involved in common water resources measurements including weather conditions (which serve as the principle driving conditions in water resources), flow monitoring, basic soil properties, water movement in soils, and water quality sampling and analyses. Students will conduct hands-on exercises that will focus on the use of various instruments and techniques commonly employed to conduct such measurements. Data collected will be processed and analyzed within the context of professional practice case studies. The various aspects of the course will coalesce around the concept of the watershed being the basic unit of water resources analyses and design, and students will experience how various measurement techniques and approaches are necessary tools for practicing professionals. This course will be useful to any undergraduates seeking degrees in a major related to water resources planning, engineering, or technology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: PHYS 211 or PHYS 250/CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 310 Power Transmission in Agriculture (3)** Selection and maintenance of mechanical, hydraulic, and pneumatic power transmission components and systems. Electric motor principles and controls.

**A S M 310 Power Transmission in Agriculture (3)**

After successful completion of A S M 310, students will apply the physical principles, of mechanical power transmission system components such as shafts, belts and sheaves, chains and sprockets, gears, torque limiters, clutches, and universal joints by selecting suitable mechanical drives and specifying proper maintenance procedures. Students will be able to read hydraulic and pneumatic schematics, size fluid power components such as pumps, lines, valves, cylinders, and troubleshoot hydraulic and pneumatic systems. Students will also be able to explain the electrical and physical principles of AC and DC electric motor operation. They will be able to identify torque, speed, voltage, and current operating characteristics and will be able to select controls and circuit protection devices necessary to achieve proper performance. As a required course in the Agricultural Systems Management major, A S M 310 is a prerequisite for other courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BRS 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 320 Combustion Engines for Mobile Equipment (3)** Operating principles of internal combustion engines; performance, selection, and maintenance aspects of engine systems in mobile equipment.

**A S M 320 Combustion Engines for Mobile Equipment (3)**

After successful completion of A S M 320, students will explain and evaluate the theoretical and practical aspects of internal combustion engines. Students will evaluate and compare alternative engine thermodynamic cycles, alternative fuels (gasoline, diesel, biodiesel, compressed natural gas), performance enhancing attachments (turbochargers, intercoolers), and supporting systems (fuel injection, lubrication, starting, cooling, emissions cleansing). Students will be able to properly select engines and related systems for mobile applications. Students will employ important maintenance procedures required for economical useful life and proper operation. Students will be able to troubleshoot engine systems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004

Prerequisite: A S M 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**A S M 327** Soil and Water Resource Management (3) Soil and water management systems and practices including hydrology, surface drainage, open channels, and erosion, subsurface drainage, impoundments and irrigation.

**Soil and Water Resource Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994  
Prerequisite: PHYS 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 391** (GWS) (B E 391) Contextual Integration of Communication Skills for the Technical Workplace (2) To develop corporate communication skills in technically focused students in a contextual manner.

**A S M (A B E) 391 Contextual Integration of Communication Skills for the Technical Workplace (2)**

A B E/A S M 391 is the first half of a two-semester capstone experience in corporate focused leadership and communication skills training. The sequence is formatted into two 2-credit courses (second semester Junior for A B E/A S M 391 and first semester senior for the companion A B E/A S M 392 course). A key facet of this training is the contextual approach taken. All course modules are focused around the needs of industry and corresponding technical course content — a complete contextual approach. To meet the needs of the student, the course will reflect clear understanding of leadership and communication but also appreciate critical aspects of the technical content of student's work and of the industries within which the students will ultimately work. The primary focus for 391 is communication skills (oral and written) with a secondary focus on leadership and career skills. The course provides the student with interaction with individuals from industry (company visitors, industry trips, and recruiting opportunities). Students will be evaluated through writing and speaking projects, professional presentations, written worksheets in class and out, creation of portfolios and reports, in class group and individual exercises, computer graphics presentation assignments, library assignments, interaction with industry executives (reports), and leadership journals.

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: Junior level standing in B E or A S M

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 392** (GWS) (B E 392) Contextual Integration of Leadership Skills for the Technical Workplace (2) To develop corporate leadership skills in technically focused students in a contextual manner.

**A S M (A B E) 392 Contextual Integration of Leadership Skills for the Technical Workplace (2)**

A B E/A S M 392 is the second half of a two-semester experience in corporate-focused leadership and communication skills training. The sequence is formatted into two 2- credit courses (second semester Junior for A B E/A S M 391 and first semester senior for the A B E/A S M 392 course). A key facet of this training is the contextual approach taken. All course modules focus on leadership and communication needs of industry within its corresponding technical content — thereby representing a complete contextual approach. To meet the needs of the student, the course will reflect clear understanding of leadership and communication but also appreciate critical aspects of the technical content of student's work and of the industries within which the students will ultimately work. The primary focus of A B E/A S M 392 is on leadership, with communication and career issues the secondary focus. The course provides students with interactions with individuals from industry (company visitors, industry trips, and recruiting opportunities). Topics developed for A B E/A S M 392 include personal development, ethical decision-making, corporate social responsibility, strategic group management, facilitation, and diversity. Students will be evaluated through writing and speaking projects, professional presentations, written worksheets in class and out, creation of portfolios and reports, in-class group and individual exercises, interaction with industry executives (reports), and leadership journals.

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: A S M 391 junior level standing in B E or A S M

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 420** Off-Road Power Units (3) Cabs, traction, power allocation, and electronic systems for tractors and other off-road vehicles; requirements for production agriculture, logging, and construction.

**A S M 420 Off-Road Power Units (3)**

A S M 420 covers the technical aspects of off-road power units such as tractors, self-propelled harvesters, and logging and construction equipment. Upon successful completion, students will understand the many facets of design and

management of such vehicles (such as power generation, power allocation, power transmission, traction, operator enclosures, and electrical and electronic systems).

Grades will be based on homework, laboratory exercises, a special project report as well as a mid-term and a final examination. Laboratory exercises will involve full-scale equipment with instrumentation used to measure performance.

While A S M 420 is not a prerequisite for any other course, it complements engineering and technology courses related to machinery. This course serves as a technical selection in the Agricultural and Biological Engineering major and as an agricultural selection in the Agricultural Systems Management major. It complements other courses for anyone interested in the off-road machinery industries. A S M 420 covers several aspects of function and design related to off-road machinery.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: or concurrent: B E 306 or A S M 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 424** Selection and Management of Agricultural Machinery (3) Function and operation of field and farmstead machines; energy, quality, and loss considerations; selection and utilization; precision agriculture technology.

**A S M 424 Selection and Management of Agricultural Machinery (3)**

A S M 424 covers the many aspects of mobile agricultural machinery and fleet management. Integration of economic analysis and functional performance topics are the focus. Optimization, sizing criteria and cycle diagrams, repair and maintenance, reliability of machinery, and precision agriculture technology are major topics covered. Students will give demonstrations of machines as part of the course. Software will be used to select proper sets and sizes of machinery as well as predict impact of machinery selections that may be non-optimal.

Grading will be based on homework, laboratory exercises, a demonstration project as well as mid-term and final examinations. Laboratory exercises will involve full-scale equipment with instrumentation used to measure performance.

While A S M 424 is not a prerequisite for any other course, it complements engineering and technology courses related to machinery. This course serves as a technical selection in the Agricultural and Biological Engineering major or as an agricultural selection in the Agricultural Systems Management major. It complements other courses for anyone interested in the off-road machinery industries. A S M 424 covers several aspects of selection and management of agricultural production and processing machinery.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: or concurrent: B E 306 or A S M 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 425** Physical Principles in Agricultural Processing (3) Dimensions and units, mass and energy balances, fluid flow, heat transfer in the context of specific agricultural process applications.

**A S M 425 Physical Principles in Agricultural Processing (3)**

Heat transfer, fluid mechanics, and materials transport are engineering technology concepts that are important for students who desire to manage, evaluate, or develop commercial agricultural processes. This course introduces or reinforces these concepts in the context of materials that are of interest to agricultural systems management students. The applications include: grain drying and storage; milk acquisition, transport, and processing; waste and manure management; and biofuel processing and transport.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BRS 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None



Effective: Summer 1994

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A S M 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Agricultural and Extension Education (AEE)**

**AEE 100** Agricultural Education Orientation (3) Examination of agricultural and extension education; exploration of aptitude and interest in teaching, including early clinical practicum.

#### **AEE 100 Agricultural Education Orientation (3)**

The purpose of the course is to allow students to explore the profession of teaching in both formal and non-formal settings. Students are provided opportunities, through class activities, projects, and on-site observation of teaching and learning situations, to explore the various aspects of teaching and learning. Through individual and group-work techniques students are provided the opportunity to investigate their potential interest in becoming a future educator of agriculture. Students study the history and philosophies associated with agricultural education within the state and nation. A cornerstone of the course includes instruction that allows students to understand the requirements to become certified in the state of Pennsylvania to teach Agricultural Education. This certification allows individuals to teach Agriculture in the public school system. Along with certification requirements for teaching, students investigate what it means to join the professional ranks of teachers, and the responsibilities associated with educating today's youth. Students also learn the many techniques for teaching in, and about, agriculture in today's society through actual teaching scenarios with their peers. Students plan and implement lessons related to the many areas of agriculture including, but not limited to horticulture, agricultural mechanics, animal science, plant science, forestry, wildlife, and biotechnology. During the course of the semester, students visit various agricultural education settings for observational purposes. The students investigate what is happening in the local agricultural education program related to the three major components of an agricultural education program; Classroom/laboratory instruction, FFA, and Supervised Agricultural Experience. These observation hours may be counted towards the Entrance to Major requirements for the Agricultural and Extension Education major certification requirements.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 201** (GS) Interpersonal Skills for Tomorrow's Leaders (3) Study of concepts of self identity, values and interpersonal relations as related to professional and personal life.

#### **AEE 201 Interpersonal Skills for Tomorrow's Leaders (3) (GS)**

The purpose of the course is to aid students in becoming competent in conducting interpersonal relationships in their daily life, and to help students acquire skills basic to becoming a leader in their personal life. The following topics will be

addressed. A framework for interpersonal skill development sets the stage for improving one's interpersonal skill. Understanding individual differences addresses information that is the foundation of effective interpersonal relations. Interpersonal communications deals with skills in sending and receiving messages. Developing teamwork skills sensitizes the student to a vital set of skills in the workplace as well as organizations. Group problem-solving and decision making provides additional skill in collaborative efforts. Cross-cultural relations and diversity develops cross-cultural skills in the classroom, community organizations and the work place. Resolving conflicts develops skills in finding constructive solutions to differences of opinion and disputes with others. Becoming an effective leader addresses: 1) exercising effective leadership in clubs, organizations and the workplace, 2) motivating and helping others to develop and grow through coaching, counseling and teaching, 3) using power and influence for constructive purposes, and 4) translating ethical behaviors into usable skills. Each class meeting will focus on one or more concepts related to leadership and interpersonal skill development. Students will be provided a number of experiential activities that help them practice a particular set of skills. In addition, students will be required to complete a service learning project applying their leadership and interpersonal skills with individuals in the community who are in need of their help.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 295** Observation of Teaching in Agriculture and Environmental Science (1-3) Supervised observation of teacher and student activities in a selected high school; appraisal of related responsibilities of teachers of agriculture.

#### **Observation of Teaching in Agriculture and Environmental Science (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 296** Independent Studies (1-12) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 297A** National Curricula Workshop (1 per semester/maximum of 3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **National Curricula Workshop (1 per semester/maximum of 3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that

may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 299 (IL) Foreign Studies (1-12 per semester/maximum of 24)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12 per semester/maximum of 24)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 311 Developing Youth Leadership through Organization and Program Structure (3)** An orientation on how adolescents develop and emerge as leaders in their families, schools, organizations, and communities.

**AEE 311 Developing Youth Leadership through Organization and Program Structure (3)**

An orientation on how adolescents develop and emerge as leaders in their families, schools, organizations, and communities. Content will focus on the FFA organization and supervised agricultural experiences as well as 4-H & other non-formal youth organizations. While the course will be grounded in traditional and contemporary youth leadership philosophies and practices it will emphasize youth leadership development in the food, agriculture, and natural resource sciences.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 313 School-Based Program Planning and Instructional Development (2)** Planning and developing courses of study, summer programs, advisory committees, and facilities for vocational agriculture.

**School-Based Program Planning and Instructional Development (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AEE 100AEE 295AEE 311

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 330W Communication in Agricultural and Natural Resource Careers (3)** The course explores the conventions of writing and speaking found in agricultural professions through the use of case studies.

**Communication in Agricultural and Natural Resource Careers (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: ENGL 015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 349 Shop Processes for Agricultural Educators (3)** Instruction in agricultural mechanics processes for teacher preparation in high school settings.

**AEE 349 Shop Processes for Agricultural Educators (3)**

This course is designed for teacher candidates who want to learn more about agriculture mechanics through an experiential learning opportunity. The teacher candidates will learn in a setting similar to those that the students will be expected to teach in during their student teaching experience, and potentially their future career. Students will be provided hands-on, constructivist learning approaches to agriculture mechanics. Students will be evaluated on various agriculture mechanics techniques. These techniques are related to small gasoline engines, concrete/masonry, electrical wiring, welding, and land measurement/building layout. In each unit students will complete projects that will allow them to practice introductory mechanics skills such as; tool selection, assembly/disassembly of engines, pouring concrete, building layout/wall construction, basic welding procedures, and electrical wiring basics. Students will also learn techniques in project development, implementation, and assessment. Each student will have opportunities to build projects for future application in their own teaching experiences.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 350 Teaching Methods for Agricultural and Environmental Laboratories (3)** An introductory course that prepares students to instruct and manage students in laboratory settings.

#### **Teaching Methods for Agricultural and Environmental Laboratories (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 360 Leadership Development for Small Groups (3)** Students will learn about leadership dynamics in small groups and how to be more influential in work settings.

#### **AEE 360 Leadership Development for Small Groups (3)**

This course is designed to teach students the dynamics of leadership in small groups. Specifically, students will learn to identify characteristics of leaders and understand their own personal leadership style. In addition, students will participate in team building activities and understand small group and motivational factors.

Evaluation will be via a series of four examinations and two papers reflecting on impact and shadowing exercises. This course will be part of a series on leadership development offered through the Department of Agricultural and Extension Education.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 395 Internship (1-13)** Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.

#### **Internship (1-13)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 400** Educational Programs in Agriculture for Developing Countries (3) Development and implementation of educational programs in agriculture in developing countries.

**Educational Programs in Agriculture for Developing Countries (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: INTAG 100 or INTAG 481

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 412** Methods of Teaching Agriculture and Environmental Science (4) Instructional strategies and media; directing individual and group learning activities; assessing student performance and quality of instruction in vocational agriculture.

**Methods of Teaching Agriculture and Environmental Science (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 413** Program Planning and Instructional Development (3-4) A course in planning, developing, and organizing school-based curriculum, summer programs, advisory councils, and facilities for environmental/ agricultural education.

**AEE 413 Program Planning and Instructional Development (3-4)**

Organization and administration of secondary programs of education in and about agricultural/environmental sciences, including Ag In The Classroom (Elementary School Agriculture), marketing, summer programs, and state vocational finances. Topics will include discussion of instructional techniques for secondary educators in agriculture, with emphasis on classroom management, discipline and motivation, and teacher evaluation.

The course is arranged in 10 units (for students who have completed AEE 100 as an undergraduate certification requirement) or 15 units (for returning adult students seeking certification who have already completed an Agricultural/Environmental Science undergraduate degree). Thus, this is a variable credit offering designed to meet the needs of these two groups of students.

In each unit there are objectives that need to be met by the students. The students "click" on the objective to open the lessons. Within the lessons are research materials, articles, textbook references (all copyright permission), additional WWW links, and other supporting resources. At the end of the article is an opportunity for students to enter the Penn State Coursetalk electronic "chat" room to engage in discussions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 434** Agricultural and Environmental Development (1-6) Intensive professional and technical treatment of various subject-matter fields to aid teachers in maintaining competence.

**Agricultural and Environmental Development (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: senior-year standing or experience as a teacher or extension agent

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 437 (AN SC 437) Equine Facilitated Therapy (3)** Equine Facilitated Therapy uses equine-related activities to contribute positively to the wellbeing of people with disabilities.

**AEE (AN SC) 437 Equine Facilitated Therapy (3)**

The primary goal of this course is to acquaint the participant to equine facilitated therapy (therapeutic riding) and to introduce them to individuals who benefit/participate in such programs through lecture, audio-visual media, discussions, program visitation, independent research and via a practicum at a therapeutic riding program. Additionally, this course is designed to introduce the participant to various exceptional characteristics and conditions which may benefit from exposure/participation in equine facilitated therapy and other animal related therapy programs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: AN SC 327

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 440 Communication Methods and Media (3)** Mass media techniques for reporting and promoting extension and related programs, including message preparation, presentation, and strategy development.

**Communication Methods and Media (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: 3 credits in communication

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 450 Program Design and Delivery (3)** Principles, methods, and practices of extension education in agriculture, community resource development, family living, environmental affairs, 4-H, and youth programs.

**AEE 450 Program Design and Delivery (3)**

This course will help students develop a basic understanding of non-formal educational programs including Cooperative Extension and other non-credit granting educational opportunities where participation is typically voluntary. Students will learn how non-formal programs are planned, delivered and evaluated in community settings. In addition, students will select and critique existing extension programs developed for use in the United States and others in use around the world.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: 6 credits in social or behavioral sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 460 Foundations in Leadership Development (3)** This course explores historical and contemporary leadership theories, models and perspectives within social, cross-cultural, and political contexts.

**AEE 460 Foundations of Leadership Development (3)**

This course is designed to provide students with a philosophical and theoretical framework of leadership by examining historical and contemporary theories, models and leadership styles within a social, political and global context. Students will explore leadership effectiveness and its relationship to issues of power, influence, persuasion, motivation and ethical decision-making. The overall objective of this course is to help students learn specific leadership competencies that will make them a more effective leader when addressing problems and seeking solutions in public and private domains.

Evaluation will be based upon quizzes, written projects, leader interview and a final paper in which students will be expected to demonstrate an integrated application of causes, barriers and key ingredients of successful leadership practices. This course will be part of a series on leadership development offered through the Department of Agricultural and Extension Education.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AEE 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 465 Leadership Practices: Power, Influences, and Impact (3)** Explores the leader role as it relates to issues of purpose, social responsibility, political influences, and legal constraints.

**AEE 465 Leadership Practices: Power, Influences, and Impact (3)**

In this course, students will explore leadership roles as they relate to issues of purpose, social responsibility, political influences and legal constraints. It is designed to help students develop greater sensitivity to the variety of factors and forces impacting leadership processes and to acquire an increased understanding of key elements of successful leadership practices. The overall objective of this course is to help students learn specific leadership competencies that will make them a more effective leader when addressing problems and seeking solutions in public and/or private domains.

Evaluation will be based upon unannounced quizzes, several short written projects, and a final paper in which students will be expected to demonstrate an integrated application of causes, barriers and key ingredients of a leader they consider to be successful. This course will be part of a series on leadership development offered through the Department of Agricultural and Extension Education.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 490 Colloquium (1-3)** Seminars consisting of a series of individual lectures by faculty, students, or outside speakers.

**Colloquium (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 494 Undergraduate Research (1-12)** Supervised student activities on research projects identified on an individual or small group basis.

**Undergraduate Research (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 495 Internship in Agricultural and Extension Education (1-15)** Participation in the total program of instruction in agriculture in a selected high school.

**Internship in Agricultural and Extension Education (1-15)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AEE 412/AEE 413

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 495D Leadership Development Minor Internship (3)** Participation in the total program of instruction in agriculture in a selected high school.

**Leadership Development Minor Internship (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: AEE 412/AEE 413

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 497** Special Topics (1-9) Formal courses given on topical or special interest subjects which may be offered infrequently.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AEE 499B** (IL) School-Based Agricultural Education in South Korea (0.5) Travel component of AEE 499A.

**School-Based Agricultural Education in South Korea (0.5)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



## Agriculture (AG)

**AG 100** (SC 101) Job Placement Skills and Strategies (1) Strategies and skills designed to identify career/life goals and implement career decisions.

### Job Placement Skills and Strategies (1)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 113** Exploring Careers in Agriculture (1) Examination of career opportunities in agriculture with an exploration of the relationship between student interest and career decisions.

### Exploring Careers in Agriculture (1)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1984

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 150S** Be a Master Student! (2) Students explore agricultural issues and research methodologies through literature review, library searches, field studies, and critical thinking.

### Be a Master Student! (2)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999  
Prerequisite: first- or second-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 160** (GH) Introduction into Ethics and Issues in Agriculture (3) The course explores ethical theories, concepts of critical thinking, and major ethical issues related to American agriculture.

### AG 160 Introduction into Ethics and Issues in Agriculture (3) (GH)

Ethics and the social contract include substantive ethical theories focusing on rights-based ethical theories (libertarianism and egalitarian theories) and consequentialist theories (utilitarianism and axiology). These theories assist in conceptually defining levels of participation and consent in democracy. This course explores the circumstances in which rational persons and political groups historically agree to be bound in collective decision making. The primary focus by examines four separate ethical themes illustrating why and how individuals accept a variety of terms.

The course highlights philosophical/ethical decisions related to agriculture issues during the history of the United States. Issues range from non-interference rights to opportunity rights dealing with food, fiber, natural resource and environmental issues. Procedural theory emphasizes the formation of legitimate and defensible rules rather than ethics. Policy choices are assumed to be legitimate and defensible as long as individuals follow the rules/procedures for decision making. The content of this course meshes the procedural and the substance theories found throughout historical debates in agriculture communities. The course identifies traditional agrarian problem identification, policy formation, policy adoption and funding, program implementation and program evaluation.

How ethics figures historically in agriculture policy processes is applied in a variety of case studies and debates as well as selected readings. The course includes an examination of the ethics of when, how and where the policy process historically influenced agriculture public policies. The course emphasizes the need to critically think about various points of view expressed by various conflicting authors.

General Education: GH  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 160S** (GH) Introduction to Ethics and Issues in Agriculture (3) Introduce students to the University and College of Ag

Sciences preparing them to succeed. Review ethical theories and issues in American agriculture.

**AG 160S Introduction to Ethics and Issues in Agriculture (3)**

This course introduces students to contemporary issues, ethical theories and principles, and the application of critical thinking and communication skills related to topics in agriculture, renewable natural resources, and the environment. Additional emphasis will be placed on developing the skills that help achieve academic success at Penn State through these speakers and activities. Course content will include analyzing moral positions based on three ethical theories: normative ethics, descriptive ethics, and metaethics; and four ethical principles: beneficence, nonmaleficence, respect for autonomy, and justice. Guest speakers, field trips and interactive activities, which feature disciplines in the College of Agricultural Sciences, will supplement the course materials and enrich the educational experience. In addition, various career and networking opportunities with internationally acclaimed faculty and staff, current students, and alumni will be featured.

General Education: GH

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: fifth- or second semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 294** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project Courses (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 301W** Introduction to Agricultural Law (3) A survey of the legal system and legal issues that typically arise in agricultural and agribusiness situations.

**Introduction to Agricultural Law (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1987

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 400** Biometry/Statistics in the Life Sciences (4) Application of statistical techniques to experimental and survey research in the life sciences.

**Biometry/Statistics in the Life Sciences (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1986

Prerequisite: 6 credits in the natural sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 494** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or

small-group basis.

### **Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 494H** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 495** Internship (1-18) Independent study and supervised field experience related to the student's major. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1993

Prerequisite: approval of proposed assignment by instructor prior to advance registration deadline in semester preceding that semester in which the assignment is to be carried out

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AG 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1991

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Agroecology (AGECO)**

**AGECO 121** (GN) Plant Stress: It's Not Easy Being Green (3) The many hazards faced by plants and the dynamic ways that plants respond to these problems are examined.

### **Plant Stress: It's Not Easy Being Green (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 122** (GN) (METEO 122) Atmospheric Environment: Growing in the Wind (3) Dynamic effects of weather on ecosystems and habitation of Earth.

### **AGECO 122 Atmospheric Environment: Growing in the Wind (3) (GN)**

Atmospheric Environment: Growing in the Wind is for first-year students who are interested in learning about the dynamic effects of weather on ecosystems and habitation of the Earth. It is about how processes at the ground surface and in the air govern weather conditions on Earth. Growing in the Wind focuses on five major weather elements: energy, temperature, moisture, pressure, and wind and how these factors govern ecosystems and habitation of Earth. Emphasis is also given to human impacts on weather and climate. The lectures (2, one-hour lectures each week) are organized around the central theme that the unequal distribution of incoming solar energy (both spatially and temporally) produces temperature and pressure contrast at the Earth's surface and in the atmosphere that in turn cause storms and control the weather and climate. Computer lab exercises (1, two-hour lab each week) will reinforce concepts learned in lecture.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 134 (GN) (R SOC 134) Sustainable Agriculture Science and Policy (3)** The science, socio-economics, and politics of managing food and fiber production systems. Sustainability implications of current practices and future options.

**AGECO (R SOC) 134 Sustainable Agriculture Science and Policy (3)  
(GN)**

This general education course will teach students about the soil, plant, animal, and ecological sciences; technologies, and policies of our agroecosystems in an integrated manner. We will examine agricultural resources and options available for sustainable management of resources for food production. Students will have many opportunities to examine and critically analyze scientific knowledge and policies during discussions, writing exercises, and role playing to develop analytical and communication skills. There are no prerequisites for this course. This course can link with other courses that address how research and efforts in agricultural sciences, ecology, policy, economics, philosophy, education, and communication influence sustainable management of natural resources for the present and the future.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 144 (GN) Principles and Practices of Organic Agriculture (3)** An introduction to the science, principles and practices of organic agricultural systems for food production.

**AGECO 144 Principles and Practices of Organic Agriculture (3)  
(GN)**

This general education course will teach students about the science of agroecology, with a focus on organic agriculture. We will examine the science, history and development of organic agriculture and its principles and practices. Students will learn about the scientific basis and implementation of fundamental organic farming principles and practices including soil health, diversified cropping systems, organic pest management, and a system perspective. We will also discuss certified organic regulations and policies, organic farming business management and marketing. Learning activities will include: i) reading and discussing agricultural scientific articles, ii) listening to guest speakers and videos, iii) hands-on laboratory and greenhouse activities, iv) attending a field trip, and v) two group projects. The only prerequisite for this course is a high school level biology or ecology course. This course can link with other courses that address the agricultural sciences, food systems, environmental resource management and policy, landscape management and design, and natural resources. Student learning will be evaluated from class participation, questions on reading assignments, short papers and presentations, and a group project and presentation conducted by student teams.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 154 Principles of Agronomic Field Operations (2)** Introduction to the cultural methods and equipment used in agronomic crop production.

**Principles of Agronomic Field Operations (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 201** Introductory Agroecology (3) Introduction to the processes and considerations that lead to the development of integrated solutions to crop production problem solving.

### **Introductory Agroecology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 295** Agroecology Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Agroecology Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 418** (AN SC 418, SOILS 418) Nutrient Management in Agricultural Systems (3) Comprehensive review of nutrient flow in animal agricultural systems, environmental regulations, and environmental stewardship practices.

### **AGECO (AN SC/SOILS) 418 Nutrient Management in Agricultural Systems (3)**

Nutrient Management in Agricultural Systems is a senior level course that applies the fundamentals of animal and plant, sciences to the concept of a nation-wide food animal system. The regional concentration and consolidation of animal production enterprises has resulted in important economic savings for consumers. But these changes have also had some detrimental impacts on the environment. For example, some nutrients such as calcium and phosphorus and certain trace elements are mined, while others such as nitrogen and potassium are derived from crop production systems. In all cases, the nutrients are transported to areas of livestock concentration. A small portion of the nutrients leave the farm in the form of animal products, while 60 to 70% of the nutrients are excreted and applied to nearby crop land. The environmental implications of the net influx of these nutrients to livestock producing communities have only recently been recognized. These concepts will provide the background around which regulations are written and sound nutrient management strategies are developed and implemented.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 427** Certification and License Preparation (1-3 per semester/maximum of 3) Review and preparation for licenses and certifications commonly needed by Crop Production professionals.

### **Certification and License Preparation (1-3 per semester/maximum of 3)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: AGRO 028

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 429 Crop Scouting (2)** This course will teach proper crop scouting techniques and provide reference material to aid in identification of crop pests and determination of pest economic threshold levels.

#### **AGECO 429 Crop Scouting (2)**

This course will introduce and provide experiential learning opportunities to students in crop scouting. Students will be taught principles and technique associated with proper crop scouting. This will include but is not limited to: identifying crop development problems, pests or damage symptoms, pest biology and economic thresholds associated with various pest control options. Students will learn: how abiotic stresses may alter crop development; pest identification; when (spring, summer, fall, wet conditions, dry conditions etc...) different pests are likely to appear; scouting techniques to properly quantify pest infestation; how to read and interpret internet sources that help forecast pest activity; and how to use Infestation/Economic Threshold Charts.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AGRO 028 or HORT 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 438 (AGRO 438) Principles of Weed Management (4)** Weedy plant taxonomy, biology and ecology of weedy plant populations, and integration of biological, chemical, cultural and biological controls.

#### **AGECO (AGRO) 438 Principles of Weed Management (4)**

The study of weeds and their management is a challenging and demanding task that requires diverse abilities. The term weed is an anthropocentric construct meaning it is a human colored definition. We will study the biology and ecology of weedy plants drawing on examples from a wide range of plant systems; those systems include agricultural fields (agronomic and horticultural crops) and forests. Of course our knowledge of the biology and ecology of weedy plant populations will then be used to underpin and assess control tactics and their integration. The discipline has a history of equating management with herbicidal control and in fact some 80% of the pesticides used in U.S. agriculture are herbicides. However through novel farmer designed management systems, through a research community focused on alternative methods of management and through increased focus on invasive species, exciting breakthroughs are occurring in alternative methods of management and prevention. This course seeks to introduce you to the breadth of management approaches in use and under study. The specific objectives are for students to be familiar with: 1) the local weed flora, 2) fundamental aspects of weed biology and ecology relevant to managed landscapes, 3) the control methods used in managing weed populations, 4) how control measures can be integrated to accomplish acceptable levels of pest suppression, 5) operationalizing a weed management plan, 6) how herbicides enter and move to their site of action in plants, 7) classifying herbicides by their site of action, and 8) the distinction between herbicide concentration in soils and plant available herbicide concentration.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: 6 credits in plant sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 457 (ENT 457) Principles of Integrated Pest Management (3)** Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester students and graduate students.

#### **AGECO (ENT) 457 Principles of Integrated Pest Management (3)**

The goal of this course is to introduce upper level undergraduates and graduate students to the principles and practices of integrated pest management (IPM). This course addresses IPM issues concerning insects, plant diseases, and weeds in agriculture, natural systems and urban environments. Rooted in ecology, IPM also addresses the influence of human social, economic and regulatory systems in pest management. Emphasis is placed on the basic tactics and tools of IPM including biological, cultural, legal, mechanical and chemical controls, host plant resistance, pest monitoring and decision making. The overarching goals of environmental protection, economic viability and social welfare are considered throughout the course. In addition, students will learn about IPM program implementation both domestically and internationally, including pest population modeling and the use of internet resources to inform decision makers. Several projects will provide real-world examples. These may include field trips and a semester-long project where students research and solve an actual pest management problem.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Must take two or more of the following: ENT 313PPEM 405PPEM 318 or HORT 238

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 457 (ENT 457) Principles of Integrated Pest Management (3)** Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester students and graduate students.

### **AGECO (ENT) 457 Principles of Integrated Pest Management (3)**

The goal of this course is to introduce upper level undergraduates and graduate students to the principles and practices of integrated pest management (IPM). This course addresses IPM issues concerning insects, plant diseases, and weeds in agriculture, natural systems and urban environments. Rooted in ecology, IPM also addresses the influence of human social, economic and regulatory systems in pest management. Emphasis is placed on the basic tactics and tools of IPM including biological, cultural, legal, mechanical and chemical controls, host plant resistance, pest monitoring and decision making. The overarching goals of environmental protection, economic viability and social welfare are considered throughout the course. In addition, students will learn about IPM program implementation both domestically and internationally, including pest population modeling and the use of internet resources to inform decision makers. Several projects will provide real-world examples. These may include field trips and a semester-long project where students research and solve an actual pest management problem.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Must take two or more of the following: ENT 313PPEM 405PPEM 318 or HORT 238

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 490 Agroecology Colloquium (3)** Students will be discussing topics related to the major and develop presentations in consultation with the course instructor.

### **AGECO 490 Agroecology Colloquium (1)**

Students learn from commercial farmers about current issues, needs, and successes in the application of agroecological principles. Pennsylvania and northeastern farmers are invited to discuss their farming practices and decision making processes involved in managing farm and environmental resources. Through discussions with the guest speakers, written papers and class discussions students reflect on, analyze, and summarize what they learn direct from practitioners about agroecosystem management.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: 3 credits in agroecosystems science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 495 Agroecology Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Agroecology Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 499** (IL) Foreign Studies (1-2 per semester/maximum of 4) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-2 per semester/maximum of 4)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGECO 499B** (IL) (CED 499B) Issues in Economic, Community and Agricultural Development in Kenya Practicum (0.5) Implement and assess viable economic and youth development options for vulnerable youth in Kenya.

#### **Issues in Economic, Community and Agricultural Development in Kenya Practicum (0.5)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: AGECO 499A or CED 499A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Agroecosystems Science (AGESS)**

**AGESS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Agronomy (AGRO)**

**AGRO 028** Principles of Crop Management (3) Biological and agronomic principles applied to production and management of major feed and forage crops of the northeastern United States.

#### **Principles of Crop Management (3)**

General Education: None



Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: 6 credits in biological science

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGRO 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGRO 410W** Physiology of Agricultural Crops (4) Study of the relation of plants to their environment and the physiology of crop plant growth.

### **AGRO 410W Physiology of Agricultural Crops (4)**

AGRO 410W is a course in plant physiology that presents fundamental aspects of plant metabolism and demonstrates how they are affected by environmental conditions such as light, water availability, temperature, and mineral nutrition. It describes how plants use photosynthesis to accumulate and partition biomass and how this contributes to crop productivity. The roles of abiotic stress such as drought and temperature extremes on crop productivity also are discussed. The course objectives are to 1] learn how plants 'work' at the molecular, cellular, whole plant and population levels; 2] develop critical thinking skills by planning and conducting experiments related to the course topics and reviewing journal articles; and 3] develop and enhance communication skills through a variety of writing assignments. This course is appropriate for upper level undergraduates or beginning graduate students with interest in plant and agricultural science disciplines including, horticulture, agroecology, plant pathology, ecology, meteorology and entomology; and meshes with courses in these areas. Students will be evaluated by examinations/quizzes, writing assignments and class participation. The course is offered annually and the optimal enrollment is 20 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AGRO 028

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGRO 423** Forage Crop Management (3) Application of agronomic, ecological, and physiological principles to the production and management of pasture and forage crops.

### **Forage Crop Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AGRO 028

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGRO 425** Field Crop Management (3) Application of agronomic, ecological, and physiological principles to management systems for the efficient production of the major field crops.

### **Field Crop Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AGRO 028

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGRO 438** (AGECO 438) Principles of Weed Management (4) Weedy plant taxonomy, biology and ecology of weedy plant populations, and integration of biological, chemical, cultural and biological controls.

**AGRO (AGECO) 438 Principles of Weed Management (4)**

The study of weeds and their management is a challenging and demanding task that requires diverse abilities. The term weed is an anthropocentric construct meaning it is a human colored definition. We will study the biology and ecology of weedy plants drawing on examples from a wide range of plant systems; those systems include agricultural fields (agronomic and horticultural crops) and forests. Of course our knowledge of the biology and ecology of weedy plant populations will then be used to underpin and assess control tactics and their integration. The discipline has a history of equating management with herbicidal control and in fact some 80% of the pesticides used in U.S. agriculture are herbicides. However through novel farmer designed management systems, through a research community focused on alternative methods of management and through increased focus on invasive species, exciting breakthroughs are occurring in alternative methods of management and prevention. This course seeks to introduce you to the breadth of management approaches in use and under study. The specific objectives are for students to be familiar with: 1) the local weed flora, 2) fundamental aspects of weed biology and ecology relevant to managed landscapes, 3) the control methods used in managing weed populations, 4) how control measures can be integrated to accomplish acceptable levels of pest suppression, 5) operationalizing a weed management plan, 6) how herbicides enter and move to their site of action in plants, 7) classifying herbicides by their site of action, and 8) the distinction between herbicide concentration in soils and plant available herbicide concentration.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: 6 credits in plant sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGRO 460 (BIOTC 460) Advances and Applications of Plant Biotechnology (3)** This course provides a comprehensive overview and current status of plant biotech research. The course provides knowledge of plant systems that fall in the category of GMOs.

**AGRO (BIOTC) 460 Advances and Applications of Plant Biotechnology (3)**

This course will provide a comprehensive overview and status of current plant biotech research. The focus is on providing knowledge of the biology of plant systems. Consequences of development of a transgenic plant either for food (crops) or as a tool to understand molecular, genetic, and inheritance mechanisms of a trait will be discussed in detail. The course will deliver the current literature and understanding of mechanisms involved in herbicide resistance in transgenic plants. Specific topics that will be of interest to students from various disciplines include disease and insect resistance, quality traits, and secondary metabolites. Molecular biology of different pollination systems will be examined so that students will understand the concept of gene flow from transgenic to non-transgenic crops. Examples from recent developments on the beneficial use of transgenic plants as producers of modified compounds, starches, antibodies and their use in phytoremediation of toxic and organic pollutants will be discussed from the perspective of genetic and molecular plant systems. Gene expression of transgenic plant traits and the stability of an engineered crop will be discussed. Specific emphasis will be on different modes of inheritance that a transgenic plant can follow after its development and release into the environment. The course also prepares students for understanding the regulatory processes that are required for testing, moving, and environment release of transgenic crops. The laboratory component of the course will introduce students to the common technique of molecular biology that are used to detect expression in transgenic plants. Transgenic maize plants will be grown in a greenhouse and analyzed for expression of introduced genes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 230W or B M B 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGRO 489 Supervised Experience in College Teaching (1-3)** Participate with instructors in teaching an undergraduate agronomy course; assist with teaching, evaluation, and development of instructional materials.

**Supervised Experience in College Teaching (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AGRO 028 approval of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGRO 490 (SOILS 490) Colloquium (1)** Continuing written and oral presentations developed by students in consultation with the course instructor.

**Colloquium (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGRO 495** Internship (1-5) Supervised field experience related to the student's major.

#### **Internship (1-5)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: approval of proposed assignment by instructor prior to registration.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGRO 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AGRO 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Air Force (AIR)**

**AIR 151** The Foundations of the United States Air Force I (2) Survey course designed to introduce students to Air Force opportunities, officership, professionalism, and military customs and courtesies, and communication skills.

#### **The Foundations of the United States Air Force I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AIR 152** The Foundations of the United States Air Force II (2) Continued study of officership and leadership. Mission and organization of today's Air Force are discussed.

#### **The Foundations of the United States Air Force II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AIR 251** The Evolution of USAF Air and Space Power I (2) Examines aspects of air and space power from the first balloons to the beginning of the Cold War era.

**The Evolution of USAF Air and Space Power I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AIR 252** The Evolution of USAF Air and Space Power II (2) Continued examination of air and space power from the Cold War era to the Persian Gulf War and beyond.

**The Evolution of USAF Air and Space Power II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AIR 351** Leadership Studies I (3) Study of leadership, management fundamentals, and communication skills required of Air Force officers. Students apply these concepts using case studies.

**Leadership Studies I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AIR 352** Leadership Studies II (3) Continued study of leadership includes professional knowledge, AF personnel evaluation systems, and leadership ethics. Students apply concepts using case studies.

**Leadership Studies II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AIR 451** National Security Affairs/Preparation for Active Duty I (3) This course examines the national security process, regional studies, advanced leadership ethics, and Air Force doctrine.

**National Security Affairs/Preparation for Active Duty I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AIR 452** National Security Affairs/Preparation for Active Duty II (3) Topics focus on preparation for military service after commissioning and current issues affecting the Air Force way of life.

**National Security Affairs/Preparation for Active Duty II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## American Studies (AM ST)

**AM ST 050** (GH) The Literature and Lore of Mining (3) Experience and values of mining tradition: survey of the literature and lore, including field research.

**AM ST 050 The Literature and Lore of Mining (3)**  
(GH)

**(BA) This course meets the Bachelor of Arts degree requirements.**

AM ST 050 is a nontraditional approach to the humanities whose central methodology is a comparative use of literature, lore, and oral history to explore humanistic themes related to the coal mining experience and tradition regionally, nationally, and internationally. Throughout the course, knowledge about the miner and his tradition is derived and synthesized from a variety of sources. During the 15 weeks, students typically read one novel, one play, six short stories, a dozen poems, six essays and articles, and a mining culture and lore anthology. Students also view films and videos, examine historical documents, artifacts, and photos, listen to oral history tapes, and visit a coal heritage site. Central to the course is a three-week segment devoted to preparing students to conduct field research involving an interview of a miner or miner's wife. The other 12 weeks are divided equally to stress poetic, fictional, dramatic, and expository expressions of the mining experience. Students analyze and interpret information collected during the field research and make connections between the contents of the interview and the contents of the national and international literature selections assigned for class. By reading, analyzing, and discussing works of literature, students learn how the mining tradition was an inextricable part of American culture and how it played a vital role in the industrial revolution of America. Issues related to immigration, ethnicity, and the struggle between labor and management are also illuminated. Some universal themes related to the human condition to be explored are: the search for dignity, security, and justice; the struggle against the environment to achieve purpose and meaning in life; the indomitable human spirit versus resignation to fate; and the values of solidarity, brotherhood, and family relationships. Representative authors to be studied who have written about coal mining are D.H. Lawrence (England), George Orwell (England), Franz Kafka (Austria-Czech), Stephen Crane (U.S.) Alexandre Kuprine (Russia), and Emile Zola (France). After reading selections by these authors, students compare and contrast the mining tradition in the U.S. to the mining tradition in other countries, with special emphasis on the coal miner's life style, character, and values. For assessment, students will complete three exams-objective and essay in nature. They will conduct an oral history field research project, prepare three reports, and keep a journal. Class attendance and discussion of the work assigned will also be factors in evaluation. The course will fulfill a general education humanities requirement.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 083S** (GH) First-Year Seminar in American Studies (3) Critical approaches to the interdisciplinary study of American culture.

**AM ST 083S First-Year Seminar in American Studies (3)**  
(GH;FYS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will be an open topic course in American Studies, limited to 20 students, and taught by an experienced professor. The course will be designed to provide a small, interactive learning environment for first-year students. Each section of 083 will address a large theme or number of themes that encourage students to examine a range of assigned texts in the context of broad questions of ethical and social value. Each section of the course will focus on a well-defined body of scholarship that is topical in the discipline, such as 'Civil Disobedience,' 'Utopian Communities, and Blacks and Jews: A Multi-Cultural Perspective.' In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests. Each section of the course will require active class participation from all students and a minimum of three substantial written assignments. Each of these written assignments will take one of the following forms: essay, essay exam, or a semester-long reading journal. The course fulfills a General Education humanities requirement or a Bachelor of Arts humanities requirement.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**AM ST 100 (GH;US)** Introduction to American Studies (3) A study of selected attempts to identify and interpret movements and patterns in American culture.

**AM ST 100 Introduction to American Studies (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

American Studies 100 is a broad-ranging introduction to American culture. While specific topics may vary from class to class, the course examines what "America" means and what it means to be "American." These issues will be examined from a variety of perspectives: literature, history, politics, film, race, gender, and geography. The course is often broken down into discussion sections to facilitate student discussion of the material and the lecture. Requirements generally include community service projects, and students will be evaluated on essay tests, papers, journal entries and attendance. American Studies 100 (or American Studies 105) is a requirement for the American Studies major and minor, and offers students valuable experience in critical thinking, analysis, and writing. Non-American Studies majors and minors may use this course to fulfill a general education or Bachelor of Arts-Humanities credits. The course offers students a broad introduction to American culture, also serves as preparation for more advanced courses in American studies, American literature, and American history, in particular.

General Education: GH

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: third-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 100Y (GH;US)** Introduction to American Studies (3) A study of selected attempts to identify and interpret movements and patterns in American culture.

**AM ST 100Y Introduction to American Studies (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

American Studies 100 is a broad-ranging introduction to American culture. While specific topics may vary from class to class, the course examines what "America" means and what it means to be "American." These issues will be examined from a variety of perspectives: literature, history, politics, film, race, gender, and geography. The course is often broken down into discussion sections to facilitate student discussion of the material and the lecture. Requirements generally include community service projects, and students will be evaluated on essay tests, papers, journal entries and attendance. American Studies 100 (or American Studies 105) is a requirement for the American Studies major and minor, and offers students valuable experience in critical thinking, analysis, and writing. Non-American Studies majors and minors may use this course to fulfill a general education or Bachelor of Arts-Humanities credits. The course offers students a broad introduction to American culture, also serves as preparation for more advanced courses in American studies, American literature, and American history, in particular.

General Education: GH

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: third-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 103 (GH;US)** American Masculinities (3) Introduction to aspects of masculinities and manhood in America.

**AM ST 103 American Masculinities (3)  
(GH;US)**

This course examines aspects of masculinities and manhood in America from a variety of perspectives. It views American manhood through the lens of gender, and presents ideas on the ways that issues of masculinity and sexuality enter, or have entered, discourses of politics, literature, and medicine, among others. It takes up discussion of the varieties of masculinities in American experience across regions, ethnicities, and religions. Students will view these forms of masculinities in different media, including folklore, media, advertising, art, and literature.

General Education: GH

Diversity: US

Bachelor of Arts: None

Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 104** (GH;US) (WMNST 104) Women and the American Experience (3) Selected aspects of the role of women in United States history and culture from colonial to modern times.

**AM ST (WMNST) 104 Women and the American Experience (3)**  
(GH;US)

**(BA) This course meets the Bachelor of Arts degree requirements.**

AM ST/WMNST 104 is a broad-ranging introduction to women in American culture. While specific topics may vary from class to class, the course examines the history and literature of American women, paying particular attention to issues of race and diversity. Students will be evaluated on essay tests, papers, journal entries, and attendance. The course offers students valuable experience in critical thinking, analysis, and writing. The course offers students a broad introduction to American women's issues, and so serves as preparation for more advance courses in American studies, American literature, American women's history, and Women's studies.

AM ST/WMNST 104 counts towards the American Studies major and minor and the Women's Studies major and minor. Non-American Studies majors and minors may use this course to fulfill a general education humanities (GH) or Bachelor of Arts humanities credit requirements.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 105** (GH;US) (ENGL 105) American Popular Culture and Folklife (3) Survey of popular culture, folklife, and ethnicity, synthesizing material from such areas as literature, media, entertainment, print, music, and film.

**AM ST (ENGL) 105 American Popular Culture and Folklife (3)**  
(GH;US)

**(BA) This course meets the Bachelor of Arts degree requirements.**

AM ST/ENGL 105 covers a broad scope of materials, which may range from early to contemporary American folk and popular cultures. While selected topics for reading and discussion often vary from class to class, all courses focus on a critical examination of a variety of popular and folk cultures in order to produce an enriched understanding of America and its inhabitants. To meet this goal, popular and folk cultures will be examined from a variety of perspectives, including literature, history, politics, film, race, gender, class, and geography. Course requirements frequently include: essay exams, papers, journal entries, vigorous class discussion, and course talk participation. Technology is often incorporated into the class well, this course (or AM ST 100) is a requirement for the American Studies major and minor, and offers students valuable experience in critical thinking, analysis, and writing. Non-American Studies majors and minors may use this course to fulfill a general education or Bachelor of Arts/Humanities credit. AM ST/ENGL 105 serves as a broad introduction to American popular and folk cultures as well as interpretive strategies relevant to the study of cultures and individuals. The course, as a result, provides preparation for more advanced courses in American studies, American literature, and American history.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 106** (GS) (COMM 100) The Mass Media and Society (3) Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films.

**The Mass Media and Society (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 135** (GH;US) (ENGL 135) Alternative Voices in American Literature (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

**Alternative Voices in American Literature (3)**

General Education: GH

Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 140Y** (GH;US) (RL ST 140Y) Religion in American Life and Thought (3) The function, contributions, tensions, and perspectives of religion in American culture.

**Religion in American Life and Thought (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 160** (GH;US) (AAS 100) Introduction to Asian American Studies (3) An introduction to the history, literature, and culture of Asian America.

**Introduction to Asian American Studies (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 160U** (GH;US) Introduction to Asian American Studies (3) An introduction to the history, literature, and culture of Asian America.

**Introduction to Asian American Studies (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 196** (GH;US) (ENGL 196, AMSTD 196) Introduction to American Folklore (3) A basic introduction to verbal and non-verbal folklore stressing the basic procedures of collection, classification, and analysis.

**AM ST (AMSTD; ENGL) 196 Introduction to American Folklore (3)**  
**(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

English 196 is an introduction to the verbal and nonverbal folk traditions characteristic of several American subcultures, including Native Americans, Hispanic Americans, African Americans, and immigrants. It will cover important genres of folklore, including folk speech, folk narrative, beliefs and religious experiences, use of space, and material culture. Topics under consideration will include ethnicity and cultural identity, the ways in which verbal and material cultures have influenced the literary, political, and economic development of the United States. Students will learn strategies for "reading" and valuing the folklore of subcultures other than their own. This class will prepare students to be able to perform well in future courses that deal with analyzing written, oral, and nonverbal texts and being able to analyze their significance within the subculture that produced them. By the end of the course, students will be able to recognize the cultural, political, and historical implications of such traditions. Additionally, they will have received first-hand practice in compiling a fieldwork project from first-hand interviews and site observations, combined with archival research. Students will be evaluated on the basis of class discussion, oral presentation and group exercises, in-class examinations, and a fieldwork portfolio, based on the fieldnotes, research, and analysis done as part of their project. This course may be used by English majors for English Major elective credit or as credit toward the English Minor, and (as AMST 196) also by American Studies majors in the same way. Non majors may use this course to fulfill a general education or Bachelor of Arts Humanities requirement. English 196 will be offered twice a year with 60 seats per offering.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 299 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 301 (GH)** American Civilization (3) An interdisciplinary overview of major themes, works, and events, in American history and culture.

**AM ST 301 American Civilization (3)  
(GH)**

This course will provide an interdisciplinary overview of major themes, texts, and events in American civilization from its beginnings to the present. Themes that distinguish an American civilization, such as individualism, constitutionalism, moralism, diversity, and mobility. The course puts these themes in historical context and integrates arts, literature, and culture into an understanding of the American experience. The course serves students from all majors seeking an understanding of the American experience. Although American Studies majors can take the course, it does not count toward the requirements for the major.

General Education: GH  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: HIST 020 or HIST 021 or 3 credits in American Studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 302** Approaches to American Studies (3) A survey of the American Studies movement and its scholarship, emphasizing changes in theories, methods, and topics.

**Approaches to American Studies (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: AMSTD major or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 307 (GA;US) (ART H 307)** American Art (3) History of art in the English colonies and the United States from the seventeenth century to the present.

**AM ST (ART H) 307 American Art (3)  
(GA;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

American art, from the colonial period to the present, is examined through paintings, sculpture, buildings, prints and photographs, as well as exhibitions and national/world fairs. The class places special emphasis upon the predicament of national identity by examining the ways in which the very notion of the "American" has historically been highly contested. Special points of emphasis include: negotiations between indigenous, colonial and European artistic styles, representations of and by displaced populations (colonial subjects, Native Americans, African Americans), myths of the American landscape, the cult of domesticity and the gendering of American citizenry, later transatlantic experiences of expatriate artists, conflicts between urban and rural conceptualizations of the "typical" American experience, the role of the American avant-garde after World War II, and debates over federal funding for the arts. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to American art to a student of any major. This course has no prerequisite and presumes no prior exposure to fine art. Students majoring in Art History will learn both the common vocabulary of the field and the outlines of the field that form the foundation for the future study.

General Education: GA  
 Diversity: US  
 Bachelor of Arts: Arts  
 Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 308 (GA;US) (ART H 308) American Architecture (3)** History of the architecture of the United States, as well as its Native American and colonial antecedents.

**AM ST (ART H) 308 American Architecture (3)**  
**(GA;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This Art History course (cross-listed with American Studies) will cover the history of American architecture and will examine such topics as the architecture of: Native Americans, Spanish Colonial missions, 17th-century Virginia, Puritan New England, Georgian America, Southern Plantations and Slave Cabins, Thomas Jefferson, the new federal city of Washington, D.C., the Greek Revival, the industrial revolution, utopian religious communities such as the Shakers, Gothic Revival cottages and villas, Victorian Philadelphia, Henry Hobson Richardson, Newport mansions, the birth of the skyscraper in New York and Chicago, the City Beautiful Movement, Frank Lloyd Wright, Arts & Crafts California, Henry Ford's Michigan, Art Deco New York, Mies van der Rohe, Levittown, Disneyland, Louis I. Kahn, Post-Modernism, Frank Gehry, and Green Buildings. Selected major buildings, architects, ideas, and urban developments will be emphasized. Architecture will be considered within the contexts of religion, politics, philosophy, culture, economics, gender, race, society, technology, engineering, landscape architecture, urban planning and interior design. This introductory survey has no prerequisite and is intended for both students of architecture/art and students unfamiliar with the field.

General Education: GA  
 Diversity: US  
 Bachelor of Arts: Arts  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 320 Pennsylvania Studies (3)** Study of selected topics on the history, society, and culture of Pennsylvania (May be repeated for credit).

**AM ST 320 Pennsylvania History and Culture (3)**

This course will cover selected topics on the history, society, and cultures of Pennsylvania, and relate them to American Studies scholarship. Subjects may include Quaker influence and religious diversity; the French and Indian wars in the colony; Pennsylvania's role in the American Revolution and the birth of the republic; early 19th century agricultural development; late 19th century politics, industry, and ethnicity; 20th century deindustrialization; and current events and issues. The course will incorporate areas of arts, literature, folklore, and society and their relationship to historic events. The course satisfies the "area" requirement in history for undergraduate American Studies majors, and is open to all majors.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: HIST 012 or 3 credits of American Studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 321 (US) American Indian Studies (3 per semester, maximum of 99)** A study of American Indian history, societies and cultures (may be repeated for credit).

**American Indian Studies (3 per semester, maximum of 99)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: 3 credits of American Studies or ANTH 146 or HIST 153

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 322 (US) Ethnic America (3)** A study of the sources, contributions, and conflicts of ethnic groups in the American

experience.

### **Ethnic America (3)**

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: 3 credits of American Studies or HIST 158 or SOC 119.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 324 Popular Culture (3)** An examination of mass media and society and the impact of popular culture.

### **Popular Culture (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: AM ST 105 or 3 credits of American Studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 325 (PUBPL 325) American Political Culture (3)** Study of political culture in the United States.

### **AM ST (PUBPL) 325 American Political Culture (3)**

Examination of American political culture, including political history, party structure, campaign practices, elections analysis, voter behavior, and political ideology. The course satisfies the "area" requirement in society for undergraduate majors in American Studies, and is open to all majors. Students analyze social and cultural influences on the American political process. Issues of regional, ethnic, rural, urban, and gender traditions on campaigns are considered. Distinctive characteristics of American politics such as the two-party system, populism, and coalition building are discussed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: 3 credits of American Studies Political Science Public Policy or Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 363 American Music (3)** A survey of all styles and types of American music from 1620 to the present.

### **American Music (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: 3 credits of AMSTD and MUSIC

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 400 Early America to 1765 (3)** American society and culture in the colonial period.

### **AM ST 400 Early America to 1765 (3)**

A study of early American history and culture from the Columbian encounter to the end of the colonial period in America. The course covers the results of contact between Native American civilizations and Europeans, forms of government and community that emerged in America, the formation of an American identity, and the creation of a distinctive, expanding American cultural landscape. The course satisfies the "area" requirement in history for undergraduate majors in American Studies, and is open to all majors.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies or History

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 401** Revolution and Early Republic, 1765-1815 (3) American society and culture during the period of the Revolution and the Early Republic.

**AM ST 401 Revolution and Early Republic 1765-1815 (3)**

American society and culture during the period of the Revolution and Early Republic. The course satisfies the "area" requirement in history for undergraduate majors in American Studies, and is open to all majors. An objective of the course is for students to understand the significance of this formative period on the emergence of the United States as a nation. Students will examine the mythology of the Revolution as well as its historical record. They will consider the development of social and political institutions in the early years of the new nation, including the creation of pivotal texts of the Declaration of Independence and Constitution.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits of American Studies or History or 5th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 402** Antebellum and Civil War Era, 1815-1876 (3) Social and cultural conditions, sectional rivalry, political crises, warfare, and Reconstruction from 1815 to 1876.

**Antebellum and Civil War Era, 1815-1876 (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies or History

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 404** Industrial America (3) An analysis of American politics, literature, society, and economics from the 1870s to World War II.

**Industrial America (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits of American Studies or History

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 405** Cold War (3) Examination of social and cultural currents in American life from World War II to 1990.

**AM ST 405 Cold War America (3)**

Examination of social and cultural currents in American life after World War II to 1990. The course satisfies the "area" requirement in history for undergraduate majors in American Studies, and is open to all majors. Students will analyze the way that the confrontation between communist superpowers and the United States shaped politics, culture, and society. Among the events discussed are the nuclear bomb, space and arms race, Kennedy assassination, Watergate scandal, and Korean and Vietnam wars. The cultural expression of the period in film, television, literature, music, and art will be analyzed.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits of American Studies or History

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 406** Contemporary America (3) A study of the historic and cultural currents of life in the United States during the recent past.

**Contemporary America (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: HIST 021 or 6 credits of American Studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 412 American Eras (3)** Examination in depth of various and distinctive American time periods; subtitle expresses specific content. (May be repeated for credit.)

**AM ST 412 American Eras (3)**

Examination in depth of various and distinctive American time periods. The subtitle expresses specific content. May be repeated for credit. The course satisfies the "area" requirement in history for undergraduate majors in American Studies and is open to all majors. The course covers periods or eras in American history that are not covered or emphasized in other courses. Some eras to be studied are the Great Depression, World War II, and 1960s. In addition to analyzing major events of the period, students will consider social and cultural developments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits of American Studies or History

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 417 American Beliefs and Myths (3)** A study of symbols, beliefs, and myths in the American experience; subtitles express specific content. (May be repeated for credit.)

**American Beliefs and Myths (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits of American Studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 421 (PHIL 401) American Philosophy (3)** Survey of key figures and movements in American thought, including the Transcendentalists, the Pragmatists, and contemporary developments.

**American Philosophy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007  
Prerequisite: 9 credits of philosophy or 6 credits of philosophy at the 200-level or 5th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 422 (RL ST 422) Religion and American Culture (3 per semester, maximum of 6)** Selected topics, problems, or historical movements in American religion; relation between religion and American culture.

**Religion and American Culture (3 per semester, maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 430 (US) (WOMST 430) Women in American Society (3)** A historical study of women's roles and experiences in the United States.

**Women in American Society (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits of American Studies Sociology or Women's Studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 431 National Character (3)** An examination of the characteristics of the American people and other national groups.

**AM ST 431 National Character (3)**

An examination of the characteristics of the American people and other national groups. The course reviews techniques that have been used in scholarship to characterize national groups in the United States and cross-culturally, including data gathering in polls, surveys, and censuses; behavioral observations of cultural "personality"; racial and ethnic categorizations; geographical and historical causation. The course analyzes the changes in attitudes toward nationality and "peoplehood" in American history and culture. The course satisfies the "area" requirement in society for undergraduate majors in American Studies, and is open to all majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: AM ST 301 or 6 credits in American Studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 432 Ethnicity and the American Experience (3)** Theoretical and conceptual framework of ethnic studies: examination of specific issues related to major American ethnic and racial groups.

**Ethnicity and the American Experience (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 435 Americans at Work (3)** A study of occupational and organizational cultures in America.

**AM ST 435 Americans at Work (3)**

A study of occupational and organizational cultures in America. The course examines historical and social changes in primary occupations of Americans, including agriculture, crafts and trades, mining and trapping, maritime, manufacturing, corporate, and service and information work. The role of unionism, individualism, and mobility in shaping attitudes toward work will be examined. Students will learn techniques of ethnography and historical analysis to interpret images of work in American society. Evaluation includes application of historical analysis and ethnographic observation of Americans at work in written essays, and two examinations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: 6 credits in American Studies or Labor and Industrial Relations or Sociology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 439 American Regional Cultures (3-6)** An interdisciplinary study of the culture of a region of the United States, such as the south or the west.

**American Regional Cultures (3-6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 441 (US) (KINES 441) History of Sport in American Society (3)** Background, establishment, and growth of sport in America from colonial times to the present.

**AM ST (KINES) 441 History of Sport in American Society (3)**

Study of the background, establishment, and growth of sport in America from colonial times to the present, and the role of American sports in American culture and society. The course will examine the ways that sports have operated in the United States as the country has developed into a modern, mass society. Issues of national identity, commercialism, race, ethnicity, class, and gender will be discussed in relation to the popularity of sports. Another set of issues will center on language and media; students will employ methods of analysis such as ethnography and rhetorical criticism that

emphasize the multiple layers of meaning inherent in sports culture.

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: KINES 141 or 3 credits of United States history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 447 (US) (HIST 447) Recent American History (3)** Contemporary economic, social, and political aspects of the United States and its role as a world power since 1945.

### **AM ST 447 (HIST) Recent American History (3)**

This course covers the history of the United States from the end of World War II to the present. Topics include but are not limited to the Marshall Plan, the Cold War, the Korean War, the rise of television, atomic power, the Eisenhower presidency, the Civil Rights and Women's Movements, the Vietnam War and protests, the space race, Watergate, the Reagan presidency, the two Iraq Wars, the Dot-com revolution, 9-11 and the War on Terror, and the Obama presidency. While addressing major historical movements, the course will also explore the culture of the period –art, literature, music, sports, television, religion, and film. Even though the course covers a relatively short span of years, students will see that American society has undergone dramatic changes in this period as the result of social movements, immigration, wars, political scandal, and technological innovation. The course will close by speculating on the current direction of the United States in light of the serious challenges the nation faces.

General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Spring 2014  
 Prerequisite: HIST 021 3 additional credits in history economics or political science

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 448 (ANTH 448) Ethnography of the United States (3)** Ethnographic descriptions of various dimensions of life in the United States.

### **AM ST (ANTH) 448 Ethnography of the United States (3)**

Ethnographic descriptions of various dimensions of life in the United States. The course covers uses of ethnography in American Studies toward an understanding of social and cultural communication and performance. The application of ethnography and concepts of cultural anthropology to complex societies such as the United States is discussed. The course teaches students to use ethnographic methods for research of American society and culture. Attention is given to the ethics and issues of ethnographic fieldwork. The course satisfies the "area" requirement in "society" for American Studies majors.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: ANTH 045

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 451 (COMM 451) Topics in American Film (3 per semester/maximum of 6)** Critical and historical studies of American films. Analysis of directing, cinematography, editing, screenwriting, and acting.

### **Topics in American Film (3 per semester/maximum of 6)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2013  
 Prerequisite: COMM 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 462 American Art and Architecture of the 20th Century (3)** A survey of American painting, sculpture, decorative arts, and architecture of the twentieth century.

### **American Art and Architecture of the 20th Century (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None



Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 472 (ENGL 434) Topics in American Literature (3)** Focused study of a particular genre, theme, or problem in American literature. (May be repeated for credit.)

**AM ST 472 (ENGL 434) Topics in American Literature (3)**

This course will allow faculty and students to focus a semester's study on a particular genre, theme, or problem in American literature. The flexibility of a topics course will allow faculty a forum in which to share current scholarship or to relate issues in American literature to larger school-wide themes in a classroom environment. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. The course satisfies the "area" requirement in culture for American Studies majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: 6 credits of ENGL ENLSH or LIT

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 475 (US) (ENGL 431) Black American Writers (3 per semester, maximum of 6)** A particular genre or historical period in the development of Black American literature.

**AM ST 475 (ENGL 431) Black American Writers (3)  
(US)**

A study of a particular genre or historical period in the development of Black American literature. This course will allow faculty and students to focus a semester's study on a particular genre, theme, or problem in African-American literature. The flexibility of the course will allow faculty a forum in which to share current scholarship or to relate issues in African-American literature to larger school-wide themes in a classroom environment. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. The course satisfies the "area" requirement in culture for American Studies majors.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 476 (ENGL 492, WMNST 491) American Women Writers (3)** A study of selected American women writers.

**AM ST 476 (ENGL 492, WOMST 492) American Women Writers (3)**

A study of selected women writers, this course provides the opportunity to study writing by American women from an historical perspective and to explore the views these women have of themselves as artists. The course will concentrate on a careful reading of works by a variety of authors. It will raise the question of the role that gender--as well as other differences such as race, class, and ethnicity--play in the selection of literary forms and the development of character, theme, symbol, and rhetorical strategy. It will also explore the dimensions American women have brought to the American literary tradition. The course satisfies the area requirement in culture for American Studies majors and is open to all majors meeting the prerequisite requirements.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: 6 credits of ENGL

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 479 American Expressive Forms (3)** Examination in depth of various and distinctive American expressive forms; subtitle expresses specific content. (May be repeated for credit.)

**AM ST 479 American Expressive Forms (3)**

Examination in depth of various and distinctive American expressive forms. The subtitle expresses specific content. May be repeated for credit. The course satisfies the "area" requirement in culture for undergraduate majors in American Studies, and is open to all majors. The course covers periods or eras in American history that are not covered or emphasized in other courses. Some expressive forms to be studied are American essays, American humor, and American films. In addition to analyzing the traditions and patterns of these forms, students will consider the historical, social, and cultural context of these forms in the American experience.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 480 Museum Studies (3)** An introduction to the basic purposes, philosophies, and functions of a museum, with emphasis on the problems of museum administration. (May be repeated for credit.)

**AM ST 480 Museum Studies (3)**

An introduction to the basic purposes, philosophies, and functions of a museum, with emphasis on the problems of museum administration. The course examines applications of American Studies to mechanics of operation and development of core services including exhibits, structured educational programs, and special events. The course places these functions within the philosophy of the "experience economy," whereby museums and historical organizations are challenged to meet expectations of an increasingly sophisticated audience.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 481 Historic Preservation (3)** A study of preservation practices and programs in America.

**AM ST 481 Historic Preservation (3)**

A study of historic preservation practices and programs in America. This seminar will examine the historic preservation movement in the United States, including its history, function, and practice. Its role in government, economic development, and community and regional planning will be discussed. The ways that American studies scholarship has influenced historic preservation will be considered.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 482 Public Heritage (3)** A study of public heritage practices and programs in America. (May be repeated for credit.)

**AM ST 482 Public Heritage (3)**

A study of public heritage practices and programs, which encompasses interpretation and education projects in American history and culture, disseminated through institutions to the general public. The areas under public heritage include the practices and programs of museums, expositions and fairs, archives, historical and cultural agencies, government bureaus, foundations, community organizations, magazines, films, festivals, and computer sites. The course traces the changes that have occurred in the public heritage movement, especially the ways that American Studies scholarship has been distilled through various public institutions and programs.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 483 Oral History (3)** A study of oral history techniques and issues in America.

**Oral History (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 6 credits in American Studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 491W** American Themes, American Eras (3-6) Interdisciplinary American culture course on major themes and eras such as the American Revolutionary Era or the 1930s.

**American Themes, American Eras (3-6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 493** (ENGL 493) The Folktale in American Literature (3) A survey of the literary uses of the folktale and legendary materials, with particular concentration on the literature of America.

**The Folktale in American Literature (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1986

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 495** Internship (1-6) Supervised internship for undergraduate or graduate American Studies majors at a museum or another cultural, historical, or arts agency.

**Internship (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: senior-level status for undergraduate students; 18 credits of course work in major for graduate students; approval of program required

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AM ST 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Animal Science (AN SC)**

**AN SC 037** Horse and Man (2) Relationship of horse and man; development of breeds; use, adaptability, and economic importance of the horse in today's society.

**Horse and Man (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 100** (GN) Introduction to Animal Industries (3) Students will study the biology, production systems, terminology,

and emerging issues of the N. American animal industries.

**AN SC 100 Introduction to Animal Industries (3)  
(GN)**

This course will introduce students to the breadth and scope of animal agriculture in North America with emphasis on food producing animals. Additionally, fiber producing animals, pets, pleasure animals, and alternative livestock will also be studied. Students will be exposed to biological concepts and their relationship to contemporary production systems, economics, terminology and industry issues to enhance understanding of and appreciation for various uses of animals in North America. The course would be available in a web-based format with extensive use of video tours of animal housing facilities, expert interviews, and explanations of the biology behind common production practices and will be offered annually during spring and summer semesters. Student performance will be assessed via unit quizzes, popular press article critiques, and a final paper.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 107 Introduction to Equine Science and the Equine Industry (2)** Prepare students to proceed into further studies in equine science by providing background to communicate effectively with educators and industry.

**AN SC 107 Introduction to Equine Science and the Equine Industry (2)**

This course will provide students with basic knowledge about the equine industry to prepare them to be more effective communicators with educators and industry personnel. Topics will include basics of equine evolution, history of use, breeds, colors, disciplines and tack, anatomy and physiology, basics of the equine industry including the organization, components and careers; and will prepare students to proceed into further studies in equine science. The course will feature presentations and interaction with industry professionals and instructors of higher level equine science courses at Penn State. In addition to the academic topics addressed, the course will also introduce students to using the university course management and web conferencing systems, give them experience collaborating in a team and require that they provide a presentation. Academic integrity through use of scientific references and proper citations are also integrated into the course along with the introduction of key faculty in the academic area.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 110S Contemporary Issues in Animal Biotechnology and Society (1)** An introductory survey of animal biotechnology in society, the role for biotechnology and how it will benefit society.

**AN SC 110S Contemporary Issues in Animal Biotechnology and Society (1)**

This First-Year Seminar is designed to provide an introduction to the field of animal biotechnology. Emphasis will be placed on providing the student a perspective of the history of biotechnological innovation in animal agriculture and an overview of the scientific bases for animal biotechnology. The history, need for and development of food biotechnologies will be discussed. A major component of the course will focus on the regulatory processes in place in the U.S. for approving animal biotechnologies and the benefit/risk evaluation process used to assess safety and efficacy of new animal biotechnologies. Social and economic implications of animal biotechnology will be discussed as well as overview about how to effectively communicate the benefits of the new food biotechnologies to policymakers and the public.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 117 Equine Marketing (2)** Principles of marketing and event planning including marketing systems, advertising, management systems, team building and other aspects of conducting a purebred livestock sale. Students learn through the planning and conducting of the annual Penn State Equine Science Showcase and Registered Quarter Horse Sale.

**AN SC 117 Equine Marketing (2)**

The Equine Marketing course is designed to allow students the opportunity to learn information related to the marketing of horses. Specific topics will include letters on marketing methods, event planning and management, advertising layout and design, the significance of pre-purchase exams to the marketing process, preparation and presentation of sale animals, and the role of the auctioneer.

In addition to classroom lectures, students will have the opportunity to put the information gathered to use through the planning of Penn State's annual Equine Science Showcase and Registered Quarter Horse Sale. Students will be assigned to committees and will be responsible for all of the planning and implementation of the event. Specific tasks will include development of advertisements, public relations, development of press releases, development of an online and hard copy sale catalog, development of all office paperwork for the sale, interaction with industry leaders to gain industry buy in for the event, working with outside breeders who participate in the event, set up, clean up, and preparation and presentation of the horses being offered for sale.

Through the process students will also learn many skills necessary to be successful in their future careers above and beyond those related to the marketing of horses. Some of these skills include working within a group, team building skills, communication with industry professionals, development of plans of work, and many more.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 198 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 201 Animal Science (4)** Scope of animal and poultry science; genetic, physiological, nutritional, and health factors in food production.

#### **AN SC 201 Animal Science (4)**

This course examines the scope and diversity of disciplines comprising the animal and poultry sciences. The first portion of AN SC 201 focuses on animal products such as milk, meat, eggs, and wool. Students learn product compositions and their relevance to humans worldwide. Later lectures outline the roles that environmental, housing, nutrition, and health play in current animal production systems. A major focus of the course is digestive physiology. In-depth topics include nutrients, monogastric and ruminant digestion, and feed analysis methods. The final portions of the course focus on reproduction, lactation, behavior, genetics, and biotechnology. These areas are critical to successful animal production systems. Throughout the semester, current issues in animal sciences that are related to the course material are integrated into the lectures. The laboratories support the concepts presented in lecture related to animal products, nutrition, animal health, and reproduction.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 207 (FD SC 207) Animal Products Technology (2)** Composition, safety, palatability, preservation, and processing of foods from animals, impact of animal production, and handling practices on product properties.

#### **Animal Products Technology (2)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 208 (FD SC 208) Animal Products Technology Laboratory (1)** Harvesting and processing of foods from animals; hands-on and demonstration exercises; industry procedures for processing meat, milk, and egg products.

**AN SC (FD SC) 208 Animal Products Technology Laboratory (1)**

This laboratory, intended to be taken along with or following Animal Products Technology lecture, provides students an opportunity to experience the procedures involved in harvesting and processing foods from animals. Upon completion of this course, students will be able to describe, demonstrate, and explain procedures commonly used in harvesting and processing of muscle food, milk, and egg products. Students will be able to recognize and predict the impact of incorrect procedures for harvesting and processing muscle food, milk, and egg products. The course includes hands-on exercises and demonstrations that allow students to experience the "look and feel" of industry procedures used in harvesting and processing meat, milk, and egg products for human consumption. Focus on issues related to food safety and food quality.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: or concurrent: AN SC 207

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 211 Introduction to Avian Biology (3)** Introduces the biology of birds; lectures, laboratories on anatomy and function, incubation, breeding, disease control, management techniques, and student projects.

**Introduction to Avian Biology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: BIOL 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 213 Introduction to Animal Biotechnology (3)** An introduction to the multidisciplinary area of animal biotechnology: from molecular, genetic, genomics and development issues to their technological applications.

**AN SC 213 Introduction to Animal Biotechnology (3)**

This course provides an early exposure to the emerging and diverse field of animal biotechnology. Basic principles underlying recombinant DNA technology, genetics, gene transfer technology, genomics and their technological applications will be discussed. This is a fairly intensive course taught from the technological perspective that differs from the perspectives of basic science-or technique-oriented courses. This course will be a pre-requisite for the proposed course in 'Laboratory Methods in Small Animal Research (AN SC 314)'. The course will be offered in the spring semester; classes meet twice a week for 75 minutes each. The information provided in the required text-book, accompanying websites and current literature will be discussed extensively in the form of formal lectures, tutorials and review sessions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AN SC 201BIOL 110CHEM 110CHEM 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 215 (GS) Pets in Society (3)** Introduction to the varied roles that companion animals play in human society and their impact on human activity and well-being.

**AN SC 215 Pets in Society (3)  
(GS)**

Companion animals have far-reaching influence on many aspects of human society. How humans relate to pets varies from individual to individual and is influenced by many factors. The field of human-animal interactions is quickly evolving and is supported by a variety of disciplines and empirical research.

This course provides a broad introduction to the varied roles and influences of pets on human life and society. Topics of discussion include the historical, social, economic, scientific, legal and political roles of pets in American society. The

influence of companion animals on human development and mental health throughout the lifespan and in the case of disability is examined from a social science perspective. Genetics, breed, physical, and environmental influences play obvious and important roles in the development of canine and feline behavior and are used as examples of the multiple causes of behavioral development and expression. Learning theory and operant conditioning are discussed as they relate to training. Newly discovered risks and benefits of animal ownership on human health are discussed, including the influence of pet ownership on cardiovascular disease and allergy development. Issues of responsible pet selection and ownership are discussed in relation to animal welfare and societal responsibility.

Because of the emerging nature of human-animal interaction research, an important goal of the course is to instruct students on the scientific method and recognition of research methodologies. Critical evaluation of theoretical models and empirical research in class and small group discussions is used to show how these questions can be addressed scientifically. Throughout the course, students have the opportunity to gather information from various sources and make informed decisions on controversial topics and to understand the impact of individual actions and decisions on broader society.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 217 Introduction to Horse Judging (2)** Introductory analysis of halter and performance classes of stock-type horses, with emphasis on conformation, gaits, patterns, and oral reasons.

#### **AN SC 217 Introduction to Horse Judging (2)**

AN SC 217 encompasses the introductory information necessary for students to begin their competency in horse evaluation. From external parts and critical evaluation of conformation of halter horses, to rail classes with gaits and transitions, to pattern classes with objective evaluation and scoring methods, to more specialized classes (trail, hunter hack, pleasure driving, etc.), students will expand their depth and breadth of knowledge for evaluating suitability to purpose of stock-type horses. Careful observation, critical thinking, decision-making and oral communication skills of students are repeatedly critiqued and enhanced in this course. Following successful completion of AN SC 217, students who elect to take AN SC 417 will be eligible to compete for a position on the Penn State Intercollegiate Horse Judging Team.

Furthermore, this course serves as an elective for students outside of the Animal Sciences major and students throughout the University who simply have an equine interest; as well as a required course for students enrolled in the Equine Sciences minor offered by the Department of Dairy and Animal Science.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 225 Introduction to Dairy Judging (1)** Training in the visual evaluation of dairy cattle and practice in defending decisions through oral reasons.

#### **AN SC 225 Introduction to Dairy Judging (1)**

Students will learn the basic concepts used in dairy cattle judging and evaluation. The Purebred Dairy Cattle Association Unified Scorecard will provide the framework for students to make decisions and enhance observation skills based on industry standards. Students will become familiar with terminology used to describe differences between cattle of the seven major dairy breeds as they judge classes of cows and heifers. They will develop communications skills by defending these evaluation decisions through oral reasons.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 226 Meat Selection and Grading (2)** Training in identifying, grading, and judging carcasses and wholesale cuts of meat and in selection and identification of specification cuts.

#### **AN SC 226 Meat Selection and Grading (2)**



Students will learn skeletal and musculature anatomy in order to evaluate carcasses and wholesale cuts of beef, lamb, and pork. They will be required to learn quality and yield grading of carcasses of various species and be expected to learn the various parts and evaluative terminology of carcasses and cuts. In addition, students will be trained in the identification and cutting procedures required for the institutional meat specification cuts and retail cuts.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AN SC 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 290W** Careers in Animal Agriculture (1) A description and analysis of career opportunities in the animal sciences and allied industries.

#### **Careers in Animal Agriculture (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 291** Externship with Animal Science Business (1-2 per semester/maximum of 4) Students will obtain a one-week on site work experience with an animal-related agribusiness.

#### **AN SC 291 Externship with Animal Science Business (1-2 per semester/maximum of 4)**

This course will provide an opportunity for students to acquire on-site skills and knowledge in a potential interest area of an animal-related agribusiness. Externship opportunities are provided during one week of winter break and one week of spring break and 1 credit is earned for each experience. Student responsibilities are to: prepare a cover letter and résumé; participate in the interview process; maintain and submit a typed summary of a daily log of activities; prepare a final report to the instructors (copy sent to the agribusiness sponsor); present an oral presentation of the externship experience to their peers and a group of faculty; and complete a self evaluation of AN SC 291. Limited to Animal Sciences majors.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 300** (GN) Integrated Animal Biology (3) An integrated study of the biology of domestic animal growth and the underlying cellular, endocrine and immune systems involved.

**Integrated Animal Biology (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2013  
Prerequisite: BIOL 011 and BIOL 012 or BIOL 110 ; at least third-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 301** Principles of Animal Nutrition (3) Nutrients and their metabolism; the nutritional requirements of livestock; the nutritional value of various feeds; principles of ration formulation.

**Principles of Animal Nutrition (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: CHEM 202; CHEM 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 305** Companion Animal Nutrition (3) Principles of care and nutrition and contemporary importance of companion animals with emphasis on canine and feline species.

**AN SC 305 Companion Animal Nutrition and Management (3)**

Students of the animal sciences must be equipped for a variety of career opportunities in the twenty-first century. It is apparent that most students will benefit from a balanced exposure to a variety of animal species. This is especially true for students who pursue a career in the many supportive agricultural industries such as the commercial feed industry, animal health, and research and development.

This course is part of a series of courses related to the nutrition and management of animals. While the other courses will be related to farm animal species, this course will be the only one addressing companion animals. As such it should meet the demand of students without a strong farm background or interest; those planning to attend a veterinary or professional school; as well as a large group of students with a non-professional interest in companion animals. It is felt that the sophomore or junior level of the course is appropriate after students have completed Animal Science 001.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AN SC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 306** Swine Production and Management (3) Application of the principles of enterprise and facility development, operations management, quality control, public relations, marketing for the efficient operation of a swine production business.

**Swine Production and Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AN SC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 308** Sheep and Goat Production and Management (4) Application of principles of nutrition, breeding, physiology,

health, facilities, marketing, and product development, to animal production agriculture.

#### **AN SC 308 Sheep and Goat Production and Management (4)**

*AN SC 308 - Sheep and Goat Production and Management*, offered on alternate (even) years to an anticipated 15-20 students, encompasses the requisite information for students to manage any of the small ruminant livestock species including meat and wool sheep, hair sheep, and meat goats. Students will critically evaluate genetic, reproductive, nutritional, economic, and management criteria that influence profitability and sustainability of small ruminants as viable agricultural animal enterprises in Pennsylvania, the United States and the world.

Student learning objectives are: a. to describe the global importance of sheep and goat products for the welfare of mankind; b. to develop critical skills in formulating integrated breeding, feeding, and marketing plans for sheep and goats that are economically viable and environmentally sustainable; and c. to develop a knowledge of the genetic diversity and versatility of sheep and goats throughout the world.

Critical thinking, decision-making and oral communication skills of students are evaluated and enhanced in this course. This is accomplished by assigning students production scenarios requiring independent evaluations of genetic, nutritional and marketing plans; the results being presented in both written and oral forms. Additionally, hands-on learning is provided via the laboratories held at the Penn State Sheep Barns operated by the Department of Dairy and Animal Science in the College of Agricultural Sciences and in the College's computer laboratories. Student performance will be evaluated via written exams, laboratory reports, and oral presentations to the class.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AN SC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 309 Beef Cattle Production and Management (4)** Application of principles of nutrition, breeding, physiology, health, facilities, and marketing to produce and manage beef efficiently.

#### **AN SC 309 Beef Production and Management (4)**

*Beef Production and Management*, offered every spring semester to an anticipated 20-40 students, will provide a comprehensive review of the business-related and production oriented concepts associated with modern beef production. This course will combine traditional disciplines of beef management with business management, operations management, quality control and marketing. Additional topics will include economics and factors affecting cost of production. As the course progresses, and following the exposure of students to the fundamentals of beef production, they will be given the opportunity to evaluate real production scenarios for development of business and management recommendations. In addition to the classroom, the Penn State Beef Center, College computer labs, and selected field trips will comprise the facilities used to teach the course. In addition, students will conduct problem solving exercises on beef enterprises throughout the state. Beef Production and Management will be included in the series of other production courses offered in this department. Having completed the course, students will be able to:

1. Describe the necessary management procedures in a beef enterprise that are vital for efficient and profitable production.
2. Describe and understand the fundamentals of the various segments of the cattle industry.
3. List the important components of a business management plan for a beef operation, including short and long-term capital requirements, and a projected budget.
4. Discuss the trends and important issues facing the beef industry in Pennsylvania, the nation and world.
5. Critically evaluate business and production scenarios to provide an in depth analysis and a recommended course of action for improving a beef enterprise.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AN SC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 310 Dairy Cattle Production and Management (3)** Principles of dairy management including the dairy industry and control points associated with nutrition, genetics, lactation, reproduction, and housing.

#### **Dairy Cattle Production and Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AN SC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 311 Poultry Production and Management (3)** The application of fundamental concepts and preparation for careers in the economically integrated commercial poultry industry.

**AN SC 311 Poultry Production and Management (4)**

Poultry Production and Management will provide a comprehensive review of the business-related and production oriented concepts associated with modern commercial poultry production. The course will provide the student with an overview of poultry nutrition, physiology, genetics, health, welfare, and products and describe how these disciplines integrate with effective and efficient management, quality control, and marketing of poultry and poultry products. Additional emphasis will be given to the economics of poultry production, as well as current issues and challenges facing the industry. Throughout the course, students will be provided with experiential learning opportunities and will be required to use this knowledge to solve problems and to evaluate "real world" production scenarios in order to develop effective management and production skills.

Having completed this course, students will be able to:

1. Describe and evaluate the key operational and management factors in a commercial broiler, egg-layer, and turkey operation.
2. Describe and understand the important business, environmental, food safety, and welfare issues and challenges facing the poultry meat, and egg industries in Pennsylvania, the nation, and the world.
3. Critically evaluate poultry business and production scenarios to provide a fact based analysis and recommended course of action for solving management or production problems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: AN SC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 311 Poultry Production and Management (3)** The application of fundamental concepts and preparation for careers in the economically integrated commercial poultry industry.

**AN SC 311 Poultry Production and Management (4)**

Poultry Production and Management will provide a comprehensive review of the business-related and production oriented concepts associated with modern commercial poultry production. The course will provide the student with an overview of poultry nutrition, physiology, genetics, health, welfare, and products and describe how these disciplines integrate with effective and efficient management, quality control, and marketing of poultry and poultry products. Additional emphasis will be given to the economics of poultry production, as well as current issues and challenges facing the industry. Throughout the course, students will be provided with experiential learning opportunities and will be required to use this knowledge to solve problems and to evaluate "real world" production scenarios in order to develop effective management and production skills.

Having completed this course, students will be able to:

1. Describe and evaluate the key operational and management factors in a commercial broiler, egg-layer, and turkey operation.
2. Describe and understand the important business, environmental, food safety, and welfare issues and challenges facing the poultry meat, and egg industries in Pennsylvania, the nation, and the world.
3. Critically evaluate poultry business and production scenarios to provide a fact based analysis and recommended course of action for solving management or production problems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: AN SC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 315 Small Animal Health and Disease (3)** Introduction to the principles of small animal health, including the recognition, prevention and control of common small animal diseases.

**AN SC 315 Small Animal Health and Disease (3)**

Small animals play increasingly important roles in human lives. In addition to their function as pets, they serve the disabled; protect human well-being through the police, military and border inspection services; and act as research subjects for the development of medical and technological advances. Control of disease and promotion of animal health is important in all small animal industries and uses.

This course is designed to provide a basic background in the principles of health in small animal species (primarily dogs

and cats). Emphasis will be on the maintenance of a healthy animal system, including the recognition, prevention and control of the most common small animal diseases.

Because of the increasing amount of information available to all people through the internet and media, students will be given tools to understand basic medical terminology and will practice reading and interpreting scientific research. In addition, the importance of animal disease on public health will be addressed.

Diagnosis and treatment of disease will only be covered in a general, illustrative fashion. This course is not intended to train students in the diagnosis and treatment of specific diseases, but rather to recognize the conditions and factors which encourage disease, but rather to recognize the conditions and factors which encourage disease spread and to understand how to control and rectify those situations.

Because of the varied situations in which small animals function, a primary objective will be to be able to apply the principles of animal health and disease prevention to varied facets of the small animal industry (e.g. private ownership, veterinary medicine, shelter work and management, service animal breeding/training, biomedical and nutritional research).

This course is designed for students planning to work in or having a special interest in the small animal industry, including veterinary medicine, the pet food and pet products industry, the working dog industry, live animal sales, pharmaceutical sales, and research.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: MICRB 106 or MICRB 201 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 317** Horse Handling and Training (3) Responses of horses to various stimuli during the training period. Laboratory exercises involve extensive practice with young horses.

### **Horse Handling and Training (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AN SC 327 and approved level of horsemanship

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 322** Principles of Animal Breeding (3) The fundamental principles of genetics as applied to breeding farm animals.

### **Principles of Animal Breeding (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 322H** Principles of Animal Breeding (3) The fundamental principles of genetics as applied to breeding farm animals.

### **Principles of Animal Breeding (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 324** Value Determination of Meat Animals (3) Live animal and carcass evaluation of cattle, sheep, and swine to determine value of market animals and meat products.

### **Value Determination of Meat Animals (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**AN SC 327** Horse Production and Management (3) Principles of selection, breeding, feeding, management, and marketing of horses; emphasis on light horses.

**Horse Production and Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AN SC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 350** Dairy Problem Solving (2) Students will use dairy records to analyze herd performance in order to identify bottlenecks for higher productivity.

**AN SC 350 Dairy Problem Solving (2)**

This course will develop case based approaches to problem solving using dairy records. Students will learn to read and interpret dairy herd improvement herd summaries. Herd performance will be benchmarked against parameters from similar herds across the Northeast in order to identify production bottlenecks. Popular dairy herd management software will be used to analyze bottlenecks more completely. Additionally, the use of herd management software to record cow health events and set up management routines will be demonstrated. Classes will include in depth analysis of nutritional, reproductive, culling, genetic and milking management parameters as they relate to the dairy enterprise. In addition, economic and fiscal management will be presented as it relates to various aspects of the dairy industry.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: or concurrent: AN SC 310

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 395** Animal Science Internship (1-12) Supervised field experience and study related to the student's major professional interest. Written and oral critique of activity required.

**Animal Science Internship (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: Animal Sciences majors; 6 credits in major plus approval of proposed assignment by instructor prior to advance registration deadline in semester preceding the semester in which the assignment is to be completed

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 405** Advanced Canine Nutrition and Management (3) Application of biological principles to the care and nutrition of dogs; interactive discussions of contemporary nutrition and management issues.

**AN SC 405 Advanced Canine Nutrition and Management (3)**

Animal Science 405, Advanced Canine Nutrition and Management, is a 3 credit senior-level course emphasizing the application of biological principles to the proper care and nutrition of dogs. Students scheduling this course must first complete a junior level course in companion animal care and nutrition. Course objectives are to a) develop an appreciation for the role and importance of the dog in contemporary society; b) develop skills in formulating sound management plans for the selection, breeding, feeding, training, and health care of the dog; and c) encourage independent student thought, written communication, and oral communication of topics related to the care and management of canines. AN SC 405 is one of several "capstone" advanced management courses offered by the Department of Dairy and Animal Science for students with intensive interest in various animal species.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: AN SC 305 or permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 407** Advanced Horse Management (3) Detailed study of anatomy and physiology of the horse as related to nutrition, reproduction, athletic ability, unsoundness and control of diseases and parasites. Detailed discussion of management practices, facility design and contemporary issues.

**Advanced Horse Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: AN SC 327

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 410** Advanced Dairy Herd Management (4) Application of dairy herd management principles using case studies and actual dairy farm situations.

**Advanced Dairy Herd Management (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: AN SC 310

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 413** Transgenic Biology (3) The principles and concepts used to generate genetically engineered animals by pronuclear, knockout, and cloning methods; and applied biotechnology applications.

**AN SC 413 Transgenic Biology (3)**

The Transgenic Biology course is offered each spring semester for those students interested in learning the concepts, principles, and applications of genetic engineering in animals. The mouse is used as a model system, but the discussion encompasses large animals and commercial applications. Techniques covered are pronuclear, embryonic stem, and somatic-nuclear transfer generated animals. Content also includes the use of morpholinos and RNAi use to "knockdown" gene expression. Other systems discussed are Zebrafish and Xenopus as well as gene analysis by mutagenesis and gene trapping. The course objectives are (1) to provide the student with a working knowledge of the processes involved in functional analysis of gene expression using model animal systems and (2) to give the student understanding for the

practical aspects of generating transgenic animals including microinjection, screening, breeding, and phenotypic analysis. Students are typically evaluated using several parameters including exams, presentations of current journal articles, abstracts of current journal articles, and a paper dealing with an aspect of transgenesis in the student's field of interest.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: B M B 211 orBIOL 230W andAN SC 322 orBIOL 222

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 415 Companion Animal Behavior (3)** Detailed study of companion animal behavior; including individual, developmental, and environmental bases of behavior with applied demonstration and discussion.

### **Companion Animal Behavior (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: BIOL 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 417 Horse Judging (2)** Evaluation and selection of halter and performance horses, and presentation of oral reasons.

### **AN SC 417 Horse Judging (2)**

Animal Science 417 encompasses all of the information necessary for students to pursue competencies in horse evaluation. From external parts and evaluation of conformation of halter horses, rail and pattern classes, to special classes (trail, pleasure driving, etc.) students will expand the depth and breadth of knowledge for evaluating classes of stock-type horses. Following successful completion of AN SC 417, students will be eligible to compete for a position on the Penn State Intercollegiate Horse Judging Team (AN SC 426 Advanced Judging and Selection). Students who elect to take AN SC 417 and AN SC 426 will fulfill the writing and speaking skills requirement for the Animal Science major. Furthermore, this course serves as an elective for students outside of the major, Animal Science, who are enrolled in the Equine Sciences minor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: AN SC 217

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 418 (AGECO 418, SOILS 418) Nutrient Management in Agricultural Systems (3)** Comprehensive review of nutrient flow in animal agricultural systems, environmental regulations, and environmental stewardship practices.

### **AN SC (AGECO/SOILS) 418 Nutrient Management in Agricultural Systems (3)**

Nutrient Management in Agricultural Systems is a senior level course that applies the fundamentals of animal and plant, sciences to the concept of a nation-wide food animal system. The regional concentration and consolidation of animal production enterprises has resulted in important economic savings for consumers. But these changes have also had some detrimental impacts on the environment. For example, some nutrients such as calcium and phosphorus and certain trace elements are mined, while others such as nitrogen and potassium are derived from crop production systems. In all cases, the nutrients are transported to areas of livestock concentration. A small portion of the nutrients leave the farm in the form of animal products, while 60 to 70% of the nutrients are excreted and applied to nearby crop land. The environmental implications of the net influx of these nutrients to livestock producing communities have only recently been recognized. These concepts will provide the background around which regulations are written and sound nutrient management strategies are developed and implemented.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 419W Applied Animal Welfare (3)** Assessment of management practices impacting animal welfare; devoted to livestock species, companion animals, captive exotic species, and animals in research.

### **Applied Animal Welfare (3)**



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AN SC 201 or 6 credits of biology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 420** Animal Nutrition and Feed Technology (4) Feedstuff evaluation, quality control, handling, storage: life cycle feeding of beef cattle, dairy cattle, sheep, swine, horses, and poultry.

**Animal Nutrition and Feed Technology (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AN SC 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 421** Poultry Evaluation and Selection (2) Introduction and application of standards and principles used to evaluate live poultry and poultry products.

**Poultry Evaluation and Selection (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 422** Dairy Cattle Evaluation and Selection (3) Methods used in evaluation of production and type traits and their role in selecting dairy breeding stock domestically and internationally.

**Dairy Cattle Evaluation and Selection (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AN SC 322

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 423** Comparative Physiology of Domestic Animals (3) A comparative approach to understanding body function in domesticated avian and mammalian species.

**Comparative Physiology of Domestic Animals (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 424** Livestock Breeding Evaluation and Selection (3) Evaluation and selection of beef cattle, sheep, swine, and horses; critical analysis of performance records and genetic evaluations.

**Livestock Breeding Evaluation and Selection (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: AN SC 324

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 425** (VB SC 425) Principles of Avian Diseases (3) Principles of pathogenesis and control of diseases in poultry and

other avian populations. Case material used where appropriate.

**AN SC (VB SC) 425 Principles of Avian Diseases (3)**

This course discusses the major diseases of domestic poultry, with etiology, prevention, and treatment reviewed on each disease. Since many of these diseases also affect wild birds and pet birds these are also reviewed. Lastly, avian disease with zoonotic (human public health) potential are also discussed in the course. This course is required by those seeking a poultry minor.

Previous coursework in pathogenic microbiology is beneficial.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AN SC 201BIOL 110 4 credits in microbiology and 3 credits of anatomy and/or physiology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 426** Advanced Judging and Selection (2 per semester, maximum of 4) Development of critical thinking and communication skills through evaluation and selection of animals and animal products.

**Advanced Judging and Selection (2 per semester, maximum of 4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AN SC 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 427** Milk Secretion (3) Development and physiology of the mammary gland and factors which affect the amount and composition of milk produced.

**Milk Secretion (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: AN SC 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 429** Advanced Beef Cattle Production (3) Application of scientific and business principles to practical production and management issues using case studies or selected live settings.

**AN SC 429 Advanced Beef Cattle Production (3)**

This course was developed to train students to critically evaluate management, facility, and husbandry practices of working beef cattle operations. Students visit owner facilities where they gather necessary information by interacting with the owners and inquiring about the owner's practices. The students use knowledge gained through previous courses and material covered in class to make recommendations. The students work in teams to present to the owners possible solutions to their problems. Each team will present a 30 minute critical evaluation of each case study with the owners being present. Students interact and answer questions concerning their presentation from the owners, students, and faculty. Students are introduced to the NCBA and Cattle FAX which they can use to stay abreast of beef industry concerns after completion of the class. If available, a field trip to either national or Pennsylvania state agriculture offices will occur.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AN SC 309

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 431W** Physiology of Mammalian Reproduction (4) Physiological processes of reproduction in animals, including the use of current and emerging technologies.

**Physiology of Mammalian Reproduction (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: 3 credits in animal physiology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 432 Techniques in Cattle Reproduction (1)** Demonstration and practice in cattle artificial insemination technique and semen handling. Instruction in reproductive systems anatomy, estrous cycle and estrus synchronization programs.

#### **AN SC 432 Techniques in Cattle Reproduction (1)**

This course provides instruction in the technique of artificial insemination and the associated applications of this technology. A minimum level of expertise in this technique will be achieved through an understanding of cattle reproductive system anatomy, the estrus cycle and estrus synchronization programs. There will be a significant amount of time spent practicing artificial insemination technique in cows. This will be accompanied by instruction in semen handling and the proper use of the equipment used to store semen and to inseminate a cow. Evaluation will be based on proficiency in artificial insemination technique and semen handling in addition to a written exam. This course is offered during the fall semester by appointment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: AN SC 309 or AN SC 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 432 Techniques in Cattle Reproduction (1)** Demonstration and practice in cattle artificial insemination technique and semen handling. Instruction in reproductive systems anatomy, estrous cycle and estrus synchronization programs.

#### **AN SC 432 Techniques in Cattle Reproduction (1)**

This course provides instruction in the technique of artificial insemination and the associated applications of this technology. A minimum level of expertise in this technique will be achieved through an understanding of cattle reproductive system anatomy, the estrus cycle and estrus synchronization programs. There will be a significant amount of time spent practicing artificial insemination technique in cows. This will be accompanied by instruction in semen handling and the proper use of the equipment used to store semen and to inseminate a cow. Evaluation will be based on proficiency in artificial insemination technique and semen handling in addition to a written exam. This course is offered during the fall semester by appointment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: AN SC 309 or AN SC 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 437 (AEE 437) Equine Facilitated Therapy (3)** Equine Facilitated Therapy uses equine-related activities to contribute positively to the wellbeing of people with disabilities.

#### **AN SC (AEE) 437 Equine Facilitated Therapy (3)**

The primary goal of this course is to acquaint the participant to equine facilitated therapy (therapeutic riding) and to introduce them to individuals who benefit/participate in such programs through lecture, audio-visual media, discussions, program visitation, independent research and via a practicum at a therapeutic riding program. Additionally, this course is designed to introduce the participant to various exceptional characteristics and conditions, which may benefit from exposure/participation in equine facilitated therapy and other animal related therapy programs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: AN SC 327

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 447 Applied Equine Behavior (3)** Theory and application of behavior principles as they apply to horses in free-running and domestic situations.

#### **AN SC 447 Applied Equine Behavior (3)**

Applied Equine Behavior is an advanced course in equine science that examines the behavior of horses in free-running

and domesticated situations. Outcome-based course objectives are as follows: 1) develop a working repertoire of behavior terminology and principles particularly as they apply to the horse; 2) apply critical thinking skills toward understanding and predicting behavior in horses under intensive management as it is modified from instinctive behavior seen in free running horses; 3) critically analyze and compare various training theories; 4) develop a new expertise in careful observation and analysis of behavior; 5) practice communication skills and increase information literacy, particularly in the study of behavior.

This course presupposes previous coursework in equine science or biology and complements other courses such as horse production and management, animal behavior/sociobiology, physiology, and genetics. Applied Equine Behavior is [will be] a supporting course for the Animal Science Major. Students will be able to make full use of the University horse herd and available data recording and analysis instruments and software.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AN SC 201AN SC 327 and fifth-semester standing; or fifth-semester standing and six credits in biology; or permission of the instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 450 Dairy Farm Management Systems (3)** Capstone course emphasizing integration of dairy farm management principles into whole farm systems.

### **Dairy Farm Management Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: AN SC 310AN SC 350AN SC 410 ; or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 451 Dairy Systems Analysis (1-2 per semester/maximum of 2)** Students will evaluate all systems of a working dairy farm business.

### **AN SC 451 Dairy Systems Analysis (1-2 per semester/maximum of 2)**

This course will provide an overview of all areas of dairy business management. This course is designed to complement the dairy production courses and is meant to train students to organize material in a farm evaluation format. Various instructors (within their areas of expertise) as well as industry experts and dairy producers will be utilized to provide students with current concepts in dairy management. Requirements of the course include working in teams to visit, evaluate and make a presentation about a dairy farm business including an action plan for improving the business.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AN SC 310 prerequisite or concurrent: AN SC 410

Concurrent: AN SC 450 prerequisite or concurrent: AN SC 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 457 Equine Reproduction and Breeding Farm Management (3)** Advanced aspects of equine reproduction will be covered, including collection of semen, processing it for shipment, and insemination of mares.

### **AN SC 457 Equine Reproduction and Breeding Farm Management (3)**

Equine Reproduction and Breeding Farm Management is intended to expand on the knowledge of equine reproduction and breeding farm management acquired in other classes. The students will get hands on experience in artificial insemination of mares and semen collection of stallions.

Having completed the course, students will be able to:

A. Collect semen from a stallion.

B. Assess seminal characteristics and process the chilled semen to be sent to another farm.

C. Artificially inseminate a mare.

D. Apply scientific principles to make the decisions necessary to manage an equine breeding facility. The information covered will include but not be limited to reproductive management of the mare and stallion, foaling, and neonatology.

Evaluation will typically be based on written tests, research and presentation of a selected topic, and laboratory attendance and participation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: AN SC 327

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 467W** Equine Nutrition and Feeding (3) Equine gastrointestinal anatomy and physiology; energy and nutrient requirements for body functions; applied interrelationships between nutrition, health, and performance.

**AN SC 467W Equine Nutrition and Feeding (3)**

AN SC 467W, Equine Nutrition and Feeding, is a 3 credit junior or senior-level course emphasizing the application of biological principles to the proper nutrition of horses. Students scheduling this course must first complete AN SC 301. Course objectives are that upon completion of the course, students should be able to a) Apply an understanding of form and function of the equine gastrointestinal tract to actual feeding management problems associated with athletic performance or health concerns; b) Describe the nutrient and energy requirements of horses in different physiologic states and apply these in diet evaluation and formulation; c) Communicate to clients, customers and peers important information about equine nutrition, enabling them to improve the health and performance of their horse without having to take a course on equine nutrition. Each student will complete a 3000 to 3500 word paper on how some aspect of nutrition might be applied to improve equine health or performance. The writing project will involve an oral presentation, multiple drafts and require students to review and provide feedback on each others' work. Students will be evaluated via a series of assigned homework, exams, class participation, and the overall writing project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AN SC 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 477** Riding Instructor Training (1) Management of equestrian riding lessons, teaching techniques, lesson plans, program planning, time management, and handling of mounted groups.

**AN SC 477 Riding Instructor Training (1)**

The Equine Riding Instructor Training course relates to teaching, equestrian skills, developing lesson plans, program planning, events coordination, staff management, time management, and handling of mounted groups from beginners to more advanced level riders. There are many opportunities for riding instructors in the equine industry throughout the United States. Career areas include breed associations, cooperative extension, and equine facilities/stables. This course will help give students the tools to be safer and better-prepared equine riding instructors. Successful completion of the course implies students will be able to: Conduct horse riding lessons at all horsemanship skill levels, understand safe horsemanship; manage large mounted equestrian groups; and develop appropriate lesson plans.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: AN SC 327 ; a demonstrable level of horsemanship

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 479** (BIOL 479) General Endocrinology (3) Endocrine mechanisms regulating the morphogenesis, homeostasis, and functional integration of animals.

**General Endocrinology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 141 orBIOL 472

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 496A** Animal Science Training Assistant (2) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Animal Science Training Assistant (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 496A** Animal Science Training Assistant (2) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Animal Science Training Assistant (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 496H** Animal Science Honors Independent Study (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Animal Science Honors Independent Study (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 497A** Natural Toxicants in Feedstuffs and Poisonous Plants: Effects on Animal Health and Productivity (3) An overview of plant toxicants and mycotoxins in cereal grains, roots and tubers, protein supplements, grain legumes, and forages, and the adverse effects that they cause when consumed by animals. Emphasis will be placed on the occurrence and chemical nature of plant and fungal toxins, their mechanism of action and metabolism, the pathological effects that they produce in livestock, poultry, and companion animals, and strategies to overcome their toxicity.

**Natural Toxicants in Feedstuffs and Poisonous Plants: Effects on Animal Health and Productivity (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 499 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AN SC 499C (IL)** Normandy France Equine Industry Studies (0.5) Students will explore/compare United States and French Equine Industry. Topics will include breeding, training, trade issues, agricultural trade policy, animal welfare, animal health and research, marketing equestrian event management, and farm management.

### **Normandy France Equine Industry Studies (0.5)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: AN SC 499B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Anthropology (ANTH)**

**ANTH 001 (GS;US;IL)** Introductory Anthropology (3) Prehistoric and traditional peoples and cultures; traditional customs and institutions compared with those of modern society.

### **Introductory Anthropology (3)**

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 002 (GS)** Introduction to Archaeology (3) Survey of basic approaches used by archaeologists to interpret basic prehistoric human cultural patterns.

### **ANTH 002 Introduction to Archaeology (3) (GS)**

**(BA) This course meets the Bachelor of Arts degree requirement.**

Introduction to Archaeology is designed to introduce the basic theories, methods, and data archaeologists use to study ancient peoples, past cultures, and their natural environments. A problem-oriented approach to learning about archaeology combines two one-hour lectures with a one-hour, hands-on lab session each week. The theories and methods introduced in lectures are applied to archaeological data in the computer lab in order to answer questions about life in the past. Hands-on involvement is emphasized through the use state-of-the-art computers, archaeological software, and (where possible) the handling of archaeological collections. Grades for this course are based on two to three exams and the lab exercises.

The course may vary from this standard on other campuses depending upon the availability of computer labs and archaeological collections. However, the weekly lab exercises are available to all campuses from the Department of Anthropology. Students on all campuses will be expected to interact with each other and with the instructor in weekly discussions and exercises. They engage in data gathering, synthesis, and analysis, using exercises that make use of information on the internet as well as data provided by PSU archaeologists. The exercises emphasize human cultural diversity over time and space. There is also an emphasis on the ethics of archaeological research and the ways in which scientific choices and ethical choices interact in professional archaeology. The logical and ethical principles learned are applicable to a broad range of problems that students are likely to encounter in anthropology, in other disciplines, and later in their lives.

This course is one of three core courses required of majors in the Anthropology department and it is also required for the minor. ANTH 002 serves as a stepping stone to more advanced and specialized courses in anthropology. This course can be used to fulfill three credits of General Education in the Social/Behavioral Sciences for the Bachelor of Arts requirement.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 008 (GS;IL)** Aztecs, Mayas, and Incas (3) Comparative survey of the development of the pre-Columbian Latin American civilizations.

**ANTH 008 Aztecs, Mayas, and Incas (3)**  
(GS;IL)

**(BA)** This course meets the Bachelor of Arts degree requirements.

Anthropology 008 is a general survey of three great New World civilizations - the Aztecs and the Maya of Mesoamerica (southern Mexico and northern Central America), and the Inkas of the Central Andes of South America. Both the Aztec and the Inka empires were thriving in the 16th century when Europeans arrived, and are known in almost ethnographic detail from oral and written records. Maya civilization matured much earlier --- between AD 250-900, and is known primarily through archaeological research, but also through the lens of the New World's only sophisticated writing system. Course information emphasizes the nature of these societies, analysis and interpretation of their basic institutions, their religions and world views, and their culture histories. Central to the presentation is the degree to which modern Latin American cultures and populations have deep cultural and biological roots in the Precolumbian past, and many ethnographic models are discussed. Within the context of each segment sociological concepts such as "institution", "household", "stratification", "political economy", "urbanization", and a host of others are used as organizing features. Issues of gender, ethnicity, and class structure are also discussed.

At the end of each semester, time permitting, issues such as the peopling of the Americas, the origins of agriculture, and some of the spectacular pre-Aztec cultures of Mesoamerica are also reviewed.

Specific examples of how archaeologists design and carry out research are included, including several in which members of the Anthropology Department have been involved. In addition to lectures, much visual material will be presented, including telecourse programs recently produced under the direction of Anthropology Department faculty.

Evaluation will consist of 3-6 museum or web-based writing assignments worth 15-30% of the grade. There will be two mid-term examinations and one final examination worth 70-85% of the grade. Although this is a large course, exams are hand-written and graded, and require a mix of objective and subjective responses. Each exam has an essay component. This course serves as a useful precursor to Anth. 422 (Mesoamerican Ethnography and Archaeology), Anth. 424 (Andean Ethnography and Archaeology), Anth. 456 (Cultural Ecology), and has a companion course on the Old World--Anth. 009--and the two are often taken as a linked pair by students. Anth. 008 also prepares students for courses in other departments where broad-based comparisons of ancient civilizations or archaeological methods are of concern. This course can fulfill elective credits for anthropology majors and minors. Anth 008 also may be used to fulfill three credits of General Education in the Social/Behavioral Sciences for the Bachelor of Arts requirement or three credits of Other Cultures in the Social/Behavioral Sciences for the Bachelor of Arts requirement. It can also serve as three credits toward the university requirement for United States and International Cultures Competence.

General Education: GS  
Diversity: IL  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 009 (GS;IL)** Rise of Civilization in the Old World (3) Evolution of Old World complex societies, especially the first great civilizations of Mesopotamia, Egypt, China, and the Indus Valley.

**ANTH 009 Rise of Civilization in the Old World (3)**  
(GS;IL)

**(BA)** This course meets the Bachelor of Arts degree requirements.

ANTH 009 is an introductory anthropology course with several major themes and purposes. Most fundamental are the origins and development of the earliest complex human societies - what we conventionally call civilizations - in the Old World, namely those of Mesopotamia, Egypt, the Indus Valley, and China. Course information emphasizes the nature of these societies, analysis and interpretation of their basic institutions, their religions and world views, and their culture histories. Within the context of each segment sociological concepts such as "institution", "household", "stratification", "political economy", "urbanization", and a host of others are used as organizing features. Issues of gender, ethnicity, and class structure are also discussed, and much information is presented in weeks 2 and 3 that is pertinent to an understanding of human biological variation and our cultural attitudes toward it, with obvious implications for issues of race.

The course is much broader, however, in that it attempts to place the emergence of these ancient civilizations into the



overall perspective of the larger evolutionary career of the human species in the Old World, including human biological and cultural evolution during the later stages of the Paleolithic, the origins and spread of early agriculture, etc. During the first part of the course there is also a series of introductory lectures designed to inform students about what archaeology is and how prehistoric archaeologists carry out scientific research to reconstruct and explain what happened in the past. A great deal of emphasis is placed on ideas, concepts, and theories used by anthropological archaeologists to design and interpret their research and to explore not only what happened in the past, but to develop ideas about why things happened as well. Also included are lectures about archaeological finds or issues that have been particularly well publicized and about which students often express considerable curiosity. The main objectives are a) to expose students to a series of historically significant non-modern, non-Western societies and cultures using overtly evolutionary, behavioral, and sociological perspectives; b) to enlighten students concerning the kinds of extant information are available for these societies, how research is designed to acquire new data, and how scholar's interpret these data, and c) to stress the nature of the agrarian human condition out of which modern societies so recently emerged, and under which people in many developing societies still live. Central to the latter are issues of subsistence agriculture and human demography.

Central to ANTH 009 are comparisons among several great Old World civilizations, comparisons with other world civilizations and cultures, and comparisons with modern society. Also inherent in the course are extensive discussions of geographic and ecological variation and human adaptation to both. The very deep time depth exposes students to societies very different from our own, including social and cultural forms that have no direct analogs in the modern world. A final intent is to make students understand basic concepts such as biological and cultural evolution, as well as a host of more restricted ones, such as "institution", "household", "stratification", "political economy", "urbanization", and a host of others that are all used to organize presentations. Issues of gender, ethnicity, and class structure are also discussed. Evaluation will consist of 3-6 museum or web-based writing assignments worth 15-30% of the grade. There will be two mid-term examinations and one final examination worth 70-85% of the grade. Although this is a large course, exams are hand-written and graded, and require a mix of objective and subjective responses. Each exam has an essay component. This course parallels ANTH 008, its New World counterpart. It serves as a useful precursor to ANTH 456 (Cultural Ecology), and also for courses in other departments where broad-based comparisons of ancient civilizations or archaeological methods are of concern, or where (as in CAMS) more specialized courses in Egyptian archaeology, etc., are offered.

General Education: GS

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 011 (GS;IL)** Introductory North American Archaeology (3) Introduction to archaeology of the North American Indians; sites, methods, and results of research interpreted in cultural history.

#### **Introductory North American Archaeology (3)**

General Education: GS

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 021 (GN)** Introductory Biological Anthropology (3) The role of human biology and evolution in culture, society, and behavior.

#### **ANTH 021 Introductory Biological Anthropology (3) (GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

"Introduction to Biological Anthropology" is designed to present to the student the basic principles and findings of human population biology. To that end, the instructors review data on biological variability among contemporary human populations and among the extensive fossils that document human evolution. Comparison between human and nonhuman animals, particularly, the surviving nonhuman primates, provides an essential "Zoological Perspective" by which we can understand the origins and evolution of humankind on this planet. The single unifying concept in biological anthropology is evolution. In this course, the student will be introduced to the mechanisms underlying evolution and their application to past and present human populations. Evolutionary biology emphasizes the similarity between closely related forms, for example, chimpanzees and humans share more traits in common than do dogs and humans, because they have a more recent common ancestor. It also underscores the diversity among individuals in a population, for example, despite being members of the same species, all humans are biologically unique. The process of evolution accounts for both the similarities and the differences within and between populations. It is therefore the theory of evolution that will organize the diverse content of this course. There are two lectures per week. In addition, there is a weekly practicum class where the student explores material presented in lectures as well as learns new information. Exercises and hands-on demonstrations help the student understand the principles and findings of biological anthropology. Brief written practicum exercises often based on team projects foster interactive learning. Grades are based on three examinations and practicum exercises. This course is one of three core-courses required of majors and minors in the Department of Anthropology. The course can be used to fulfill three credits of General Education in the Natural Sciences. Students can

expect to acquire a general introduction to the University as an open community of researchers and scholars who attempt to describe accurately, and hence understand, "The Human Condition." Students in this class will therefore have the opportunity to explore their responsibilities as members of an intellectual community of free inquiry. This course offers the student the opportunity to develop intellectual relationships with faculty, graduate students and fellow classmates who share similar academic interests in biological anthropology and related fields of inquiry.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 022 (GN) Humans as Primates (3)** The biological basis of human behavior within the context of primate biology, behavior, and evolution.

**ANTH 022 Humans as Primates (3)  
(GN)**

Humans as Primates is intended to introduce the student to the biological bases of human anatomy and behavior by drawing comparisons to the behavior and biology of our closest living relatives, the non-human primates. The principal goal of the course is to critically evaluate arguments concerning what uniquely makes us human and the role of genetics, environment, and evolutionary history on the development of human behavior and anatomy. The course will draw heavily on studies of living non-human primates as well as evolutionary theory, paleontology, and psychology to address issues such as human growth and development, diet, human variation, communication, intelligence, reproduction, aggression, and culture. Humans as Primates is divided into four main thematic units each designed to present a set of related lessons exploring the role of biology in various aspects of human life. The first unit provides the foundation for the course by introducing the place of humans in the natural world. This unit presents a survey of living primates and their relationship to humans as well as an overview of evolutionary processes and human evolution. The other units present topics in human biology, communication, and social behavior focusing specifically on topics of importance to current events and aspects of popular culture and modern life. This course should be of significant interest to students in a diversity of disciplines including the biological and social sciences as well as anyone interested in human behavior. The course will rely on readings from the scientific and popular literature and will present information using a variety of formats including images, movies, and interactive activities. Students will be evaluated with a combination of frequent online quizzes, individual assignments, participation in online discussions. The course can be used to fulfill three credits of General Education in the Natural Sciences. As such this course will help students understand how scientific information from a variety of disciplines can be used to investigate and understand human biology and behavior. The course will introduce the student to methods of data collection and analysis, foster critical thinking skills, and provide a rich background for understanding human diversity, human biology, and behavior. Students will have the opportunity to synthesize information from a broad range of disciplines to develop a fuller understanding of the biological basis of human behavior.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 040 Biocultural Evolution (3)** Examination of evolutionary models of the development of the human capacity for culture, and of culture as an adaptive mechanism.

**Biocultural Evolution (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 040H Biocultural Evolution (3)** Examination of evolutionary models of the development of the human capacity for culture, and of culture as an adaptive mechanism.

**Biocultural Evolution (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 045** (GS;US;IL) Cultural Anthropology (3) Beginnings of human culture; economic life, society, government, religion, and art among traditional peoples.

**ANTH 045 Cultural Anthropology (3)**  
**(GS;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

"Cultural Anthropology" is designed to introduce the student to the cultural diversity of our planet. "Culture" can be defined as that set of rules, standards, conventions, and beliefs shared by members of a given human society. These rules are transmitted by social learning. Culture defines what counts as "normal" thought and behavior by the members of a given society. The course will provide the student with an understanding of the basic methods, data and, theories that cultural anthropologists use to study the varieties of human thought, behavior, and social life in their associated physical and social environments. A weekly recitation section allows the students to discuss material presented in lectures as well as to engage in independent research projects. These projects involve individual and group research based upon library and computer-based resources and further foster interactive learning. Teamwork is an essential aspect of both research and presentation of recitation section work. Oral presentations and written papers are stressed. Recitation discussions in cultural anthropology emphasize inter-cultural understanding. Grades are based on three examinations and recitation exercises.

This class is one of three core-courses required of majors and minors in the Department of Anthropology. The course can be used to fulfill three credits of General Education in the Social/Behavioral Sciences for the Bachelor of Arts requirement. Students can expect to acquire a general introduction to the University as an open community of researchers and scholars who attempt to describe accurately, and hence understand, "The Human Condition." Students in this class will therefore have the opportunity to explore their responsibilities as members of such an intellectual community of free inquiry. In addition, students will develop first-hand knowledge of the learning tools and resources available to them at Penn State including the ever-expanding Web-based Internet. This course offers the student the opportunity to develop intellectual relationships with faculty and fellow classmates who share similar academic interests in cultural anthropology and related fields of inquiry. "Cultural Anthropology" is offered every semester, including the summer session.

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 045U** (GS;US;IL) Cultural Anthropology (3) Beginnings of human culture; economic life, society, government, religion, and art among traditional peoples.

**Cultural Anthropology (3)**

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 060** (GS;IL) (J ST 060, PL SC 060, SOC 060) Society and Cultures in Modern Israel (3) An introduction to the society and cultures of the State of Israel from 1948 to the present.

**ANTH (J ST/PL SC/SOC) 060 Society and Cultures in Modern Israel (3)**  
**(GS;IL)**

This course will review the social, cultural, and political systems in the State of Israel as they have developed and changed since its inception in 1948. The role of immigration, ethnicity, and religion on Israeli society and cultures will be explored along with the non-Israeli cultures that have helped to shape conditions there. The course will look into the diverse social and political institutions of contemporary Israel, examine the borders and geographic features of the region, and discuss who lives there, where they reside, and for which portions of this period. It will examine the wars and tensions between Israel and neighboring Arab states; the status of the Arab/Palestinian minority in Israel; and the growth of Palestinian nationalism. Social conditions in the State of Israel are the result of a unique history. Israelis have absorbed large numbers of immigrants from many parts of the world while engaged in ongoing political and military conflicts. Jewish settlers in Israel/Palestine revitalized a language (Hebrew) and developed unusual collectivistic institutions (e.g., the kibbutz). Israeli nationalism is founded both on secular and religious ideologies. It includes notions of a return from Diaspora and the desire for personal and collective redemption. The study of social processes such as these will provide an opportunity to consider the foundations and functions of nation-states and social systems generally. Materials will include selections from primary texts, official documents, novels, films, and ethnographic materials along with scholarly reviews and essays. Students will be exposed to materials produced from a variety of disciplinary and political perspectives. Through writing assignments, projects, and essay examinations, students will integrate, compare, and analyze these materials. The course complements offerings in Jewish Studies, Sociology, Anthropology, Political Science, and Middle East Studies and will

satisfy the IL requirement. It enables those in Jewish Studies to examine the roughly 30% of Jews who reside in Israel, builds upon a current course on Zionism, and provides context for the study of modern Hebrew. It offers an additional international alternative for students in Sociology and Political Studies and a topical area in cultural Anthropology. Students in Middle East Studies will find it worthwhile to study a nation with a significant impact on the region.

General Education: GS  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 083S (GS) First-Year Seminar in Anthropology (3)** This seminar introduces students to anthropology as a scientific discipline with ties to other social and natural sciences.

**ANTH 083S First-Year Seminar in Anthropology (3)**  
**(GS;FYS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This seminar introduces students to anthropology as a scientific discipline with ties to other social and natural sciences. Through active participation in the seminar, students will be exposed to an aspect of anthropology that corresponds to a faculty member's area of expertise. Because students are introduced to cutting edge research, the course content will vary from one semester to the next. Seminar topics highlight current debates in the discipline and the research process. Research design, analytical methods, and sampling issues are covered by having students read and discuss new and controversial developments in anthropology. Strong emphasis is placed on the broader societal significance of scholarly research related to the seminar's principal focus. Student comprehension of topics raised in class will be assessed by classroom participation, exams, and papers. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests. This seminar fulfills both a first-year seminar requirement and a general education sociobehavioral science requirement or Bachelor of Arts sociobehavioral science requirement.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 120 (GS;IL) First Farmers (3)** Cross-cultural comparison of the origins of plant and animal domestication and the earliest farming societies.

**First Farmers (3)**

General Education: GS  
Diversity: IL  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 146 (GS;US) North American Indians (3)** An introduction to the cultures of the indigenous peoples of North America, north of Mexico, and the effect of contact.

**North American Indians (3)**

General Education: GS  
Diversity: US  
Bachelor of Arts: Other Cultures and Humanities and Social and Behavioral Sciences  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 152 Hunters and Gatherers (3)** A comparative study of hunter/gatherer societies using both archaeological and ethnographic evidence.

**Hunters and Gatherers (3)**

General Education: None

Diversity: None  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Fall 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 197H** (RL ST 197H, HIST 197H) Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 216** (GN;GS) Sex and Evolution (3) Introduction to evolutionary theory and its application to understanding human sexuality and sex differences.

**ANTH 216 Sex and Evolution (3)  
(GN;GS)**

This course introduces students to evolutionary theory and explores its relevance to the anthropological study of human sexuality. After honing their evolutionary skills by investigating non-human reproduction, students will apply evolutionary principles to understanding human sexuality. Why do we prefer certain characteristics in a mate? How do these preferences differ between and within the sexes, and why? How do mating behaviors vary across cultures, and why are some more culturally variable than others? Other topics covered include sexual conflict and rape, and parental care and abuse. In understanding the evolutionary basis for a trait, it is helpful to understand its development. Thus, this course also covers the basics of sexual differentiation and investigates how variation in these processes might lead to variation in sexual orientation and gender identity. Students should take away not only a better understanding of human sexuality but also a way of thinking that helps them understand all living things.

General Education: GN;GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 218** (GN) Genes, Evolution and Behavior (4) This course explores how genes influence our traits and how our traits evolve, with special emphasis on behavior.

**ANTH 218 Genes, Evolution and Behavior (4)  
(GN)**

Genes, Evolution & Behavior is a science course designed to introduce students to modern genetics and explore the genetic and evolutionary bases for human and nonhuman primate traits, with special focus on behavior. In particular, students will investigate the main features of DNA, genomes, genes and how genetic variation can be associated with both rare Mendelian traits and common traits that vary continuously. That is, we will consider how some traits vary primarily due to genetic variants with relatively large effects, while other traits vary due to differences between individuals in many genes with small effects, along with environmental differences. Students will gain an understanding of human and nonhuman primate behavioral ecology and how the evolutionary forces of mutation, migration, genetic drift and selection shape behaviors and their underlying genes. The approach to the material will be both practical and personalized, as students will be invited to assay their own DNA for particular genetic variants and to measure some of the traits studied (e.g., facial features using 3d photos, voice pitch, skin color, and personality traits) on themselves. During the course of the semester, we will consider how various physical traits such as facial appearance, voice, bitter tasting ability, skin pigmentation, disease risks, and body odor, and behavioral/psychological traits such as diet, territoriality, cooperation, altruism, cognition, mating behaviors and parenting are influenced by genes and shaped by the forces of evolution. Numerous hands-on experiments will be used to help students to visualize the sometimes-abstract methods and concepts occurring on unfamiliar scales of time and size. Students should come away from the course with a basic understanding of modern genetics, how genes influence the characteristics of organisms, and how anatomy, physiology, behavior and their underlying genes evolve. This course has a lab component and thus fulfills lab requirements, as well as serving toward the major and minor in Anthropology.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 220 (GA;GH;IL)** Anthropology and Art/facts (3) This course examines anthropological approaches to the study of art works, their production, and function in diverse human societies, both past and present.

**ANTH 220 Anthropology and Art/facts (3)**  
**(GA;GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the ways in which the discipline of anthropology has used art and artistic production as an interpretive lens, as a means to understand past human action, cultural behaviors and ancient societies as a whole. To take up this topic, the course is divided into five distinct units allowing a thematic and comparative analysis of a variety of human societies. We will critique the conceptual divide between "art" and "artifact," focusing on long-standing assumptions about philosophies of aesthetics, derived primarily from early modern European (Renaissance) notions of "art." Geographically, the course content has a global reach, but primarily focuses on the artistic production of the Americas, Africa and Oceania, challenging the label of 'primitive' that has historically been applied by modern Western approaches. During the course of the term, we will conduct analyses aimed at elucidating how scholars have used the interpretation of art objects to better understand the complexity of human experience, specifically in regards to categories such as gender, kinship, social hierarchy and cosmology. Each class meeting will consist of a lecture and also a discussion component, primarily focusing on the assigned readings to ensure complete comprehension and relevancy. Students will be evaluated on essays and exams. This course will satisfy general education requirements and provide a base for other courses in anthropology, art history, museum studies and history.

General Education: GA;GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 221 (GS;IL)** The Ancient Maya (3) The Maya and their neighbors: Origin and Evolution of Classic Maya civilization.

**ANTH 221 The Ancient Maya (3)**  
**(GS;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Great civilizations emerged independently in several parts of the world beginning about 5500 years ago. Most students have had some exposure to the great Old World civilizations (Mesopotamia, Egypt, China), but know comparatively little about their counterparts in the New World. Among these the Classic Maya (AD 250-900) are by far the most familiar, and are heavily featured in popular culture. Many students have (or will) visit Maya sites as tourists, and be impressed by the flamboyant archaeological remains of these ancient people. Despite their visibility, The Maya are widely misunderstood and heavily sensationalized. ANTH 221 will trace the development of Maya culture from about 9000 BC to its eventual conquest by the Spaniards in the 1540s. Most important will be the Classic Maya interval, when Maya civilization achieved unparalleled heights in architecture, art, astronomy, mathematics, and writing. The Maya were participants in a much

wider tradition of complex civilization in the region archaeologists call Mesoamerica, and several lectures will place them in this more general context. Much content of this course will come from research done by members of the Anthropology Dept. We have had a very long tradition of Mesoamerican/Maya research since the early 1960s and our department has heavily influenced both the study of Mesoamerican studies and complex cultures in general. These have proved to be very durable themes and have been at the heart of our department's success for almost a half century. This course will fulfill basic BA and GenEd requirements (GS, IL). It may also be used to fulfill an ANTH, ARSCI, and BANTH additional ANTH course requirement.

General Education: GS

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2012

Prerequisite: any anthropology course on 100 level or below

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 222 (GS;IL) Archaeology of Domesticated Animals (3)** Biological, ecological and cultural history of animal domestication.

**ANTH 222 Archaeology of Domesticated Animals (3)**  
(GS;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Animals were domesticated in a variety of places throughout the world beginning about 12,000 years ago, fundamentally shifting human-animal relationships. Most students have had some exposure to domesticated animals, particularly family pets such as dogs or cats, and some farm animals commonly found in the US. Yet few students know much about the biological, ecological, and cultural history of these animals, the contexts and timing of their domestication, the changing economic and cultural significance of individual species through time, nor economically and culturally important animals in other parts of the world.

ANTH 222 will trace the history of domestication of key species: sheep, goat, cow, water buffalo, yak, pig, llama, alpaca, guinea pig, chicken, dog, cat, elephant, camel, horse, donkey, and mule. Emphasis is placed on the biology (genetics, morphology, wild progenitors, ecological niche, breeds) in concert with the cultural contexts in which domestication occurred. Furthermore, students will explore a range of human-animal relationships in regard to these domesticates with examples from archaeology, ethnography, modern US society, and history. This class discusses animals as food, raw materials, wealth, labor, and companions, as well as their economic, social, religious, and environmental impacts in different cultural and ecological settings.

General Education: GS

Diversity: IL

Bachelor of Arts: Natural Sciences and Social and Behavioral Science

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 223 (GS;IL) European Prehistory (3)** The prehistory of European societies from the Upper Palaeolithic to the Iron Age.

**ANTH 223 European Prehistory (3)**  
(GS;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This class explores the archaeological record of human societies in Europe from the Upper Palaeolithic to the Iron Age, spanning a 40,000-year period. Many archaeological sites, such as Stonehenge, are widely known but often misunderstood or sensationalized. ANTH 223 will trace the history of humans in Europe and provide the cultural, chronological, and environmental contexts to understand these places on the landscape. The class explores the extinction of Neanderthals and Pleistocene animals, the origins of art, the transition to agriculture, the beginnings of metallurgy, and the rise of complex societies. Emphasis is placed on the evidence for subsistence and production, funerary rites, changes in settlement, production of art, symbolism, the role of technology, and emergence of social hierarchies. The course introduces students to archaeological and anthropological concepts by viewing cultural groups in ecological and social context, and highlighting the variability of human adaptations to shifting climates and natural and social environments. This course will fulfill basic BA and GenEd requirements (GS, IL). It may also be used to fulfill an ANTH, ARSCI, and BANTH additional ANTH course requirement.

General Education: GS

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Summer 2013

Prerequisite: 3 credits in 100 level or below ANTH course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 241 (IL) Peoples and Cultures of Highland New Guinea (3)** History, ecology, social, economic, religious, and political systems of the aboriginal peoples and cultures of highland New Guinea.

**ANTH 241 Peoples and Cultures of Highland New Guinea (3)  
(IL)**

This course will introduce students to the cultural systems of highland New Guinea, an area that became known to the outside world as recently as the 1930s. When first contacted by Europeans, the million or so people living in the highlands of New Guinea used a stone tool technology, had no knowledge of the wheel, and lived in small, politically and economically autonomous local groups. They provided an example of a major population engaged in a way of life typical of human societies in a technologically simpler past. The study of these cultures affords students an opportunity to explore the processes through which these people have assimilated thousands of years of technological, political and economic innovation in a very brief period, while maintaining and recreating their cultural identity, despite the impact of colonial rule.

The course will complement other courses in Anthropology that deal with non-western cultural systems and with the effects of western colonization and modernization on native peoples and cultures. A prerequisite course in Anthropology 45 or Anthropology 001 will provide students with the general anthropological concepts that will enable them to understand more fully the particular cases explored in this course.

The course can be used to fulfill an Anthropology requirement in both the major and minor in general Anthropology, and will also provide students in other departments with the opportunity to study aspects of diverse, non-western cultures.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2007

Prerequisite: ANTH 001 or ANTH 045

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 260H (GN) Building the Human Animal (3)** An exploration of how the same genetic and developmental properties that shape animal evolution produced the unique human form.

**ANTH 260H Building the Human Animal (3)  
(GN)**

Building the Human Animal: How do animal bodies adapt to their environment? How is the shape of our bodies encoded in our genes, and how can the same genes be used to make animals as different as a fly and a human? How does evolution create such variety in animal forms? What are the evolutionary pressures that made us human? Can the origins of the human body be seen in less advanced animals? These are questions being asked and answered by the relatively new field of evolutionary and developmental biology (evo-devo). We will investigate these questions and learn how their answers help us better understand human evolutionary history. Readings will include excerpts from three classic and accessible popular science books in conjunction with articles from the primary literature. After a brief introduction into the broad field of Anthropology, we will learn how Darwin developed his theory of Natural Selection and show that evolution can actually be observed and tested in living organisms, such as the Galapagos finch. Next we will explore how genes are used to construct animals from single cells to the adult. We will find that similarities between humans and other animals run surprisingly deep. We will follow with a discussion of how these genetic, developmental, and selective pressures effected the evolution of our body from lowly fishes to the walking, large brained primates that we are. Finally, we will discuss how these exciting advances can be communicated to the general public through popular writing and multimedia museum exhibits. This course will consist of lectures and discussions of the readings.

General Education: GN

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 271H (GN) Parasites and Human Evolution (3)** Advance our understanding of human evolution by studying the ecologies and evolutionary histories of our parasites.

**ANTH 271H Parasites and Human Evolution (3)  
(GN)**

The goal of this course is to advance our understanding of human evolution by studying the ecologies and evolutionary histories of our parasites. Many of these parasites flourish only under very specific human behaviors and habitats, are



wholly dependent on us, and have evolved with us for thousands or millions of years. Therefore, by asking when and how we first acquired those parasites, under which environmental and cultural conditions we are the most susceptible, and how the parasites have evolved and adapted to us and we in response to them, we can gain considerable insight into our own evolutionary history. As examples, the lifecycle of tapeworms is dependent on our consumption of meat, the speciation of body and head lice was likely coincident with the development of clothing, and the spread of endemic malaria was likely associated with agriculture. A series of human parasites will be studied in sufficient depth – from biology to genetics to population dynamics and so on – to facilitate a holistic consideration of the implications for human evolution, population history, and culture.

General Education: GN

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: one introductory course that covers some aspects of evolutionary biology or parasitology for example: ANTH 021 BIOL 110 ENT 202 MICRB 106 or MICRB 201.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 285 (GS;IL) Culture Contact (3)** Survey of changes in indigenous societies following contact with colonial powers.

**ANTH 285 Cultural Contact (3)  
(GS;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course treats anthropology as a scientific discipline with ties to other social and natural sciences. Emphasis is placed on how the research process is relevant to information acquisition and the evaluation of controversies that have long interested both scholars and the public. Research design, analytical methods, and sampling issues are covered by having students read and discuss hotly debated issues about how contact with Europeans affected small-scale indigenous societies. Student comprehension of topics will be assessed by classroom participation, exams, and papers. This class fulfills an elective requirement for both the major and minor in anthropology, and the General Education GS and IL requirements.

General Education: GS

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2005

Prerequisite: ANTH 002/ANTH 045

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 294 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1987

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 321W** Intellectual Background of Archaeology (3) Introduction to primary sources on the development of archaeology as a scientific discipline.

**Intellectual Background of Archaeology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995  
Prerequisite: ANTH 002ANTH 045

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 380** Anthropology Museum Studies (3) Introduction to the history, significance, and operation of anthropology museums.

**ANTH 380 Museum Studies (3)**

This course introduces students to the operation of anthropology museums and to the growing field of museum studies. The course explores the historical setting within which these institutions evolved and the role of museums in the development of anthropology. Students will learn about the primary functions of museums through individual and group projects. Other topics to be covered include museum organization and administration, collection management, curation and conservation, research and education, public relations and financing, and ethical and legal issues. Students will get hands-on experience with the planning and implementation of a display in the Matson Museum of Anthropology. In addition, students will learn about museum careers, museum developments in other countries, and contemporary controversies, such as repatriation and the shifting role of museums in contemporary society. The course will provide the student with an introduction not only to the behind-the-scenes nuts-and-bolts of daily museum operations but also to the institutional role of museums as the preservers, interpreters, and communicators of humanity's cultural heritage. Students are evaluated based on two papers, work on Matson Museum exhibits, and participation in class discussions. This course fulfills a 3-credit requirement for additional courses for the anthropology major. This course expands on the history of anthropology and professional employment in the field that is presented in introductory courses.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 401** Human Evolution: The Material Evidence (3) Human origins as seen in the fossil record and comparative biology of humans and their primate relatives.

**Human Evolution: The Material Evidence (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1986  
Prerequisite: ANTH 021

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 403** Evolution of Human Walking (3) An in depth analysis of the biology, biomechanics, evolutionary history of human walking and running.

**Evolution of Human Walking (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ANTH 021

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 403H** Evolution of Human Walking (3) An in depth analysis of the biology, biomechanics, evolutionary history of human walking and running.

**Evolution of Human Walking (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: ANTH 021

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 405** Primatology (3) Nonhuman primate origins, evolution, comparative physical and behavioral characteristics, ecological context, phylogeny and taxonomy; and their importance in anthropology.

**Primatology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: ANTH 021

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 408** Anthropological Demography (3) Analysis of demographic studies in traditional and very small populations.

**ANTH 408 Anthropological Demography (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines population-related problems from an anthropological perspective. Special emphasis is placed on ecological and economic approaches to the study of population dynamics in small-scale, preindustrial societies. This is an advanced undergraduate course that builds upon introductory anthropology and leads the student into more difficult demographic problems that are linked with economics, politics, religion and other cultural factors that shape population and population change. While the course is designed to introduce any of the basic analytical methods of demography, attention is focused primarily on fundamental theoretical issues concerning population growth, resources, fertility, mortality, age structure, and household demography in traditional societies. Data is drawn from ethnographic studies of living populations, from historical demography, and from paleodemography (the reconstruction of population patterns from skeletal samples). There will be three take-home problem sets. These will be a mixture of short essay questions and simple numerical exercises that can be solved on a pocket calculator or a spreadsheet. This course fulfills a 3 credit 400-level requirement for the Anthropology major and minor.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2003

Prerequisite: 3 credits in anthropology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 410 Osteology (4)** Introduction to the systematic study of the human skeleton from an evolutionary developmental biological perspective.

**ANTH 410 Osteology (4)**

This course introduces students to the aspects of the human skeleton and dentition that are of anatomical, archaeological, forensic, and developmental significance. Topics include the identification of skeletal and dental structures; the distinction between normal and pathological bone; the estimation of age, sex, and stature from skeletons; bone metabolism; growth and development; and the functional aspects of musculoskeletal and dental systems. Up to one-half of the course is spent on bone identification and skeletal anatomy. Lectures are supplemented by labs that provide practical experience in the identification of individual bones and anatomical structures, age and sex estimation, and the differentiation of abnormal from normal bony structures. It is absolutely essential for students to attend labs to familiarize themselves with bone specimens and casts. At the close of this course, students are expected to be able to recognize human bones and be familiar with anatomical terms, the bony landmarks that define their shape, and the relation of those bones with various soft-tissue structures. Students will have a basic grasp of bone growth and development, as well as how to identify an individual's general characteristics from the skeleton, such as age, sex, and prior life-history events including disease and trauma. The course fulfills a 400-level elective for the Anthropology (BA) major and minor, as well as the Archaeological Science and Biological Anthropology (BS) degree programs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: 3 credits in anthropology 3 credits in the biological sciences or concurrent enrollment in ANTH 401 or ANTH 501

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 411 Skeletal Forensic Anthropology (3)** An introduction to anthropological forensic science with an emphasis on what can be learned from human skeletons and archaeological recovery methods.

**ANTH 411 Skeletal Forensic Anthropology (3)**

This course is a survey of forensic anthropology focusing on human skeletal remains and archaeological recovery methods. Emphasis is placed on field methods used to collect human remains from surface and buried contexts; taphonomic processes; estimating age, sex, stature, and ancestry from human skeletons; recognizing signs of trauma and scavenger damage; and identifying individuals from skeletons. Lectures are accompanied by class discussions and complemented by practical lab sections closely tied to lecture materials. There will be two exams, a midterm and a final, and students are responsible for preparing a poster and presenting a semester-long research project. This course is related to existing ANTH 410, Human Osteology, and proposed course ANTH 413, Molecular Forensic Anthropology. It fulfills a 400-level requirement for the anthropology major or minor, as well as the university's Forensic Science major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: ANTH 021 or ANTH 410 or Forensic Science major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**ANTH 412 Settlement Demography (3)** Examination of the demography and ecology of human settlement systems in the preindustrial past.

**ANTH 412 Settlement Demography (3)**

This seminar will examine the population dynamics of human settlement systems in preindustrial societies, living, historic, and prehistoric. The focus will be on subsistence-level agrarian settlements, but some attention will also be paid to settlement patterns in hunter-gatherers, in market economics, and in complex societies. After reviewing basic assumptions and problems of working with spatial data, the course will examine processes determining settlement size, composition, and location on the micro-level (i.e. that of individual households, farmsteads, hamlets, and villages) and then pass on to regional patterns of transport, migration, and defense. The processes of site colonization, settlement expansion and contraction, site abandonment, and re-colonization will all be considered in detail. Since human settlements are always non-randomly distributed across spatially-heterogeneous landscapes, some basic landscape ecology will be presented in the course. Some fundamentals of geostatistical analysis will also be taught, although the course is not intended to be a survey of quantitative geography or spatial analysis. Rather, it is designed to be a more specialized follow-up to ANTH 408 (Anthropological Demography); the new course builds upon the basic explored in ANTH 408 by extending them into the spatial domain. During the last quarter of the semester, students will split into 2-3 teams, each of which will re-analyze settlement data from a region and time period of its choice for presentation to the rest of the class. The proposed course will provide 3 elective credits toward the undergraduate major and minor, and will be open to graduate students as well. The overall aim is to produce scholars who can think in creative ways about the dynamics of settlement systems in their own reading and research. The course should be of interest to archaeologists, anthropological demographers, ethnologists, and other students interested in human population science, especially as it relates to preindustrial society.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ANTH 408

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 413 Molecular Forensic Anthropology (3)** An introduction to the field of the application of DNA methods to estimating forensically useful phenotypes.

**ANTH 413 Molecular Forensic Anthropology (3)**

This course is a survey of forensic anthropology focusing on human genetic methods. Emphasis is placed on laboratory methods for analyzing DNA variation, the genomic and geographical distributions of genetic variation, estimating genetic ancestry, sex, pigmentation, facial features, and other traits. Lectures are accompanied by class discussions and complemented by practical lab sections closely tied to lecture materials. There will be three exams and students are responsible for preparing a poster and presenting a semester-long research project. This course is related to existing ANTH 411, Skeletal Forensic Anthropology. It fulfills a 400-level requirement for the anthropology major or minor, as well as the university's new Forensic Science major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: ANTH 021 or Forensic Science major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 416 The Evolution of Human Mating (3)** The Evolution of Human Mating is a science course designed to familiarize students with the primary literature on the evolution and development of human mating behavior and sex differences.

**The Evolution of Human Mating (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: C in ANTH 216 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 420 (J ST 420) Archaeology of the Near East (3)** Culture of the Near East and India from Paleolithic times through the Bronze Age.

**Archaeology of the Near East (3)**

General Education: None

Diversity: None

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Summer 1999

Prerequisite: ANTH 008ANTH 009ANTH 011 orANTH 012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 421** Intro to Geospatial Science in Anthropology and Archaeology (3) This course is a practical, data driven, introduction to applications of Geospatial tools in anthropological and archaeological research.

### **ANTH 421 Intro to Geospatial Science in Anthropology and Archaeology (3)**

As anthropologists, we are interested in humans, how humans interact with each other, and how that interaction is modulated by space and place. The purpose of this course is to introduce students to the basic concepts of spatial theory in anthropology, and the use of GIS (Geographic Information Systems) as a tool in anthropological and archaeological research designs. Students will gain familiarity with geospatial technologies, their use as a tool for data creation, storage and manipulation, and a broad array of data analyses. The course is relevant to anyone documenting or investigating spatial dimensions of human social behavior. Students will gain familiarity with GIS software, its use as a tool for data creation, and a broad array of data analyses.

This class will be offered each Fall semester. It will introduce students to sources and uses of data in addressing anthropological or archaeological research questions. It will prepare the student for more advanced spatial analysis courses such as Advanced Geospatial Science for Anthropologists and Archaeologists. Students will be expected to develop a research project which uses GIS as a tool to address broader anthropological research questions. The class will culminate in the development of a research contract for a future fieldwork project. A list of sample topics is provided. Students will be expected to develop an original and functioning GIS which addresses their research question. The purpose of this exercise is to introduce the student to all stages in the development and operationalization of an anthropological research GIS in the development of an archaeological or anthropological project. There are two components to this class: classroom and labs. The classroom component will consist of lectures and discussions. The student will receive hands-on experience with GIS applications during the laboratory component of the class. The laboratory component will enable students to gain experience applying the concepts discussed in class to archaeological data through use of GIS programs in a technology classroom setting. Data used in the laboratory exercises derive from actual anthropological and archaeological fieldwork. Students are expected to complete labs in one of the several computer labs across campus that have GIS software installed. Grades are based upon the completion of 12 lab exercises, a draft of a proposed contract, the final contract and a short presentation of the proposed contract to the class. This course will fulfill three credits of the requirement in both the Minor and Major in Anthropology. This is the first part of a two part course. The second part of this course is called Advanced Geospatial Science for Anthropologists and Archaeologists.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2009

Prerequisite: ANTH 001 orANTH 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 422** Meso-American Archaeology and Ethnography (3) Survey of ethnohistorical and ethnographic patterns of Meso-American society; origin and development of ancient civilization in Mexico, Guatemala, and Honduras.

### **Meso-American Archaeology and Ethnography (3)**

General Education: None

Diversity: None

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 1999

Prerequisite: ANTH 008ANTH 009ANTH 011 orANTH 012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 423** The Evolution of American Indian Culture (3) Historic and archaeological sources used to trace American Indian lifestyles from the first immigrants to the period of Euro-American contact.

### **The Evolution of American Indian Culture (3)**

General Education: None

Diversity: None

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 1999

Prerequisite: 3 credits in anthropology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 424** Andean Ethnology and Archaeology (3) Cultures of the Andes from earliest settlements to Inka Empire; includes discussion of life in modern Andean communities.

**ANTH 424 Andean Ethnology and Archaeology (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

When the Spanish conquistadors arrived in the Andes in 1532, they were astonished by the complexity and grandeur of the Inca Empire, which stretched along western South America incorporating a multitude of different societies that occupied a seemingly inhospitable landscape with coastal deserts, rugged mountain chains, and dense jungles. This course traces out the history and development of Andean cultures from the earliest peopling of the continent to the rise and fall of the Inca Empire. Using archaeological, historical, and ethnographic sources, students will learn about the relationship between Andean societies and their environments and landscapes, as well as the economic, social, and political changes that transformed small egalitarian communities through time into large, stratified states. Through the course, students will not only gain a strong background in pre-Columbian Andean history but will also hone their skills in the use of different lines of evidence to reconstruct the past while learning to critically evaluate existing interpretations. All students are expected to participate actively in discussions. Lectures will be supplemented by illustrations (slides, handouts, videos), and students will learn how societal dynamics are expressed in material culture and in the organization of architecture and settlements. Grades will be based on the results of three exams, a short paper, and participation in discussions. The course complements existing courses at the same (400) level on the archaeology of Mesoamerica (ANTH 422) and North America (ANTH 423). It continues the discussion (at a higher level) of some of the themes covered in ANTH 008 (Incas, Aztecs, Mayas). It fulfills the archaeology credits requirement for the major and is one of the 400-level courses that can be used for the minor. For students outside the major, it may be used to meet the Other Cultures or the Social Sciences requirement in Bachelor of Arts programs.

General Education: None

Diversity: None

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2002

Prerequisite: ANTH 002/ANTH 045

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 425 Zooarchaeology (3)** Introduction to the systematic study of animal skeletal remains from archaeological sites.**Zooarchaeology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: ANTH 002 or ANTH 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 426W Archaeological Laboratory Analysis (3)** Scientific laboratory methods used in the analysis of ceramic and lithic artifacts.**ANTH 426W Archaeological Laboratory Analysis (3)**

This course, Archaeological Laboratory Analysis, employs experiential learning to teach students how to ask and answer archaeological questions using real data. While students learn the fundamentals of interpretation in other courses using already processed computer (and internet) assembled data sets, this is not how archaeological data are analyzed. Archaeological data emerge from the ground covered with dirt and the analyst must learn how to identify and measure their important attributes, and interpret what they mean. This class will provide a hands-on learning experience where students learn how to examine and use physical remains to reconstruct and interpret human behavior.

Students in the Anthropology program currently learn this critical step on an *ad hoc* basis by working with faculty on individual research projects. This approach, while effective, is neither systematic nor comprehensive. This is a course on analytical systematics. It provides students with an introduction to problem formulation, artifact processing, artifact cataloging, attribute identification, artifact classification, analysis, data illustration and photography. At the same time, students will be introduced to two separate and distinct approaches to interpretation: 1) morphological/diacritical analysis, and 2) direct experimentation and replication.

Students will be graded on the completion of nine laboratory exercises. These exercises will require that students identify the research question being addressed, the theoretical assumptions used in the analysis, the data sample, the analytical method(s) employed, and the conclusions reached. The exercises will also request that students identify personal insights and difficulties encountered during the analysis.

This course fills a vital position in training undergraduate majors by providing them with practical training in research design and data analysis. It also provides the logical link between our general courses in prehistory, our courses on archaeological theory, and our method courses on field methods of data recovery. All of these courses intersect in the archaeological laboratory where data interpretations are made and new information about the past takes shape. In addition to contributing to both the BA and BS undergraduate majors and minors, this course will also provide a framework for training graduate students who enter the program with minimal field and laboratory training in archaeology.

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Summer 2004  
Prerequisite: ANTH 007ANTH 008ANTH 009 orANTH 011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 427W Forensic Archaeology (3)** Application of archaeological techniques to crime scene investigations, with practical experience in field and laboratory contexts.

### **Forensic Archaeology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: ANTH 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 428 Archaeological Methods and Theory (3)** Scientific methods as applied to archaeological data: evolution, ecology, diffusion, and cycicism theory.

### **Archaeological Methods and Theory (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: ANTH 007ANTH 008ANTH 009ANTH 011 orANTH 012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 429 Paleoethnobotany (3)** Introductory course in paleoethnobotany, the study of the interrelationships between people of the past, natural environment, and plant resources.

### **ANTH 429 Paleoethnobotany (3)**

This course is a survey of the fast-developing field of paleoethnobotany-- also known as "archaeobotany" or "phytoarchaeology"-- that involves the extension of ethnobotany into the past, emphasizing archaeological plant remains and study of the historical dimensions, complex dynamics, and myriad interrelations between people and plant resources. The primary goals of the course are 1) to promote understanding of the vital interplay between the natural environment and human societies, with their diverse systems of belief and resource use, especially those of the past but with relevance to the present; and 2) to foster an appreciation for what modern paleoethnobotany involves as a subdiscipline or specialization in archaeology, related to both anthropology and the plant sciences.

The course begins by considering the history and nature of the field, including parallel developments in plant biology. The first half of the semester entails weekly sessions that focus attention on the plant organism, sources of archaeobotanical data, taphonomic issues, and the major classes of archaeobotanical materials. Fundamental issues involved in fieldwork, and the variety of laboratory concerns and methodologies specific to paleoethnobotany as whole and with regard to individual subareas are addressed. Individual laboratory sessions highlight the different preservation states that affect ancient plant materials, as well as methods of identification and analysis. In the second half of the semester, attention is focused on theory and application, issues central to and/or addressed by paleoethnobotany as a subdiscipline of archaeological anthropology.

The course follows a seminar style, with substantial participation by students, including individual presentations, laboratory study, and analysis. Learning is augmented and enhanced by use of various visual aids, along with modern comparative specimens and actual archaeological plant remains.

ANTH 429 will fulfill 3 credits of the additional courses in the Anthropology minor and majors. Anth 002 is a prerequisite.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: ANTH 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 430 The Aztecs (3)** This course examines the development and organization of the great Aztec culture of highland Mexico.

### **The Aztecs (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None



Effective: Summer 2013

Prerequisite: ANTH 002ANTH 008ANTH 009 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 431** Advanced Geospatial Science for Anthropologists and Archaeologists (3) This course is an intensive, data driven, treatment of the use of geographic information systems in anthropological and archaeological research.

### **ANTH 431 Advanced Geospatial Science for Anthropologists and Archaeologists (3)**

As anthropologists, we investigate how humans evolved, behave, define groups, and interact socially. Examining how these processes are shaped by space and place is central to the anthropological enterprise. The use of geospatial science in anthropological and archaeological research is now commonplace. Geospatial technologies are now intimately involved in anthropological and archaeological research designs. The course objective is to expose students to advanced concepts and techniques of conducting geospatial science research in anthropological and archaeological contexts. The course is a continuation and development of the introductory geospatial science course and it will fulfill three credits of the requirement in both the major and minor in Anthropology. Students will develop an in depth understanding of anthropologically and archaeologically tailored geospatial project design and implementation. Students are expected to complete the work for the course in one of several computer labs across campus that has the appropriate software installed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2009

Prerequisite: ANTH 421

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 432** Environmental Archaeology (3) Introductory course in Environmental Archaeology, with emphasis on method and theory in the subfields archaeobotany, pediaeology, and zooarchaeology.

### **ANTH 432 Environmental Archaeology (3)**

This class is a survey of the fast-developing field of environmental archaeology, or archaeobiology, which encompasses archaeology, the earth sciences, plant biology, and zoology. Environmental archaeologists apply techniques and insights obtained from these fields to questions concerning the relationships among humans, cultural systems, and the natural world, as reflected in the archaeological record. The general goal of the course is to promote understanding of the vital interplay between human societies, with their diverse systems of belief and cultural practices, and the natural environment, with emphasis on human interactions with biotic resources. Instruction is by lecture, supplemented by laboratory sessions emphasizing hands-on experience. Weekly topics are explored through selected readings and class discussions, augmented with laboratory assignments (practical exercises) variously focused on specific types or classes of archaeobiological materials.

ANTH 432 will fulfill 3 credits of the additional courses in the Anthropology minor and major, as well as the Archaeological Science major. Anth 002 is a prerequisite.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: ANTH 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 433** Archaeological Ethics and Law (3) Introductory course that examines prominent ethical and legal issues in archaeology integral to modern applied research and practice.

### **ANTH 433 Archaeological Ethics and Law (3)**

This course explores the ethical, legal, and practical dimensions of modern archaeology through a consideration of the following topics: archaeology as a profession; archaeological ethics; the relationship between archaeology and others (the public, ethnic groups, avocationalists, collectors, etc.); international and national approaches to archaeological heritage management; the antiquities market; maritime law, underwater archaeology, and treasure hunting; cultural resource management in the United States; and archaeological outreach and education. Students are introduced to a variety of legal and ethical issues in archaeology that span local to international scales. Through lecture, discussion, and readings, students will consider the archaeology and ethics of ownership and stewardship, including issues centered on intellectual property rights, representation, repatriation, and reburial of cultural properties. They will be able to identify the various stakeholders in contemporary archaeology, and assess their values and interests in issues such as the treatment, ownership, and disposition of human remains, heritage sites, submerged cultural resources, and antiquities. They will consider growing problems with illicit collecting and excavation, illegal trade, and global concerns centered on the international trafficking of antiquities, and will be variously exposed to relevant national and international legislation involving cultural patrimony and management of antiquities, including international treaties such as the 1970 UNESCO

Convention on Cultural Property, and related pieces of US federal legislation. The 1990 Native American Graves Protection and Repatriation Act (NAGPRA) and the Archaeological and Historic Preservation Act (ARPA) of 1974 figure prominently in the course. In general, upon completion of the course students will come to have a stronger appreciation of archaeological ethics and "archaeopolitics"; they will have a good understanding of the U.S. Secretary of the Interior's standards (36CFR61) for professional archaeologists and will be able to assess and evaluate contemporary issues of archaeological ethics and law in the context of modern practice.

ANTH 002 is a prerequisite of this course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: ANTH 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 435 (IL) Ancient Economy (3)** The course examines the comparative organization and development of ancient economies in both the Old and New Worlds.

**ANTH 435 Ancient Economy (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the origin and development of ancient economy from its earliest beginnings to the advent of complex monetary economies that existed prior to the industrial revolution. It examines the common economic structures found in ancient foraging, pastoral, and agricultural societies and how those structures were modified and transformed as these societies were integrated into more complex monetary economies. The goal of the course is to develop a comprehensive understanding of ancient economies, the function and purpose of their economic structures, and how those structures of production and distribution were modified and retained within the modern economies that we live in today. While the economy is often approached as its own field of study, this course shows how and why the economy was embedded in social, political and religious institutions that were so prominent in the ancient past. The course will discuss the domestic and institutional economy, the origin and organization of ancient market systems, the development of urban centers and the economies that supported them, the role of merchants in ancient societies, and origins of many of our 21st century institutions including money, banking, insurance, and the organization of craft production before the industrial revolution.

The class draws upon the rich literature in archaeology, history and ethnohistory that examines the structure of ancient societies. It employs a cross-cultural perspective to model ancient economies and to investigate how social forces influenced their development. A range of different historic and prehistoric societies are discussed each semester to illustrate the cross-cultural perspective. The societies discussed vary from semester to semester and include, but will not be limited to, the ancient Sumerian, Assyrian, Greek, Roman, Mongol, Aztec and Inka societies. Examples will be selected that include societies at different scales of complexity from simple hunting and gathering groups to pre-industrial states. The course fulfills the Social and Behavioral requirements in Liberal Arts. It also fulfills specific major and minor requirements for the BA in Anthropology, the BS in Archaeological Sciences, and the BS in Bioanthropology. The course is also relevant for students in CAMS, History, and Ancient History that are interested in a comparative study of New and Old World civilizations.

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 440 South American Tribal Societies (3)** Ethnographic survey of tribal societies in South America. Special emphasis on non-Andean area.

**South American Tribal Societies (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Fall 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 441 (IL) From Stone Ax to Uzi: Tradition and Change in the New Guinea Highlands (3)** This course explores cultural change and innovation among tribal peoples of Highland New Guinea from stone tool technology to globalization.

**ANTH 441 From Stone Ax to Uzi: Tradition and Change in the New Guinea Highlands (3) (IL)**

The indigenous peoples of Highland Papua New Guinea were unknown to the outside world until the 1930s and began to be seriously influenced by European contact only after the First World War. At first contact with Europeans, the million or so people living in the Highlands used a stone tool technology, had no knowledge of the wheel, and lived in small, politically and economically independent local groups. They presented a major population engaged in a way of life typical of human society in a technologically simpler past, and have been crucial in anthropology's discussion of the general characteristics of human culture and institutions. The study of these cultures also provides an opportunity to explore the processes through which these peoples have assimilated thousands of years of technological, political, and economic innovation in a very brief period, while simultaneously maintaining and recreating their cultural identity, despite the impact of colonial rule and global influences. Apart from the specific history of these populations, the course will also give students insight into the processes of globalization and internationalization that necessarily effect changes in traditional cultures, and will require that they consider the advantages and disadvantages that accrue from these processes.

Among the topics this course will cover are traditional and current approaches to dispute settlement, economic changes that entail moving from subsistence agriculture as the basis of the economy to cash cropping for a global market, the ecological effects of extractive industries such as mining and how those effects are translated into social and cultural domains, the reorganization of gender roles, the incorporation of politically independent tribal units into a centralized, powerful state, and the demise of traditional religion with the conversion to Christianity.

Students will be evaluated on contributions to class discussion, essay exams, a term paper and a brief oral presentation based on that paper.

The course will provide support and depth for more general courses dealing with warfare, gender, religion, politics and economics and specific understandings for programs devoted to exploring cultural variation and modernization.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Fall 2009  
 Prerequisite: ANTH 045

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 444 Primitive Warfare (3)** Critical overview of the ethnography and theory of primitive warfare.

**ANTH 444 Primitive Warfare (3)**

Anthropology 444 is concerned with the phenomenon of lethal group violence in tribal societies so called "primitive war". Through lectures, readings, and research projects, this course reviews anthropological approaches to the study of primitive war, focusing both on ethnographic examples and on theoretical approaches. The course covers topics such as explanations, traditional and modern, for the existence of warfare; the primate background to human warfare; and the social causes and individual motives leading to warfare in tribal societies; as well as its consequences for those societies. Students become familiar with both general and particular manifestations of primitive warfare, and are exposed to individual ethnographic cases of primitive warfare as they motivate a variety of theoretical paradigms.

All students are expected to attend all lectures and to complete all weekly readings. At the last class meeting of each week, a rotation of students are assigned to organize and direct the class discussion of the week's readings in the light of the lectures earlier in the week. Performance in this activity constitutes 40% of the student's grade. Another 40% is earned in the research term paper each student must prepare. The final 20% of the grade is based on overall student contribution to class discussion, particularly during those weeks when the student is not a discussion leader. There is no final examination. This course can be used to fulfill major and minor requirements in Anthropology. Because warfare was and often still is a major activity in most tribal societies, this course provides an important complement to area-focused ethnography and archaeology courses such as ANTH 241 (Peoples and Cultures of Highland New Guinea), ANTH 422 (Mesoamerica), ANTH 423 (North America), ANTH 425 (American Southwest), ANTH 440 (Lowland South America), and ANTH 447 (Africa). This course is also relevant to topically focused course such as ANTH 450 (Comparative Social Organization), ANTH 451 (Economic Anthropology), ANTH 454 (Political Anthropology), and ANTH 456 (Cultural Ecology). On the graduate level, this course addresses central topics covered in ANTH 522-523 (Ecological Theory in Anthropology), ANTH 556 (Social Organization of Traditional Societies), and ANTH 559 (Behavioral Anthropology).

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2002  
 Prerequisite: ANTH 045 ; and ANTH 002 or ANTH 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 445W Ethnographic Film (3)** Comparisons of written and visual ethnography; critical assessment of ethnographic film; cross-cultural variation.

**ANTH 445W Ethnographic Film (3)**

Students will be presented with both written and filmed ethnographic material dealing with a number of cultural

subsystems (e.g., kinship and family relations, religion, political systems) and with a number of different world cultures. The aim of the course is three-fold: 1) to convey through visual anthropology the complexity and inter-relations of cultural subsystems, which is often difficult to do in written sources; 2) to develop the skills of critical viewing of ethnographic film; and 3) to provide students with critiques of their written work that will enable them to learn and practice the skills of clear, organized and convincing writing. Towards these ends, students will be expected to read and view weekly assignments for selected topics, to write twelve critical essays that compare the written and filmed sources, and to evaluate the aims, effectiveness, and methods of the films. Essays will be graded for both content and form and will provide a basis for class discussion. Students will also be required to write a term paper focused on a particular ethnographic film of their choice (one not shown in class) supplemented by additional research. As an aid in the writing of the paper, at least one class period will be devoted to learning how to do library research in Anthropology.

This course will complement other courses in Anthropology such as ANTH 045 and ANTH 001. The course can be used to fulfill a requirement in both the major and minor in Anthropology, and will fulfill both a Writing Intensive requirement and a Bachelor of Arts social/behavioral science requirement. It will also provide students in other departments with the opportunity to study aspects of diverse, non-western cultures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

Prerequisite: ANTH 001 or ANTH 045

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 446 Mating and Marriage (3)** An examination of human mating mainly from the viewpoint of behavioral ecology, centering on the species-typical institution of marriage.

### **ANTH 446 Mating and Marriage (3)**

This course is an examination of human mating and marriage mainly (although not exclusively) from the viewpoint of evolutionary behavioral ecology. Its central concern is the species-typical and uniquely human institution of marriage. Why do all human societies recognize this peculiar institution, whose social and biological functions, apparently obvious, become mysterious on close examination? What, exactly, is marriage? What are its consistent characteristics and attributes--or does it have none? How are spouses chosen, and by whom? What does being married imply for the behavior of the spouses, and that of their children and other relatives? What are the evolutionary scenarios that might have led us to marriage? Although sexual behavior is clearly a key element in answering some of these questions, and receives considerable attention, this is not a course on human sexuality. Nor is it a course on kinship, even though kinship is also crucial to understanding marriage and also receives a good deal of attention. Rather, this course attempts to bring to bear on this central social institution bodies of knowledge from the biological and social sciences that may contribute to understanding how and why marriage arose as a universal feature of human societies, and how and why it is perpetuated in contemporary societies. We begin the semester with the posing of the central problem--what is marriage and why do we have it? For about half the course, we approach this question from an evolutionary, sociobiological point of view: We look into the biological background of human mating--its evolutionary history, its physiology, its behavioral ecology, etc. as we go through a semi-popular book on the subject by a biological anthropologist. Next we turn to more academic readings, old and new, that further elucidate the ecological constraints and fitness consequences of various behaviors relating to mating and mate choice, child rearing, etc., in terms of reproductive success, survivorship, etc. In the second half of the course, we take a more social anthropological point of view. We look at what anthropologists have written about marriage and marriage customs over the years. We try to relate the traditional social anthropology to more modern human behavioral ecology. Finally, in a research project report, each student examines some specifics of marriage as it is manifested in ethnographically known societies. In these reports we are particularly interested in how and by whom mates and spouses are chosen, and who contributes what to the raising of children.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: ANTH 045/ANTH 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 448 (AM ST 448) Ethnography of the United States (3)** Ethnographic descriptions of various dimensions of life in the United States.

### **ANTH (AM ST) 448 Ethnography of the United States (3)**

Ethnographic descriptions of various dimensions of life in the United States. The course covers uses of ethnography in American Studies toward an understanding of social and cultural communication and performance. The application of ethnography and concepts of cultural anthropology to complex societies such as the United States is discussed. The course teaches students to use ethnographic methods for research of American society and culture. Attention is given to the ethics and issues of ethnographic fieldwork. The course satisfies the "area" requirement in "society" for American Studies majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: ANTH 045

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 450** Comparative Social Organization (3) Social structure and cultural change among nonliterate societies.

**Comparative Social Organization (3)**

General Education: None

Diversity: None

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Fall 1986

Prerequisite: ANTH 045

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 450W** Comparative Social Organization (3) Social structure and cultural change among nonliterate societies.

**Comparative Social Organization (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

Prerequisite: ANTH 045

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 451** Economic Anthropology (3) Different approaches to the study of the economics of non-Western societies, emphasizing the interrelationships between noneconomic factors and economic behavior.

**Economic Anthropology (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1986

Prerequisite: ANTH 045

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 453** Anthropology of Religion (3) Traditional and modern religions and historical and contemporary religious movements from an anthropological perspective.

**ANTH 453 Anthropology of Religion (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine the origin, evolution and social function of religion from a cultural materialist perspective. It will begin with a general discussion of an anthropological approach to the study of religion, using numerous examples from different cultures for purposes of illustration. Following a discussion of several topics relevant to the anthropological study of religion --including magic, rituals, witchcraft and mythology-- the course will focus on the relationship between politics and religion: first discussing the role of religion as a mechanism of social and political control, and then examining the role of religion as a vehicle of sociopolitical change in the form of what anthropologists call revitalization movements. This course links to courses on the sociology, history, and philosophy of religion, to courses on intellectual history, and history of social sciences. Course evaluation will be based on 3 take-home essay examinations. Students will give the instructor 3 questions at indicated times; the instructor will return one question; the student will write an essay on the indicated question. Attendance is mandatory. This course will fulfill a 3 credit 400 level requirement for the Anthropology major and minor.

General Education: None

Diversity: None

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Fall 2003

Prerequisite: ANTH 001 or ANTH 045

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 455** Global Processes and Local Systems (3) Ethnographic, comparative, historic, evolutionary treatment of global economic, political, and cultural processes and their consequences for local systems.

**ANTH 455 Global Processes and Local Systems (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Students will learn about global economic, political, and cultural processes and their consequences for local systems, how anthropologists do ethnography in the modern world of villages and factories; varieties of anthropological approaches and theories and how to assess them and how to critically assess ethnographic work.

Students will write a series of book reviews in which they critically analyze the works they read in the course. Each review will present the main argument of the work; the theoretical assumptions the argument entails; the evidence the author used, the methods the author used to develop the evidence; the relationships among theoretical assumptions, arguments, evidence, and methods; and conclusions. Each review will assess the validity and reliability of the findings and the relationships of findings, arguments, and assumptions to the conclusions. These reviews will direct the student's attention to the salient points of scientific ethnography and anthropological theory with specific examples. Grades for the reviews will be assigned on the basis of how well each component of the review is completed, short in-class writing assignments to test reading comprehension and orient discussion, and a synthetic essay.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2001

Prerequisite: ANTH 045

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 456 Cultural Ecology (3)** Survey of the methods and concepts of cultural ecology, focusing on the interaction between cultural and geographical systems.

### **Cultural Ecology (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1986

Prerequisite: 3 credits in anthropology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 457 (US;IL) (J ST 457, SOC 457) Jewish Communities: Identity, Survival, and Transformation in Unexpected Places (3)** Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement.

### **ANTH (J ST/SOC) 457 Jewish Communities: Identity, Survival, and Transformation in Unexpected Places (3) (US;IL)**

This course addresses an understudied aspect of Jewish experience. It aims to expand our understanding of Jewish communities by focusing on those that are, alternatively, small, situated in out-of-the-way places, culturally outside the Jewish urban mainstream, or embedded in a larger society with markedly different values and traditions. These communities often constitute the points-of-contact between Jews and non-Jews, and in so doing sometimes transform Jews, non-Jews, and the relationships among them. Other such communities constitute experiments in Jewish lifeways and provide mainstream Jews with pilot projects for potential social and cultural change. This course will explore the significance of small, little-known, idiosyncratic, and anomalous Jewish communities on Jewish history and culture, and draw on them to instruct students on the social and cultural processes of small or unusual communities generally. The communities studied will be located both in the U.S. and elsewhere in which Jews have lived as a minority community during modern times. The course will look at the founding, growth, and decline of such communities and at their social processes and institutions. It will explore how to understand and analyze such communities, which vary from one part of the world to another. The social world of Jewish communities, large and small, is a core interest of Penn State's Jewish Studies Program. This course will complement the current offerings in Jewish Studies, strengthening the social, cultural, and contemporary perspectives available in the Program. It will provide students with an opportunity to explore individual experience and micro-level processes among Jews, and to study the dynamics of identity and survival. It will complement the current offerings in Sociology and Anthropology by affording an opportunity to focus on community-level social processes and by adding a course on contemporary Jewry. The course will integrate knowledge from a variety of sources and fields, promote intercultural understanding, and meet US and IL requirements. Materials will be interdisciplinary, and will include ethnographies, sociological studies, population studies, histories, and personal narratives. They will include primary texts, creative works, and scholarly analyses. The assignments will be structured to facilitate preliminary experience in independent analysis, library research, or field research. The course will be offered approximately once a year.

General Education: None

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2006

Prerequisite: ANTH 001 or ANTH 045/HEBR 010/J ST 010/SOC 001/SOC 005/SOC 007/SOC 015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 458 Ethnographic Field Methods (3)** Course introduces students to ethnographic field methods, includes student projects and simple analyses that don't require statistical sophistication.

**ANTH 458 Ethnographic Field Methods (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce you to some (not all) ethnographic field methods. It will include actual projects you will have to carry out and other material that will make you a better ethnographer, such as how to pose questions that can be answered, how to select an appropriate sample for a project, how to take and use field notes. Because the emphasis is on field methods, we will do only simple analyses that don't require any statistical sophistication (e.g., descriptive statistics, chi square tests).

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2009

Prerequisite: ANTH 045

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 459 Applied Anthropology (3)** A survey of the development of applied anthropology and the current issues facing anthropologists working in non-academic settings.

**ANTH 459 Applied Anthropology (3)**

This course surveys the development of applied anthropology and the current issues that face anthropologists as they work in nonacademic settings.

Topics covered for 3 weeks each:

The roots and place of applied research in contemporary anthropology doing applied research Development--defined and evaluated Applied anthropologizing and contemporary problems in North America career. In this class students will learn what it means to be an applied anthropologist and to do anthropology outside of the academic setting. We will learn the historical development of applied anthropology and some of the special tools (and methods) applied anthropologists use in their work. We will also focus on the area of development and the role anthropologists play in their development as facilitators and critics. We will look at how applied anthropologists approach problems in North America from homelessness to drug addiction to AIDS and other diseases. Finally, we will survey the careers of various applied anthropologists to better understand the opportunities that are outside of the academic world. This course will fulfill the requirements for a 400-level course or elective for majors and minors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: ANTH 045

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 460 (BIOL 460) Human Genetics (3)** The human genome, its variation, origins, and relation to disease and other traits.

**ANTH (BIOL) 460 Human Genetics (3)**

The course considers many examples derived from the study of the genetics of human disease, and includes most general areas of interest, including simple Mendelian disorders, and complex chronic diseases such as cancer and cardiovascular disease, and variable special topics including immunogenetics and the genetics of imprinting or other processes. The course usually also touches briefly on the nature of forensic genetics and the problem of making inferences from individual genotypes. Finally, the course considers the bioethical and societal issues involving contemporary human genetics. The study of disease genetics is important for students preparing for graduate work in medicine and other health professions as well as for graduate studies in molecular and evolutionary genetics and related areas, including biological anthropology and bioethics. This course is relevant to requirements or appropriate electives for life science majors and graduate students (check with your academic advisor). Over the years, it has proven to be excellent preparation for subsequent graduate and professional work in these areas. The course is offered most years, in the fall semester. Depending on enrollment and other factors, the course may include graded homework or other components, but evaluation is predominantly based on exams during the semester and a comprehensive final. This course is cross listed as ANTH 460 and BIOL 460, but there is only one course, at the same time and place, for all students no matter how they register. In some years, a 4-credit Honors version is offered (ANTH 460H/BIOL 460H), that is identical to 460 but with an additional class period each week involving additional written and presentational assignments and term projects, along with the regular 460 exams, that combine to determine the final grade. Total enrollment is capped at about 100 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: BIOL 230W or 3 credits in genetics (BIOL 133 or BIOL 222 or BIOL 322)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 460H (BIOL 460H) Human Genetics (4)** Gene mapping in humans; molecular basis of genetic disease; genomic structure; immunogenetics; and genetic evidence for human evolutionary history.

**ANTH (BIOL) 460H Human Genetics (4)**

Students will explore interesting normal or pathological variation to understand first its biological nature, then its epidemiological distribution, genes and genetic mechanisms associated with the trait, phylogenetic origins or comparison, and the nature of relevant genotype-phenotype relationships. Alternatively, students may explore methods for identifying and characterizing gene action or structure, or historical subjects related to human variation and evolution. Ethical and societal aspects of these issues will be considered as well. Time will be taken for faculty or students to read and present current important papers appearing in the literature, relevant to the current course topics. As an Honors course, we will have the time, and the students the dedication, to pursue the chosen topic(s) in much greater and more rigorous detail than is possible in the usual lecture or even seminar course format of Human Genetics 460 which, while presenting material at a sophisticated level, will not have time to explore the more subtle, problematic, or challenging aspects. The students who enroll for this course will be given a description of the approach and the intended general topic, on a course web page or by email when the instructor learns they have registered. The nature of the course will be described including semester-specific themes or focus that will apply (if any). Requisite background reading will be identified so students will know what will be expected of them. Some prior reading will be assigned, so that we can begin the semester with a common basis in background. Students will be evaluated on the quality of their project work, including writing ability, presentation ability, and depth of thought. Several written assignments will be given and graded for content and expression quality. Although students will take regular Human Genetics 460 lectures, they may be given separate exams (corresponding to those given in the regular course) that will allow more freedom of expression than multiple-choice exams or homework assignments. Depending on the workload in any semester, there may be a separate written take home synthetic essay final exam. The Honors session each week will be highly interactive rather than passive, and students will be graded on attendance, participation and whether they have done assigned work in advance of the class. Students will be expected to have the stipulated background knowledge of biological anthropology, evolutionary biology, statistics and genetics. This course should count as 4 credits toward additional courses in biological anthropology required for the Anthropology major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: 3 credits in genetics or ANTH 021 or BIOL 222 or BIOL 230W ; and 3 credits in statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 461 Molecular Anthropology (3)** Provides framework to understand current issues in biology, genetics, and anthropology as they relate to the evolution of our species.

**ANTH 461 Molecular Anthropology (3)**

The aim of this course is to provide students with the framework to understand current issues in biology, genetics, and anthropology as they relate to the evolution of our species. Basic methods in molecular biology, structure of the genome, molecular evolution, and human population genetics will be covered in the first part of the course. Once these tools are in place we will examine both classical and contemporary research reports on a number of topics, including the place of humans among the apes; mitochondrial Eve, DNA in forensics; Neandertal DNA and other applications of ancient DNA; reconstructing recent human evolution; the biological meaning of race; disease gene mapping; recent technological advances in genomics; skin, hair, and eye color genes; and the genetic future of our species. There will be three exams that will each count for 25% of the grade. Attendance and participation are mandatory and will count for 25% of the final grade. A portion of this participation grade is earned by presenting 10 min. summaries of particular readings. Each student will be expected to summarize a scientific paper four times during the semester. These summaries are not expected to be exhaustive reports on the material, but should reflect an effort on the part of the student to understand and discuss the material and may require some background work.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: 3 credits in biological anthropology or 3 credits in biology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 465H Fifteen Great Biology Papers (3)** Reading and discussion of the most influential papers in the history of biology that illustrate exceptional insight and elegant reasoning.

**ANTH 465H Fifteen Great Biology Papers (3)**

Thousands of papers are published annually in the life sciences, but only a few have lasting impact on their field. These are usually characterized by elegant and thoughtful insight, and creative scientific thinking. For each of the fourteen weeks of the semester we will read and discuss a landmark paper of this type. The 15th paper? That will be the student's term project. The student will read one classic paper in the history of biological thought each week and discuss the paper



in class. During the last half of each class in last third of the semester, the students will present the classics they have chosen for their term paper. The major topics covered in this course are: Weeks 1-4: Basic history of thought about origin and nature of variation in living organisms Weeks 5-8: Landmarks in the philosophy of science Weeks 9-12: History and development of ideas in evolutionary biology. Weeks 13-14: Foundations of 20th Century biology The objective of this course is to give students an experience with and appreciation for (1) the history and origins of science, biology in particular, (2) the nature of cogent critical thinking and expression, (3) the basis for fundamental ideas in biology today, (4) a sense of the nature of papers that had great influence on the future of the field, and (5) experience scouting, choosing, evaluating, and writing about papers of this nature. Evaluation will be based on class attendance and participation, critical thinking ability and effort as manifest in class, and a term paper (graded also to include quality of writing and research.) This course is generally related to all life science courses, and relevant to social and other sciences, philosophy, and history. This course can fulfill elective credits for Anthropology majors and minors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: ANTH 021 or 3 credits in evolutionary biology or genetics and 3 credits in statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 466** The Skull (3) Survey of the mammalian skull from many perspectives including evolution, development, anatomy, function, and variability of the skull.

### **ANTH 466 The Skull (3)**

This course will provide a survey of what is known about the Mammalian skull from many perspectives including evolution, development, anatomy, function, and variability of the skull. The course will consist of lectures and a laboratory component. Students will learn about the basic skull architecture and be introduced to various specializations of extinct and extant species. The section on evolution will cover the evolution of the skull from the earliest jawless vertebrates through human evolution. During the section on development, we will discuss the nature of the formation of bone embryologically. Other topics include the ways in which bone changes shape and size during prenatal and postnatal growth, how changes in growth can result in evolutionary change in morphology. The section on the function of bone will focus on biomechanical interpretations of the morphology of the skull. The lectures will focus on human anatomy but provide contrasts with other mammals (e.g., horse, dog, mouse). The last section on variability will survey the major groups of mammals highlighting similarities and differences in bony architecture and skull morphology. This portion of the course will be more laboratory-based with students examining specimens, taking measurements and leading discussions on hypotheses regarding why skull architecture is so different among mammals. The objective of this course is to provide the student with a broad survey of information relating to the mammalian skull. Through assigned readings and lectures the student will become familiar with salient anatomical and osteological features, obvious differences in skull architecture and the various biological processes responsible for these differences. During the final laboratory part of the course the students will bring their knowledge to an assigned problem and specimen in order to apply what they have learned to a scientific question. Students will be required to attend all lectures and laboratories. Periodic quizzes will be administered as well as an exam at midterm. A paper that focuses on the student's laboratory experience will be required at the completion of the course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: ANTH 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 468** Evolution and Development of Human Origins (3) In depth analysis of the genetic and developmental basis for phenotypic variation and evolution of humans and primates.

### **ANTH 468 Evolution and Development of Human Origins (3)**

Recently biology has undergone a revolution regarding our understanding of the mechanisms underlying the evolution and development of animal form. This knowledge has a profound impact on the way we conduct and interpret morphological analyses pertaining to human evolution. In this course we will explore basic principles underlying Darwinian natural selection and our understanding of the evolution of complex characters. Then we will delve into developmental genetics to explore how the gene regulation can alter spatial and temporal expression patterns during development. We will next conduct a survey the basic embryology of key morphological systems of interest to biological anthropologists including: the axial skeleton and somite formation, limb buds, musculoskeletal system, skull formation, and dental and skin appendage formation. We will also explore issues concerning skeletal plasticity, fossil analysis, and comparative genomics. Discussion particular case studies related to human and primate evolution and morphological variation will illustrate the principles discussed in this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: ANTH 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 470H Our Place in Nature (3)** An evolutionary and genetic consideration of our understanding of human beings as a part of the natural world.

### **ANTH 470H Our Place in Nature (3)**

The title "Our Place in Nature" takes off from T.H. Huxley's famous book in 1863 that put humans in rather than outside of nature, and the idea of the course is to place humans in the context of organic evolution both specifically and as a kind of general "model" organism (for example, genomic, phylogenetic, and comparative perspectives will be included). We will take a theme (one or more related topics, depending on enrollment, timeliness, etc.), which students will be assigned to work on singly or in groups. We'll first read from the historical, comparative, and evolutionary literature to see how "Our Place in Nature", relative to that theme, was first argued. Then we will follow the literature in evolutionary, developmental and genetic biology to the present to see how our current understanding of the trait evolved. Current research, especially on developmental and genetic aspects of the trait, will be examined in depth. We'll pay special attention to research strategies, comparative and genomic approaches, and latent working assumptions that help or hinder our explanations. The sociocultural context will be considered throughout, including the implications for society of our changing scientific assessment of the trait.

As an Honors course, we will have the time, and the students the dedication, to pursue the chosen topic(s) in much greater and more rigorous detail than is possible in the usual lecture or even seminar course formats. The students who enroll for this course will be given a description of the approach and the intended general topic, on a course web page or by email when I learn they have registered. Requisite background reading will be identified so students will know what will be expected of them. Some prior reading will be assigned, so that we can begin the semester with a common basis in background. The course will assume the level of knowledge such as can be obtained in one of several recent "Evolution" texts, an understanding of modern genetics and genetic methodology, basic statistics, and a general work on the history and philosophy of science and evolutionary thinking (initially, probably J.A. Moore's *Science as a Way of Knowing*). This substantial background requirement is based on this being an upper-level class; for good students to get what good students deserve at a good university, we need to be able to start at a high level.

Evaluation will stress original synthetic thought and investigation rather than memorized factual recapitulation. Work groups will tackle particular problems, present them, and turn in written products. There will be a written take-home synthetic essay exam. There will be other written assignments summarizing assigned reading or topics to keep students on track. The class will generally be based on oral discussion and/or be run in Socratic Q&A format. Evaluation will include a major component related to attendance and to level and quality of in- class participation, acquired knowledge and quality of thought and communication. This course will build on, and incorporate, knowledge acquired in physical anthropology, evolutionary biology, statistics, and genetics courses and will count as 3 credits toward the additional courses in biological anthropology required for the Anthropology major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: 3 credits each in genetics evolutionary biology and statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 471H Biology, Evolution, and Society (3)** Exploration of the genetic theory of evolution and development, its history and application within Biology and beyond.

### **ANTH 471H Biology, Evolution, and Society (3)**

This will be a reading, discussion, and exploration course that looks at the way theory about the nature of life and its origins and diversity have developed over time into today's evolutionary theory. The course will examine the Darwinian theory, and then new elements that recent biological research have revealed about the nature of biological traits themselves and how genes produce them. These points were not part of evolutionary theory itself, but are an important supplement that could not have been made before results from the last 20 years have been available. A theory can be called a cosmology when its assumptions go beyond hypotheses to be tested, to become assumptions that are no longer under test but are used to devise future research and that then set the directions of science. This includes, but isn't restricted to the kind of cosmology that deals with life space. We have to use theory to order our work and to anticipate what we have not yet found (for example, that newly discovered species will be related to other known species). But in the case of biology, a modern 'biocosmology' has developed steadily since Darwin, increasingly centered on molecular genetics and genes as the ultimate units of biological causation. Sometimes that theory has become so unquestioned as to impair research and even to be somewhat misleading. Elements of biological theory, such as natural selection, are powerful and general, and are being borrowed by physicists and astronomers (a reverse of the borrowing that occurred in the last century), to account for aspects of the physical universe in explicit evolutionary terms (including natural selection). For somewhat similar reasons, also having to do with the role of science in society, modern biocosmology has routinely been extended to apply to sociopolitical issues, such as economic and educational policy, science funding decisions, and views about socially delicate issues such as behavior, sexuality, talents and abilities, and much else. This course will discuss how the modern theory of life has arisen historically and the evidence and research methods that have been used to develop that theory. A view of biological theory as a broader cosmology leads to the additional consideration of the nature of biological causation as a statistical rather than purely deterministic phenomenon, and the kinds of research approaches that are used to understand biological problems. The latter include the engineering of organisms,

the health sciences, and the nature, evolution, and biological basis of behavior. The objective of this course is to give students a broad understanding of the evolutionary and genetic theory of life and a broader view of the way that theory extends to areas not yet understood, as well as to its origins in and relevance to human society. Everyone is familiar with Darwin's basic theory that life is historical and evolves via natural selection, and that genes are the basis of it all. But these ideas are often only superficially understood—sometimes even by biologists—and many clearly central aspects of life have been left out of the Darwinian theory. That theory explains how organisms evolve, but not what evolves or how genes make those traits possible. These are topics in gene function and developmental mechanisms. Along with some modifications to Darwin's ideas, largely involving elements of chance and population structure and ecology, the genetic theory evolution can be augmented by a few simple organizing principles to explain the nature of traits and flesh out a more comprehensive understanding of life. These principles are in daily use in research but it will be helpful for students to have them organized into a synthetic framework placed explicitly within evolutionary theory itself. This course will be generally related to all life science courses, and relevant to social and other sciences, philosophy, and history. But it is not tied to any particular other course, and as a kind of overview of the governing notions of life at the onset of the 21st century, complements the education of anyone in these related fields. This course will be of interest to students who have or will take courses in astrobiology, developmental biology, evolutionary biology and/or population genetics, or anthropological genetics and human evolution. The grade will be based on attendance and participation. Reading and/or research of some kind will be assigned most weeks, with students responsible for oral reporting or writing brief descriptions of what they have found. There will be a term paper or project, but no formal exams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: ANTH 021BIOL 222BIOL 230BIOL 322 or BIOL 460 ; 3 credits in statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 472** The Ecology of Traditional Farming (3) This course will examine the ecology of traditional farming, focusing on the farming household, its farm, and its subsistence needs.

### **The Ecology of Traditional Farming (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: ANTH 045 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 476W** Anthropology of Gender (3) Cross-cultural construction of gender and sex roles; theories of gender construction; case studies and practical effects.

### **ANTH 476W Anthropology of Gender (3)**

Students will learn the current theoretical approaches in anthropology to the cultural construction of gender and sex roles. The first 2-3 weeks of the course will concentrate on exploring and understanding these theoretical approaches. The remaining weeks will focus on case studies of non-western gender systems, and on the practical effects of those systems, but students will also be encouraged to relate these systems to their own experience. Each meeting will be based on discussion of the readings assigned for that meeting and students will be expected to participate. During the period devoted to theoretical approaches, discussion will focus on the assumptions, advantages, and disadvantages of each approach. For the part of the course devoted to readings on individual societies, one reading each week will be the basis for a critical essay of approximately five pages. These essays will be expected to include: 1) an identification of the theoretical approach that informs the work, 2) a statement of the author's arguments or questions, 3) a discussion of the methods used to provide data in support of the arguments or to answer questions, 4) a critique of the adequacy of data, and 5) a statement suggesting which additional elements might make for a better study. These essays will be graded for both content and form and students will have the option of rewriting essays (and improving their grade) after they receive comments. These essays will provide 60% of the course grade, while participation in discussions will provide another 15%.

A short research paper will also be required. The paper must focus on a question or hypothesis concerning gender, and a preliminary proposal that includes the focus of the paper, its relevance to the course, and a beginning bibliography is required. A first draft of the paper will be required two weeks before the end of the semester. The research paper will provide 25% of the course grade.

The course complements other courses in Anthropology that deal with sex differences, but will provide a perspective on gender that is not available elsewhere in the curriculum. The course can be used to fulfill a Behavioral Anthropology requirement in both the major and minor in Anthropology and a writing across the curriculum requirement. It will also provide students in other departments with the opportunity to study aspects of diverse, non-western cultures. The course is currently identified as one that may be taken to fulfill the requirements of the Women's Studies minor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: 3 credits in women's studies or anthropology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 477 (US;IL) Language, Culture, and Society (3)** Relationships among language, culture and society, with an anthropological emphasis.

**ANTH 477 Language, Culture, and Society (3)  
(US;IL)**

Anthropologists have long acknowledged the importance of language as a major adaptive tool of the human species and as our principal means of transmitting culture. Indeed, it is often difficult to separate language, culture and society because of their intrinsic interrelatedness; language requires a social environment, while culture requires an efficient and expressive means of communication. This course will explore the relationship of language, culture and society, within an anthropological context that distinguishes it from the standard approach of linguistics courses. Linguistic anthropologists have focused on language as a way to make inferences about larger anthropological issues such as world view, semantic fields, the relationship between speech and socialization and the interaction of linguistic and social communities. The course will include a section on the structure of languages, emphasizing the similarities and differences in human languages and the expression of the general language code in particular languages. It will also deal with the origins of language and briefly explore language change, including contacts between members of different societies and the changes that those contacts entail. The major hypotheses concerning the relationship between language and culture will be assessed. Finally, a major part of the course will be devoted to the study of language and its social context, the ways in which speech is associated with social relations, how speech affects and is affected by social interaction. Students will gain an understanding of the importance of language in human adaptation and the transmission of culture and as a social marker both between and within social groups. Students will be evaluated through written exams, problem sets, contributions to class discussions and presentations. The course will provide 3 credits in the Major and Minor in Anthropology.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: ANTH 045 or ANTH 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 478 (IL) Cannibalism (3)** Explores the cultural institution of cannibalism, uses of the "cannibal" label, and cannibalism's meaning among those who practiced it.

**Cannibalism (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: ANTH 045

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 492 Intermediate Field Methods (3-6)** On-site experience in collecting archaeological, behavioral, or biological data.

**Intermediate Field Methods (3-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: ANTH 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 493 Field Techniques (3-6)** Training in techniques involving analyses of archaeological, behavioral, or biological data.

**Field Techniques (3-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: ANTH 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ANTH 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Applied Linguistics (APLNG)**

**APLNG 083S** (GS;US;IL) First-Year Seminar in Applied Linguistics (3) Introduction to the application of theories of language to cognition, culture, gender, society, and second language acquisition.

**First-Year Seminar in Applied Linguistics (3)**

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**APLNG 200** (GH;IL) Introduction to Language, Culture, and Social Interaction (3) Introduction to the interrelationships among language, culture, and social interaction and their fundamental links to social identities and discourse communities.

**Introduction to Language, Culture, and Social Interaction (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**APLNG 210** (GH;IL) The Ecology of Global English (3) This course explores how English language enables globalization processes and how globalization changes the structure, norms, and usage of English.

**The Ecology of Global English (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**APLNG 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**APLNG 410** Teaching American English Pronunciation (3) Study and application of principles of North American English phonetics and theories of teaching pronunciation.

**APLNG 410 Teaching American English Pronunciation (3)**

**(BA) This course meets the Bachelor of Arts degree requirements**

This course, for teachers who deal with speakers of other languages, integrates research and theory on the acquisition

and development of pronunciation, as well as current pedagogy, to enable them to construct their own principled theory of teaching pronunciation. Students are introduced to the characteristics of the consonant and vowels systems of English. In addition, students are introduced to variations in the production of consonants and vowels by speakers of languages other than English. Students are expected to understand and to be able to describe the stress rhythm, and intonation of English as well as the adjustments that are made in connected speech. Students will learn how grammar and orthography influence the pronunciation of phonemes. Students will learn how to diagnose an individual's difficulties in the production of North American English and will learn how to develop appropriate curriculum. By focusing on instructional strategies from fields as diverse as theater arts, psychology, and instructional technology, students will be able to individualize their instruction by providing alternative ways to better respond to second language speakers' learning styles and preferences. Moreover, this course requires students to develop and implement appropriate curriculum for both hypothetical, real tutorial, and whole class instruction.

The objectives of this course are for teachers 1) to develop a satisfactory understanding of the phonetics of North American English, including consonants, vowels, rhythm, stress, intonation and prominence, 2) to develop an understanding of the relationship between listening and pronunciation, as well as orthography and pronunciation, 3) to develop an ability to explain these phonetic concepts appropriate to students with varying learning styles using a variety of techniques such as kinesthetic and tactile reinforcement, 4) to develop an ability to diagnose speakers' particular pronunciation difficulties and to create instructional materials in response, 5) to develop a coherent philosophy of the teaching of pronunciation, and 6) to develop an ability to evaluate pronunciation textbooks and materials and supplement them when necessary.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**APLNG 412 Teaching Second Language Writing (3)** This course provides opportunities for exploring various perspectives on theory, research, and pedagogical applications in second language writing.

### **APLNG 412 Teaching Second Language Writing (3)**

This course has been designed to provide opportunities to explore various perspectives on theory, research, and pedagogical applications in second language writing. Through readings, writing, class discussion, and development of practical applications, students may develop an understanding of how research and theory can inform their practice, as well as an awareness of how personal and professional factors come together to inform their own theory of second language writing. By engaging in instructional activities, such as evaluating writing, responding to writing, and developing materials, students may begin to develop an understanding of how to implement theory in practice aligned with understanding. The overriding objectives are for students to help develop self-awareness as a writer and a teacher of writing, develop their own philosophy of teaching composition in an additional language context and to develop curriculum that embodies this philosophy. Students will be evaluated on reading journals, tutoring in the Writing Center, literature review, materials development project and developing of materials. APLNG 412 is an elective course in the M.A. TESL program and/or PhD option in Applied Linguistics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**APLNG 482Y (IL) Introduction to Applied Linguistics (3)** Application of theories of language to psycholinguistics, philosophy of language, anthropological linguistics, sociolinguistics, bi/multilingualism, second language acquisition and teaching.

### **APLNG 482Y Introduction to Applied Linguistics (3) (IL)**

This is a survey course concerned with the application of theories of language to issues in the areas of psycholinguistics, philosophy of language, anthropological linguistics, sociolinguistics, bi/multilingualism, second language acquisition, and second language teaching. Specifically, the course focuses on: a) how language influences the way people think and bring meaning to what they do, b) how language users match their utterances to specific functional purposes within specific social contexts, c) how the language practices of a particular culture are closely tied to the beliefs and conceptual principles by which people in the culture live, d) how language is used by speakers of different races, genders, and ethnic backgrounds, and e) how language is acquired, used, and perceived within bi/multilingual societies. Through reading, writing, and discussing the major issues in each of these areas students will come to understand how theories of language have influenced the way we think and bring meaning to what we do, the ways we communicate within different cultures and societies, and the way languages are learned and used.

General Education: None

Diversity: IL

Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**APLNG 484** Discourse-Functional Grammar (3) Develop a working knowledge of the structure of English and apply such knowledge to research and/or classroom situations.

**APLNG 484 Linguistic Structures for English as a Second Language (3)**

This course is designed to enable prospective and practicing ESL/EFL teachers to understand the linguistic structures of the English language. Through the use of transformation grammar, students will interpret and analyze the basic grammatical structures of the English language. Students will apply their developing skills of linguistic analysis to recognize, and analyze, and remediate both oral and written grammatical errors in ESL/EFL instructional contexts. Students will understand the current theoretical issues related to pedagogical grammars and develop an appreciation for the practical and theoretical relevance of linguistics analysis for second language educators.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**APLNG 491** Theory: Second Language Acquisition (3) An investigation into current issues in the theoretical bases of second language acquisition.

**APLNG 491 Theory: Second Language Acquisition (3)**

This course considers the relationship between second language acquisition (SLA) theory and language teaching. An examination of various aspects of first language (L1) and second language (L2) learning/acquisition processes provides a framework for consideration of basic questions in SLA research and interpretation of findings to date. Of particular interest is the relationship of this research to teaching materials and methods. The questions addressed include the following: What is SLA? What are the methods and aims of SLA Research? How are theories of SLA related to major theoretical models of human language and human learning? What have been or could be important interdisciplinary perspectives in SLA?

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**APLNG 493** (IL) Teaching English as a Second Language (3) Theory, research, and pedagogy that focus on the teaching of English to speakers of other languages in varied contexts.

**APLNG 493 Teaching English as a Second Language (3)  
(IL)**

This course focuses on the teaching of English to speakers of other languages. Specifically, the course explores the multidimensional nature of the teacher as a learner of teaching, the context of schools and schooling within which teaching occurs, and the activities and content of second language teaching and learning.

Throughout the semester, students will engage in a range of theoretical, pedagogical, and reflective activities that will enable them to: 1) understand their own beliefs and knowledge about language learning and language teaching and become aware of the impact of such knowledge and beliefs on their classroom practices, 2) recognize the highly situated and interpretative processes involved in language teaching and be able to reflect on, critically analyze, and evaluate their own teaching practices, 3) become sensitive to the complex social, cultural, political, and institutional factors that affect language teaching and students' language learning, 4) come to recognize students' strengths and development as learners and language learners, 5) understand subject matter content from an instructional perspective and learn to anticipate areas that may require additional instructional support, 6) use their knowledge of theory to inform their instructional practices, 7) participate in professional collaborations with other teachers as they learn about language teachers, language teaching, and language learning.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**APLNG 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**APLNG 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Applied Youth, Family and Community Education (AYFCE)**

**AYFCE 211** (GS;US;IL) (CAS 222, CIVCM 211) Foundations: Civic and Community Engagement (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.

**Foundations: Civic and Community Engagement (3)**

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 211S** (GS;US;IL) Foundations: Civic and Community Engagement (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.

**Foundations: Civic and Community Engagement (3)**

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 270** (GS) Consumer and Financial Skills (3) Introduces consumer and financial concepts and skills needed to function in society; increases financial security today and in the future.

**AYFCE 270 Consumer and Financial Skill (3)  
(GS)**

This course covers essential consumer and financial skills young adults need to successfully manage resources and personal finances. It is also designed to satisfy social and behavioral general education requirements. Major themes addressed include goals and decision-making, spending sensibly, borrowing wisely, maximizing earnings /income, protecting assets, making money work, and life events that have financial implications. Some of the information has immediate application, while the remainder will become applicable to all students after graduating and living independently. Regardless of students' major or profession, the course content applies to them and can play a critical role in their professional and personal success.

Course topics are related to current economic events from an individual perspective, consumers' behavior in the market, and their impact on communities and society in general. Strategies are discussed which outlines how course topics can be extended to others. For instance, future formal educators (teachers) will learn strategies for incorporating consumer and financial skills into existing curricula regardless of the subject they teach. Students who plan to work in non-formal

settings (e.g., human service agencies, community agencies, youth groups or organizations) will acquire useful tools and techniques that may be used to improve the life skills and financial security of their clients. Future parents will learn easy ways to incorporate desired financial skills and behaviors in their children using daily living. The course addresses critical consumer and financial topics from the individual or household level only and with emphasis on key decisions from a social and behavioral perspective.

General Education: GS

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: semester standing of 3rd or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 295A** Observation of Cooperative Extension Service Programs (1-2) Supervised observation of extension education in agriculture, community resource development; family living, 4-H programs; appraisal of responsibilities of extension professionals.

#### **Observation of Cooperative Extension Service Programs (1-2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 438** (US) Living in an Increasingly Diverse Society (1-3) Students in this course will explore selected dimensions of diversity through lecture, discussion, speakers, active participation, and experiential learning.

**Living in an Increasingly Diverse Society (1-3)**

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 455** Extension Youth Development Programs and Volunteer Management (3) A study of 4-H/Extension youth programs and the variety of roles played by volunteer leaders.

**Extension Youth Development Programs and Volunteer Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: 6 credits of social or behavioral sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 495** Internship in Youth and Family Education Programs (6-18) Supervised off-campus, nongroup instruction including field experiences, practicums, or internships.

**Internship in Youth and Family Education Programs (6-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AYFCE 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Arabic (ARAB)**

**ARAB 001** Elementary Modern Standard Arabic I (4) Introduction to reading, writing, pronunciation, and aural comprehension of modern standard Arabic; simple grammatical forms; basic vocabulary.

### **Elementary Modern Standard Arabic I (4)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
 Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 002** Elementary Modern Standard Arabic II (4) Continuation of ARAB 001; development of additional skills in conversation, reading, and writing; grammar and vocabulary building; cultural components.

### **ARAB 002 Elementary Modern Standard Arabic II (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This language and culture course, which counts towards the language requirement for B.A. (and some other) degrees, presents the second semester of the study of the Modern Standard Arabic language and an exploration of several aspects of Arab cultures.

Arabic 002 is the continuation of Arabic 001, an elementary course designed to introduce learners of Arabic as a second/foreign language to the basic structures of Arabic and to its uses in common situations of everyday communication. Arabic 002 begins with a review of the basics learned in Arabic 001, and, as in some sections of Arabic 001, the course may follow the story of an Arab American family. Arabic 002 expands on vocabulary, goes into more complex grammar structures, and further introduces Arab culture. The "multiplicity" of the Arabic language and the coexistence of spoken (colloquial) and written standard forms of Arabic continue to be addressed in order to prepare the student for the complex reality of the language. This course underscores all four communication skills (reading, speaking, listening and writing) and uses audio and video material to take the learner to native speakers in their natural environment; introducing invaluable listening segments and various cultural aspects of the Arab world. The course may also have recourse to popular media such as films, comics, newspaper headlines, websites, music, and songs. Students are reminded through their oral presentations that Arabic is spoken as an official language in 22 countries with diverse and rich historical, political, economical, religious, artistic, and literary venues, and Arabic is also used in many additional parts of the world. Class activities and projects are designed to enable students to become active, creative participants, and transmitters of new knowledge to their peers.

The course is designed for students who have completed Arabic 001 in Penn State's language sequence or have the

equivalent level of language proficiency. In turn, this course serves as a prerequisite for Arabic 003. Placement within the Arabic language sequence follows the University's foreign language placement policy; for example, students whose native language is Arabic are not eligible to receive credit in this course.

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Summer 2010

Prerequisite: ARAB 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 003** Intermediate Modern Standard Arabic (4) More complex grammatical forms; vocabulary building principles; continued development of skills in conversation, reading, writing; culturally-oriented readings and films.

#### **ARAB 003 Intermediate Modern Standard Arabic (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This language and culture course, which completes the 12th-credit-level language requirement for B.A. (and some other) degrees, presents the third semester of the study of the Modern Standard Arabic language and an exploration of several aspects of Arab cultures.

ARAB 003 is an intermediate course designed as a continuation of ARAB 002 and a basis for further study of Arabic as a second or foreign language. The course intends to alert students to the wealth and intricacies involved in learning the Arabic language and its many cultures. In addition to being the official language of 22 countries, with great ancient civilizations, complex modern histories, and intense political situations, Arabic is also the language of the Islamic religion; the language of a booming music and film industry, and the language of a significant body of literature. The multiplicity of the Arabic language, as well as the coexistence of colloquial and modern standard Arabic, is addressed in this course. The course emphasizes all four communication skills (reading, speaking, listening and writing). Vocabulary and grammar are expanded. Students become involved in the Arabic language and its cultures through various activities, which may be designed around a serialized and audio-visually enhanced story set in an Arabic environment, as well as through an oral report presented in class. The course may use popular media such as films, comics, newspaper articles, music, websites, and songs. Themes relating to contemporary experience are treated, such as relationships with family members and friends, the decision to immigrate, daily life within a residence, how a child of an Arab immigrant feels, the cultural importance of hospitality, and the month of Ramadan.

The course is designed for students who have completed ARAB 002 in Penn State's language sequence or have the equivalent level of language proficiency. In turn, ARAB 003 course serves as a prerequisite for ARAB 110. Placement within the Arabic language sequence follows the University's foreign language placement policy; for example, students whose native language is Arabic are not eligible to receive credit in this course.

General Education: None

Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Summer 2010

Prerequisite: ARAB 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 051** Elementary Intensive Arabic for Graduate Students I (3) Intensive introduction to Modern Standard or Colloquial Arabic: first half of graduate sequence in elementary reading, writing, listening, cultures.

#### **ARAB 051 Elementary Intensive Arabic for Graduate Students I (3)**

Students learn the Arabic alphabet. They learn to form the letters in all their different positions, they also learn to read them. Practice through dictation, listening and reading lists of words containing the different sounds and letters. Students learn how to greet one another. They also learn vocabulary words they can use in simple sentences. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 052** Elementary Intensive Arabic for Graduate Students II (3) Intensive introduction to Modern Standard or Colloquial Arabic: second half of graduate sequence in elementary reading, writing, speaking, listening, cultures.

#### **ARAB 052 Elementary Intensive Arabic for Graduate Students II (3)**

This is the second in a series of three courses designed to give students an intensive introduction to Arabic. This is the

second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Arabic vocabulary. Lessons are taught in an authentic cultural context.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008  
 Prerequisite: ARAB 051 and graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 053** Intermediate Intensive Arabic for Graduate Students (3) Continued intensive study of Modern Standard or Colloquial Arabic at the intermediate level: reading, writing, speaking, listening, cultural contexts.

### **ARAB 053 Intermediate Intensive Arabic for Graduate Students (3)**

This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Arabic. Continued intensive study of Arabic at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008  
 Prerequisite: ARAB 052 or equivalent and graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 110** (GH;IL) Arab Language, Cultures, and Current Topics (3) Fourth-semester Modern Standard Arabic: study of cultures through authentic discourse, texts, film; development of reading, writing, listening, speaking skills.

### **ARAB 110 Arab Language, Cultures, and Current Topics (3) (GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This language and culture course, which fulfills the Humanities or the International Cultures requirement within General Education or the Other Cultures requirement within the Bachelor of Arts degree, will offer a continuation of the study of the Modern Standard Arabic language and an exploration of several aspects of Arabic cultures, such as the religious and cultural traditions of the month of Ramadan, the differences between American and Arab relationships, preparing for a trip to the Middle East, and an introduction and brief exposition of the Palestinian problem. The course is designed for students who have completed ARAB 003 in our language sequence or have the equivalent level of language proficiency. Students will develop listening, reading, writing, and speaking skills, and will be introduced to a range of Arabic cultures and encouraged to see both commonalities and differences among them. The material is always presented through culturally rich texts. The course offers opportunities for students to increase their knowledge and appreciation of not only the language, in its Modern Standard form, but also the varieties of cultural production in the Arabic-speaking world, in their many facets and diverse manifestations. Along with continuation of language learning, students are exposed to Web sites, film, music, comics, literature etc. Students' assignments use a combination of reading, writing, listening, and researching skills. Students often work in groups, performing oral and written class activities. This course serves as a

prerequisite for ARAB 401.

General Education: GH

Diversity: IL

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language and Other Cultures

Effective: Summer 2010

Prerequisite: ARAB 003 or permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 165** (IL) (HIST 165, RL ST 165) Introduction to Islamic Civilization (3) Islamic history, culture, and religious life c.600-1500 C.E.

### **Introduction to Islamic Civilization (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an

individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 401** (IL) Advanced Language & Cultures I (3) Fifth-semester Modern Standard Arabic: reading more complex texts,



films, further development of conversation, composition skills, Arab cultures, current issues.

**ARAB 401 Advanced Language & Cultures I (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirement.**

This language and culture course, which fulfills International Cultures requirement or the Other Cultures requirement within the Bachelor of Arts degree, will offer a continuation of the study of the Modern Standard Arabic language and an exploration of several aspects of Arab cultures. Language skills (reading, writing, speaking, listening) are further developed through the exploration of several culturally important themes that illustrate a range of cultural situations and contexts. Among the themes that may be discussed are the following: new opportunities and also persistent problems facing Arab youth; social and economic conditions in which fundamentalist and other groups present their agendas; the condition of women and the pressures often exerted by society's norms and traditions to keep women out of the public scene; cultural, emotional, and literary reactions to the tragedy of displaced peoples; Islam and other religions among Arab cultures; love and the images and symbolism used to describe it; the writings of one or more well-known authors, including the evolution within the works of the author(s) and the influence of these writings on Arab thought; Arabic cultures in various parts of the world, including the U.S. All themes are presented in the target language and represent a wide range of Arabic culture and current issues. The course may also involve popular media such as comics, newspaper headlines, music and songs, and a visit to the library. Class activities and projects are designed to enable students to become active and creative participants and transmitters of new knowledge to their peers. Students will be asked to conduct research using authentic material, and to write a short paper in Arabic as a wrap up of their final presentation.

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: ARAB 110 or approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 402 (IL) Advanced Language & Cultures II (3)** Sixth-semester Modern Standard Arabic: reading more complex texts, films, further development of conversation, composition skills, Arab cultures, current issues.

**ARAB 402 Advanced Language & Cultures II (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This language and culture course, which fulfills the Humanities or the International Cultures requirement within General Education or the Other Cultures requirement within the Bachelor of Arts degree, will build upon previous courses in the Arabic curriculum and offer a continuation of the study of the Modern Standard Arabic language, an exploration of several aspects of Arab culture in a range of contexts, and the exploration of current issues and topics of interest in Middle Eastern media. Among the themes that may be discussed are the following: the achievements of Arab Nobel Prize winners, holiday traditions, colloquial Arabic, love, social and economic conditions of the poor and the middle-class, practical and psychological problems arising from belonging to a certain social class, ways in which the state (in different countries) relates to the needs of the people, Arab cultures in various parts of the world including the U.S., and a variety of the most recent social and political newspaper and magazine articles.

All themes are presented in the target language and represent a wide range of Arabic culture and current issues. The course course may also involve popular media via the reading of comics, relevant headlines, music and songs, and computer practice for students to learn how to type in Arabic and benefit from available resources to equip students with this useful Arabic tool. Class activities and projects are designed to enable students to become active and creative participants and transmitters of new knowledge to their peers. Themes will often be examined comparatively and will draw on students' personal experience to connect with the material presented.

The course is designed for students who have completed Arabic 401 in our language sequence or have the equivalent level of language proficiency.

At University Park the course will be offered every semester or every other semester, according to enrollment patterns and the availability of staff. At other locations, course-offering patterns will be determined by their needs.

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: ARAB 401 or approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 497G** Professional Development for Teachers of Arabic (1-3) Professional development workshop designed for current and prospective teachers of Arabic. The workshop provides participants with information about current teaching methodologies for Modern Standard Arabic.

**Professional Development for Teachers of Arabic (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARAB 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Architectural Engineering (A E)

**A E 097** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 124S** Architectural Engineering Orientation (1) Introduction to architectural engineering; lectures and discussions with special reference to the relation of architectural engineering to the building industry.

### A E 124S Architectural Engineering Orientation (1) (FYS)

This course is designed to help students decide whether they do or do not want to major in Architectural Engineering. It has four major goals. The first is to introduce the role of the architectural engineer in the building industry. The second is to introduce the concepts of integrated building systems design and construction management. The third is to familiarize students with the Architectural Engineering curriculum, department facilities, and faculty. The fourth and final goal is to develop an awareness and interest in the periodicals and publications related to buildings.

This course will provide students with access to the regular faculty of the program, a feature that continues throughout the students' 5 year career in Architectural Engineering. Students and faculty will be connected through discussion of topics related to the building industry and the areas that future A E students will be studying. Since this program operates under enrollment control, this course will address entrance to the major, the requirements placed on the freshman year, and the selection process. Additionally, special features of the program will be discussed, including option selection, which takes place after 3 years, the study abroad program at the University of Leeds, and the integrated graduate/undergraduate program.

Depending upon the semester in which the course is taken, students will be provided with either an opportunity to participate in the annual A E Career Fair or the 5th year thesis presentations. Students will take field trips to buildings and construction sites on campus to reinforce the material learned in class. As a result of this class, all students should be better prepared to make a decision as to whether or not they wish to apply for this major at the end of their first year.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 197** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 202** Introduction to Architectural Engineering Concepts (3) Introduction to profession of architectural engineering, building envelope systems, sustainable design, fire protection systems, and engineering economics.

### A E 202 Introduction to Architectural Engineering Concepts (3)

As the first course after students are admitted into the major, A E 202 is designed to expose students to two aspects the profession: the interdisciplinary nature of architectural engineering and the concept of professional practice.

Technical areas of focus chosen for this course are building envelope and fire protection. These disciplines of architectural engineering require students to sufficiently understand the application of a number of disciplines in the creation of successful and integrated solutions. Students will learn to integrate architectural design and detailing, structural analysis and design, the influence of thermal science, construction processes and building codes in the proper execution of the design of specific building systems.

Social and environmental responsibility will be introduced through the discussion of sustainable design. Understanding the Green design concepts and the LEED certification system provides the practical basis for the students to put idealism to work.

Early exposure to professional practice and engineering economics provides students with a framework of understanding to manage the relationships of the myriad of technical courses. This course is designed to provide students an appreciation that the practice of architectural engineering includes proper executions of business and management practices. Students will also learn to analyze design options based on economic factors.

The course utilizes lectures, practicums, examinations, projects and presentations to deliver and reinforce the technical content. The course offers students opportunity to work in team settings and to present their work orally to their peers. The broad coverage of the technical and social issues and professional skills intentionally involves students early in their education to all the ABET educational outcomes. The projects present opportunities to engage students in discussion and application of social and ethical responsibilities.

The course is open to architectural engineering students in the second year with an ENGAE standing. Students in other curricula may enroll in this course with prior approval of the program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 210** Introduction to Architectural Structural Systems (3) Qualitative study of architectural structural systems; historical development of structures; insights of structural analysis and synthesis; comparative structural types. This course is intended for Architecture students.

### **A E 210 Introduction to Architectural Structural Systems (3)**

A E 210 is an introductory course in structural analysis and engineering mechanics (primarily statics) with an emphasis on buildings. This course was created specifically for Penn State architecture students. The course is designed to give students an understanding of the behavior of building structural and related architectural elements under a variety of loading conditions. A E 210 is designed to provide students with an understanding of the interpretation and application of structural aspects of building code requirements, particularly in the area of design loads. In addition, this course provides the necessary prerequisite knowledge for two additional structural design courses that are required for architecture students.

**Faculty Member Proposing Course:** M. Kevin Parfitt

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: algebra trigonometry

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 211** Introduction to Environmental Control Systems (3) Qualitative study of humans in macro- and micro-architectural environmental systems. This course is intended for Architecture students.

### **A E 211 Introduction to Environmental Control Systems (3)**

A E 211 introduces Architectural students to building thermal environmental and building mechanical issues. Thermal environmental issues include: thermal comfort, natural environmental impacts, heat transfer through the building envelope, heating and cooling design, noise and vibration of mechanical systems, and building energy consumption. Building mechanical system issues include: heating, ventilating and air-conditioning systems. Emphasis is placed on building design in response to the technical, environmental and societal challenges, with a focus on sustainable design principles and guidelines applied to mechanical systems.

The course utilizes lectures, practicums, examinations, projects and presentations to deliver and reinforce the technical content. The course offers students opportunity to work in team setting and to present their work orally to their peers. The broad coverage of the technical and social issues and professional skills challenges the architecture students to incorporate technical issues as an integral part of the overall building design.

The course is required for students enrolled in the undergraduate architecture program. The course is not available to architectural engineering students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 221 Architectural Building Materials (3)** The structural and architectural use of building materials; commercial standardization, classification, and description as encountered in the building trades.

### **A E 221 Architectural Building Materials (3)**

The course objective is for students to understand building materials and methods. It is taught using a combination of these methods, 1) job site visits to current construction projects on campus, 2) guest speakers from manufacturers, engineering firms, building code organizations, construction managers and contractors, 3) video series of building construction, and other various DVD's, 4) visits to local building suppliers and testing facilities, 5) bus trip to several manufacturing, fabrication, milling plants, 6) hands-on mock-ups of construction assemblies, and 7) actual material samples. This course prepares students for further study in the advanced architectural engineering courses. Student evaluation and individual grades are based on a combination of homework, projects, quizzes, attendance and a final cumulative exam. The major part of the final grade is from six (6) quizzes of which the lowest quiz grade is dropped. Special facilities consist of 1) the drafting room, where various drawings and specifications are utilized to understand materials, 2) the computer lab, where students have access to the internet, which provides them with information from manufactures, suppliers and construction trade organizations, 3) the material samples room, where actual material samples and fasteners are examined and understood, 4) the hands-on mock-up room, where true size mock-ups are built by student groups and 5) the structures testing lab, where concrete beams, wood trusses, etc. built by the students are load tested to understand construction methods and failures.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005

Concurrent: A E 222

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 222 Working Drawings (3)** Materials and methods of construction used in residences, and preparation of working drawings for a small building.

### **A E 222 Working Drawings (3)**

The course objective is for students to understand construction documents, communicate construction information with sketches and to create drawings and specifications. The course is organized around a series of modules related to working drawings. These modules consist of: 1) reading and interpreting construction documents, 2) hand drawn sketches, from existing mock-ups, from existing drawings, from assigned details of existing campus buildings, from only given material and connection parameters, 3) CAD drawings of plans, elevations, wall sections, building sections, details, schedules. The final partial construction documents will be in accordance to CAD standards and various codes, including zoning, International Building Code, ADA, etc. This course prepares students for further study in the advanced architectural engineering courses. Student evaluation and individual grades are based on a combination of homework, projects, in class assignments, exams, quizzes and attendance. In class assignments are generally short and given to demonstrate a concept or as practice. Special facilities consist of: 1) the drafting room, where various drawings and specifications are utilized and where students prepare sketches, 2) the computer lab, where students have access to computer aided design software, presentation software and communication software, 3) the material samples room, where actual material samples and fasteners are examined and understood and 4) the hands-on mock-up room, where true size mock-ups that represent the students drawings are built by student groups.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: EDSGN 130 or EDSGN 100  
Concurrent: A E 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 296 Independent Studies (1-18)** Creative projects including research and design that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 297 Special Topics (1-9)** Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1985

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 308 Introduction to Structural Analysis (4)** Algebraic and graphical methods of analysis of determinate members, deflections; introduction to indeterminate analysis methods. Course includes practicums.

### **A E 308 Introduction to Structural Analysis (4)**

In this introductory course, students develop skills to perform analysis of structures, with emphasis on buildings and their structural elements. The objectives of this course are as follows: 1) to determine loads that the buildings/structural elements are likely to be subjected to during the lifetime of the building; 2) to discuss procedures used to determine reactions and internal forces in trusses, beams, and frames; 3) to introduce methods that can be used to calculate deflections. These objectives can be seen as three general steps that define structural analysis. Although the main emphasis in this course is the analysis of planar, statically determinate structures, an introduction to the analysis of indeterminate structures is also given. The course is required to be taken by all architectural engineering undergraduate students in the third year. A knowledge of statics and strength of materials is required and this course serves as prerequisite for steel and concrete design courses in the Architectural Engineering Program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E MCH 211E MCH 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 309 Architectural Acoustics (3)** Acoustical design for good hearing conditions and noise control; construction details, materials, acoustical properties of room shapes; sound absorption, transmission. Course includes practicums.

### **A E 309 Architectural Acoustics (3)**

Architectural acoustics encompasses four distinct areas of study: room acoustics, sound isolation, mechanical system noise and vibration and sound reinforcement. The course concentrates on the performance of the building components as they impact on the acoustical environment. The goal of good acoustical design is to provide an environment to afford occupants of a building a high quality listening environment and to minimize intrusion by offending noises. By manipulation of building materials, spatial relationships and geometry, the students learn to improve acoustical performance of a building.

Through lectures, practicums, projects, tours to campus performance venues and examinations, the concepts of acoustical design are delivered and reinforced. The course offers students opportunity to work in team settings and to present their work orally to their peers.

The course is required for all architectural engineering students, typically taken in the 3rd-year. Physics 213 is a prerequisite for this course. This course is a prerequisite for Advance Architectural Acoustics and Noise Control. Students not in the architectural engineering curriculum are encouraged to consult with the instructor prior to enrolling in the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: A E 221A E 222PHYS 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 310** Fundamentals of Heating, Ventilating, and Air Conditioning (3) Fundamental principles and engineering procedures for the design of heating, ventilating, and air-conditioning systems, including energy utilization and constraints.

### **A E 310 Fundamentals of Heating, Ventilating, and Air Conditioning (3)**

A E 310 explores the fundamentals of the heating, ventilating and air-conditioning (HVAC) systems that control environmental conditions inside buildings. HVAC systems have common basic components, although they may significantly differ in physical appearance and arrangement. The course considers a variety of HVAC systems and presents methods of analyzing air-conditioning processes.

HVAC systems maintain not only an acceptable level of thermal comfort within conditioned spaces, but also a healthy environment. Hence, the conditions for a comfortable and healthy indoor environment, such as physiological considerations, environmental indices, and control of indoor air quality are defined.

The design of a successful HVAC system requires an accurate estimate of the peak rate at which energy must be added to (heating load) or removed from (cooling load) a space. Therefore, the various types of heat transmission in buildings and methods for estimating them are discussed in order to prepare students to estimate buildings energy consumption and size HVAC systems properly.

The target audience is Architectural Engineering students at a junior level who have taken A E 202 "Introduction to Environmental Systems in Buildings," and M E 023 "Introduction to Thermal Science."

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 201 ; Prerequisite or concurrent: A E 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 311** Fundamentals of Electrical and Illumination Systems for Building (3) Fundamental principles, systems, and planning concepts for electrical and illumination systems in modern buildings.

### **Fundamentals of Electrical and Illumination Systems for Building (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: or concurrent: E E 211PHYS 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 372** Introduction to the Building Industry (3) Introduction to the building industry; owner, designer responsibilities; documents, bidding procedures; design-construct contracts; project management; insurance, labor relations.

### **Introduction to the Building Industry (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: sixth-semester standing in Architectural Engineering

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 397** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 398** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 401** Design of Steel and Wood Structures for Buildings (3) Application of principles of engineering mechanics to layout, analysis, design, and detailing of structural elements in steel and wood of simple buildings.

**A E 401 Design of Steel and Wood Structures for Buildings (3)**

A E 401 is a first course in structural steel and wood design taken by all undergraduate Architectural Engineering students in the 6th or 7th semester. It applies the principles of engineering mechanics to layout, analysis, design, and detailing of structural steel elements. The course covers the principles of structural design, structural safety, structural stability, steel as a material, methods of structural steel design, design of tension members, design of columns, design of beams (flexure, shear, deflection, bearing, web crippling, web yielding), combined stresses (beam columns), fasteners/connections. It also treats wood design, including material characteristics, beam design, column design, and fasteners. After completion of the course students will be able to design simple wood and steel structures.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: A E 221A E 222A E 308

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 402** Design of Concrete Structures for Buildings (3) Application of principles of engineering mechanics to layout, analysis, design, and detailing of structural elements in concrete of simple buildings.

**A E 402 Design of Concrete Structures for Buildings (3)**

This course is designed to provide all Architectural Engineering students with an ability to analyze and design reinforced concrete and an understanding of the theoretical behavior of reinforced concrete members. The primary focus is on the analysis and design of one-way systems comprised of slabs, beams, and columns. Evaluation methods include, but are not limited to, exams and homework assignments. A prerequisite knowledge of structural analysis is necessary. It is a required course in the Architectural Engineering curriculum. Additionally, this course provides the necessary prerequisite knowledge for several upper level concrete courses in both Civil and Architectural Engineering.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: A E 221A E 222A E 308

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 403** Advanced Steel Design for Buildings (3) Continuation of A.E. 401. Advanced analysis, design, and detail of the structural elements in wood and steel.

**A E 403 Advanced Steel Design for Buildings (3)**

A E 403 is designed for 4th year Architectural Engineering students in the structural option, to build on the design and analysis base developed in the first course in steel design. This course is intended to develop competency in analysis and design of multi-story steel buildings subjected to gravity, wind and earthquake loadings, including study of connections, framing systems, composite design and plastic design of steel members.

The course prerequisites include determinate and indeterminate analysis and structural design of steel members. It will cover such topics as types of construction, the design process, loading and load cases, floor systems, floor vibration, moment rotation characteristics of connections, plastic analysis, multi-story frames, braced and unbraced frames, seismic design, leaning columns, drift, composite design and connections.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: A E 401A E 430

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 404** Building Structural Systems in Steel and Concrete (3) Basic analysis, design, and detailing of steel and concrete structural elements for buildings, emphasizing systems design and comparisons. A E 404 is not permitted for AE



Structural Option students or for Architecture students.

### **A E 404 Building Structural Systems in Steel and Concrete (3)**

The course is designed for architectural engineering students in the Construction, Mechanical Systems and Lighting/Electrical options to gain an ability to design simple building members in steel and concrete using current professional standards, specifications and guidelines. Students will learn to combine these members into simple structural systems and compare the performance and load carrying characteristics of these systems. The course will also address general performance parameters of these materials, construction issues and key systems-integration issues for beams, columns, flooring and roofing systems, and lateral bracing systems constructed in steel and concrete. This course is considered to be the terminal course for non-structural option AE students, and is designed to provide a general understanding of design, construction and integration issues that affect these structural systems. This course may be taken by AE Structural Option students or Architecture students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: A E 221A E 222A E 308

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 421 Architectural Structural Systems I (3)** Qualitative and quantitative analysis and design of architectural structures, force flow; structure configurations; measurement and experiments; design studio critique.

### **Architectural Structural Systems I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1990

Prerequisite: A E 210 3 credits in mathematics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 422 Architectural Structural Systems II (3)** Continuation of A E 421, with emphasis on structural configuration and construction assemblies.

### **Architectural Structural Systems II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1990

Prerequisite: A E 421

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 424 Environmental Control Systems I (3)** Fundamental principles and applications of environmental systems in buildings. This course is intended for Architecture students.

### **A E 424 Environmental Control Systems I (3)**

This course is a complement to A E 211. Environmental control systems other than the thermal environmental systems are covered in this course. A E 424 introduces architecture students to building illumination, acoustical, fire protection, electrical and plumbing design issues. Emphasis is placed on building design as a response to the technical, environmental and societal challenges.

The course utilizes lectures, practicums, examinations, projects, presentations and field trips to deliver and reinforce the technical content. The course offers students opportunity to work in team settings and to present their work orally to their peers. The broad coverage of the technical and social issues and professional skills intentionally involves students in discussion and application of social and ethical responsibilities. The course is required for students enrolled in the undergraduate architecture program. A E 211 is a prerequisite for this course. The course is not available to architectural engineering students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2005

Prerequisite: A E 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 430 Indeterminate Structures (3)** Classical methods of analysis for beams, frames, arches, and secondary stresses as

applied to buildings; introduction to modern methods.

### **Indeterminate Structures (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1984  
Prerequisite: A E 308

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 431 Advanced Concrete Design for Buildings (3)** Continuation of A.E. 402. Advanced analysis, design, and detail of concrete masonry, prestressed and reinforced concrete.

### **A E 431 Advanced Concrete Design for Buildings (3)**

This is the last course in reinforced concrete design in the Architectural Engineering curriculum, and builds on previously learned skills in reinforced concrete design and analysis of statically determinate and statically indeterminate systems. Successful students will come away with sufficient understanding of the theoretical basis of concrete design to be able to learn any further aspect of concrete design on their own, and a set of specific critical skills needed by any structural designer involved with reinforced concrete structures. These skills include:

- Identification of the assumptions and weakness of the theory of reinforced concrete members.
- Detailed design of reinforced concrete beams and girders.
- Design of reinforced concrete slabs by the direct design method.
- Design of reinforced concrete slabs by the equivalent frame method.
- Analysis of reinforced concrete members subjected to torsion, to determine bending and torsional moments.
- Design of reinforced concrete members subjected to torsion.
- Design of reinforced concrete columns, slender and non-slender.
- Design of reinforced concrete columns in biaxial bending.

This course is taught by a combination of lectures, solution of example problems, and design projects.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: A E 402A E 430

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 432 Design of Masonry Structures (3)** Analysis and design of unreinforced and reinforced masonry: non-bearing walls, bearing walls, shear walls, masonry building systems.

### **A E 432 Design of Masonry Structures (3)**

This course is intended to prepare students in Architectural Engineering and related disciplines such as Civil Engineering and Agricultural and Biological Engineering to design load-bearing and non load-bearing masonry structures. Although the emphasis will be on reinforced masonry, the design of unreinforced masonry will also be covered. The course will begin with a discussion of the materials used in masonry construction: clay units, concrete units, mortars, grout, and reinforcement. Since masonry is designed by allowable stress methods, a discussion of allowable stress design, as compared to load and resistance factor design, is necessary from the outset. The first design applications to be discussed will be non load-bearing walls, reinforced and unreinforced. This will be followed by a brief coverage of the topic of columns. The next topic will be load-bearing walls, reinforced and unreinforced. The discussions of load-bearing walls will describe two methods for their design: the use of a straight-line interaction formula and the construction of interaction diagrams. The analysis of systems of shear walls will be described in detail, followed by shear wall design. The design of particular building systems, both low-rise and mid-rise will either be covered by lectures, or by other exercises.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: A E 402 or C E 341

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 439 Modern Structural Systems (3)** Analysis and design of building structures of unusual types.

### **Modern Structural Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 1981

Prerequisite: A E 401A E 402A E 430

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 444 Micro CADD Applications for Buildings (3)** Application of microcomputer based CADD systems to architectural engineering problems including graphics, system customization, and AI programming techniques.

**Micro CADD Applications for Buildings (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: A E 222;CMPSC 201 orCMPSC 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 454 Advanced Heating, Ventilating, and Air Conditioning (3)** Engineering design and performance analysis procedures for complex commercial building systems, including energy conservation techniques; design project.

**Advanced Heating, Ventilating, and Air Conditioning (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1986

Prerequisite: A E 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 455 Advanced Heating, Ventilating, and Air Conditioning System Design (3)** Design of several different systems for a course project building; control strategy; economic comparisons using life-cycle cost techniques.

**Advanced Heating, Ventilating, and Air Conditioning System Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: A E 454

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 456 Solar Energy Building System Design (3)** Solar radiation, collectors, and thermal storage; design and analysis of a heating system using system-simulation computer program.

**Solar Energy Building System Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1984

Prerequisite: seventh-semester standing in Engineering

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 457 HVAC Control Systems (3)** Theory of automatic control. HVAC control applications. Control system components, control loops, development and documentation of control logic, control commissioning.

**A E 457 HVAC Control Systems (3)**

The objective of the course is to develop the knowledge and skills necessary to understand, design, document, and diagnose problems in HVAC control systems. The course builds on knowledge of HVAC system function and design obtained in prior courses in the curriculum and prepares students for advanced design courses and the capstone project. The course begins with an introduction to concepts and terminology of automatic control, followed by detailed study of control system components: sensors, controlled devices, and controllers. Understanding of these fundamentals is then applied to the development and documentation of controls for common HVAC systems and the commissioning of control systems. Relevant standard and guideline documents are referenced as necessary.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: A E 454

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 458** Advanced Architectural Acoustics and Noise Control (3) Advanced consideration of noise control in buildings; ventilating system noise and vibration; acoustic design variables.

**Advanced Architectural Acoustics and Noise Control (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: A E 309

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 461** Architectural Illumination Systems & Design (3) Lighting units & photometry; lighting equipment; design criteria, calculation methods; the design process; energy codes.

**A E 461 Architectural Illumination Systems & Design (3)**

This course will prepare students to design basic lighting systems by providing them with background information and experience to do the following:

1. Develop their knowledge of lamp, luminaire, and control types and evaluate their applicability to a particular design situation.
2. Establish fundamental design criteria for a variety of lighting applications.
3. Conduct appropriate and accurate analyses of lighting systems to assess system performance and evaluate its ability to meet design criteria.
4. Implement a completed design by specifying all of the components of the system and providing an appropriate system layout.

This is the first full-semester lighting course that students receive in the Architectural Engineering Department's Lighting/Electrical Option.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: A E 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 464** Advanced Architectural Illumination Systems & Design (3) Flux transfer theory; advanced lighting and control systems; emergency lighting; daylighting; visual performance issues; psychological aspects of lighting.

**A E 464 Advanced Architectural Illumination Systems & Design (3)**

This is the final undergraduate architectural lighting course in the Lighting/Electrical Systems Option. The course focuses on advanced topics related to lighting design such as luminous flux transfer and its application to lighting analysis procedures, advanced issues in photometry, advanced control systems, and advanced topics in lighting design. The light design topics include the psychological aspects of lighting, and design for complex spaces such as museums, stores, and video conferencing.

The course includes a weekly hands-on practicum experience, homework, exams and a design project.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: A E 461

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 466** Computer Aided Lighting Design (3) Design and analysis for outdoor area; floodlighting; and interior applications, including design criteria; economic analysis; modeling algorithms; and visualization.

**A E 466 Computer Aided Lighting Design (3)**

The goal of this course is to cultivate an understanding of good lighting design practice through a series of design and analysis problems. Course topics include design criteria, design practice, and the application of lighting hardware and analysis procedures for outdoor area lighting, economic analysis of lighting systems, interior lighting design and lighting system visualization.

Commercially available computer software is applied to approximately seven design projects, which students present in

either PowerPoint or submit in a short report format. Students, faculty and outside professionals critique the project solutions. The critiques enhance the learning experience for all students through the evaluation of different lighting solutions applied to the same design problem.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: A E 444A E 461

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 467 Advanced Building Electrical System Design (3)** Design of electrical systems for commercial and industrial facilities emphasizing design practice and integration with codes and standards.

### **Advanced Building Electrical System Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: A E 311E E 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 469 Photovoltaic Systems Design and Construction (3)** Criteria and analysis methods pertaining to the design and construction of photovoltaic (PV) systems and their integration with buildings.

### **A E 469 Photovoltaic Systems Design and Construction (3)**

This course provides students with a working understanding of the design and construction of photovoltaic (PV) systems and their applications in buildings, and is intended for students in Engineering and Energy Engineering. The course provides an overview of PV systems and common applications in residential and commercial buildings including the determination of solar irradiance and insolation based on latitude and climate as well as site survey and assessment methods for the positioning of PV systems. Technical topics include solar module components, DC-AC power inversion, energy storage systems, and system sizing and design. The integration of PV systems with building electrical and mechanical systems, including discussions of the pertinent building codes, utility interconnection, and the economic analysis of PV systems, is also included in this course. Upon the completion of the course, students will be able to calculate and account for the factors affecting the performance of PV systems in various climates and conditions, distinguish the features and performance variables of solar modules and inverters in the design of PV systems, calculate string sizing and inverter matching variables in the design of PV systems, communicate the critical design features of safe and efficient PV system integration with buildings and utilities, evaluate and quantify the factors affecting the successful installation and performance of PV systems in variable settings, and will develop inquiry skills needed to assess new products entering the solar energy marketplace. In addition to understanding the key issues with system design, students will be able to utilize this understanding to choose components properly and to design a basic grid-tied system for a chosen building. Students will also be able to conduct an economic analysis of PV systems in the context of residential and commercial building construction.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: E E 210 or E E 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 470 Residential Building Design and Construction (3)** Managerial aspects; architectural and code considerations; cost estimating, design, and construction of structural, plumbing, HVAC, and electrical systems.

### **Residential Building Design and Construction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994  
Prerequisite: A E 372 or C E 332 ; seventh-semester standing in Architectural Engineering or Civil Engineering

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 472 Building Construction Planning and Management (3)** Construction organization and contracts; preconstruction services; estimating; scheduling; cash flow; site planning and preparation; building construction sequences; construction business presentations; value engineering.

**A E 472 Building Construction Planning and Management (3)**

The objective of A E 472 is to introduce students in the construction management option of the Architectural Engineering program to the process in which building construction contractors acquire building projects, and the range of services typically provided on these projects. Upon completion of this course, students will have a working understanding of the preconstruction process and methods of acquiring negotiated work in building construction. They will be capable of assembling estimates, schedules, cash-flow curves, and site plans for building projects, and will have a working knowledge of competitive presentation strategies and develop professional presentation skills.

The content of the course centers upon the process in which companies plan for and acquire projects as construction managers and general contractors. Specific topics include schematic estimating and scheduling, design coordination of structural, architectural, and mechanical systems, value engineering processes, and site planning. The financial aspects of construction work are also presented, including project financing, cash flow, and accounting. A significant portion of the course is also devoted to the development of strategic and competitive business presentation, including risk assessment, fee structure, team dynamics, and technical presentation skills.

The class relies heavily upon the application of all content by students in the context of a team project. The project involves the distribution of a "Request for Proposal" for which students prepare a competitive proposal for an actual building construction project planned on the Penn State University Campus. Class activities include the presentation of key issues followed by in-class or independent exercises to reinforce themes and strategies to be applied in the project proposal. Students are assessed on their performance on discussion quizzes on ANGEL, independent exercises, class participation, a team presentation, and exams.

For A E students, the prerequisite for the course is the successful completion of A E 372. For non-A E majors, students are admitted at the discretion of the instructor. A E 472 is a prerequisite course for A E 473.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2005

Prerequisite: seventh-semester standing in Architectural Engineering

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 473 Building Construction Management and Control (3)** Building construction project planning; construction cost, schedule, quality and safety control systems; project cost accounting; change management; construction company management.

**A E 473 Building Construction Management and Control (3)**

The goals of this course are for students to learn how to perform detailed construction planning, identify potential problems during construction, and manage changes throughout a construction project. By completing this course, students will better understand the role of the general contractor/construction manager in analyzing the construction aspects of a building project and designing the construction engineering and management systems to effectively execute the project.

The main course objectives include learning how to perform and implement detailed planning for a construction project together with monitoring the project progress and performance including detailed cost control. Other course objectives emphasize gaining knowledge of the key decisions that construction executives make when managing a construction company and identifying potential projects to pursue. Students will also be introduced to the management of changes which occur throughout a project and how to negotiate changes. Finally, ethical standards for a professional engineer and their impact on decisions within the construction industry are important course learning objectives.

The course is taught via a combination of teaching methods that rely on problem based learning through both in and out of class activities; lectures by faculty and industry experts; project case studies; student presentations; and team and individual assignments. Completion of A E 472 is a prerequisite for this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2005

Prerequisite: A E 472

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 474 Building Construction Estimating (3)** Construction estimating and cost engineering fundamentals; quantity take off; pricing, bid preparation; estimating, cost accounting by computer.

**Building Construction Estimating (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: A E 372

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 475 Building Construction Engineering I (3)** Project planning, supervision, inspection of architectural and structural operations in major buildings; mobilization, coordination of trades; offsite testing and fabrication.

**Building Construction Engineering I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: A E 372

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 476 Building Construction Engineering II (3)** Construction of mechanical and electrical systems in major buildings; fire protection, sound control, elevating; trade coordination; manufacturers' developments; computer application.

**Building Construction Engineering II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: A E 309A E 475

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 481W Comprehensive Architectural Engineering Senior Project I (4)** Building project selection and preparation of overall plan; preliminary investigation of building design and construction issues; creation of individual Capstone Project Electronic Portfolio (CPEP) and project proposal required.

**A E 481W Comprehensive Architectural Engineering Senior Project I (4)**

The course sequence of A E 481W and A E 482 comprises the capstone engineering design program for Architectural Engineering students. A E 481W is taken by all undergraduate architectural engineering (A E) students and also serves as the writing intensive course requirement in A E. Based on an actual building project model, students will investigate the building, perform technical analysis, develop project criteria and prepare a written proposal for more detailed work to be accomplished in A E 482. Evaluation methods include but are not limited to written reports, verbal and written presentations, faculty consultations and development of a capstone project electronic portfolio (CPEP).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: ARCH 441 fifth-year architectural engineering standing in major area of emphasis

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 482 Comprehensive Architectural Engineering Senior Project II (4)** Continuation of A E 481W. Engineering analysis of building systems; emphasis on analysis and design of building structural, mechanical, lighting/electrical, and construction related systems. Final written report, web-based project portfolio and verbal presentation are required.

**A E 482 Comprehensive Architectural Engineering Senior Project II (4)**

A E 482 is the second half of the capstone engineering design project for Architectural Engineering students. The course is taken by all undergraduate architectural engineering and serves as a direct follow up to A E 481W. Students perform detailed option specific work in conjunction with individual proposals written in A E 481W. Students are also required to demonstrate work in the breadth areas of architectural engineering. Evaluation methods include but are not limited to written reports, verbal and written assignments, faculty consultations, maintaining their capstone project electronic portfolio, a final comprehensive written report and a verbal presentation to a faculty jury.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: A E 481W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 486 Professional Engineering Practice (3)** A study of the influences which affect the practice of architectural engineering, particularly codes, ethics, legal considerations, and contract documents.

**Professional Engineering Practice (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 496E** Building Electrical and Communication Systems (3) This course addresses specialized topics in building electrical and communications systems that are typically the responsibility of the electrical engineer in a building design firm, including emergency power, coordinator and fault studies, alternate and sustainable power sources, fire alarm systems, voice, video, and data communication systems, and HVAC control systems.

**Building Electrical and Communication Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 496F** Study of Urbanization in China (3) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Study of Urbanization in China (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 496G** Building Case Studies (3) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Building Case Studies (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 496K** International Construction (3) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**International Construction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**A E 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 497D** Daylight Analysis of Roman Architecture (3) Developing models of the time dependent loads on building system on the basis of fundamental conservation of energy and heat transfer relationships; energy utilization modeling skills that allow alternative building system designs to be explored.

**Daylight Analysis of Roman Architecture (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 497E** Building Electrical and Communication Systems (3) This course addresses specialized topics in building electrical and communications systems that are typically the responsibility of the electrical engineer in a building design firm, including: emergency power, coordination and fault studies, alternate and sustainable power sources, fire alarm systems, voice, video, and data communication systems, and HVAC control systems.

**Building Electrical and Communication Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 497F** Load/Energy Simulation (3) Developing models of the time dependent loads on building system on the basis of fundamental conservation of energy and heat transfer relationships; energy utilization modeling skills that allow alternative building system designs to be explored.

**Load/Energy Simulation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 497G** BAE/MAE Capstone Management (1) Project Management for capstone project for students in BAE/MAE integrated program.

**BAE/MAE Capstone Management (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 497K** International Construction and Real Estate (3) Management theories and practice in international construction and real estate. Contract strategies.

**International Construction and Real Estate (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A E 498** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Architectural Engineering Technology (AE T)**

**AE T 101** Building Materials (3) Structural and architectural use of building materials and construction assemblies.

**Building Materials (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 102** Methods of Construction (3) Materials and methods of construction used in buildings, as expressed in drawings.

**Methods of Construction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: AE T 101EG T 101EG T 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 103** Plumbing and Fire Protection (3) Layout of plumbing and fire protection in buildings to meet code and usage requirements.

**Plumbing and Fire Protection (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: or concurrent:AE T 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 113** Site Planning (2) Energy conservation through optimum site utilization, contours, cut and fill calculations, storm drainage, spot grading, and finish grading.

**Site Planning (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 121** Introduction to Building Environmental Systems (2) Introduction to building environmental systems technology terminology, concepts, and the design process.

**Introduction to Building Environmental Systems (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 204** Heating, Ventilating, and Air Conditioning Layout (3) Fundamental calculations and layout of systems in buildings.

**Heating, Ventilating, and Air Conditioning Layout (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: AE T 103 . Prerequisite or concurrent:AE T 102

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 206** Architectural Presentation (2) Visual communication through architectural presentation drawings. Line, value, color, and composition.

**Architectural Presentation (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: E G 001 orE G 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 207** Advanced Construction Methods (3) Integration of materials and systems in working drawings.

**Advanced Construction Methods (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 210W** Architectural Engineering Office Practice Using Writing Skills (3) Concepts, procedures, and writing-intensive activities to properly prepare site observation reports, cost estimates, contractual conditions, and outline and technical specification.

**Architectural Engineering Office Practice Using Writing Skills (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994  
Prerequisite: fourth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 212** Building Lighting and Electrical Layout (3) Layout of lighting and electrical distribution in buildings.

**Building Lighting and Electrical Layout (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 214** Steel Construction (3) Strength of materials as applied to the design of simple steel structures.

**Steel Construction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: AE T 102MCH T 111

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 215** Concrete Construction (3) Fundamentals of design and construction of reinforced concrete structures.

**Concrete Construction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: AE T 102MCH T 111

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 227** Liquid Heating and Cooling Systems (3) Water, steam, and refrigerant systems and components; pumps and piping; heat exchangers; fluid and component selection; power and controls.

**Liquid Heating and Cooling Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: AE T 121MET 281

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 228** Air Heating, Cooling, and Ventilating Systems (3) Air systems and distribution components; fans and ductwork; heat exchange coils; dampers and controls; residential fired equipment operation.

**Air Heating, Cooling, and Ventilating Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

Concurrent: AE T 227

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 229** Analysis of Building Environmental Systems (3) Comprehensive analysis and application of building environmental systems with focus on selected areas; calculation and layout; computer modeling of systems.

**Analysis of Building Environmental Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994  
Prerequisite: fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1997

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AE T 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Architecture (ARCH)

**ARCH 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 098** Special Topics (1-15) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-15)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 099** (IL) Foreign Studies--Architecture (1-15) Individual or group instruction conducted in a foreign country.

**Foreign Studies--Architecture (1-15)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 100** (GA) Architecture and Ideas (3) General introduction to world architecture, emphasizing the relationship between concepts, philosophies, values and ideologies in shaping the built environment.

**ARCH 100 Architecture and Ideas (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course introduces architecture and urbanism for a general audience. It presents key concepts that have shaped the built environment, and provides an ongoing framework for evaluations of what makes a good building or city. The material discussed is taken from prehistory to the present, and encompasses both major works of architecture and consideration of common building types and contexts. Although monuments and philosophies from the Western tradition predominate, it brings in issues and examples of global scope as well.

The course is structured around a set of themes. These include: how architecture embodies spiritual beliefs; affects private and community life; evolving definitions of the architect; and how ideas about aesthetics, technology, tradition, and other cultural forces shape buildings and influence diverse, often conflicting notions of what constitutes "good" architecture.

The topics discussed will demonstrate multiple ways of understanding buildings and cities. Lectures and assigned readings explore significant illustrative structures, design theories, and the cultural and intellectual contexts in which they emerge. Through the lectures and readings students will become familiar with an extensive set of architectural works, as well as a wide range of influential architectural concepts, authors, and texts. ARCH 100 will ultimately help students analyze and judge buildings and the arguments about them critically, and better understand buildings and cities as ideologically charged artifacts that influentially structure human experience.

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 121** Visual Communications I (2) Development of two and three-dimensional graphic communications skills and techniques required for the practice of architecture.

**ARCH 121 Visual Communications I (2)**

The course is designed to introduce two and three-dimensional graphic communication skills. Assignments will develop the student's understanding and skills associated with the hand-drawing techniques used in the practice of architecture. Exercises provide exposure to the variety of representational techniques available to architects for the visual communication of design ideas and design documentation.

Visual Communications I is organized as an interactive studio environment which combines lectures and demonstrations with individual instruction. The basic concepts and theories of documenting, representing, and presenting architecture will be introduced through a series of lectures, seminars, and examples. In studio, skills will be developed through project workshops. Instruction includes working sessions, individual desk reviews, technique demonstrations and group discussions.

Students will learn the fundamentals of architectural drawing by hand, introductory-level descriptive geometry, orthographic projection, paraline and perspective drawings. These skills and principles are imparted primarily through studio-based assigned projects.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 122** Visual Communications II (2) Development of two-dimensional digital graphic communications skills and techniques required for the practice of architecture.

**ARCH 122 Visual Communications II (2)**

The course is designed to introduce students to two-dimensional digital tools used in the practice of architecture.

Assignments will develop the student's understanding and skills associated with digital techniques and software. Exercises provide exposure to the digital tools available to architects for the visual communication of design ideas and design documentation. Skills developed in ARCH 121 (drawing and modeling techniques) will provide the foundation for work performed in this course.

ARCH 122 is organized as an interactive studio environment combining lectures and demonstrations with individual instruction. The basic concepts and theory of documenting, representing, and presenting architecture will be introduced through a series of lectures, seminars, and examples. In studio, skills will be developed through project workshops. Instruction includes working sessions, individual desk reviews, software and hardware demonstrations, and group discussions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ARCH 131S and ARCH 121

Concurrent: ARCH 132

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 130A Basic Design and Research I (3-6)** Multidimensional design and perceptual development. Formulation of abstracted concepts and logical visual models.

### **Basic Design and Research I (3-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1996

Prerequisite: Architectural Engineering majors only

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 131S Basic Design Studio I (4)** An introduction to the basic concepts, methods, and skills of architectural design in a project-based, active learning, studio environment.

### **ARCH 131S Basic Design Studio I (4)**

This course is an introduction to the basic concepts, methods, and skills of architectural design. As a "studio," it is a project-based, active learning course where the development and evaluation of the work is driven by a critical dialogue with the instructor and one's classmates.

This course is the first in a series of design studios that serve as the central thread throughout the curricula of the Architecture program. In ARCH 131S, students gain knowledge about the discipline of design, develop skills of design and communication, and foster a capacity for judgment - the ability to make appropriate choices and decisions regarding design questions. As a laboratory, the design studio provides the opportunity to apply and explore the knowledge and experience gained in other courses.

ARCH 131S is an intensive course that encourages creativity and industry on the part of the students. Its design projects are open-ended; there are no single "right answers." It demands energy, creativity, the willingness to take risks, and introspection. Each student is expected to be open to a diverse range of ideas, values and solutions. The student is invited to view the studio experience as an opportunity to explore, discover, and invent.

The studio is divided into separate sections, each led by one studio instructor. All sections are assigned a series of common projects and exercises; however, each section instructor will establish particular and unique assignments, and criteria for each project. This introduces students to the rich variety of possibilities in architectural communication and design.

The primary form of evaluation and grading for this class is the "review and critique" during which students present their work to the class and then receive comments and recommendations for improvement.

When assessing the student work, the instructors will consider the students performance in the following areas:

1. Conceptual Strength: The intentions and ideas that inspire the work.
2. Design Development: The energy, effort, and growth demonstrated throughout the course of the project.
3. Product: The tangible quality of the final product as a demonstration of the student's level of craftsmanship and mastery of the skills introduced in class.
4. Student Preparedness: At desk critiques, pin-ups, and reviews.
5. Student Participation: Students are expected to actively participate and be constructively engaged in class discussions, critiques, and reviews.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: or concurrent ARCH 121

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 132 Basic Design Studio II (4)** Continuation of ARCH 131S which further explores basic concepts, methods, and skills of architectural design with an emphasis on craftsmanship.

#### **ARCH 132 Basic Design Studio II (4)**

This course is a continuation of ARCH 131S and shares the same goals, methods, and means of evaluation. However, it builds upon the foundation of fundamental knowledge and skills delivered in the previous course and demands that the students expand their ability to tackle more difficult and complex problems of architectural design. The focus of this course is on "craftsmanship" and the methods and techniques of "making and building." Students are expected to thoroughly consider the implications of materials, construction, and detailing as they relate to their overall design intentions.

ARCH 132 is an intensive course that encourages creativity and industry on the part of the students. Its design projects are open-ended; there are no single "right answers." It demands energy, creativity, the willingness to take risks, and introspection. Each student is expected to be open to a diverse range of ideas, values and solutions. The student is invited to view the studio experience as an opportunity to explore, discover, and invent.

The studio is divided into separate sections, each led by one studio instructor. Each section instructor will establish particular and unique assignments, and criteria for each project. This introduces students to the rich variety of possibilities in architectural communication and design.

When assessing the student work, the instructors will consider the students performance in the following areas:

1. Conceptual Strength: The intentions and ideas that inspire the work.
2. Design Development: The energy, effort, and growth demonstrated throughout the course of the project.
3. Product: The tangible quality of the final product as a demonstration of the student's level of craftsmanship and mastery of the skills introduced in class.
4. Student Preparedness: At desk critiques, pin-ups, and review.
5. Student Participation: Students are expected to actively participate and be constructively engaged in class discussions, critiques, and reviews.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in:ARCH 131S andARCH 121

Concurrent: ARCH 122

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 198 Special Topics (1-15)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-15)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 199 (IL) Foreign Studies--Architecture (1-15)** Individual or group instruction conducted in a foreign country.

#### **Foreign Studies--Architecture (1-15)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 203 Materials and Building Construction I (3)** Instruction in the design and construction of buildings utilizing wood and steel.

### **ARCH 203 Materials and Building Construction I (3)**

This course serves as an introduction to common architectural building materials and associated methods of construction. It is the first part of a two-semester sequence to be followed by ARCH 204 in the spring semester. Lectures, readings, and in-class discussions introduce students to the historical development and conventional use of architectural materials and construction technologies, while select hands-on projects offer students experience in materials application and use. The class covers a wide variety of building methodologies that includes developed and developing cultures, building systems that are technologically sophisticated, as well as traditions considered primitive/vernacular.

The primary objective of the course is to make BARCH students familiar with the materials and methods employed in making architecture, so that the results of that familiarity begin to inform the student's studio work/production.

In addition to materials and construction methods, the course will also touch on issues related to craft/craftsmanship, sustainable practices and ethical use of resources, and the significant role that evolving technologies play in the process and economy of building-making.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in: A E 210

Concurrent: ARCH 231 and A E 421

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 204 Materials and Building Construction II (3)** This course will continue the presentations of ARCH 203, with a focus on concrete and masonry materials.

### **ARCH 204 Materials and Building Construction II (3)**

The course is the second part of a two-semester sequence, following Arch 203. Architecture 204 is an introductory course in building materials and construction. It is intended for BARCH majors and is designed to prepare students for the professional practice of architecture. The learning objectives for the course can be divided into two categories: 1., developing a sense of materials and construction methods as the media for architecture, and then learning to use these media in creative and appropriate ways; 2. developing basic knowledge of the conventions of current building materials and construction techniques. Particular emphasis is placed on the use of drawings and models to accurately depict construction systems, assemblies and details. The course combines lectures and field trips with design projects, hands-on construction experiences, required readings, drawing and modeling.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ARCH 203

Concurrent: ARCH 232 and A E 422

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 210 (GA) Introduction to Architecture and Planning Theories (3)** The course introduces architectural and urban theory by presenting and exploring key concepts through major texts from the Western tradition.

### **ARCH 210 Introduction to Architecture and Planning Theories (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course introduces architectural and urban theory by presenting and exploring key concepts through major texts from the Western tradition. ARCH 210 covers a period ranging from ancient Greece and Rome to the present, with greatest emphasis on writings from the nineteenth and twentieth centuries. Recurring themes will include the ways in which architectural theory has defined the architect and the relationships between architectural and urban ideas, aesthetics, and the cultural contexts in which these ideas develop. Major topics will include ancient architectural theory, the role of the "architect" throughout history, architecture aesthetic principles, Judeo-Christian architectural theory, Renaissance classicism, the Baroque city, Neoclassicism and typology, the Beaux-Arts, tectonics and Gothic rationalism, organicism and functionalism, Le Corbusier's new architecture, the International Style, semiotics, and the neo-avant-garde.

Learning Objectives:

Students will acquire a basic familiarity with important ideas, authors, and texts that have shaped Western traditions in architecture and urbanism. These will introduce some of the ways in which theoretical writings have framed architecture's complex and changing relationship to human needs. Students are taught to approach these materials critically and will be required to conduct individual research on and analysis of one major theoretical work.

\*Through the course students learn to utilize critical theories of the built environment. Students are taught to transform their personal observations into an analytical tool for criticizing and interpreting buildings.

\* Students understand the key developments in architecture and urban theory and criticism from early Classicism to Post-Modernism.

\* Students are introduced to architecture as a manifestation of ideology and cultural values.

\* The students are introduced to ideas and encouraged to use key terms to discuss architecture and urbanism.

\* Students are encouraged to recognize the importance of architecture and architecture writing as a tool for aesthetic interpretation.

\* Theoretical concepts in architecture frequently are compared to similar ideas in other art disciplines, including design and the visual arts.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 211 (GA)** Contemporary Design and Planning Theories II (3) Continuation of ARCH 210, with an in-depth analysis and study of significant and current environmental constructs and issues.

### **Contemporary Design and Planning Theories II (3)**

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 1995

Prerequisite: ARCH 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 231** Architectural Design I (6) Design of limited environments within defined constraints.

### **ARCH 231 Architectural Design I (6)**

The second-year design curriculum introduces the student to the complexity of the architectural whole. The curriculum bridges the abstract design principles taught in the first year and the ability to put together a large building, the focus in the third-year. The objectives are to create an understanding of architectural elements and develop a sensitivity and awareness required for valid interpretations as well as to develop a reflective and critical design process with emphasis on the individual ability to articulate ideas. The major means of accomplishing development is through the design of smaller buildings/environments. To introduce the pragmatic and expressive aspects of architectural design and integrate visual communication with the design process. The emphasis is on developing comprehensive architectural thought, on the foundations of skill and knowledge essential for designing more "complex" buildings in later years, and making the students aware of the multiplicity of factors involved in the design process and their civic responsibility in making informed choices. Thus, the pervasive issue of meaning in architecture is given a high priority and is interwoven in all stages of design exploration.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in:ARCH 132 andARCH 122

Concurrent: ARCH 203 and A E 421

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 232** Architectural Design II (6) Design of limited environments within defined constraints.

### **ARCH 232 Architectural Design II (6)**

The second-year design curriculum emphasis is on introducing the student to the complexity of the architectural whole. The curriculum bridges the abstract design principles taught in the first year and the ability to put together a large building, the focus in the third-year. The objectives are to create an understanding of architectural elements and develop a sensitivity and awareness required for valid interpretations as well as to develop a reflective and critical design process with emphasis on the individual ability to articulate ideas. The major means of accomplishing the design process is through the design of smaller buildings/environments. To introduce the pragmatic and expressive aspects of architectural design and integrate visual communication with the design process. The emphasis is on developing comprehensive architectural thought, on the foundations of skill and knowledge essential for designing more "complex" buildings in later years, and on making the students aware of the multiplicity of factors involved in the design process and their civic responsibility in making informed choices. Thus, the pervasive issue of meaning in architecture is given a high priority and is interwoven in all stages of design exploration.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ARCH 231 and ARCH 203 and A E 421

Concurrent: ARCH 204 and A E 422

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 295** Advanced Architectural and Related Design/Construction Work Experience I (1-3 per semester/maximum of 6) Supervised off-campus, nongroup instruction including field experiences, practica, or architectural and related design/construction work experience.

**ARCH 295 Advanced Architectural and Related Design/Construction Work Experience I (1-3 per semester/maximum of 6)**

Supervised off-campus, non-group instruction including field experiences, practica, or architectural and related design/construction work experience.

A final presentation of activities performed in ARCH 295 will be evaluated by a faculty member in the Department of Architecture.

Number of credits will be determined based on the total number of hours of approved work experience under the direct supervision of a registered architect or other approved professional:

1 credit: 75-149 hours

2 credits: 150-239 hours

3 credits: 240+ hours

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: grade of C or higher in: ARCH 132 ARCH 121 and ARCH 122 ; Instructor approval of a proposal for work experience including employment agreement with an approved supervisor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 297A** Introductory Seminar in Historic Architecture II (3) Examination of the origins, dissemination, transformations and legacy of modern architecture since 1900 through analysis of the key works, architects, and ideas of a specific period, movement, and/or region.

**Introductory Seminar in Historic Architecture II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 297A** Introductory Seminar in Historic Architecture II (3) Examination of the origins, dissemination, transformations and legacy of modern architecture since 1900 through analysis of the key works, architects, and ideas of a specific period, movement, and/or region.

#### **Introductory Seminar in Historic Architecture II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 298** Special Topics (1-15) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-15)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 299** (IL) Foreign Studies--Architecture (1-15) Individual or group instruction conducted in a foreign country.

#### **Foreign Studies--Architecture (1-15)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 311W** Architectural and Planning Theories (3) Architectural theory course with a strong focus on the reading and writing of essays about architecture and related fields.

#### **ARCH 311W Architectural and Planning Theories (3)**

ARCH 311w is a required course in the BARCH curriculum. The central goal of this course is to foster critical-thinking skills, in conjunction with the ability to develop and articulate theoretical positions related to the design, practice, and historical evolution of architecture, both verbally and in writing. ARCH 311w is a writing intensive seminar course fulfilling the University's Writing Across the Curriculum (WAC) requirement. Students will be introduced to various topics pertaining to advanced architectural theory. Students will critically read, then discuss significant works with the instructor. Lectures by the instructor will also be presented, discussed and analyzed. Writing assignments are utilized as instruments for learning the subject matter, methods of inquiry, and the types of writing typical of the discipline of architecture. The course format will also involve lectures by the instructor as well as presentations by the students related to past, present, and speculative architectural theories of importance to the field. In addition, students will complete writing assignments that demonstrate the development of a critical stance or idea, proficiency in critical analysis, and the use of established research techniques, citation of sources, and writing formats.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: ENGL 015 or ENGL 030 ; Students must also earn a C or better in: ARCH 210 and ART H 201 and ART H 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 312** Critical Postcolonial and Contemporary Perspectives in South Asian Architecture (3) This course will examine critical postcolonial and contemporary architectural issues in South Asia in the context of cultural globalization today.

#### **ARCH 312 Critical Postcolonial and Contemporary Perspectives in South Asian Architecture (3)**

This course will examine the evolution of the cultures and architectures of South Asia through their encounters with colonialism and the postcolonial analysis of architectural development in the region. It will provide an introduction to

precolonial architecture and urbanism in South Asia using methodologies of cultural studies via an examination of Buddhist, Hindu, Islamic (Mughal), and Western influences. The course will introduce students to the significant variety of South Asia's architectural accomplishments and encourage them to discuss broader theoretical issues in the context of cultural globalization and their implications for contemporary architectural thought and practice. References to indigenous architecture and techniques will be an integral part of the course, as will be examples of colonial architecture, especially the works of Edwin Lutyens. In the context of globalization during the post-colonial period, three important planning and building design projects undertaken by Western architects in South Asia will become the means to segue into contemporary architectural issues and the impact of Modernist thinking on South Asian architecture: Le Corbusier's master plan and building designs for Chandigarh - the Kahn's design for the monumental second capital complex in Dhaka, Bangladesh, and the master plan for Islamabad, the capital of Pakistan, by Constantinos Doxiades. In addition, the works of such South Asian architects such as Charles Correa, Balkrishna Doshi, Raj Rewal, Geogrey Bawa, Maxharul Islam, and Nyar Dada, will be included in the lectures and discussions. The overall methodology will not be strictly chronological; rather, broad themes will be addressed during the course of the semester. This approach will enable a clear and substantive illustration of relationships between theory and practice in South Asia. It will also help students recognize the inevitable partiality and incompleteness of such theoretical descriptions - compelling as they may be - with regard to actual historical phenomena.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 316 (GA) Analysis of Human Settlements: Cities (3)** Analysis of the interrelated factors which determined and shaped the various types of early cities through the nineteenth century.

#### **Analysis of Human Settlements: Cities (3)**

General Education: GA  
 Diversity: None  
 Bachelor of Arts: Arts  
 Effective: Summer 1989

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 317 Theory of Modern Japanese Architecture (3)** Introduction to the development of modern Japanese architecture from the Meiji Restoration of 1868 to the present day.

#### **ARCH 317 Theory of Modern Japanese Architecture (3)**

ARCH 317 outlines a lineage of ideology in Japanese architectural discourse in order to examine reciprocal interactions between Japan and the West in the development of modern Japanese architecture from the Meiji Period (1868-1912), through the Metabolism of the 60's, to the present day. The concept of "tradition" itself is an invention of the Meiji (modern) era. Through this notion, the course will introduce students to crucial moments in the development of Japanese architecture, while making parallel references to the key developments in the West. Inversely, examples of traditional Japanese architecture will be introduced as counterpoint for the modern. Several topics such as the evolution of Japanese symbolic and spatial traditions in art, architecture, and landscape architecture (gardens) will be discussed. While discussing the evolution of Japanese culture, aesthetics and religions, the influences of China and Korea will be introduced, thus increasing students' familiarity to the East. A brief examination of Western architects paralleling the course content will also be presented. The key figures to be discussed during the class include Kenzo Tange, Kisho Kurokawa, Arata Isozaki, Fumihiko Maki, Tadao Ando, Shin Takamatsu, Toyo Ito, Kazuyo Sejima and Shigeru Ban. Key Western architects, including Bruno Taut, Walter Gropius, Frank Lloyd Wright, and Le Corbusier, will also be discussed. In addition, several broad themes such as geography, climate culture, and symbolic and spatial traditions in art will be introduced. Eastern values and ethics very incongruent from those of the West and their impact on architecture will be presented and discussed. Specific globalization, the resultant reciprocal and transformative cross-cultural interactions in the development of modern Japanese architecture, and the unique process of "Japanization", in which ideas from the West are adapted, refined, and absorbed into Japanese architecture through specific buildings and architects.

Students in this course will be expected to become more familiar with Eastern culture; comprehend basic principles behind Japanese architecture and gardens; understand relevant terminology associated with Japanese culture, art, gardens, and architecture; and become more aware of the reciprocal and transformative cross-cultural interactions in architecture.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 331** Architectural Design III (6) Development of the design process through organizational methodologies, based on physical, functional, and social-behavioral determinants.

**ARCH 331 Architectural Design II (6)**

Development of the design process through organizational methodologies, based on physical, functional, and social-behavioral determinants. Emphasis is placed on "The Building Thoroughly Considered." The third-year design studio course is a continuation of the rigorous development of the architectural process started in the second year studio. Students will strive to develop an architectural totality, search for thoughtful decisions and sound judgments. Students continue the process of integrating the abstraction of the basics with the pragmatics of the built world. The student at the completion of this year should understand what a building is and how it responds to human needs in terms of cultural meaning, physical reality, operational prerequisites and construction.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ARCH 232 and ARCH 204 and A E 422

Concurrent: A E 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 332** Architectural Design IV (6) Development of the design process through organizational methodologies, based on physical, functional, and social-behavioral determinants.

**ARCH 332 Architectural Design IV (6)**

Development of the design process through organizational methodologies, based on physical, functional, and social-behavioral determinants. Emphasis is placed on "The Building Thoroughly Considered." The second semester of the third-year design studio course is a continuation of the rigorous development of the architectural process started in the third year, first semester studio. ARCH 332 extends and deepens the understanding of the "thoroughly considered" building begun in ARCH 331. Students will strive to develop an architectural totality, search for thoughtful decisions and sound judgments. Students continue the process of integrating the abstraction of the basics with the pragmatics of the built world. The student at the completion of this year should understand what a building is and how it responds to human needs in terms of cultural meaning, physical reality, operational prerequisites and construction.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ARCH 331 and A E 211

Concurrent: A E 424

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 398** Special Topics (1-15) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-15)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 412** Integrative Energy and Environmental Design (3) Concepts and strategies for the environmentally conscious design of the built environment.

### **Integrative Energy and Environmental Design (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 417** The Language of Boundaries in Architecture and the Landscape (3) This course examines the development and significance of boundaries in the construction of human space and time. Students who have taken other courses from Architecture Visual Arts, Geography, or Philosophy that treat some aspect of spatial perception, conception, construction, or visualization, or who have completed equivalent study independently, may enroll with the permission of the program.

### **ARCH 417 The Language of Boundaries in Architecture and the Landscape (3)**

This course is composed of eight chronologically arranged units of study that examine the major developments in the human use of boundaries in the creation of architecture and landscapes — those actually constructed as well as those created through literature, myth, art, and film.

Human boundary behavior is complex. While we tend to describe space and time as 'transitive' (rational), our actual experience of them is intransitive. Because descriptive systems tend to disregard the role of time, they favor a constructed descriptive objectivity over subjective accuracy. Conflicts between representations and experiences reflect psychological and cultural conflicts expressed as symptoms and dysfunctions.

Both the lectures and supplemental films are directed at helping students understand, reflect upon, and critically think about the trans-cultural and ubiquitous quality of boundary behavior.

The thrust of the course is historical and critical rather than professional, and the intent of the course is to provide students with a comprehensive overview of the issues that surround the human use of boundaries. Because boundary issues are the result of humans' mental apprehension of the world, psychology, philosophy, critical studies, literature, and other humanities are intrinsically involved. But, because boundaries are a part of a way of conceiving the world mathematically, ideas from topology, number theory, and circuit logic are also key.

Each unit of study will be accompanied by exemplary films that illustrate some aspect of boundary behavior. The course includes approximately 12 important films for required study.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2009

Prerequisite: Students should have taken at least one of the following courses: ARCH 210 ARCH 130A ARCH 131SLARCH 060LARCH 065GEOG 020 or INART 003 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 431** Architectural Design V (6) Continuation of ARCH 331 and 332, with design and research in program option areas.

### **ARCH 431 Architectural Design V (6)**

The fourth-year architecture studio emphasizes the development of skills in research, documentation, analysis and presentation of project-related physical and cultural information. The studio will investigate the implications of a rigorous predesign process in the design of architecture. The studio curriculum seeks to investigate the role of the architect in urban design, especially the design relationship between individual buildings, groups of buildings, exterior spaces, streets and streetscapes. Students will explore the synthesis of individual landmark buildings, building groups, urban landscape and service systems.

The studio explores the difference between the roles and responsibilities of public and private clients. In particular the implications of establishing levels of control within the built environments, such as design guidelines, circulation systems and utility networks.

Emphasis will be placed on the development of the following design skills:

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- Cooperation and collaboration in research and design.
- Understanding the implications of existing patterns on subsequent design.
- Understanding attitudes toward contexts: cultural, physical, economic, personal, political, organizational (bureaucratic).
- Integration of scale: Development of logics (orders) for the use of the site and continuity of logic across scales of building.
- Developing culturally meaningful relationships between the ordering of land-use and space throughout related buildings.
- Design of exterior space using architectural relationships between multiple buildings
- Investigation of the implications of design controls on the single building.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in:ARCH 332 andA E 424

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 431A (IL) Architectural Design V--Foreign Study (6)** A studio offered in Rome, Italy, which emphasizes urban planning and architectural design in an urban context.

### **ARCH 431A Architectural Design V--Foreign Study (6) (IL)**

This studio course focuses attention on the urban design components of architectural design. Using the city of Rome and its unique position in the history of human development, the design projects are selected for their actuality in the current situation of Rome, Italy. The building sites are actual or expected project sites based on the current planning directives of the city planning offices. Students are asked to produce designs that respond to multifaceted programs that will usually include institutional, residential, and commercial activity in the same building/site.

The project will usually last the full semester with all phases of design included. Beginning with site planning and site design issues, the project runs through design concept and design development phases. The last two weeks are often focused on elevation studies and material details. A complete presentation of site, building, and details design is expected at the final presentation.

Studio course meetings with the instructors are scheduled three times per week. Approximately every three weeks, there are formal presentations open to invited guest critics. A mid-term presentation is made at the design development conclusion phase. The final presentation is organized with guest critics at the end of the term.

#### **Learning Objectives:**

- To achieve a complete urban architecture project design and presentation.
- To understand the implications for architectural design of the city of Rome and its unique history.
- To apply an interpretation of history to contemporary design problems.
- To apply contemporary needs and requirements for architecture to a traditional city site.
- To learn how to adapt design to a non-American culture and tradition of building.

ARCH 431A is the required foreign study architecture design studio taught in Rome, Italy. This course is available to Architecture majors only.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in:ARCH 332 andA E 424

Concurrent: ARCH 499B and ARCH 499C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 432 Architectural Design VI (6)** A continuation of ARCH 431, this course explores in greater depth urban planning and architectural design in an urban context.

### **ARCH 432 Architectural Design VI (6)**

ARCH 432 is a continuation of ARCH 431 with a focus on architecture in urban environments and urban/community planning issues of greater complexity. The class will collaborate in the research and documentation of the existing conditions of an urban site and the forces that influence it. This will include the study of precedents. The class will prepare a pre-design presentation, individual architecture projects, base models, and a book of the semester's work.

Based on the pre-design information, small student groups will develop a master plan for a large program. This exercise will include the preparation of the plan, supported by concept diagrams and models, land use diagrams, open space diagrams, landscape plans, pedestrian and vehicular circulation/parking/servicing diagrams, written and graphic site and building design guidelines, and a utilities diagram.

The architectural component of the master plan will be selected for development as the studio architectural design project. Each student will prepare an architectural project based on the general logic and concepts of the group plan.

Major topics addressed in the course include working collaboratively in teams, understanding fundamental ordering



principles of cities and towns, understanding urban contexts, urban plans, land-use controls, and economic plans, the design of urban spaces, and the design of a single building or complex of buildings in an urban environment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ARCH 431 or ARCH 431A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 432A (IL) Architectural Design VI--Foreign Study (6)** A continuation of ARCH 431, this course explores urban planning and architectural design in an urban context in Rome, Italy.

**ARCH 432A Architectural Design VI--Foreign Study (6)  
(IL)**

A continuation of ARCH 431A, this course explores urban planning and architectural design in an urban context in Rome, Italy. The design studio takes full advantage of the city of Rome and its unique position in the history of human development. Students will build on the knowledge of urban situations gained in ARCH 431A and apply that background to projects which utilize building sites based on the current planning directives of the city planning offices.

Students are asked to produce designs that respond to multifaceted programs that will usually include institutional, residential, and commercial activity in the same building/site.

The project will usually last the full semester with all phases of design included. Beginning with site planning and site design issues, the project runs through design concept and design development phases. The last two weeks are often focused on elevation studies and material details. A complete presentation of site, building and detail design is expected at the final presentation.

Studio course meetings with the instructors are scheduled three times per week. Approximately every three weeks there are formal presentations often to invited guests critics. A mid-term presentation is made at the design development conclusion phase. The final presentation is organized with guest critics at the end of the term.

**Learning Objectives:**

To achieve a complete urban architecture project design and presentation.

To understand the implications for architectural design of the city of Rome and its unique history.

To apply an interpretation of history to contemporary design problems.

To apply contemporary needs and requirements for architecture to a traditional city site.

To learn how to adapt design to a non-American culture and tradition of building.

ARCH 432A is the required foreign study architecture design studio taught in Rome, Italy. This course is available to Architecture majors only.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ARCH 431

Concurrent: ARCH 499B and ARCH 499C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 441 Architectural Design Analysis (3)** Studies in principles and elements of design; planning for human use; the relationship of space to physical and social environment. Architectural Engineering majors only.

**ARCH 441 Architectural Design Analysis (3)**

Studies in principles and elements of design; planning for human use; the relationship of space to physical and social environment.

The objective of this course is to explore various approaches to architectural design and to reinforce the concept that there is no "right" or "wrong" answer to a design problem. "Design" is decision-making in itself -- the key to a successful project lies not only in the final product, but in the process leading up to it as well. In order to be successful, design solutions must respond to both formal ideas as well as human, environmental and technical realities. Thus, the interaction between art and technology becomes imperative.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: ARCH 130A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 442 Architectural Design Analysis (3)** Continuation of ARCH 441, with emphasis on functional relationship of space, form, structure, and building groups. Architectural Engineering majors only.

**ARCH 442 Architectural Design Analysis (3)**

Continuation of ARCH 441, with emphasis on functional relationship of space, form, structure, and building groups.

The objective of this course is to explore various approaches to architectural design and to reinforce the concept that there is no "right" or "wrong" answer to a design problem. "Design" is decision-making in itself -- the key to a successful project lies not only in the final product, but in the process leading up to it as well. In order to be successful, design solutions must respond to both formal ideas as well as human, environmental and technical realities. Thus, the interaction between art and technology becomes imperative.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ARCH 441

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 443 Architectural Design Analysis Inspection Trip (1)** Faculty guided trip to metropolitan areas to investigate noteworthy architecture and building construction and to visit professional offices.

**Architectural Design Analysis Inspection Trip (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: fourth-year architectural engineering majors first priority others by faculty approval

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 451 Architectural Professional Practice (3)** A study of architectural practice in today's society: education, registration, office practice, codes, standards, construction industry, contracts, and legal documents.

**ARCH 451 Architectural Professional Practice (3)**

ARCH 451 is a required course in the BARCH curriculum. It is intended to prepare students for the professional practice of architecture. The course explores the historical influences and current trends that shape the relationship between the architect, client and builder in contemporary society. This course provides an overview of the changing roles of the architect through history as well as a detailed examination of the architectural profession in today's rapidly changing world. ARCH 451 reviews internship, architectural licensing procedures and requirements, professional development (life-long learning), architectural practice including office organizational structures, the architect's administrative role, construction cost control, professional organizations, the architect's professional, legal and ethical responsibilities (including life-safety and accessibility), leadership in the profession and the community as well as alternative architectural / design related careers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011

Concurrent: ARCH 491

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 480 Technical Systems Integration (3)** Presentations of buildings' analyses from a multiplicity of viewpoints: architectural, spacial, environmental, mechanical, construction assembly.

**ARCH 480 Technical Systems Integration (3)**

This course is a synthesis of topics previously introduced in the AE sequence—such as structural, mechanical, electrical, and other systems related to a building's technical performance. Students will practice the purposeful integration of all technical aspects of a buildings design, providing them with a working knowledge of matters related to energy efficiency, sustainability, lighting, and acoustics.

The focus of the course lies in questioning how technical requirements and design intentions should be integrated during the design process, so as to enhance the aesthetic and performance qualities of an architectural project. This course combines lectures, field trips, and technical assignments, along with analysis and implementation of energy, day lighting, electrical lighting, and acoustical concepts in the student's design efforts.

In addition to the synthesis of building design and technical systems, this course will further develop the student's

knowledge of active/passive techniques for sustainable architecture. A focus on the collaborative workings/environment of the architectural practice helps students to translate systems integration strategies into graphic/digital representation, and reinforces the interdisciplinary nature of designing and constructing successful works of architecture.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: ARCH 203ARCH 204ARCH 332A E 422 andA E 424 with a grade of C or better in each

Concurrent: ARCH 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 481 Digital Design Media (3)** Advanced course in digital modeling, rendering, animation and non-linear video for architectural investigations.

### **Digital Design Media (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: approval by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 491 Architectural Design Studio (6-12 per semester/maximum of 12)** Problems in architectural planning and design; and/or programming, implementation methodologies and applications for various environmental design scales.

### **ARCH 491 Architectural Design VII-Thesis (6)**

It is the goal of this program that, upon completion of the fifth year, each student will have the ability to pursue an architectural idea in a rigorous, in-depth manner and be able to express the knowledge of and implication of that idea through the completion and presentation of a "thoroughly considered building design project." It is the intent of the fifth-year component of the Bachelor of Architecture program to foster the spirit of in-depth design inquiry and research, and to build upon and reiterate design awareness, skills, and methods introduced in previous years; and to introduce, discover and develop new ones. To these ends the primary educational vehicle is the use of a propositional thesis as a way of directing the study toward the linking of theory and building in a meaningful manner.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must earn a C or better in:ARCH 431ARCH 499A andARCH 311W

Concurrent: ARCH 451

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 491 Architectural Design Studio (6-12 per semester/maximum of 12)** Problems in architectural planning and design; and/or programming, implementation methodologies and applications for various environmental design scales.

### **ARCH 491 Architectural Design VII-Thesis (6)**

It is the goal of this program that, upon completion of the fifth year, each student will have the ability to pursue an architectural idea in a rigorous, in-depth manner and be able to express the knowledge of and implication of that idea through the completion and presentation of a "thoroughly considered building design project." It is the intent of the fifth-year component of the Bachelor of Architecture program to foster the spirit of in-depth design inquiry and research, and to build upon and reiterate design awareness, skills, and methods introduced in previous years; and to introduce, discover and develop new ones. To these ends the primary educational vehicle is the use of a propositional thesis as a way of directing the study toward the linking of theory and building in a meaningful manner.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must earn a C or better in:ARCH 431ARCH 499A andARCH 311W

Concurrent: ARCH 451

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 492H Architectural Design Studio (6)** Continuation of select ARCH 491 sections with concentration and specialization options.

**Architectural Design Studio (6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Students must earn a C or better in:ARCH 491  
Concurrent: ARCH 480

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 492H** Architectural Design Studio (6) Continuation of select ARCH 491 sections with concentration and specialization options.

**Architectural Design Studio (6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Students must earn a C or better in:ARCH 491  
Concurrent: ARCH 480

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 495** Advanced Architectural and Related Design/Construction Work Experience II (1-3 per semester/maximum of 6) Supervised off-campus, nongroup instruction including field experiences, practica, or architectural and related design/construction work experience.

**ARCH 495 Advanced Architectural and Related Design/Construction Work Experience II (1-3 per semester/maximum of 6)**

Supervised off-campus, non-group instruction including field experiences, practica, or architectural and related design/construction work experience.

A final presentation of activities will be evaluated by a faculty member in the Department of Architecture.

Number of credits will be determined based on the total number of hours of approved work experience under the direct supervision of a registered architect or other approved professional:

1 credit: 75-149 hours  
2 credits: 150-239 hours  
3 credits: 240+ hours

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: Grade of C or higher in:ARCH 332 ; instructor approval of work experience proposal including employment agreement with an approved supervisor.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 496H** Independent Study - Honors (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Study - Honors (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 497B PARTI\*** (3) You will be working on your own projects, thinking architecture through germinal drawings and study models, long before form is defined. Monday evenings will be a time for speculation: the hand, the sketch, the diagram, the abstract model, the graphic function, montage & display, layers & series.. In addressing your current proposals, you will blur the boundaries between ideas and objects. Our objective: to shorten the distance between thought and the documents that produce and reflect it, an iterative transformation that is a continuum, ideas into things, things into ideas.

**PARTI\* (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 497C** Building Material Reclamation and Recycling (3) This course is a very hands-on, project-based seminar focusing on the theory and practice of building material salvage and recycling. Through active and applied learning, students will gain experience in handling, preserving and adding value to salvaged materials. The course will consist of a variety of small-scale design-build projects, where students will learn and practice the methods and techniques of reclamation and explore the design possibilities of reused material.

**Building Material Reclamation and Recycling (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 497D** Master Planning (3) Architects, landscape architects, and graphic designers will collaboratively design master plans to examine each discipline's construction of identity and time.

**Master Planning (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 497G** Technology and the Imagination of Design (3) The subject of this seminar is the emergence of technology as a pivotal concept in contemporary design discourses. Through weekly reading, writing, and discussion, we will examine architectural responses - chiefly in technological discourses, design theories, and film - to the so-called computer revolution, cybernetics, information theory, and the linked transformations to the conceptions of nature, work, authorship, and the human. This course is recommended for research students preparing a thesis in Design Computing, or undergraduate students interested in developing a critical understanding of design technologies.

**Technology and the Imagination of Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 497G** Technology and the Imagination of Design (3) The subject of this seminar is the emergence of technology as a pivotal concept in contemporary design discourses. Through weekly reading, writing, and discussion, we will examine architectural responses - chiefly in technological discourses, design theories, and film - to the so-called computer revolution, cybernetics, information theory, and the linked transformations to the conceptions of nature, work, authorship, and the human. This course is recommended for research students preparing a thesis in Design Computing, or undergraduate students interested in developing a critical understanding of design technologies.

**Technology and the Imagination of Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 498** Special Topics (1-15) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-15)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 499A** (IL) Rome Study--Architectural Design (6) Individual or group instruction conducted in Rome, Italy.

**ARCH 499A Foreign Study - Architectural Design VI (6)**

The semester abroad design work will focus on the difficult problem of creating new construction in the presence of an historic structure. This is an inevitable problem in the city of Rome where one can hardly avoid confronting historic or monumental buildings. However, as every place is preceded by a history, either natural, political or material, these issues are important outside of this context, the course aims to help students define critical strategies that will serve them beyond their semester abroad.

Fifteen weeks is a short time to experience a place as complex and interesting as Rome, Italy. For many students, it may be a chance of a lifetime to live in and study a place as challenging and full of opportunity as this. Students are expected to approach the semester with even more seriousness than they would a semester at home. A semester in this program is not a mere travel experience but an academic exploration of a foreign and historic environment. Every activity of this studio is designed to these ends. Therefore, we have selected a very direct and limited building program, a site in the historic center, and exercises that require students to spend time in the field as well as in the studio.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must earn a C or better in: ARCH 332 and A E 424

Concurrent: ARCH 499B and ARCH 499C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 499A** (IL) Rome Study--Architectural Design (6) Individual or group instruction conducted in Rome, Italy.

**ARCH 499A Foreign Study - Architectural Design VI (6)**

The semester abroad design work will focus on the difficult problem of creating new construction in the presence of an historic structure. This is an inevitable problem in the city of Rome where one can hardly avoid confronting historic or monumental buildings. However, as every place is preceded by a history, either natural, political or material, these issues are important outside of this context, the course aims to help students define critical strategies that will serve them beyond their semester abroad.

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General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must earn a C or better in: ARCH 332 and A E 424

Concurrent: ARCH 499B and ARCH 499C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 499B (IL) Architectural Analysis (3)** Comparative study of architectural elements and building types through on-site drawing, recording, measurement, sketching and decomposition activity.

### **ARCH 499B Architectural Analysis (3) (IL)**

Architecture is amplified and embodied in cities. Since most architecture is set in cities and the city is itself an architecture, it becomes necessary for us to evaluate the relationships that affect the making of buildings for cities and the organization of buildings into a meaningful whole. This course will explore the two meanings of the term "the architecture of cities." It will propose questions leading to an analytical de-composition of the situation of cities in general and Rome in particular.

The course is loosely divided into three sections. The first, Historical Overview, presents the evolution of early settlements focusing on the significance of built form. The second, Revolutions and Modernity, demonstrates the qualitative shift in emphasis that settlements undergo from the Enlightenment, through the Industrial Revolution, to the Information Revolution. The third section, the Current Debate, will present some contemporary issues and techniques proposed for the resolution of apparent problems of city architecture.

Since this course is given in a unique setting, it takes full advantage of Rome, its history and its problems, to highlight the universal design elements that are part of an analytical understanding, but also of a synthetic design understanding of cities.

This course is theory based and, as such, will provoke thinking, a taking apart mentally, more than a making of architecture. The studio design problem, also set in this city, is the operative dimension of thoughts generated here. In this class, students are expected to articulate thought and some clear graphic analysis concerning architecture. These thoughts, if manipulated with discipline and commitment, will become a source of illumination for design activity.

Learning Objectives:

- \* To learn the meaning of cities in Western culture
- \* To understand the significance of foundation and other rites concerning building the human environment.
- \* To understand the meaning of urban architecture
- \* To understand the reasons for the form of streets, buildings and open spaces in Western cities
- \* To achieve the analytical skills necessary to take apart the component systems and material elements of architecture

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in: ART H 201 and ART H 202

Concurrent: ARCH 431A or ARCH 432A and ARCH 499C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 499C (IL) Urban Studies Topics (3)** A presentation of the history of Rome through the medium of its maps and walking tours of the city.

### **ARCH 499C Urban Special Topics (3) (IL)**

The course is a presentation of the history of Rome through the medium of its maps. The well documented cartographic history of the city is presented along with the morphological changes that are evident in the city today. The material of Rome's physical development is presented in two distinct ways. The first involves slide presentations of Roman maps and

engraving images organized by specific routes (vie consolari and others) into and out of the city. The second is by on-site walks through the same routes with the instructor.

The approximately twelve routes involve a lecture presentation usually given on Tuesdays, followed by an on-site walk usually given on Thursday. Students are then assigned their own route map of the same study area to generate over the weekend. These are graded and discussed in the following sessions.

**Framework:**

- \* Introduction: The definition of the Urbs through maps
- \* 14th-15th century: Limbourg, Taddeo di Bartolo
- \* 16th century: Bufalini, Duperac
- \* Renaissance planning and the expanding city
- \* 17th century: Maggi, Falda
- \* 18th century: Nolli
- \* 19th century: Catasto Piano
- \* 20th century: Lanciani, Sanjust

**Themes:**

- \* 14th-15th century: Derivation of the iconic map from Mappaemundi and city images in art
- \* 16th century: Images of pre-Sistine in-city and extension planning vs. Sixtus V's city outside the city
- \* 17th century: Illustrating the Baroque point developments: Urban theater
- \* 18th century: The new orientation and precision measurement of the Age of Reason. Nolli and Piranesi: the contemporary vs. the archaeological city
- \* 19th century: Stasis and expansion: Nolli retreads and the master Plans for the new Capital city
- \* 20th century: Recapitulation and expansion: Lanciani's new Forma Urbis and images of the boundless city

**Learning Objectives:**

- \* To learn the history of the development of one of the most important cities in the world.
- \* To learn the importance of mapping an way-finding in the understanding of architecture.
- \* To learn the reading of traces of the past morphological development of a city.
- \* To understand how cities are built, change, and grow over time.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Students must earn a C or better in:ART H 201 andART H 202

Concurrent: ARCH 431A or ARCH 432A and ARCH 499B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 499D (IL) Studio (4)** Courses offered in foreign countries by individual or group instruction.

**Studio (4)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 499E (IL) Cartography (2)** Courses offered in foreign countries by individual or group instruction.

**Cartography (2)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARCH 499F (IL) Architectural Design--Foreign Study (6)** Group instruction conducted in a foreign country.

**Architectural Design--Foreign Study (6)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: Students must earn a C or better in:ARCH 431ARCH 480ARCH 499A andARCH 311W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



## Army (ARMY)

**ARMY 101** U.S. Army Organization and Functions (2) Introduction to U.S. Army and ROTC: their organization, missions and functions; customs and traditions; leadership laboratory.

### **U.S. Army Organization and Functions (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARMY 102** The Military Profession: Leadership and Management Theory (2) Introduction to leadership techniques and basic management skills; leadership laboratory.

### **The Military Profession: Leadership and Management Theory (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARMY 203** Army Operations: Tactics and the Principles of War (2) Organization and operation of Army units; fundamentals of unit tactics; leadership laboratory.

### **Army Operations: Tactics and the Principles of War (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARMY 204** Land Navigation: Topographic Maps and Orienteering (2) Military and topographic maps; methods of orienteering and land navigation; leadership laboratory.

### **Land Navigation: Topographic Maps and Orienteering (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARMY 301** Advanced Principles of Leadership and Management (3) Principles of military leadership; military skills development; land navigation; physical fitness; leadership laboratory.

### **Advanced Principles of Leadership and Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARMY 302** Advanced Principles of Military Leadership and Combat Operations (3) Leadership in the field; principles of offense, defense, and patrolling; physical fitness; leadership laboratory.

### **Advanced Principles of Military Leadership and Combat Operations (3)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: ARMY 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARMY 304** Advanced Camp (0) Six weeks of Army field training to prepare cadets for commissioning as second lieutenants.

### **Advanced Camp (0)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1985  
Prerequisite: ARMY 301 ARMY 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARMY 401** Organizational Behaviors: Interrelationships of Directing Staffs and Staff Functions (3) Leadership; command and staff functions; ethics and professionalism; military writing; leadership laboratory.

### **Organizational Behaviors: Interrelationships of Directing Staffs and Staff Functions (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: ARMY 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARMY 402** Army Personnel Management and Logistics (3) Leadership; army personnel management; logistics system; personnel counseling; military justice; Soviet military; personal affairs; training management; army life; leadership laboratory.

### **Army Personnel Management and Logistics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: ARMY 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARMY 496** Independent Studies (1-9) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1988

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Art (ART)**

**ART 001 (GA)** Introduction to the Visual Arts (3) Introduction to the media, elements, function, making, and meaning of visual arts today and in diverse historical and cultural contexts.

### **ART 001 Introduction to the Visual Arts (3) (GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

ART 001 is an introduction to the visual arts and is designed to meet the General Education Arts requirement. The course is offered every semester at University Park, for example, with an enrollment of 330. There are no prerequisites, and students are assumed to have little or no background in studying or making art. As a result of taking the course, students

are able to look more closely and find ways to say what they see in the visual arts. They become familiar with a broad range of subject matter, style and medium, with the principles of design that organize works of art, and with changing historical and cultural contexts in which the arts have been made and understood. They also experience the challenge of making art themselves, and develop a more informed critical point of view. Because of the large number of students that may enroll, ART 001 is primarily a lecture course with a text. But students actively participate in individual and collaborative activities during class, including, for example, drawing a hand, pairing to exchange observations on a work of art, and arriving at consensus in groups of five in response to the question "What is art?" and then reporting back to the whole class. With fewer students, the number of art projects and the opportunity for extended discussion and studio critiques increases. Evaluation is based on tests, assignments and inclass activities. Tests measure students' ability to identify key works and the style and subject matter of unknown related works, to apply their knowledge of media and visual vocabulary by labeling their sketches based on images shown during the test, and to answer multiple choice questions on the principles of design, media, meanings, and historical and cultural contexts in the production and experience of the visual arts. Every class meeting includes question and answer sessions. To encourage collaborative learning, at University Park, the multiple choice portion of the test is given twice during the test period, to allow students the second time to work together with open books to answer the questions. The assignments range from sketching and writing about works during a museum visit, to surveying architecture and sculpture in the community, to making a collage. There will also be opportunities to earn extra credit, for example by making a collage judged to be among the best by a jury of their peers, by attending and writing brief responses to public lectures and exhibitions, and for identifying useful resource links for the course website. Students rely on the course website and email for all information and announcements, including resources specifically prepared to supplement the text, such as summaries of class discussion of what to ask when looking at a work of art, lists of key terms and concepts, sample quizzes, and links related to lecture topics.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 002 (GA)** Interactive Learning and Web-Design (3) Introduce students to research on-line, preparing verbal, visual and other elements for presentation of outcomes and posting them to the Internet.

**ART 002 Interactive Learning and Web-Design (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is constructed to introduce students to doing research on-line, preparing the verbal, visual and other elements for a presentation of their research and posting them to the Internet with special emphasis placed on the aesthetics of Web design and effective communication.

Both individual and group projects are included. It is intended to provide the skills to work collaboratively using computers and the Internet effectively, efficiently and with an awareness of the aesthetic qualities of that work. This final emphasis is particularly important since the quality of presentation is not included in most classes where Web sites are developed and they are crucial to the effective use of this medium. Aesthetic judgments by the students of their peers work is central to making comprehensive and complete evaluations of it. A central message of the course is that content and presentation cannot be separated and a primary skill to be learned is how to discover, create and refine images for use on the Web in conjunction with clear, well-organized and legible text.

The student's work will be evaluated on the basis of how well they grasped the problem, worked with others to solve it, when required, and the effectiveness of the final result.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 003 (GA)** Visual Images on the Web (3) Introduce students to using visual images for communication on the World Wide Web.

**ART 003 Visual Images on the Web (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is constructed to introduce students to doing art work on-line, preparing visual, verbal and other media for presentation on the Internet with special emphasis placed on the aesthetics of image making and good Web design.

Working both individually and in groups is included. Each student is assigned to a working group, which makes collaboration and communication possible.

All the projects emphasis art making of different kinds - still and animated, bit-map and vector - as well as different formats - HTML, Flash format and Portable Document format. The grasping of the different kinds of images each makes available, aesthetic qualities of each and they can be used in communication at the center of the course.

The student's work will be evaluated on the basis of how well they grasped the problem, worked with others, when required, to solve it and the effectiveness of the final result.

The students may do the work for the course on their personal computers or in the University labs on any of the available platforms - Windows, Mac or UNIX.

The course will be offered in the spring and the fall and have an enrollment of 200 students.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 010 (GA)** Introduction to Visual Studies (3) Introduction to visual studies; pictorial space and the principles of visual organization.

**ART 010 Introduction to Visual Studies (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 010 is intended as a general survey course for non-majors consisting of images, ideas, and processes used in art making. As a studio offering, emphasis is placed on hands-on activities, which promote literacy and sensitivity to both two-dimensional and three-dimensional conventions in the visual arts. Students will experience the contextual influences of art, the visual languages and organizational systems of art, and the various studio processes of art. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the visual arts function. As a general appreciation offering, emphasis is placed on active learning processes that involve students in basic studio materials and techniques. Students enrolled in this course will be required to participate in the following active learning components:

1. Studio Assignments:

- a) Contextual influences of history and contemporary culture
- b) Visual languages and organizational systems related to the visual arts
- c) Studio processes with materials and techniques

2. Creating a social and historical context for sculpture making through slide presentations, studio visits and museum critiques:

- a) Slide presentations: students will be asked to consider the concepts of their creative projects in relationship to works by historical and contemporary artists in order to understand the ways in which visual arts convey meaning.
- b) Studio visits: Students will visit the personal studios of local artists to learn how professional artists develop best practices as related to the three kinds of studio-based assignments outlined above. Additionally, they will explore and discuss with these artists the concepts and meanings expressed in their creative works.
- c) Museum critiques: Museum visits will enable students to learn how to engage and respond to actual works of art as compared with those that they experience as slide and printed representations. The role of museums and galleries in contemporary art practice will also be discussed.

Grading and evaluation:

Students' art projects will be evaluated according to the following criteria: 1) the uniqueness of the visual concepts developed in their studio assignments; 2) the strength of their visual compositions-their ability to communicate concepts clearly; 3) the quality of their craftsmanship-an effective use of materials and procedures and commitment to the studio assignments-the effort expended on each project; 4) Their willingness to participate in critique sessions-a thoughtful and informed interpretation of visual ideas in art works produced by them in class as well as those discussed during slide presentations, studio visits, and museum critiques. Since the School of Visual Arts now requires a portfolio review for Visual Arts majors to enroll in studio courses, ART 010 provides an opportunity for non-art majors to do studio work in conjunction with an exploration of art concepts.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 017 (GA)** Introduction to Metal Arts (3) Introduction for non-art majors to fundamental jewelry making and small-scale metalsmithing processes including fabrication, surface treatment, and finishing of metalwork.

**ART 017 Introduction to Metal Arts (3)**

**(GA)****(BA) This course meets the Bachelor of Arts degree requirements.**

ART 017 is intended as a general survey of metal arts for non-majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and a sensitivity to the various metal arts conventions. Students are given the opportunity to briefly explore many of the traditional materials and processes of metalsmithing including those that are used in cold joining, surface texture, and fabrication. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the metal arts function. As a general appreciation offering, emphasis is placed on active learning processes that involve students in basic studio materials and techniques. Since the School of Visual Arts now requires a portfolio review for visual arts majors to enroll in studio courses, ART 017 provides an opportunity for non-art majors to do studio work in conjunction with an exploration of art concepts.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 020 (GA)** Introduction to Drawing (3) Introductory experience in making of art through drawing media; designed for non-majors seeking general overview of studio practice.

**ART 020 Introduction to Drawing (3)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 020 is intended as a general survey of the art of drawing for non-majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and on the various conventions used in drawing. Students will be given the opportunity to briefly explore many of the traditional materials of drawing, including pencil, charcoal, conte, ink and ink wash, pastel, as well as experimental tools. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which drawing functions. As a general appreciation offering, emphasis is placed on active learning processes that involve students in basic studio materials and techniques. Since the School of Visual Arts now requires a portfolio review for Visual Arts majors to enroll in studio courses, ART 020 provides an opportunity for non-art majors to do studio work in conjunction with an exploration of art concepts.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 030 (GA)** Introduction to Sculpture (3) Introduction to sculpture for non-art majors consisting of lectures/basic studio work coordinated to cover broad range of processes.

**ART 030 Introduction to Sculpture (3)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 030 is intended as a general survey of the art of sculpture for non-majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various sculptural conventions. Students are given the opportunity to briefly explore many of the traditional materials of sculpture including those that are used in modeling and replication, subtractive processes, and fabrication. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the art of sculpture functions. Students enrolled in this course will be required to participate in the following active learning components:

1. Studio Assignments:
  - a) Modeling and Replication
  - b) Subtractive Processes
  - c) Fabrication Assignment

2. Creating a social and historical context for sculpture making through slide presentations, studio visits and museum critiques:

- a) Slide presentations: students will be asked to consider the concepts of their creative projects in relationship to the sculptural works of historical and contemporary artists in order to understand the ways in which the three dimensional aspects of sculpture convey meaning.
- b) Studio visits: Students will visit the personal studios of local artists to learn how professional artists develop best practices as related to the three basic approaches to rendering sculptural form outlined above. Additionally, they will

explore and discuss with these artists the concepts expressed in their sculptural works.

c) Museum critiques: Museum visits will enable students to learn how to engage and respond to actual works of art as compared with those that they experience as slide and printed representations. The role of museums and galleries in contemporary art practice will also be discussed.

#### Grading and evaluation:

Students' sculptural projects will be evaluated according to the following criteria: 1) the uniqueness of the visual concepts developed in their studio assignments; 2) the strength of their visual compositions-their ability to communicate concepts clearly; 3) the quality of their craftsmanship-an effective use of materials and procedures and commitment to the studio assignments-the effort expended on each project; 4) Their willingness to participate in critique sessions-a thoughtful and informed interpretation of visual ideas in sculptural works produced by them in class as well as those discussed during slide presentations, studio visits, and museum critiques.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 040** (GA) Introduction to Printmaking (3) Instruction and practice in elementary printmaking and papermaking processes.

#### **ART 040 Introduction to Printmaking (3) (GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 040 is intended as a general survey of the art of printmaking for non-majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various printmaking conventions. Students are given the opportunity to briefly explore the various approaches to printmaking, which may utilize some or all of the following: screenprinting, relief, intaglio, lithography, and others. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the art of printmaking functions.

Students enrolled in this course will be required to participate in the following active learning components:

#### 1. Studio Printmaking Assignments:

- a) Screenprinting
- b) Relief
- c) Itaglio
- d) Lithography
- e) Others (collagraph, monotype, electrostatic, artists books)

#### 2. Creating a social and historical context for printmaking through slide presentations, studio visits and museum critiques:

- a) Slide presentations: students will be asked to consider the concepts of their creative projects in relationship to prints of historical and contemporary artists in order to understand the ways in which the two-dimensional aspects and various processes of printmaking convey meaning.
- b) Studio visits: Students will visit the personal studios of local printmakers to learn how professional artists develop best practices as related to the basic approaches to printmaking outlined above. Additionally, they will explore and discuss with these artists the concepts expressed in their printed images.
- c) Museum critiques: Museum visits will enable students to learn how to engage and respond to actual prints as compared with those that they experience as slide and book/journal reproductions. The role of museums and galleries in exhibiting prints will also be discussed

#### Grading and evaluation:

Students' printmaking projects will be evaluated according to the following criteria: 1) the uniqueness of the visual concepts developed in their studio assignments; 2) the strength of their visual compositions-their ability to communicate concepts clearly; 3) the quality of their craftsmanship-an effective use of materials and procedures and commitment to the studio assignments-the effort expended on each project; 4) Their willingness to participate in critique sessions-a thoughtful and informed interpretation of visual ideas in prints produced by them in class as well as those discussed during slide presentations, studio visits, and museum critiques.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 050** (GA) Introduction to Painting (3) Introductory experience in making of art through painting media; designed for non-majors seeking a general overview of studio practice.

**ART 050 Introduction to Painting (3)  
(GA)****(BA) This course meets the Bachelor of Arts degree requirements.**

ART 050 is intended as a general survey of the art of painting for non-majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various conventions used in the discipline of painting. Students are given the opportunity to briefly explore the various approaches to creating visual images by applying various painting materials, techniques, and concepts. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the art of painting functions.

Students enrolled in this course will be required to participate in the following active learning components:

**1. Studio Painting Assignments:**

a) Visual concept development: students will be introduced to the various ways that artists create meanings through painting. b) Materials development: through a process of exploration and experimentation, students will learn how to apply various painterly media and tools in creating visual images. c) Technique development: through a process of exploration, experimentation, and skill development students will learn how to render and model painterly images that range between abstract and realistic representations.

**2. Creating a social and historical context for painting through slide presentations, studio visits and museum critiques:**

a) Slide presentations: students will be asked to consider the concepts of their creative projects in relationship to paintings by historical and contemporary artists in order to understand the ways in which the two-dimensional aspects and various processes of painting convey meaning. b) Studio visits: Students will visit the personal studios of local painters to learn how professional artists develop best practices as related to the basic approaches to painting outlined above. Additionally, they will explore and discuss with these artists the concepts expressed in their painted images. c) Museum critiques: Museum visits will enable students to learn how to engage and respond to actual paintings as compared with those that they experience as slide and book/journal reproductions. The role of museums and galleries in exhibiting paintings will also be discussed.

**Grading and evaluation:**

Students' painting projects will be evaluated according to the following criteria: 1) the uniqueness of the visual concepts developed in their studio assignments; 2) the strength of their visual compositions-their ability to communicate concepts clearly; 3) the quality of their craftsmanship-an effective use of materials and procedures and commitment to the studio assignments-the effort expended on each project; 4) Their willingness to participate in critique sessions-a thoughtful and informed interpretation of visual ideas in paintings produced by them in class as well as those discussed during slide presentations, studio visits, and museum critiques.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 080 (GA) Introduction to Ceramics (3)** Introduction to the concepts and techniques fundamental to the making of pottery and ceramic sculpture.

**ART 080 Introduction to Ceramics (3)  
(GA)****(BA) This course meets the Bachelor of Arts degree requirements.**

ART 080 is intended as a general survey of the art of ceramics for non-majors. As a studio offering, emphasis is placed on hands-on activities, which promote visual literacy and sensitivity to the various conventions in ceramics. Students are given the opportunity to briefly explore many of the traditional approaches to ceramics including those that are used in hand building, wheel throwing, glazing, and kiln firing. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the art of ceramics functions. As a general appreciation offering, emphasis is placed on active learning processes that involve students in basic studio materials and techniques. Since the School of Visual Arts now requires a portfolio review for visual arts majors to enroll in studio courses, ART 080 provides an opportunity for non-art majors to do studio work in conjunction with an exploration of art concepts.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 097 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 100** (GA) Concepts and Creation in the Visual Arts (3) A study of the personal and cultural foundations of artistic creation and practice of creative production in the art studio.

**ART 100 Concepts and Creation in the Visual Arts (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 100 is intended as an introduction to the concepts underpinning artistic creation. Through lectures and studio work, students will explore relationships between artistic processes and in daily life. The objective of the course is to develop in the student both an appreciation and understanding of contemporary art through an examination of art and contemporary social, cultural, and political issues surrounding artistic practice. Students will respond to the ideas presented in the lectures by completing a series of artworks intended to reflect the issues and concepts that have been presented. The intended, though not exclusive, audience for the course is non-art majors. While the focus of the course is a critical examination of both the artworks studied and the artworks created by the students, the critique will be derived from the various backgrounds and academic experiences of the students and not necessarily from their knowledge of art. In this manner, the course can become a relevant complement to all of their studies. In short, the goal of the course is to understand art as a means to critically engage and begin to understand our surroundings and not simply as an end product. Evaluation of student achievement will be done in both the classroom and studio portions of the course. Since it is not expected that students have a background in art, content knowledge assessment will primarily be based on the students' active participation in class discussions as well as objective tests in the form of written responses to the issues and concepts examined. In the studio, their work will be judged on how well students have responded to the concepts and issues explored as well as on their ability to articulate their own ideas in relation to those of other students and other aesthetic and cultural ideas to which they have been exposed. In the studio, this process will primarily be done in the form of individual conversation and group critique. Since the School of Visual Arts now requires a portfolio review for visual arts majors to enroll in studio courses, ART 050 provides an opportunity for non-art majors to do studio work in conjunction with an exploration of art concepts.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 101** (GA) Introduction to Web Design (3) A beginning level course in Web Design, with emphasis on designing with standards to assure accessibility and effective communication.

**ART 101 Introduction to Web Design (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 101 is a beginning level web design course that is concerned with the designing and creating of web sites using XHTML and recommended government standards. This emphasis is central so that the work the students do will reach the broadest audience, including people with disabilities, through the use of a broad range of software and hardware.

This course will teach students how to meet the present government standards for accessibility by the disabled and the technical and accessibility standards recommended by the World Wide Web Consortium (W3C).

This course will also place an emphasis on the uses of art-images to present information along with the presentation of



text and typography for communication and how these elements can make projects on the web more effective.

The course will introduce topics such as: clarity of art and design, ease of use (navigability), and in creating art and graphics for web delivery (optimization).

There will also be discussion on the dynamics of networked communications, along with issues pertaining to the authoring and publishing of content and media on the internet.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 102 (GA)** Beginning Computer Aided Design for Artists (3) ART 102 explores the computer as artistic media. Student creations are realized through 3D printing, vinyl cutting, and laser engraving.

**ART 102 Beginning Computer Aided Design for Artists (3)  
(GA)**

Students are introduced to the exciting realm of digital 3D design. The class explores the computer as an artistic media as students learn a CAD application. Projects will address the themes of form, function and the aesthetics of design while also gaining an introduction to contemporary sculpture and computer mediated design happening in the art world now. Students are guided through the creation of a variety of objects from chess pieces to cars. Objects created during the class, in a computer application, are then realized tangibly through various output systems including 3D printing, vinyl cutting, and laser engraving. While no prior CAD experience is required students should be aware that all of the art created in class is done on a computer. Students in all areas of study, especially those interested in any aspect of art or engineering, are encouraged to register.

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 110S** Ideas as Visual Images (3) Introduction to the ideational relationships among subject, form, and content in visual images.

**Ideas as Visual Images (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2002  
Prerequisite: portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 111** Ideas as Objects (3) An introduction to the relationship between ideas and the creation of three-dimensional objects.

**Ideas as Objects (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2002  
Prerequisite: portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 122Y (US)** Commentary on Art (3) An introduction to verbal commentary, both oral and written, about art. The development of critical and expressive skills given emphasis.

**Commentary on Art (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Arts

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 165 (GA) Artistic Concepts of Space (3)** A studio course that utilizes lecture and varied media experiences to investigate space as artistic expression.

**ART 165 Artistic Concepts of Space (3)**

ART 165 Artistic Concepts of Space is a hands-on studio course supplemented by lecture. It utilizes various media experiences to investigate notions of space in artistic expression. Explorations will include traditional ways of depicting and constructing space as well as contemporary approaches. Both 2-D and 3-D studio investigations will be employed. A lecture component will provide a historical and cultural backdrop upon which students may better understand the role of special depiction in artistic expression.

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 166 (GA) Artistic Concepts of Form (3)** A studio course that utilizes lecture and varied media experiences to investigate form in artistic expression.

**ART 166 Artistic Concepts of Form (3)**

ART 166 Artistic Concepts of Form is a hands-on studio course supplemented by lecture. It utilizes various media experiences to investigate notions of form in artistic expression. Explorations will include traditional ways of depicting and constructing form as well as contemporary approaches. Both 2-D and 3-D studio investigations will be employed. A lecture component will provide a historical and cultural backdrop upon which students may better understand the role of special depiction in artistic expression.

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 168 (GA) The Digital Medium (3)** A studio course where the computer is introduced as an artistic media.

**ART 168 The Digital Medium (3)**

This course will provide a much needed introductory technological/digital component wherein computing will be discussed as a media, rather than a tool. Students will be engaged in the creation of artistic manifestations of individual interpretations surrounding themes and concepts introduced in class. Each unit of the course will build upon the next resulting in a knowledge base of the possibilities of what the digital medium includes. Students will be asked to demonstrate their knowledge of the medium with a culminating final project that uses at least four of the techniques demonstrated in class. The final project will be determined by the student, manifestations may include a web site, short film, installation, projects, or performance.

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 199** (IL) Foreign Studies--Art (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies--Art (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 201** Intro to Digital Arts: Computer Graphics (3) Art 201 is a course introducing digital art, design, and new media concepts using graphic applications on the computer.

### **ART 201 Intro to Digital Arts: Computer Graphics (3)**

This is a course in which the students work with raster graphic, vector graphics and text layout programs. The purpose of the course is to give an introduction to how computer hardware and software can be used to produce works of art and design, which can be exhibited electronically, and also in print. It provides the first step for students interested in realizing their artwork using computers to develop and realize it.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 203** The Art of Web Design (3) This course will focus on utilizing graphic formats ideal for web-based work and designing with web standards.

### **ART 203ART 203 The Art of Web Design (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 203 is a 200-level course for the New Media area of concentration in the School of Visual Arts, and will focus on working with different graphic formats, both bitmap and vector based, which work on the web and on designing with web standards to assure accessibility and effective communication of information in a variety of forms.

This course will teach how to meet the present government standards for accessibility by the disabled and the technical and accessibility standards recommended by the World Wide Web Consortium (W3C). The web as a global communication medium will be discussed, with special consideration given to the presentation of sites using languages other than English.

The course will also emphasize the various uses of images to present information in different ways, in a variety of formats - gif, jpg, png, swf and svg - to learn which is the most effective for the particular information being presented. The use of text and typography for communication and how these can make artwork on the web more effective will also be examined.

Clarity and flexibility of art and design, ease of use and creating web-optimized files that download quickly will be other subjects of concern.

There will also be examples and discussion of artists and designers currently using the web, how communication on the web can work well, how it can work badly and how it can be abused.

General Education: None

Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 211 (US)** Introduction to Digital Art and Design Criticism (3) An introduction to the language, aesthetics and cultural impacts of digital art and design in contemporary society.

**ART 211 Introduction to Digital Art and Design Criticism (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 211 examines 1) the conventions, language, practices, and aesthetics used by digital artists and designers and 2) the social and cultural implications that they and their works have for society with regard for the contexts of politics, philosophy, economics, race, gender, and technological development. Critical and creative thinking and expression are given primary emphasis in class activities and assignments. The course meets twice weekly and topics are explored through lectures, discussions, readings, presentations by visiting speakers, and out-of-class trips. Course assignments are writing and project based and require students to respond to ideas and concepts presented in class and to develop critiques of digital works through a variety of formats. Assignments include informal in-class projects, media reviews, a course journal, and a final project. Students build writing skills through analyzing assigned readings and developing research- and reflection-based projects about digital art and design. Speaking and listening skills are developed through discussions and collaborative activities.

Course topics explore the:

- social contexts of digital art/design;
- significance of the computer interface to digital art and design;
- practices used by digital artists and designers and their impact on audiences; and
- professional issues, concerns, and controversies affecting digital art/design, artists/designers, and their audiences

Students are required to have access to the Internet and to their University e-mail account.

ART 211 will enroll 25 students and will be offered spring semester.

General Education: None  
Diversity: US  
Bachelor of Arts: Arts  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 211Y (US)** Introduction to Digital Art and Design Criticism (3) An introduction to the language, aesthetics, and cultural impacts of digital art and design in contemporary society.

**Introduction to Digital Art and Design Criticism (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Arts  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 217 Metal Art/Technology I (3)** Introduction to current and emerging metal art technologies and processes as medium for conceptual, aesthetic, and functional artworks.

**ART 217 Metal Art/Technology I (3)**

This course will introduce the student to current and emerging metal art technologies and processes as media for conceptual, aesthetic, and functional artworks. Through an introduction to a wide range of metal art technologies, the student will be able to create new artworks not otherwise possible. These artworks will use the presented technologies to address concepts, aesthetics, and functions directly relevant to the visual arts. Assigned projects will involve a wide variety of skills, techniques and processes including application of design principles, refined generation of components, hot and cold joining, surface texture, CNC (Computer Numerically Controlled) machining, and kinetic systems. The resultant artworks will utilize the presented material as means for design and creation not otherwise possible through other processes. This project-based learning will be reinforced through slide lectures, demonstrations, readings, reflective writings, and critiques. This labor-intensive studio relies upon cumulative learning experience through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and creative use and application of these technologies is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 220** Figure Drawing (3) Drawing from life. Emphasis on developing the ability to comprehend and record the human figure.

### **ART 220 Figure Drawing (3)**

This course is intended to further investigate the art of figure drawing for art majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various conventions used in figure drawing. Students will be given the opportunity to explore many of the traditional materials of drawing, including pencil, charcoal, cont, ink and ink wash, pastel, as well as experimental tools. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which figure drawing functions. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 223** Drawing: Techniques, Materials, and Tools (3) Drawing with an emphasis on organization and the development of drawing skills through a variety of techniques, materials, and tools.

### **ART 223 Drawing: Techniques, Materials, and Tools (3)**

This course is intended to further investigate the art of drawing for art majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various conventions used in drawing. Students will be given the opportunity to explore many of the traditional materials of drawing, including pencil, charcoal, cont, ink and ink wash, pastel, as well as experimental tools. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which drawing functions. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 230** Beginning Sculpture (3) An introduction to sculpture consisting of lectures, demonstrations, and basic studio work coordinated to cover a broad range of processes.

### **ART 230 Beginning Sculpture (3)**

This course is intended to investigate the art of sculpture for art majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various conventions used in sculpture. Students will be given the opportunity to explore many of the traditional materials and processes of sculpture, including additive and subtractive processes, plaster-working, wood fabrication, metal fabrication, and mixed-media usage, as well as experimental tools and processes. Slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which sculpture functions. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 240 Beginning Printmaking (3)** An introduction to printmaking consisting of lectures, demonstrations, and studio work to cover a broad range of processes.

### **ART 240 Beginning Printmaking (3)**

This course will consist of lectures, demonstrations, and studio practice in a broad range of printmaking processes. Critiques will be directed toward technical, aesthetic, and historical issues in black and white and color print. Various print collections within the University will be employed to acquaint the students with the work of the professional in the field. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 250 Beginning Oil Painting (3)** The materials and techniques of painting in oil and their uses in creative painting on panels and canvas.

### **ART 250 Beginning Oil Painting (3)**

This course is designed to teach beginning students the basic fundamentals of painting and introduce them to the visual arts as a vehicle for personal expression. It is divided into technical categories for organizational purposes. The unique process of each discipline structures the course and allows for individual expression from a diversity of students with different skills and interests. The basic skills are introduced and studied through the creative process, from conception of an idea, preliminary sketches, variations, and final painting. Emphasis is placed on understanding the goals for each student and focusing on his or her shortcomings and strengths. While a basic mastery of mimetic painting is aimed at, a diverse range of aesthetic styles is presented. Thus the purpose of this course is to increase the appreciation of the visual arts through studio processes and the development of meaningful critical facility. We hope to educate students who will understand the fundamentals of painting and who will become part of an educated audience for the arts. Hopefully, they will be more imaginative and creative people. The studio emphasis on individual growth allows for flexibility in course structure to accommodate the general education objectives as well as for future painting majors. Creative and visual thinking are innately part of all students and these basic studio courses encourage and nurture them.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2009

Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 265 Artistic Concepts of Color (3)** A studio course that utilizes lecture and various media to investigate color as artistic expression.

### **ART 265 Artistic Concepts of Color (3)**

ART 265 Artistic Concepts of Color is a hands-on studio course supplemented by lecture. It utilizes various media experiences to investigate notions of color in artistic expression. Explorations will include traditional ways of investigating and creating color as well as contemporary approaches. Both 2-D and 3-D studio investigations will be employed. A lecture component will provide a historical and cultural backdrop upon which students may better understand the role of special depiction in artistic expression.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: ART 165ART 166

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 266** Artistic Concepts of Light (3) A studio course that utilizes lecture and varied media experiences to investigate light as artistic expression.

**ART 266 Artistic Concepts of Light (3)**

ART 266 Artistic Concepts of Light provides students with necessary concepts about light. Both 2-D and 3-D studio investigations will be employed. A lecture component will provide a historical and cultural backdrop upon which students may better understand the role of special depiction in artistic expression.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: ART 165ART 166

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 269** Methods and Materials I (3 per semester/maximum of 9) A studio course that focuses on specific media or techniques reflecting varied faculty expertise.

**ART 269 Methods and Materials I (3)**

This course provides students with the opportunity to experience particular areas of visual art in which faculty members have gained significant expertise. Topics will vary as faculty members rotate responsibility for offering the course. The course may be about a specific method, material or theme in which a faculty member is involved. The course is introductory in nature, and students may gain a basic understanding of a specific art form. Students are given the opportunity to explore several types of Art made by scheduling this course more than one semester. One of the goals of the course is to provide students with ways of visually communicating concepts and themes/issues.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: ART 165ART 166

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 280** Beginning Ceramics (3) The fundamentals of ceramics, throwing, hand-building, and glazing; acquainting the student with ceramic materials, techniques, and philosophy.

**ART 280 Beginning Ceramics (3)**

This course is intended to further investigate the art of ceramics for art majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various conventions used in ceramics. Students will be given the opportunity to explore many of the traditional materials of ceramics, including functional and nonfunctional applications, stoneware, and high fire glazes. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the field of ceramics functions. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2009  
Prerequisite: ART 110SART 111 and enrollment in the School of Visual Arts or successful completion of an admissions portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 290** Beginning Photography (3) Fundamental techniques and approaches to the art of photography utilizing digital photographic technologies; digital camera required.

**ART 290. Beginning Photography (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 290 is the first course for students who desire to pursue a concentration in photography. It will focus on the process of making photographs and the development of a critical understanding of photographic images and their evaluation.

In ART, 290 students will develop the habit of taking photographs on a regular basis. Each week, students will be expected to turn in 24 pictures on one of five assignments for review and critique by both instructors and members of the class. Each assignment will be covered over a three-week period.

The topics of the five assignments will vary, but each will focus on important aspects of photography. They may include: portraits, self-portraits, nature photographs, travel photographs, documentary series, experimental images, action assignments, etc. The final assignment will be a self-defined topic that allows the student to explore and work in an area of personal interest. Each topic will be selected to acquaint the student with important aesthetic principals in photography and at the same time advance their technical skill in the process of making photographic images.

As part of the five assignments in ART 290, students will also gain background on the history of photography and the critical evaluation of photographs. For each assignment there will be an accompanying gallery of work by other photographers (professionals, amateurs, and students) on the assigned topic area. Each photograph in the gallery will be accompanied by an "artist's statement" - a written critical statement where the photographer describes his or her work and methods.

Students will be required to complete each of the five assigned topics by submitting a final "gallery" of four photographs with a written "artist's statement" that speaks to the intent, process, and result of their work. Final submissions will help students develop skills in not only making photographs but critically evaluating their own work and articulating their personal means, methods, and objectives as photographers.

Grading will be based on (1) the completion of weekly submissions, (2) the quality of photographs in final submissions for each assignment, (3) attendance, and (4) participation in critiques.

A digital camera is required.

ART 290 will be offered fall and spring semesters.

Faculty member(s) proposing course: Ken Graves, Gerald Lang, and Keith Shapiro

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 297A** Introduction to Scripting (3) Students are introduced to object-oriented programming fundamentals for the production of expressive, interactive experiences such as animations, interfaces and games.

#### **Introduction to Scripting (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 297A** Introduction to Scripting (3) Students are introduced to object-oriented programming fundamentals for the production of expressive, interactive experiences such as animations, interfaces and games.

#### **Introduction to Scripting (3)**



General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 299** (IL) Foreign Study--Art (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Study--Art (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 300** Studio Apprenticeship (1-4 per semester/maximum of 8) Direct involvement in the creative process of the artist-teacher in the studio environment.

**Studio Apprenticeship (1-4 per semester/maximum of 8)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1993  
Prerequisite: fifth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 302** Digital Portfolio Elements (3) The creation of more involved digital projects that may ultimately be included in the students' digital portfolio.

**ART 302 Digital Portfolio Elements (3)**

**ART 302 DIGITAL PORTFOLIO ELEMENTS (3)** This course utilizes relevant digital tools for the completion of more involved projects that may ultimately be included in the students' digital portfolio. Through completion of the course, students will gain increased ability and independence in the application of relevant digital tools. The structure of the assignments and overall course will prepare and guide the students towards increased professionalism.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: ART 201 or ART 203

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 314** Computer 3-D: Modeling, Rendering, and Animation (4 per semester/maximum of 12) A studio course introducing 3-d computer generated artwork and content creation using modeling, rendering, and animation applications on the computer.

**ART 314 Computer 3-D: Modeling, Rendering, and Animation (4 per semester/maximum of 12)**

This is a studio course introducing 3-D computer generated artwork and content creation using modeling, rendering, and animation applications on the computer. This course will provide students with an in-depth understanding of 3-D

techniques and production strategies for the visual and new media artist through technical exercises and creative exploration of the medium. The course will seek to introduce students to a wide range of digitally generated 3-D based creative work and concentrate on producing and integrating 3-D modeled, rendered, and/or animated work into new media and studio art practice.

This course will explore the nature and potential of digitally generated 3-D artworks through lectures, readings, demonstrations, studio practice, and critiques. Assignments will cover a range of applications used in 3-D studio production.

This course will culminate in the creation of a series of original 3-D generated artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: ART 201 and enrollment in the ART BA ART BFA Art Education Interdisciplinary Digital Studio (IDS) or Integrative Arts degree program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 315 New Media Art: New Media Studio (4)** A studio course concentrating on digital art and new media authoring practices.

#### **ART 315 New Media Art: New Media Studio (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is a studio art class that focuses on creating, authoring, exhibiting, and critically evaluating interactive multimedia artworks. The course explores experimental uses of new media in the visual arts with emphasis on integrating digital media with current studio practices in two-, three-, and four-dimensional art. In addition to the actual creation of new media artworks, the course will engage students in research methods to advance their skills in new media and help them to develop an understanding of the critical evaluation and assessment of new media artworks.

This course will explore the nature and potential of digital art through lectures, readings, demonstrations, studio practice, and critiques. Assignments will cover a range of digital multimedia applications in sound, image, motion, interactivity, interface design, and media authoring.

The course will culminate in a final multimedia authored project for presentation on the Web, CD-ROM, DVD, or tape.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: ART 201 and enrollment in the ART BA ART BFA Art Education Interdisciplinary Digital Studio (IDS) or Integrative Arts degree program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 316 Video Art and Time-Based Media (4 per semester/maximum of 8)** A studio course concentrating on video art, new media, and experimental time based work.

#### **ART 316 Video Art and Time-Based Media (4 per semester/maximum of 8)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 316 is a studio art class that focuses on creating, authoring, exhibiting, and critically evaluating video and time-based arts. This new media course explores experimental uses of video by visual artists with an emphasis on integrating digital video into current studio practice (i.e., new media digital arts, mixed media, installation, and performance). The course will engage students in research methods to advance their skills in time-based media and to help them develop an understanding of the critical evaluation and assessment of video and time-based artworks.

This course will explore the nature and potential of digital video art making through lectures, readings, demonstrations, studio practice, and critiques. Assignments will cover a range of digital video authoring applications central to video and time-based arts production.

The course will culminate in a video art screening/exhibition of student work.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: ART 315

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 317 Metal Art/Technology II (4 per semester/maximum of 8)** Further exploration of current and emerging metal art technologies and processes as medium for conceptual, aesthetic, and functional artworks.

**ART 317 Metal Art/Technology II (4 per semester/maximum of 8)**

This course will further explore metal art technologies at an intermediate level. Students will apply their knowledge and experience with the source material that they learned in ART 217 to explore further the current and emerging metal art technologies through their physical investigation, integration, and fabrication. Through further exploration of a wide range of metal art technologies, the student will be able to create new artworks not otherwise possible. These artworks will use the presented technologies to address concepts, aesthetics, and functions directly relevant to the visual arts. Assigned projects will involve a wide variety of skills, techniques and processes at an intermediate level that will build upon the application of design principles, fabrication skills, use of current and emerging technologies, and kinetic systems. This project-based learning will be reinforced through lectures, demonstrations, readings, reflective writings, and critiques. This labor-intensive studio relies upon cumulative learning through advanced projects. Competency expected in numerous new skills and techniques, and creative innovation in the use and application of these technologies is essential to the success of completed artworks. Projects and assignments will be based upon the further integration of concepts and ideas.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 217ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 318 New Media Art: Game Art (4 per semester/maximum of 8)** A studio course concentrating on game art and new media authoring practices.

**ART 318 New Media Art: Game Art (4 per semester/maximum of 8)**

This course will concentrate on creating, authoring, exhibiting, and critically evaluating interactive games as creative vehicle for self-expression. This course will focus on creative work that is exploratory and experimental and engage students in research methods to advance their skills and critical competence in new media.

This course will explore the nature and potential of digital art through lectures, readings, demonstrations, studio practice, and critiques. Assignments will cover a range of digital multimedia applications in sound, image, motion, interactivity, interface design, and media authoring.

The course will culminate a final interactive game authored project for presentation on the Web, CD-ROM, or DVD.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: ART 314ART 315

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 319 Physical Computing (4 per semester/maximum of 8)** A studio course concentrating on interactive physical systems using software/sensors that can sense and respond to the analog world.

**ART 319 Physical Computing (4 per semester/maximum of 8)**

This is a course that looks at alternative techniques for engaging an audience with computer-based art, aside from the familiar monitor-mouse dialog. The course introduces students to haptic systems, interactive environments, dynamic control systems, procedural video/audio and the creation of work that is exploratory and experimental. Through readings, discussions, design of individual and collaborative projects, students are expected to develop an articulate, theoretical basis for conceptualizing and discussing works presented in class as well as their own creative projects. Assignments will cover both a technical introduction to basic electronics, analog circuit design, and microcontrollers as well as design concepts and philosophies for building interactive art objects.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: ART 201 and enrollment in the ART BA ART BFA Art Education Interdisciplinary Digital Studio or Integrative Arts degree programs

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 320 Advanced Drawing (4 per semester/maximum of 8)** Drawing for art majors; emphasis on sustained individual

approaches based on figurative and nonfigurative sources.

### **ART 320 Advanced Drawing (4 per semester/maximum of 8)**

This course is for students who have a firm commitment in the arts, who have adequate background in the use of techniques and materials, and who have experimented with a variety of approaches to subject matter. This course is designed to focus and develop personal approaches to subject matter and to encourage a sustained interest in work. Portfolios will be graded and midterm and at the end of the semester. In addition to the portfolio requirements, each student will give a presentation on a contemporary artist whose work has in some way influenced your own current body of work. Critiques will be regularly scheduled. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

**Faculty member Proposing Course:** Robert Yarber

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 220ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 330 Intermediate Sculpture: Metal Fabrication and Mixed-media (4 per semester/maximum of 8)** Development of technical and conceptual skills through metal fabrication, weld ing, and mixed-media processes.

### **ART 330 Intermediate Sculpture: Metal Fabrication and Mixed-media (4 per semester/maximum of 8)**

This course is for students who have a firm commitment in the arts, who have adequate background in the use of techniques and materials, and who have experimented with a variety of approaches to subject matter. This course is designed to focus and develop personal approaches to subject matter and to encourage a sustained interest in work. Readings, lectures, movies, and demonstrations will introduce students to the materials and techniques used in the various sculpture processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 230ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 331 Intermediate Sculpture: Metal Casting and Mold-Making (4 per semester/maximum of 8)** Development of technical and conceptual skills through metal casting and mold- making processes.

### **ART 331 Intermediate Sculpture: Metal Casting and Mold-Making (4 per semester/maximum of 12)**

This course is for students who have a firm commitment in the arts, who have adequate background in the use of techniques and materials, and who have experimented with a variety of approaches to subject matter. This course is designed to focus and develop personal approaches to subject matter and to encourage a sustained interest in work through the development of technical and conceptual skills through metal casting and mold-making. Students will learn both traditional and non-traditional ways of making sculptural objects that use these skills as primary means of artistic communication. Readings, lectures, movies, and demonstrations will introduce students to the materials and techniques used in the various sculpture processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 230ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 338 The Body: Issues and Objects (4 per semester/maximum of 8)** Creating representations of the human body and

related objects as a means of sculptural expression.

### **ART 338 The Body: Issues and Objects (4 per semester/maximum of 8)**

This course is for students who have a firm commitment in the arts, who have adequate background in the use of techniques and materials, and who have experimented with a variety of approaches to subject matter. This course is designed to focus and develop personal approaches to subject matter and to encourage a sustained interest in work through the exploration of both historical and contemporary artmaking practice concerning the representation of the human body and objects related to the body. Students will learn both traditional and non-traditional ways of making sculptural objects that use the body as a primary means of artistic communication. Readings, lectures, movies, and demonstrations will introduce students to the materials and techniques used in the various sculpture processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 230ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 340 Printmaking (4 per semester/maximum of 8)** Development of technical and expressive skills through selected problems in one or more of the print processes.

### **ART 340 Printmaking (4 per semester/maximum of 8)**

This course is for students who have a firm commitment in the arts, who have adequate background in the use of techniques and materials, and who have experimented with a variety of approaches to subject matter. This course is designed to focus and develop personal approaches to subject matter and to encourage a sustained interest in work. Readings, lectures, movies, and demonstrations will introduce students to the materials and techniques used in the various printmaking processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 240ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 341 Intermediate Printmaking: Intaglio/Relief (4)** Instruction and practice in the fundamentals of intaglio and relief printmaking processes in their relation to the fine arts.

### **ART 341 Intermediate Printmaking: Intaglio/Relief (4)**

This course is designed for the student who is interested in expanding her/his image making vocabulary through intaglio and relief printmaking processes. It will expose students to the history and practice of these processes, and will prepare students to competently produce original works.

Readings, lectures, and demonstrations will introduce students to the materials and techniques used in the various intaglio and relief processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals.

This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of complete artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: ART 240ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 342 Intermediate Printmaking: Lithography/Serigraphy (4)** Instruction and practice in the fundamentals of the lithographic and serigraphic processes and their relationship to the meaning of the print.

**ART 342 Intermediate Printmaking: Lithography/Serigraphy (4)**

This course is designed for the student who is interested in expanding her/his image making vocabulary through lithographic and serigraphic printmaking processes. It will expose students to the history and practice of these processes, and will prepare students to competently produce original works.

Readings, lectures, and demonstrations will introduce students to the materials and techniques used in the various lithographic and serigraphic processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals.

This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: ART 240ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 343 New Media Printmaking (4 per semester/maximum of 8)** A studio course concentrating on the integration of new media and traditional printmaking processes.

**ART 343 New Media Printmaking (4 per semester/maximum of 8)**

ART 343 is a studio art class that focuses on creating and critically evaluating printed media. Problem solving with new and traditional print technologies will allow the student to use both the computer and the printing press as a means to a creative end. Students will acquire the skills to critically participate in our technology driven culture, while at the same time they will develop an appreciation for the aesthetics of the handmade. This course will explore the nature and potential of printed media through lectures, readings, demonstrations, studio practice, and critiques. Various conceptually driven assignments will cover a range of graphic computer programs (Adobe Photoshop and Adobe Illustrator) and specific print outputs (digital, photo litho, photo etching and serigraphy) These assignments will engage students in research methods to advance their skills in printed media and help them to develop an understanding of the critical evaluation and assessment of Art.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 201 orART 240ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 350 Intermediate Painting (4 per semester/maximum of 8)** A variable offering in painting; course conditions defined on a rotating basis according to needs of individuals and groups.

**ART 350 Intermediate Painting (4 per semester/maximum of 8)**

This course will further develop painting techniques, using the genres of landscape, still life, and painting from the model, collage, abstraction, and some digital applications. Examples from past and contemporary painting practice will be presented and discussed. Particular emphasis will be placed upon the development of a critical awareness concerning processes and content. Readings and discussions will focus on contemporary cultural and political issues. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experience through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their creative use and application is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 250ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 365 Themes and Issues I (3)** An advanced studio course that emphasizes individual approach to theme oriented problem solving through traditional and non-traditional multi-media explorations.

### **ART 365 Themes and Issues I (3)**

ART 365 contains a common course theme wherein students will be asked to build a series of three completed works in diverse materials and techniques. Students will work to build clear concepts that are communicated through objects and images. Beginning with a thorough investigation of how artists of all fields (music, architecture, design, writing, theatre etc.) have interpreted the theme students will be guided through research, brainstorming, and concept development activities. During this they will be asked to keep a journal which documents their process through written descriptions and comments but also image based resources, sketches, diagrams, and in progress photographs. Students will be urged to complete pieces that are conceptually linked so as to begin working in series. At the completion of each piece, students and faculty will conduct group critiques.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: ART 165ART 166ART 265ART 266

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 366 Themes and Issues II (3)** An advanced studio course that emphasizes individual approach to theme oriented problem solving through traditional and non-traditional multi-media explorations.

### **ART 366 Themes and Issues II (3)**

ART 366 contains a common course theme wherein students will be asked to build a series of three completed works in diverse materials and techniques. Students will work to build clear concepts that are communicated through objects and images. Beginning with a thorough investigation of how artists of all fields (music, architecture, design, writing, theatre etc.) have interpreted the theme students will be guided through research, brainstorming, and concept development activities. During this they will be asked to keep a journal which documents their process through written descriptions and comments but also image based resources, sketches, diagrams, and in progress photographs. Students will be urged to complete pieces that are conceptually linked so as to begin working in series. At the completion of each piece students and faculty will conduct group critiques and each student will mount a small-scale individual exhibition at one of the many available areas for exhibition on campus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: ART 165ART 166ART 265ART 266ART 365

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 380 Intermediate Throwing (4 per semester, maximum of 12)** Intermediate ceramics course with focus on using wheel and throwing skills leading to personal expression in form, glazing, and firing.

### **ART 380 Intermediate Throwing (4 per semester/maximum of 12)**

The purpose of this course is to explore the use of the wheel. Various types of forms will be addressed such as bowls, covered jars, and vases. Technical skills will be learned with the goal to use them to create a personal means of expression via the wheel. Both traditional and nontraditional vessels will be created. Forming, trimming and glazing techniques will be covered. There will be both group and individual critiques along with slide presentations and demonstrations. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 280ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 381 Intermediate Handbuilding (4 per semester, maximum of 12)** An intermediate ceramics course with a focus on handbuilding techniques, leading to personal expression in forming, glazing, and firing.

### **ART 381 Intermediate Handbuilding (4 per semester/maximum of 12)**

The purpose of this course is to explore different means of expression with the techniques of handbuilding. Clay is unlike

any other material in that it can be transformed into virtually anything. Some of the forming methods which be addressed are coil, slab, carving, modeling and slump/press molds. The course will have assignments that are technically challenging, but will call on creative and artistic abilities. Slide presentations and group and individual critiques will be part of the curriculum. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 280ART H 111ART H 112 and enrollment in the ART BA ART BFA ART Education or Integrative Arts degree program.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 390** Introduction to Photochemical Photography (4) Introduction to the fundamentals of black and white photochemical photography.

### **ART 390 Introduction to Photochemical Photography (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 390 will explore the art and science of 35mm black and white photography. It will introduce students to chemically based photography as a process and continue to advance their skill and background as photographers.

In the course, students will learn about film cameras and their operation, basic film types, film developing and processing, and basic photochemical printing practices. Students will also develop skills through experience in making, developing, printing, and presenting photographs created through photochemical processes. Each student will be required to turn in 20 contact sheets (36 exposures each) during the semester on required weekly assignments and develop a final project containing 25 mounted 8 x 10 black and white prints.

40% of the semester grade will be based on the final project, 40% on weekly assignments, and 20% on quizzes.

A 35mm film camera with adjustable shutter speeds and aperture settings and a light meter (hand-held or built into the camera) is required. In addition, materials (film, photo paper, developing tanks, photo thermometer, etc.) will cost around \$300 to \$350.

ART 390 will be offered fall and spring semesters.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2012

Prerequisite: ART 110SART 111ART 290 and successful portfolio review

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 397A** Kiln Construction (4) Hands-on experience designing, building and firing ceramic kilns. Participants work together to construct a salt kiln and several test kilns. The history and evolution of firing techniques are explored.

### **Kiln Construction (4)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 399** (IL) Foreign Study--Art (1-12) Courses offered in foreign countries by individual or group instruction.



**Foreign Study--Art (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Arts  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 402** Portfolio Design and Professional Practices (3) This course emphasizes the development of presentation skills for digital artists in audience/client interactions.

**ART 402 Portfolio Design and Professional Practices (3)**

ART 402 PORTFOLIO DESIGN AND PROFESSIONAL PRACTICES (3) is the concluding experience for all students enrolled in the Digital Arts Certificate (DAC) program. The course provides opportunities for students to learn about the practical application of professional practices and portfolio development tools specific to careers that require knowledge of digital art and design principles and culminates in the development of a professional-quality creative portfolio. The course prepares the DAC student with the skills, knowledge, and ability to 1) communicate a critical understanding of his/her work through the articulation of goals, critique, and self-assessment; 2) identify, assess, and evaluate tools and information necessary to maintaining current and effective techniques for written and visual self-presentation; and 3) prepare and present online a professional-quality creative portfolio of digital art/design works and appropriate supporting documentation.

The course is taught fully online and comprises coursework supported by online presentations and guest talks, assigned readings, and other resources and reference materials relevant to the professional development of digital artists and designers. Course topics include: 1) the role of the portfolio, 2) selecting portfolio ingredients and how to adapt them for different audiences, 3) selecting/composing supporting documentation for the creative portfolio, 4) developing a professional-level online presentation of the digital portfolio, 5) locating and evaluating resources for the digital arts/design professional and 6) identifying professional practices relevant for individuals working in digital art and design. Students engage in both individual and team-based projects and interactions via activities such as asynchronous group discussions and guest talks delivered by streaming media.

Assessment is based on the quality of the student's work and participation in individual and team-based projects and activities that include online discussions, peer-reviews, collaborative research, and the development of an online presentation for the creative portfolio. Students receive regular individual and group feedback throughout the course in the form of instructor and peer reviews and critiques. Formal assessment occurs at regular intervals in a manner that evaluates both individual and group components of assigned tasks and activities. Students are expected to positively contribute to the course through active engagement in online discussions, team-based work and activities, and peer reviews. Course assignments include creative and written components and provide multiple ways for students to engage in various forms of professional development, self-evaluation, and critique.

Students are required to have access to the Internet.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2010  
 Prerequisite: ART 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 405** Advanced Studio Art (3 per semester/maximum of 9) Advanced work in drawing and painting, with an emphasis on individual development.

**Advanced Studio Art (3 per semester/maximum of 9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: 6 credits of ART or A ED or graduate level status or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 409** (ART H 409) Museum Studies (3) An introduction to the professional activities that occur in art museums.

**ART (ART H) 409 Museum Studies (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course introduces students to the broad field of art museum work, specifically museum administration, education,

curatorial work, registration, and exhibition design. Readings by authors in each field provide current theoretical and philosophical frameworks for all areas, which are then followed by discussions and practical experiences with professional museum practitioners, including the staff of a museum, for example, the Palmer Museum of Art, and invited guests. Museum Studies is open to students who have complete six credits in art, art education, or art history. This course is especially beneficial for majors in art, art education, and art history who are considering a career in an art museum or who want to become more aware about how an art museum functions. In addition to providing an in-depth introduction to art museum work, the course encourages students to build the critical thinking and response skills that are crucial to success in the real-world environment of a museum. The readings provide a solid foundation for later reference or further study in the student's chosen field. Offered every spring, this course will have a maximum enrollment of 20 students. Grades are based on class participation, four out-of-class projects, and a final project. Extra credit is offered for an off-campus visit to a museum, among other options.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 2004

Prerequisite: 6 credits of ART H ART and/or A ED

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 411 (US) Seminar in Contemporary Art (3 per semester/maximum of 6)** Trends in contemporary art investigated within the framework of studio visitations, museum tours, and through other related avenues of encounter.

### **ART 411 Seminar in Contemporary Art (3)**

This seminar on contemporary art exposes students to artistic practices and to the advanced-level critical discourses accompanying them. It is relevant to all students interested in expanding their knowledge of contemporary art and essential to BFA students who are encouraged to take the course more than once. The only prerequisite for this course is ART 122W. The seminar's intimate format allows for discussions and a convivial examination of the pluralistic expressions of contemporary art while articulating it with theory and criticism.

From an international perspective, this seminar focuses on art since the 1960s. Besides more traditional artistic expressions such as painting, sculpture, photography, installation, performance and video, the course examines networked collaborations before and after the Internet, art and social activism, and a range of new media and new genre artistic practices. The conceptual issues these works raise include among others the dematerialization of the art object, issues of site-specificity and public art, and institutional critique. The course approaches these developments through artists' writings and essays in contemporary theory and criticism. Works of art are presented through videos, power points, films, performances, gallery visits, field trips, and discussions of related essays. Critical "reading" includes an extensive introduction to the work's historical contexts, readings from primary source materials, and the exploration of critical methods of analysis. From a cross-disciplinary perspective—including historical, esthetic and philosophical approaches—this course examines principles, assumptions, and tensions inherent in artist's works as well as in our responses to them.

Student evaluation is based on short written papers such as an exhibition review or an interview, participation in class discussions, and a creative project (ranging from a web site to an installation, artist's book, or a performance), which must reflect a general understanding of the issues addressed in the course. The course is offered at least once a year with the enrollment of 15 students.

General Education: None

Diversity: US

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 122YART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 413 Performance Art (3)** The development, production, and presentation of performance art works, and the study of performance art theory and history.

### **ART 413 Performance Art (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will consist of lectures, readings, demonstrations, critiques, and studio practices in performance art. The course will begin with introductory exercises aimed toward the use and understanding of objects, images, materials, and actions of the body as performance elements. Performance assignments will range from autobiographical works to those which will address political issues affecting art and the body today such as sexuality, ethnicity, health, ecology, the art market, government intervention, and others. Reading and discussion assignments will cover the theory and history of performance art in the twentieth-century.

**Performance Art Paper:** One week after the second performance project, students will be required to submit a paper that defines performance art. The paper should be typewritten, double-spaced, and three pages in length. In addition, it should contain a page for references that indicates at least five sources that have been used from the course reading list to support arguments.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2000

Prerequisite: 4 credits of 300-level art or graduate level status or permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 415 Integrating Media: Convergence in Practice (4 per semester/maximum of 12)** A studio course concentrating on the integration of new media technologies in contemporary art practice.

**ART 415 Integrating Media: Convergence in Practice (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will concentrate on the integration of technologies into contemporary studio art practice. Emphasis will be placed on the convergence of digital, interactive, and time-based experiences within current studio practice. Assignments will cover a range of digital multimedia applications in sound, image, motion, interactivity, interface design, and media authoring. The course will culminate in a final large-scale collaborative media project, group show, installation, video screening, and/or class web presentation. This course will be offered fall and spring semesters.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 315

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 416 Advanced Web and Net Art: Multimedia Publishing (4 per semester/maximum of 12)** A studio course concentrating on multimedia online "net art" practice and Web publishing.

**ART 416 Advanced Web and Net Art: Multimedia Publishing (4 per semester/maximum of 12)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is a studio art class that focuses on creating, authoring, exhibiting, and discussion online art practice. "Net Art" has become an important form of new media art creation and exhibition. The course explores experimental uses of new media in the visual arts with emphasis on integrating net art and design practice in cyberspace with current studio practices in two, three, and four (time based) dimensional art. In addition to the actual creation of new media artworks, the course will engage students in research methods to advance their skills in new media art and design and help them to develop an understanding of the critical evaluation and assessment of new media artworks created specifically for the web. The course will also explore various methods and strategies for exhibiting and publishing artworks on the web and creating online portfolios.

The course will examine and explore the potentials of net-based art through lectures, readings, demonstrations, creative practice in studio, critiques, and actual web-published exhibitions. Assignments will cover a range of digital multimedia applications in sound, image, motion, interactivity, interface design, and media authoring.

The course will culminate in an online exhibition and personal portfolio sites published on the web.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: ART 203ART 315 and 8 credits of 300-level new media

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 417 Metal Art/Technology III (4 per semester/maximum of 12)** Advanced exploration of current and emerging metal art technologies and processes as medium for conceptual, aesthetic, and functional artworks.

**ART 417 Metal Art/Technology III (4 per semester/maximum of 12)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will continue exploration of metal art technologies at an advanced level. This course will also cover technologies related to professional preparation, such as mass production options, presentation approaches, and interfacing with suppliers. The convergence of metal art technologies as source material (ART 217) and its further integration with emerging technologies (ART 317) will serve as the basis for students; creative works that intersect art, function, and technology. Through this advanced exploration of a wide range of metal art technologies, the student will be able to create new artworks not otherwise possible. These artworks will use the presented technologies to address concepts, aesthetics, and functions directly relevant to the visual arts.

Assigned projects will involve a wide variety of skills, techniques and processes at an advanced level that include the application of design principles, advanced metal forming techniques, research and construction of mechanical, kinetic, and electronic systems, and independently focused explorations. This project-based learning will be reinforced through slide lectures, demonstrations, readings, reflective writings, and critiques.

This labor-intensive studio relies upon cumulative learning experience through increasingly advanced projects. Competency is expected in numerous new skills and techniques, and creative innovation in the use and application of these technologies is essential to the success of completed artworks. Projects and assignments will be based upon the advanced integration of concepts and ideas.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2005  
Prerequisite: ART 317

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 419 Advanced New Media: Capstone (4 per semester/maximum of 8)** A new media and digital arts capstone course concentrating on the integration of art and technology in advanced thesis projects.

**ART 419 Advanced New Media: Capstone (4 per semester/maximum of 8)**

This is an advanced senior level capstone experience for new media. The course concentrates on advanced media theory and discourse, the integration of new media technologies into contemporary studio art and design practice, and on the creation and documenting of senior thesis projects. The course will focus on the final preparation of professional portfolios. The course will follow a studio/seminar model.

Student thesis projects may cover a range of digital multimedia applications in sound, image, motion, interactivity, interface design, 2D, 3D, 4D media authoring, etc. in relation to their focus in new media art and design practice.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: ART 315ART 203 orART 416 and 12 credits of 300/400-level new media senior or graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 421 Drawing (4 per semester/maximum of 12)** Drawing for advanced students, with total emphasis on sustained individual approaches.

**Drawing (4 per semester/maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1992  
Prerequisite: ART 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 422 Advanced Figure Drawing (4 per semester/maximum of 8)** Concentrated work in recording and understanding the human figure.

**Advanced Figure Drawing (4 per semester/maximum of 8)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1998  
Prerequisite: ART 220 8 credits of 300-level art courses

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 430 Advanced Sculpture (4 per semester/maximum of 12)** Advanced work in sculpture, with an emphasis on individual development.

**Advanced Sculpture (4 per semester/maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1992  
Prerequisite: ART 330ART 331 12 credits of 300-level sculpture

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 431** Installation Art (4) Study and production of original visual statements through installation work as an art form.

**Installation Art (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1998  
Prerequisite: 4 credits of 300-level art or graduate level status

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 440** Advanced Printmaking (4 per semester/maximum of 12) Individual projects in one or more of the printmaking processes. Emphasis is on developing a portfolio of prints.

**Advanced Printmaking (4 per semester/maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1998  
Prerequisite: 4 credits of 300-level printmaking courses 8 credits total of 300-level art courses

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 446** Artists Books (4) Study and production of original visual statements through the book as an art form.

**ART 446 Artists Books (4)**

This course will consist of lectures, demonstrations, and studio practice in production of artists books. Lectures and demonstrations will include hand papermaking, signature binding, book design, new and alternative book forms, and container construction. Each student will produce six either unique or editioned books during the semester; each book will have a mock up, title, colophon page, and will be signed. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2009  
Prerequisite: ART 110SART 111ART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 447** Photo Based Printmaking (4) Study and production of original visual statements through photographic based printmaking as an art form.

**ART 447 Photo Based Printmaking (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will consist of lectures, demonstrations, and studio practice in production of graphically based art prints. Each student will produce original prints in each of the printing techniques presented.

Specific lectures, demonstrations, and projects will include photo based prints through: 1)Serigraphy, 2)Intaglio, 3)Gum Bichromate, 4)Cyanotype, 5)Van Dyke Brown, 6)Adobe Photoshop

A particular emphasis will be placed upon the use of the computer as a tool in the production of images. The digital negatives produced during the computer instruction in this course will be employed in all of the other printing processes.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2000  
Prerequisite: ART 240 4 credits of 300-level Art courses or graduate level status

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 450** Advanced Painting (4 per semester/maximum of 12) Development of the artist through a series of commitments; each semester serves as a contractual agreement along professional lines.

**Advanced Painting (4 per semester/maximum of 12)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Arts  
 Effective: Summer 1992  
 Prerequisite: ART 350

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 455** Advanced Painting Critique (4 per semester/maximum of 8) The painter in relation to his peers and his profession.

**Advanced Painting Critique (4 per semester/maximum of 8)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Arts  
 Effective: Fall 1983  
 Prerequisite: senior or graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 465** Individual Approaches I (3) An advance studio where students are expected to explore personal themes and individual concepts in their art work.

**ART 465 Individual Approaches I (3)**

ART 465 is an advanced studio course concentrating on creating art within a series. Students will be asked to complete 4-6 pieces that stem from an individual idea. Medium is open and can be traditional or non-traditional. Students will be required to document and maintain a journal outlining the steps needed to complete each piece. Weekly formal and/or informal critiques will allow students constant feedback of their progress.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: ART 165ART 166ART 265ART 266ART 365ART 366

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 466W** Individual Approaches II (6) An advance studio/lecture addressing the preparation for potential employment and/or entrance into graduate studies.

**ART 466W Individual Approaches II (6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 466W is the Visual Art Studies capstone experience where students are given the opportunity to experience the professional aspects of a practicing artist. In addition to completing the last 2-4 pieces toward their exit portfolio students will address vital activities surrounding applying for employment and graduate school. Students will create "packets" including resumes, cover letters, post cards, slides, and portfolio CDs that can be used directly out of school for various calls and job listings. In addition topics that will be addressed in depth are photo-documentation, and inventory of work through database maintenance. All of these issues will culminate with small group exhibitions which will be curated, installed, and promoted by the students.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Arts  
 Effective: Summer 2007  
 Prerequisite: ART 165ART 166ART 265ART 266ART 365ART 366ART 465

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 468** The Intermediate Digital Medium (3) An advanced studio course using the computer as an artistic media.

**ART 468 The Intermediate Digital Medium (3)**

This course will provide the much needed advanced technological/digital component wherein computing will be discussed as a media, rather than a tool. Students will be engaged in the creation of graphic/moving/three-dimensional imagery and sound that explores themes and concepts introduced in class. While most of the course will center around the use of industry standard computers there will be some forays into hardware associated with production, sound, and projection of images.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: ART 165ART 166ART 168

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 469 Methods and Materials II (3 per semester/maximum of 9)** A studio course that focuses on specific media or techniques reflecting varied faculty expertise.

### **ART 469 Methods and Materials II (3)**

This course provides students the opportunity to experience particular areas of visual art in which faculty members have gained significant expertise. Topics will vary as faculty members rotate responsibility for offering the course. The course may be about a specific method, material or theme in which a faculty member is involved. The course is in depth in nature, and students may gain an advanced understanding of a specific art form. Students are given the opportunity to explore several types of Art made by scheduling this course more than one semester. One of the goals of this course is to provide students with ways of visually communicating concepts and themes/issues.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: ART 165ART 166ART 265ART 269

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 475 (US) (ART H 475) Contemporary Women Artists (3)** An interdisciplinary course that investigates women artists who were integral to the production of contemporary art primarily in the Americas, Europe, and Asia.

### **Contemporary Women Artists (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: Arts  
 Effective: Spring 2009  
 Prerequisite: fifth-semester standingART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 476 (ART H 476) History and Theory of Digital Art (3)** History and theories of contemporary digital art emphasizing humanistic approaches to technology.

### **ART (ART H) 476 History and Theory of Digital Art (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Approaches to Digital Art is a survey class that will offer the web designer, cyberspace architect, MUD traffic controller or enthusiastic surfer an opportunity to examine the humanistic aspects of contemporary digital art. Through readings and direct interaction with digital media and digital artists, the class will develop an appreciation of the ways in which the interface between human beings and technology has been historically constructed and is subject to critical investigation. The goal of the class is to prepare each student so that she or he may engage with digital media in a way that is every more historically and socially self aware.

Students will address the ways in which digital technologies transform artistic practices such as museum display, the writing of art criticism, the definition of works of art, changing role of the artist and the changing space of the art studio. More important, however, by engaging with digital works of art students will learn to think critically about technology and its engagement with culture at large. They will be encouraged to think about the political, economic and social impact of digital technologies. This humanistic approach to technology would make this course particularly useful to students of art history, philosophy, comparative literature, art education, and the visual/plastic arts. A significant portion of the course will be devoted to the ways in which art on the internet and digital art in general challenge the integrity of categories such as race and national identity. For example, students will have an opportunity to engage with African American artists such as Keith Obadike, whose on-line performances include an attempt to put his "blackness" up for sale on ebay.com in August of 2001. Students may also look at the ways in which net.art (Art made to be viewed on the internet) can critique commercial cooptation of global culture: etoy.com, for example, is an international and collaborative artist's group that satirizes global capital by camouflaging itself as a multinational corporation.

This class will depend largely upon written responses and class discussion, rather than upon tests. Thus, students will learn how to approach difficult theoretical sources that have been assigned to them, and they will learn how to ask the kinds of questions that will help them understand such sources. This course will emphasize critical thinking rather than memorization, so students will develop analytical skills that will be useful in many other contexts. Because students will be given weekly writing assignments, they will be able to improve their skills in composition.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2007

Prerequisite: ART H 100 or ART H 112 or ART H 307 or ART H 325 or ART H 326 or ART 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 480** Advanced Ceramic Arts (4 per semester/maximum of 12) Individual exploration of ceramic materials and construction leading to graduate study or career development as a professional potter.

**Advanced Ceramic Arts (4 per semester/maximum of 12)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 1992

Prerequisite: ART 380

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 481** Ceramic Materials and Glaze Calculation (3) The study of raw materials and their use in formulating clays and glazes.

**ART 481 Ceramic Materials and Glaze Calculation (3)**

The purpose of this course is the study of raw materials and their use in formulating clays and glazes. Emphasis will be placed upon proper, safe handling of materials, accurate and effective combinations, and the correlation between chemical interactions and their aesthetic and functional outcomes. All explorations will be integrated into completed ceramic works of art comprising a new portfolio of work. Readings, lectures, movies, and demonstrations will introduce students to the materials and techniques used in the various ceramic materials and glaze calculation processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: ART 280 ART H 111 ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 490** View Camera Photography (4) Experience with diverse camera formats and applications; particular emphasis on view camera.

**ART 490 View Camera Photography (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ART 490 will provide students with experience in diverse camera formats and application with particular emphasis on view camera and its creative applications.

The course will give students background in the history of large format photography and understanding of its application in specialized fields such as architectural photography, portraiture, and landscape photography. Students will gain experience in view camera operation and the creation of large format photographs in a variety of different applications.

Grading will be based on a minimum of five projects that will account for 80% of the semester grade. The remaining 20% of the semester grade will be based on participation in class critiques. The final course grade will be dropped one full grade for each absence or late submission beginning with the second late submission or absence.

ART 490 will be offered in the fall semester each year.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 2002

Prerequisite: ART 390

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**ART 494H** Research Projects Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1995  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 496H** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 497A** 3D Digital Arts II (4) This studio course provides advanced students with an environment within which to work on computer animated projects using 3D software.

**3D Digital Arts II (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 497B** Compositing in 3D (4) This course covers intermediate to advanced 3D compositing techniques like colore correction, render pass and post effects for 3D video.

**Compositing in 3D (4)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 497B** Compositing in 3D (4) This course covers intermediate to advanced 3D compositing techniques like colore correction, render pass and post effects for 3D video.

**Compositing in 3D (4)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 497C** Functional Pottery (4) Designed to address the potential for handmade pottery to define culture. Food, readings and pottery making set the stage where theoretical dissection and informed hands-on making of dishes will take place.

**Functional Pottery (4)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 497D** Art & Life: Whwere They Intersect (3) The connection between life and art will be explored from both a personal and cultural perspective. Taking risks is expected.

**Art & Life: Whwere They Intersect (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 497E** Advanced Metal Casting and Mold Making (4) Advanced development of technical and conceptual skills through casting and mold making processes.

**Advanced Metal Casting and Mold Making (4)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 497F** D.I.Y. Digital Fabrication (4) Participants in this course will work collaboratively to build and utilize robust Digital Fabrication tools from open source hardware plans. Laser cutting and 3D printing will be explored in depth.

**D.I.Y. Digital Fabrication (4)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 497G** Words and Images: Artists and Writers Collaborate (3) This collaborative course is designed for visual arts and creative writing students. The student will consider the artist's book as a form and locate it within the broader context of contemporary writing and visual art. Students will collaborate with others outside of their home college, through the process of combining text and image to construct an artist's book. A broad range of historical, conceptual and theoretical approaches to the artist's book as a genre will be explored.

**Words and Images: Artists and Writers Collaborate (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART 499** (IL) Foreign Studies--Art (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies--Art (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Art Education (A ED)

**A ED 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 101S** Introduction to Art Education (3) This course introduces students to issues, concepts, and ideas in Art Education.

**A ED 101S Introduction to Art Education (3)**

The objective of the course is to introduce students to basic ideas, areas of inquiry, and experiences in art education. This will be a required course that serves as the first of a sequence of courses in the Art Education major and will provide a beginning point for the rest of the courses in the major. The Art Education Program has two emphases. The first leads to public school teacher certification and the second to an understanding of arts education in settings such as museums and community arts organizations. This introductory course will be broadly based and the content and will be applicable to students in both emphases. This course will be conducted in a seminar format. Evaluation methods for the course will include, for example, critical response papers to readings, observation reports of early field experiences, tests, and portfolio assessment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 201W History and Philosophy of Art Education in Schools and Cultural Institutions (3)** Introduction to historical, philosophical, and sociological foundations art education in schools and cultural institutions, museums, and community organizations.

**A ED 201W History and Philosophy of Art Education in Schools and Cultural Institutions (3)**

Art education is not an isolated phenomenon; art teaching and learning has always occurred in the context of broader cultural changes and a range of social factors, including technological developments and population diversity. This course examines the historical, philosophical, and sociological foundations of art education in the United States. Art education can be found in a variety of formal and informal settings, including schools, community arts organizations and museums. Students will examine questions such as, what was the purpose of teaching art in the past? Was art study a means to improving social status, to attaining technical literacy, or to vocational training? Did education in art promote a democratic way of life? Or did it help reproduce existing divisions of race, gender, class, and ethnicity in American society? This course examines past and present developments in art education, paying special attention to the relation of art teaching and learning in contexts of art worlds, schooling, cultural institutions, and changing demographics. While the course will focus on art education in the United States, art education in a global context will be addressed as appropriate.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 211 (GA) Interpreting Art Experience: Social and Behavioral Perspectives (3)** Examination of psychological, cultural, aesthetic, philosophical and educational perspectives on creation and response to art in children, adolescents and adults.

**A ED 211 Interpreting Art Experience: Social and Behavioral Perspectives (3)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine the shared human experience of making and responding to visual images and artifacts from the broadest possible range of perspectives, encouraging students to develop an understanding of the role of art experience in their own lives and in the lives of others. How art is learned within specific cultures and subcultures, how understanding and appreciation of particular images and objects evolves, and how experience and learning interacts with fundamental processes of perception, cognition, and interpretation are central themes. Students will draw upon their own personal and cultural histories and consult accounts written by others to explore the role of visual art in contemporary life. Classic and contemporary studies of artistic development and aesthetic response will be reviewed through well-illustrated lectures and amplified through students' active involvement in small scale, collaborative research studies based upon methods commonly used to study the art experience of children, adolescents, and adults without professional expertise in the visual arts; these activities will include close observation, interviews, and the design of preference and drawing studies. As a final course project, each student will construct a case study of a child, adolescent, or adult which describes in detail one perspective on that individual's experience of art in the home, school, museum, and/or other cultural institutions and settings.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 212 Interpreting Art Experience: Educational Implications (1)** In-depth study of the educational implications of the information on art making and response introduced in A ED 211.

**A ED 212 Interpreting Art Experience: Educational Implications (1)**

A special discussion section attached to A ED 211 and required of students majoring in art education. A ED 212 focuses on the educational implications of the perspectives on art experience presented in A ED 211. This segment of the course will attend specifically to issues related to learners and learning in the visual arts, including characteristics of learners at various stages of development and the ways in which curriculum and instruction can and should be shaped by these considerations.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: A ED 101SA ED 201W

Concurrent: A ED 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 225 (GA;US) Diversity, Pedagogy, and Visual Culture (3)** Issues of diversity in art, education, visual culture, and pedagogy.

**A ED 225 Diversity, Pedagogy, and Visual Culture (3)**  
**(GA;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This interdisciplinary course will serve to introduce students to critical understandings of issues of diversity, as they arise in contexts such as the art world, cultural institutions (such as museums and community arts organizations), schools, visual culture, and the culture, educational texts (such as curricula), and history, while developing a theoretical base from educational and cultural theory. By the end of the course, students will understand diversity as broadly defined in relation to visual culture and be able to critically explore the complex dynamics of race, gender, sex, and class, and the pedagogical issues posed by diversity.

General Education: GA

Diversity: US

Bachelor of Arts: Arts

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 303 The Visual Arts in the Elementary School (3)** Basic concepts of current art education theory and practice for the elementary teacher.

**The Visual Arts in the Elementary School (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1993

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 322 Visual Culture and Educational Technologies (3)** The course provides a foundation for innovative integration of digital technologies in art making, viewing, and teaching.

### **A ED 322 Visual Culture and Educational Technologies (3)**

The purpose of the course is to develop skills, questioning attitudes, and uses for technology in art and art education; and to engage in electronic mediated communication and new media artmaking. This course is for both undergraduate Art Education degree options: (1) Schools, and (2) Museums & Cultural Institutions. The focus is on students' constructing a critical understanding of technology as a cultural interface in contemporary art, visual culture, and art education. This course addresses issues, practices, and potentials of instructional technology for art education. Course participants explore the pedagogical implications of intertextual Webs, hypertext & hypermedia, blogs, simulations, virtual reality, threaded dialogue, WebQuests, online games, media communities, collaborations, adaptive and assistive technologies, and media-rich "student papers." This course emphasizes the importance of sharing perspectives in an educational context, and on how e-learning course tools, along with specific teaching strategies, can facilitate shared perspectives.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: A ED majors only

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 323 Visual Culture and Art Education (3)** The study and creation of contemporary art forms as visual culture critiques provide curricular and pedagogical approaches to art education.

### **A ED 323 Visual Culture and Art Education (3)**

This course is for Art Education majors in the Schools option.

Students will:

- \* Read, critically examine, and discuss postmodern "texts" in relation to the ways in which the works and the critical writing that surrounds them participate in, among other issues, the construction of race and gender, and the creation of power and control.
- \* Reflect critically on contemporary writings that address the nature of art, visual culture, artmaking, exhibition, and interpretation as pedagogical processes for making meaning through art.
- \* Create installations, videos, and performances or any combination of the three forms, individually and/or in groups.

The purpose of this course is:

1. To assist students to insightfully interpret and create artworks through both writing and artistic media.
2. To provide students with the bases for understanding, interpreting, and critically analyzing contemporary visual culture, which can provide the content of curriculum outlines and unit and lesson plans that students develop in the course for use during internships, student teaching, and as art educators.
3. To provide students with opportunities to develop connections between artworks and their own lives, the lives of their prospective students, and the societies in which they will live.
4. To encourage students to consider race, class, sexual identity, age, and gender issues in art, art education, cultural production, exhibition venues, and career opportunities.

TEXTS include popular arts, film, television, video/computer games, music, theatre, fashion, museums, contemporary art, and newsmedia.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: A ED majors only

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 401** Curricula, Pedagogy, and Assessment in Art Education (3) Preparation of curricula, pedagogical, and assessment strategies for elementary/secondary school and museum art education programs.

**Curricula, Pedagogy, and Assessment in Art Education (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002  
Prerequisite: A ED 101SA ED 201WA ED 211A ED 212A ED 225A ED 322A ED 323

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 440** Cultural Institutions (3) Role of the educator and educational programming in museums and other cultural institutions.

**A ED 440 Cultural Institutions (3)**

A ED 440 is the final course before an extended internship in the Museums and Cultural Institutions option of the BS in Art Education. It provides students with the opportunity to study the roles of educators and educational programming in various types of cultural institutions and agencies, from art museums and historic houses to community arts centers and arts councils. It enables students to learn about professional and vocational opportunities and to prepare for a career in the arts and cultural education.

Through reading, discussion, and field trips, the course explores the implications of past coursework for educational programming in cultural institutions. By preparing and presenting a case study, students understand and assess the effectiveness of educational programming in one institution. By preparing their own educational materials, program, or installation, they learn how to apply what they have learned to a specific setting.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: ANTH 100 or 3 credits of Art History courses from department list;A ED 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 488** Cultural Institutions Practicum (1-3) Supervised field experience in a museum or other cultural institution, including planning, implementation, and evaluation of an educational project.

**A ED 488 Cultural Institutions Practicum (1-3)**

This course provides 1 to 3 credit hours of field experience for students enrolled in the Museums and Cultural Institutions Option of the BS major in Art Education. The course will provide students with a structured and supervised experience working with an educator in one of a variety of possible educational settings in museums and other cultural institutions in the local community and nearby region, including the Palmer Museum of Art. The field experience will allow students to apply what they have learned in coursework in a practical setting, plan and implement an educational project or program, and prepare for their extended 15-credit internship in A ED 495.

The nature of the field experience will vary depending upon the institutional setting, upon whether the student is working alone or as part of a team, upon the needs of the institution and the nature of the educational project, and upon the number of credit hours earned. In some cases, the course may be extended over two semesters. The course may be taken as an independent study, or structured around a group of students engaged in a joint project. Each student will be supervised by an educator in the setting in which the field experience takes place, as well as by an instructor from the Art Education program at the University.

Each student will become familiar with the role of education in the particular institutional setting and participate in providing educational experiences for the people served by the institution. As his or her primary assignment, each student will carry out an educational project in the setting, either individually or as part of a team. These projects may include, but not be limited to, an educational program, a set of educational materials, a marketing campaign, or educational installation. Each project will include preparing a written plan, conducting formative evaluation to field test the plan, implementing the project, evaluating its effectiveness, and preparing and presenting a final written report.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2002  
 Prerequisite: ANTH 100 or 3 credits of art history courses from department list; A ED 401  
 Concurrent: A ED 490

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 489** Advanced Practicum (3) Supervised observation, unit planning, and teaching in Saturday Morning Arts School: analysis of creative expressions and art programs for learners.

### **Advanced Practicum (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2003  
 Prerequisite: A ED 401  
 Concurrent: A ED 490

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 490** Capstone Course in Art Education (3) Synthesis of preservice art education coursework; introduction to professional practices and standards; completion of teaching and learning portfolio.

### **A ED 490 Capstone Course in Art Education (2)**

The capstone course has four major objectives for student learning:

- Each student will synthesize the experiences and understandings developed through prior courses in the undergraduate art education program.
- Students will become aware of emerging trends in art education and reflect on implications of those trends for their future teaching and learning.
- Each student will complete, and publicly present, a teaching and learning portfolio that includes evidence of professional preparation, biographical information, samples of artwork and writings on art/visual culture, and reflective statements explaining the selection and significance of specific items.
- Students will gain understanding of the importance of professional standards and practices in art education.

Student learning will be evaluated through assessment of the preprofessional teaching portfolio, and through a combination of written assignments, individual and small group oral presentations, and active participation in class discussions. Students will collaborate on a final installation, performance or exhibition demonstrating their readiness for the final internship. Since this is the final course in the major prior to student teaching or the internship, attendance is very important and will count toward part of the final grade. Students need access to a computer lab.

The capstone course in the art education major should be taken in the final semester before student teaching or a final internship. Since one goal of the course is helping students synthesize what they have learned in their prior courses, successful completion of all of the required courses in the major is prerequisite to enrollment in the capstone course. Students will have been introduced to the teaching and learning portfolio in their introductory art education course and should have developed pieces for their pre-professional teaching portfolios in most of their earlier art education courses. Much of the work of the capstone course will, therefore, focus on reflection, refinement, and synthesis.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2009  
 Prerequisite: admission to Teacher Preparation Program and successful completion of all required courses in the major except Student Teaching or final internship. Prerequisite or concurrent: A ED 488 for majors in the Museums and Cultural Institutions option  
 Concurrent: A ED 489 majors in the Schools option

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 494** Schools and Museums (3) Museum education: issues, theories of aesthetic education and practices in schools, museums, and community art centers.

### **Schools and Museums (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Winter 1978  
 Prerequisite: 12 credits in art education art art history or education



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 494H** Schools and Museums (3) Museum education: issues, theories of aesthetic education and practices in schools, museums, and community art centers.

#### **Schools and Museums (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: 12 credits in art education art art history or education

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 495** Internship in Art Experiences (15) Comprehensive instruction in craft, health, cultural, museum, studio, gallery or social agency. Students supervised by University personnel and arts personnel.

#### **Internship in Art Experiences (15)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1989

Prerequisite: A ED 440 ; seventh- or eighth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 495A** Art Education Student Teaching Practicum (7) The elementary student teaching practicum fulfills requirements for Pennsylvania certification to teach Art in both elementary and secondary schools.

#### **A ED 495A Art Education Student Teaching Practicum (7)**

The Pittsburgh-based elementary or middle-level field experience fulfills the student teaching requirement for Pennsylvania certification to teach art in elementary and secondary schools. It is offered each semester, and student teachers are placed through the School District University. Collaborative in Pittsburgh Public Schools. An on-site Art Education faculty Supervisor supervises students. Assignments, required seminars, and professional development activities meet the teaching prerequisites outlined by NCATE (National Council for Accreditation of Teacher Education) and the Standards for Pre-Service Teachers in Urban Education. Experiences and assignments provide evidence in each of the four domains for teacher preparation: Domain A - Planning and Preparing for Student Learning, Domain B - Teaching, Domain C - Analyzing Student Learning and Inquiring into Teaching, and Domain D - Fulfilling Professional Responsibilities. The work completed in this course (a digital and/or paper-based portfolio, and documented performance-based assessment of teaching as assessed by the university supervisor and mentor teachers/clinical instructors) will demonstrate fulfillment of the teaching/domain standards. The outcome of this work is to produce multiple experiences that support professional and personal development while preparing students for upcoming positions teaching art in multiple public and private contexts at both elementary and secondary levels. At the culmination of the student teaching semester, students will have both practical and theoretical understandings in addition to materials for application within the classroom.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: A ED 489 ; eighth- or ninth-semester standing

Concurrent: A ED 495B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 495B** Art Education Student Teaching Practicum (8) The secondary student teaching practicum fulfills requirements for Pennsylvania certification to teach Art in both elementary and secondary schools.

#### **A ED 495B Art Education Student Teaching Practicum (8)**

The Pittsburgh-based middle-level or secondary field experience fulfills the student teaching requirement for Pennsylvania certification to teach art in elementary and secondary schools. It is offered each semester, and student teachers are placed through the School District University Collaborative in Pittsburgh Public Schools. An on-site Art Education faculty Supervisor supervises students. Assignments, required seminars, and professional development activities meet the teaching prerequisites outlined by NCATE (National Council for Accreditation of Teacher Education) and the Standards for Pre-Service Teachers in Urban Education. Experiences and assignments provide evidence in each of the four domains for teacher preparation: Domain A - Planning and Preparation for Student Learning, Domain B - Teaching, Domain C - Analyzing Student Learning and Inquiring into Teaching, and Domain D - Fulfilling Professional Responsibilities. The work complete in this course (a digital and/or paper-based portfolio, and documented performance-based assessment of teaching as assessed by the university supervisor and mentor teachers/clinical instructors) will demonstrate fulfillment of the teaching/domain standards. The outcome of this work is to produce

multiple experiences that support professional and personal development while preparing students for upcoming positions teaching art in multiple public and private contexts at both elementary and secondary levels. At the culmination of the student teaching semester, students will have both practical and theoretical understandings in addition to materials for application within the classroom.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: A ED 489 ; eighth- or ninth-semester standing

Concurrent: A ED 495A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 495C** Art Education Student Teaching Practicum (7) The elementary student teaching practicum fulfills requirements for Pennsylvania certification to teach Art in both elementary and secondary schools.

#### **A ED 495C Art Education Student Teaching Practicum (7)**

The Centre Region-based elementary or middle-level field experience fulfills the student teaching requirement for Pennsylvania certification to teach art in elementary and secondary schools. It is offered each semester, and student teachers are placed through the School of Visual Arts at Penn State in cooperation with public schools in the Centre Region. An Art Education faculty Supervisor supervises students. Assignment, required seminars, and professional development activities meet the teaching prerequisites outlined by NCATE (National Council for Accreditation of Teacher Education) and the Standards for Pre-Service Teachers in Urban Education. Experiences and assignments provide evidence in each of the four domains for teacher preparation: Domain A - Planning and Preparing for Student Learning, Domain B - Teaching, Domain C - Analyzing Student Learning and Inquiring into Teaching, and Domain D - Fulfilling Professional Responsibilities. The work completed in this course (a digital and/or paper-based portfolio, and documented performance-based assessment of teaching as assessed by the university supervisor and mentor teachers/clinical instructors) will demonstrate fulfillment of the teaching/domain standards. The outcome of this work is to produce multiple experiences that support professional and personal development while preparing students for upcoming positions teaching art in multiple public and private contexts at both elementary and secondary levels. At the culmination of the student teaching semester, students will have both practical and theoretical understandings in addition to materials for application within the classroom.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: A ED 489 ; eighth- or ninth-semester standing;

Concurrent: A ED 495D

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 495D** Art Education Student Teaching Practicum (8) The secondary student teaching practicum fulfills requirements for Pennsylvania certification to teach Art in both elementary and secondary schools.

#### **A ED 495D Art Education Student Teaching Practicum (8)**

The Centre Region-based middle-level or secondary field experience fulfills the student teaching requirement for Pennsylvania certification to teach art in elementary and secondary schools. It is offered each semester, and student teachers are placed through the School of Visual Arts at Penn State in cooperation with public schools in the Centre Region. An on-site Art Education faculty Supervisor supervises students. Assignments, required seminars, and professional development activities meet the teaching prerequisites outlined by NCATE (National Council for Accreditation of Teacher Education) and the Standards for Pre-Service Teachers in Urban Education. Experiences and assignments provide evidence in each of the four domains for teacher preparation: Domain A - Planning and Preparing for Student Learning, Domain B - Teaching, Domain C - Analyzing Student Learning and Inquiring into Teaching, and Domain D - Fulfilling Professional Responsibilities. The work complete in this course (a digital and/or paper-based portfolio, and documented performance-based assessment of teaching as assessed by the university supervisor and mentor teachers/clinical instructors) will demonstrate fulfillment of the teaching/domain standards. The outcome of this work is to produce multiple experiences that support professional and personal development while preparing students for upcoming positions teaching art in multiple public and private contexts at both elementary and secondary levels. At the culmination of the student teaching semester, students will have both practical and theoretical understandings in addition to materials for application within the classroom.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: A ED 489 ; eighth- or ninth-semester standing

Concurrent: A ED 495A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**A ED 495E** Internship in Museums and Cultural Institutions (15) Twelve week, full time supervised internship in education in museums or other cultural institutions.

**A ED 495E Internship in Museums and Cultural Institutions (15)**

The internship at a museum or other cultural institution completes the requirements for the Museums and Cultural Institutions option for the BS in Art Education. It is generally scheduled full-time for a period of 12 consecutive weeks during a double summer session, although it may also be taken during the fall or spring semester. The internship enables interns to meet their own educational objectives through participation in a supervised experience that moves them out of the classroom into the workplace. Prospective interns are encouraged to select internship sites that offer educational experiences relevant to their professional goals and desired careers.

The internship incorporates guidelines consistent with the *Standards and Guidelines for Museum Internships* prepared by the New England Museum Association and published by the American Association of Museums (1993, 2000). A formal written internship agreement signed by the intern supervisor at the sponsoring museum or cultural institution, and by the prospective intern and university supervisor outlines the objectives of the internship, the intern's duties and responsibilities, the responsibilities of the museum and university supervisors, and the means by which the intern's work will be evaluated. Interns are integrated into the ongoing work and education programs of the museum and treated as staff members. They assume professional responsibilities and are expected to complete a project or some discrete portion of a major project that is being undertaken by the education department of the museum. Interns become acquainted with functions, programs and departments of the museum in addition to those to which they have been assigned in order to understand the relationship of their educational work to that of the museum, to the community, and to the museum field in general. Interns may participate in any workshops, lectures, professional courses, and staff training seminars that may occur at the museum during period of internship. They are also encouraged to seek professional employment after completion of the internship, and reasonable accommodation is made to allow them time to look for positions, prepare application materials, and attend interviews.

Interns submit a weekly journal of activities and reflections to the university supervisor, as well as a summary report at the end. The museum supervisor submits an evaluation documenting the intern's actual working/learning experiences and critically assessing these experiences. The final evaluation is based on this assessment, on the intern's weekly journal and final report, and on the university supervisors's onsite observations and interviews.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: A ED 440 seventh- or eighth-semester standing.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A ED 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Art History (ART H)

**ART H 001S (GA)** First-Year Seminar (3) An introduction to the field of art history, through an examination of a selected issue in a seminar setting.

**ART H 001S First-Year Seminar (3)**  
**(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This First-Year Seminar is open to all majors and to those who have yet to decide upon a major. It is also a 3-credit General Education in the Arts course (GA). The course will introduce entering university students to the field of art history through a case study on a selected topic. Each semester the topic will be different, potentially covering such diverse subjects as the purpose and function of Ancient Egyptian architecture to the role of sculpture in Renaissance Florence to the development of abstract painting in the early 20th century. Some semesters, the seminar may also focus upon a single exhibition at the Palmer Museum of Art. Such a focus upon a single topic will allow the class to look at a particular issue in the field from many different perspectives. The course will not be a broad survey of the history of art, but it will introduce students to the breadth of methods and approaches of art history. The seminar approach of the course will emphasize how to tackle an issue in art history, how to critically read selected texts, how to discuss in a small group the various dimensions of a problem, how to do art historical research in the library and on the internet, and how to present your own research and perspectives through public speaking and writing.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 100 (GA;IL)** Introduction to Art (3) An approach to the understanding of art through a critical analysis of selected works of architecture, painting, and sculpture. Students who have passed ART H 110 may not schedule this course.

**ART H 100 Introduction to Art (3)**  
**(GA;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Art History 100 provides an introduction to the history of art from prehistory to the present, through selected topics, rather than a comprehensive survey. Areas covered usually include prehistoric art, art of the Near East and Egypt, ancient Greek and Roman art, medieval art culminating with the Gothic, Renaissance art both in Italy and northern Europe, Baroque and Rococo art, and modern developments often highlighting Romanticism, Impressionism, Cubism, Dada, Surrealism, Abstract Expressionism, Pop, Feminist, and contemporary art. The course also introduces selected artistic traditions in Africa, Asia and the Americas. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and to help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts, both historical and contemporary. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender and the incorporation of non-European art forms into the Western tradition. Requirements typically include examinations combining short answer and essay questions, and one paper based library research or intensive examination of an actual work of art. As a general education course in the arts, this course provides an introduction to selected themes in the broad history of art for students in any major. It has no prerequisite and presumes no prior exposure to fine art. This course is not a requirement of Art History major or minors, and is therefore directed essentially to students outside the field.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 111 (GA;IL)** Ancient to Medieval Art (3) Survey of Ancient Egyptian, Greek, Roman, Byzantine, Early Medieval, Romanesque, and Gothic art, with an emphasis on sculpture and painting.

**ART H 111 Ancient to Medieval Art (3)**

**(GA;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an introduction to Western art before the Renaissance, from ca. 25,000 BCE to AD 1423. The topics covered in this course include prehistoric art in Europe; art of the Near East and Egypt; Aegean art; Greek and Roman art; Early Christian, Jewish, Islamic and Byzantine art; and Medieval art including Romanesque and Gothic developments. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and to help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender and the incorporation of non-European art forms into the Western tradition. Typical requirements include exams and a paper. As a general education course in the arts, this course provides an introduction to Ancient through Medieval art to a student of any major. This course has no prerequisite and presumes no prior exposure to art history. As a course in the Art History major, it teaches students both the common vocabulary of the field and the outlines of the field that form the foundation for future study. Art History 111 serves as a companion course to Art History 112, which deals with art from the Renaissance to Modern Times. Art History 111 also complements Art History 201, "Ancient to Medieval Architecture."

General Education: GA

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 112 (GA;IL) Renaissance to Modern Art (3)** Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

**ART H 112 Renaissance to Modern Art (3)****(GA;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

Art History 112 provides an introduction to the history of art in the European tradition from the early Renaissance (ca. 1300) to the present. Areas covered include Early and High Renaissance Italian art; Northern Renaissance art; Baroque art of Italy, Spain, France and the Netherlands; and subsequent artistic movements emphasizing the Rococo, Neo-Classicism, Realism, Impressionism and Modernist movements from Fauvism through Abstract Expressionism to Contemporary. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and to help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts, both historical and contemporary. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender and the incorporation of non-European art forms into the Western tradition. Requirements typically include examinations combining short answer and essay questions, and at least one writing assignment. As a general education course in the arts, this course provides an introduction to Renaissance through modern art for a student in any major. It has no prerequisite and presumes no prior exposure to art history. It will teach students majoring in Art History both the common vocabulary of the field and the outlines of the field that form the foundation for future study. Art History 112 serves a companion course to Art History 111, which examines Western art from Antiquity through the Middle Ages. Art History 112 also complements Art History 202, "Renaissance to Modern Architecture."

General Education: GA

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 112U (GA;IL) Renaissance to Modern Art (3)** Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

**Renaissance to Modern Art (3)**

General Education: GA

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 112U (GA;IL) Renaissance to Modern Art (3)** Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

**Renaissance to Modern Art (3)**

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 120 (GA;IL)** Asian Art and Architecture (3) A selective overview of the art and architecture of India, Southeast Asia, China, Korea, and Japan.

**ART H 120 Asian Art and Architecture (3)**  
**(GA;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Art History 120 provides an introduction to the art and architecture of Asia, with an emphasis upon south, southeast, and east Asia. Selected monuments from these regions will be considered within their original cultural and historical context. Particular emphasis will be placed on the art associated with Hinduism and Buddhism. The course begins with India, from the early Indus Valley Civilization up through the Taj Mahal. Angkor Wat and other developments in southeast Asia are examined. Selected themes in Chinese art and architecture are explored from the early Bronze Age up through the Forbidden City in Beijing. The unique contribution of Korean art is included. The course concludes with a discussion of Japanese art and architecture, from early Shinto shrines to Japanese prints, gardens, and the tea ceremony. The course is designed to meet two principal goals. The first is to develop skills of visual analysis and a critical vocabulary for discussing the media, technologies, styles, and iconographies of various Asian artistic traditions. The second is to foster an understanding of art--and visual culture in general--according to social, economic, political, and religious contexts. Key topics include: patronage, issues of reception and aesthetics, the function of visual imagery in religious practices, the ritual use of objects, the organization and use of sacred space, depictions of gender, and relationships between the art of various regions and cultures. Requirements include essay exams and a paper. As a general education course, this class provides an introduction to Asian art for students of any major. The course has no prerequisites, and presumes no prior exposure to art history. Art History majors will learn vocabulary, methodology, and theory that is not only basic to the field, but which will also broaden their knowledge of the discipline as a whole.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Other Cultures and Arts  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 130 (GA;US;IL)** Art of Africa, Oceania, and the Americas (3) A selective overview of the indigenous art of Africa, Oceania and the Americas.

ART H 130

**ART H 130 African, Oceanic, and Native American Art (3)**  
**(GA;US;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Art History 130 provides a selective introduction to major developments and issues in African and Oceanic art. The beginning of this course will concentrate upon the art and architecture of selected regions of Africa, during the pre-colonial, colonial, and post-colonial periods. This will be followed by a discussion of the traditional arts of Oceania in Polynesia, Micronesia, Melanesia, and Australia. The course will conclude with an introduction to the Pre-Columbian art and architecture of the Americas and art from the Eastern Woodlands, Great Plains, the Southwest and Pacific Northwest of North America. Art will be examined within its cultural and social contexts. Special attention will be given to the role that art serves in a culture's religion, rituals, ceremonies, political structure, gender roles, and ethnic identity. The impact of the West upon the art of these regions, both in colonial and post-colonial contexts, will be a reoccurring issue in this course. The actual time devoted to each topic and the sequence of topics will vary from instructor to instructor. The objective of the course is to introduce students to diversity in art. In so doing, negative stereotypes associated with traditional notions of the "primitive" will be challenged. Also, the course emphasizes visual analysis and critical thinking. The course requirements will consist of exams and a paper. As a general education course, this class provides an introduction to African and Oceanic art for students of any major. The course has no prerequisites, and presumes no prior exposure to art history. On the other hand, students majoring in Art History will learn vocabulary, methodology, and theory that is not only basic to the field, but which will also broaden their knowledge of the discipline as a whole.

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Arts  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 140** (GA;IL) Introduction to Pre-Columbian Art and Architecture (3) This course examines the artistic and architectural production of Pre-Columbian Mesoamerica and the Andes.

**Introduction to Pre-Columbian Art and Architecture (3)**

General Education: GA  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 199** (IL) Foreign Study--Art History (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Study--Art History (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 201** (GA;IL) Ancient to Medieval Architecture (3) A survey of Prehistoric, Ancient Near Eastern Egyptian, Greek, Roman, Early Christian, Byzantine, Early Medieval, Romanesque, and Gothic architecture.

**ART H 201 Ancient to Medieval Architecture (3)  
(GA;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an introduction to Western architecture before the Renaissance, roughly before A.D. 1400. Some of the topics covered in this course include prehistoric architecture in Europe and the Mediterranean, architecture of the ancient Near East, Egyptian architecture, Minoan and Mycenaean architecture, the classical architecture of ancient Greece, ancient Roman architecture throughout the empire, the Early Christian architecture of western Europe and Byzantium, early medieval architecture, Middle Byzantine architecture, Islamic architecture, and the Romanesque and Gothic architecture of Western Europe. Selected major individual buildings and architectural complexes will be emphasized and will include types of buildings/complexes such as the sanctuary, temple, tomb, forum, basilica, cathedral, monastery, and castle. Architecture will be analyzed with regard to materials' construction, engineering and design, and in the contexts of culture, society, and urban or rural setting. Political, economic, religious, ethnic and gender-related issues will be presented as they are part of the dynamics contributing to many of these structures.

The students' understanding and ability to articulate the conceptual themes of the course will be tested through essay examinations. There will also be a short paper.

This course will provide an introduction to ancient to medieval architecture to students of any major. The course has no

prerequisite. This course also serves as an introductory foundation course for students in the arts, particularly architecture and landscape architecture. The companion course to Art History 201 is Art History 202, "Renaissance to Modern Architecture," which examines Western architecture after A.D. 1400. Art History 201 is a required course for the Major in Art History and the Interdisciplinary Minor in Architectural History.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 202 (GA;US;IL) Renaissance to Modern Architecture (3)** A survey of Renaissance, Baroque, Rococo, Romantic, Victorian, Modern, Post-Modern, and Contemporary architecture in Europe and America.

**ART H 202 Renaissance to Modern Architecture (3)**  
**(GA;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an introduction to Western architecture from approximately A.D. 1400 to the present. Some of the topics covered in this course include the Italian Renaissance, the rebuilding of St. Peter's in Rome, Mannerism, the villas of Palladio, Italian Baroque churches, Spanish Colonial architecture in the Americas, royal French architecture from Francis I to Louis XVI, Late Baroque and Rococo architecture from Bavaria to Russia, Elizabethan to Georgian architecture in England and America, the Industrial Revolution, Neoclassicism from Schinkel to Jefferson, Romanticism and the Gothic Revival, Ecole des Beaux-Arts, Second Empire Paris, Victorian architecture, the Arts & Crafts Movement, Richardsonian Romanesque, the Chicago School, Frank Lloyd Wright, the City Beautiful Movement, Art Nouveau to Futurism, Art Deco skyscrapers, the International Style, the Bauhaus, Le Corbusier, Louis I. Kahn, PostModernism, Deconstructionism, and contemporary architecture. . Selected major architects, theories, buildings, and urban developments will be emphasized. Architecture will be considered within the contexts of religion, politics, philosophy, culture, economics, race, gender, society, engineering, and landscape architecture.

The students' understanding of the basic factual information concerning selected buildings will be tested through quizzes. The students' understanding and ability to articulate the conceptual themes of the course will be tested through essay examinations. There will also be a short paper.

This course will provide an introduction to Renaissance to contemporary architecture to students of any major. The course has no prerequisite. This course also serves as an introductory foundation course for students in the arts, particularly architecture and landscape architecture. The companion course to Art History 202 is Art History 201, "Ancient to Medieval Architecture," which examines Western architecture before A.D. 1400. Art History 202 is a required course for the Major in Art History and the Interdisciplinary Minor in Architectural History.

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 225 (GA;GH) (ENGL 225, WMNST 225) Sexuality and Modern Visual Culture (3)** An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

**ENGL (ART H/WMNST) 225 Sexuality and Modern Visual Culture (3)**  
**(GA;GH)**

The terms "feminist" and "homosexual" were invented by the Victorians and reflect profound shifts in conceptions of identity. Another invention of the nineteenth century was the idea of the literary and artistic "avant-garde," a minority contingent with politically and/or aesthetically advanced views. These ideas of minority culture were deeply enmeshed with one another, and have exerted profound influence ever since. This course explores that history with the objective of developing a more sophisticated understanding of how the history of ideas affects our sense of who we are and how we read both texts and images. The course will be relevant to students of American and English studies, art, art history, and women's and sexuality studies.

General Education: GA;GH  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 225H (GA;GH) Sexuality and Modern Visual Culture (3)** An examination of the visual expression of gender and



sexual identities in English-speaking cultures since the late nineteenth century.

### **Sexuality and Modern Visual Culture (3)**

General Education: GA;GH

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 226 (GA)** The Comic Book: A History of Sequential Art (3) An overview and examination of the history of sequential art with a focus on comic books and graphic novels.

### **ART H 226 The Comic Book: A History of Sequential Art (3) (GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Art History 226 will lead students on a journey through one of the world's most interesting and yet most misunderstood art forms. In this class, students will familiarize themselves with various styles, terminology, and major examples of sequential art beginning with the cave paintings of Lascaux and ending with the more popular and critically acclaimed comic books of recent years. Students will not only learn a bout and appreciate sequential art, but they will also understand how deeply and significantly these works have melded into various aspects of our culture and society.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 250 (PHOTO 201)** A Chronological Survey of Photography (3) A survey of photography's place and influence in a social, cultural, and historical context.

### **ART H 250 A Chronological Survey of Photography (3)**

This course explores the role played by photography over time in providing understanding and insight in a social, cultural, and historical context of the impact of the development of the photographic medium and its effect on social, political, cultural and technological events. Emphasis will be given to understanding the context that surrounds the scientific and aesthetic development of photography. This is a survey of the chronology of events in western culture that transpires from the inception of photography until the year 2000. It includes the influences and outcomes of photographers and those associated with the medium on our culture. Emphasis will be placed on the influence of photography on the world around it, and significant events and individuals in the development of the medium as a vital art form. The structure of the course will consist of research and discussion of events and individuals that characterized years selected for examination. Each week one or two decades of western culture will be highlighted. Although the thrust of research will relate to photographic subject matter, the events studied will span the culture. We will explore the development of art, literature, music, and photography, as well as, historic landmarks, and the events that have shaped present society. Each week a selection of visual material will be presented highlighting selected events, students will read literature from the period of discussion, significant pieces of music will be introduced, and accounts of periodic events will be surveyed.

Each week, a group of students will be assigned to research at least one decade. Each student will gather information about a significant figure or event that occurred in the course of a given period. The student will be expected to prepare a short paper and give a five-minute oral presentation about his/her assigned year, historical figure or event. As each student presents, the chronology of events becomes clear and the multiple threads of history weaves a brilliant tapestry of our culture. For the final presentation the student will prepare a ten-page research paper about a historical figure or event.

Students will be graded on the quality of the weekly oral presentations and the demonstrated level of commitment to research. Another significant part of their grade will be derived from the length of committed scholarship given to the ten-page term paper. Students must exhibit a level of originality, clarity, and insight. The student must demonstrate the capacity for the assimilation of facts and events relative to their subject and demonstrate how their subject relates to other events that occurred around the same time of their event. Toward this end students will be encouraged to work together to illustrate the interconnection of the chronology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 299** (IL) Foreign Study--Art History (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Study--Art History (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 301** (GA;IL) Egyptian and Mesopotamian Art (3) Art of the Ancient Near East, including Egypt, Mesopotamia, and neighboring civilizations.

**ART H 301 Egyptian and Mesopotamian Art (3)**  
**(GA;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Art history 301 provides an introduction to the arts of the Ancient Near East including those of Egypt and Mesopotamia. The class is dealt with chronologically. Works studied in class include papyri, seals, fabric, codices as well as sculpture, architecture, and painting. Additional readings of primary sources focused on mythology, and religion will form a key element in the structure of the class. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. This course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to Ancient Near Eastern and Egyptian art to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

General Education: GA  
Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 302 (GA;IL)** Art of the Early Middle Ages (3) A survey of the art of Western Europe from the Early Christian era through the Ottonian Empire, c.300-1050 A.D.

**ART H 302 Art of the Early Middle Ages (3)  
(GA;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Art History 302 concentrates on the art of northern Europe between A.D. 600 and 1050, from the years which saw the art and culture of the migration period in Europe meet and merge with the Greco-Roman traditions of the Mediterranean, to the beginnings of Romanesque art. Works studied include architecture, manuscript painting, ivory carving and goldsmithwork, most of which were produced by or for members of the clergy, royalty or the lay aristocracy. The basic structure of the course is chronological. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to early Medieval art to a student of any major. This course has no prerequisite, and presumes no prior exposure to art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

General Education: GA

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 303 (GA;IL)** Italian Renaissance Art (3) The major arts in Italy from the thirteenth century A.D. through the Renaissance; emphasis on sculpture and painting.

**ART H 303 Italian Renaissance Art (3)  
(GA;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Art History 303 provides an introduction to the art of the early and "high" Renaissance in Italy, conceived in chronological terms as the period from c. 1300 to c. 1530, and embracing developments from the emergence of the Mendicant orders on the later 13<sup>th</sup> century to the rise of Mannerism in the 16<sup>th</sup> century. Monuments from all parts of the Italian peninsula will be considered, with emphasis on the major centers of Florence, Siena, Venice, Rome, Milan, and Naples, as well as Mantua, Ferrara and Urbino. The basic structure of the course is chronological, and is divided into three sections corresponding to the three centuries delineated by Giorgio Vasari in his Lives of the Artists. In each section, an attempt will be made to present the careers and major works of the most significant artists in relation to their historical and cultural context. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to Italian Renaissance art to a student of any major. This course has no prerequisite, and presumes no prior exposure to art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

General Education: GA

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 304 (GA;IL)** Italian, Spanish, and Spanish Colonial Baroque Art and Architecture (3) A survey of painting, sculpture, and architecture in Italy, Spain, and the Spanish Americas from 1600-1750.

**ART H 304 Southern Baroque Painting (3)  
(GA;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Art History 304 concentrates on the art of Italy, Spain, and the Spanish Colonial from 1600-1750. Discussion will concentrate on what constitutes the baroque and its interpretation in each geographic area as well as issues such as patronage, primary sources, iconography, and historical context. The class will begin with the indications of the new Baroque in Italy during the 1580's and proceed to Spain and the Spanish Colonial World. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of religious vision, court politics, and social status. Requirements include exams and at least one paper. As a general education course in the arts, this course provides an introduction to Baroque Art for a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 305 (GA;IL) Romanticism and Revolution (3)** A survey of painting and sculpture in Europe 1780-1860, from the origins of Neoclassicism through Romanticism and Realism.

**ART H 305 European Art from 1780-1860 (3)**  
**(GA;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Art History 305 provides an introduction to the painting, sculpture, and graphic arts of Europe between ca. 1780 and 1860, with an emphasis on selected developments in France, Spain, England, and Germany. The course begins with the origins of Neoclassicism and the revolutionary art of Jacques Louis David. Art is examined within the context of the tumultuous history of this period, such as the decline of the French monarchy, the French Revolution and the rise and fall of Napoleon. The course will examine the rise of Romanticism, as seen in such diverse expressions as Goya's horrific images of inhumanity, Fuseli's dreams, Turner's sublime landscapes, Friedrich's frozen visions of Gothic ruins, Delacroix's colorful battles of beasts. Realism emerges in the biting social commentaries of Daumier, the meticulous detailed paintings of the English Pre-Raphaelites, and the raw reality of Courbet's paintings. The course ends with the extraordinary art of Manet. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to European art, 1780-1860, to a student of any major. This course has no prerequisite and presumes no prior exposure to fine art. Students majoring in Art History will learn both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 307 (GA;US) (AM ST 307) American Art (3)** History of art in the English colonies and the United States from the seventeenth century to the present.

**ART H (AM ST) 307 American Art (3)**  
**(GA;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

American art, from the colonial period to the present, is examined through paintings, sculpture, buildings, prints and photographs, as well as exhibitions and national/world fairs. The class places special emphasis upon the predicament of national identity by examining the ways in which the very notion of the "American" has historically been highly contested. Special points of emphasis include: negotiations between indigenous, colonial and European artistic styles, representations of and by displaced populations (colonial subjects, Native Americans, African Americans), myths of the

American landscape, the cult of domesticity and the gendering of American citizenry, later transatlantic experiences of expatriate artists, conflicts between urban and rural conceptualizations of the "typical" American experience, the role of the American avant-garde after World War II, and debates over federal funding for the arts. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to American art to a student of any major. This course has no prerequisite and presumes no prior exposure to fine art. Students majoring in Art History will learn both the common vocabulary of the field and the outlines of the field that form the foundation for the future study.

General Education: GA  
Diversity: US  
Bachelor of Arts: Arts  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 308 (GA;US) (AM ST 308)** American Architecture (3) History of the architecture of the United States, as well as its Native American and colonial antecedents.

**ART H (AM ST) 308 American Architecture (3)**  
**(GA;US)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This Art History course (cross-listed with American Studies) will cover the history of American architecture and will examine such topics as the architecture of: Native Americans, Spanish Colonial missions, 17th-century Virginia, Puritan New England, Georgian America, Southern Plantations and Slave Cabins, Thomas Jefferson, the new federal city of Washington, D.C., the Greek Revival, the industrial revolution, utopian religious communities such as the Shakers, Gothic Revival cottages and villas, Victorian Philadelphia, Henry Hobson Richardson, Newport mansions, the birth of the skyscraper in New York and Chicago, the City Beautiful Movement, Frank Lloyd Wright, Arts & Crafts California, Henry Ford's Michigan, Art Deco New York, Mies van der Rohe, Levittown, Disneyland, Louis I. Kahn, Post-Modernism, Frank Gehry, and Green Buildings. Selected major buildings, architects, ideas, and urban developments will be emphasized. Architecture will be considered within the contexts of religion, politics, philosophy, culture, economics, gender, race, society, technology, engineering, landscape architecture, urban planning and interior design. This introductory survey has no prerequisite and is intended for both students of architecture/art and students unfamiliar with the field.

General Education: GA  
Diversity: US  
Bachelor of Arts: Arts  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 311 (GA;IL)** Greek and Roman Art (3) Greek and Roman art, with emphasis on painting and sculpture.

**ART H 311 Greek and Roman Art (3)**  
**(GA;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Art History 311 provides a survey of Greek and Roman art. Included are the Orientalizing, Archaic, Classical and Hellenistic periods of Greece and the Republican and Imperial Rome. Special attention is paid to politics, culture, and literature. The focus of this class is painting, sculpture and architecture; ceramics and other minor arts are also addressed. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to Ancient Greek and Roman art to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 312 (GA;IL) Romanesque and Gothic Art (3)** Survey of the architecture, sculpture, and painting of the Christian church in western Europe from 1000 to 1500.

**ART H 312 Romanesque and Gothic Art (3)**  
**(GA;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Art History 312 concentrates on the art of northern Europe between A.D. 1000 and 1500, from Ottonian art to Romanesque art continuing to the beginnings of Gothic art. Works studied include architecture, manuscript painting, ivory carving and goldsmithwork, most of which were produced by or for members of the clergy, royalty or the lay aristocracy. The basic structure of the course is chronological. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to Romanesque and Gothic art to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 313 (GA;IL) Northern Renaissance Art (3)** Art in northern Europe in the fifteenth and sixteenth centuries, emphasizing painters such as Van Eyck, Durer, and Bruegel.

**ART H 313 Northern Renaissance Art (3)**  
**(GA;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Art History 313 explores the relationship of the visual arts to power structures, political events, and social and religious issues in the Netherlands and Germany, c. 1380-1585. Topics include the forms and functions of religious art, the place of visual representation in the governing strategies of the country's rulers, the rising status of the artist, the new technology of printing, the complex role of visual culture in bringing about the Protestant Reformation, and the wave of destruction and censorship known as the Great Iconoclasm of 1566. Particular attention is paid to the works and careers of Jan van Eyck, Hieronymus Bosch, Albrecht Dürer and Pieter Bruegel. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to Northern Renaissance art to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 314 (GA;IL) Art in the Age of Rembrandt (3)** Dutch and Flemish painting in the seventeenth century.

**ART H 314 Art in the Age of Rembrandt (3)**  
**(GA;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Art History 314 explores the relationship of the visual arts to power structures, political events, and social and religious issues in the Netherlands and Flanders, c. 1585-1672. Topics include the function of art in constructing national and urban identities, social distinctions and gender roles, the contrasting needs burgher and court patrons, the effect of the open market on both the production of and the look of artwork, the impact of foreign investment and exploration on visual imagery, and the processes of artistic collaboration and competition. Particular attention is paid to the works and careers of Hendrick Goltzius, Frans Hals, Clara Peeters, Hendrik Terbrugghen, Rembrandt van Rijn, Peter Rubens and Jan Vermeer. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to the Age of Rembrandt to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 315 (GA;IL) (ASIA 315) Architecture and Art of South and Southeast Asia (3)** Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.

**ART H (ASIA) 315 Architecture and Art of South and Southeast Asia (3)**  
(GA;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course has a focus on the architecture and art of South Asia (India, Pakistan, and Bangladesh) and Southeast Asia (particularly Thailand, Cambodia, and Indonesia). Topics will span a time period that begins with Bronze age urbanization in South Asia and concludes with the emergence of globalized architecture in the context of modern nation states. The course will be an opportunity for students to engage with artistic traditions and patronage systems that have adapted to cross-cultural currents, including the more recent forces of colonialism and globalization. Early Buddhist and Hindu architecture and sculpture, the medieval Hindu temple, the advent and adoption of Islam and its artistic forms, the emergence of an early modern empire under the Mughals and their patronage of architecture and painting, British colonial architecture and contemporary interpretations of Modernist architecture and art, are some of the topics that will be covered. Besides paying attention to the formal aspects of buildings, cities and objects, lectures will incorporate information on the emergence of Art History as a discipline in South and Southeast Asia. Lectures, exams and reading assignments will aid in providing students with an intensive introduction to the region's cultural and artistic diversity.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Other Cultures and Arts  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 320 (GA;IL) Chinese Art (3)** A general survey of the great periods of Chinese art from the Shang dynasty until the modern period.

**ART H 320 Chinese Art (3)**  
(GA;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Art History 320 provides an introduction to the art of China from the Neolithic period through the twentieth century. Emphasis will be placed on the major dynastic periods (Shang, Zhou, Qin, Han, Tang, Song, Ming, Yuan, and Qing); however, regional developments throughout China are examined as well. Students are introduced to a variety of artistic traditions and media, including jades, bronzes, ceramics, sculpture, painting, and architecture. The course is designed to meet two principal goals. The first is to develop skills of visual analysis and a critical vocabulary for discussing the media, technologies, styles, compositions and iconographies of Chinese art. The second is to foster an understanding of art--and visual culture in general--according to social, economic, political, and religious contexts. Key topics include: the ritual use of objects, patronage, issues of reception and aesthetics, Buddhist art, the organization and use of sacred space, depictions of gender, and regional developments/interactions. Requirements include essay exams and at least one paper. As a general education course, this class provides an introduction to Chinese art for students of any major. This course has no prerequisites and presumes no prior exposure to art history or the history of China. Students majoring in Art History will learn vocabulary, methodology, and theory that is not only basic to the field, but which will also broaden their knowledge of the discipline as a whole. Because China (currently the world's most populous nation) has one of the longest recorded and continuous artistic traditions, the course also contributes to a broader understanding of important global issues.

General Education: GA  
 Diversity: IL  
 Bachelor of Arts: Other Cultures and Arts  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 325 (GA;IL)** Impressionism to Surrealism (3) A survey of European painting and sculpture from ca. 1850 to ca. 1940.

**ART H 325 Impressionism to Surrealism (3)**  
**(GA;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Art History 325 is a survey of European painting and sculpture from approximately 1860 to the Nazi occupation of Paris in 1940. This course will provide an introduction to Impressionism (Manet, Monet, Renoir, Morisot), Post-Impressionism (Seurat, Cezanne, van Gogh, Gauguin), Symbolism, the Nabis, Edvard Munch, Rodin, Fauvism (Matisse), Cubism (Braque, Picasso), Italian Futurism (Boccioni), Expressionism (Kirchner, Kandinsky), Dada (Duchamp), De Stijl (Mondrian), Suprematism (Malevich), Russian Constructivism (Tatlin), the Bauhaus, Paul Klee, Marc Chagall, and Surrealism (Ernst, Miro, Dali). The course will close with the Nazi's "Degenerate Art" exhibition of 1937 and the Second World War. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to European art to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

General Education: GA  
 Diversity: IL  
 Bachelor of Arts: Arts  
 Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 326 (GA;US;IL)** Art Since 1940 (3) An international survey of painting, sculpture, photography and other media since 1940.

**ART H 326 Art Since 1940 (3)**  
**(GA;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course offers a survey of art objects and practices after 1940. The class is international in scope, exploring the ways in which artists of different countries have responded to each other's work, and to international cultural and political events. Though the class will develop chronologically, lectures will be thematic in their emphasis. Topics to be covered include Abstract Expressionism, Pop Art and other forms of art relying upon methods of appropriation, Minimalism, Conceptualism, Fluxus and Performance Art, Land Art and Site-Specificity, and Art in protest movements (such as the Civil Rights movement). The course will also address such larger issues as: 1) the means by which art works engage in critiques of racial, sexual and national identity; 2) the political uses to which contemporary art has been put (often by figures other than the artists); 3) the dominant critical paradigms through which art has been filtered; 4) the relationship of art works to commodity culture and late capitalism; 5) and the ways in which contemporary art works challenge notions of exhibition, patronage, and ownership of art. This course should be of interest to students of Art History as well as to students interested in post-war history, literature and intellectual culture. It should also be of use to those enrolled in studio art, architecture and other practicum areas.

General Education: GA  
 Diversity: US;IL  
 Bachelor of Arts: Arts  
 Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 330 (GA;IL)** Islamic Architecture and Art (3) Survey of the art and architecture of Islamic lands from the late seventh century until the eighteenth century.

**ART H 330 Islamic Architecture and Art (3)**



(GA;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Art History 340 provides an introduction to the arts of Islam from its birth and early formation in the seventh-eighth centuries to the eighteenth century through the examination of architecture, painting and calligraphy, and the decorative arts (metalworking, ceramics, glassware, ivory carving). The focus is on the traditional Islamic areas including Spain, North Africa, the Middle East, and South Asia, although the spread of Islam to other regions (e.g., Southeast Asia and especially Indonesia, the world's most populous Islamic country) may also be included. Each of the major traditions of Islamic art will be examined in a generally chronological sequence; these include the Abbasids, the Umayyads of Spain, the Fatimids of Egypt, the Seljuqs, the Ilkhanids (Mongols), the Timurids, the Mamluks of Egypt, the Safavids of Persia, the Ottoman Turks, and the Mughals of India. The course will conclude with a discussion of "Orientalism" and more recent developments in Islamic art and architecture. The course is designed to meet two principal goals. The first is to develop skills of visual analysis and a critical vocabulary for discussing the media, technologies, styles, and composition of Islamic art. The second is to foster an understanding of art--and visual culture in general--according to social, economic, political, and religious contexts. Key topics include: patronage, issues of reception and aesthetics, the important link between art and text in the Islamic tradition, the organization and use of sacred space, gender issues, relationships between the art of various regions and cultures, and the western interpretation of Islam as part of the discourse on "Orientalism." Requirements include essay exams and at least one paper. As a general education course, this class provides an introduction to Islamic art and architecture for students of any major. It has no prerequisites, and presumes no prior exposure to art history. Students majoring in Art History will learn vocabulary, methodology, and theory that is not only basic to the field, but which will also broaden their knowledge of the discipline as a whole.

General Education: GA

Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 335 (GA;IL) (AFR 335) African Art (3)** Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa.

**ART H (AFR) 335 African Art (3)**

(GA;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course will examine the arts of various African peoples in historical, religious, sociological and geographic contexts, providing an introduction to the many visual art forms of Africa including masquerade, costume, and indigenous architecture. While many of the arts in this field of study are from west and central Africa, the course will also include materials from southern and eastern Africa. Contemporary African art, African Diaspora arts, and the influence of African art on European art are important topics that may be included. In addition to the traditional format of a geographic organization of the material, students will explore thematic approaches. Each of the assignments requires completion of essays which draw upon the multiple course texts and readings. Exams include image identification and short essays.

General Education: GA

Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 350W Undergraduate Seminar in the History of Art (3-6)** An introduction to original research, methodology, analysis, and writing on a scholarly level.

**Undergraduate Seminar in the History of Art (3-6)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 1992

Prerequisite: fifth-semester standing 6 credits in art history at the 300 level or above

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 399** (IL) Foreign Study--Art History (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Study--Art History (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Summer 2005  
Prerequisite: ART H 100 or ART H 110 or ART H 111 or ART H 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 401** (IL) Greek Art and Architecture (3-9) Developments in Greek art and architecture, tenth century B.C. to first century B.C.; emphasis on the importance of Greek sanctuaries.

**Greek Art and Architecture (3-9)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2006  
Prerequisite: ART H 100 ART H 111 ART H 201 or ART H 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 402** (IL) The Illuminated Manuscript (3) Specific stylistic periods in manuscript painting from A.D. 500-1500 in Western Europe and Byzantium.

**The Illuminated Manuscript (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2006  
Prerequisite: ART H 100 ART H 111 ART H 302 or ART H 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 405** (US;IL) Pioneers of Modern Architecture (3 per semester/maximum of 6) Selected period or theme in the development of modern architecture during the nineteenth and/or early twentieth centuries.

**Pioneers of Modern Architecture (3 per semester/maximum of 6)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Spring 2006  
Prerequisite: ART H 100 ART H 112 ART H 202 or ART H 307

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 409** (ART 409) Museum Studies (3) An introduction to the professional activities that occur in art museums.

**ART H (ART) 409 Museum Studies (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course introduces students to the broad field of art museum work, specifically museum administration, education, curatorial work, registration, and exhibition design. Readings by authors in each field provide current theoretical and philosophical frameworks for all areas, which are then followed by discussions and practical experiences with professional museum practitioners, including the staff of a museum, for example, the Palmer Museum of Art, and invited guests. Museum Studies is open to students who have complete six credits in art, art education, or art history. This course is especially beneficial for majors in art, art education, and art history who are considering a career in an art museum or who want to become more aware about how an art museum functions. In addition to providing an in-depth introduction to art museum work, the course encourages students to build the critical thinking and response skills that are crucial to success in the real-world environment of a museum. The readings provide a solid foundation for later reference or further study in the student's chosen field.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Arts  
 Effective: Summer 2004  
 Prerequisite: 6 credits of ART H ART and/or A ED

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 410** Taste and Criticism in Art (3) History and literature of art criticism demonstrating the varied philosophic, cultural, iconographic, technical, and visual approaches.

**Taste and Criticism in Art (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Arts  
 Effective: Summer 1999  
 Prerequisite: 6 credits of art history

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 411** (IL) Roman Art (3-9) Roman sculpture and painting from Augustus to Constantine.

**Roman Art (3-9)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Arts  
 Effective: Spring 2006  
 Prerequisite: ART H 100ART H 111ART H 201 orART H 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 412** (IL) The Gothic Cathedral (3) Specific aspects of Romanesque and Gothic church architecture of western Europe, especially France and England, between 1000-1500.

**The Gothic Cathedral (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Arts  
 Effective: Spring 2006  
 Prerequisite: ART H 100ART H 111ART H 201ART H 302 orART H 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 413** Architecture of the Medieval Monastery (3) This course will examine design, construction, function and symbolism in the monastic architecture of Western Europe during the Middle Ages.

**Architecture of the Medieval Monastery (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: 3 credits of Art History

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 414** (IL) Italian Baroque Painting (3) Survey of Italian Baroque painting from sixteenth-century proto-Baroque masters to painters of the late Baroque and Rococo periods.

**Italian Baroque Painting (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: ART H 100ART H 112 orART H 304

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 415 (US) The Skyscraper (3)** Origin and evolution of the skyscraper as seen against the background of cultural conditions and technological factors.

**The Skyscraper (3)**

General Education: None

Diversity: US

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: ART H 100ART H 112ART H 202 orART H 307

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 416 (US) Studies in American Art (3 per semester/maximum of 6)** Selected time periods and/or issues in the art of the United States.

**Studies in American Art (3 per semester/maximum of 6)**

General Education: None

Diversity: US

Bachelor of Arts: Arts

Effective: Fall 2013

Prerequisite: 3 credits of ART H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 420 (IL) Russian Architecture (3)** Russian architecture from the first Orthodox churches of the late tenth century to the end of the Soviet Union.

**Russian Architecture (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: ART H 100ART H 111ART H 112ART H 201 orART H 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 422 (IL) Studies in Medieval Sculpture (3-9)** Specific studies of western European sculpture, 300-1500, with attention to sources, styles, type, and iconography.

**Studies in Medieval Sculpture (3-9)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: ART H 100ART H 111ART H 201ART H 302 orART H 312

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 423 (IL) Studies in Italian Renaissance Art (3-9)** Specific studies of Italian Renaissance art, including the work of artists such as Leonardo da Vinci, Michaelangelo, and Raphael.

**Studies in Italian Renaissance Art (3-9)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: ART H 100ART H 112ART H 202 orART H 303

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 424** (IL) Masters of Northern Baroque Art (3) Seventeenth-century painters in Flanders and Holland, including the works of artists such as Rubens, Rembrandt, and Vermeer.

**Masters of Northern Baroque Art (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: ART H 100ART H 112 orART H 314

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 425** (IL) Topics in Northern Renaissance Art (3 per semester/maximum of 6) Focuses on a topic of interest in Netherlandish and/or German art between 1300 and 1600.

**ART H 425 Topics in Northern Renaissance Art (3)  
(IL)**

This course explores selected issues in the arts and material culture of the "Northern Renaissance"--work produced between c. 1300 and 1600 in the greater Netherlands, Germanic lands, France, and other European areas at a distance from the Mediterranean. May be taken up to two times for a total of 6 credits if the topics are different. Themes will vary to accommodate investigation in depth. Topics may include "Playfulness in Northern Renaissance Art," "Jan van Eyck and his Legacy," "Art and Reformation 1500-1575," and others. When appropriate, optional field trips to major museum exhibitions may be offered. Through critical reading, careful looking, and focused research, the student will develop a deeper understanding of the interplay of art, politics, culture, and economics. The goal is not only to impart intensive international and historical understanding, but to impart analogous tools for analysis of the role of the arts in one's own society.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: 3 credits of Art History

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 426** (US;IL) Iconoclasm: Powerful Images and their Destruction (3) Iconoclasm: exploring the political, religious, and social motivations behind the destruction of powerful imagery throughout history.

**ART H 426 Iconoclasm: Powerful Images and their Destruction (3)  
(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Images have been granted extraordinary powers in many human societies, and their purposeful destruction has been a recurrent feature of political, religious and social strife around the world. This course explores how and why humans have granted such power to images, and the subsequent reactions that have resulted in periodic outbreaks of iconoclasm. Topics include the historical specificity of image destruction, the role of art and its detractors in precipitating the Protestant Reformation, and the manipulation of iconoclasm in modern mass media. Victimized images covered may include the bronze bust of Sargon (3rd millennium BCE) and early Renaissance altarpieces through the statues of Saddam Hussein and beyond. We will read primary and secondary materials ranging from Biblical texts to letters to the editor in the New York Times. Through careful consideration of iconoclasms' historical contexts, we will explore art's ability to function as a societal lightning rod. This course has two major objectives: to introduce students to a subject matter that holds great relevance for our time, and to train them in the methods and ethics of scholarly research.

This course fulfills elective and 400-level requirements in Art History and General Education (US and IL), but it is intended also to complement concentrations in History, Visual Studies, Religion, and Communications. It would be offered every two to three years. Evaluative criteria include analytical reading and discussion, written components such as critical essays and a research projects, and analysis of relevant current events and their media coverage. Requires a classroom with digital audio-visual capability. Course may include museum visits or field trips where appropriate.

General Education: None

Diversity: US;IL

Bachelor of Arts: Arts

Effective: Summer 2009

Prerequisite: 3 credits of Art History in any area

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 427** (IL) Topics in Global Artistic Communication (3 per semester/maximum of 6) Explores a specific time period in art history cross-culturally in Europe, Asia, Africa, and/or the Americas.

**ART H 427 Topics in Global Artistic Communication (3 per semester/maximum of 6) (IL)**

This course explores specific time periods and/or issues in global artistic exchange among several diverse cultures. The course may be taken up to two times, if the topics are different. One semester the topic might be "Ca. 1800: Arts and their Global Colonial Contexts." Another semester the topic might be "Global Modernisms ca. 1930," or "Ca. 1600: Global Artistic Exchange in an Era of Increased Contact." Each offering will include theoretical discussion of the goals and challenges of such intercultural study. It will then explore the artistic traditions and responses to foreign contact of diverse cultures. The course will consist of lectures, discussions, and, in many cases, visits to the Palmer Museum of Art for the study of objects in its collection. Through critical reading, listening and looking students will develop an appreciation for the range and diversity of cultural production, and the historical specificity of responses to contact with the unfamiliar. Themes touched upon may include ethnic or religious identity, gender, cultural resistance, rejection or embrace. Learning evaluation may depend upon a combination of class participation, analytical reading, essays or research papers, and examinations.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: 3 credits in Art History

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 429 (IL) Studies in Baroque Art (3)** Selected topics in the painting, sculpture, and architecture of seventeenth-century Italy, France, Flanders, Holland, and Spain.

**ART H 429 Studies in Baroque Art (3) (IL)**

This course addresses aspects of European art of the seventeenth century, a rich and complex period in which illusionism and powerful visual effects in the arts reached maturity. Baroque painters went beyond the realism of their Renaissance predecessors to explore both the sensuous aspects of the medium of oil painting and their own increasingly subjective vision. In all the visual arts Baroque masters explored space, mass, and form with a heretofore unheard of freedom and drama. Lectures and discussion in the course may focus on painting, sculpture and/or architecture, in Italy, Flanders, France, Holland, and/or Spain. The course may include selected artists such as Bernini, Borromini, Caravaggio, A. Gentileschi, Poussin, Rembrandt, Rubens, Velazquez, and/or Vermeer. The style and meaning of Baroque art may be studied within its political and cultural setting. For example, new approaches in the visual arts in Italy, and particularly in Rome, may be explored in relation to the rise of the counter reformation. The Spanish war in the Netherlands, and the Dutch struggle for freedom, may be connected with the art of Flanders and Holland. Attendant developments in other fields such as natural philosophy (science) and literature may be related to the visual arts. For example, the use of the camera obscura may be discussed with the art of Jan Vermeer and the poetry of Giambattista Marino may be related to the art of Nicolas Poussin. Aesthetic, critical, interpretive, and theoretical ideas of major artists and writers of the seventeenth century as well as of today's art and cultural historians may be considered. The emergence of new genres such as landscape and still-life may be examined, as well as the continuing themes of mythology, portraiture, and religion. Course objectives may include students' understanding of the national and regional development of styles and schools within seventeenth-century art, the particular approaches to style and meaning by major artists of the period, the analysis of symbolism and meaning within art works of the period; the interrelationship between the art of the period and other disciplines such as natural philosophy and literature, and particular ways in which seventeenth-century art relates to the politics of particular countries, regions, and patrons. This course may serve as an elective for undergraduate students interested in the visual arts and art history, and for graduate students seeking a deeper exposure to art history. Evaluation may be accomplished through a combination of exams, quizzes, term papers, special projects, and participation in class discussion. Special facilities include a darkened room with dimmable spot lighting, computer, computer projector, and a large projection screen.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: 6 credits in art history (ART H)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 435 (IL) Studies in Modern Art (3-6)** Lectures focusing on a selected movement of nineteenth- or twentieth-century art.

**Studies in Modern Art (3-6)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: ART H 100ART H 112ART H 305ART H 307 orART H 325

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 440 (IL) (ASIA 440) Monuments of Asia (3-9 per semester/maximum of 9)** An exploration of major Asian sites and monuments through a focus on their historical and cultural significance.

**ART H (ASIA) 440 Monuments of Asia  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

In this course, major Asian monuments are introduced in their physical, historical and cultural contexts. Students are also exposed to various theoretical approaches through which these monuments will be studied. Some of the themes around which the course is structured include patronage, religious practice, cultural meaning, political relevance and the shifting meanings of monuments over time. Students will learn to understand and discuss ways of defining monuments, their formal character and lineage, historical and cultural contexts and their representation across space and time. Each semester monumental sites will be organized around a common theme such as, "Hindu and Buddhist Sites across Asia: Historical Significance and Contemporary Relevance," "Patronage and Religion," "Islam across Asia: Global Ideas and Local Contexts," "Political and Symbolic Centers in Asia: Between Early Modernity and the Nation State" or "Early Modern Asia: Empire and the Built Environment." Alternately, these topics will be incorporated within a multi-themed structure. The objective of the course is to expose students to the histories and cultures of Asia in a globalizing world. Another objective is to equip students with the methodological tools of art history as a discipline, even as they learn about specific monuments. The course will build on the foundation laid by survey courses in Art History, Architectural History and Asian Studies. Weekly readings will be assigned and discussed in class. The development of analytical and writing skills will be stressed, and grades will be based partly on essay exams and short response papers. In addition, students will write a research paper, to be completed by the end of semester.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Summer 2012

Prerequisite: ART H 100 orART H 120 orART H 315 orART H 320 orART H 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 442 (IL) Late Antique and Early Christian Art (3)** Survey of the architecture, painting, and minor arts of Christian society from the beginning to the mid-sixth century.

**Late Antique and Early Christian Art (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: ART H 100ART H 111ART H 201 orART H 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 445 (IL) Oceanic Art (3)** Survey of the arts of Oceania (Polynesia, Micronesia, Melanesia), including masks, sculpture, textiles, architecture and other art forms.

**ART H 445 Oceanic Art (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is a one-semester survey of the sculpture, masks, textiles, architecture and other traditional art forms of the Pacific Ocean area known as Oceania, which is usually divided into the sub-areas of Polynesia, Micronesia and Melanesia. The material examined during the semester is organized according to ethnic groups and culture areas. Objects are discussed on the basis of style, style relationships, iconography and the uses to which they were put in their traditional religious, political or social contexts. The time period covered is primarily from the period of European contact up to the present, with occasional references to archaeological findings such as the Lapita culture's (3,000 – 4,000 years ago) tracing of the movement of peoples into Polynesia. Lectures, films, reading assignments, quizzes, writing requirements (term paper) and exams will aid in providing students with an extensive introduction to the region's cultural and artistic diversity.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Summer 2012

Prerequisite: 3 credits of Art History

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 446 (IL) (AFR 446) Topics in African Art (3 per semester/maximum of 9)** Topics vary from "Arts of Eastern and Southern Africa" to "Arts of West Africa."

**ART H (AFR) 446 Topics in African Art (3 per semester/maximum of 9) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Each time this course is taught, it will focus upon a specialized topic in African Art. Using "Art and Archaeology of Ancient Africa" as an example of one semester's topic. This course is a one semester survey of some of the most important historical art traditions of sub-Saharan Africa. Topics to be covered will include prehistoric rock paintings; art from archaeological sites such as Djenné, Nok, Igbo Ukwu and Sanga; and ancient kingdoms such as Ife, Benin and Great Zimbabwe. The time period covered ranges from the first and second millennia BCE. for some of the early terracotta sculpture and rock paintings, to the 11th through 19th centuries CE. for the later ancient kingdoms. Students will learn how both artistic and archaeological evidence combine to help us reconstruct the religious, political and social contexts in which these early African art forms were used. Other possible topics for this course are "Arts of Eastern and Southern Africa," "Arts of Central Africa," and "Arts of West Africa."

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Spring 2014

Prerequisite: 3 credits of Art History

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 447 (IL) (AFR 447) Topics in the Art of the African Diaspora (3 per semester/maximum of 6)** Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

**ART H (AFR) 447 Topics in the Art of the African Diaspora (3 per semester/maximum of 6) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course explores selected topics of the arts of the African Diaspora by examining the aesthetic, philosophical and religious patterns of the African descendants in South American countries such as Brazil, Surinam and Ecuador; the Caribbean and the United States. Some African cultural practices and art forms will be examined for background information and to establish a comparative basis. The major emphasis will be on such topics as examining the modes of transmission of African artistry to the Americas and exploring the significance of the preservation and trans-formation of artistic forms from the period of slavery to the present. Emphasis will be placed on the full range of art forms, including the sculptural and performance traditions as well as architecture, textile, basketry and pottery art forms. Two possible topics are "African Diaspora in the Americas" and "Brazil, Carnival, Samba and Candomblé."

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Spring 2014

Prerequisite: 3 credits of Art History

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 450 (US;IL) The History of Photography (3)** The history of photography from 1839, with particular emphasis on the relationship with the plastic arts.

**The History of Photography (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: ART H 100ART H 112ART H 305ART H 307 orART H 325

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 452 (IL) Byzantine Art (3)** Monumental and minor arts of Byzantium and related areas from the reign of Justinian to the Turkish conquest of Constantinople.

**Byzantine Art (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006



Prerequisite: ART H 100ART H 111ART H 201 orART H 302

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 456 (IL) Renaissance and Baroque Palaces (3)** This course examines palace architecture and decoration in Italy, France, England, and Germany from 1450-1700.

### **Renaissance and Baroque Palaces (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2011

Prerequisite: ART H 100 orART H 112 orART H 202 orART H 303 orART H 304

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 458 (IL) Baroque Capitals of Europe (3)** This course examines the architecture and urbanism of European capital cities from 1600-1800.

### **ART H 458 Roman Rococo Architecture and the Dawn of Neoclassicism (3)**

Most scholars agree that the modern European capital was created in the seventeenth and eighteenth centuries. This course will examine what transformed the cities into centers of power, culture, and learning. We will look at new building types, the creation of civic institutions, and changes in the urban plan. The course will therefore provide an overview of the architecture and urbanism of the period and also explore the political and social contexts that made them possible. Topics include capitals of great political importance such as Paris and London as well as smaller centers like Turin and Nancy that underwent major urban and architectural transformations. The social function of buildings that mark these capitals, from poor houses to opera houses, will also be explored. Units covered may include Rome of Alexander VII, London Before and After the Great Fire, Convents and Capitals, and the City Destroyed and Rebuilt. Primary and secondary reading, ranging from Pepy's Diary to Habermas' examination of the public sphere will offer period accounts as well as conceptual frameworks for understanding the capital. The objective is to challenge students to think deeply about our urban environment and its debts to this earlier era. This course fulfills elective and 400-level requirements in Art History and General Education (IL), but it is also designed to complement concentrations in History, Music, and Architecture. It would be offered every two to three years. Students will be evaluated based on class participation, four exams, group presentations, and critical essays.

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2010

Prerequisite: ART H 100 orART H 112 orART H 202 orART H 304 orART H 314

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 460 (IL) Art and Empire: Aztec, Inca and Spanish (3)** This course is a comparative study of the artistic production used in Aztec, Inca and Spanish empires.

### **ART H 460 Art and Empire: Aztec, Inca and Spanish (3) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course compares the diverse visual culture of the pre-Columbian world's two most powerful empires, the Aztec and Inca, to ascertain how art, architecture and public ritual functioned as tools of hegemony. In the aftermath of the Spanish physical and "spiritual" conquests of the sixteenth century, colonists continued to exploit the central role played by Aztec and Inca imagery as a means to assert and maintain colonial control, co-opting preexisting channels of training and also imposing foreign sign systems. This course queries, how did the visual arts effectively communicate competing imperial ideologies, how was art production appropriated as a site of indigenous resistance, and how do these artifacts continue to construct communal identities, both past and present?

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Summer 2012

Prerequisite: 3 credits of ART H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 462 (IL) Studies in Latin American Art (3 per semester/maximum of 6)** Specific studies of the visual and material culture created in Latin America from the colonial through the modern era.

### **ART H 462 Studies in Latin American Art (3 per semester/maximum of 6) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course analyzes the art and architecture created in Latin America from the first moments of European contact (1492) until the modern era. Each time it is taught, the class will refine its focus to study the artistic production of a specific time period (such as the early colonial period, the nineteenth century, or the modern period), a specific geographic expanse (such as the modern nation state of Mexico), or perhaps a distinct cultural group (indigenous artists). Core to this course is the study of the interaction of seemingly divergent social groups and the ways in which artistic production both reflects and reinforces the resulting cultural systems.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Summer 2012

Prerequisite: 3 credits of Art History

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 464 (IL)** French Baroque Painting (3) Examination of seventeenth-century French painting, including Italian influences; the provincial, Classical, and official styles in France.

**French Baroque Painting (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: ART H 100ART H 112 orART H 304

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 470** Contemporary Art (3 per semester/maximum of 9) A focused investigation of a special topic relating to art made after 1940.

**Contemporary Art (3 per semester/maximum of 9)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2013

Prerequisite: 3 credits of ART H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 475 (US)** (ART 475) Contemporary Women Artists (3) An interdisciplinary course that investigates women artists who are integral to the production of contemporary art primarily in the Americas, Europe, and Asia.

**Contemporary Women Artists (3)**

General Education: None

Diversity: US

Bachelor of Arts: Arts

Effective: Spring 2009

Prerequisite: Fifth semester standingART H 111ART H 112 and enrollment in the ART BA ART BFA Art Education or Integrative Arts degree program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 476 (ART 476)** History and Theory of Digital Art (3) History and theories of contemporary digital art emphasizing humanistic approaches to technology.

**ART H (ART) 476 History and Theory of Digital Art (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

Approaches to Digital Art is a survey class that will offer the web designer, cyberspace architect, MUD traffic controller or enthusiastic surfer an opportunity to examine the humanistic aspects of contemporary digital art. Through readings and direct interaction with digital media and digital artists, the class will develop an appreciation of the ways in which the interface between human beings and technology has been historically constructed and is subject to critical investigation. The goal of the class is to prepare each student so that she or he may engage with digital media in a way that is every more historically and socially self aware.

Students will address the ways in which digital technologies transform artistic practices such as museum display, the writing of art criticism, the definition of works of art, changing role of the artist and the changing space of the art studio. More important, however, by engaging with digital works of art students will learn to think critically about technology and

its engagement with culture at large. They will be encouraged to think about the political, economic and social impact of digital technologies. This humanistic approach to technology would make this course particularly useful to students of art history, philosophy, comparative literature, art education, and the visual/plastic arts. A significant portion of the course will be devoted to the ways in which art on the internet and digital art in general challenge the integrity of categories such as race and national identity. For example, students will have an opportunity to engage with African American artists such as Keith Obadike, whose on-line performances include an attempt to put his "blackness" up for sale on ebay.com in August of 2001. Students may also look at the ways in which net.art (Art made to be viewed on the internet) can critique commercial cooptation of global culture: etoy.com, for example, is an international and collaborative artist's group that satirizes global capital by camouflaging itself as a multinational corporation.

This class will depend largely upon written responses and class discussion, rather than upon tests. Thus, students will learn how to approach difficult theoretical sources that have been assigned to them, and they will learn how to ask the kinds of questions that will help them understand such sources. This course will emphasize critical thinking rather than memorization, so students will develop analytical skills that will be useful in many other contexts. Because students will be given weekly writing assignments, they will be able to improve their skills in composition.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2007

Prerequisite: ART H 100 orART H 112 orART H 307 orART H 325 orART H 326 orART 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 494H** Research Projects - Honors (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small group basis.

#### **Research Projects - Honors (1-12 per semester/maximum of 12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.

#### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 496A** Pop Art and Its Legacies (1-6) This course examines the origins of pop art, its international reception, and its legacies in contemporary art.

#### **Pop Art and Its Legacies (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: ART H 326

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 496H** Independent Studies - Honors (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies - Honors (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 497A** Italian Renaissance Architecture (3) This course provides a survey of architecture in Italy during the Renaissance (1400-1600). It will examine the work of major figures, such as Brunelleschi, Alberti, Bramante, Michelangelo, and Palladio. The urbanism of Rome, Florence, Venice, and Naples will also be examined.

**Italian Renaissance Architecture (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: ART H 112 or ART H 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 497B** History of Prints and Printmaking (3) This course examines the history of prints and printmaking, focusing primarily, but not exclusively, on the development and significance of various print mediums in Europe and the United States from the fifteenth through the twentieth centuries. Class lectures are supported by numerous visits to the Palmer Museum of Art's print room to view first hand many of the objects discussed in the course.

**History of Prints and Printmaking (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: ART H 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ART H 499** (IL) Foreign Study--Art History (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Study--Art History (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Arts

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Arts Administration (ARTSA)

**ARTSA 301** Introduction to Arts Administration (3) This course provides students with a survey of the major concepts and practices of arts administration.

### Introduction to Arts Administration (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARTSA 401** Arts Event Planning and Project Management (3) Planning and managing an event for an arts organization.

### Arts Event Planning and Project Management (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: ARTSA 301ARTSA 495AMKTG 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARTSA 402W** Strategic Management and Planning for the Arts (3) Study of strategic planning for commercial and non-profit arts organizations.

### Strategic Management and Planning for the Arts (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: 7th semester standing andARTSA 301ARTSA 401MKTG 301ACCTG 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARTSA 495A** Arts Administration Off Campus Internship (3) A professional internship experience with an established arts agency or organization outside of the university.

### Arts Administration Off Campus Internship (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: ARTSA 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ARTSA 495B** On Campus Internship in Arts Administration (3) An internship with an on-campus arts organization or program.

### On Campus Internship in Arts Administration (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: ARTSA 301ARTSA 401ARTSA 495A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Arts and Architecture (A&A)

**A&A 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### Foreign Studies (1-12)

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 100** (GA;IL) Introduction to International Arts (3) An interdisciplinary, multicultural introduction to the arts of the world.

### **A&A 100 Introduction to International Arts (3) (GA;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The arts of the world can be simultaneously universal and unique. By conveying qualities of the human condition (mortality, love, lust, virtues, vices, etc.) the arts can be universal. However, the arts communicating these qualities can be as unique as the cultures that produced them. Consequently, the arts are representative of the commonality and diversity of the peoples of the world.

A&A 100 will use the arts to consider similarities and differences among cultures. The primary objective of this course is to develop each student's ability to appreciate the arts from a variety of cultures. By equipping students with the skills to analyze works of art from other countries, the course will make them more receptive to the unfamiliar.

The scope of this course will be open to all arts from all cultures but it cannot be comprehensive given how large a field of study this represents. The course will concentrate on but will not be limited to the visual arts, architecture, designed environments, theatre and music. It will not include all arts from all countries. Instead, case studies will be used to provide students with in depth examination of specific examples. Individual case studies will be selected based on qualities indicative of the culture of origin. Care will be given to selecting case studies representative of a wide variety of cultures. Effort will be made to include examples from Asia, Africa, Australia, South America and Europe.

Case studies will be presented by guest lecturers and chosen from other resources on campus. Members of the College of Arts and Architecture faculty, international graduate students and visiting scholars will be invited to present examples from their expertise. Objects in the Palmer Museum Of Art, events at the Center for the Performing Arts and audio/visual/internet resources will also be used as sources for other case studies. Because the arts are central to this course, visual and audio experiences will be a major component.

A&A 100 is the foundations course required by the International Arts Minor, but will also be available to other students not pursuing the minor as a General Education Arts (GA) and United States Cultures and International Cultures (US;IL) course.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Other Cultures and Arts  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 105** Interdisciplinary Digital Studio (IDS) Seminar I (3) This course will consist of 5 modules that will introduce students to emerging technologies that are applicable to interdisciplinary electronic design study.

### **A&A 105 Interdisciplinary Digital Studio (IDS) Seminar I (3)**

This foundational course will consist of five three-week modules during which students will be introduced to digital design process and applications that are necessary for IDS design research and creative production. What students learn in this first of two preliminary courses during the first of year in the IDS major will have direct application in digital design problems that will be introduced in the beginning, intermediate, and advanced courses in the IDS Program. Accomplished digital artists and designers consisting of faculty in the School of Visual Arts, the School of Music, the Department of Architecture, and the Department of Landscape Architecture will teach the modules. Content of the five modules will include two and three-dimensional modeling, animation; sound, and game design concepts and processes.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: School of Visual Arts Admissions Portfolio

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 106 Interdisciplinary Digital Studio (IDS) Seminar II (3)** This course will consist of 5 modules that will introduce students to emerging technologies that are applicable to interdisciplinary electronic design study.

**A&A 106 Interdisciplinary Digital Studio (IDS) Seminar II (3)**

This second foundational course will consist of five three-week modules during which students will be introduced to further study in digital design process and applications that are necessary for IDS design research and creative production. What students learn in this first of two preliminary courses during the first of year in the IDS major will have direct application in digital design problems that will be introduced in the beginning, intermediate, and advanced courses in the IDS Program. Accomplished digital artists and designers consisting of faculty in the School of Visual Arts, the School of Music, the Department of Architecture, and the Department of Landscape Architecture will teach the modules. Content of the five modules will include two and three-dimensional modeling, animation; sound, and game design concepts and processes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: School of Visual Arts Admissions Portfolio and completion of A&A 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 110 Interdisciplinary Digital Media Studio I (3)** Provides arts and design students an interdisciplinary studio-based exploration of critical, theoretical, and historical understandings of digital media.

**A&A 110 Interdisciplinary Digital Media Studio I (3)**

This course is the first of a series of required courses for the Interdisciplinary Digital Studio (IDS) degree. Students in A&A 110 will gain an interdisciplinary and collaborative foundation through the studio-based exploration of digital media arts and design processes. This course will foster interdisciplinary awareness and diverse perspectives and provide students with a common language with which they can communicate and collaborate with other students in the arts and design disciplines. The course will integrate a variety of methodologies and approaches rather than discipline-specific subject matter and be especially significant to such areas as learning to think critically, learning to engage in critical dialogue, and development of research skills. It will provide an introduction to, and discussion of, the processes of historical thinking and methodology as these pertain to the work and experience of historical and living digital media artists and designers.

Through the completion of studio-based projects encompassing a wide range of digital media, including image production and manipulation, basic interactivity/hypermedia, interface design, 3D modeling, animation, digital fabrication, audio, and video, students will create a portfolio of work that will enable them to make informed and guided choices as to the further focusing of their studies in the digital arts and design. Students will be introduced to various collaborative situations and approaches to be utilized as necessary based on the needs of the project. In the following year, students will build upon the explorations of this course through more focused and rigorous studio work in A&A 210 as well as other relevant courses to the degree.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: Prerequisite or concurrent: A&A 101 A&A 102 S

Concurrent: or A&A 103 A&A 104

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 199 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 210** Focused Realization Studio (3) Provides students the opportunity for the realization of more focused interdisciplinary studio explorations in the digital arts and design disciplines.

### **A&A 210 Focused Realization Studio (3)**

Building upon the material introduced in A&A 110: Interdisciplinary Digital Media Studio I as well as other relevant courses, such as ART 211W, students in A&A 210 will create team-based and individual studio work that investigates, from a variety of disciplinary understandings, more advanced issues and problems in the digital arts and design disciplines. This rigorous and focused exploration will result in a portfolio of completed and fully realized studio-based projects. This final portfolio will be made available online by the student, both to reach as broad an audience as possible as well as encourage the growth of a critically focused community of similarly interested practitioners in the digital arts and design disciplines. The primary purpose of the course is to bring together students engaged in a wide range of studio explorations and create a synergistic group dynamic that will inform and advance the work of all participants; hence, personal initiative and strong self-learning skills are a given expectation.

The studio format is the fundamental model for education within the arts and design disciplines in the University. Ways of learning about the arts and design through projects and assignments that incorporate various technologies will be included in the course. This course also will give students knowledge of the digital arts and design disciplines, develop skills of art, design and communication, and foster a capacity for judgment. There will be an emphasis on both product and process necessitating a high level of self-motivation and initiative. Each student will be encouraged to be open to a diverse range of ideas, values and solutions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: A&A 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 294** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**A&A 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 310** Creative Collaboration Studio (3) Provides students with an advanced studio exploration of interdisciplinary collaborative projects in the digital arts and design disciplines.

**A&A 310 Creative Collaboration Studio (3)**

This course is the third required studio course for students in the Interdisciplinary Digital Studio (IDS) degree program. Students in A&A 310 will create advanced studio work that investigates, from a variety of disciplinary understandings, increasingly complex issues and problems in the arts and design disciplines. The course will emphasize collaborative and team-based projects, exploring the creative potential within the group dynamic as well as in relation to a client.

This rigorous and focused exploration will result in a portfolio of completed and fully realized studio-based projects. This final portfolio will be made available online by the student, both to reach as broad an audience as possible as well as encourage the growth of a critically focused community of similarly interested practitioners in the digital arts and design disciplines. The primary purpose of the course is to bring together students engaged in a wide range of studio explorations and create a synergistic group dynamic that will inform and advance the work of all participants; hence, personal initiative and strong self-learning skills are a given expectation.

The studio format is the fundamental model for education within the arts and design disciplines in the University. Ways of learning about the arts and design through projects and assignments that incorporate various technologies will be included in the course. This course also will give students knowledge of the digital arts and design disciplines, develop skills of art, design and communication, and foster a capacity for judgment. There will be an emphasis on both product and process necessitating high level of self-motivation and initiative. Each student will be encouraged to be open to a diverse range of ideas, values and solutions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: A&A 210ART 211W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 401** International Arts Minor Final Project (1-3) The final project required for the International Arts Minor.

**A&A 401 International Arts Minor Final Project (1-3)**

The requirements for the International Arts Minor specify that the course applied toward the minor reflect a coherent course of study constructed around a geographic, chronological, or thematic concentration. Also required for the minor is

a culminating project that relates to the chosen concentration. The final project is intended to capitalize on the knowledge and experience gained from the prerequisite components of the minor.

The topic of the project will be chosen by the student in consultation with the person in charge of the minor. Work toward completion of the project will be overseen by the person in charge of the minor with advice or assistance from other member(s) of the faculty as appropriate.

For the purpose of the minor, the arts are very broadly defined to include topics such as the visual arts, architecture, design environments, theatre, music, and literature so most any creative endeavor may be considered for the subject of the final project. The project may result in formats such as a written paper, a work of art, an exhibition, a recital, or a musical composition as long as it conforms to the intent of the requirement for the minor. It is anticipated that the subject of most projects will be cross-cultural or multicultural in nature. For example, a research paper might be thematic such as an intercultural comparison of adaptations of a Greek myth. A studio project might be technical, such as the wood firing techniques employed by Japanese ceramicists.

The requirements for the International Arts Minor specifies a project of at least one (1) credit. A7A 401 International Arts Minor Final Project will be offered for one (1) to three (3) credits to accommodate students who may have been more than one (1) credit to complete the minor and for those who may propose a project worth more than one (1) credit. A&A 401 may not be repeated.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 2004

Prerequisite: A&A 100 and completion of at least 12 credits toward the International Arts Minor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 410** Interdisciplinary Digital Studio Capstone I (4) Provides arts and design students an opportunity to conceptualize a digital arts and design undergraduate thesis.

#### **A&A 410 Interdisciplinary Digital Studio Capstone I (4)**

This course is the first part of a two-course undergraduate digital arts and design thesis. The course will integrate particular methodologies and approaches rather than discipline-specific subject matter. Each student will have the opportunity to identify the primary issue of theoretical concern based on his/her personal interest, and pursue research in a rigorous, in-depth manner. The preparation and initiation of the digital arts and design undergraduate thesis will occur within a collaborative team-based studio environment.

Students in A&A 410 will begin to research and synthesize interdisciplinary understandings through the exploration of critical, theoretical, and historical perspectives of digital media. This understanding will foster the spirit of in-depth arts and design inquiry and research, and will build upon arts and design awareness, skills, and methods introduced in previous courses. These explorations are supported by the advanced theoretical topics and ideas being presented in ART H/ART 476: History and Theory of Digital Art, which students will have already completed or will be taking concurrently. The student will integrate studio and theory while creating a significant work of digital art or design. The student will work with a faculty adviser in addition to the instructor of record for the course. The adviser will participate in the public critiques of the student's work.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: A&A 310 Prerequisite or concurrent: ART H 476

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 411** Interdisciplinary Digital Studio Capstone II (4) Provides arts and design students an opportunity to implement a digital art and design undergraduate thesis.

#### **A&A 411 Interdisciplinary Digital Studio Capstone II (4)**

This course is the second part of a two-course undergraduate digital arts and design thesis and the culmination of the digital studio sequence of A&A 110, 210, 310. The course will integrate particular methodologies and approaches rather than discipline-specific subject matter. Each student will have the opportunity to further explore the primary issue of theoretical concern based on his/her personal interest, and complete research in a rigorous, in-depth manner. The creation and implementation of the digital arts and design undergraduate thesis will occur within a collaborative team-based studio environment.

Students in A&A 411 will build upon the preliminary research and studio investigations undertaken in A&A 410. The thesis will synthesize the student's arts and design awareness, skills, and methods introduced in previous courses. The student will integrate studio and theory while creating a significant work of digital art or design, which demands a high degree of responsibility, self-motivation, and personal commitment. The student will work with a faculty adviser in addition to the instructor of record for the course. The adviser will participate in the public critiques of the student's work.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: A&A 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 494** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 494H** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**A&A 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Asian American Studi (AAS)**

**AAS 100** (GH;US) (AM ST 160) Introduction to Asian American Studies (3) An introduction to the history, literature, and culture of Asian America.

**Introduction to Asian American Studies (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**AAS 428** (US) (ENGL 428) Asian American Literatures (3 per semester/maximum of 6) A seminar on the literatures and cultures of Asian America, with attention to forms of geographic, historical, and ethnic diversity.

**Asian American Literatures (3 per semester/maximum of 6)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Asian Studies (ASIA)

**ASIA 003** (GH;US;IL) (RL ST 003) Introduction to the Religions of the East (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

**ASIA (RL ST) 003 Introduction to the Religions of the East (3)**  
**(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will explore the foundations, development, and diversity of religious traditions in Asia, focusing mostly on Hinduism, Buddhism, Confucianism, Daoism, and Shinto. It is organized according to two sections: Foundations and Developments. The Foundations section provides an introduction to the worldviews and practices of Eastern teachings. We will also discuss the structure of society, the social expectations on individuals based on gender and class, and rituals, which expose us to rich mythologies or intricate ceremonies. The second section, Developments, traces the evolution of religious doctrine and practice through history. Here, we learn to distinguish among large and small-scale movements and schools, and to familiarize ourselves with the geographical scope of each religion in South, Southeast, and East Asia. An abiding emphasis in this course will be on how to read and interpret the varied scriptures and primary texts of these religions.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 004** (GH;IL) (CMLIT 004) Introduction to Asian Literatures (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

**Introduction to Asian Literatures (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Fall 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 083S** Asian Studies First Year Seminar (3) The meaning and advantages of a Liberal Arts education in context of a specific discipline.

**Asian Studies First Year Seminar (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 100 (GH;IL)** What is Asia? (3) An introduction to the history, literatures, politics, and cultures of Asia.

**What is Asia? (3)**

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Other Cultures and Humanities  
 Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 103 (GH;US;IL) (RL ST 103)** Introduction to Hinduism (3) Historical development of Hinduism to the present.

**ASIA (RL ST) 103 Introduction to Hinduism (3)  
(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides a historical overview of the development of ideas that provide the foundation of the south Asian religious culture. The course begins with a discussion of the Vedic ritual tradition, tracing the emergence of the idea of civic responsibility or Dharma. It then proceeds to analyze how the Vedic ritual tradition may have given rise to the philosophical concepts like that of Karma or (individual action and its underlying motives), Samsara (the cyclical view of life), and the Atman (nature of the individual) during the Upanishadic/Vedantic era. The first half of the course concludes with selected readings from the Bhagavadgita, and the Mahabharata. The readings will all be in English. Class discussions focus on how the classical Hindu worldview may have emerged from the philosophical foundation of the Upanishads, and later built the groundwork for the Hindu devotional Bhakti tradition. The second half of the course focuses on the various regional or little traditions from the middle ages analyzing how the local religious cultures (both in the Hindi and non-Hindi speaking areas) may have played out against the great classical Brahmanic tradition. The course concludes with a discussion of how Hinduism has been historically influenced by other religious cultures (both indigenous and foreign) like Buddhism, Jainism, Islam, and Christianity.

General Education: GH  
 Diversity: US;IL  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 104 (GH;US;IL) (RL ST 104)** Introduction to Buddhism (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

**ASIA (RL ST) 104 Introduction to Buddhism (3)  
(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is a general survey of the historical development, basic doctrines, and practices of Hinayana, Mahayana, and Vajrayana Buddhism. The course is structured around the "Three Jewels" of Buddhism: Buddha, Dharma, and Sangha. That is to say, we will learn about the Buddha as a historical figure and spirit; we will come to understand the basic elements of his doctrinal teachings; and we will examine the community of followers who have practiced his teachings. Special attention will be paid to the various "geographies" of Buddhism as expressed through different cultures in ancient India, Southeast Asia, and East Asia. At the conclusion of the course, we will encounter Buddhism as a relatively new cultural force in America. The course revolves around the discussion of key issues in the philosophy, ethics, and theology of various forms of Buddhism.

General Education: GH  
 Diversity: US;IL  
 Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 120Y (GH;IL) South Asia: A Literary History (3)** The course traces the cultural history of South Asia by studying its literary tradition from ancient to modern times.

**ASIA 120Y South Asia: A Literary History (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Asian 120Y provides undergraduate students a taste of the inherent pluralism of South Asian culture and the readings emphasizing the broad idea of plurality. The readings and discussions may include, but not necessarily remain confined to a) architectural b) literacy c) musical etc. traditions, depending on the research interests of the individual faculty members teaching the course. Asian Studies undergraduates should be able to recognize both the richness of diversity, as well as the nature of the continuity of the cultural tradition in South Asia that has fascinated outsiders for centuries.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 177 (GH;IL) (HIST 177) The Rise of Modern Southeast Asia (3)** Study of Southeast Asia from the rise of early empires to the present.

**The Rise of Modern Southeast Asia (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 181 (IL) (RL ST 181) Introduction to the Religions of China and Japan (3)** A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.

**ASIA (RL ST) 181 Introduction to the Religions of China and Japan (3)**  
(IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is an introductory survey of the historical, philosophical, and cultural dimensions of the major religious traditions in China and Japan. The course delineates and highlights the organic view of the universe and the hierarchical ordering of society in East Asia. It traces the evolution of the major traditions—Confucianism, Daoism, Buddhism in China, as well as Shinto, Buddhism and Confucianism in Japan—by examining their ideas of humanity and nature, morality and society, and metaphysics and ethics. It also reveals the interaction and interrelation between ideology, politics and society, and their impact on the development of the major religious traditions in history. A major focus is the relation between the “little tradition”—the popular and folk practices and beliefs of esoteric Daoism, devotional Buddhism, and fertility-cult Shinto—and the “great tradition”—the elite and literate doctrines and precepts of Confucianism, philosophical Daoism, and monastic Buddhism. The course also devotes some attention to the influence of religion on various facets of culture, such as medicine, science, literature, art and food.

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 182 (GH;IL) (HIST 182) Asian Trade: Economy, Industrialization and Capitalism in Asia (3)** An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present.

**ASIA (HIST) 182 Asian Trade: Economy, Industrialization and Capitalism in Asia (3)**  
**(GH;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

Asian economies have experienced spectacular growth in the second half of the 20th century. But this growth is part of a longer story of Asian commerce and trade and its relationship to and integration with (and, in some cases, isolation from) global patterns of exchange. Moreover, these exchanges are best understood alongside the politics, society, and culture--sometimes local, sometimes regional--that shaped trade and business in entrepôts, capitals, and hinterlands throughout Asia. This course begins with a historical exploration of the economic development and social change and ends by asking what lies in store for one of the world's fastest growing economic regions. By offering a historical frame for Asian economic experience, students will gain insight into the strengths and weaknesses of prevailing theories that tend to overstate centralized control, market mechanisms, and cultural determination.

Asian economies and markets are quite diverse, consisting of emerging and mature markets, making it difficult to view them through a single lens. As a result this course seeks to introduce students to a variety of conceptual frameworks in these countries. Examinations of the major economic players China, India, and Japan form the backbone of the course, but the precise geographic emphasis will vary with instructor, and may also include discussions of Japan, Korea, Vietnam, Singapore, Indonesia, Taiwan, and other Asian states. Themes of the course will vary depending on instructor, but may include industrialization, sustainability and the environment, gender and labor, protest and political reform, and consumerism and advertising, among others. The course will also offer a general introduction to economic theories that underpin the concepts of globalization, capitalism, and socialism as they are understood in an Asian context.

This course is intended as an introduction to Asia for those with particular interests in Business, Economics, Global Studies, Labor, and/or Government. Through weekly readings, films and class discussion students will be introduced to the development of Asian economies in the global context.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 183 (GH;IL) (HIST 183) Gender, Family, and Society in East Asia (3)** Investigates the history of gender, family, love, and sex in East Asia.

**Gender, Family, and Society in East Asia (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 184 (GH;IL) (HIST 184) Society and Culture in the Pacific War (3)** Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.

**Society and Culture in the Pacific War (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 185 (GH;IL) (HIST 185) Asian Pop: The History of Popular Culture in Asia (3)** A history of popular culture from the early modern period to the present.

**ASIA (HIST) 185 Asian Pop: The History of Popular Culture in Asia (3)**  
**(GH;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

Asian popular culture encompasses a broad array of cultural practices and forms that shed light on the politics and society of Asia from the early modern period to the present day. This course examines "low" or non-elite culture, investigating subjects like martial arts, Chinese opera, beggar guilds, popular and folk religion, weddings, teahouses and many others (particular themes will vary depending on instructor) that allow us insight into the day-to-day lives of historical people

across Asia. Along the way, we will consider how popular culture intersects with and influences politics, economy, and society.

A significant emphasis will be placed on the scope of cultural influence: some of the topics under consideration were decidedly local affairs, while others moved across political and regional boundaries, sometimes with far-reaching consequences. This focus on dissemination and influence grounds the course. For instance, students will begin their investigation of Asian popular culture by tracing the pre-modern roots of Asian cultural exchange when empires ruled not by political or military might, but what one scholar termed the 'theater state' or, put more simply, cultural persuasion. In contrast, however, common people often subverted state orthodoxy and state policies, in ways ranging from the stories told about local gods to access to martial arts training to marriage practices. Out of this contestation over the meanings and presentations of popular culture symbols and forms, students will be introduced to the various and diverse 'vehicles' for popular culture, from the early modern period up to the present day.

Themes and topics will vary depending on the instructor, but may include cities and urban culture, villages and rural culture, theater, film, mass literature, youth culture, "ethnicity" as culture, music, dance, opera, wartime culture and propaganda, advertising, sexuality, gender and its representations, martial arts and militarism, popular religion, weddings and marriage practices, and so on.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 188 (GH;IL) (HIST 188) Tibet: People, Places and Spaces (3)** This course examines the historical, cultural, and ethnic dimensions of Tibet from the seventh century to the present.

**Tibet: People, Places and Spaces (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 189 (GH;IL) (HIST 189) Illicit Asia: An Alternative Introduction to Asia (3)** A historical introduction to unlawful, illegitimate and forbidden ideas, goods, people and places in modern Asia.

**ASIA (HIST) 189 Illicit Asia: An Alternative Introduction to Asia (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines patterns of illicit ideas, goods, peoples and places of modern Asia. Traditional introductions to Asia emphasize a history of the powerful, of the center, of the victors. This course seeks to invert the customary narrative by telling the tale of Asia's early modern and modern past from the perspective of those working against the interest of the elite, popular and mainstream.

At the same time, traditional introductions to Asia often risk perpetuating stereotypes of a mysterious, sinister Orient. In fact, dominant discourses both cross-culturally (such as Orientalism) and within a given society (such as elite nationalism) have tended to criminalize or pathologize all kinds of countercultures, alternate economies, non-normative sexual practices, and so forth. But attitudes to orthodoxy and legality may depend on one's relationship to the dominant system, and the dominant narrative. This class seeks to reveal those phenomena in a different light, according to their own contextual logic. Often omitted or ignored, understanding why illegal activity occurs, how it occurs and who the relevant actors are can offer an extremely potent introduction to the roles traditional boundaries of political, cultural and societal activity played in the shaping of Modern Asia.

Specific content and regional focus will vary according to individual instructor, but the course will be divided into four general sections that focus on forbidden ideas, goods, places and peoples. Topics may unpack heterodox beliefs like secret societies or anarchist movements; trace the production and distribution of illegal goods like opium or counterfeit items; map out notorious places like the Golden Triangle or the internal workings of human traffickers; or examine the practices and scope of criminal elements like pirates or brigands. The objectives of the course are not only to learn about the illicit activities across modern Asia, but are also organized to encourage us to rethink the way we understand standard interpretations of the past and the factors that go into those perceptions. Students will also consider the changing justifications for and definitions of what is legal, normal and orthodox.

General Education: GH  
Diversity: IL



Bachelor of Arts: Humanities  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 197** Special topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 197A** India's Culture, Agricultural and Economic Diversity (2) Students will have the opportunity to expand their understanding of the cultural diversity of India respective to their courses of study by exploring the customs, agriculture, industry, religions, history, food and education.

**India's Culture, Agricultural and Economic Diversity (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 199** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 199A** (IL) India's Culture, Agricultural and Economic Diversity (2) Students will participate in volunteerism in sustainability, organic farming and humanitarian projects from helping in orphanages to spearheading a project to provide housing for homeless which they initiated during the ASIA 197A course.

**India's Culture, Agricultural and Economic Diversity (2)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: ASIA 197A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 300H** Honors Thesis (3) Individual projects involving research, reading, and writing; preparation of a thesis in Asian Studies.

**Honors Thesis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: Participation in the Schreyer Honors College

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 315** (GA;IL) (ART H 315) Architecture and Art of South and Southeast Asia (3) Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present.

**Architecture and Art of South and Southeast Asia (3)**

General Education: GA  
Diversity: IL  
Bachelor of Arts: Other Cultures and Arts  
Effective: Summer 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 401** East Asian Studies (3-6) An interdisciplinary, variable content, lecture-discussion course on the history, culture, politics, and international relations of China, Japan, and Korea.

**East Asian Studies (3-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: 6 credits from courses in the East Asian Studies program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 404 (IL) (CMLIT 404) Topics in Asian Literature (3)** Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan.

**Topics in Asian Literature (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Fall 2010  
Prerequisite: 3 credits in literature or related field appropriate to this course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 404Y (IL) Topics in Asian Literature (3)** Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan, taught with focus on written analysis and interpretation.

**ASIA (CMLIT) 404Y Topics in Studies of Asian Literatures (3)**

This course focuses on Asian literature in a comparative and international frame. Different iterations of this course will have different topics as well as different historical or geographic foci, but may include literatures from the countries of East Asia (China, Japan, Korea), Southeast Asia (Thailand, Vietnam, Laos, Indonesia, Cambodia), or South Asia (Bangladesh, India, Pakistan). The various course modules will incorporate writing to allow students to further explore their understanding of Asian literatures. Because the course is comparative, it will highlight relationships between and among literary traditions of Asia, or between Asia and the rest of the world, whether in the fields of poetry, drama, or fictional and non-fictional prose. The course will provide students with opportunities to develop writing skills necessary for academic scholarship in comparative literature and Asian Studies.

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 405 Seminar in Asian Studies (3-6 per semester/maximum of 6)** Advanced seminar in Asian Studies

**ASIA 405 Seminar in Asian Studies (3-6 per semester/maximum of 6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This seminar focuses on advanced topics in the field of Asian Studies and is intended to function as a senior capstone course for majors, as well as an upper-level, research-intensive course for any student seeking to gain in-depth knowledge of a specific issue relevant to Asian culture.

The course will have very different focuses in different semesters, depending on the research expertise of the instructing professor. (Potential topics might include, for instance, an examination of human rights policy in Asia, an exploration of maritime empires in the premodern period, an historical archeology of the Islamicization of western Asia, a literary investigation of vernacular literatures, or an art historical examination of urbanization and the built environment in major Asian cities.)

Regardless of focus, extensive topic-specific readings will be required, and the goal of the course will be to help students develop and polish advanced research skills in Asian Studies.

General Education: None  
Diversity: None  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2013  
Prerequisite: ASIA 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 405Y** (IL) Seminar in Asian Studies (3-6 per semester/maximum of 6) An advanced, writing-focused seminar in Asian Studies.

**Seminar in Asian Studies (3-6 per semester/maximum of 6)**

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Fall 2009

Prerequisite: ASIA 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 440** (IL) (ART H 440) Monuments of Asia (3-9 per semester/maximum of 9) An exploration of major Asian sites and monuments through a focus on their historical and cultural significance.

**Monuments of Asia (3-9 per semester/maximum of 9)**

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Arts

Effective: Summer 2012

Prerequisite: ART H 100 orART H 120 orART H 315 orART H 320 orART H 330

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 469** (IL) (PL SC 469) Government and Politics of South Asia (3) This course offers an overview of the politics of modern South Asia with specific focus on Afghanistan, India and Pakistan.

**ASIA (PL SC) 469 Government and Politics of South Asia (3)  
(IL)**

This course provides an overview of the politics of modern South Asia with particular attention to the experiences of Afghanistan, India and Pakistan. It examines theories of political and economic development and ethnic politics, the impact of the British colonial experience on South Asia, the rise of nationalism, and the emergence of independent nation states in the region. Three important themes are explored throughout the course: (1) the state of economic development in the three countries; (2) the relationship between identity politics and violence; and (3 ) the international relations of these countries, with particular attention to terrorism and nuclear policy. Course topics will be explored through readings from textbooks and assigned articles, articles from current news sources and, documentary films from the three countries. By the end of the course, students will have knowledge of the politics of Afghanistan, India and Pakistan and the political factors that have shaped their development over the past century. Students will acquire the tools necessary to evaluate critically the impact of war, the legacy of colonialism, and the challenge in building durable democratic institutions. This course fulfills the distribution requirement for comparative politics, as well as the advanced and related course requirements for Political Science majors. The course also fulfills the supporting course requirement for International Politics majors and the related areas requirement for Asian Studies majors.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: PL SC 003PL SC 014PL SC 022 orASIA 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 474** (HIST 474, JAPNS 426) Early Modern Japan (3) Japanese history from 1580-1880.

**ASIA 474 (HIST 474, JAPNS 426) Early Modern Japan (3)**

Japan's Tokugawa period can be difficult to grasp. It resembles a modern society in many respects but operated according to a logic of social organization different from that of most modern states. There was a collective sense of national identity, but its characteristics differed significantly from modern forms of Japanese identity. Moreover, modern ideologies have contributed to the characterization of early modern Japan as a rigid society and of the country as a whole having been isolated from the rest of the world. The main purpose of this course is to afford students the opportunity to study early modern Japan in detail and, insofar as possible, on its own terms.

Through readings in primary and secondary sources, and through the evaluation of visual images, this seminar-style course will deepen students' knowledge of Japan and serve as basis for comparative study of other early modern societies. Although the course investigates classic areas of historical study such as institutional development and foreign relations, the emphasis is on social and environmental history. The course encourages students to think about a range of approaches to the past and to think about the ways our contemporary biases influence the ways we understand the past.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: HIST 172HIST 174JAPNS 120 orJAPNS 121

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 475Y (IL) (HIST 475Y) The Making and Emergence of Modern India (3)** India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

**ASIA (HIST) 475Y The Making and Emergence of Modern India (3)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course covers India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle. It begins during the early modern period, when European travelers encountered the flourishing Mughal Empire, and moves into the dynamic moment following, when the East India Company was one of various competing forces, both locally and globally. It then examines the rise of British power, and the various responses to it from collaboration to mutiny; the multiple development of nationalisms and anticolonialisms, including secular, socialist, Hindu and Muslim variations; the accompanying social reform visions, including caste abolition and feminism; the turbulent paths toward partition and independence, resulting in the postcolonial states of India, Pakistan, Bangladesh, Nepal, Sri Lanka, and Afghanistan. It then follows the continuing trajectories of these countries after independence, from the Nehruvian years to the neoliberal shift, with attention to emerging social movements and issues including caste and gender relations; religious and separatist politics; struggles around land and development; urbanization, and labor migration. This course raises important questions about the nature of modernity and its relationship to global interconnectedness, the rise of capitalism and colonialism, industry and technology; while emphasizing South Asian social and cultural contributions and responses to these global shifts. By filling in the context of this part of the world to that global story, the course enables students to grapple with some of the major economic and geopolitical trends of the early 21st century.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: HIST 010HIST 011HIST 172HIST 175HIST 176HIST 181 orHIST 191

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 476 (IL) (HIST 476) Technology & Society in Modern Asia (3)** Role of technology in modernization, national identity, and foreign relations of an Asian country from 19th century to present day.

**ASIA (HIST) 476 Technology & Society in Modern Asia (3)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The countries of Asia are often seen (or imagined) in the West today in terms of their technological capabilities. This course will examine the role of technology in the modernization, national identities, and foreign relations of one or more countries of East, South, or Southeast Asia from the mid-19th century to the present day. Specific content will vary according to individual instructor, but topics may include the relationship between technological development and international relations, national power, leisure, domestic political and aesthetic movements, war, empire, and trade, as well as the impact of technology on interconnected images of self and other on the part of the peoples of Western and Asian countries.

The objectives of the course are not only to learn about the role of technology in modern East Asia, but also to encourage us to rethink the way we view other countries and the factors that go into those perceptions (as well as developing a new way of understanding of what contributes to the views other peoples hold of their own countries). Students will also consider the changing role that technology has played (and continues to play) in all modern societies.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2014  
 Prerequisite: ASIA 100HIST 172HIST 173HIST 174HIST 175HIST 176HIST 183HIST 184HIST 188

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 480 (IL) (HIST 480) Japan in the Age of Warriors (3)** An overview of Japan from the 10th to 17th century, a period of political decentralization, cultural efflorescence, and social change.

**ASIA (HIST) 480 Japan in the Age of Warriors (3)  
(IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

By the eighth century, Japan had become a centralized state centered on the reign of a sovereign, commonly known in English as an emperor. At the end of the ninth century, the emperor's court relocated to the city of Heian (Kyoto), and soon thereafter, an elegant court culture developed in the capital. The courtly culture was based on civilian values and civilian rule. In the countryside, however, Japan was gradually becoming militarized. Local warlords began rising to prominence and vying with each other for power. One of them, Taira-no-Masakado, rebelled against the central government during the years 939-940, declaring himself "emperor" of several provinces in eastern Japan centered on Hitachi. Although the central government in Kyoto enlisted other warrior groups to put down Taira-no-Masakado's rebellion, the process of militarization was underway. Buddhist temples also participated in this process, using their wealth and influence to assemble monastic armies on occasion.

This course examines Japanese history beginning approximately in the 10th century, at time when civilian high culture in the capital was approaching the height of its development. At the same time, the process of militarization of the countryside was beginning to undermine that civilian court culture. The course ends in approximately the seventeenth century with the establishment of a military government under the Tokugawa shoguns. This development was ostensibly the peak of warrior influence, with the samurai (=warrior) class entrenched by law as the elite group within society. However, just as the warriors began their rise to power in the tenth century, by the end of the seventeenth century they were rapidly losing influence and prestige to wealthy merchants as the forces of the market economy spread throughout Japanese society.

HIST 480 is a course in medieval Japanese history, broadly defined. Different instructors will emphasize different aspects of Japanese history and culture during this era. Approaches to teaching will also vary depending on the instructor. Class sessions can take the form of lectures or discussions. Assessment methods and learning activities may include debates, discussions, exams, research papers, book review papers, and other similar academic activities.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 481 (IL) (HIST 481) Modern Japan Since 1800 (3)** The transformation of Japan from a relatively isolated, agricultural nation into a highly industrialized world power.

**ASIA (HIST) 481 Modern Japan Since 1800 (3)  
(IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

In the late 19th century, Japan emerged from relative seclusion and grew, within the period of a few decades, into one of the world's major powers. Japan's remarkable transformation into an imperialist power ended suddenly with defeat by the Allied powers in August 1945. But the history of prewar and wartime Japanese nation-building and economic growth set the stage for postwar rebuilding. This course examines Japan's development as a powerful modern state, imperialist aggressor, defeated nation, economic power-house, and pop culture super-power. Specific content will vary according to individual instructor, but may include the structures of state and society in the early 19th century, the creation of the Meiji state (1868-1912), the successes and costs of the Meiji government's program of rapid modernization and Westernization, imperialist expansion, the road to war and defeat in World War II, the postwar U.S. occupation of Japan (1945-1952), Japan's resurgence as a global power, and some of the major challenges facing the Japanese state and society today. The goals of the class are not only to gain an understanding of the history of another country, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will take on the role of historian themselves, thinking critically about assigned texts and making their own interpretations of their meanings. Through readings, discussions, and written work, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172/HIST 174 or HIST 175

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 482 (CHNS 424, HIST 482) Confucius and the Great Books of Early China (3)** This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China.

**ASIA 482 (HIST 482, CHNS 424) Confucius and the Great Books of Early China (3)**

This course exposes students to the key texts, thinkers, and ideas that form the foundation of the Chinese classics and classical period. As the first part of a two-seminar series of courses (HIST 484), it provides an integral foundation for the study of Chinese history, culture, or literature. While the emphasis is on the texts and their main themes, the course will encourage historical engagement with the texts by placing them into a context of competing cultural, social, political trends. Readings may be grouped around categories of teachings such as Confucianism, Buddhism, and Daoism, or around thinkers such as "(Confucian) ritualists," "statesmen," "military strategists," "rebels," "recluses," and "spiritual leaders." Students will learn how each of these types of teachings and thinkers related to each other, as well as how they responded to the emergent, centralized political order of the day. This will help students better understand many of the recurrent intellectual, political, and religious themes that arise in later Chinese history as well.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: fifth semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 483 (IL) (HIST 483) Middle China (3)** The social, political, and cultural issues and developments from the 8th to 16th century.

**ASIA (HIST) 483 Middle China (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This advanced discussion-based course covers the social, political, and cultural issues and developments in Chinese history from roughly the eighth century through the sixteenth century. Specific content will vary according to instructor. Students will gain a strong foundation in Chinese history and culture and experience analyzing historical texts.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 174

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 484Y (IL) (HIST 484Y) History of Chinese Thought (3)** A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

**ASIA (HIST) 484Y History of Chinese Thought (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the historical developments of Chinese thought and its multifarious expressions from ancient times to the eighteenth century. It explores the unique Chinese ways and means of making sense of the world and the human condition by probing China's philosophical and religious traditions. It reveals the conscious life of the Chinese in matters moral, ethical, aesthetic and metaphysical. Moreover, by showing the unity, diversity, continuity and discontinuity in Chinese thought throughout the ages, this course debunks the popular "Orientalist" myth that Chinese culture had been a hermetically sealed and stagnant monolith until the modern era when Western influences became dominant.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 174 or HIST 175

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 485Y (IL) (HIST 485Y) China's Last Empire: The Qing Dynasty, 1644-1911 (3)** China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

**ASIA (HIST) 485Y China's Last Empire: The Qing Dynasty, 1644-1911 (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine the Qing dynasty, the last imperial dynasty to rule China, from the seventeenth to early twentieth centuries. More than doubling the size of the previous Ming dynasty, the empire also included people such as Tibetans, Muslims and Mongols who had never before considered themselves as "Chinese" but were now Qing subjects. The course will examine how Manchu ruling family, a non-Chinese people, outnumbered by the Chinese by about three hundred and fifty to one managed to conquer and rule China for nearly three hundred years. Tracing the political, social and cultural development of China starting with the foundation and consolidation of the Qing in 1644 and concluding with the collapse of the dynastic system in 1911, this course examines the role of the imperial system, internal rebellions, and the impact of Western colonialism on China. Considerable time will also be focused on China's ethnic, religious and cultural differences in order to allow a deeper understanding of major issues and themes in late imperial Chinese history. Finally, the theme of China's international relations in Asia and the world and China's shifting place in the world will be a prominent thread of the course. Through a blend of primary and secondary sources, students in this class will need to think critically, read broadly and express their ideas clearly regarding the evolving challenges facing China's last empire.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 486 (IL) (HIST 486) China in Revolution (3)** China from 1900 to the present; nationalism, cultural change; development of communism.

**ASIA (HIST) 486 China in Revolution (3)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the social and cultural history of modern China from 1900 to the present. Major topics may include the formation of a modern national state, relationships between society and government, economic development and environmental crises, changes in kinship and family life, and changing relationships between elite and popular culture. The course uses excerpts from primary documents, fiction, and film to help students understand the modern Chinese historical experience.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 489 (IL) (HIST 489, PL SC 486) International Culture in East Asia (3)** Study of the role of culture in East Asian regional and East-West international relations.

**ASIA 489 (PL SC 486/HIST 489) International Culture in East Asia (3)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine the place of culture in international history through a comparative look at the role of cultural circulation and exchange in relations among China, Korea, and Japan (and between East Asia and the West) from the propagation of Buddhism in the first century A.D. to present-day circulation of popular music, movies, and comics. We will explore the international politics of culture and the politics of international culture, considering questions of what constitutes culture, whether it is ever entirely separate from politics, and how that separation has evolved over time. These larger themes of the course will be tackled by following the historical movement of concrete objects and people throughout the region. This is a course in international history; historical events, problems, and issues will be at the center of our weekly discussions. But it also seeks to explore aspects of international relations.

This course is intended to examine the role of cultural exchange in international relations. The goals of the class are not only to gain an understanding of the uses and impact of culture in international relations, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will take on the role of historian themselves, thinking critically about assigned texts and making their own interpretations of their meanings. Through readings, discussions, presentations, and the final project, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing.

Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen student's appreciation of the assigned readings, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytic and expressive abilities. Evaluation will emphasize student performance on a day-to-day basis



and as expressed in a final research project. A possible break down would be as follows:

This course is designed to respond to strong student interest in East Asian international history. This course will complement and extend popular survey and upper-level courses such as HIST 172/174/175/480/481/483/484/485/486.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures

Effective: Summer 2013

Prerequisite: any one of the following: HIST 172 HIST 174 HIST 175 HIST 480 HIST 481 HIST 483 HIST 484 HIST 485 HIST 486

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 493 (IL)** (HIST 493) Japan in the World (3) Study of Japan's foreign relations and position in the international community from the early 19th century to the present.

**ASIA (HIST) 493 Japan in the World (3)**  
(IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine Japan's foreign relations and changing position in the international community, from the rethinking of relations with the Western world in the early nineteenth century to its emergence as a pop culture superpower in the present day. The course will explore the structures of international relations, such as imperialism and international organizations, with the Japanese experience providing a viewpoint that differs from the standard Western-centric narrative in important ways. We will also consider the development of alternative methods of diplomacy, including cultural exchange and economic and technical assistance. Class work may include some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ASIA 100 HIST 172 HIST 175 or HIST 481

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASIA 499 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Astronomy and Astrophysics (ASTRO)

**ASTRO 001** (GN) Astronomical Universe (3) The development of modern understanding of the astronomical universe from planets and stars to galaxies and cosmology. Student who have passed ASTRO 005, ASTRO 006, or ASTRO 010 may not take this course for credit.

### **ASTRO 001 Astronomical Universe (3) (GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ASTRO 001 is an introductory course for non-science majors. It provides a broad introduction to Astronomy including the historical development of the subject, basic physics of gravity, light, and atoms; telescopes; planets, moons, and other objects in our solar system; exosolar planets; the Sun and other stars; the evolution of stars; the Milky Way galaxy and other galaxies; distant quasars and other active galaxies; the expanding universe; cosmology based on the Big Bang theory; and life in the universe. The goal of this course is to cover most of the areas of modern astronomy at a level which requires only basic mathematics.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 001H** (GN) Astronomical Universe (3) The development of modern understanding of the astronomical universe from planets and stars to galaxies and cosmology. Students who have passed ASTRO 005, ASTRO 006, or ASTRO 010 may not take this course for credit.

### **ASTRO 001H Astronomical Universe (3) (GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ASTRO 001H is an introductory course for non-science majors. It provides a broad introduction to Astronomy including the historical development of the subject, basic physics of gravity, light, and atoms; telescopes; planets, moons, and other objects in our solar system; exosolar planets; the Sun and other stars; the evolution of stars; the Milky Way galaxy and other galaxies; distant quasars and other active galaxies; the expanding universe; cosmology based on the Big Bang theory; and life in the universe. The goal of this course is to cover most of the areas of modern astronomy at a level which requires only basic mathematics.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 005** (GN) The Sky and Planets (3) The development of our modern understanding of the visible sky and planetary systems. Students who have passed ASTRO 001 or ASTRO 010 may not take this course for credit.

### **ASTRO 005 The Sky and Planets (3) (GN)**

ASTRO 005 will introduce students to the wonders of the universe and help them to understand how the universe works through the laws of physics. During the semester, they will learn about the different observed motions of objects in our sky, how astronomical objects influence our concepts of time, the nature of light and spectra, how planetary systems are formed and comparative details about our solar system and other planetary systems. Many colorful images and movies of the solar system have been collected by un-manned satellite missions like Voyagers I & II, the Magellan mission to Venus, the Mars Rovers and Pathfinders, the Galileo mission to Jupiter, the Cassini and Huygens missions to Saturn, and the New Horizons mission which is now on its way to study Pluto. These images will be used to convey the excitement of discovery to our students.

General Education: GN  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: Students who have passed ASTRO 001 or ASTRO 010 may not take this course.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 006 (GN) Stars, Galaxies, and the Universe (3)** The development of our modern understanding of stars, galaxies, and the astronomical universe. Students who have passed ASTRO 001 or ASTRO 010 may not take this course for credit.

**ASTRO 006 Stars, Galaxies, and the Universe (3)  
(GN)**

ASTRO 006 will introduce students to the laws of nature as they apply to the study of stars, galaxies and the universe. During the semester, they will learn about gravitational forces, the nature of light and spectra, the different telescopes and instruments used to study the universe, new discoveries about our Sun and other stars, the births and deaths of stars, the structure of our own Milky Way galaxy, types of galaxies, how other nearby galaxies affect the Milky Way, the origin of our universe and the techniques that we have used to learn about our universe. These topics will be enhanced by numerous images and movies of our Sun and other astronomical objects that were collected with telescopes like the Hubble Space Telescope, the Swift gamma ray burst explorer, the Chandra X-ray telescope, the Solar and Heliospheric Observatory (SOHO), as well as other state-of-the-art instruments.

General Education: GN

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: Students who have passed ASTRO 001 and ASTRO 010 may not take this course.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 010 (GN) Elementary Astronomy (2)** Introductory survey of modern astronomy from planets and stars to galaxies and the universe. Students who have passed ASTRO 001, ASTRO 005, or ASTRO 006 may not take this course for credit. Students may not receive General Education credit for ASTRO 010 unless they also take ASTRO 011.

**ASTRO 010 Elementary Astronomy (2)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ASTRO 010 provides the 2 credit lecture component of a one-semester overview of modern astronomy. The class covers a wide range of topics in planetary, stellar, galactic, and extragalactic astronomy and cosmology. The level is appropriate for students with no university-level science background. The instructor makes frequent use of dramatic images of astronomical objects, demonstrations, and computer simulations. Profound themes underlie the content of the course: how the physical structure and evolution of the universe appears to be ruled by deterministic mathematical laws; how our understanding of the universe progresses by the intricate interplay between theory and observations; how we, as living organisms on a well-placed planet, appear to be both an intimate part of yet an unusual occurrence within the universe. The student will gain perspective on his or her place in a vast and stunningly beautiful universe.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 011 (GN) Elementary Astronomy Laboratory (1)** Selected experiments and explorations to illustrate major astronomical principles and techniques. Telescopes observations of planets, stars and nebulae.

**ASTRO 011 Elementary Astronomy Laboratory (1)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ASTRO 011 is the 1 credit laboratory component of this overview of astronomy. It covers material similar to the lecture component, but the selected topics are covered in more depth and are focussed on active learning components. Weekly two-hour labs include discussion of the search for extraterrestrial intelligence, an activity to illustrate the phases of the moon, analysis of the colorful spectra of different chemical elements, and exploration of the deepest image of space ever obtained. In addition, students will complete a semester nighttime observing project that typically involves learning some constellations, tracing phases of the moon, and sketching images seen through our well-equipped rooftop student observatory. While most laboratory sections meet in the evening, daytime sections concentrate on classroom, computer-based and solar observing activities.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2004

Prerequisite: or concurrent: ASTRO 001 or ASTRO 010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 020S** First-Year Astronomy Seminar (2) Introduction to the study of modern astronomy through discussions, activities, and writing.

### **First-Year Astronomy Seminar (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 120 (GN)** The Big Bang Universe (3) Exploration of cosmology, birth, and ultimate fate of the universe; origin of galaxies, quasars, and dark matter. For non-science majors.

ASTRO 120

### **ASTRO 120 The Big Bang Universe (3) (GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Astronomical observations made during the last 70 years, combined with mathematical physical theory (Einstein's General Relativity), has led to a dramatic new view of the history of the Universe. Ten to twenty billion years ago, all the material that is now contained in stars, planets, and galaxies was then compressed into a region, smaller than a pinhead, and so hot that atoms could not survive. This fiery cauldron cooled and expanded, forming hydrogen and helium, and eventually all the materials and structures that we know today. This course will discuss the evidence, theories and controversies of this new scientific cosmology, commonly known as 'the Big Bang'.

This class is designed for the non-science students who, after learning the fundamentals of astronomy in Astro 001(GN), 005 (GN) or 010 (GN), want to pursue further the questions of cosmology. The great success of the Big Bang theory in explaining the expansion of the Universe, the synthesis of the chemical elements, and the relic radiation leftover from the first moments are reviewed. Some of the questions discussed are still debated in the scientific community. For example: Why do some galaxies have stunning spiral structures, while others are relatively featureless ellipticals? What is the "dark matter" that may have emerged from the Big Bang, and seems to make a larger contribution to the mass of the universe than all of the material we are familiar with? What can the most distant and oldest objects we know of, the quasars, tell us about how galaxies formed? In presenting the development of this subject, the empirical and conceptual methods of modern physical science are conveyed. Students are assigned problems that exercise the use of elementary mathematics and physics to address real issues, and will confront discussions of interpretation and meaning in essays. A final project allows them to explore individual interests.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2012

Prerequisite: ASTRO 001 ASTRO 006 or ASTRO 010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 130 (GN)** Black Holes in the Universe (3) The predicted properties of black holes and the astronomical evidence for their existence are investigated in the context of modern ideas about space, time, and gravity.

### **ASTRO 130 Black Holes in the Universe (3) (GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Black Holes in the Universe introduces students to the predicted properties of black holes and the astronomical evidence for their existence. Modern ideas about the nature of space, time, and gravity are also covered. The key topics discussed in the course include Newton's and Einstein's theories of gravity, predicted properties of black holes, stars and their fates, how to detect a black hole, gamma-ray bursts, supermassive black holes in galactic nuclei, active galaxies, black hole spin, gravitational waves, Hawking radiation, singularities, and black hole child universes. The course is intended to be an attractive choice for students who are interested in enriching and broadening their understanding of modern physical science.

The course is intended for students who have completed and enjoyed the one-semester survey of modern astronomy, ASTRO 001 or 010. It has an interdisciplinary flavor, combining basic physical concepts, astronomical observations, and philosophical ideas to present a complete picture of the current understanding of black holes. Students use mathematics at the level of high school algebra.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2004

Prerequisite: ASTRO 001 or ASTRO 010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 140 (GN) Life in the Universe (3)** The problem of the existence of life beyond Earth is investigated, drawing from recent research in astronomy and other fields. For non-science majors.

**ASTRO 140 Life in the Universe (3)**  
**(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The possibility of life beyond Earth is one of the great unsolved puzzles of human thought and has been debated for millennia. An answer would fundamentally change the relationship between the human race to the rest of the Universe. Advances in modern physics and astrophysics have dramatically changed and enriched the understanding of our cosmic surroundings, but have not yet produced an unambiguous evidence concerning the extraterrestrial life. Yet, significant progress has been made on certain aspects of the problem. Recent observations of protoplanetary disks around young stars, planets around solar-type stars and a rapidly spinning pulsar (a Penn State discovery), and pervasive organic molecules throughout the Galaxy give tantalizing albeit indirect, hints in favor of the existence of nonterrestrial life.

"Life in the Universe" is envisioned to be an attractive choice for students who are interested in enriching and broadening their understanding of modern science. The course is highly interdisciplinary, combining evidence from several fields of science to describe our chances to encounter life beyond Earth and the Solar System. Selecting this course would be a logical choice for students who completed and enjoyed ASTRO 001 (GN), 005 (GN), 010 (GN). The students are expected to reach the following goals from this course:

- learn to appreciate limitations of human experience and a role of the interdisciplinary approach in solving scientific problems
- gain understanding of a relationship between the physical Earth, its biosphere, and the rest of the observable Universe
- examine in some detail a contemporary problem of scientific investigation: the astrophysical evidence for planets around stars other than the Sun
- assess the scientific significance of searches for extraterrestrial life including technological civilizations

The course material is conveyed, analyzed and discussed through lectures, invited talks, reading, essay writing, homework assignments and oral presentations. Lectures systematically cover the topics listed in the course outline at a level appropriate for non-science students, although Science and Engineering majors do take the course and perform at a higher technical level. While general understanding of astronomy from the prerequisite course is expected, the necessary physical and astrophysical concepts are reintroduced to assure a logical and coherent flow of information throughout the course. Videos are used to illustrate a number of topics, such as the search for extraterrestrial intelligence, physical conditions on planets of the Solar System, the detection of planets around a neutron star, and to evaluate the scientific content of science fiction movies. Invited talks by faculty from other departments enrich the course material with in-depth presentations of subjects such as habitable zones around stars, the basics and perspectives of space flight and the foundations of biological evolution.

There has been some experimentation with activity and assessment strategies for the course. Some of the work involves quantitative analysis while other work requires qualitative synthesis of classroom experience with readings. Group presentations give students a chance to study selected, often controversial topics and present them to the class in a disciplined, scientific manner.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2012

Prerequisite: ASTRO 001 ASTRO 005 or ASTRO 010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 291** (GN) Astronomical Methods and the Solar System (3) Physical processes and observational techniques in astronomical systems, characteristics of the sun, planets, and moons.

**ASTRO 291 Astronomical Methods and the Solar System (3)**  
**(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ASTRO 291/292 is a two-semester overview of our current knowledge of astronomy. They are designed for students with a solid grounding in math and physics who wish to obtain a more quantitative understanding of the universe than that presented in ASTRO 001 or the 100-level ASTRO series. These courses are required for students majoring in astronomy, generally taken in the sophomore year.

ASTRO 291 starts with the appearance of the sky to the naked eye and the historical development of European astronomy. It then turns to an introduction to physical processes relevant to the interpretation of astronomical findings: Newtonian gravity and its applications in celestial mechanics, electromagnetic radiation, and a simplified understanding of atoms. The principal tools of astronomy telescopes are then described. The course proceeds with the survey of astronomy with the constituents of the solar system: sun, planets, natural satellites, planetary rings, asteroids, and comets. Physical processes are integrated with empirical findings to provide a profound and quantitative understanding of the phenomena; e.g. the role of angular momentum and tidal forces in establishing the orbits and spins of solar system bodies. The class then tackles the challenging development of models of the formation and evolution of the solar system.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2002  
Prerequisite: PHYS 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 292** (GN) Astronomy of the Distant Universe (3) Observed properties and astrophysical understanding of stars, stellar evolution, galaxies, the large-scale universe, and cosmology.

**ASTRO 292 Astronomy of the Distant Universe (3)**  
**(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ASTRO 291/292 is a two-semester overview of our current knowledge of astronomy. They are designed for students with a solid grounding in math and physics who wish to obtain a more quantitative understanding of the universe than that presented in ASTRO 001 or the 100-level ASTRO series. These courses are required for students majoring in astronomy, generally taken in the sophomore year.

ASTRO 292 continues the survey started in ASTRO 291. The first half of the course is devoted to stellar astronomy and astrophysics. The class follows the successful application of physics to astronomical data in the 19th -20th centuries to understand distances, masses and energy sources of stars. The formation, structure and evolution of stars is treated in the context of physical processes developed in ASTRO 291. The class studies the death of stars, including spectacular phenomena such as supernova explosions, pulsars and black holes, solutions to difficult problem of establishing distance scales (stellar, galactic, intergalactic) are presented. In the second half of the course, the students examine the Universe on progressive larger scales: our Milky Way galaxy, other galaxies, and massive black holes in galactic cores (e.g. quasars). Exotic phenomena such as gravitational lenses, gamma-ray bursts and cosmic rays are investigated. Finally, the class delves into the remarkable findings of modern cosmology: Hubble's discovery of the expansion of the Universe, the discovery of the cosmic microwave background and consequent dominance of Big Bang cosmology in the context of Newtonian and Einsteinian theories of gravity. Cosmological evolution is studied; e.g. formation of light elements during the first few minutes, and the growth of large-scale structure that continues to the present. Unsolved problems faced by today's scientists are emphasized.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2002  
Prerequisite: ASTRO 291

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**ASTRO 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1991

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1991

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 320** (GN) Observational Astronomy Laboratory (2) Basic observational astronomy techniques introduced through observational exercises, lab experiments, and lectures on relevant statistical techniques.

**ASTRO 320 Observational Astronomy Laboratory (2)  
(GN)**

ASTRO 320 will provide students with practical experience in basic observational and laboratory aspects of astronomical data collection and analysis, including an introduction to associated statistical concepts. Observational techniques will be introduced through an observing project using a telescope with a CCS imaging camera. Lectures will introduce fundamental principles including Poisson and Gaussian statistics, measurement precision, propagation of errors, and systematic uncertainties. These principles will be put into practice in the observing project and with laboratory experiments investigating the properties of light and cosmic rays. Experiments include: a cosmic ray telescope; a Michelson interferometer; a photodiode and monochromator; laser interference, diffraction and refraction; fluorescent gases; and a diffraction grating spectrometer.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: ASTRO 291

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 400H** Honors Seminar (1 per semester, maximum of 2) Presentations of various branches and modes of modern astrophysical research, based on lectures, visits to telescopes and facilities, and discussions.

**Honors Seminar (1 per semester, maximum of 2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: ASTRO 292

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 401** Fundamentals of Planetary Science and Astronomy (4) Overview of the techniques used and results from studies of the Solar System, stars, and galaxies.

**ASTRO 401 Fundamentals of Planetary Science and Astronomy (3)**

This course will focus in core content areas in planetary science and astronomy. Students will explore the fundamentals in robotic exploration of the Solar System, how astronomers map and navigate the night sky, our understanding of the nature and evolution of stars, and the nature and evolution of galaxies. Students will engage with real data from Solar System missions as well as ground-based and space-based telescopes. Through the use of many databases and data archives from missions and observatories, the students will become familiar with the census of astronomical objects in various categories.

A particular emphasis will be placed on examples of qualitative and quantitative problem solving in these content areas. In addition, students will explore how scientists communicate their results to the public, and they will get hands-on experience, such as planning and executing a planetarium show.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: ASTRO 001ASTRO 005ASTRO 006 orASTRO 010;MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 402** Astronomical Telescopes, Techniques, and Data Analysis (3) Properties and use of optical telescopes, imaging and spectroscopy, multi-wavelength techniques, data analysis and statistics, practical research methods.

**ASTRO 402 Astronomical Telescopes, Techniques, and Data Analysis (3)**

This course will provide practical experience and understanding of the telescopes and techniques by which astronomers obtain data and conduct research. The study of telescopes will include optical, infrared, radio, ultraviolet, X-ray, and gamma ray observations, and students will learn to set up and use optical telescopes. In-depth coverage of the instruments used for imaging and spectroscopic observations of a variety of astronomical objects will be provided. Applications will include topics in planets, stars, galaxies, and cosmology. Detailed examples of data analysis will be given, including the relevant statistical techniques. Finally, the process by which research in astronomy is conducted will be reviewed, from proposing observations, to obtaining them, to analyzing and interpreting them, to writing up the results.

This course is a requirement for students in the Planetary Science and Astronomy major and minor. It may be taken by any students with the needed pre-requisites, but cannot be counted towards the required 400 level courses for the Astronomy and Astrophysics major or minor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: ASTRO 001 orASTRO 005 orASTRO 006 orASTRO 010 andASTRO 011 orASTRO 291;MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 410** Computational Astrophysics (3) Applications of numerical methods and computer programming to astrophysics, including stellar physics and cosmology.

**Computational Astrophysics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 201 orCMPSC 121;PHYS 212PHYS 213 andPHYS 214

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 414** Stellar Structure and Evolution (3) Theory of Stellar structure and evolution including energy generation and transport and an examination of stellar models.

**ASTRO 414 Stellar Structure and Evolution (3)**

ASTRO 414 covers the theory of stellar structure and evolution at an introductory level. It includes the basic physical processes that influence the structure of a star, such as energy generation in stellar cores, the transport of energy to the surface via photon diffusion and convection, equilibrium conditions, etc. It examines realistic stellar models as they apply



to stars of different masses, for example, polytropes and other approximations. The treatment of stellar evolution includes gravitational collapse, stable stellar configurations on the main sequence, and the fast-paced late stages of evolution, leading up to the formation of compact objects. Realistic stellar models will be employed to illustrate the structures of different types of stars and the influence of various physical processes on these models.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: ASTRO 292MATH 230PHYS 212PHYS 213PHYS 214PHYS 237

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 420W Planets and Planetary System Formation (3)** Solar system properties, star formation, protoplanetary disks and planet formation, solar system model, extrasolar planets, and astrobiology.

### **ASTRO 420W Planets and Planetary System Formation (3)**

The course explores the wide variety of physical and chemical processes that govern the motions and properties of planets. Observations of the planets, moons, asteroids, comets and planetary rings in our Solar System are described. The properties of extrasolar planets are also emphasized. The process of planetary formation is discussed in the context of the solar system and in the context of extrasolar planets. The prospects of life and the effect of life on such planets will also be discussed.

It will be taken by roughly half of the juniors and seniors majoring in Astronomy and Astrophysics (about 10 people). The course will include writing papers on current issues of debate in the areas of solar system and extrasolar planets and will satisfy the "Writing Across the Curriculum" requirement.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

Prerequisite: ASTRO 292

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 440 Introduction to Astrophysics (3)** Theoretical investigation of physical processes in astronomical objects and systems; modern physical interpretation of astronomical phenomena.

### **Introduction to Astrophysics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1994

Prerequisite: MATH 230PHYS 237

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 451 Astronomical Techniques (3)** Practical methods of modern observational astronomy, detectors, filters, instrumentation for both ground-based and space observations, and data analysis.

### **ASTRO 451 Astronomical Techniques (3)**

ASTRO 451 will introduce students to the techniques and technologies for modern observational astronomy, emphasizing the development of practical skills as well as understanding through computer-based investigations integrated with traditional lecture content. Beginning with a summary of probability theory, the students will be introduced to standard techniques of statistical analysis including hypothesis testing and the characterization of uncertainties. Subsequent lectures and computer exercises will discuss the physics and design of astronomical detectors, the principles of telescope and spectroscopy design, and the data analysis methods used in processing astronomical datasets. Significant emphasis will be placed on estimation of signal-to-noise ratios for various observing scenarios. The effects of the Earth's atmosphere, interstellar matter, and the expanding Universe on the propagation of astronomical signals will also be discussed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: PHYS 212PHYS 213PHYS 214

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 475W Stars and Galaxies (3)** Astronomical studies concerning the distribution and evolution of stars and gas in

our and other galaxies.

**Stars and Galaxies (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1993  
Prerequisite: ASTRO 292

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 480** Nebulae, Galaxies, and Cosmology (3) Emission-line spectroscopy, structure and evolution of galaxies, physics of galactic nuclei and quasars, observational cosmology.

**Nebulae, Galaxies, and Cosmology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: ASTRO 292PHYS 212PHYS 213PHYS 214

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 485** Introduction to High-Energy Astronomy (3) The study of black holes, neutron stars, white dwarfs, supernova remnants, and extragalactic objects through x-ray and gamma ray observations.

**Introduction to High-Energy Astronomy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994  
Prerequisite: PHYS 237

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1991

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1991

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ASTRO 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Behavioral Sciences (BE SC)

**BE SC 370** Community Psychology (3) Introduction to concepts and terminology of community psychology with discussion of historical development. Community mental health issues will be analyzed.

### Community Psychology (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE SC 376** Introduction to Human Service Organizations (3) A course designed to acquaint the student with the role of various social agencies.

### Introduction to Human Service Organizations (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE SC 395** Behavioral Science Internship (3-12) Internship in human service organizations providing for application of academic knowledge, reading, and discussion.

### Behavioral Science Internship (3-12)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: 90 credits with at least 16 credits in the major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE SC 407** Small Groups Counseling (3) Intensive survey of research and theory on behavior in small groups, with emphasis on interdependence, cooperation, and attitude change.

### Small Groups Counseling (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: general psychology general sociology or general behavioral science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE SC 408** Group Facilitation and Leadership Skills (3) Skill training in group facilitation and leadership based on analyses of roles and interpersonal dynamics plus differences among impact population.

### Group Facilitation and Leadership Skills (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: general psychology general sociology or general behavioral science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE SC 459** BASIC COUNSELING SKILLS (3) Behavioral, cognitive, and expressive methods of assessing and enhancing life-coping skills.

### BASIC COUNSELING SKILLS (3)

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: general psychology general sociology or general behavioral science

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE SC 464 (US) (WMNST 464) Feminine/Masculine (3)** Study of sex role learning; investigating feminine/masculine labeling; implications for contemporary society.

**BE SC (WMNST) 464 Feminine and Masculine (3)  
(US)**

This course provides a critical examination of the concepts of masculinity and femininity through a consideration of how these have shifted and changed historically and cross-culturally. It considers a variety of theories of gender difference. It investigates how gender is socially constructed and practiced. Thus, it examines how gender is enacted in interpersonal relationships and defined, reinforced, and challenged through processes of socialization as well as through the various institutional spheres of social life. The course addresses the diversity of masculinities and femininities within a single society. Thus, attention is given to race and class-based differences as well as to trans-genderism and homosexuality.

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: general psychology or general sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE SC 494 Senior Thesis (3-9)** Problem formulation, literature search, research design, data collection, analysis of results, and final write-up of a substantial research project.

**Senior Thesis (3-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE SC 494H Senior Thesis (3-9)** Problem formulation, literature search, research design, data collection, analysis of results, and final write-up of a substantial research project.

**Senior Thesis (3-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE SC 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE SC 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Berks-Lehigh Valley (BKLV)**

**BKLV 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BKLV 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

## Biobehavioral Health (BB H)

**BB H 019S** Health and Disease (1) Essentials of communicable and chronic disease control.

### Health and Disease (1)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 045** Alcohol Awareness Education (1) A course designed to raise awareness relative to the use and abuse of beverage alcohol.

### Alcohol Awareness Education (1)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 046** Introduction to Health Aspects of Human Sexuality (1) An examination of health concerns related to sexuality and sexual behavior.

### Introduction to Health Aspects of Human Sexuality (1)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 048** (GHA) Values and Health Behavior (1.5) Examination of issues that impact the social, emotional, and physical well-being of college students through a values and decision-making process.

### BB H 048 Values and Health Behavior (1) (GHA)

This is a 1credit course designed for non-BB H majors who want a greater understanding of concepts related to health and health promotion and who want to learn practical skills related to optimizing health and improving lifestyle behaviors. General health topics that are relevant to students as they adjust to the transition into--and through--college are introduced through a values and decision-making approach to learning. The course is designed to give students a broader understanding of both short-term and long-term wellness and how it is affected by behavior. Concepts regarding personal health and development are introduced using individual and group activities. To impact behavior, a model for decision-making that includes facts, risks, and consequences is utilized within an experiential learning approach. Students will work individually to perform self-assessment of health-related activities (e.g., nutrition, alcohol and drug-related knowledge and risk behaviors) and in small groups to further assess and describe the effects of health behaviors on short-term and long-term wellness. The course will be evaluated through completion of several short reaction papers to reading assignments and internet research, a group project on health promotion, completion of a health-related journal, and completion of a personal behavior change plan.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 101** (GHA) Introduction to Biobehavioral Health (3) Introduction to an interdisciplinary study of health, examining the interaction of biological processes and behavior on health.

### Introduction to Biobehavioral Health (3)

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 101H (GHA)** Introduction to Biobehavioral Health (3) Introduction to interdisciplinary study of health, examining the interaction of biological processes and behavior on health.

### **Introduction to Biobehavioral Health (3)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 119 (GHA)** Behavior, Health, and Disease (3) Principles of health promotion, disease prevention, and treatment of acute and chronic illness. This course is designed for non-BB H majors.

### **BB H 119 Behavior, Health, and Disease (3) (GHA)**

This course is designed for non-BB H majors who want a fundamental understanding of disease processes, disease states, and principles of disease prevention and health promotion. This course should help students in the biological and behavioral sciences better understand practical applications of theoretical approaches to health issues.

The course will provide a broad understanding of the major human diseases underlying morbidity and mortality in America. The course will cover most major diseases using a variety of organizational schema including: (1) diseases according to organ systems, (2) diseases according to developmental and age-related processes, and (3) diseases according to causal factors including behavioral (lifestyle), environmental, and genetic factors. The course content is organized to encourage promotion of a healthy lifestyle, prevention of disease and understanding the causes and management of acute and chronic illness. The course includes information and assignments to allow the student to appropriately assess one's own health, estimate health trajectories, access and use the health care systems on campus and in their home communities, and develop a long-term health promotion plan. The student will also learn specific skills to find and evaluate traditional and non-traditional treatment processes when they or family members become sick with an acute illness or chronic disease, and to better engage with health care professionals and the health care system for management of illnesses that they or their family may have or develop. Students will also learn practical skills in being able to access a variety of sources to update knowledge about disease causality and treatment and to critically appraise these sources. Students intending to major in Biobehavioral Health should take BB H 101--Introduction to Biobehavioral Health.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 130 (GHA)** Strategies for Addressing the Obesity and Diabetes Epidemics (3) Strategies for understanding and modifying the factors underlying weight, health, and the current U.S. and worldwide obesity/diabetes epidemics.

### **Strategies for Addressing the Obesity and Diabetes Epidemics (3)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 143 (GHA)** Drugs, Behavior, and Health (3) Health aspects of use and abuse of licit and illicit drugs; related social problems and prevention. Designed for non-BB H majors.

### **BB H 143 Drugs, Behavior, and Health (3) (GHA)**

This course is designed for non-BB H majors who want a fundamental understanding of health and social issues relating

to drug and alcohol use and abuse. This course should help students in the biological and behavioral sciences better understand practical applications of theoretical knowledge relating to drug physiology, drug-related health effects, health promotion and disease prevention, issues related to social and psychological effects of drug use and abuse, and drug control policies. The course will cover a broad array of drugs including licit drugs (e.g., therapeutic drugs, tobacco, caffeine, alcohol, etc.), and illicit drugs (amphetamines, marijuana, hallucinogens, etc.) with additional focus on drugs liable for addiction and the progression from occasional use to addiction. The course will cover the basics of drug pharmacology, including pharmacokinetics and pharmacodynamics. Special attention will be given to toxicology and addiction physiology. The course is broad in scope, covering subjects such as alcohol and drug use and misuse in specific populations (youth college students, etc.), toxicity and threats to children and adults posed by common therapeutic drugs (aspirin, prescription drugs, etc.), and prevention and treatment strategies for overdoses (e.g., emergency treatment, use of poison control centers, etc.). The course will involve student and faculty discussion of laws concerning the manufacture, distribution and use of drugs, including alcohol and tobacco, and drug development. Students will engage in activities to learn the most efficacious strategies for prevention, intervention and treatment for drug-misuse-related disorders, including community-based programs to pharmacological intervention, and detoxification. Students will engage in a number of activities that involve self-assessment of personal drug use and potential health trajectories. A significant portion of the course will involve accessing drug-related websites to complete specified exercises in data gathering, synthesis, and critical evaluation of issues relating to drug use and abuse and drug control. These exercises will involve both written reports and oral discussions and applications to contemporary society and community. Students will learn practical skills in being able to access a variety of sources to update knowledge about causality and treatment of addictions and to critically appraise these sources. Students intending to major in Biobehavioral Health should take BB H 451--Pharmacological Influences on Health.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 146** (GHA) Introduction to Health and Human Sexuality (3) An examination of human sexuality as it relates to health.

#### **Introduction to Health and Human Sexuality (3)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 148S** Coping with College: A First Year Transition Seminar (2) Exploration of effective learning strategies, university resources, academic requirements and planning, career development issues in discussion-centered environment.

#### **Coping with College: A First Year Transition Seminar (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 203 (PSYCH 260) Neurological Bases of Human Behavior (3)** An introduction to biopsychology, emphasizing the structure and function of the human brain.

**BB H (PSYCH 260) 203 Neurological Bases of Human Behavior (3)**

The nervous system provides the biological underpinning of behavior, and several scientific fields are concerned with the relationship between the nervous system and behavior. The goal of this course is to introduce the principle methods, findings, and theories of these scientific fields. Topics include (a) the anatomy and physiology of the nervous system, (b) how the nervous system gives rise to perception, action, language, memory, emotion and reproductive behavior, and (c) how drugs and mental illnesses affect the nervous system and alter normal perceptual, cognitive, and emotional behavior. The course prepares students for a number of more advanced courses in Psychology and Biobehavioral Health that address specialized topics in neuroscience, and may satisfy a requirement of these majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 251 (US) Straight Talks I: Advanced Sexual Orientation/Gender Identity Peer Education (3)** Exploration of social justice issues, diversity leadership, and group facilitation skills related to lesbian, gay, bisexual, transgender, and ally issues.

**BB H 251 Straight Talks I: Advanced Sexual Orientation/Gender Identity Peer Education (3) (US)**

Straight Talks I provides students an opportunity to explore various lesbian, gay, bisexual, transgender and allies (LGBTQA) issues from an educational perspective. Students will be exposed to theories, terminology, and various speakers who will approach topics such as LGBTQA history and multicultural issues. The course projects are designed to enhance both written and oral skills, and provide students an opportunity to work together. Finally, the course challenges students to think critically about the social, economic, and political cultures around them and how these cultures affect sexual and gender orientation issues.

Course Objectives:

*Philosophical*

1. To think critically about your spiritual, social, economic, political and cultural existences and their relationship to your understanding of sexual and gender orientation issues.
2. To develop a critical consciousness that will bring awareness of the ways custom, ritual and tradition helped shape and continue to shape our daily lives.
3. To develop a fuller understanding of the way gender and sexual orientation are conceived of by other people and the ways in which these conceptions link with other elements of identity including ethnicity, class, gender, ability etc.
4. To challenge you to *consider* the following questions:
  - a) What does it mean to provide educational programming?
  - b) What does it mean to be a peer educator?
  - c) How do I influence others by my involvement in this program?
  - d) How do I want to influence others by my involvement in this program?
  - e) How do I change the world so that it is a better place when I leave it?

*Praxis*

1. Develop facilitation and presentation skills
2. Obtain knowledge about LGBTQA history and current issues and concerns.
3. Conceive of and articulate what it means to 'come out'.
4. Acquire information on sexual orientation, identity development and queer history.
5. Refine your ability to provide programming activities in the form of facilitation, discussion, skits, and exercises.
6. Develop a sense of community and rapport with other panelists through class discussions and projects.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an

individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1997

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 297A** Straight Talks II (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Straight Talks II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 301** Values and Ethics in Human Development Professions (3) Examines bases for choices among values in personal and professional relations in human development processes and supporting services.

**Values and Ethics in Human Development Professions (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 302** (US) (AF AM 302) Diversity and Health (3) Examine the relationship of diverse personal and sociocultural factors to health, like socioeconomic class, race-ethnicity, gender, age, and sexual orientation.

**BB H (AAA S) 302 Diversity and Health (3)  
(US)**

BB H 302 is an introduction to an interdisciplinary study of the impact of diversity on health in America and across nations. The course is designed to provide an understanding of the complex interaction between concepts of diversity including but not limited to race, ethnicity, culture, gender, age, socioeconomic status, and sexual orientation. The course will also consider and critique the methods used in the study of these concepts and issues related to the measurement of health among diverse groups. The ultimate goal of this examination is to assist students in developing an appreciation of the current diversity and the impact diversity has on assessments and study of health, health status, and health promotion in America and other nations. The course is also designed to integrate different sources of information about diversity by

utilizing critical thinking skills for the consumption of health information.

The educational objectives will be to enable students to: 1) Consider the implications of race, ethnicity, gender, age, socioeconomic status and sexual orientation on health/social policies in light of research findings, 2) Understand the legacies and historical events that have impacted our view, the status, and treatment of diverse populations, 3) Appreciate the importance of understanding the origins of different health behaviors that impact biological processes, as well as the impact of biological processes in the context of social, environmental, and cultural influences when examining health issues.

To achieve these objectives, the course will involve open class discussions, small break-out group discussions, written assignments, and a presentation (e.g., poster or other media presentation) requiring the acquisition and utilization of information/research from library and internet resources.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: PSYCH 100 or SOC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 305 (IL)** Introduction to Global Health Issues (3) Course will develop awareness of contemporary issues in global health.

### **BB H 305 Introduction to Global Health Issues (3)**

This course is an introduction to health and related issues in the global context. It is intended to be an overview of fundamental perspectives about the historical, current, and future public health challenges facing developing and industrialized countries. The course will explore the interrelationships among social structure, culture, demography, health promotion/disease prevention, biology, ecology and health policy of various countries and international health organizations. This course will 1. present key issues related to the history, conceptual frameworks, economic conditions, and policy affecting public health in the global context, 2. examine reports and studies pertaining to major global health issues and comparative research, 3. discuss the role of social structure, culture, gender roles, government policies, and the increasing numbers of the elderly in preventive health behaviors and health promotion in the global context, and 4. critique theories and models used to inform health and development programs in non-Western nations.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BB H 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 310** Research Strategies for Studying Biobehavioral Health (3) Surveys the various research methodologies used in biomedical research, including case, epidemiological, quasiexperimental and experimental approaches.

### **Research Strategies for Studying Biobehavioral Health (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: BB H 101/STAT 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 311** Interdisciplinary Integration in Biobehavioral Health (3) A review of literature relevant to the concepts and findings of different scientific domains as they apply to biobehavioral health.

### **Interdisciplinary Integration in Biobehavioral Health (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: BB H 101/BIOL 110/PSYCH 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 315 (US)** Gender and Biobehavioral Health (3) Interdisciplinary study of gender, examining the interaction of biological, behavioral, and sociocultural factors on health differentials throughout the lifespan.

**BB H 315 Gender and Biobehavioral Health (3)  
(US)**

BB H 315 is an interdisciplinary study of the impact of gender differences (and similarities) in health in the United States and the world, examining the interaction of biological, behavioral, and sociocultural factors on health, morbidity, and mortality. The course will also consider and critique the methods used in the study of gender and concepts and issues related to the measurement of health in men and women. The ultimate goal of this course is to assist students in developing an appreciation of the diversity concept of gender, and the impact of this concept on assessments and study of health, health status, and health promotion in America and other nations. The course is also designed to integrate different sources of information about gender by utilizing critical thinking skills for the consumption of health information. The educational objectives will be to enable students to: 1) define the concepts of sex, gender, gender roles, and gender identity and how they contribute to differentials in morbidity and mortality at various life stages, based on epidemiological data and other research, in the United States and other countries; 2) describe biological (e.g., genetic and hormonal) factors that contribute to gender differences and similarities in health at different life stages; 3) describe behavioral factors, such as acquired risks, self-protective behavior, and stress, that contribute to gender differences and similarities in health at various life stages; 4) describe sociocultural factors, such as gender roles, class, race/ethnicity, and educational level that contribute to gender differences and similarities in health at various life stages; 5) describe and design gender-sensitive strategies for health research and health promotion; 6) examine gender differences in a specific illness, disease, or health issue experienced by women and/or men in this country and others, and the contributing factors (e.g., sociocultural) to the differences that may exist; and 7) critique gender research on particular health issues. To achieve these objectives, the course will involve open class discussions, small break-out group discussions with written assignments, short quizzes, a paper requiring the acquisition, utilization, and critical analysis of information/research from library and internet resources, and a group presentation that requires collaborative work.

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: BB H 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 316 Foundations and Principles of Health Promotion (3)** Basic exposure and skills development in theory and practice in health promotion.

**BB H 316 Foundations and Principles of Health Promotion (3)**

BB H 316, Foundations and Principles of Health Promotion, is a 3-credit course required of all BB H majors and available to other students interested in developing a basic knowledge in health promotion interventions. The course is designed to provide students with the conceptual foundation necessary to develop health promotion programs and interventions. It will involve information on both theory and practice. The educational objectives are that students will be able to: 1) define the concepts and levels of health, health promotion, and prevention; 2) describe the variety of settings in which health promotion and preventive services exist 3) identify levels of intervention in planning health education and health promotion programs; 4) describe a rationale for health promotion programs; 5) address the role of culture, environment, and policy in health behavior; 6) explain why different levels of health promotion interventions should be planned using theoretical frameworks. Students fulfill the educational requirement of the course by attending class, completing reading and class assignments and small group project, viewing video tapes, and participating in class discussions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2002  
Prerequisite: BB H 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 324 HealthWorks Peer Education Training (3)** Designed to train new HealthWorks peer educators, this course addresses behavior theories, promotion strategies, and college health issues.

**BB H 324 HealthWorks Peer Education Training (3)**

HealthWorks is a peer education/outreach group that aims to promote health among Penn State students. The mission of HealthWorks is to:

- increase awareness and knowledge of health issues, such as sexual health, nutrition and fitness, wellness, alcohol, tobacco and other drugs, and body image and eating disorders,
- promote healthy lifestyle choices,
- provide health education programs, information, and materials to students, and
- advocate for a healthy Penn State community.

BB H 324 is designed to train students who have been accepted into University Health Services' HealthWorks program every fall semester. The course will address the topics of health behavior theories, health promotion strategies, and health issues relevant to college populations (i.e., alcohol, nutrition, physical activity, sexual health, sleep, stress, and tobacco).

To ensure that new HealthWorks members are trained to effectively promote health, students will gain both knowledge and practical experience in this course. Students will learn about health behavior theories, health promotion strategies,

and health topics relevant to college students through formal classroom lectures and examinations. Classroom technology will be utilized to examine campus and national health campaigns and messages, illustrating the theories and strategies discussed in class. To garner practical experience and application-based learning, students will assist with current HealthWorks programming. Members of this class will additionally apply and integrate their new understanding of class topics through a semester project. The small-group project will ask students to propose a future HealthWorks program focused on one or more health topics that is built upon at least one health behavior theory and utilizes evidence-based strategies. By the conclusion of this course, HealthWorks members will possess the knowledge and skills to effectively provide health-related outreach, advocacy, community development, and education opportunities to students on the Penn State campus.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 368** Neuroanatomy, Behavior, and Health (3) The neuroanatomical bases of behavior, health, and disease.

### **BB H 368 Neuroanatomy, Behavior, and Health (3)**

BBH 368 will examine, in detail and in depth, the relationships between the multitudinous structures of the human nervous system and their roles in monitoring and controlling all functions of the body, in behavior and in health and disease. Because of the complexity of the anatomy of the nervous system, of necessity there will be an emphasis on each student developing a three-dimensional understanding of the brain's structures and their geographic relationships to each other. For students majoring in BBH, this course provides a foundation and preparation for BBH 469 & 470, the two semester Neurobiology/Integrative Neuroscience course sequence, which assumes that the student has a basic, but detailed knowledge of the nervous system. This course will count toward fulfilling the BBH major requirement, "Take 15 credits in Biobehavioral Health." It will also count toward fulfilling the requirement of 9 credits of additional courses in the Neuroscience Minor.

Upon successful completion of the course, the student should be able to: a)Identify on gross specimens and in slides of sections of the human nervous system the important nuclei, tracts and supporting structures. b)Describe the important pathways and circuits between the different components and nuclei of the human nervous system. c)Describe the role of each nucleus, tract, and circuit in controlling functions and behavior. d)Describe the expected deficits in function and behavior resulting from injury or disruption of each nucleus and tract.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: BB H 101;BI SC 004 orBIOL 141 orPSYCH 260

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 390A** Preparation for Global Health Field Experience (3) Designed to help students prepare for the required field experience in the Global Health minor.

### **BB H 390A Preparation for Global Health Field Experience (3)**

This purpose of this course is to train students admitted to the Global Health (GLBHL) minor to plan and prepare for the required field experience in a global health setting. Students in the minor must take both this course, BB H 390A, and the subsequent field experience course, BB H 390B. This course includes an examination of both practical and academic issues related to successfully completing an appropriate field placement. Focus is given to encouraging students to become reflective global health practitioners who are able to adapt to and work through personally and professionally complex situations. Interactive class lectures, readings, case studies, discussions, assignments and projects/presentations will help students gain an awareness of the socio-cultural, economic, and political context of various kinds of global health professional settings, and to be sensitive to the constraints under which health professionals work in different parts of the world. To broaden their understanding of the realities of engaging in the field of global health, students will have opportunities to meet with individuals who have health work experience in a variety of low and middle-income settings.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: BB H 305BB H 440 orH P A 440 and admission to the Global Health minor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**BB H 390B** Global Health Field Experience (6) Field experience in a global health setting.

**BB H 390B Global Health Field Experience (6)**

The purpose of this course is to provide a supervised field experience in a global health setting for the students who have been admitted to the Global Health Minor (GLBHL). Students in this minor must take BBH 390A "Preparation for Global Health Field Experience" before scheduling this course. Students will spend 6 weeks in the summer working in one of several pre-approved international or domestic health care or public health settings under professional supervision.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: BB H 390A and admission to the Global Health minor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 402** (IL) African Health & Development (3) Course will address African health and development strategies in the context of health promotion programs.

**BB H 402 African Health & Development (3)  
(IL)**

This course is designed to address African health and development strategies in the context of health promotion programs. Students will analyze the cultural, educational, social, economic, political and environmental impact of health and development in Africa. Emphasis will be on development of health promotion strategies that locate program implementation and evaluation within their cultural contexts.

The objectives are to prepare students to:

1. discuss and debate the roles of culture, social contexts, gender, and political economic impact on health behaviors in Africa;
2. critique some of the theory and models used to inform public health programs in Africa;
3. examine the role of historical, spiritual, linguistic, and political impacts on health projects in different countries in Africa; and
4. analyze health priorities in Africa and their impacts on such global initiatives as the Millennium Development Goals;
5. discuss issues related to human rights, population identities in the world and examine their impact on health in Africa.

Attendance is required. Students will be expected to participate actively by critically reviewing assigned readings, engaging in class discussions, and preparing and delivering in-class presentations. Grading is based on attendance, participation, presentations, exams and a final research paper.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: BB H 305

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 407 (IL) Global Health Equity (3)** Health, social disparities, and equity in the global environment.

**BB H 407 Global Health Equity (3)  
(IL)**

This course focuses on issues related to health, social disparities, and equity in the global environment. It examines the theories of health disparities and equity from the vantage point of Western and non-Western countries. It explores epidemiologic data and the relationships between social structure, culture, demography, health promotion/disease prevention, and health policy of various countries and international health organizations.

The course objectives are to: 1. discuss and critique the history, conceptual frameworks, and policy implications of global health disparities and equity; 2. examine epidemiologic data and studies pertaining to major global health issues and cross-national and comparative research; 3. discuss the role of social structure, culture, gender roles, and government policies in preventive health behaviors and health promotion in the global context; 4. critique theories and models used to inform health and development programs in non-Western nations.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: BB H 101 or 3 credits of SOC

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 407 (IL) Global Health Equity (3)** Health, social disparities, and equity in the global environment.

**BB H 407 Global Health Equity (3)  
(IL)**

This course focuses on issues related to health, social disparities, and equity in the global environment. It examines the theories of health disparities and equity from the vantage point of Western and non-Western countries. It explores epidemiologic data and the relationships between social structure, culture, demography, health promotion/disease prevention, and health policy of various countries and international health organizations.

The course objectives are to: 1. discuss and critique the history, conceptual frameworks, and policy implications of global health disparities and equity; 2. examine epidemiologic data and studies pertaining to major global health issues and cross-national and comparative research; 3. discuss the role of social structure, culture, gender roles, and government policies in preventive health behaviors and health promotion in the global context; 4. critique theories and models used to inform health and development programs in non-Western nations.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: BB H 101 or 3 credits of SOC

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 410 Developmental and Health Genetics (3)** Discussion of genetic influences on development and the interrelationships between genetics and health.

**Developmental and Health Genetics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: BIOL 133 or BIOL 222; STAT 200 STAT 220 or STAT 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 411W Research and Applications in Biobehavioral Health (3)** Research methods, multi-level analyses, and applications in biobehavioral health.

**BB H 411W Research and Applications in Biobehavioral Health (3)**

This is an upper-division course on research and applications in Biobehavioral Health and is the designated writing intensive (W) course for the major. The primary goals of this course are to provide the student the ability to effectively: 1) find, organize, integrate, and critique existing knowledge and research in biobehavioral health; 2) generate and analyze new data related to a specific domain through the conduct of original research; 3) interpret, evaluate, and communicate—to both scientific and lay audiences--the results of the original research; and 4) integrate these findings--with due concern for strengths and limitations of the research--back into the body of knowledge on the biobehavioral health topic.

In this course the instructor will first introduce the student into a body of knowledge related to a domain involving health and health-related behaviors. Example domains may include areas such as, stress and health, drug/alcohol addictions and health, hormonal impacts on health, smoking cessation programs, obesity and health, sexual behaviors and health, etc. Students will go through the steps involved in original research (e.g., Introduction, Methods and Procedures, Results, Discussion, Summary, Abstract, Bibliography) and written assignments will be involved for each step. Depending on the instructor, the original research may involve laboratory work, collection of survey data, analyses of publicly available data, or existing data sets based on faculty's research program. Students will learn how to use available tools to descriptively summarize and analyze data using computer-assisted software.

This is a required course in the Biobehavioral Health major. The course is designed to give skills to acquire, integrate, and critique health-related information and to communicate to professional and non-professional audiences. The course is appropriate for students intending to obtain positions in health promotion and disease prevention and to students seeking to advance to post-baccalaureate graduate and professional programs in medicine, public health, health policy and planning, and other health-related careers.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: BB H 101BB H 310STAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 416 Health Promotion II: Planning, Implementation, and Evaluation (3)** Planning, implementation, and evaluation of health promotion, prevention, and intervention programs; emphasizing evaluation.

### **Health Promotion II: Planning, Implementation, and Evaluation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: BB H 310BB H 316

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 417 Advanced Applications in Health Promotion (3)** Advanced learning experience in health promotion applications in which students will actively participate in planning, implementing, evaluating health programs.

### **Advanced Applications in Health Promotion (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

Prerequisite: BB H 416

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 420 Developing Stress Management Programs (3)** Planning, developing, and implementing strategies for stress management programs for health education professionals in school, community, and corporate settings.

### **Developing Stress Management Programs (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 432 Biobehavioral Aspects of Stress (3)** Comprehensive discussion on the mechanisms of stress-induced diseases.

### **Biobehavioral Aspects of Stress (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: BB H 101BIOL 141BB H 310 or equivalent

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 440 (US;IL) (H P A 440) Principles of Epidemiology (3)** Theory of epidemiology and significant case studies; potential applications to health care.

**BB H (H P A) 440 Principles of Epidemiology (3)  
(US;IL)**

This course is designed to provide students with a basic understanding of the principles of Epidemiology and to familiarize students with the methods and applications of epidemiology to understanding the bases for heterogeneity of disease and health among populations.

The goals of the course are: 1) recognize and use basic principles, concepts, terminology, and techniques in Epidemiology as applied to the study of infectious disease, chronic diseases, and other health-related problems; 2) examine and understand measures of risk and burden of illness on populations defined in terms of age, race, gender, class, time, and other relevant socio-cultural and demographic factors; 3) be able to interpret and critique epidemiological research reports on the identification of risk factors and causal factors for diseases in populations; 4) assess the health status and burden of diseases and health problems of populations at multiple levels of analysis for the purpose of planning health promotion activities and health care services; 5) have a basic understanding of the epidemiology tools for disease screening and other methods for primary and secondary prevention of disease and health problems; 6) examine the validity and applicability of various health interventions used to improve health status and the barriers for successful interventions; and 7) have a basic understanding of the epidemiology of the major causes of morbidity and mortality in the U.S. and for other selected regions and nations of the world.

This is a required course in the Biobehavioral Health major and an elective course in the Health Policy and Administration major. The course is also appropriate for students intending to advance to post-baccalaureate graduate and professional programs in medicine, public health, health policy and planning, and other health-related careers.

Students will be evaluated based on their performance on a combination of written assignments, a term paper or project, and exams.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: BB H 101 orBIOL 110 orH P A 310;STAT 200 orSTAT 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 446 Human Sexuality as a Health Concern (3)** Examination of human sexuality as a integral part of basic health education and health care for persons of all ages.

**Human Sexuality as a Health Concern (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: BB H 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 451 Pharmacological Influences on Health (3)** Biological and behavioral aspects of therapeutic and recreational drug use and misuse, and their relationships to health.

**BB H 451 Pharmacological Influences on Health (3)**

The primary theme of this course is to review and integrate information relevant to the actions, uses, and biobehavioral influences of psychoactive drugs. Concepts relevant to pharmacology, biobehavioral health, and drug use and abuse will be learned. The primary objectives of this course are:

1. To provide an understanding of the concepts relevant to pharmacology, including: principles of drug action (pharmacokinetics, pharmacodynamics), drug safety, and drug effectiveness.
2. To provide a descriptive representation of the breadth of topics relating to behavioral and biological influences of psychoactive (i.e., therapeutic, recreational) drugs on human health and disease.
3. To provide exposure to and enhance critical thinking skills in current research related to the biobehavioral effects of psychoactive (i.e., therapeutic, recreational) drugs, including: psychoactive drug use and abuse, therapeutic drug use, and drug addiction treatments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: BB H 101BIOL 141PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 451** Pharmacological Influences on Health (3) Biological and behavioral aspects of therapeutic and recreational drug use and misuse, and their relationships to health.

### **BB H 451 Pharmacological Influences on Health (3)**

The primary theme of this course is to review and integrate information relevant to the actions, uses, and biobehavioral influences of psychoactive drugs. Concepts relevant to pharmacology, biobehavioral health, and drug use and abuse will be learned. The primary objectives of this course are:

1. To provide an understanding of the concepts relevant to pharmacology, including: principles of drug action (pharmacokinetics, pharmacodynamics), drug safety, and drug effectiveness.
2. To provide a descriptive representation of the breadth of topics relating to behavioral and biological influences of psychoactive (i.e., therapeutic, recreational) drugs on human health and disease.
3. To provide exposure to and enhance critical thinking skills in current research related to the biobehavioral effects of psychoactive (i.e., therapeutic, recreational) drugs, including: psychoactive drug use and abuse, therapeutic drug use, and drug addiction treatments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: BB H 101BIOL 141PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 452 (US)** (NURS 452, WMNST 452) Women's Health Issues (3) Exploration of major health issues concerning women today, with an emphasis on social, cultural, and medical influences.

### **Women's Health Issues (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: BIOL 141 orPSYCH 100 orWMNST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 458 (GS)** (WMNST 458) Critical Issues in Reproduction (3) Examination and analysis of the new reproductive technologies from the standpoint of medical ethics, feminism, and sociocultural influences.

### **Critical Issues in Reproduction (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: BIOL 141 orPSYCH 100 orWMNST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 468** Neuroanatomical Bases for Disorders of Behavior and Health (3) An examination of the anatomical/cellular/molecular bases for human central nervous system disorders and their impacts on victims/families/caregivers.

### **BB H 468 Neuroanatomical Bases for Disorders of Behavior and Health (3)**

This course will examine in detail and in depth the neuroanatomical and cellular/molecular/genetic bases for selected disorders of the human central nervous system (e.g. Parkinson's, Alzheimer's, stroke, etc.) and their impacts on the victim, his/her daily life and his/her family and care givers. Damage to, or malfunctions of, any part of the central nervous system causes specific and characteristic disruptions of normal processes, which manifest as abnormal and/or absent behaviors. Current research on the anatomical, cellular, molecular, and genetic bases for the disorders and the current/future trends in prevention/treatment of the disorders will be studied. Upon successful completion of the course, the student should be able to: a) describe the physical signs, symptoms, causes, effects on the patient and his/her family & care givers, prognoses, treatments, and support systems available to these patients, of the neurological disorders

covered in this course; b) describe the neuroanatomical, cellular, and molecular bases for these conditions; c) describe the current research on these disorders and the new prevention/treatment approaches being developed. The evaluation of students' performances in the course will be typically based on multiple choice examinations and a library research paper. This course will count toward fulfilling the BB H major requirement, "Take 15 credits in Biobehavioral Health."

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: BB H 368BB H 469 orPSYCH 260

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 469** (BIOL 469) Neurobiology (3) Comprehensive examination of neuroanatomy and physiology designed to integrate the principles of neurochemistry, neuroendocrinology and molecular biology.

### **Neurobiology (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 1994  
 Prerequisite: BIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 470** (BIOL 470) Functional and Integrative Neuroscience (3) Neurobiological function in motivated behaviors, motor and sensory function, learning and memory, development, sexual differentiation, and pathology.

### **Functional and Integrative Neuroscience (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1995  
 Prerequisite: BIOL 469

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 490** Introduction to Internship Experience (3) Provide an integrative learning experience to develop professional skills encountered in an internship experience and future careers in biobehavioral health.

### **BB H 490 Introduction to Internship Experience (3)**

This course is a prerequisite for BB H 495, Internship Experience in Biobehavioral Health. This course will provide students with the professional and academic skills necessary to develop an internship, be successful in an internship and equip students with the tools necessary to launch a career within the field of BBH or enable students to prepare more competitive applications for entry into post baccalaureate programs in medical fields or graduate school. The primary goal of the course is to provide integrative learning experiences preparing students to be successful in their internship endeavor, while learning practical skills necessary to flourish in future career choices. Course topics include: professional self-assessment and critical reflection, experiential learning, person/environment fit, resume creation and professional writing criteria, practical skills related to securing an internship consistent with professional goals, interviewing skills, professionalism and ethics within the BBH field, effective communication and internship agreement guidelines. Through this practical application, students will gain the necessary proficiencies and awareness of career settings, protocols and contexts under which BBH specialists work and/or prepare for future educational opportunities.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2014  
 Prerequisite: at least 9 credits from 300-level BB H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 494H** Senior Honors Thesis (1-6) Independent study related to a student's interests directed by a faculty supervisor and culminating in the production of a thesis.

**Senior Honors Thesis (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: approval of honors thesis advisor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 495** Internship Experience in Biobehavioral Health (6-12) This course provides experiential learning in the field. Internship Supervision and support will be provided by site and university personnel.

**Internship Experience in Biobehavioral Health (6-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: BB H 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 496H** Independent Honors Study in BB H (1-3 per semester/maximum of 6) For non-thesis independent study/research by Schreyer Honors College scholars.

**Independent Honors Study in BB H (1-3 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 497A** Clinical Volunteer Training (3) Course offered through continuing education.

**Clinical Volunteer Training (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 497B** Health Works (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Health Works (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 497D** Internship Experience in Biobehavioral Health (3-6) This course will be scheduled by appointment and is part of the new internship program in Biobehavioral Health. Instruction provided by the internship coordinator.

### **Internship Experience in Biobehavioral Health (3-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BB H 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Biochemistry and Molecular Biology (B M B)**

**B M B 001** (GN) Understanding the Bases of Human Disease (3) A broad survey of the molecular and cellular factors that contribute to an understanding of selected human diseases.

**B M B 001 Understanding the Bases of Human Disease (3)**  
(GN)

**(BA)** This course meets the Bachelor of Arts degree requirements.

B M B 001, Understanding the Bases of Human Disease, is a survey of the most common diseases of humans. In addition to discussing various diseases, symptoms, outcomes, prevention and treatment options, we also study disease processes by describing events at the cellular or DNA level. We will come to appreciate that various cellular, metabolic or genetic problems can give rise to disorders that carry a common name -anemia, for example. One form, Sickle Cell anemia, also provides a good example of another theme of the course: how a small genetically-based problem in one function of one cell type can lead to a cascade of malfunctions with ramifications system wide. How medicines work and how they are metabolized by the body will be discussed. Treatment of the growing problem of drug/drug, drug/food, and drug/"supplement" interactions will also be included.

Any study of infectious disease must be prefaced by a discussion of the proper functioning of the immune system and how its various components work together to fight an infection. The proper function or malfunction of the immune system is also studied for relationships to noninfectious diseases such as cancer and certain genetic disorders. As with any system of the body, the immune system also has its own unique set of disorders: allergy, hypersensitivity, autoimmunity and immune deficiency - congenital and acquired.

In our exploration of infectious diseases, we will look at various mechanisms of infection used by different types of organisms and at strategies the offending organisms might have to fool the immune system, hide from the immune system, or fight against it. A prime example is the ability of HIV to hide from the immune system. Knowing disease mechanisms and the life cycle of the infectious agent can suggest strategies for treatment of the disease. Another focus of this unit will include discussion of emerging and re-emerging diseases.



Human genetic traits and susceptibilities are discussed throughout the course, but we will also address the major genetic disorders, patterns of inheritance, chromosomal disorders and new treatments available for a growing number of such disorders. Included under this topic is the problem of cancer in all of its various forms today. The course addresses issues of normal cell/cancer cell characteristics and the concept of cancer as a "genetic disease". Using the information gleaned from units on cell function, genetics and the immune system, we will explore new treatment options evolving today.

No course on treatment of disease is complete without the study of the two major "lifestyle" diseases: coronary vascular disease and diabetes. We will explore the environmental factors as well as the genetic and infection- related factors often associated with these diseases.

The course is independent of all other B M B courses and does not serve as a prerequisite for any other course.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 001S (GN)** Understanding the Bases of Human Disease (3) A broad survey of the molecular and cellular factors that provide an explanation for an understanding of human disease.

**B M B 001S Understanding the Bases of Human Disease (3)**  
**(GN;FYS)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

B M B 001, Understanding the Bases of Human Disease, is a survey of the most common diseases of humans. In addition to discussing various diseases, symptoms, outcomes, prevention and treatment options, we also study disease processes by describing events at the cellular or DNA level. We will come to appreciate that various cellular, metabolic or genetic problems can give rise to disorders that carry a common name -anemia, for example. One form, Sickle Cell anemia, also provides a good example of another theme of the course: how a small genetically-based problem in one function of one cell type can lead to a cascade of malfunctions with ramifications system wide. How medicines work and how they are metabolized by the body will be discussed. Treatment of the growing problem of drug/drug, drug/food, and drug/"supplement" interactions will also be included.

Any study of infectious disease must be prefaced by a discussion of the proper functioning of the immune system and how its various components work together to fight an infection. The proper function or malfunction of the immune system is also studied for relationships to noninfectious diseases such as cancer and certain genetic disorders. As with any system of the body, the immune system also has its own unique set of disorders: allergy, hypersensitivity, autoimmunity and immune deficiency - congenital and acquired.

In our exploration of infectious diseases, we will look at various mechanisms of infection used by different types of organisms and at strategies the offending organisms might have to fool the immune system, hide from the immune system, or fight against it. A prime example is the ability of HIV to hide from the immune system. Knowing disease mechanisms and the life cycle of the infectious agent can suggest strategies for treatment of the disease. Another focus of this unit will include discussion of emerging and re-emerging diseases.

Human genetic traits and susceptibilities are discussed throughout the course, but we will also address the major genetic disorders, patterns of inheritance, chromosomal disorders and new treatments available for a growing number of such disorders. Included under this topic is the problem of cancer in all of its various forms today. The course addresses issues of normal cell/cancer cell characteristics and the concept of cancer as a "genetic disease". Using the information gleaned from units on cell function, genetics and the immune system, we will explore new treatment options evolving today.

No course on treatment of disease is complete without the study of the two major "lifestyle" diseases: coronary vascular disease and diabetes. We will explore the environmental factors as well as the genetic and infection- related factors often associated with these diseases.

The course is independent of all other B M B courses and does not serve as a prerequisite for any other course.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 199 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 211 Elementary Biochemistry (3)** An overview of biochemistry that includes properties of biomolecules, bioenergetics, metabolism, nutrition, genetics, and molecular biology.

**B M B 211 Elementary Biochemistry (3)**

B M B 211 is an overview of biochemistry that includes: basic properties and biosynthesis of proteins and nucleic acids, chemistry, and metabolism of major carbohydrate, lipid, and amino acid classes, energy production pathways including photosynthesis, biological transport, and principles of enzyme action. The course provides the student with a sufficient knowledge of biochemical processes, cellular molecules and their metabolism to serve as a basis for advanced study of nutrition, genetics, biotechnology, agricultural sciences, or related biological areas that depend on a biochemical foundation. Achievement of course objectives is assessed through multiple written examinations designed to evaluate understanding of biochemical concepts and their applications to biological problems.

B M B 211 is related to and a prerequisite for the companion laboratory course B M B 212 (1 credit). B M B 211 also serves as the prerequisite for B M B 221, an exploration of the application of biochemical principles to specific problems in medicine, agriculture, and biotechnology.

This course requires some proficiency in organic chemistry and general chemistry; thus, CHEM 012, and 034 or 038 are prerequisites. B M B 211 is part of one of the two series of biochemistry courses that students in the Biotechnology major (either General or Clinical Laboratory Science Options) are required to take for the baccalaureate degree. B M B 211 is required by a number of different majors in the colleges of Agricultural Sciences and Health and Human Development.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 110;CHEM 202 orCHEM 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 212 Elementary Biochemistry Laboratory (1)** Selected experiments to illustrate major biochemical principles and techniques.

**B M B 212 Elementary Biochemistry Laboratory (1)**

B M B 212 exposes students to techniques typically used in industrial and academic laboratories to isolate proteins, perform enzyme kinetics, characterize carbohydrates and lipids, and study molecular biology. Data interpretation and conceptual understanding are emphasized.

Specifically, students determine a weak acid's buffer range with a pH meter; quantify protein concentrations using a spectrophotometer; partially purify acid phosphatase from wheat germ, using ammonium sulfate precipitation, centrifugation and dialysis; characterize acid phosphatase kinetics; subject glycogen to acid and salivary amylase hydrolysis, then compare products using thin layer chromatography; isolate plasmid DNA from E.coli, then digest the plasmid DNA with restriction enzymes and analyze the products using agarose gel electrophoresis; make soap from commercial oils and fats; and lastly, identify fatty acids using a gas chromatograph.

Students write laboratory reports to present their findings and correlate theory with actual experimental results. Written quizzes assess conceptual understanding of experiments. Teaching assistant evaluations judge the student's level of laboratory skill achievement, preparation, and ability to work with others in a professional manner.

A solid chemistry knowledge base (CHEM 012 and either CHEM 034 or 038), previous laboratory experience, and the ability to work with mathematical word problems are expected of all students enrolled in the course. Biochemistry focuses on the chemistry of living organisms. This course provides basic biochemistry laboratory skills and exposure to widely-used methodology to develop a fundamental understanding of biochemistry needed for advanced courses in the student's major and compatible with the student's career interests. Outside resources for the student include reserved books and a course web site: [www.bmb.psu.edu/courses/daniel/BMB212/default.htm](http://www.bmb.psu.edu/courses/daniel/BMB212/default.htm).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

Prerequisite: or concurrent: B M B 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 221 Applied Biochemistry (2)** Application and correlation of biochemical events to physiological-nutritional processes in specialized cells, fluids, and whole animals. Students may not receive credit for both B M B 221 and 401.

**B M B 221 Applied Biochemistry (2)**

In B M B 221, students will build on their knowledge from Elementary Biochemistry (B M B 211). Emphasis is on the

application of biochemical principles to specific problems in medicine, agriculture, pharmaceuticals and biotechnology. Students review fundamental principles and learn how biochemical methods, techniques and theory are applied. Class presentations are computer based in some cases. The course may also include class discussions. Evaluation and grading varies with the instructor, but possible methods of evaluation include multiple choice examinations, essay-short answer questions, and in-class contributions.

Students will have completed at least three semesters of chemistry before B M B 221, because Elementary Biochemistry (B M B 211) is a prerequisite, and inorganic (CHEM 012) and organic chemistry (CHEM 034 or CHEM 038) are prerequisites for B M B 211. Knowledge of organic chemistry and basic biochemistry is essential so that the course can focus on applications rather than introductory material.

B M B 221 is a requirement for those Biotechnology majors who choose not to take the 400-level series of introductory biochemistry courses. It is also required of students enrolled in the science option of the Dairy and Animal Science major. It serves as an elective for all other majors. It is not approved as a general education course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000  
Prerequisite: B M B 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 251** (MICRB 251) Molecular and Cell Biology I (3) Biomolecules, genetic mechanisms, organization of cells and their organelles, DNA replication, protein synthesis, membranes, the cell nucleus, energy conversion.

### **B M B 251 Molecular and Cell Biology I (3)**

This course is an introduction to the fundamental principles of molecular and cellular biology, with a primary focus on eukaryotic cells. Topics covered will include elementary biochemistry; structure and function of biological macromolecules, the cell and its organelles; the role of biological membranes in bioenergetics and sub-cellular compartments. There will be a particular emphasis on the molecular mechanism of heredity; the organization and expression of genetic information; experimental methods used in the analysis of gene expression and the relationship between gene/protein structure and function.

A key feature of the Honors section is the use of review papers and peer-reviewed journal articles as integral components of the course. The objectives of this component of the Honors section are to: 1) introduce students to the scientific method (the formulation of hypotheses based on observation and the processes underpinning the rigorous test of such hypotheses); and 2) provide the intellectual framework for a critical evaluation of the literature.

Students are expected to engage in classroom discussion and will be evaluated by a combination of classroom presentations, multiple choice and short essay exams. Students are expected to develop a "big picture" view of how the various cellular processes are related to each other and also attain a thorough understanding of the molecular details of the individual processes (e.g. the order and molecular details of events leading from transcription to protein localization within a cell). This course is a prerequisite for B M B 252H.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 251H** Molecular and Cell Biology I (3) Biomolecules, genetic mechanisms, organization of cells and their organelles, DNA replication, protein synthesis, membranes, the cell nucleus, energy conversion.

### **B M B 251H Molecular and Cell Biology I (3)**

This course is an introduction to the fundamental principles of molecular and cellular biology, with a primary focus on eukaryotic cells. Topics covered will include elementary biochemistry; structure and function of biological macromolecules, the cell and its organelles; the role of biological membranes in bioenergetics and sub-cellular compartments. There will be a particular emphasis on the molecular mechanism of heredity; the organization and expression of genetic information; experimental methods used in the analysis of gene expression and the relationship between gene/protein structure and function.

A key feature of the Honors section is the use of review papers and peer-reviewed journal articles as integral components of the course. The objectives of this component of the Honors section are to: 1) introduce students to the scientific method (the formulation of hypotheses based on observation and the processes underpinning the rigorous test of such hypotheses); and 2) provide the intellectual framework for a critical evaluation of the literature.

Students are expected to engage in classroom discussion and will be evaluated by a combination of classroom presentations, multiple choice and short essay exams. Students are expected to develop a "big picture" view of how the various cellular processes are related to each other and also attain a thorough understanding of the molecular details of the individual processes (e.g. the order and molecular details of events leading from transcription to protein localization within a cell). This course is a prerequisite for B M B 252H.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 252** (MICRB 252) Molecular and Cell Biology II (3) Continuation of B M B/MICRB 251; cytoskeleton, cell growth, division, adhesion, signalling, germ cells, differentiation, immune system, nervous system, plant cells.

### **B M B 252 Molecular and Cell Biology II (3)**

This section focuses on the internal organization on eukaryotic cells and their organization in multi-cellular organisms. Topics covered include cell communication, the cytoskeleton, cell cycle, fertilization and development of multi-cellular organisms, genesis of tissues, and the molecular mechanisms of cancer and immunity.

A key feature of the Honors section will be the use of review papers and peer-reviewed journal articles as integral components of the course. The objectives of this component of the Honors section are to: 1) introduce students to the scientific method (the formulation of hypotheses based on observation and the processes underpinning the rigorous test of such hypotheses); and 2) provide the intellectual framework for a critical evaluation of the literature.

Students are expected to engage in classroom discussion and will be evaluated by a combination of classroom presentations, multiple choice and short essay exams.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995  
Prerequisite: B M B 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 252H** Molecular and Cell Biology II (3) Continuation of B M B 251H; cytoskeleton, cell growth, division, adhesion, signaling, germ cells, differentiation, immune system, nervous system, plant cells.

### **B M B 252H Molecular and Cell Biology II (3)**

This course is the second part of B M B 251H. This section focuses on the internal organization on eukaryotic cells and their organization in multi-cellular organisms. Topics covered include cell communication, the cytoskeleton, cell cycle, fertilization and development of multi-cellular organisms, genesis of tissues, and the molecular mechanisms of cancer and immunity. There will be a particular emphasis on how the basic principles and experimental approaches presented in 251H are employed to address questions related to the topics that will be covered in 252H.

As in 251H, a key feature of the Honors section will be the use of review papers and peer-reviewed journal articles as integral components of the course. The objectives of this component of the Honors section are to: 1) introduce students to the scientific method (the formulation of hypotheses based on observation and the processes underpinning the rigorous test of such hypotheses); and 2) provide the intellectual framework for a critical evaluation of the literature.

Students are expected to engage in classroom discussion and will be evaluated by a combination of classroom presentations, multiple choice and short essay exams.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: B M B 251H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 398A** Majors Colloquium: Molecular Mechanisms and Human Consequences (2) An introduction to the majors in Biochemistry and Molecular Biology, Microbiology, and Biotechnology. The course will include guest lectures from department faculty, student presentations, electronic readings and discussion outside of class, and extensive participation in classroom discussions.

**Majors Colloquium: Molecular Mechanisms and Human Consequences (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 398B** Problem Solving in Biochemistry, Molecular Biology and Microbiology (1) The B M B 398D is a course designed to use collaborative learning techniques to improve student skills in problem solving and application. Each section of B M B 398B is paired with another B M B/MICRB course, and the B M B 398B course will provide students with the opportunity to work together with their peers to solve problems with the guidance and facilitation of a course learning assistant. A variety of exercise (i.e. quantitative and qualitative worksheet problems, concept mapping, and diagrammatic reasoning) may be used, with the common goal being to help students understand and apply the core principles covered in the paired B M B or MICRB course.

**Problem Solving in Biochemistry, Molecular Biology and Microbiology (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 400** Molecular Biology of the Gene (2-3) Biochemistry of genetic phenomena, including the structure, replication and dynamics of genes and chromosomes, their expression and regulation.

**B M B 400 Molecular Biology of the Gene (2-3)**

Molecular Biology of the Gene examines the flow of information in living things at the molecular level. Topics such as the following are included: 1) DNA replication, repair and recombination, 2) RNA transcription and modification, and 3) protein translation, folding and modification. This class is designed as a one-semester course having the objectives of understanding concepts in molecular biology and gene regulation, and exploring research materials and methods used in the laboratory. Course materials are prepared not only from the textbook but also from the primary literature. Therefore, students who want to take this course should have some familiarity with reading research articles.

B M B 400 is for advanced undergraduates who have already taken introductory molecular biology and biochemistry. Knowledge of molecular biology is essential background for pursuit of a career in the life sciences, including academia, medicine, industry, forensic science and science policy.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: BIOL 222 orBIOL 322;BIOL 230W orB M B 251;CHEM 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 401** General Biochemistry (3) Principles of the structure and function of biological molecules, including carbohydrates, lipids, membranes, proteins, and enzymes. Students may not receive credit for both CHEM 476 and B M B 401.

**B M B 401 General Biochemistry (3)**

BM B 401 is the first course of the honors general biochemistry series, a sequence designed to prepare students for careers and graduate study in the life sciences. Overall, biochemistry describes, in chemical and molecular terms, the structures, mechanisms, and chemical processes at work in all living things, and abstracts organizing principles that underlie life in all its diverse forms. Building upon concepts introduced in molecular and cellular biology and in organic chemistry, students in B M B 401 synthesize and apply this knowledge toward understanding the structure and function of the major classes of cellular constituents: water, and the various macromolecules -- amino acids and proteins, sugars, and polysaccharides, nucleotides and nucleic acids, fatty acids and lipids, and membranes and various membrane proteins. These molecules interact to comprise the next level of multi- and mixed molecular structures and organelles that enable a cell to carry out its many metabolic functions. Students also learn about the technologies used to study cellular components and processes, and current advances in biotechnology that have accelerated the pace of discovery in the field. Having gained familiarity with the molecules found in a cell, students are well-equipped to take on more advanced topics in the exciting, rapidly-evolving fields of the life sciences.

An overriding theme in biochemistry is that polymers of living systems, though structurally large and functionally complex, are highly ordered chemical entities, with specific sequences of monomeric subunits giving rise to discrete structures and functions. The course begins with an introduction to proteomics, covering the structural basis of protein functions and then moves on to enzyme kinetics and mechanisms. Next, students explore simple and complex carbohydrates and topics in glycobiology that include energy storage, framework skeleton, and specific molecular recognition. Various classes of lipids, including phospholipids, complex lipids, membrane biology and transport systems, are covered next. Following is an analysis of the biochemical basis of signal transduction describing how specific signals regulate biomolecular activity-within a cell, and between cells-to keep an organism in homeostasis. Lastly, as a transition to intermediary metabolism in B M B 402H, an introduction to bioenergetic principles is included to provide a framework for understanding pathways of carbon and nitrogen metabolism, using glycolytic reactions as an example.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: CHEM 212; B M B 251 or BIOL 230

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 401H General Biochemistry (3)** Principles of the structure and function of biological molecules, including carbohydrates, lipids, membranes, proteins, and enzymes. Students may not receive credit for both CHEM 476 and B M B 401H.

### **B M B 401H General Biochemistry (3)**

BM B 401H is the first course of the honors general biochemistry series, a sequence designed to prepare students for careers and graduate study in the life sciences. Overall, biochemistry describes, in chemical and molecular terms, the structures, mechanisms, and chemical processes at work in all living things, and abstracts organizing principles that underlie life in all its diverse forms. Building upon concepts introduced in molecular and cellular biology and in organic chemistry, students in B M B 401 synthesize and apply this knowledge toward understanding the structure and function of the major classes of cellular constituents: water, and the various macromolecules -- amino acids and proteins, sugars, and polysaccharides, nucleotides and nucleic acids, fatty acids and lipids, and membranes and various membrane proteins. These molecules interact to comprise the next level of multi- and mixed molecular structures and organelles that enable a cell to carry out its many metabolic functions. Students also learn about the technologies used to study cellular components and processes, and current advances in biotechnology that have accelerated the pace of discovery in the field. Having gained familiarity with the molecules found in a cell, students are well-equipped to take on more advanced topics in the exciting, rapidly-evolving fields of the life sciences.

An overriding theme in biochemistry is that polymers of living systems, though structurally large and functionally complex, are highly ordered chemical entities, with specific sequences of monomeric subunits giving rise to discrete structures and functions. The course begins with an introduction to proteomics, covering the structural basis of protein functions and then moves on to enzyme kinetics and mechanisms. Next, students explore simple and complex carbohydrates and topics in glycobiology that include energy storage, framework skeleton, and specific molecular recognition. Various classes of lipids, including phospholipids, complex lipids, membrane biology and transport systems, are covered next. Following is an analysis of the biochemical basis of signal transduction describing how specific signals regulate biomolecular activity-within a cell, and between cells-to keep an organism in homeostasis. Lastly, as a transition to intermediary metabolism in B M B 402H, an introduction to bioenergetic principles is included to provide a framework for understanding pathways of carbon and nitrogen metabolism, using glycolytic reactions as an example.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: CHEM 212; B M B 251 or BIOL 230W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 402 General Biochemistry (3)** Comprehensive survey of the pathways and regulation of intermediary metabolism.

### **B M B 402 General Biochemistry (3)**

Most, if not all, of the students taking B M B 402 intend to pursue a Ph.D., M.D. or M.D./Ph.D. degree after graduation. Since biochemistry is an important discipline for advanced studies in life and medical sciences, a major goal of B M B 402 is to prepare students well for their future challenges in graduate or medical school. The textbook used is more advanced than that used in B M B 402, and it is what is typically used in biochemistry courses taught at premier medical schools and graduate schools.

The major topics covered include glycolysis, TCA cycle, metabolism of fatty acids, lipids (phospholipids, cholesterol and sphingolipids), amino acids and nucleotides, signal transduction, and human genetic diseases. Since biochemistry is a very rapidly progressing discipline, any new developments not covered by the textbook are introduced in the lectures or via discussion of current scientific papers at an appropriate level. In addition, students must be able to integrate information learned from different but related material. These exams typically take students three hours to complete.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: B M B 401 orCHEM 476

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 402H General Biochemistry (3)** Comprehensive survey of the pathways and regulation of intermediary metabolism.

### **B M B 402H General Biochemistry (3)**

Because it has a limited enrollment, B M B 402H provides a more intimate and interactive class environment than does B M B 402. Most, if not all, of the students taking B M B 402H intend to pursue a Ph.D., M.D. or M.D./Ph.D. degree after graduation. Since biochemistry is an important discipline for advanced studies in life and medical sciences, a major goal of B M B 402H is to prepare students well for their future challenges in graduate or medical school. The textbook used is more advanced than that used in B M B 402, and it is what is typically used in biochemistry courses taught at premier medical schools and graduate schools. The class is conducted at a challenging level to provide students with the opportunity to treat topics in greater depth and to explore current development more fully than is possible in B M B 402.

The major topics covered include glycolysis, TCA cycle, metabolism of fatty acids, lipids (phospholipids, cholesterol and sphingolipids), amino acids and nucleotides, signal transduction, and human genetic diseases. Since biochemistry is a very rapidly progressing discipline, any new developments not covered by the textbook are introduced in the lectures or via discussion of current scientific papers at an appropriate level. B M B 402H exams consist of entirely essay and problem-solving type questions, whereas B M B 402 exams typically contain all multiple-choice questions. B M B 402H exams require that students understand all aspects of a particular metabolic pathway under study, including the sequential steps of the pathway, chemical structures of all intermediates, the mechanisms of all key reactions, regulation of the pathway, and the relationships with other pathways. In addition, students must be able to integrate information learned from different but related material. These exams typically take students three hours to complete.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: B M B 401H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 403 Biochemistry Laboratory (1)** An introduction to techniques of experimental biochemistry, illustrating principles covered in B M B 402.

### **Biochemistry Laboratory (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: or concurrent: B M B 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 406 Molecular Biology (3)** A discussion of current aspects of cell molecular biology with a laboratory emphasizing current biotechnology techniques.

### **Molecular Biology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: BIOL 222 orBIOL 322;BIOL 230W orB M B 251;CHEM 039

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**B M B 408** Instructional Practice (1-2) Participation in the instruction of undergraduate laboratory and lecture courses, including classroom preparation; discussion of principles and objectives of each exercise.

**B M B 408 Instructional Practice (1-2)**

Students in this course will gain experience in science teaching by participating in either lecture courses (as Learning Assistants) or laboratory courses (as Teaching Assistants) with the goal of making students in this course more effective as teachers and communicators in their future careers in science. Participation in instruction of selected departmental lecture and laboratory courses will include preparation of class materials, and facilitating discussion and presentation of course principles and learning objectives of each topic or exercise.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: 10 credits in biochemistry and molecular biology and permission of the department

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 411** Survey of Biochemistry and Molecular Biology Literature (1) An introduction to readings and oral presentations in biochemistry and molecular biology.

**Survey of Biochemistry and Molecular Biology Literature (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

Prerequisite: B M B 401; B M B 400 or B M B 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 428** Physical Chemistry with Biological Applications (3) Chemical thermodynamics and kinetics with applications to biological problems.

**Physical Chemistry with Biological Applications (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 203 or CHEM 212; PHYS 203 or PHYS 251 ; 3 credits in cell biology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 430** (BIOL 430, ENT 430) Developmental Biology (3) Molecular and genetic analyses of mechanisms involved in differentiation and determination in biological systems.

**Developmental Biology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

Prerequisite: BIOL 222; B M B 252 or BIOL 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 432** (MICRB 432, VB SC 432) Advanced Immunology: Signaling in the Immune System (3) The study of signaling pathways that regulate the immune response.

**B M B (MICRB/V SC) 432 Advanced Immunology: Signaling in the Immune System (3)**

This course will use the immune system as a model in which to study how cells communicate in order to coordinate an immune response. We will focus on signaling mechanisms that regulate such immune responses as T cell activation, Th1/Th2 differentiation, macrophage activation, and migration of immune cells to sites of inflammation. All lectures are based on recent reviews by key investigators in each field, as well as primary articles to present students with the most recent advances, techniques, and approaches used. The goal of the course will be to convey a basis understanding of intracellular signaling mechanisms that will pertain to all areas of biology, an appreciation for current questions and future directions in the field, and an in depth understanding of the signals that govern immune responses. The material presented will build on the basic concepts learned in B M B 400 and MICRB 410, and will lay the foundation for more advanced courses at the graduate level.



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: B M B 400MICRB 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 433** (VB SC 433) Molecular and Cellular Toxicology (3) In-depth coverage of processes by which drugs/chemicals interact with biological systems and the experimental approaches used to study these interactions.

### **Molecular and Cellular Toxicology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: B M B 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 435** (MICRB 435, VB SC 435) Viral Pathogenesis (2) A study of the molecular, immunological and pathological aspects of viral diseases as well as laboratory methods of diagnosis.

### **B M B (MICRB/V SC) 435 Viral Pathogenesis (2)**

In Viral Pathogenesis, a multifaceted approach that includes lectures, in-class discussion, and outside assignments is used to introduce students to molecular mechanisms of viral pathogenesis. Emphasis is placed on human viruses. In some instances, traditional animal virus model systems are also discussed to address important concepts in detail. The course is divided into three parts: (1) general concepts in virology (20%); (2) general concepts in viral pathogenesis (40%); and (3) specific examples of viral pathogenesis (40%). Students are typically evaluated on in-class participation, outside assignments, quizzes and exams. Exams emphasize students' knowledge of concepts more than specific, factual information and are comprised of a combination of multiple-choice, short-answer and/or essay questions. To fully understand concepts/mechanisms of viral pathogenesis, a working knowledge of viruses, molecular biology, cell biology and immunology is beneficial. Hence, Micrb 201 is a prerequisite for this course as is the combination of either BIOL 110/230 or B M B (MICRB) 251/252. While MICRB 415 is not a prerequisite for the course, some material covered in MICRB 415 is addressed, albeit rapidly, during the initial lectures.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: MICRB 201; B M B 251 and B M B 252 or BIOL 110 and BIOL 230W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 437** Physiological Biochemistry (2) Physiological aspects of biochemistry, with emphasis on mammalian metabolism, specialized tissue and fluid functions, detoxification mechanisms, energetics, and physiological interrelationships.

### **Physiological Biochemistry (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995  
Prerequisite: B M B 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 442** Laboratory in Proteins, Nucleic Acids, and Molecular Cloning (3) Laboratory in enzyme purifications and assay techniques; nucleic acid isolation and characterization, including plasmid preparation.

### **B M B (MICRB) 442 Laboratory in Proteins, Nucleic Acids, and Molecular Cloning (3)**

The DNA portion of B M B/MICRB 442 serves as an introduction to fundamental techniques of recombinant DNA technology and as a reinforcement of principles of Molecular Genetics from lecture courses. The central experiment entails all basic procedures necessary to clone a gene, i.e. to make a recombinant molecule comprised of DNA from two sources. Students use restriction enzymes to cut two distinct DNA molecules into smaller fragments. The fragments are mixed and treated with the enzyme Ligase, which randomly combines small fragments into large recombinant DNA molecules in new combinations different in composition from either original molecule. The recombinant molecules, which include genes that confer drug resistance, are transformed into *E. coli* cells that initially have no drug resistance. Cells that acquire recombinant DNA molecules are identified by selective plating on growth media containing drugs. From the transformed cells, recombinant DNA is isolated and analyzed by agarose gel electrophoresis, completing the array of basic

gene cloning techniques. In addition to this central, multi-session experiment, students also do PCR and an investigation of the lac operon, a classic molecular genetic model system.

The proteins portion of B M B/MICRB 442 is designed to introduce students to protein biochemistry topics and laboratory techniques typically encountered in academic and commercial settings. Students will learn about buffers, spectroscopy, enzyme purification and characterization methods. Specifically, the experiments include preparation of buffers and performing kinetic studies to determine  $K_m$  and  $V_{max}$  values. Separation of a mixture of phycobiliproteins using ion-exchange column chromatography is a major experiment that the students will perform to learn protein purification methods. In this experiment they will learn how to pour a column, apply sample, elute it with salt gradient and collect fractions using automated fraction collector. Ammonium sulfate precipitation and dialysis will be part of protein purification procedures. Characterization of the separated proteins will be performed by determining the absorption spectra with a Genesys-5 spectrophotometer and by determining the molecular weights of the subunits of the phycobiliproteins by SDS-polyacrylamide gel electrophoresis.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: B M B 251BIOL 230W orMICRB 201;CHEM 202 orCHEM 210 . Prerequisite or concurrent:B M B 211 orB M B 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 443W Laboratory in Protein Purification and Enzymology (3)** Laboratory in protein isolation methodology, enzyme kinetics, and physico- chemical properties of proteins.

### **Laboratory in Protein Purification and Enzymology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: B M B 442B M B 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 445W Laboratory in Molecular Genetics I (2)** Laboratory in molecular techniques in gene analysis and microbial genetics, emphasizing in vitro methodologies.

### **B M B 445W Laboratory in Molecular Genetics I (2)**

The objectives of B M B 445W are to provide advanced Biochemistry and Microbiology students with instruction in (1) techniques commonly used in modern research and clinical laboratories in this field, (2) evaluation of the quality of experimental data, including appropriate analysis, and (3) presentation of results of laboratory work in written form. Experiments are focused on key techniques and procedures such as DNA isolation, polymerase chain reaction, Southern hybridization analysis, and DNA sequencing. Students are evaluated via (1) written lab reports organized in the format found in most primary research journals in the field and (2) written examinations that assess the understanding of principles and methodology. B M B 445W is an extension of the nucleic acid section of B M B 342, which is a prerequisite for B M B 445W. The in vitro techniques presented in B M B 445W complement the in vivo techniques in B M B 446, though neither course is prerequisite for the other. B M B 445W is a requirement for the B M B major, and is an elective for other students, most notably Microbiology majors and graduate students in other areas of the life sciences. B M B 445W is taught in a standard biochemistry teaching laboratory facility that houses the required equipment necessary for analysis of DNA (electrophoresis units, centrifuges, thermocyclers, cold room, spectrophotometers).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: B M B 442B M B 400MICRB 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 448 Model Systems and Approaches in Cell Biology Inquiry (2)** Advanced laboratory that uses inquiry-based approaches to the analysis of organelles, genetic mechanisms, and metabolic processes in eukaryotic organisms.

### **Model Systems and Approaches in Cell Biology Inquiry (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: MICRB 202B M B 442 orMICRB 442 andB M B 251 orMICRB 251 orBIOL 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 450** (MICRB 450) Microbial/Molecular Genetics (2) Genetic phenomena, with emphasis on molecular mechanisms: gene transfer, recombination, gene conversion, gene fusion, suppression, transposons.

**Microbial/Molecular Genetics (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: BIOL 222 or BIOL 322/MICRB 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 460** (MICRB 460) Cell Growth and Differentiation (3) Mechanisms and regulation of protein trafficking, organelle biosynthesis, cell development, signaling and cell cycle control. Emphasizes experimental design and analysis.

**B M B (MICRB) 460 Cell Growth and Differentiation (3)**

Cell Growth and Differentiation is a unique course that uses the primary literature to teach significant content in advanced cell biology while simultaneously exposing students to the scientific craft of experimental design and analysis. In addition to exploring historical and current cell biology research articles, students will develop two vital scientific skills; critical thinking as applied to experimental data and creative thinking about solving unresolved questions in cell biology.

There is no course textbook. As an alternative, we read from journals to explore questions about cell biology and how cell biologists decipher cell functions. Instead of a general survey of cell biology, we delve into specific issues, often looking at "classic" papers describing how a specific phenomenon was first investigated to place current questions in context before progressing to the latest publications exploring how innovative techniques have been applied to deciphering cell function.

The course is divided into four units, each of which emphasizes content in a different area. Actual content may vary from year to year as the course is updated to reflect progress in a field of research. We have previously explored the general areas of cell membrane dynamics, intracellular protein trafficking, cell cycle regulation, cell signaling pathways and cancer cell biology. Finally, the course ends with a unit on stem cells and therapeutic cloning technology. A portion of the final unit is also devoted to discussing the ethical implications of stem cell research with an emphasis on how to make personal decisions about how our society should approach these issues.

Reading guides are provided for each assignment to help students find and understand important points in reading assignments. Class periods are devoted to explanations and instructor-led discussions about the readings with an emphasis on understanding the questions, the methods used to approach the questions, the experimental results and the interpretations of the results. Furthermore, periodic class periods are dedicated to experimental approach exercises where students work in groups to practice posing new questions as suggested by our readings and proposing experiments to answer these questions. These skills are vital part of what cell biologists do daily, and these exercises provide practice in thinking like a scientist. Students have previously reported that by taking this course they acquired the ability to read and understand the primary literature and have gained an in-depth understanding about how to use various experimental techniques.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: B M B 252

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 464** Molecular Medicine (3) An exploration of the impact of advances in molecular biology on understanding disease mechanisms, medical diagnosis, and therapeutics.

**Molecular Medicine (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

Prerequisite: B M B 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 465** Protein Structure and Function (3) A study of the relationship between structure and function of proteins; internet analysis to predict structure and function is included.

**Protein Structure and Function (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: BIOL 230W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 474 Analytical Biochemistry (3)** Physical/chemical theory and techniques that emphasize purification and characterization of biological macromolecules, including proteins, lipids and nucleic acids.

### **B M B 474 Analytical Biochemistry (3)**

This three-credit course deals with acquiring knowledge of laboratory skills required for success in experimental biochemistry and molecular biology. It is particularly suited for students intending a career as a research scientist in the areas of biochemistry, biotechnology, bioengineering, microbiology, or molecular biology. Course content focuses on the detection, purification and identification of biological macromolecules such as practice of separation science with emphasis on diffusion, gel permeation chromatography, ion-exchange chromatography, affinity chromatography, sedimentation velocity ultracentrifugation, sedimentation equilibrium ultracentrifugation, density gradient ultracentrifugation, agarose gel electrophoresis, SDS gel electrophoresis, isoelectrofocusing, membrane filtration and dialysis (including Donan equilibrium), ligand binding, high performance gas chromatography, high performance liquid chromatography, mass spectrometry, and immunological methods of macromolecules. The second unit includes the theory and practice of biological spectroscopy with emphasis on visible, infrared, circular dichroism, optical rotary dispersion, Raman, resonance Raman, nuclear magnetic resonance, electron paramagnetic resonance, Mossbauer, surface plasmon resonance, electron-nuclear double resonance, and electron spin echo spectroscopy of macromolecules. The lectures are designed to introduce a particular topic, to derive relevant equations, to supplement reading material with practical examples, and to clarify points in assigned problem sets. Two guest lectures by experts in the field will provide up-to-date information on mass spectrometry and Mossbauer spectroscopy, and two site-visits, one to the mass spectrometry core facility and the other to the magnetic resonance core facility, will provide hands-on experience. Problem sets are not collected or graded; rather, answers are handed out in the following class period. This method provides the ability to collaborate with others on solving problems and to self-check work.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: Prerequisite or concurrent: B M B 428 or CHEM 450

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 480 (MICRB 480) Tumor Viruses and Oncogenes (3)** Oncogenes, DNA and RNA tumor viruses, and relevant experimental techniques with emphasis on molecular basis of carcinogenesis and gene regulation.

### **Tumor Viruses and Oncogenes (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: or concurrent: MICRB 415 MICRB 435 or MICRB 460

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 484 Functional Genomics (3)** Biochemical, genetic and evolutionary approaches to comprehensive discovery of functional DNA segments in genomes, including genes and regulatory sequences.

### **B M B 484 Functional Genomics (3)**

What in your genomic DNA makes you different from chimpanzees, mice or flies? What sequences in your DNA make it more or less likely that you will develop diabetes or cancer? These are questions of widespread interest, answers to which could play major roles in personalized medicine and in understanding our place in the biosphere. Modern genomic analysis uses powerful technologies and generates massive amounts of data, which are yielding exciting insights into answering these questions. One hallmark of genomic research is that data are released rapidly along with tools for browsing and analyzing it. Thus not only can you learn the major results by reading papers, but you can examine the underlying data and do your own analyses. Discovery is no longer the exclusive domain of the data producers – you can join in!

This course will introduce students to ongoing research aimed at identifying functional regions in genomes and encourage them to use web-based bioinformatics tools for exploring the genomic and epigenetic data. Students will develop creative projects that address issues in functional genomics of high interest to them.

The course has two phases, the first on the basics of genomics (sequencing, alignment, assembly, resources), and the second on the search for functional elements in genomes. The course will explore ways to find:

- Protein-coding genes within genomes
- Transcribed regions: How much of the genome is transcribed? Which transcribed regions do not code for proteins? What roles do they play in the cell (regulatory and enzymatic)?
- Evolutionary signatures of function: How can you use genome comparisons between species to estimate the amount of functional sequence – and to identify it?
- Non-genic functional sequences: How do you map epigenetic features associated with gene regulation, such as histone modifications, DNase hypersensitive sites, and transcription factor occupancy?

- Function by phenotype: Given the ability of genetic association to find loci that contribute to complex traits, such as disease susceptibility, how does functional genomics aid in finding basis of these traits?

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: B M B 251 orBIOL 230WBIOL 222 orBIOL 322

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 485** Human Genomics and Biomedical Informatics (3) This course covers the basics of measuring genomic variation and exploring how variation in DNA is related to common, complex disease.

### **Human Genomics and Biomedical Informatics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 322B M B 400STAT 301 orSTAT 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 488** Communities of Practice in Biochemistry and Molecular Biology (2 per semester/maximum of 16) The course combines laboratory research in a community of practice and a seminar on topics in science, ethics, and society.

### **Communities of Practice in Biochemistry and Molecular Biology (2 per semester/maximum of 16)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: MICRB 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 497F** Introduction to Bioinformatics (3) Introduction to the biological problems and computational solutions that motivate current applications in computational biology. Topics will be organized around three main themes: 1) Genomes, including assembly and annotation of genomic sequences; 2) Evolution, including sequence comparison, reconstruction of evolutionary relationships, and detection of disease associated traits; and 3) Function, including analysis of functional genomics experiments and characterization of regulatory relationships between genes.

### **Introduction to Bioinformatics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: basic understanding of molecular cell biology (e.g. B M B 251 or similar) and statistics (e.g. STAT 200 301 318) recommended

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B M B 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Bioengineering (BIOE)**

**BIOE 100S** Bioengineering Seminar (1) First-year seminar to introduce the role of engineering in biomedical research and in instrument development for the medical device industry.

#### **BIOE 100S Bioengineering Seminar (1) (FYS)**

BIOE 100S is a first-year seminar aimed at students interested in pursuing a career in Bioengineering. Through a series of lectures, demonstrations and problem solving sessions, the multifaceted world of bioengineering will be explored. Two general classes of problems will be studied: one is the application of engineering to decipher the mysteries of how the human body works in health and disease, and the other is the design and development of medical devices. Overviews of engineering analyses of physiological function at the tissue, cellular and molecular level will be given. For example, diverse problems such as neural transmission and signaling, how cells move, transport of substances by the blood stream, and movement of molecules between bodily compartments and within cells will be considered. The analysis of medical devices used in the diagnosis of a disease state or used to treat a pathological disorder will be reviewed. For example, diagnostic tools such as the electrocardiogram, ultrasound imaging and nuclear magnetic resonance imaging will be explored. The design of artificial organs and prosthetic devices will also be examined, such as the artificial kidney, heart and lungs, and orthopedic devices.

The general educational approach of the seminar series will be that of problem based learning. Students will be given assignments to be performed either individually or in groups. Assignments will be designed to expose students to the breadth of engineering applications in medicine and biology, the vocabulary of the life sciences, specific engineering tools, and library and Internet resources. Emphasis will be placed on developing an appreciation for the range of skills and specialized knowledge needed to solve biomedical engineering problems and enhancement of communication skills through class discussions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 199** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 201** Cell and Molecular Bioengineering (3) An analytical study of molecular and cellular phenomena including functional and metabolic interactions.

**BIOE 201 Analysis of Molecules and Cells (3)**

Introduction to cells, cellular molecules, and relevant experimental and analytical techniques, leading to an understanding of cell structure and function. This is a lecture course, graded by means of quizzes and a final exam. A general knowledge of physiology and chemistry are prerequisites; the analytical approach of the course will also require an ability to work with mathematical equations and models.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009 Ending: Summer 2014

Prerequisite: BIOL 141CHEM 112MATH 141 . Prerequisite or concurrent:PHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 299** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 301** Analysis of Physiological Systems (3) Linear systems analysis applied to electrical networks and lumped parameter models of physiological control systems.

**BIOE 301 Analysis of Physiological Systems (3)**

An introduction to concepts of circuit signal and lumped-parameter systems analysis in the context of physiological models, and physiological measurement systems. This is a lecture course, with weekly homework, graded by means of homework, quizzes, and a final exam. A general knowledge of human physiology, a course covering the physics of electrical devices and elementary circuits, and a working knowledge of differential equations are required prerequisites. The course provides background for upper-level work in signal systems and image analysis, and introduces circuit and lumped-parameter fluid models in common use for physiological analysis. This course is required for the BS in Bioengineering and is available as an elective in the Bioengineering Undergraduate Minor. BIOE 302 is normally taken at the same time as BIOE 301, and provides many examples of the material developed in this class.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: BIOL 141PHYS 212MATH 250 orMATH 251

Concurrent: BIOE 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 302** Physiological Simulation Laboratory (1) Computer laboratory designed to illustrate applications of control systems theory to physiological systems.

**BIOE 302 Physiological Simulation Lab (1)**

Computer simulation laboratory illustrating applications of linear and nonlinear systems concepts to that of the relationships between physiological signals. This course will group students into teams working on simulation of signals and systems using a high-level simulation language (Matlab/Simulink) and require students to compare results to analytic predictions. The emphasis is on understanding the physiological implications of system descriptions, and on developing an appreciation for the limits of computer modeling techniques. Team lab reports will be graded. This course should be scheduled concurrently with BIOE 301, if possible.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009 Ending: Fall 2014

Prerequisite: CMPSC 200 orCMPSC 201 ; Prerequisite or concurrent:BIOE 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 303 Bio-continuum Mechanics (3)** Mechanical properties of fluids and solids with applications to tissue mechanics and vascular system.

**BIOE 303 Bio-continuum Mechanics (3)**

The course serves as an introduction for students of science and engineering who are beginning a series of courses in mechanics. Students should have had some courses in calculus, physics, strength of materials, vector analysis, and elementary differential equations. A course in continuum mechanics then provides a foundation for studies in fluid and solid mechanics, material sciences, and other branches of science and engineering.

This course is required for the BS in Bioengineering, and is available as an elective in the Bioengineering Undergraduate Minor. It will provide an introduction to concepts of solid and fluid mechanics, analysis in the context of mechanical properties of biological tissues, physiological models and measurement systems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: BIOL 141E MCH 210MATH 230MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 313 Bioengineering Thermodynamics (3)** Chemical processes, including material and energy balances and phase equilibria, with emphasis on biological applications.

**BIOE 313 Bioengineering Thermodynamics (3)**

The course provides an introduction to thermodynamics, including the fundamentals of material and energy balances with specific emphasis placed on physiological applications. This course will cover equations of state, the first and second laws of thermodynamics in both open and closed systems, Maxwell Relations and chemical and phase equilibrium. Specific biological applications considered are the application of thermodynamic analyses to understanding thermoregulation, muscle movement cycles, respiratory gas exchange, cell potentials and osmosis. This course also covers heat transfer including Fourier's law of conduction, convective and radiative heat transfer. Specific biological examples discussed include applications to bioinstrumentation, thermoregulation and tissue heating by radiation for cancer therapy. This is a lecture course, graded by means of weekly homework, quizzes, and a final exam. A general knowledge of physiology and chemistry are prerequisites; the analytical approach of the course will also require an ability to work with basic differential and multivariable calculus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007 Ending: Summer 2014

Prerequisite: BIOL 141CHEM 112MATH 230MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 399 Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 401 Introduction to Bioengineering Research and Design (3)** Challenges and constraints of bioengineering research and design. Emphasis on immunoresponse, tissue mechanics, biological transport phenomena, and biomaterials.

**BIOE 401 Introduction to Bioengineering Research and Design (3)**

In this course, students explore how engineering principles can be used to advance healthcare, develop cutting-edge bioengineering technologies, and develop a fundamental understanding of biology. Representative design problems include the application of bio-continuum mechanics, biology-surface interactions, bioelectrical phenomena, and bio-transport to the design of novel implantable blood vessels. Students will use analytical and computational techniques to explore these topics, and to develop their own design interests. Educational outcomes will include an understanding of the process of integrating biology and engineering to improve research and design, and an appreciation of the societal and ethical implications of new directions in bioengineering.



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007 Ending: Summer 2014  
Prerequisite: BIOE 201BIOE 303  
Concurrent: BIOE 404

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 402 Biomedical Instrumentation and Measurements (3)** Biomedical measurements, including consideration of techniques, equipment, and safety.

**BIOE 402 Biomedical Instrumentation and Measurements (3)**

This course is designed to introduce students to the principles, applications, and design of instruments used in biomedical research and applications. The emphasis is on engineering design and analysis with supplemental discussion of relevant physiological principles. Students will learn to analyze and design systems through in-class examples, homework problems, and active participation. Grading is based on homework problems, quizzes and a final exam. Topics covered include: sensors, biopotential signal origin, filtering, amplifiers, electrodes and signal processing; pressure and flow measurement in the cardiovascular and respiratory systems, and medical imaging modalities.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008 Ending: Summer 2014  
Prerequisite: MATH 250 or MATH 251; BIOE 301 or E 210 or E 212 or PHYS 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 403 Biomedical Instrumentation Laboratory (1)** Biomedical measurements laboratory including measurement of biopotentials, experiments in medical imaging techniques, and use of cardiovascular and pulmonary system instrumentation.

**BIOE 403 Biomedical Instrumentation Laboratory (1)**

Laboratory course to accompany BIOE 402, Medical Instrumentation. The class is comprised of studies in medical circuits and transducers for static and dynamic biological inputs, and includes measurement of actual biomedical signals. For preparation for industry or research, proper laboratory documentation techniques are taught along with basic skills for presenting data as a scientific journal paper. Students work together in teams to perform the experiments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007 Ending: Summer 2014  
Prerequisite: Prerequisite or concurrent: BIOE 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 404 Data Analysis and Experiment Design (1)** Statistical measures of data, and selection of experiment sample size to meet criteria.

**BIOE 404 Data Analysis and Experiment Data (1)**

Upon completion of this course students will be able to determine confidence limits and establish hypothesis tests for the difference in means of data sets using normal and t-test measures. Students will understand the application of single and multivariable analysis of variance (ANOVA) procedures, and hypothesis tests based on these procedures. Students will know how to select the number of subjects to test for a given specified accuracy of a statistical measure.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006 Ending: Fall 2014  
Prerequisite: BIOE 302  
Concurrent: BIOE 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 406 Medical Imaging (3)** Physical principles and clinical applications of medical imaging methods.

**BIOE 406 Medical Imaging (3)**

The course covers all four major diagnostic medical imaging modalities including x-ray, ultrasound, radioisotope imaging, and magnetic resonance imaging. Physical principles, instrumentation, diagnostic procedures, and biological effects of

these modalities will be discussed. It requires background in physics and electrical circuits. It is a lecture course and graded by homework, a mid-term and a final exam. The prerequisite is Physics 212.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2000 Ending: Summer 2014  
 Prerequisite: PHYS 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 409 Biofluid Mechanics (3)** The fundamental relations in fluid mechanics and their application to biofluids including steady/unsteady flows, diseased states, devices and biorheology.

### **BIOE 409 Biofluid Mechanics (3)**

This course is a first course in fluid mechanics, with application to biomedical problems. This course incorporates understanding of fluid properties of biological materials and applies the fundamental laws (mass, momentum, and energy) that govern fluid mechanics to solve biofluid applications such as those in the cardiovascular system, including diseased states. The course will enable students to use approximation methods and constraints in fluid mechanics to help model and solve biofluid examples. Biorheology and cardiovascular prosthetics in the context of fluid mechanics will be discussed. The students will be able to understand and apply problem solving techniques to steady and unsteady biological flows and be exposed to wave propagation theory and oscillatory flow. Students will be exposed to biofluid devices and flow measurement techniques used to assess these devices. This course is required for students in the Bioengineering BS program for completion of either the mechanical engineering or the chemical engineering option.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2006 Ending: Summer 2014  
 Prerequisite: MATH 230MATH 251BIOE 303

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 410 Biomedical Applications of Microfluidics (3)** Study of fluid mechanics at small length scales. Low Reynolds number flow, electrokinetic flows, bioseparations in microfluidic devices.

### **BIOE 410 Biomedical Applications of Microfluidics (3)**

Microfluidics is the study of flow phenomena at small length scales with characteristic channel dimensions typically less than the diameter of human hair. Small length scale effects become important as surface forces such as viscous drag and surface tension govern flow behavior rather than body forces (inertia) as seen in macroscale fluid mechanics. Miniaturization of fluid handling systems also allows the development of micro Total Analysis Systems (microTAS) or so called "lab on a chip" which combines biological sample preparation, separation and analysis in a single device. Topics explored in this class include: fundamental understanding and derivation of constitutive balances in fluid mechanics (e.g., Navier Stokes equation), exploration of electrokinetic flow phenomena for electrophoresis, fabrication techniques for microfluidics, overview of (microTAS) systems especially capillary electrophoresis and miniaturized polymerase chain reaction for biochips, and exploration of integrated microfluidics for personalized medicine and drug delivery.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007 Ending: Summer 2014  
 Prerequisite: BIOE 303 or M E 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 413 Bioengineering Transport Phenomena (3)** An integrated study of the fundamentals of mass transport processes with emphasis on the analysis of physiological systems.

### **BIOE 413 Bioengineering Transport Phenomena (3)**

This course provides an introduction to mass transport phenomena in biological systems. The course builds upon thermodynamic concepts of phase and chemical equilibrium to analyze ion transport and cell membrane potentials including Nernst potentials, Gibbs-Donnan equilibrium and osmotic pressure. In particular, the course provides fundamental understanding of the diffusion of gases, electrolytes and non-electrolytes in biological applications. Furthermore, the principles of oxygen transport in tissues are specifically described and analyzed using the Krogh Cylinder Modes and hemoglobin-oxygen binding relationships. The transport of substances across biological membranes is discussed and analyzed for various biological transport mechanisms including: passive diffusion, active transport and facilitated transport. Convective transport through porous media is introduced using Darcy's Law and the Brinkman Equation. Finally, fundamental concepts of pharmacokinetic modeling are introduced and utilized for the analysis of drug transport and distribution within tissues. This is a lecture course, graded by means of quizzes and a final exam. A general knowledge of physiology and knowledge of continuum-mechanics, and thermodynamics is prerequisite.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007 Ending: Summer 2014  
Prerequisite: BIOE 303BIOE 313 orCHEM 450

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 419 Artificial Organs and Prosthetic Devices (3)** Analysis of function and consideration of design concerns for biomedical implants, including prosthetic joints, electrical stimulators, and cardiovascular pumps.

**Artificial Organs and Prosthetic Devices (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007 Ending: Summer 2014  
Prerequisite: MATH 250 orMATH 251 . Prerequisite or concurrent:BIOL 141 orBIOL 472

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 423 Reaction Kinetics of Biological Systems (3)** Chemical kinetics and reaction equilibria with applications to the analysis of physiological function and the design of synthetic organs.

**BIOE 423 Reaction Kinetics of Biological Systems (3)**

Chemical reactions are the underlying mechanism for numerous biological processes such as energy metabolism, biosynthesis pathways, mass transport, and detoxification. This course will introduce the basic concepts in chemical equilibrium and reaction kinetics. The course will then apply these chemical kinetics and analytical approaches to understand the underlying mechanisms of selected biological and physiological processes, which will include metabolic engineering, catalysis, bioreactors, and drug discoveries. Due to the analytical nature of this course, basic knowledge of thermodynamics, mathematics, differential equations are required.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007 Ending: Summer 2014  
Prerequisite: BIOL 141BIOE 313 orCH E 210 . Prerequisite or concurrent:BIOE 413 orCH E 302 andCH E 413

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 440 Clinical Corelations (1)** Engineering analysis applied to common disease states and therapies.

**BIOE 440 Clinical Corelations (1)**

This course applies analysis of physiologic systems and processes covered in other Bioengineering courses to the understanding of common diseases and their treatments. Each topic will include a basic description of the disease from a medical physiology perspective, identification of the applicable engineering principles, and application of those principles to understanding the disease process or therapy. Sample topics include heart failure, kidney failure and dialysis, diabetes, and surgical correction of vision.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000 Ending: Summer 2014  
Prerequisite: BIOE 402

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 443 (MATSE 403) Biomedical Materials (3)** Describe properties of materials and composites and their in vivo interactions.

**BIOE 443 (MATSE 403) Biomedical Materials (3)**

Metals, polymers, and ceramics, and their composites, which are capable of emulating the functions of hard and soft tissues, are the subjects of this course. The subject matter shall be confined to implanted materials; external appliances, such as casts, braces, etc are not considered. The topical content of this course will be grouped into four areas. A general introduction to selected aspects of physiology will be presented. This will provide the background necessary to appreciate the factors which govern the selection of biomedical materials. Specific emphases will be placed on polymerization of biopolymers (polypeptides and polysaccharides) and the general relationships between conformation and biological function, the biochemistry of blood and blood surface interactions, the formation of teeth and bone and the relationships between microstructure, composition and function, the immune responses to implanted materials, the resorption of bone

(osteoporosis) and the development of caries. The perspective placed on these topics will be that of materials science. The selection of ceramics for hard tissue prosthesis will be discussed. Orthopaedic and dental applications for ceramics will be discussed. Specific ceramic materials to be treated include dental porcelain, alumina- and zirconia-based ceramics, and bioglasses and pyrolytic carbons. Various classes of inorganic cements, gypsum, zinc phosphates, zinc carboxylates, silicates, and glassionomer cements will also be considered as ceramics. Hydroxyapatite, Hap-based composites and Hap-metal interactions will be discussed in particular Relationships among physical properties, mechanical properties, and chemical interactions with biological fluids will be described. Dental and orthopedic applications of metals will be described. The fracture toughness of metals, their electrochemical responses in vivo, and the nature of the interfacial interactions with hard tissues will be treated Dental amalgams and the noble metals for dental applications will be considered. Metals and alloys, such as Ti, Co-Cr, and vitallium, used in prosthetic applications, will be described and their properties and limitations discussed The phenomenon of stress shielding and the immune responses associated with the accumulation of metallic and polymeric particular debris in the vicinity of an implant will be discussed in particular Polymeric materials are important in a broad range of biomedical applications. Among these are soft tissue prostheses, hemostatic agents, dental restoratives, bone replacement materials, and surgical adhesives. In some applications it is desirable that a polymeric material biodegrade while in others property retention is desirable.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: MATSE 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 444 (IL) (MATSE 404) Surfaces and the Biological Response to Materials (3)** Focus is on special properties of surface as an important causative and mediating agent in the biological response to materials.

#### **BIOE 444 (MATSE 404) Surfaces and the Biological Response to Materials (3)**

This course factors the classical picture of the biological response to materials into spatial and temporal components, identifying the special properties of surfaces as an important causative and mediating agent. Biophysical mechanisms are emphasized that lead to formulation of structure property relationships and the biological response to materials. Contact activation of the blood plasma coagulation cascade, bioadhesion, and protein adsorption are used as example biological responses to material surfaces to illustrate concepts and principles. Leading theories attempting to correlate both kind and intensity of biological responses to surface and interfacial energetics will be compared and contrasted through a process that will quantify important surface thermodynamic properties of materials. The hydrophobic effect and related phenomena, especially as this pertains to water solvent effects in biology, receives special emphasis. Course materials are drawn from a selection of relevant library reserve texts.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2007 Ending: Fall 2014

Prerequisite: CHEM 111/CHEM 113

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 445 Tissue Engineering: Concepts, Calculations and Applications (3)** Introduction to interdisciplinary tissue engineering concepts, associated biochemical and biomechanical engineering calculations, and cardiovascular, musculoskeletal, and other tissue application examples.

#### **BIOE 445 Tissue Engineering: Concepts, Calculations and Applications (3)**

Tissue engineering is a field of research dedicated to the design and construction of living tissues for use in repairing or regenerating tissue structures and functions compromised by disease or trauma. This course provides an introduction to interdisciplinary tissue engineering concepts, associated biochemical and biomechanical engineering calculations, and cardiovascular, musculoskeletal, and other tissue application examples. Topics covered in this course will span the entire process of creating an engineered tissue, including, among other topics: techniques for cell isolation, recovery, and expansion; biodegradable polymer synthesis and degradation; scaffold design, fabrication, and cell seeding; bioreactors and engineered tissue mechanobiology. This is a lecture course, graded by means of quizzes on assigned readings, homework, and three exams. General knowledge of cell structure and function, physiology, chemistry, mechanics of fluids and solids, and elementary differential equations are prerequisites.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011 Ending: Summer 2014

Prerequisite: BIOE 201/BIOE 303

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 450W Bioengineering Senior Design (3)** Application of engineering and physiological principles to design of artificial organs and life supportive devices.

**BIOE 450W Bioengineering Senior Design (3)**

For preparation for the transition to industry, the course prepares students to work together as a team and effectively communicate scientific information. This course utilizes the student's knowledge in physiology and engineering which the student has accumulated to this point. Students develop teamwork, communication and leadership skills. The course begins with the students identifying a medical device or procedure which can be improved utilizing their engineering skills. A proposal is prepared and presented for design review. Students meet with the instructor on a regular basis for progress assessment. Notebooks are carefully maintained and critiqued. At the end of the semester, students demonstrate their project in a formal presentation and prepare a written report.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009 Ending: Summer 2014

Prerequisite: BIOE 403BIOE 440ENGL 202C senior standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 494H Honors Thesis (1-3 per semester/maximum of 6)** Independent study research and design, leading towards honors thesis.

**BIOE 494H Honors Thesis (1-3)**

Independent study for students who are completing honors thesis in Bioengineering. Course is taken during last two semesters before graduation. Student must have a faculty advisor for the thesis project. This advisor is in charge of supervising the independent study and grading. At the end of the first semester, students write a proposal in NIH format documenting the aims, background, preliminary results, and plan for ongoing research. At the end of the second semester, student submits Honors thesis. The final grade is determined by quality of proposal or thesis and quality of laboratory work.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013 Ending: Summer 2014

Prerequisite: Permission of program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOE 499 Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Bioethics and Medical Humanities (BMH)

**BMH 490** Bioethics and Medical Humanities Capstone Course (3) Students will integrate knowledge from their BMH minor through discussion and writing a paper on some aspect of medical humanities.

### Bioethics and Medical Humanities Capstone Course (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: PHIL 132

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Bioinformatics (BIIFM)

**BIIFM 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Biological Engineering (B E)

**B E 001S** Growing Your Future--First-Year Seminar (1) Introduce students to University life, the agricultural/biological/engineering program and profession; prepare them to succeed in academic life at Penn State.

### B E 001S Growing Your Future (1)

This First Year Seminar course for the College of Engineering is offered to introduce students to "University Life" in general and more specifically to familiarize students with the discipline of Biological Engineering. In preparation for their careers at Penn State, individual learning styles and the concept that engineers utilize both research and design methodologies in their learning and professional careers are discussed. A tour and assignment acquaints them early with the University library system as a tool for their academic endeavors. Through the departmental student computer lab, students are introduced to e-mail, PowerPoint, and other software resources. Resume writing prepares students early for seeking internships and co-op opportunities throughout their undergraduate years. Acquaintance with the diverse areas of specialization in Biological Engineering is gained through presentations by respective faculty. In response, student teams make PowerPoint presentations in class that explore each area in great depth. Departmental engineering (B E) and technology (ASM) curricula are introduced and discussed. Students are also acquainted with germane professional organizations and to the unique Land Grant charter of the University. Students are evaluated through weekly assignments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: first-year status

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 300** Biological Systems (3) Structure, function, and energy transformation of biological systems that affect solutions to engineering problems. Effects of engineering activities on ecosystems.

#### **B E 300 Biological Systems (3)**

The three factors that determine the productivity of a given plant or animal are nutrition, disease, and environment. To fully achieve the genetic potential of plants and animals, one must provide a non-stressing environment for the biological systems in addition to meeting their nutrition and health requirements. This course focuses upon first understanding the nature of biological systems. The systems to be covered most extensively are animals, plants, and harvested produce. For each biological system considered, emphasis will be placed on the physiological responses by the system in a non-stressing environment and in a stressing environment. Techniques to characterize combinations of environmental stressors will be covered. The requirements of engineering systems to alleviate environmental stresses will be determined. Students are evaluated based on two examinations, weekly homework assignments, participation in classroom discussions, and a final examination.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: CHEM 110PHYS 211

Concurrent: M E 300

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 301** Mathematical Modeling of Biological and Physical Systems (3) Modeling tools, quantification of processes, linear and non-linear systems of equations, numerical methods, matrix operations, applied to biological and physical systems.

#### **B E 301 Modeling Methods for Biological Systems (3)**

The ability to quantify relationships into mathematical models, and implement the models into the computer to find solutions, is essential for engineering analysis and design. This course provides the student with tools for modeling

biological and physical systems. Upon completion of this course, the student will be able to: identify a process/system and represent that process/system mathematically; solve the mathematically-represented system using two computer-based modeling tools, Excel and MATLAB; describe the emphasis areas offered in the Agricultural and Biological Engineering major; and be able to develop a systems model related to each area. The course includes engineering economics, matrix operations, curve fitting, numerical integration and differentiation, and applications of these methods to biological and agricultural systems.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2008  
 Prerequisite: or concurrent:MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 302** Transport Processes for Biological Systems (3) Engineering applications of the fundamentals of fluid mechanics, heat transfer, and diffusion, to biological systems at scales ranging from microbial to ecological.

### **B E 302 Transport Processes for Biological Production and Processing (2)**

Learning Objective. At the end of this course students will be able to:

1. Use and convert units and dimensions applicable to food processing
2. Apply laws of conservation of mass and energy
3. Calculate friction losses and pumping requirements for both Newtonian and Non-Newtonian fluids for both laminar and turbulent flow
4. Calculate the rate of heat transfer in both steady and non-steady state cases
5. Use the psychrometric chart in relation to drying processes
6. Apply concepts of cellular transport processes to practical applications for biological production and processing

Engineering applications of the fundamentals of fluid mechanics, heat transfer, and diffusion to biological production and processing of biological materials. This course will build on and apply the basic principles learned in the prerequisite modeling, fluid mechanics, and thermal sciences courses. Applications will include biological production in bioreactors, buildings, and/or outdoor environments. Other applications will include added-value processing of biological materials. Examples will involve aeration, heating, cooling, pumping, ventilation, drying, and/or filtration.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2012  
 Prerequisite: MATH 231MATH 251B E 300B E 301M E 300  
 Concurrent: C E 360 or M E 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 303** Structural Systems in Agriculture (3) Engineering analysis and design of structural systems in agriculture; topics: loads, connectors, analysis and design of structural members and systems.

### **B E 303 Structural Systems in Agriculture (3)**

The objective of this course is to provide the student with the essential skills necessary to engage in practical agricultural structure analysis and design. Topics include a review of shear, moment and deflection concepts; loading in agricultural structures including earth loads, grain loads and livestock loads; methods for the analysis of determinate and indeterminate beams, trusses and frames; the material properties of wood including impact of species, grain orientation, degree of hydration, etc., on member adequacy. The nano and molecular structure of wood is also discussed and how it impacts material properties. A lecture is also presented including ethics in the workplace including issues related to new materials technologies. Lectures are focused on the practical application of basic engineering principles with examples. The lab period contains a substantial design analysis project where a 2-person student team analyses an industrially designed structure (typically a post-frame building containing a truss roof system), which has been designed for a specific area. The team then redesigns the structure for a different location with different snow and wind loadings as well as intended usage, and optimizes the structure for efficient design of the structural members. The design and analysis uses VisualAnalysis, a common industrial software package. There is also a field trip to a truss manufacturer near the end of the class to tie everything together. The course will serve as a prerequisite for senior-level structural design courses.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2011  
 Prerequisite: B E 301E MCH 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 304** Engineering Properties of Food and Biological Materials (3) Composition, structure, and properties relationships. Measurement of mechanical thermal, chemical and biological properties, their variability, and use in engineering



calculations.

### **B E 304 Engineering Properties of Food and Biological Materials (3)**

Engineering properties play a crucial role during the analysis, design, and synthesis phases of problem solving. The accurate knowledge of properties is essential to the precise determination of the overall system and component responses. Due to the time-dependent and environmentally-sensitive nature of properties of the agricultural, food, and biological materials, the theory and measurement systems are different from those used for conventional engineering materials and their systems. Therefore, the focus of this course is to provide the students with sound bases of the theory and measurement methods that are used to quantify physical, mechanical, thermal, biological, and chemical properties of products and their systems. In addition, the significance and importance of the inherent variation in the property values of agricultural, food, and biological materials is emphasized. Students are evaluated based on homework and lab assignments, and three exams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: E MCH 213 . Prerequisite or concurrent: B E 300; C E 360 or M E 320; MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 305 Agricultural Measurements and Control Systems (3)** Principles of measurements, instruments, controls, and data acquisition systems, with emphasis on agricultural applications.

### **B E 305 Agricultural Measurements and Control Systems (3)**

Engineers and scientists are routinely required to measure or control parameters of physical systems. Frequently, these parameters are quantified electronically. This course prepares the student to solve fundamental engineering instrumentation and control problems with emphasis on agricultural and biological systems. Upon completion of this course, the student will be able to: select and apply electronic devices to solve basic engineering measurement and control problems; apply interference (noise) reduction techniques using sound engineering principles; demonstrate correct use of common electronic measurement tools including multimeters, oscilloscopes and others; demonstrate electrical construction techniques including cable preparation, soldering, crimping, circuit board fabrication, and others; explain simple measurement and control circuits represented by schematics or ladder diagrams; demonstrate the application of dataloggers, microcontrollers, programmable logic controllers, and computer software to collect data and/or control basic processes; explain the function of common circuit components such as resistors, capacitors, inductors, diodes, transistors, op-amps, and transformers in simple circuits. Students are evaluated on homework and lab worksheets, quizzes, an oral presentation, and a final project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: PHYS 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 306 Machines for Agricultural and Biological Processing (3)** Application of machine systems to agricultural production and biological processing machinery. Functional design and analysis of equipment.

### **B E 306 Machines for Agricultural and Biological Processing (3)**

This course is designed to provide a broad foundation for understanding machine system design for biological engineering students. In addition, this course serves as a foundation for those wishing to develop a more focused understanding of agricultural and general machine systems, and is a prerequisite for B E 400 level courses. Machine systems are an integral part of many agricultural operations from field production to post-harvest processing, storage, transportation, and bio-based processing. Biomass feedstock logistics and bioenergy production systems are heavily relying on machine systems. Biological engineers will likely encounter a wide range of powered and automated equipment in their careers. This course consists of lectures, labs, and open-ended design projects. The lab activities will focus on testing and evaluating of machine performance using prototype machines and instruments. Lab activities and design projects will be completed in the format of small groups. This course equips the students to: (1) describe operating characteristics of engines and motors and properly select models for different applications; (2) design machine elements and mechanical power transmission systems to accomplish a machine task; (3) apply basic physics and engineering principles in a variety of machine-product interaction situations; and (4) practice technical report writing and oral presentation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: B E 301 E MCH 212 E MCH 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 307 Principles of Soil and Water Engineering (3)** Utilization and engineering of soil-water resources; including rainfall-runoff, soil-water movement, erosion/sediment transport and flow processes.

**B E 307 Principles of Soil and Water Engineering (3)**

The two 50-minute class periods will focus on exploration of the underlying principles, equations, and importance of each of the topics to be covered. The two-period lab sessions will be used to explore each topic in a practical and experiential mode, with class participants sharing in discussions, lab activities, and explanations/presentations of project items. Weekly quizzes and periodic exams (somewhat evenly distributed during the semester) will be given during the lab period at appropriate stages of the course (likely after each major topic). The lab activities will focus on using representative soil profiles, cropping-management systems, and watershed-scale settings common to the immediate Centre County region as the basis for the experiential learning. Lab activities will sequentially build from one lab period to the next, showing how each stage of soil and water engineering is used to develop a more complete watershed-type project. Labs will involve in-class activities and field trips including map use, problem formulation, team problem solving, discussions, and reports/presentations by class participants. Participants will be expected to gather information and conduct some analyses outside of the class meeting times so as to complete the required lab projects. As appropriate, field trips will be scheduled so as to show course participants the practical settings in which basic soil and water engineering principles can be applied. The course will serve as a course preceding the senior-level soil and water engineering design courses in the Natural Resources Engineering Option of the Biological Engineering (B E) major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: C E 360 or M E 320

Concurrent: C E 360 or M E 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 308 Engineering Elements of Biochemistry and Microbiology (3)** Introduction to basic biochemistry and microbiology as well as industrial and environmental applications.

**B E 308 Engineering Elements of Biochemistry and Microbiology (3)**

B E 308 provides an introduction to microbiology, biochemistry, and major organic compounds found in living systems such as carbohydrates, lipids, proteins, and vitamins, as a package to engineering students. Energy calculations in microbial bioenergetics will be covered. Examples of industrial and environmental applications that build on the basic principles will be presented.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 391 (GWS) (A S M 391) Contextual Integration of Communication Skills for the Technical Workplace (2)** To develop corporate communication skills in technically focused students in a contextual manner.

**B E (A S M) 391 Contextual Integration of Communication Skills for the Technical Workplace (2)**

A B E/A S M 391 is the first half of a two-semester capstone experience in corporate focused leadership and communication skills training. The sequence is formatted into two 2-credit courses (second semester Junior for A B E/A S M 391 and first semester senior for the companion A B E/A S M 392 course). A key facet of this training is the contextual approach taken. All course modules are focused around the needs of industry and corresponding technical course content — a complete contextual approach. To meet the needs of the student, the course will reflect clear understanding of leadership and communication but also appreciate critical aspects of the technical content of student's work and of the industries within which the students will ultimately work. The primary focus for 391 is communication skills (oral and written) with a secondary focus on leadership and career skills. The course provides the student with interaction with individuals from industry (company visitors, industry trips, and recruiting opportunities). Students will be evaluated through writing and speaking projects, professional presentations, written worksheets in class and out, creation of portfolios and reports, in class group and individual exercises, computer graphics presentation assignments, library assignments, interaction with industry executives (reports), and leadership journals.

General Education: GWS

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: Junior level standing in B E or A S M

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 392 (GWS) (A S M 392) Contextual Integration of Leadership Skills for the Technical Workplace (2)** To develop corporate leadership skills in technically focused students in a contextual manner.

**B E (A S M) 392 Contextual Integration of Leadership Skills for the Technical Workplace (2)**

A B E/A S M 392 is the second half of a two-semester experience in corporate-focused leadership and communication skills training. The sequence is formatted into two 2- credit courses (second semester Junior for A B E/A S M 391 and first semester senior for the A B E/A S M 392 course). A key facet of this training is the contextual approach taken. All course modules focus on leadership and communication needs of industry within its corresponding technical content — thereby representing a complete contextual approach. To meet the needs of the student, the course will reflect clear understanding of leadership and communication but also appreciate critical aspects of the technical content of student's work and of the industries within which the students will ultimately work. The primary focus of A B E/A S M 392 is on leadership, with communication and career issues the secondary focus. The course provides students with interactions with individuals from industry (company visitors, industry trips, and recruiting opportunities). Topics developed for A B E/A S M 392 include personal development, ethical decision-making, corporate social responsibility, strategic group management, facilitation, and diversity.

General Education: GWS

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: B E 391 junior level standing in B E or A S M

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 461 Design of Fluid Power Systems (3)** Hydraulic systems, hydrostatic transmissions, electro-hydraulic systems in application to agricultural production and processing systems.

**B E 461 Design of Fluid Power Systems (3)**

This course is designed to provide a solid foundation for understanding hydraulic and pneumatic systems for power transmission and motion control. Applications include mobile and stationary equipment. Biological Systems Engineers (and other engineers as well) will likely encounter a wide range of powered and automated equipment in their careers. This course equips the students to: (1) understand the key operating characteristics of most fluid power system components including compressors, pumps, valves, cylinders, and motors, (2) design fluid power circuits, (3) mathematically model the steady state operation of fluid power systems, and (4) have sufficient knowledge to obtain the Hydraulic Specialist Certification offered by the Fluid Power Society. The course includes a hands-on laboratory offering the chance for students to construct circuits, see component cutaways, experience component and system performance demonstrations, and work with electronic control of hydraulic systems. Prerequisite knowledge includes fluid mechanics and familiarity with mechanical power transmission systems. The course grade is based on homework assignments, laboratory reports, a design project, and exams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: B E 306 or M E 360; C E 360 or M E 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 462 Design of Wood Structures (3)** Structural properties of wood; design of wood structural elements; design of wood structural systems; design of post-frame buildings.

**B E 462 Design of Wood Structures (3)**

This course begins by defining the structural loads applicable to wood framed building systems. The course then introduces students to the unique physical and structural characteristics of solid lumber and other wood products, such as plywood and other panel products and structural composite lumber, including laminated veneer lumber, parallel strand lumber and composite wood I-joists. The engineering principles and specifications for designing wood structural

members, including tension members, beams, columns, and beam-columns are presented in detail using the National Design Specification for Wood Design. Design specifications for designing wood structural connections using dowels, such as nails, bolts and lag-screws, are presented. Design procedures for designing selected wood-frame systems, such as floors, trusses, structural diaphragms and shear walls, are also presented. Students are introduced to a computer program which is an invaluable aid for analyzing and designing wood framed structural systems. At the conclusion of the course students will be able to specify structural loads for wood framing systems and analyze and design wood beams, columns, beam-columns, typical wood diaphragms and shear walls, simple wood structural systems, and a range of wood structural connections. The course builds on engineering students' prior knowledge from strength of materials and elementary structural analysis. Students are evaluated based on homework assignments, exams and a semester project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: B E 303A E 308 or C E 340

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 464 Bioenergy Systems Engineering (3)** Fundamental theories and applied technologies for production and conversion of biomass into energy and co-products. Students may take only one course from B E 464 and A B E 884 for credit.

### **B E 464 Bioenergy Systems Engineering (3)**

In the coming decades biomass will play an increasing role in satisfying society's energy and material needs, providing a renewable alternative to fossil fuels. This course will cover the fundamental theories and applied technologies used in production and conversion of biomass into transportation fuels, heat, power, electricity, chemicals and other value-added products. Production strategies focus on sustainable cropping systems, harvest, storage, and pretreatment for diverse biomass feedstocks. Conversion technologies covered include ethanol fermentation, biodiesel catalysis, combustion, pyrolysis, gasification, anaerobic digestion, and emerging processes. System analysis will address worker safety and health, environmental impacts, policy, and economics. The course is recommended for students in engineering and science majors with a background in thermodynamics, chemistry, and biochemistry or microbiology. Evaluation will be based on class participation, homework, quizzes, exams, and a team design project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: EME 301 or M E 201 or M E 300 or CH E 220 ; Prerequisite or concurrent: B E 308 or CH E 340 or C E 479

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 465 Food and Biological Process Engineering (3)** Reactor design, kinetics, fluid flow, thermal processes, and other topics applied to the design of systems for the food and biological process industry.

### **B E 465 Food and Biological Process Engineering (3)**

Learning objectives. At the end of this course students will be able to:

1. Use and convert units and dimensions applicable to food processing
2. Apply laws of conservation of mass and energy
3. Evaluate time and temperature profiles for food pasteurization and sterilization
4. Design an aseptic processing system
5. Describe operation of mechanical refrigeration systems
6. Calculate freezing times
7. Compute the energy requirements in single and multiple effect evaporators
8. Use the psychrometric chart in relation to drying processes

Engineering principles of reactors, fluid flow, thermal processes and other topics will be applied to the design of systems for the food and biological process industry. The examples used will be applicable to bioreactor production, food processing, pharmaceutical manufacture, etc.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: B E 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 466W Biological Engineering Design (3)** This course focuses on a industry sponsored design project offered in conjunction with the College of Engineering Learning Factory.

### **B E 466W Biological Engineering Design (3)**

This course will provide students with the opportunity to learn the "design" process while being immersed in a project that demands they produce a finished product. The industry representative will provide the technical guidance for the project, a clear expectation of exactly what the sponsoring company wishes to have developed, and the financial support to cover needed materials and supplies. The Learning Factory and Agricultural Engineering Building will provide a location where the design groups can work together to develop the design and prototype. The Departmental faculty member will administer the course, including reading, evaluating, and grading the final project report, provide lectures on topics including on project management, product design, product manufacturing, intellectual property, societal/professional issues, and related topics, and organize invited technical lectures related to industry projects. In accordance with standard Learning Factory procedures, specific projects will be selected for this course which align with the Biological Engineering curriculum.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: B E 391 ; senior level standing in B E

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 467 Design of Stormwater and Erosion Control Facilities (3)** Design of best management practices for stormwater management, erosion and sediment control as applied to the agriculture-urban interface.

### **B E 467 Design of Stormwater and Erosion Control Facilities (3)**

This course equips seniors agricultural and biological engineers with the ability to design sediment and stormwater impoundments and erosion control structures used in agriculture and the development of the agricultural-urban interface. Predictive hydrology is presented along with an introduction to several hydrology-based models used in the land-development industry. Basins are presented as fundamental structures used to attenuate stormwater peaks as well as holding ponds to facilitate gravitational sediment removal from stormwater runoff. Various sediment traps are also included. Flood routing is developed so students understand and can design for flood peak attenuation. Low Impact Development (LID) practices such as green roofs, bioretention areas and vegetated filter strips are presented as infiltration-based alternatives to traditional stormwater management. Open channel design procedures including maximum permissible velocity and tractive force are reviewed. The Revised Universal Soil Loss Equation (RUSLE) is introduced and the latest version of the RUSLE software package is available for student use. Stream corridor restoration procedures, especially many of the structural practices, are introduced. The course includes a major design project executed in groups of 3 to 5 students. Students are assigned a land parcel and the proposed development. Students are expected to develop a Stormwater Management Plan, including several LIDs, and an Erosion and Sedimentation Control Plan, including a sediment basin. Students must present their final designs in oral and written format to their peers and a lay audience. This project makes up about 30% of their course grade. The remainder of the grade is from two take-home exams and daily homework. The majority of those taking this course are A B E seniors or graduate students. Civil and Environmental Engineers often elect this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: B E 307 or C E 461

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 468 Microbiological Engineering (3)** Application of basic engineering principles and designs in biochemical and biological processes.

### **B E 468 Microbiological Engineering (4)**

Microbial engineering is a combination of biochemistry and microbiology applied to engineering. The purpose of this course is to provide an understanding of conversions of raw agricultural materials into value-added products via microbial fermentation. This course presents all steps in this type of bioprocessing such as mutagenesis, genetic modification for microbial manipulation, microbial kinetics, aeration, agitation for bioreactor design, and various recovery methods for downstream processing.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: B E 302; B E 308 or both MICRB 201 and B M B 211; PHYS 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 469W Optimization of Biological Production and Processing Systems (3)** Engineering and biological principles combined with economics and mathematical techniques to evaluate and optimize biological production and processing

systems.

### **B E 469W Optimization of Biological Production and Processing Systems (3)**

This course investigates techniques to optimize the design of systems related to biological systems production and processing. Optimization techniques learned include linear programming, calculus methods, and incremental search techniques. The course includes the development of a design project, which is then optimized through the use of these techniques. Engineering ethics is integrated into the course content. At the end of this course, each student should be able to: 1) distinguish the difference between workable and optimal solutions; 2) identify measures of optimality; 3) use various techniques for finding optimal solutions; 4) demonstrate improved writing skills; 5) assess and make recommendations on a situation from an ethical perspective; 6) develop and optimize a semester design model. Students are evaluated on homework assignments, exams, and semester project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: B E 302 and one B E 460 level course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 477 Land-Based Waste Disposal (3)** Analysis, design, and management of land-based systems for recycling and disposal of municipal, industrial, and agricultural wastes.

### **B E 477 Land-Based Waste Disposal (3)**

The course focuses on exploration of the fundamental principles and processes that determine the fate of nutrients and pollutants in liquid and semi-solid wastes that are applied to the soil for recycling and disposal. These principles then serve as the basis for design of systems for application of livestock manures, biosolids, septage, wastewater effluents, and other residual materials. Relevant state and federal regulations will be covered to illustrate the impact of regulations and policies on engineering practice. The course culminates in a project for which students design a system to dispose of municipal, agricultural, or industrial byproduct or wastewater. Principles will be reinforced with several homework sets. Field trips will expose students to land-based waste disposal processes and systems. The course will serve as a senior-level engineering science/design course in Agricultural and Biological Engineering (A B E).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: B E 307 orC E 370 orA S M 327

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 487 Watershed Modeling for Water Quality Design (3)** Application of common watershed models used to investigate design alternatives for flow and quality effects.

### **B E 487 Watershed Modeling for Water Quality Design (3)**

This course will explore the use of several commonly-available watershed simulation models for investigating water quality (WQ) and water quantity issues. The models will serve as a base from which students can investigate the effects of different management design scenarios on watershed system responses. Spring Creek Watershed in Centre County, and subwatersheds within Spring Creek, will serve as case study watersheds to be investigated for all modeling applications. The ArcView Generalized Watershed Loading Function (AVGWLF) model will be used as an initial exploration of modeling for the entire watershed and to show the hydrologic and WQ responses for various subwatersheds (agriculturally dominated vs. urban dominated). The StormWater Management Model (SWMM) model will be used to explore more in-depth modeling for an urban watershed, with the Fox Hollow Watershed serving as the primary case study. Extensive flow and WQ monitoring data are available and will serve to assist in parameterizing and calibrating the model. The Soil Water Assessment Tool (SWAT) model will be used to explore flow and constituent response from a more agriculturally-dominated Cedar Run watershed, also located within Spring Creek. The potential impact of urban low impact design (LID) practices and agricultural best management practices (BMPs) will be investigated for urban and rural watersheds, respectively.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: B E 307 orC E 461

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 494 Senior Thesis (1-9)** Students must have approval of a thesis adviser before scheduling this course.

### **Senior Thesis (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 494H** Senior Honors Thesis (1-6) Senior honors thesis.

**Senior Honors Thesis (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: junior or senior status in the University Scholar's program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 495** Agricultural Engineering Internship (1-6) Independent study and supervised cooperative education experience related to the student's career objective.

**Agricultural Engineering Internship (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B E 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Biological Science (BI SC)**

**BI SC 001** (GN) Structure and Function of Organisms (3) An exploration of how cellular structures and processes contribute to life and how life displays unity even in its diversity. Students who have passed BIOL 027, 110, or 141 may not schedule this course.

**Structure and Function of Organisms (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BI SC 001H** (GN) Structure and Function of Organisms (3) An exploration of how cellular structures and processes contribute to life and how life displays unity even in its diversity. Students who have passed BIOL 027, 110, or 141 may not schedule this course.

**Structure and Function of Organisms (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BI SC 002** (GN) Genetics, Ecology, and Evolution (3) The study of how living organisms inherit their traits, how plants and animals evolved, and how they now interact. Students who have passed BIOL 033, 133, 110, 220W, or 222 may not schedule this course.

**Genetics, Ecology, and Evolution (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BI SC 003** (GN) Environmental Science (3) Kinds of environments; past and present uses and abuses of natural resources; disposal of human wastes; prospects for the future. Students who have passed BIOL 220 or any other upper-level ecology course in biology may not schedule this course.

**BI SC 003 Environmental Science (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

BI SC 003 will help the student to prepare for living in current and future society's mixture of technology and mythology by presenting ideas and concepts about living systems and their environments. Policy makers and citizens are urgently needed who can act with an understanding of ecological principles when exercising community responsibilities to handle the environmental problems of our times, such as water use, solid waste management, global warming, energy use, conservation of irreplaceable natural resources, overpopulation, and the preservation of biodiversity. An understanding of biological and ecological principles and their application towards environmental challenges should give the student the confidence to be a trustworthy and active citizen, a conscientious steward of nature, and an agent of change for making a healthy, sustainable community and society. Regardless of the students' field of study, as a citizen of both local and global communities some environmental issues will impact their lives. The course objectives are to enable students to:

- \* Develop a basic understanding of how ecosystems and biological systems work, learn how economic systems depend on natural capital, biological/chemical processes, and the function of ecosystems
- \* Develop a fundamental understanding of sustainability
- \* Understand the scientific basis of specific environmental problems
- \* Understand the significance of environmental legislation and the impact of increased citizen awareness on improving the quality of life we enjoy today
- \* Further develop the ability to evaluate their contributions to shared environmental problems, identify ways to minimize their impact on the environment, and contribute to the development and maintenance of a sustainable future.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2003



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BI SC 004 (GN) Human Body: Form and Function (3)** A general survey of structure and function--from conception, through growth and reproduction, to death. Students who have passed BIOL 129 and 141 may not schedule this course.

**BI SC 004 Human Body: Form and Function (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course introduces students to biological principles fundamental to understanding human life. Cell structure, biochemistry and metabolism, the structure and function of major organ systems, and human genetics are explored in the course. Special emphasis on the relationship of the functioning of the human body to human disease is also stressed.

Students will be able to describe the basic biochemical, structural and functional characteristics of cells. They will learn the roles of carbohydrates, lipids, proteins and nucleic acids in cells and in the body as a whole. They will understand how these molecules are used in building cell and body structures, in energy-releasing metabolism and in the copying and use of genetic information.

Students will also be able to explain how different organ systems enable the body to meet the need for support structures, oxygen, nutrients, waste elimination, internal communication, defense against infectious disease and cancer, coordination of internal activity, and reproduction. This will be accomplished through the study of the skeletal and muscular systems, the circulatory, respiratory, digestive and nervous systems as well as the endocrine and reproductive systems.

The course provides support for majors such as Nursing, Psychology, Nutrition and others that touch on various aspects of human biology. However, students from any major will benefit from this course for the obvious reason that everyone should understand how their lives depend on a properly developed and functioning body.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Biology (BIOL)**

**BIOL 001 Preparation Skills for Success in Biology and Life Sciences (1)** A foundation course that emphasizes study skills and reviews basic biological, chemistry and mathematical principles.

**BIOL 001 Biology of Success (1)**

This course is designed to facilitate success in the required science courses for allied health majors. Many students are challenged by their lack of basic skills and knowledge in one or more of the following areas: biology, chemistry, mathematics, and study skills. Thus, this course addresses these issues and positions the student for success.

During the semester equal time is given to the following topics: study skills, which includes learning styles, goals, test taking strategies and organizational skills; terminology, which includes practice with prefixes, roots, and suffixes; basic math skills, which includes the metric system and practice with word problems; chemistry, which covers atoms, ions, and basic anabolic and catabolic reactions; cell structure and functioning; and body basics, which is an overview of the anatomy and functioning of body systems. Students are given a diversity of assignments and projects relevant to the various topics that will allow them to review and develop a basic level of competency in these areas in preparation for required science courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: Enrollment in the course requires permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 003 Peer Learning in Biology (1)** Group and learning skills to facilitate the understanding of complex biological processes.

**BIOL 003 Peer Learning in Biology (1)**

The study of Biology is complicated by the myriad pathways and processes that must be mastered in a way that interrelationship become apparent. A major stumbling block in a student's progress is learning how best to organize one's study so that both the details of these processes can be learned, along with how these processes fit together (i.e.

integration). The second hurdle is learning how to use this information in a way that can solve real life problems and to communicate this process to others. This course is designed for students who would like to improve their ability to organize their learning strategies in order to maximize their understanding of the complexities of life's process.

The course will be organized using peer learning groups which are posited on the assertion that every student can improve their performance with the proper environment and direction. Group leaders (enrolled in BIOL 251) will play an integral role in the program in that they are the connection between participant and course instructors. The group leaders will learn how to pass their skills on to other students in such a way as to encourage ownership of their education. Through regular meetings, the students enrolled in BIOL 003 will learn about time management and study skills, test taking strategies, exam writing, working with others that have divergent learning styles, and how to be multiculturally competent such that they are able to work with a diverse population.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: Concurrent enrollment in biology or life science course and permission of program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 011 (GN)** Introductory Biology I (3) An introduction to fundamental biological topics (including cells, energy transduction, genetics, evolution, organismal structure/function, ecology) for non-majors biology-related fields.

**BIOL 011 Introductory Biology I (3)  
(GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The twelve primary topic areas within Biology 11 are: An introduction to major themes within the course, defining life, and how natural selection operates through differential reproduction. All organisms are composed of matter and must obey the laws of chemistry - a review of basic chemical principles, the study of water and carbon-based macromolecules, the building blocks of organisms. The cell is the fundamental unit of life - a detailed study of the structure and function of eukaryotic cells. Organisms require energy to maintain organization - an exploration of the processes of photosynthesis, the conversion of light energy into chemical bond energy, and cellular respiration, the production of ATP. All cells arise from previously existing cells - a discussion of mitosis and meiosis. Genes carry information between generations - an examination of the principles of Mendelian genetics and their application to human disorders. The structure of DNA, how it codes for information in proteins, and the effect of mutations are explored. This history of life on earth, a discussion of the role of natural selection in populations and speciation. Plants are the only multicellular eukaryotes that photosynthesize - an inquiry into their evolution, function, structure, reproduction and response to the environment. Animals are multicellular eukaryotes that must acquire their energy/nutrients from other organisms - an exploration of the basics of the animal body plan and two human organ systems. Organisms must interact with their environment - a discussion of energy flows and nutrient cycling in ecosystems, as well as ecosystem distributions. Interactions among communities of species can be complex and these relationships will be investigated. Humans have an increasing impact on the environment, affecting all aspects of the world in which we live - an examination of human activities and solutions to environmental damage we have caused. The target audience is students who are majoring in biology-related fields, such as some of Agriculture (not biology majors). This serves as a foundation course for students who require a solid grounding in the fundamentals of biology before taking more advanced courses in their major. The course will serve as breadth course in biology for non-science majors, fulfilling a three-credit GN requirement. Evaluation of course performance is done through five in-class tests, in-class ALE activities (10 required during the semester), and an ecological footprint.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 012 (GN)** Introductory Biology II (1) Laboratory exercises demonstrating principles of biology.

**Introductory Biology II (1)**

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 1992

Prerequisite: or concurrent:BIOL 011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 110 (GN)** Biology: Basic Concepts and Biodiversity (4) A study of the evolution of the major groups of organisms including the fundamental concepts of biology.

**BIOL 110 Biology: Basic Concepts and Biodiversity (3)  
(GN)****(BA) This course meets the Bachelor of Arts degree requirements.**

This is the first biology course taken by students who intend to major in biology. It provides a foundation for the basic concepts that govern life. In addition, these concepts are used to explain the processes of evolution which contribute to the biodiversity that we observe today. The course objectives have remained unchanged and seek to provide students with a fundamental understanding of: 1) features of life; 2) how basic genetic processes provide continuity between generations; 3) how genetic variation arises and contributes to evolutionary processes; 4) how structure relates to function; 5) how the diversity life is studied and explained by evolution. Current evaluation methods in the lecture part of the course include three "mid-term" exams and a comprehensive final exam. Evaluation methods in the lab portion of the course include in-class quizzes, one or more lab reports on experiments or data analysis conducted in lab sessions. Points earned on lecture exams typically comprise 70% of the total points, whereas points earned in lab typical comprise 30% of the total points earned in the course. However, we have developed an extensive set of web-based interactive tutorials for this course (see <http://www.bio.psu.edu/biol110mellon/index.jsp>) that contain an instructor reporting feature and in future years student on-line performance may comprise 10% of the grade (with a proportional reduction in exam points). Biol 110 is offered twice each year in the Fall and Summer. This course is currently enrolls approximately 1100 students at the UP campus and about the same numbers at the Commonwealth Campuses. The online tutorials may allow us, in the future, to be more flexible in how and when the course is offered. Given the large enrollment at UP, Biol 110 requires significant facilities and equipment. Lecture presentations typically use overhead projectors, video equipment, Apple computers and PCs, and in some cases digital document and video cameras. Such equipment is available in technology classrooms. Lab equipment needed in this course includes: compound microscopes, dissecting microscopes, overhead projectors, video projectors and laptop computers. The online tutorials are computationally intensive and require a robust web server. Most students use their own computers to access the tutorials, but these can be accessed from any computer lab on campus.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 110H (GN) Honors Biology: Basic Concepts and Biodiversity (4)** Honors study of the evolution of the major groups of organisms including the fundamental concepts of biology.

**BIOL 110H Honors Biology: Basic Concepts and Biodiversity (4)  
(GN)****(BA) This course meets the Bachelor of Arts degree requirements.**

This is the first biology course taken by students who intend to major in biology. It provides a foundation for the basic concepts that govern life. In addition, these concepts are used to explain the processes of evolution that contribute to the biodiversity that we observe today.

The course objectives have remained unchanged and seek to provide students with a fundamental understanding of: 1) features of life; 2) how basic genetic processes provide continuity between generations; 3) how genetic variation arises and contributes to evolutionary processes; 4) how structure relates to function; 5) how the diversity life is studied and explained by evolution.

Current evaluation methods in the lecture part of the course include three "mid-term" exams and a comprehensive final exam. Evaluation methods in the lab portion of the course include in-class quizzes, one or more lab reports on experiments or data analysis conducted in lab sessions. Points earned on lecture exams typically comprise 70% of the total points, whereas points earned in lab typical comprise 30% of the total points earned in the course. However, we have developed an extensive set of web-based interactive tutorials for this course (see <http://www.bio.psu.edu/bio110mellon/index.jsp>) that contain an instructor reporting feature and in future years student on-lone performance may comprise 10% of the grade (with a proportional reduction in exam points).

The Honor's version of the course will differ in a number of ways from the parent BIOL 110 course. First, there are more opportunities to discuss current applications of the information. In addition, a unique project (either in lab and/or lecture) will allow students to explore a specific area of the course in more detail (e.g., a biodiversity project in which student groups present detailed information about a given taxon). Where appropriate, students will be exposed to current research in specific areas. The evaluation for the course will be modified from that of the parent course in accordance with the changes in assignments.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 110L (GN) Biology: Basic Concepts and Biodiversity (4)** A study of the evolution of the major groups of organisms

including the fundamental concepts of biology.

**BIOL 110L Biology: Basic Concepts and Biodiversity (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is the first biology course taken by students who intend to major in biology. It provides a foundation for the basic concepts that govern life. In addition, these concepts are used to explain the processes of evolution which contribute to the biodiversity that we observe today. The course objectives have remained unchanged and seek to provide students with a fundamental understanding of: 1) features of life; 2) how basic genetic processes provide continuity between generations; 3) how genetic variation arises and contributes to evolutionary processes; 4) how structure relates to function; 5) how the diversity life is studied and explained by evolution. Current evaluation methods in the lecture part of the course include three "mid-term" exams and a comprehensive final exam. Evaluation methods in the lab portion of the course include in-class quizzes, one or more lab reports on experiments or data analysis conducted in lab sessions. Points earned on lecture exams typically comprise 70% of the total points, whereas points earned in lab typically comprise 30% of the total points earned in the course. However, we have developed an extensive set of web-based interactive tutorials for this course (see <http://www.bio.psu.edu/biol110mellon/index.jsp>) that contain an instructor reporting feature and in future years student on-line performance may comprise 10% of the grade (with a proportional reduction in exam points). Biol 110 is offered twice each year in the Fall and Summer. This course is currently enrolls approximately 1100 students at the UP campus and about the same numbers at the Commonwealth Campuses. The online tutorials may allow us, in the future, to be more flexible in how and when the course is offered. Given the large enrollment at UP, Biol 110 requires significant facilities and equipment. Lecture presentations typically use overhead projectors, video equipment, Apple computers and PCs, and in some cases digital document and video cameras. Such equipment is available in technology classrooms. Lab equipment needed in this course includes: compound microscopes, dissecting microscopes, overhead projectors, video projectors and laptop computers. The online tutorials are computationally intensive and require a robust web server. Most students use their own computers to access the tutorials, but these can be accessed from any computer lab on campus.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 110P (GN) Biology: Basic Concepts and Biodiversity** A study of the evolution of the major groups of organisms including the fundamental concepts of biology.

**BIOL 110P Biology: Basic Concepts and Biodiversity (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is the first biology course taken by students who intend to major in biology. It provides a foundation for the basic concepts that govern life. In addition, these concepts are used to explain the processes of evolution which contribute to the biodiversity that we observe today. The course objectives have remained unchanged and seek to provide students with a fundamental understanding of: 1) features of life; 2) how basic genetic processes provide continuity between generations; 3) how genetic variation arises and contributes to evolutionary processes; 4) how structure relates to function; 5) how the diversity life is studied and explained by evolution. Current evaluation methods in the lecture part of the course include three "mid-term" exams and a comprehensive final exam. Evaluation methods in the lab portion of the course include in-class quizzes, one or more lab reports on experiments or data analysis conducted in lab sessions. Points earned on lecture exams typically comprise 70% of the total points, whereas points earned in lab typically comprise 30% of the total points earned in the course. However, we have developed an extensive set of web-based interactive tutorials for this course (see <http://www.bio.psu.edu/biol110mellon/index.jsp>) that contain an instructor reporting feature and in future years student on-line performance may comprise 10% of the grade (with a proportional reduction in exam points). Biol 110 is offered twice each year in the Fall and Summer. This course is currently enrolls approximately 1100 students at the UP campus and about the same numbers at the Commonwealth Campuses. The online tutorials may allow us, in the future, to be more flexible in how and when the course is offered. Given the large enrollment at UP, Biol 110 requires significant facilities and equipment. Lecture presentations typically use overhead projectors, video equipment, Apple computers and PCs, and in some cases digital document and video cameras. Such equipment is available in technology classrooms. Lab equipment needed in this course includes: compound microscopes, dissecting microscopes, overhead projectors, video projectors and laptop computers. The online tutorials are computationally intensive and require a robust web server. Most students use their own computers to access the tutorials, but these can be accessed from any computer lab on campus.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 110S (GN) Biology: Basic Concepts and Biodiversity (4)** A study of the evolution of the major groups of organisms including the fundamental concepts of biology. This course also fulfills the First-Year Seminar requirements.

**BIOL 110S Biology: Basic Concepts and Biodiversity (3)  
(GN;FYS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is the first biology course taken by students who intend to major in biology. It provides a foundation for the basic concepts that govern life. In addition, these concepts are used to explain the processes of evolution which contribute to the biodiversity that we observe today. The course objectives have remained unchanged and seek to provide students with a fundamental understanding of: 1) features of life; 2) how basic genetic processes provide continuity between generations; 3) how genetic variation arises and contributes to evolutionary processes; 4) how structure relates to function; 5) how the diversity life is studied and explained by evolution. Current evaluation methods in the lecture part of the course include three "mid-term" exams and a comprehensive final exam. Evaluation methods in the lab portion of the course include in-class quizzes, one or more lab reports on experiments or data analysis conducted in lab sessions. Points earned on lecture exams typically comprise 70% of the total points, whereas points earned in lab typical comprise 30% of the total points earned in the course. However, we have developed an extensive set of web-based interactive tutorials for this course (see <http://www.bio.psu.edu/biol110mellon/index.jsp>) that contain an instructor reporting feature and in future years student on-line performance may comprise 10% of the grade (with a proportional reduction in exam points). Biol 110 is offered twice each year in the Fall and Summer. This course is currently enrolls approximately 1100 students at the UP campus and about the same numbers at the Commonwealth Campuses. The online tutorials may allow us, in the future, to be more flexible in how and when the course is offered. Given the large enrollment at UP, Biol 110 requires significant facilities and equipment. Lecture presentations typically use overhead projectors, video equipment, Apple computers and PCs, and in some cases digital document and video cameras. Such equipment is available in technology classrooms. Lab equipment needed in this course includes: compound microscopes, dissecting microscopes, overhead projectors, video projectors and laptop computers. The online tutorials are computationally intensive and require a robust web server. Most students use their own computers to access the tutorials, but these can be accessed from any computer lab on campus.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 120A (GN;US;IL) Plants, Places, and People (3)** Useful and dangerous plants; historical (archaeological), cultural (ethnological), and economic (anthropocentric) aspects, including structural and chemical characteristics of botanical importance. Students who have passed BIOL (PPATH;S T S) 424 may not schedule this course.

**Plants, Places, and People (3)**

General Education: GN  
Diversity: US;IL  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 127 (GN) Introduction to Plant Biology (3)** Cellular structure and organization; physiological processes; classification; reproduction and development; relationship of plant groups. Students who have passed BIOL 240W may not schedule this course.

**Introduction to Plant Biology (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 129 (GN) Mammalian Anatomy (4)** Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.

**BIOL 129 Mammalian Anatomy (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Biology 129 is a 4 credit lecture and laboratory course specifically designed to cover the fundamentals of mammalian

anatomy, with emphasis on human systems, for students in a variety of life science related majors including Nursing, Kinesiology, Athletic Training, and Science. Successful completion of this course will give the student working knowledge of mammalian anatomy body plan, systems, and nomenclature with the intent on applying this information to future clinical situations they may encounter in nursing, physical therapy, athletic training, dentistry, and medical settings. The course utilizes lecture descriptions and discussions, along with laboratory specimen dissection, identification and nomenclature to give a thorough overview of anatomy. Small group collaboration is emphasized in laboratory.

**Course Objectives:** The principle objective of the course is for every student to obtain a working knowledge and understanding of basic mammalian anatomy, emphasizing a body system approach, and where possible, relate this to the human anatomical body plan. The lecture portion of the course will stress the construction, function, and relationships between anatomical systems. The laboratory portion of the course will emphasize structure identification and nomenclature of anatomical systems and will utilize human skeletal samples, cat specimen dissections, and anatomical models. Where possible, anatomical relationships that are important in clinical situations and common medical conditions will be emphasized. The end point of both objectives is to obtain a practical understanding of anatomy that demonstrates the relationships between anatomical form and function. Students will leave the course being able to relate this knowledge and nomenclature to future clinical or personal health situations.

**Relationship to Courses and Programs of Study:** This majority of students enrolled in this course are from the College of Health and Human Development in Nursing, Biobehavioral Health, Kinesiology, and Nutrition majors, although some students are from other colleges including the Eberly College of Science, Liberal Arts, and Agriculture. Because the majority of these students will utilize course information in future clinical settings, anatomy and its nomenclature as it relates to humans is emphasized and important clinical considerations are discussed.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 129L (GN) Mammalian Anatomy (4)** Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.

#### **BIOL 129L Mammalian Anatomy (4) (GN)**

Biology 129 is a 4 credit lecture and laboratory course specifically designed to cover the fundamentals of mammalian anatomy, with emphasis on human systems, for students in a variety of life science related majors including Nursing, Kinesiology, Athletic Training, and Science. Successful completion of this course will give the student working knowledge of mammalian anatomy body plan, systems, and nomenclature with the intent on applying this information to future clinical situations they may encounter in nursing, physical therapy, athletic training, dentistry, and medical settings. The course utilizes lecture descriptions and discussions, along with laboratory specimen dissection, identification and nomenclature to give a thorough overview of anatomy. Small group collaboration is emphasized in laboratory.

**Course Objectives:** The principle objective of the course is for every student to obtain a working knowledge and understanding of basic mammalian anatomy, emphasizing a body system approach, and where possible, relate this to the human anatomical body plan. The lecture portion of the course will stress the construction, function, and relationships between anatomical systems. The laboratory portion of the course will emphasize structure identification and nomenclature of anatomical systems and will utilize human skeletal samples, cat specimen dissections, and anatomical models. Where possible, anatomical relationships that are important in clinical situations and common medical conditions will be emphasized. The end point of both objectives is to obtain a practical understanding of anatomy that demonstrates the relationships between anatomical form and function. Students will leave the course being able to relate this knowledge and nomenclature to future clinical or personal health situations.

**Relationship to Courses and Programs of Study:** This majority of students enrolled in this course are from the College of Health and Human Development in Nursing, Biobehavioral Health, Kinesiology, and Nutrition majors, although some students are from other colleges including the Eberly College of Science, Liberal Arts, and Agriculture. Because the majority of these students will utilize course information in future clinical settings, anatomy and its nomenclature as it relates to humans is emphasized and important clinical considerations are discussed. Frequency of Offering: This course is routinely offered Fall and Spring semesters. The enrollment is approximately 130+ students during fall and 170 + students during spring semesters.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 129P (GN) Mammalian Anatomy** Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course.

**BIOL 129P Mammalian Anatomy (4)  
(GN)**

Biology 129 is a 4 credit lecture and laboratory course specifically designed to cover the fundamentals of mammalian anatomy, with emphasis on human systems, for students in a variety of life science related majors including Nursing, Kinesiology, Athletic Training, and Science. Successful completion of this course will give the student working knowledge of mammalian anatomy body plan, systems, and nomenclature with the intent on applying this information to future clinical situations they may encounter in nursing, physical therapy, athletic training, dentistry, and medical settings. The course utilizes lecture descriptions and discussions, along with laboratory specimen dissection, identification and nomenclature to give a thorough overview of anatomy. Small group collaboration is emphasized in laboratory.

**Course Objectives:** The principle objective of the course is for every student to obtain a working knowledge and understanding of basic mammalian anatomy, emphasizing a body system approach, and where possible, relate this to the human anatomical body plan. The lecture portion of the course will stress the construction, function, and relationships between anatomical systems. The laboratory portion of the course will emphasize structure identification and nomenclature of anatomical systems and will utilize human skeletal samples, cat specimen dissections, and anatomical models. Where possible, anatomical relationships that are important in clinical situations and common medical conditions will be emphasized. The end point of both objectives is to obtain a practical understanding of anatomy that demonstrates the relationships between anatomical form and function. Students will leave the course being able to relate this knowledge and nomenclature to future clinical or personal health situations.

**Relationship to Courses and Programs of Study:** This majority of students enrolled in this course are from the College of Health and Human Development in Nursing, Biobehavioral Health, Kinesiology, and Nutrition majors, although some students are from other colleges including the Eberly College of Science, Liberal Arts, and Agriculture. Because the majority of these students will utilize course information in future clinical settings, anatomy and its nomenclature as it relates to humans is emphasized and important clinical considerations are discussed.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 133 (GN) Genetics and Evolution of the Human Species (3)** Human heredity and evolution, individual and social implications. The course is for non-majors; students who have passed BIOL 222, 230W, B M B 251 or any upper-division biology course may not schedule this course.

**BIOL 133 Genetics and Evolution of the Human Species (3)  
(GN)**

BIOL 133 is a 3 credit non-majors course designed as an overview of our current knowledge of human genetics and genetic issues, with special attention to issues that are relevant to non-scientists. We discuss background information that is necessary for understanding these issues, including the structure and function of DNA and chromosomes, Mendelian inheritance, gene expression, gene mutations and chromosomal aberrations, population genetics, evolution, cancer, and genetic and reproductive technologies. This course includes multimedia presentations, textbook readings, classroom activities and problem solving. The goal for this course is to provide students with sufficient scientific knowledge to make informed decisions about genetic issues and the ability to discuss these issues intelligently.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 141 (GN) Introductory Physiology (3)** Explanation of the normal structure and function of the animal body, with special emphasis on human body systems. Students who have passed BIOL 472 may not schedule this course.

**BIOL 141 Introductory Physiology (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

**General Description:** Biology 141 is a 3 credit lecture course specifically designed to cover the fundamentals of human physiology for students in a variety of life science related majors including Nursing, Kinesiology, Athletic Training, and Science. Successful completion of this course will give the student working knowledge of human physiology with the intent on applying this information to future clinical situations they may encounter in nursing, physical therapy, athletic training, dentistry, and medical settings. The course utilizes both descriptive and problem solving techniques and as a result, may require some review of basic science and math principles developed in previous high school and college biology, chemistry, and math courses. **Course Objectives:** The course has two primary objectives. The first is for every student to obtain a working knowledge and understanding of basic human physiology. The second is to apply these physiological principles to problem solving situations as observed in medical situations, including cardiac problems,

hypertension, renal failure, acid-base balance disturbances, and endocrine imbalances. The end point of both objectives is to obtain a practical understanding of physiology which students can build upon and use in future clinical settings. Relationship to Courses and Programs of Study: This majority of students enrolled in this course are from the College of Health and Human Development in Nursing, Biobehavioral Health, Kinesiology, and Nutrition majors, although some students are from other colleges including the Eberly College of Science, Liberal Arts, and Agriculture. Because the majority of these students will utilize course information in future clinical settings, human physiology as it relates to clinical problems is emphasized. Many students will take Biology 141 along with our partnered 1 credit laboratory course, Biology 142, Physiology Laboratory. Additionally, many students enrolled in Biology 141 will also take our related course in anatomy, Biology 129, as a result of course program prerequisites within their major.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 142 Physiology Laboratory (1)** Experiments demonstrating basic physiological principles, with special reference to man.

### **Physiology Laboratory (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1998  
Prerequisite: or concurrent:BIOL 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 155 (GN)** Introduction to the Biology of Aging (3) Examination of human aging from a biological perspective. Population demographics, physiological and pathological changes, and healthy lifestyles are discussed. Students who have passed BIOL 409 may not schedule this course.

### **Introduction to the Biology of Aging (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 177 (GN)** Biology of Sex (3) Basic structure and function of the human reproductive system. Physiology of gametogenesis, fertilization, contraception, gestation, parturition, lactation, and sexual behavior.

### **BIOL 177 Biology of Sex (3) (GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course presents a thorough background on the basic structure and function of the human reproductive system, to provide the student with sufficient scientific knowledge to understand and discuss sex-related topics and make informed personal decisions. Through lecture format presentations, multimedia presentations, small group activities, and guest presentation, students will be exposed to information that will clarify their understanding of the ways that their own body functions in sexual behavior and reproduction. In-class demonstrations and activities will be used to illustrate practical aspects of anatomical, health and contraception issues.

Large class discussions, facilitated small group activities, and written assignments will encourage students to think critically and practically about the application of biological information to personal decision-making and to reducing their own risk of disease. Importantly, students will examine the roles of reproductive physiology and sexuality in a historical, cultural and social context, with particular emphasis on cultural and gender differences in anatomical forms, sexual expression, and disease susceptibility. Guest presentations from community groups will present current information about local reproductive and sex-related concerns and services. The course will present ongoing research on human sex and reproduction, and explore the biology behind current issues in human sexuality and medicine. Student evaluation is based on participation in activities, written assignments, and performance on four examinations.

The course is divided into four units: Reproductive Anatomy and Physiology provides students with a thorough background in human reproductive anatomy and function. This unit sets the tone for the course, providing students with correct terminology and creating a nonjudgmental atmosphere that encourages active exploration of topics. Cross-cultural and gender comparisons are incorporated, and anatomical models provide clear, 3-dimensional interactive illustrations. Reproduction explains the biological issues surrounding fertilization, pregnancy, childbirth, and abortion. Following these topics are several class sessions focused on contraception, using anatomical models. Small-group activities and guest presentations to allow students to practice appropriate communication skills. Sexual Identity addresses issues of variations in anatomy, sexual identity, and sexual orientation both within and between cultures. The



biological causes and physiological consequences of various physical and lifestyle manifestations are explored. Sexual Behavior examines the physiological basis of sexual response, and explores the variations and problems that are associated with human sexual behavior. Sexually transmissible infections are discussed, emphasizing their mode of transmission, identification, and treatment. Students are encouraged to apply the knowledge and skills they acquired through the semester to their decision-making and communication needs.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 199 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 200** Introduction to Pharmacological Concepts (3) Presents basic concepts of pharmacology; includes major drug classifications, pharmaceutical preparations, and biological implications relevant to these therapeutic agents.

**Introduction to Pharmacological Concepts (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 220M (GN) Honors Biology: Populations and Communities (4)** Honors study of the major physical, chemical, and biological factors constituting environment and their dynamic interaction with organisms forming ecosystems.

**BIOL 220M Honors Biology: Populations and Communities (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

BIOL 220M is an introductory course in ecology. It introduces students to the fundamental ecological principles, concepts, patterns, and processes regarding populations, communities, and ecosystems. This course provides students with a foundation of ecological science, as well demonstrating linkages between ecology, population genetics, and evolution.

The course objectives are the same as those described in the parent course proposal and are to provide students with a fundamental understanding of: 1) genetic processes within populations of living things; 2) evolutionary processes involved in speciation; 3) dynamic interactions of organisms within and among populations, especially pertaining to energy cycles, various biogeochemical cycles, predator-prey interactions, and the like, and; 4) distribution patterns of living organisms and the need to conserve the resources of the earth.

Evaluation methods in the lecture part of the course include two to three "mid-term" exams and a comprehensive final exam. Evaluation methods in the lab portion of the course include in-class quizzes, one or more formal lab reports on experiments or data analysis conducted in lab sessions, and short write-ups of existing data sets or relevant ecological issues. Points earned on lecture exams comprise between 65-75% of the total points, whereas points earned in lab comprise about 25-35% of the total points earned in the course.

The Honor's version of the course will differ in a number of ways from the parent BIOL 220W course. First, there are more opportunities to discuss current applications of the information. In addition, a unique project (either in lab and/or lecture) will allow students to explore a specific area of the course in more detail (e.g., students can select a species or specific habitat and develop a plan for its restoration). Where appropriate, students will be exposed to current research in specific areas. The evaluation for the course will be modified from that of the parent course in accordance with the changes in assignments.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2005  
Prerequisite: BIOL 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 220W (GN) Biology: Populations and Communities (4)** A study of the structures and functions of organismic interactions from simple populations to complex ecosystems. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.)

**BIOL 220W Biology: Populations and Communities (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

BIOL 220W is an introductory course in ecology. It introduces students to the fundamental ecological principles, concepts, patterns, and processes regarding populations, communities, and ecosystems. This course provides students with a foundation of ecological science, as well demonstrating linkages between ecology, population genetics, and evolution.

The course objectives are the same as those described in the original course proposal and are to provide students with a fundamental understanding of: 1) genetic processes within populations of living things, 2) evolutionary processes involved in speciation, 3) dynamic interactions of organisms within and among populations, especially pertaining to energy cycles, various biogeochemical cycles, predator-prey interactions, and the like, and 4) distribution patterns of living organisms and the need to conserve the resources of the earth."

Evaluation methods in the lecture part of the course include two to three "mid-term" exams and a comprehensive final exam. Evaluation methods in the lab portion of the course include in-class quizzes, one or more formal lab reports on experiments or data analysis conducted in lab sessions, and short write-ups of existing data sets or relevant ecological issues. Points earned on lecture exams comprise between 65 - 75% of the total points, whereas points earned in lab comprise about 25 - 35% of the total points earned in the course.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2004

Prerequisite: BIOL 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 222 Genetics (3)** Variation and heredity in plants and animals, including man; relationships of genetical knowledge to evolution and breeding practices.

**Genetics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

Prerequisite: 3 credits in biological sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 223 Laboratory in Genetics (1)** Principles of genetics illustrated with *Drosophila* breeding experiments and with demonstrations of plant and animal materials.

**Laboratory in Genetics (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: BIOL 133 or BIOL 222

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 230M (GN) Honors Biology: Molecules and Cells (4)** Honors study of cellular phenomena including molecular genetics and metabolic interactions.

**BIOL 230M Honors Biology: Molecules and Cells (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Biology 230M is a four credit course with lecture and laboratory components. The goal of this course is to provide an understanding of the major unifying principles of life as they apply to the study of the molecular mechanisms underpinning the function of living organisms. Through the lab, students are expected to become proficient in the interpretation and presentation of experimental results through written and oral reports.

Taken together with the other honors core courses in the biology curriculum (BIOL 110H, BIOL 220M, BIOL 240M), BIOL 230M will help students to integrate concepts ranging from molecular and cellular events through principles governing

entire populations and ecosystems. Further, BIOL 230M provides the foundation on which students further their study of molecular genetics - a discipline integral to a number of the biological sciences. Through this class, and the other core course, students will develop a number of the skills outlined in the General Education mission.

BIOL 230M serves from a number of majors and colleges. The laboratory portion of the course requires a fully equipped laboratory room, as well as a classroom for recitation meetings.

The Honor's version of the course will differ in a number of ways from the parent BIOL 230W course. First, there are more opportunities to discuss current applications of the information. In addition, a unique project (either in lab and/or in lecture) will allow students to explore a specific area of the course in more detail (e.g., take a paper from the primary literature and present the data, and its significance, to the class). Where appropriate, students will be exposed to current research in specific areas. In addition, the laboratory component will have opportunities for students to do more in depth exercises where, to some degree, they could pose their own questions. The evaluation for the course will be modified from that of the parent course in accordance with the changes in assignments.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 2007

Prerequisite: BIOL 110CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 230W (GN) Biology: Molecules and Cells (4)** A study of cellular phenomena including molecular genetics and metabolic interactions. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.)

**BIOL 230W Biology: Molecules and Cells (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Biology 230W is a four credit course with lecture and laboratory components. The goal of this course is to provide an understanding of the major unifying principles of life as they apply to the study of the molecular mechanisms underpinning the function of living organisms. Through the lab, students are expected to become proficient in the interpretation and presentation of experimental results through written and oral reports. Taken together with the other core courses in the biology curriculum (Biology 110, Biology 220W, Biology 240W), Biology 230W will help students to integrate concepts ranging from molecular and cellular events through principles governing entire populations and ecosystems. Further, Biology 230W provides the foundation on which students further their study of molecular genetics - a discipline integral to a number of the biological sciences. Through this class, and the other core course, students will develop a number of the skills outlined in the General Education mission. Offered every fall, Biology 230W serves from a number of majors and colleges and typically enrolls ca. 500 students at University Park and an equal number at campuses throughout the Penn State system. Given the large size of the class, the facilities requirements are substantial. Currently room 100 Thomas is used for lectures, and provides an excellent opportunity to incorporate multimedia presentations in a relatively intimate format. The laboratory portion of the course requires several fully equipped laboratory rooms, as well as classrooms for recitation meetings. For this purpose, two wet lab rooms in Muller Lab (105 and 108) are designated and are shared with another currently offered core course (Biology 110). Finally, a designated preparatory facility (room 107 Mueller) is used exclusively in each of the core courses.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 2007

Prerequisite: BIOL 110CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 240M (GN) Honors Biology: Function and Development of Organisms (4)** Honors study of development and physiological processes at the organismic level. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.)

**BIOL 240M Honors Biology: Function and Development of Organisms (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides an understanding of the major unifying principles as they apply to the study of the development and physiological mechanisms utilized by organisms from both animals and plants. In lecture a comparative approach will be taken in the examination of reproduction, development, and physiology primarily at the organismal level. In laboratory, experimental investigations of both animal and plant systems will reinforce the concepts covered in lecture. Through the lab, students are expected to become proficient in the interpretation and presentation of experimental results through written and oral reports.

Taken together with the other core courses in the biology curriculum (BIOL 110, BIOL 220, BIOL 230), BIOL 240M will help students to integrate concepts ranging from molecular and cellular events through principles governing entire

populations and ecosystems. Further, BIOL 240M provides the foundation on which students further their study of animal physiology and development - two of the largest options in the biology majors curriculum. Through this class, and the other core course, students will develop skills integral to the General Education mission.

Evaluation methods in the lecture part of the course include two to three "mid-term" exams and a comprehensive final exam. Evaluation methods in the lab portion of the course include in-class quizzes, one or more formal lab reports on experiments or data analysis conducted in lab sessions, and short write-ups of existing data sets or relevant ecological issues. Points earned on lecture exams comprise between 65-75% of the total points, whereas points earned in lab comprise about 25-35% of the total points earned in the course.

BIOL 240M serves from a number of majors and colleges. The Honor's version of the course will differ in a number of ways from the parent BIOL 240W course. First, there are more opportunities to discuss current applications of the information. In addition, a unique project (either in lab and/or in lecture) will allow students to explore a specific area of the course in more detail (e.g., students choose a topic in the current literature and present a paper along with its significance to the class). Where appropriate, students will be exposed to current research in specific areas. The evaluation for the course will be modified from that of the parent course in accordance with the changes in assignments.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: BIOL 110CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 240W (GN) Biology: Function and Development of Organisms (4)** A study of development and physiological processes at the organismic level. (BIOL 220W, 230W, and 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.)

**BIOL 240W Biology: Function and Development of Organisms (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides an understanding of the major unifying principles as they apply to the study of the development and physiological mechanisms utilized by organisms from both animals and plants. In lecture a comparative approach will be taken in the examination of reproduction, development, and physiology primarily at the organismal level. In laboratory, experimental, investigations of both animal and plant systems will reinforce the concepts covered in lecture. Through the lab, students are expected to become proficient in the interpretation and presentation of experimental results through written and oral reports. Taken together with the other core courses in the biology curriculum (Biology 110, Biology 220W, Biology 230W), Biology 240W will help students to integrate concepts ranging from molecular and cellular events through principles governing entire populations and ecosystems. Further, Biology 240W provides the foundation on which students further their study of animal physiology and development - two of the largest options in the biology majors curriculum. Through this class, and the other core course, students will develop skills integral to the General Education mission. Biology 240W serves from a number of majors and colleges and typically enrolls ca. 500 students at University Park and an equal number at campuses throughout the Penn State system. Given the large size of the class, the facilities requirements are substantial. Currently room 100 Thomas is used for lectures, and provides an excellent opportunity to incorporate multimedia presentations in a relatively intimate format. The laboratory portion of the course requires several fully equipped laboratory rooms, as well as classrooms for recitation meetings. For this purpose, two wet lab rooms in Muller Lab (105 and 108) are designated and are shared with another core course offered currently. Finally, a designated preparatory facility (room 107 Mueller) is used exclusively in the core courses.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2007  
Prerequisite: BIOL 110CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 251 Peer Leadership in Biology (1)** Leadership training in guiding others to learn, communicate, and apply biological principles.

**BIOL 251 Peer Leadership in Biology (1)**

The study of Biology is complicated by the myriad pathways and processes that must be mastered in a way that interrelationship become apparent. A major stumbling block in a student's progress is learning how best to organize one's study so that both the details of these processes can be learned, along with how these processes fit together (i.e. integration). The second hurdle is learning how to use this information in a way that can solve real life problems and to communicate this process to others. This course is designed for students who have already mastered basic concepts in biology and who want to learn how to communicate their understanding to others who are learning these first principles.

This course is unusual in that it has divergent goals. The students enrolled in this course will be trained to be more effective communicators. In the 21st century, it is critical that we train our students to be better at relating to the general population by using effective communication skills. In addition, the course will train the students to act as effective group

leaders in peer learning programs so they become competent, comfortable, and confident in working with students of diverse background, learning styles and skill levels. The philosophy behind peer learning programs is that every student can improve their performance and with the help of a group leader, this goal can be realized. The group leaders play an integral role in the program that in that they are the connection between participant and course instructors. The group leaders will learn how to pass their skills on to other students in such a way as to encourage ownership of their education. Through workshops and biweekly meetings, the group leaders will learn about time management and study skills, test taking strategies, exam writing, working with students with divergent learning styles, and how to be multiculturally competent such that they are able to work with a diverse student population. They will facilitate learning through group activities and practice their leadership skills in a small group setting. Group leaders will be monitored through review of their weekly journals as well as observation of their groups by supervising faculty. The student developed exercises will be implemented and reviewed for effectiveness.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: 8 credits in biology or life science courses and permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 296A** Laboratory Teaching Experience in Biology (1-6) This course concentrates on the various philosophies and methods of teaching anatomy at the college level. Special emphasis is placed on inquiry learning and diversity of classroom environments. Techniques of preparing student objectives will be discussed. The course is designed to give the student practice in planning and presenting lectures, lecture demonstrations, and lab investigations.

#### **Laboratory Teaching Experience in Biology (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 296A** Laboratory Teaching Experience in Biology (1-6) This course concentrates on the various philosophies and methods of teaching anatomy at the college level. Special emphasis is placed on inquiry learning and diversity of classroom environments. Techniques of preparing student objectives will be discussed. The course is designed to give the student practice in planning and presenting lectures, lecture demonstrations, and lab investigations.

#### **Laboratory Teaching Experience in Biology (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**BIOL 297B** Integrative Pharmacology (3) Review the basic concepts of pharmacology and relate these concepts to the pathophysiological changes associated with the disease state.

**Integrative Pharmacology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 297C** Intro to Pathophysiological Concepts (3) Covers the alteration of basic physiological processes associated with the disease state.

**Intro to Pathophysiological Concepts (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 322** Genetic Analysis (3) A discussion of the mechanisms of heredity in prokaryotes and eukaryotes with emphasis on analysis and modes of inference.

**Genetic Analysis (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: at least two of the following courses:BIOL 220WBIOL 230WBIOL 240W orMICRB 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 400** Teaching in Biology (1-3) This course will train biology teaching assistants to teach in the laboratory/ recitation setting with emphasis on critical thinking skills. Enrollment will be limited to students of at least fifth semester standing that have been accepted as teaching assistants for biology.

**BIOL 400 Teaching in Biology (1-3)**

This course provides teaching assistants with the fundamentals they will need to be effective in the laboratory and/or recitation classroom. Students will learn the fundamental skills needed to; design lesson plans; facilitate class discussions; write effective quizzes; communicate learning expectations; grade fairly; and in the case of the laboratory setting, maintain a safe learning environment. Students enrolled in this course will also be serving as teaching assistants and consequently faculty who serve as course instructors and/or lab coordinators in the relevant course will provide the instruction. Through regular meetings the course instructors will help teaching assistants adjust to their duties and solve common problems that arise in the laboratory/recitation environment. Emphasis will be placed on how teaching assistants can facilitate active learning and help their students develop sound study skills. Students enrolled in this course will be evaluated on regular attendance, organization in and preparation for their teaching, and clarity in how they communicate with their students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: Enrollment will be limited to students of at least fifth semester standing who are or have been accepted as

teaching assistants in a life science course.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 402W Biological Experimental Design (3)** Discussion of experimental design, analysis and presentation, with a practicum providing for student design, analysis and presentation of biological experiments. Students may not take this course if they have taken BIOBD 350W.

### **BIOL 402W Biological Experimental Design (3)**

This course emphasizes written and oral communication of scientific ideas. Students discuss papers from the literature, preparing written critiques of two. Critiques are reviewed in writing by the instructor and peers and may be revised twice. Peer reviews are graded in writing and may be revised once. Written proposals for biological research are required. Students must build arguments for methodological rationales, justify statistical approaches, and place their proposed research into a larger societal context. Proposals are reviewed by the instructor and three peer reviewers. Peer reviewers must prepare written critiques and present proposals to the class during an "NSF"-style panel review. Prior to the presentation, the instructor provides written and oral feedback to the author and the peer reviewer in a meeting at which strategies for presenting the proposal are discussed. Subsequent to the presentation, peer reviewers write summaries of the discussion and provide explicit guidance to authors. Proposals may be revised twice. Peer reviews and summaries are graded in writing and may be revised once. Thus, each student writes 2 critiques, 1 proposal, 2 peer reviews of critiques, 1 peer review of a proposal, and 1 summary of the panel discussion. Each assignment is graded in writing and is subject to revision. Students also are graded on their proposal presentations and on participation in panel discussions. These activities constitute 75% of the final grade.

Students must demonstrate competence in the use of SAS, a statistics package. Students must choose and apply appropriate statistical techniques to biological data. In addition to the program and its output, students write interpretations of the results. This activity constitutes 25% of the final grade.

Lectures are used to review statistics and "how tos" (e.g., proposal preparation). Case histories are used to address ethics, statistical decision-making, and design. Students are expected to challenge what they learn, and the notion that scientists must acknowledge and guard against bias in their work is emphasized. Intellectual honesty and the ability to give and receive constructive criticism are demanded.

This course is required in two of the six options in biology (ecology and general), and it can be taken by students in the other options. The course is required of students who have not fulfilled the WAC requirement at the 200-level (transfer students).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: at least two of the following three courses:BIOL 220WBIOL 230WBIOL 240W;STAT 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 404 Cellular Mechanisms in Vertebrate Physiology (3)** This course considers cellular mechanisms governing physiological aspects of vertebrate cell signaling and their adaptation to particular organismal functions.

### **Cellular Mechanisms in Vertebrate Physiology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: B M B 251 orBIOL 230W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 405 Molecular Evolution (3)** Introduction to concepts and techniques of analysis of molecular sequence data from an evolutionary point of view.

### **Molecular Evolution (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1994

Prerequisite: BIOL 222 orBIOL 230W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 406 Symbiosis (3)** This course covers a variety of different types of symbiotic relationships between unicellular symbionts and plants, fungi, or animals.

### **Symbiosis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998  
Prerequisite: BIOL 110;BIOL 220WBIOL 230W orBIOL 240W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 407 Plant Developmental Anatomy (3)** This course will examine the development of basic vascular plant anatomical structures including leaves, stems, roots, and flowers.

### **BIOL 407 Plant Developmental Anatomy (3)**

The course will provide students with an understanding of the developmental anatomy of plant organs and tissues. More specifically, the course will focus on the structure and function of plant organs throughout their lifecycle, including embryogenesis, organ initiation, and the structures of leaves, roots, stems, and flowers in vascular plants. When appropriate, the course will discuss genes involved in the formation and function of these organs to provide illustrations of current scientific investigations in the field of plant developmental anatomy. Upon completing the class, students will have gained an appreciation of the structure/function relationships of plant tissues and organs in regards to their development and physiological roles.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: BIOL 240W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 409 Biology of Aging (3)** Mechanisms of the aging process, with special reference to man. Unfavorable progressive changes in molecules, cells, systems, and organisms.

### **Biology of Aging (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1984  
Prerequisite: 6 credits in biology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 411 Medical Embryology (3)** Develops an understanding of human reproductive physiology, embryological processes, their time frames, and the development of major human body systems. The course emphasizes clinical correlations and the medical consequences of developmental abnormalities.

### **Medical Embryology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998  
Prerequisite: 6 credits of biology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 412 Ecology of Infectious Diseases (3)** This course examines how ecological processes impact upon the epidemiology of infectious diseases.

### **BIOL 412 Ecology of Infectious Diseases (3)**

The course will examine the population dynamics of disease and takes an ecological perspective on how pathogens and parasites flow through host populations to identify possible means of predicting and controlling pathogens.

The approach is one of population dynamics, examining changes in disease patterns in time and space. We construct mathematical models to capture the patterns observed, make predictions and identify the means of reducing disease spread. This is an ecological approach, applying the techniques of population biology to an understanding of Parasitology to develop a different perspective on epidemiology. At the same time, the course brings aspects of evolutionary biology into the course and will examine some of the current issues in disease biology including disease emergence, bioterrorism, agro-terrorism and the role of humans as disease reservoirs for wildlife etc.

Upon completion of this course, students will obtain insight into the dynamics of disease spread. They will understand how to construct models and how to apply generic models to specific disease systems and make predictions about controlling disease. They will grasp some major concepts in Parasitology and population dynamics including the role of the disease basic reproductive number (RO), when diseases show a density dependent patterns of transmission or a frequency dependent pattern, non-linear dynamics and the processes that generate heterogeneities in exposure and



susceptibility. The course will provide an excellent course for pre-Med students, biologists and students interested in ecology.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2004  
Prerequisite: BIOL 220W orH P A 440

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 413** Cell Signaling and Regulation (3) Introduction to the themes of cellular signaling and regulation through critical review of primary literature.

### **Cell Signaling and Regulation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998  
Prerequisite: BIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 414** Taxonomy of Seed Plants (3) Basic principles and procedures in the practice of angiosperm systematics.

### **Taxonomy of Seed Plants (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1994  
Prerequisite: BIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 415** Ecotoxicology (3) Major concepts and controversies in the interdisciplinary field of ecological toxicology; toxicity analysis, remediation, and case studies of environmental pollution.

### **Ecotoxicology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995  
Prerequisite: BIOL 110BIOL 220W;FOR 308 orW F S 209

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 416** Biology of Cancer (3) This course intends to illustrate biological basis of cancer development, and discusses aspects on prevention, detection, and treatment of cancer.

### **Biology of Cancer (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: BIOL 222 orBIOL 230W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 417** Invertebrate Zoology (4) Function and form of major invertebrate phyla.

### **Invertebrate Zoology (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1994  
Prerequisite: BIOL 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 419** Ecological and Environmental Problem Solving (3) Overview of processes involved in solving environmental

problems. Provides students with toolkit for understanding ecological and environmental problems.

**BIOL 419 Ecological and Environmental Problem Solving (3)**

The course will provide a general overview of the process involved in studying a variety of ecological and environmental problems. It will provide a toolbox of techniques for understanding ecological and environmental problems, and discuss how they can be used to address questions and generate testable predictions. It will examine connections between individuals and populations and communities as well as between theory and data. The focus will be on theoretical and computer modeling approaches, while maintaining a strong link to data and real systems.

After an introduction to modeling, students will learn to develop and use simple and stochastic optimization models for individual organisms, as well as applying basic game theory to interactions between individuals. Many of the class meetings will be held in computer laboratories where they will be actively engaged in working on applying these models. They will explore a sequence of population demographic models of increasing complexity, ranging from unlimited, unstructured population growth to density-dependent, structured population growth, in non-spatial and spatial contexts, culminating in individual-based models for population dynamics. The students will then apply these models to interacting species, learning about mutualistic, competitive and host-natural enemy interactions. Finally, we will explore theory for communities of species in space and time. Applied problems will be drawn from all areas of conservation, harvesting, pest control and epidemiology. This course will be one of several ecology courses that are available to students in the ecology and general option in the biology program along with the biology minor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004

Prerequisite: BIOL 220W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 420 (GEOSC 420) Paleobotany (3)** Classification, morphology, phylogeny, and stratigraphic occurrence of fossil plants; practicum includes field trips and study of paleobotanical techniques and specimens.

**BIOL (GEOSC) 420 Paleobotany (3)**

Land plants provide the oxygen, food, and forest structure that make our lives on land possible. They are sensitive indicators of global change in the past as well as today. This course will examine the history of green plants on the dynamic Earth from their beginnings in the Proterozoic oceans to today, with emphasis on central topics such as the colonization of land, the histories and relationships of major plant groups, the evolution of seeds and flowers, the evolution of plant-animal interactions, extinction and diversification, paleoclimates, and the origins of modern biomes such as rainforests and grasslands.

This course is strongly recommended to graduate students and advanced undergraduates with interests in paleobiology and/or plant biology. Specimen observation and field trips will be important course components. Exams, assignments, and class participation will be the primary bases of evaluation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: any 3 credit introductory course in historical geology or plant biology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 421 (VB SC 421) Comparative Anatomy of Vertebrates (4)** The comparative anatomy of representative vertebrate animals discussed from a descriptive and an evolutionary viewpoint.

**BIOL (VB SC) 421 Comparative Anatomy of Vertebrates (4)**

Upon completion of this course, students will understand the fundamentals of vertebrate anatomy and be able to employ comparisons between phylogenetically distinct vertebrate species to illustrate evolutionary adaptations and the relationship between structure and function. Unique adaptations such as those of ruminants and birds will be explored in addition to the more common fish, amphibians and mono-gastric mammals typically used to illustrate these principles. Laboratory activities utilizing specimens representative of higher and lower vertebrate species will emphasize structure identification and functional adaptations. Students will be evaluated by means of laboratory examinations which will focus on structure identification. Attendance in laboratory is mandatory and laboratory exercises to be completed at each laboratory period will be graded. Students that miss laboratory session due to an excused absence should arrange a make up assignment with the instructor. Unannounced quizzes will be presented in either lecture or laboratory sessions. Three lecture examinations and a comprehensive final examination will be given.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: BIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 422 Advanced Genetics (3)** Chromosomal mechanism of heredity; cytoplasmic and polygenic inheritance, chemical genetics, genomics, and experimental evolution.

**BIOL 422 Advanced Genetics (3)**

This course will examine the genetics of chromosomes and how changes in gene arrangements shape the structure and function of genes in genomes. This will include an examination of how chromosomes organize genetic information, how chromosomes are transmitted, how the evolutionary process shapes genetic variation in the genome of populations of organisms and between different species.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: one genetics or genetic based course including BIOL 133BIOL 222BIOL 322 orBIOL 230W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 424 Seeds of Change: The Uses of Plants (3)** Interdisciplinary approach to the biology, chemistry, history, and culture of the interactions between plants and people.

**Seeds of Change: The Uses of Plants (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: BIOL 110;BIOL 220WBIOL 230W orBIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 425 (PPEM 425) Biology of Fungi (4)** A survey of the biological diversity of fungi, stressing evolution, ecology, disease, morphology, life histories, and importance to human affairs.

**BIOL (PPATH) 425 Biology of Fungi (4)**

This course is a hands-on survey of fungal diversity, covering a wide variety of topics in fungal biology: phylogenetics, morphology, ecology, evolution, population biology, fungi as food, fungi as sources of toxins, ethnomycology, fungi as agents of plant and animal disease, fungi as sources of pharmaceuticals, and industrial uses. All fungi will be discussed, from mushrooms and other fleshy fungi to molds to slime molds. The laboratory portion of the course will center mostly around handling and manipulating freshly collected and living fungi, and microscopic analysis of their major features. There will be approximately 4-5 required field trips to local forests during the laboratory period, to observe fungi in their natural habits and collect them for further analysis in the laboratory. Students will come out of the course with a broad base of knowledge about fungi and their diversity and the ability to handle them in the laboratory and observe them using the microscope.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: fifth-semester or graduate standing in a biological sciences major with six credits completed in the major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 426 Developmental Neurobiology (3)** Overview of basic developmental processes as they apply to the central nervous system.

**BIOL 426 Developmental Neurobiology (3)**

This course will provide a general overview of developmental processes as they apply to the central nervous systems. From initial differentiation of neuronal tissue to the aging of human brain, this course will expose students to many hot topics in the current neuroscience research field, including synaptogenesis, axon guidance, neural stem cells, apoptosis, learning and memory, and Alzheimer's disease. Although one textbook will be assigned as the major reference book, many current research results will be integrated into the lectures so that students can grasp the most recent advancement related to each topic.

The course will be divided into four parts. Part I introduces the induction of neural tissue, the polarity and regionalization of the neural tissue, and the generation and function of neural stem cells. Cutting-edge research on neural stem cells will be discussed. Part II deals with various interactions within neuronal system, including neuron-glia interaction, cell adhesion and migration, axon growth and guidance, and target selection. Part III teaches synapse formation and maturation, neurotrophic factors and their distinct functions, and neuronal cell death. Part IV talks about learning and

memory from developmental view, and also the memory disease -Alzheimer's disease. Current research on Alzheimer's disease will be discussed.

The lectures will be given in PowerPoint presentations. Classical models and front line research will be integrated to stimulate students' imaginative thinking. Students will be encouraged to read some current research paper and offer their own view on some particular subject, such as neural stem cells and learning and memory.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: BIOL 141 orBIOL 240

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 427 Evolution (3)** Selected topics on the evolution of life.

### **Evolution (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995  
Prerequisite: BIOL 220WBIOL 230W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 428 Population Genetics (3)** Mathematical formulation of evolution by natural selection, genetic equilibrium under selection, mutation, migration, random drift.

### **Population Genetics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: BIOL 220WSTAT 250;MATH 111 orMATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 429 Animal Behavior (3)** Physiological mechanisms, ecological relevance, and adaptive significance of animal behavior.

### **Animal Behavior (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: BIOL 110BIOL 220W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 430 (B M B 430, ENT 430) Developmental Biology (3)** Molecular and genetic analyses of mechanisms involved in differentiation and determination in biological systems.

### **Developmental Biology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994  
Prerequisite: B M B 252 ; orBIOL 222BIOL 230W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 431 Reproductive Biology (3)** Reproduction is essential to all life and the course will explore development, physiology, cell biology, genetic and evolutionary aspects of this area.

### **Reproductive Biology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

Prerequisite: BIOL 110 andBIOL 230 orB M B 251 orMICRO 251 orBIOL 240

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 432 Developmental Genetics (3)** An advanced course in developmental biology, focusing on the use of genetics techniques to study fundamental questions of animal development.

### **Developmental Genetics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1998

Prerequisite: BIOL 230W ; orB M B 251B M B 252

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 433 Evolution of Vertebrates (3)** Evolution of vertebrate animals, including classification systems based upon morphology and genetics, insights for special adaptations.

### **Evolution of Vertebrates (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BIOL 110 andBIOL 220W andBIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 434 Pathobiology of Emerging Infectious Disease (3)** The course will analyze the pathology, immunology, microbiology, evolutionary biology, and policy of important emerging and reemerging infectious diseases.

### **Pathobiology of Emerging Infectious Disease (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 110 andBIOL 230 orMICRO 251 orB M B 251 orMICRO 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 435 Ecology of Lakes and Streams (3-4)** Physical, chemical, and biological characteristics of freshwater environments, with special emphasis on factors regulating productivity in freshwater ecosystems.

### **Ecology of Lakes and Streams (3-4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: BIOL 220W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 436 Population Ecology and Global Climate Change (3)** Ecological responses of individuals, populations, and communities to environmental variation, with emphasis on climate change.

### **BIOL 436 Population Ecology and Global Climate Change (3)**

In this course, students will be presented with a close look at the factors shaping the characteristics of populations and their dynamics in time and space, with emphasis on the responses of populations to climatic fluctuation and global climate change. The course begins with an introduction to the basic concepts necessary for understanding the responses of individuals, populations, and communities to climate change in the recent past (the past 2 centuries), present, and future. These concepts include: the science of climate change, how temperature trends are estimated, the data used in assessment reports by the Intergovernmental Panel on Climate Change, large-scale climate systems such as the North Atlantic Oscillation and the El Nio Southern Oscillation, the basic characteristics of populations, how population densities are estimated, and the types of population data used in studies of population responses to climate change. In this first section of the course, students are also introduced to natural selection and the concepts of adaptation and vulnerability, which sets the stage for distinguishing between adaptive ecological responses to climate change vs. susceptibilities to climate change.

After presenting these basic concepts, the course then moves on to examine single-species population dynamics. This section of the course teaches students about the different types of population growth, including unlimited growth, density-dependent population dynamics, and density-independent population dynamics. Here, we take a close look at

case studies documenting population responses to large-scale climatic fluctuation, and case studies that demonstrate interactions between the opposing influences of density dependence and climate on population dynamics. This section of the course also introduces students to some of the analytical difficulties inherent in quantifying the contribution of climatic fluctuation to local population dynamics. This section finishes with lectures on the phenomenon of spatial synchrony in population dynamics and the implications of global climate change for widespread population decline and extinction risk.

The final section of the course focuses on multi-species dynamics. Lectures in this section introduce students to inter-specific competition through examination of case studies involving desert rodents and ants; then move on to predation, with case studies of wolf predation illustrating the different types of functional and numerical responses, predator-prey cycles, and cascading effects of predators on population dynamics at lower trophic levels including herbivores and plants; and parasite-host dynamics, including discussion of the role of parasites as specialized predators in host population dynamics. This section also includes discBIOL 436 Population Ecology and Global Climate Change (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: BIOL 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 437 Histology (4)** Microscopic structure of the tissue of the animal body.

#### **Histology (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1994  
Prerequisite: BIOL 230W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 438 Theoretical Population Ecology (3)** Theoretical discussions of demographics, population and metapopulation growth models, life histories, and species interactions such as competition, predation, host-parasitoid relationships.

#### **BIOL 438 Theoretical Population Ecology (3)**

At the present time our program has no theoretical and quantitative upper level ecology course. This course is designed to be a highly-quantitative second ecology course. It emphasizes mathematical and theoretical approaches to ecological questions and reinforces the theory with practical, hands-on field and laboratory exercises in which students are required to erect and test hypothesis using appropriate experimental and statistical techniques. The course builds on concepts from introductory ecology and requires students to use tools acquired in biostatistics and calculus to solve ecological problems. It can act as an introduction to or as an extension of experimental design. Although it is not a writing intensive course, students will be required to use standard technical writing and public speaking skills throughout the course. The course covers topics that are relevant to, but not addressed in, evolution and evolutionary genetics. In addition, it offers an opportunity for mathematics students interested in applications of mathematics to biological problems to apply models covered in mathematical modeling to real situations.

Throughout the semester analytical and theoretical thinking will be emphasized, starting with simple descriptions of population phenomena and ending with development of mathematical models and the critical experiments needed to test those models. The emphasis lies on empirical tests of ecological theory and applications of ecological theory to real-world problems. Students will be evaluated by means of essay exams covering theory, mathematical models, and the design of hypothetical experiments, in-class presentations of the primary ecological literature and applications of ecological theory to current environmental problems, and laboratory reports in which data collected during laboratory exercises will be analyzed and interpreted. Field exercises will be conducted on the campus of Penn State Erie and will take advantage of the rich natural environment on campus including numerous wetlands, streams, forests, and old fields.

This course will be available to all biology majors as elective credit at the 400 level. It also will be a core course requirement for any biology major taking the Ecology Option. It may function as a course for students seeking a minor in biology, particularly for mathematics majors.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: BIOL 220WMATH 140STAT 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 439 Practical Bioinformatics (3)** Practical aspects of retrieving and analyzing biological information residing in common databases.

#### **BIOL 439 Practical Bioinformatics (3)**

This course focuses on practical aspects of biological databases and analyses of molecular data. Students will learn about vast resources available, how to access them, and retrieve only the desired information. Sequence comparison and alignment methods will be presented. We will discuss practical aspects of such algorithms as dot matrix plots, dynamic programming, BLAST, and FASTA. Different strategies of multiple alignments will be discussed as well. We will cover computational genomics and computational analysis of gene expression. Students will learn how to assemble short sequences into long contigs and how to infer biological information from raw sequence data. They will learn how to analyze protein sequences including secondary structure prediction, protein function prediction (based on motifs and functional domains), and structural modeling. The whole course will be well balanced between theoretical description of computational biology methods and practical aspects of bioinformatics (some sessions will meet in computer classrooms)

Upon completion of this course, students will have sufficient knowledge to retrieve a desired information from biological databases based on both text and sequence data. They will learn what public resources are available in term of databases and a software. They will know how to interpret results in biological context and how to adjust different parameters in the software to get exact desired results.

This course will be one of several courses that are available to students in the genetics and developmental biology and general options in the biology program along with the biology minor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: BIOL 230 or B M B 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 441 Plant Physiology (3)** Classical and current concepts in plant constituents, mineral nutrition, water relations, respiration, photosynthesis, photoperiodism, plant hormones, growth, and development.

#### **Plant Physiology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995  
Prerequisite: BIOL 230WBIOL 240W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 443 Evo-devo: Evolution of Developmental Mechanisms (3)** How evolution of animals and plants can be traced to changes in the regulation and/or interactions of genes controlling development.

#### **BIOL 443 Evo-devo: Evolution of Developmental Mechanisms (3)**

"Evo-devo" is a new, exciting and interdisciplinary field in biology that encompasses knowledge from developmental biology, comparative genomics, gene regulation and evolutionary theory. The key concept in "evo-devo" is that the evolution and diversification of animals and plants can be traced to changes in the regulation and/or interactions of genes controlling development. The first few weeks of the course will bring students up to date on what they need to know about evolution, development and molecular genetics to appreciate the interdisciplinary field of "evo-devo". As this is such a new field, subsequent classes will give students a taste of the excitement of current research through the use of case studies. There will be ten case studies, seven examples from animals and three examples from plants, covering a range of morphological novelties and concepts. Each case study will involve one or more lectures of background information given by the instructor and one discussion class in which students will read, present and discuss reviews and/or primary research articles. Students will be given enough background information in the fields of evolution, development and molecular biology to enable them to understand and discuss primary literature in evo-devo. For many students this will be the first time they have read reviews and articles from the literature and this course will give them the capacity to move beyond textbook knowledge to knowledge of how science really works.

This course will be one of several courses that are available to students in the genetics and development, and general options in the biology program along with the biology minor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: BIOL 240

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 444 Field Ecology (3)** This field course will explore the flora and fauna of the mid-Atlantic area.

#### **BIOL 444 Field Ecology of the Central Appalachian Highlands (3)**

This course is designed to take advantage of the teaching opportunities presented by the West Virginia highlands. The main advantage of using this area as an outdoor classroom derives from the fact that there are large changes in elevation and soils, and a tremendous variety of community types located in a small geographic area. In this area, students can

observe ecological communities ranging from river, bottom forests at 1500 to 2000 feet in elevation to dry ridge slope forests at 3000 feet to the unique acid soil heath barrens community of the Dolly Sods Wilderness at 4000 feet. Since almost all of this area was extensively logged in the past, students will have the opportunity to observe the results of succession, and how the process of succession is affected by variation in topography, soil type and local climate. There are also several types of aquatic communities available for study, including large rivers, small high elevation streams and acidic wetlands. The course will use an integrated natural history approach to study the various ecological communities. This will include discussion of the effects of human activity and the topography and geology of the area in addition to study of terrestrial and aquatic flora and fauna. At terrestrial site, we will, in part, follow the example of the US Forest Service's Forests of the Central Appalachians Projects (<http://www.spies.com/~gus/forests/>) which uses forest walk inventories to document biodiversity. Therefore, the course would have a significant plant identification and taxonomy component. Each community can be studied as a separate unit and then compared to the adjacent communities at different elevations. By the end of the course, students should understand the relationship of geology, topography and soil type to the distribution of plant communities. They should also understand the relationship of plant communities and water chemistry to the distribution of aquatic insect and vertebrate and be able to use aquatic insects as water quality indicators. This course will be one of several field courses that are available to students in the ecology and general option in the biology program along with the biology minor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: BIOL 220W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 446 Physiological Ecology (3)** The physiological abilities of plants and animals to adapt to their abiotic environment.

### **Physiological Ecology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1994  
Prerequisite: BIOL 220WBIOL 240W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 448 Ecology of Plant Reproduction (3)** Analysis of the ecology, evolution, and natural history of angiosperm reproduction, including pollination, fruit-set, dispersal, and relevant plant- animal interactions.

### **Ecology of Plant Reproduction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1994  
Prerequisite: BIOL 220W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 450W Experimental Field Biology (3-5)** A practical introduction to modern experimental techniques for ecological study of terrestrial, marine, and fresh water habitats.

### **Experimental Field Biology (3-5)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: BIOL 220WBIOL 240W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 451 Biology of RNA (3)** Survey of the roles of RNA in biology, emphasizing evolutionary relationships and relevance to human health.

### **Biology of RNA (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: BIOL 230 orB M B 251 orMICRB 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**BIOL 459** (BIOTC 459, HORT 459) Plant Tissue Culture and Biotechnology (3) Principles and techniques for the in vitro culture, propagation, and genetic manipulations of plant cells.

**Plant Tissue Culture and Biotechnology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1999

Prerequisite: BIOL 230W ; orB M B 251B M B 252

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 460** (ANTH 460) Human Genetics (3) The human genome, its variation, origins, and relation to disease and other traits.

**BIOL (ANTH) 460 Human Genetics (3)**

The course considers many examples derived from the study of the genetics of human disease, and includes most general areas of interest, including simple Mendelian disorders, and complex chronic diseases such as cancer and cardiovascular disease, and variable special topics including immunogenetics and the genetics of imprinting or other processes. The course usually also touches briefly on the nature of forensic genetics and the problem of making inferences from individual genotypes. Finally, the course considers the bioethical and societal issues involving contemporary human genetics. The study of disease genetics is important for students preparing for graduate work in medicine and other health professions as well as for graduate studies in molecular and evolutionary genetics and related areas, including biological anthropology and bioethics. This course is relevant to requirements or appropriate electives for life science majors and graduate students (check with your academic advisor). Over the years, it has been proven to be excellent preparation for subsequent graduate and professional work in these areas. The course is offered most years, in the fall semester. Depending on enrollment and other factors, the course may include graded homework or other components, but evaluation is predominantly based on exams during the semester and a comprehensive final. This course is cross-listed as ANTH 460 and BIOL 460, but there is only one course, at the same time and place, for all students no matter how they register. In some years, a 4-credit Honors version is offered (ANTH 460H/BIOL 460H), that is identical to 460 but with an additional class period each week involving additional written and presentational assignments and term projects, along with the regular 460 exams, that combine to determine the final grade.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: ANTH 021BIOL 133BIOL 222BIOL 322 or equivalent. A course in statistics. Contact instructor if in doubt.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 460H** (ANTH 460H) Human Genetics (4) Gene mapping in humans; molecular basis of genetic disease; genomic structure; immunogenetics; and genetic evidence for human evolutionary history.

**BIOL (ANTH) 460H Human Genetics (4)**

Students will explore interesting normal or pathological variation to understand first its biological nature, then its epidemiological distribution, genes and genetic mechanisms associated with the trait, phylogenetic origins or comparison, and the nature of relevant genotype-phenotype relationships. Alternatively, students may explore methods for identifying and characterizing gene action or structure, or historical subjects related to human variation and evolution. Ethical and societal aspects of these issues will be considered as well. Time will be taken for faculty or students to read and present current important papers appearing in the literature, relevant to the current course topics. As an Honors course, we will have the time, and the students the dedication, to pursue the chosen topic(s) in much greater and more rigorous detail than is possible in the usual lecture or even seminar course format of Human Genetics 460 which, while presenting material at a sophisticated level, will not have time to explore the more subtle, problematic, or challenging aspects. The students who enroll for this course will be given a description of the approach and the intended general topic, on a course web page or by email when the instructor learns they have registered. The nature of the course will be described including semester-specific themes or focus that will apply (if any). Requisite background reading will be identified so students will know what will be expected of them. Some prior reading will be assigned, so that we can begin the semester with a common basis in background. Students will be evaluated on the quality of their project work, including writing ability, presentation ability, and depth of thought. Several written assignments will be given and graded for content and expression quality. Although students will take regular Human Genetics 460 lectures, they may be given separate exams (corresponding to those given in the regular course) that will allow more freedom of expression than multiple-choice exams or homework assignments. Depending on the workload in any semester, there may be a separate written take home synthetic essay final exam. The Honors session each week will be highly interactive rather than passive, and students will be graded on attendance, participation and whether they have done assigned work in advance of the class. Students will be expected to have the stipulated background knowledge of biological anthropology, evolutionary biology, statistics and genetics. This course should count as 4 credits toward additional courses in biological anthropology required for the Anthropology major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: 3 credits in genetics or ANTH 021 or BIOL 222 or BIOL 230W ; and 3 credits in statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 461** Contemporary Issues in Science and Medicine (3) Current/classical issues relating to health, research, agriculture, environment, and biotechnology. Active exploration of the impact of science on society.

### **BIOL 461 Contemporary Issues in Science and Medicine (3)**

The aim of this course is to provide students of the biological and biomedical sciences with a framework to recognize, examine, and resolve conflicts which may affect their professional conduct. Current and classical issues relating to human health, scientific and medical research, agriculture, the environment, and biotechnology will be explored. The history, controversies, and current issues related to each topic will be presented by the instructor through lecture, guest presentations, and multimedia presentations. Each topic will be explored by students through a variety of activities, including role playing, case studies (real and hypothetical), mock trials, small- and large-group discussions, writing exercises, and student research projects presented in oral and poster format. Some activities and discussions will involve the entire class simultaneously, while other activities will be structured for very small groups (2-3 students), small groups (5-6 students), or large groups (10-15 students). This course is especially relevant to any student majoring in Biology, as it allows and encourages them to relate information they have learned in other Biology courses to their own professional conduct. Although the course was specifically designed to cover issues that are relevant to students majoring in each of the Biology concentration areas (Genetics and Developmental Biology, Ecology, Plant Biology, and Vertebrate Physiology), it is also relevant to students in colleges other than Science, who may be enrolled in majors with some biological content or applications. This course is designed to be rigorous and very interactive.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: A 400-level Biology course.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 463** General Ecology (3) Illustrates science of ecology, from individual, population, and community- level perspectives, discusses applications of this science to issues of conservation of biodiversity.

### **General Ecology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: BIOL 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 464** Sociobiology (3) The study of the adaptive function of social behavior, the comparative analysis of social organization, and the ecology of sociality.

### **Sociobiology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: 6 credits in biology or anthropology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 467** Molecular Basis of Neurological Diseases (3) Students taking this course will learn about neurological diseases in a biological molecular context.

### **Molecular Basis of Neurological Diseases (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 110 and BIOL 230 or B M B 251 or MICRO 251 or BIOL 240

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 469** (BB H 469) Neurobiology (3) Comprehensive examination of neuroanatomy and physiology designed to integrate

the principles of neurochemistry, neuroendocrinology, and molecular biology.

**Neurobiology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995  
Prerequisite: BIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 470 (BB H 470) Functional and Integrative Neurosciences (3)** Neurobiological function in motivated behaviors, motor and sensory functions, learning and memory development, sexual differentiation, and pathology.

**Functional and Integrative Neurosciences (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1995  
Prerequisite: BIOL 469

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 472 Mammalian Physiology (3)** Mechanisms concerned with normal animal function, with special emphasis on humans.

**Mammalian Physiology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: BIOL 240WCHEM 203

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 473 Laboratory in Mammalian Physiology (2)** Laboratory experiments demonstrating fundamentals in physiology.

**Laboratory in Mammalian Physiology (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1985  
Prerequisite: or concurrent:BIOL 472

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 474 (GEOSC 474) Astrobiology (3)** In depth treatment of principles/concepts of biochemical evolution, the origin/evolution of life; evaluation of distribution of life in the universe.

**BIOL (GEOSC) 474 Astrobiology (3)**

Astrobiology is the study of life in the universe. Astrobiology has become a major focus of scientific research in the United States and a topic often discussed in popular science literature. The recent interest in astrobiology has resulted in the formation of an Astrobiology Institute at Penn State University. This advanced undergraduate course in astrobiology will cover many topics in the field including, biochemical evolution, the origin and evolution of life on Earth, microbial diversity, protein evolution, and the distribution of life in the universe. This course is intended to provide students of the natural sciences with the opportunity to prepare for a research career in the rapidly expanding field of astrobiology. The course will also present astrobiology as a cross-disciplinary framework that ties together the diverse courses the students have already taken. The students will learn new concepts while having, to draw on their previous knowledge of chemistry, biology, and the geosciences. In summary, this course has the following objectives: (1) to develop the student's literacy in astrobiology so that they can critically evaluate claims that they encounter well after the course has ended; (2) to present a scientific question that requires the sum of the student's previous education to solve; (3) to provide a deep background to some of the astrobiological concepts that are often only briefly mentioned in other classes or in the media; (4) to develop research and communication skills required for a young scientist through a class term paper and short oral presentation; and (5) to prepare the students for graduate research in astrobiology by giving them a broad background of the field and by demonstrating many of the outstanding problems yet to be solved.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: BIOL 110CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 479 (AN SC 479) General Endocrinology (3)** Endocrine mechanisms regulating the morphogenesis, homeostasis, and functional integration of animals.

**General Endocrinology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: BIOL 141 or BIOL 472

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 482 Coastal Biology (3-4)** Marine organisms, their interactions with each other, and their relationships with several coastal habitats.

**Coastal Biology (3-4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: BIOL 220W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 492 Senior Seminar in Biology (1)** Discussion of selected topics from recent biological literature; reports on current research or internship experiences.

**Senior Seminar in Biology (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 18 credits in Biology; seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 495 Internship in Biology (1-12)** Practical off-campus experience in Biology under the supervision of a professional and a faculty member.

**Internship in Biology (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 496A** Ecology of Infectious Disease Curriculum Development (3) This course focuses on curriculum development for the Ecology of Infectious Disease.

**Ecology of Infectious Disease Curriculum Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 496C** Field Practicum in Costa Rica and Panama (1) Two and a half week field summer practicum that will provide real-world research and conservation experiences.

**Field Practicum in Costa Rica and Panama (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: entrance to major and 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 496D** Summer Independent Research for Undergraduates - C-Fern Mutations (3) Analysis of C-Fern Mutations.

**Summer Independent Research for Undergraduates - C-Fern Mutations (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 496E** Summer Independent Research for Undergraduates - Creek Character (3) Characterization of Poor House Creek.

**Summer Independent Research for Undergraduates - Creek Character (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 496F** Seed Germination (3) An analysis of differential gene expression during seed germination of tomato.

**Seed Germination (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 497A** History of Biology (3) History of Biology is a 3 credit lecture course designed to introduce students to the long history that led to our current biological knowledge. The course is organized around themes representing some of the most important concepts in biology, such as macromolecules, the cell, inheritance, evolution, metabolism, biodiversity, and ecosystems. Lectures illustrate the interplay between observations, theories, experiments, and techniques. The history of biology is placed within a broader historical and cultural context (scientists and institutions from many different periods and countries are studied).

### **History of Biology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 110 and BIOL 220W or BIOL 230W or BIOL 240W or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 498** (ENT 498) Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1993

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 498A** Biology of Eco-Health (3) This three-week summer session course is taught entirely in Tanzania during the first summer session at Penn State. Students will examine topics related to human health, human-environment interactions, and conservation of natural resources. In addition to lectures and discussions, this exceptional opportunity allows students to participate in guided field studies contributing to long term datasets and research projects in both pastoral and agricultural ecosystems. The course will include guest lectures by local experts in biology, conservation, and health as well as visits to research institutions, national parks and a medical clinic/lab.

### **Biology of Eco-Health (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOL 499A** (IL) Tropical Field Ecology (3) An intensive introduction to tropical biodiversity to be taught in Belize, Central America.

### **Tropical Field Ecology (3)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: BIOL 220W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Biomedical Engineering (BME)

**BME 100S** Biomedical Engineering Seminar (1) First-year seminar to introduce the students to the field of biomedical engineering, and related opportunities in research, and industry.

### **BME 100S Biomedical Engineering Seminar (1)**

A first-year seminar designed for students interested in pursuing a career in Biomedical Engineering. Through a series of lectures, demonstrations and problem solving sessions, the multifaceted world of biomedical engineering will be explored. Students will be: 1) introduced to Penn State as an academic community, including fields of study and research with an emphasis on Biomedical Engineering 2) acquainted with the learning tools and resources available at Penn State 3) given an opportunity to develop relationships with full-time faculty and other students interested in Biomedical Engineering 4) taught about their responsibilities as part of the University community 5) engaged in discussion about Biomedical Engineering and possible career paths that are available to Biomedical Engineering graduates.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 199** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 201** Fundamentals of Cells and Molecules (3) Cell and molecular biology taught from an engineering perspective. Includes biochemistry, recombinant DNA, and cell structure/function.

### **BME 201 Cell and Molecular Bioengineering (3)**

This course provides students foundational knowledge in cell and molecular biology. The first quarter of the course covers fundamentals of biochemistry including ligand-receptor interactions, protein structure, enzyme kinetics, and biochemical thermodynamics. The second quarter of the course covers molecular biology including DNA replication, transcription, translation, recombinant DNA tools, and applications to biotechnology and molecular medicine. The second half of the course covers selected topics in cell biology including cell adhesion, cell signaling, the cytoskeleton, cancer, and tissue engineering. Material is taught from a quantitative and engineering perspective and students are expected to have strong foundations in chemistry, physics and math. Recurring concepts in the class include chemical kinetics, consideration of the free energy of chemical reactions and the role of mechanics at the molecular and cellular level. Tools and applications discussed include recombinant protein expression, molecular mechanisms of pharmaceuticals, genetic testing, and the use of analytical and computational modeling to understand cellular function in health and disease.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: BIOL 141 orBIOL 240WCHEM 112MATH 141 Prerequisite or concurrent:PHYS 212 andCMPSC 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 299** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 301 Analysis of Physiological Systems (4)** Analysis of physiological signals and modeling of physiological systems by electrical and mechanical analogs in the context of continuous linear systems.

### **BME 301 Analysis of Physiological Systems (3)**

Analysis of physiological signals and modeling of physiological systems in terms of electrical and mechanical analogs in the context of continuous linear systems. The course will cover an introduction to analysis of physiological systems using Matlab to perform numerical analysis and representation of biological signals with the techniques of Fourier frequency domain and linear time domain analyses. These topics will be followed by applications to describe control and function of physiological systems in the context of traditional systems analysis of continuous linear systems. Topics will focus on electrical and mechanical analogs of physiological systems and control of physiological parameters such as blood pressure, oxygen delivery to tissue, and blood glucose levels. The lab/recitation session may be used to review homework problems and implementation of solutions to computer programming assignments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141 orBIOL 240WPHYS 212MATH 250 orMATH 251CMPSC 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 303 Bio-continuum Mechanics (3)** Mechanical properties of fluids and solids with applications to tissue mechanics and vascular system.

### **BME 303 Bio-continuum Mechanics (3)**

The course serves as an introduction to continuum mechanics for students of biomedical engineering providing a foundation for studies in fluid and solid mechanics, material sciences, and other applications of science and engineering to the biomedical field. It will provide an introduction to concepts of solid and fluid mechanics, analysis in the context of mechanical properties of biological tissues, physiological models and measurement systems. For success in the course, students will draw from their prerequisite background in calculus, physics, statics, strength of materials, vector analysis, and elementary differential equations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141 orBIOL 240WE MCH 210 orE MCH 211 andE MCH 213MATH 230 orMATH 231 andMATH 232MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 313 Thermodynamics for Biomedical Engineering (3)** Chemical processes, including material and energy balances and heat transfer with emphasis on biological and biomedical applications.

### **BME 313 Thermodynamics for Biomedical Engineering (3)**

The course provides an introduction to thermodynamics, including the fundamentals of material and energy balances with specific emphasis placed on physiological and biomedical engineering applications. This course will cover equations of state, the first and second laws of thermodynamics in both open and closed systems, and Maxwell Relations. Examples of biological applications that can be considered are the application of thermodynamic analyses to understanding thermoregulation, the cardiac cycle, respiratory gas exchange, cell potentials and osmosis. This course also covers heat transfer including Fourier's law of conduction, convective and radiative heat transfer. Specific biological examples that may be discussed include applications to bioinstrumentation, thermoregulation and tissue heating by radiation for cancer therapy. A general knowledge of physiology and chemistry are prerequisites; the analytical approach of the course will also require an ability to work with basic differential and multivariable calculus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141 orBIOL 240WCHEM 112MATH 230 orMATH 231 andMATH 232MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**BME 399** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 401** Numerical Simulations in Biomedical Engineering (3) Integration of design theory and finite element analyses for the development of solutions to problems in biomedical engineering.

**BME 401 Numerical Simulations in Biomedical Engineering (3)**

Biomedical engineers develop novel devices and models to facilitate patient-specific diagnosis and care. The main goal of this course, therefore, is to help students learn how to use computational modeling software as a means to apply theoretical engineering and biological principles to solve problems in medicine and biology. The course will also focus on integration of ethics and design by continually identifying where ethical decision making and health needs of global populations influence design decisions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BME 301BME 303BME 313 Prerequisite or concurrent:BME 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 402** Biomedical Instrumentation and Measurements (3) Biomedical measurements, including consideration of techniques, equipment, and safety.

**BME 402 Biomedical Instrumentation and Measurements (3)**

This course is designed to introduce students to the principles, applications, and design of instruments used in biomedical research and applications. The emphasis is on engineering design and analysis with supplemental discussion of relevant physiological principles. Topics covered include: sensors, biopotential signal origin, amplifiers, filtering, electrodes and signal processing; pressure and flow measurement in the cardiovascular and respiratory systems, chemical biosensors, therapeutic devices, and medical imaging modalities. Students will learn to analyze and design instrumentation and measurement systems through a variety of techniques including in-class examples, homework problems, and active participation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATH 250 orMATH 251;BME 301 orE E 210 orE E 212 orPHYS 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 403** Biomedical Instrumentation Laboratory (1) Building basic biomedical signal processing circuits and biomedical measurement systems, experiments in medical imaging techniques, and measurement of bio-potentials.

**BME 403 Biomedical Instrumentation Laboratory (1)**

Laboratory course to accompany BME 402, Medical Instrumentation. Biomedical measurements laboratory where students will build basic biomedical signal processing circuits, run experiments in medical imaging techniques, use transducers to build biomedical measurement systems, and measure bio-potentials. The class is comprised of studies in medical circuits and transducers for static and dynamic biological inputs, and includes measurement of actual biomedical signals. For preparation for industry or research, proper laboratory documentation techniques are taught along with basic skills for presenting experimental data.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Prerequisite or concurrent:BME 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 406 Medical Imaging (3)** Physical principles and clinical applications of medical imaging methods.

**BME 406 Medical Imaging (3)**

This course covers all four major diagnostic medical imaging modalities including x-ray, ultrasound, radioisotope imaging, and magnetic resonance imaging. Physical principles, instrumentation, and biomedical applications of these modalities, as well as the basics of imaging signals and image processing will be discussed. Success in this course will require background in physics and electrical circuits, and some experience with Matlab.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: PHYS 212 andCMPSC 200 orCMPSC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 409 Biofluid Mechanics (3)** The fundamental relations in fluid mechanics and their application to biofluids including steady/unsteady flows, diseased states, devices and biorheology.

**BME 409 Biofluid Mechanics (3)**

This course is a first course in fluid mechanics, with application to biomedical problems. This course incorporates understanding of fluid properties of biological materials and applies the fundamental laws (mass, momentum, and energy) that govern fluid mechanics to solve biofluid applications such as those in the cardiovascular system, including diseased states. The course will enable students to use approximation methods and constraints in fluid mechanics to help model and solve biofluid examples. Biorheology and cardiovascular prosthetics in the context of fluid mechanics will be discussed. The students will be able to understand and apply problem solving techniques to steady and unsteady biological flows and be exposed to wave propagation theory and oscillatory flow. Students will be exposed to biofluid devices and flow measurement techniques used to assess these devices.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATH 230MATH 251BIOL 141 orBIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 410 Biomedical Applications of Microfluidics (3)** Study of fluid mechanics at small length scales including fabrication of microfluidic devices and microfluidic components, lab-on-chip concept and applications.

**BME 410 Biomedical Applications of Microfluidics (3)**

Microfluidics is the study of flow phenomena at small length scales with characteristic channel dimensions typically less than the diameter of human hair. Small length scale effects become important as surface forces such as viscous drag and surface tension govern flow behavior rather than body forces (inertia) as seen in macroscale fluid mechanics. Miniaturization of fluid handling systems also allows the development of micro Total Analysis Systems (microTAS) or so called "lab on a chip" which combines biological sample preparation, separation and analysis in a single device. Topics explored in this class include: silicon based microfabrication and non-conventional micro/nano fabrication techniques; flow phenomena at small length scales, including laminar flow and flow resistance, inertial flow, diffusion, capillary effect, electrokinetic flow like electroosmosis, electrophoresis, and dielectrophoresis (DEP); microfluidic components including valves, pumps, mixers, sensors, actuators; lab-on-chip system concept and applications; hands-on lab to make and test microfluidic device; finite element simulation lab to gain better understanding of microfluidic devices.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 112 andPHYS 211 Prerequisite or concurrent:BME 303 orM E 320 orCH E 330 orAERSP 308 orPHYS 213

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 413 Mass Transport in Biological Systems (3)** An integrated study of the fundamentals of mass transport processes with emphasis on the analysis of physiological systems.

**BME 413 Mass Transport in Biological Systems (3)**

This course provides an introduction to mass transport phenomena in biological systems. The course builds upon thermodynamic concepts of phase and chemical equilibrium to analyze ion transport and cell membrane potentials including Nernst potentials, Gibbs-Donnan equilibrium and osmotic pressure. In particular, the course provides fundamental understanding of the diffusion of gases, electrolytes and non-electrolytes in biological applications. Furthermore, the principles of oxygen transport in tissues are specifically described and analyzed using the Krogh Cylinder Model and hemoglobin-oxygen binding relationships. The transport of substances across biological membranes is discussed and analyzed for various biological transport mechanisms including: passive diffusion, active transport and facilitated transport. Convective transport through porous media is introduced using Darcy's Law and the Brinkman Equation. Finally, fundamental concepts of pharmacokinetic modeling are introduced and utilized for the analysis of drug transport and distribution within tissues.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BME 313 orM E 300 orM E 302 orCH E 220 orPHYS 213 andMATH 250 orMATH 251 andBIOL 141 orBIOL 240W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 419 Artificial Organs and Prosthetic Devices (3)** Analysis of function and consideration of design concerns for biomedical implants, including prosthetic joints, electrical stimulators, and cardiovascular pumps.

**BME 419 Artificial Organs and Prosthetic Devices (3)**

This course provides an overview of artificial organs and medical devices (ranging from blood pumps, hemodialysis, BioMEMS, tissue engineered technology, orthopaedic devices, cardiovascular implants, pacemakers, etc.) and how engineers use a design methodology, need to understand the clinical need, and what FDA regulations must be considered to develop these technology. Guest speakers and experts provide lectures on the various technology and students are exposed to industry and academic device development. The basics of biomaterials and biocompatibility are discussed within the context of the technology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141 orBIOL 240W orBIOL 472 andCMPSC 200 orCMPSC 201 orCMPSC 121

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 423 Reaction Kinetics of Biological Systems (3)** Chemical kinetics and reaction equilibria with applications to the analysis of physiological function and the design of synthetic organs.

**BME 423 Reaction Kinetics of Biological Systems (3)**

Chemical reactions are the underlying mechanism for numerous biological processes such as energy metabolism, biosynthesis pathways, mass transport, and detoxification. This course will introduce the basic concepts in chemical equilibrium and reaction kinetics. The course will then apply these chemical kinetics and analytical approaches to understand the underlying mechanisms of selected biological and physiological processes, which will include metabolic engineering, catalysis, bioreactors, and drug discoveries.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141 orBIOL 240W orCHEM 112 orMATH 250 orMATH 251 orBME 313 orCH E 210 orM E 300 Concurrent or prerequisite: BME 413 orCH E 410 orB E 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 429 Biomedical Mechanics and Techniques Laboratory (2)** Experimental laboratory that includes hands-on measurement, computational simulations, and statistical analysis of biofluids, biosolids, and biomaterial phenomena.

**BME 429 Biomedical Mechanics and Techniques Laboratory (2)**

This course focuses on three five-week modules whereby students will conduct experiments on biomaterial interfaces, biofluid mechanics, and biosolid mechanics. These experiments will be complimented with computational simulations to

enable discussion between the experimental and computational results and appropriate advanced statistics. Students will apply theoretical knowledge from previous core bioengineering/biomedical engineering courses. Examples of some experiments include blood separation, quantifying the flow through a stenosis, and measuring the material properties of bone.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014  
 Prerequisite: BME 201BME 303BME 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 433 Drug Delivery (3)** Engineering and biological principles as applied to pharmaceutical transport and designing drug carriers.

### **BME 433 Drug Delivery (3)**

The success of drug delivery depends on not only the understanding of chemical synthesis, polymer sciences, and cell biology, but also the fundamental understanding of drug transport that is affected by both drug's properties and physiological barriers, which are very critical but often overlooked in the design of drug delivery systems. Therefore, this course covers two main issues: 1) physiological barriers and drug transport; 2) design and characterization of drug delivery systems. The first section of this course introduces transport mechanisms of drug delivery at the levels of cell, tissue and whole

body from the engineering viewpoint. The second section describes the rational design of various drug delivery systems and emphasizes nanomedicines. Case studies of cancer therapy/tissue engineering are described to compare, contrast and analyze current drug delivery systems.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014  
 Prerequisite: CHEM 112 andBME 201BIOL 230W orB M B 251 andBME 413 orB E 302 orCH E 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 435 Micro/Nano-Scale Systems for Biomedical Engineering (3)** Simple and low-cost micro/nanofabrication techniques and their impact on the fields of the Biomedical Sciences and Biomedical Engineering.

### **BME 435 Micro-Nano-Scale Systems for Biomedical Engineering (3)**

Bionanotechnology is an emerging field at the interface of life sciences, physical sciences, and nanoscience. By integrating concepts and tools from all these disciplines, this field strives to advance technology in biomedical field. The purpose of this course is to provide an overview on a group of widely used nano- and micro-fabrication techniques, referred to as soft lithography techniques, with an emphasis on their impact on bionanotechnology. Specifically, applications of these fabrication methods in studies of cell biology, tissue engineering, synthetic biology, nanomedicine, bio-interfaces, and lab-on-a-chip devices will be addressed.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014  
 Prerequisite: CHEM 112 andBME 201 orBIOL 230W orB M B 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 440 Biomedical Engineering Professional Seminar (1)** Seminar giving students exposure to professionals who apply engineering and related fields to biology and medicine.

### **BME 440 Biomedical Engineering Professional Seminar (1)**

A senior seminar introducing students to professionals in the field of biomedical engineering and disciplines that are critical to the field (e.g. ethics, regulatory affairs, entrepreneurship). This course is designed to prepare students for the subsequent capstone design course and allow them to consider areas where innovation and design in biomedical engineering are needed. Discussion with presenters will allow students to explore the promises and limitations of the clinical applications of biomedical engineering and to explore possible career paths. Guest speakers may include representatives and alumni from the medical device industry, biomedical entrepreneurs, medical clinicians, professionals from relevant regulatory agencies, and professionals in bioethics.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: 7th semester standing in BME program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 443 (MATSE 403) Biomedical Materials (3)** Describe properties of materials and composites and their in vivo interactions.

### **BME 443 (MATSE 403) Biomedical Materials (3)**

Metals, polymers, and ceramics, and their composites, which are capable of emulating the functions of hard and soft tissues, are the subjects of this course. The subject matter shall be confined to implanted materials; external appliances, such as casts, braces, etc are not considered. The topical content of this course will be grouped into four areas. A general introduction to selected aspects of physiology will be presented. This will provide the background necessary to appreciate the factors which govern the selection of biomedical materials. Specific emphases will be placed on polymerization of biopolymers (polypeptides and polysaccharides) and the general relationships between conformation and biological function, the biochemistry of blood and blood surface interactions, the formation of teeth and bone and the relationships between microstructure, composition and function, the immune responses to implanted materials, the resorption of bone (osteoporosis) and the development of caries. The perspective placed on these topics will be that of materials science. The selection of ceramics for hard tissue prosthesis will be discussed. Orthopaedic and dental applications for ceramics will be discussed. Specific ceramic materials to be treated include dental porcelain, alumina- and zirconia-based ceramics, and bioglasses and pyrolytic carbons. Various classes of inorganic cements, gypsum, zinc phosphates, zinc carboxylates, silicates, and glassionomer cements will also be considered as ceramics. Hydroxyapatite, Hap-based composites and Hap-metal interactions will be discussed in particular. Relationships among physical properties, mechanical properties, and chemical interactions with biological fluids will be described. Dental and orthopedic applications of metals will be described. The fracture toughness of metals, their electrochemical responses in vivo, and the nature of the interfacial interactions with hard tissues will be treated. Dental amalgams and the noble metals for dental applications will be considered. Metals and alloys, such as Ti, Co-Cr, and vitallium, used in prosthetic applications, will be described and their properties and limitations discussed. The phenomenon of stress shielding and the immune responses associated with the accumulation of metallic and polymeric particulate debris in the vicinity of an implant will be discussed in particular. Polymeric materials are important in a broad range of biomedical applications. Among these are soft tissue prostheses, hemostatic agents, dental restoratives, bone replacement materials, and surgical adhesives. In some applications it is desirable that a polymeric material biodegrade while in others property retention is desirable.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: MATSE 201 or CHEM 112 and MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 444 (IL) (MATSE 404) Surfaces and the Biological Response to Materials (3)** Focus is on special properties of surface as an important causative and mediating agent in the biological response to materials.

### **Surfaces and the Biological Response to Materials (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: CHEM 112 or MATSE 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 445 Tissue Engineering: Concepts, Calculations and Applications (3)** Introduction to interdisciplinary tissue engineering concepts, associated biochemical and biomechanical engineering calculations, and cardiovascular, musculoskeletal, and other tissue application examples.

### **BME 445 Tissue Engineering: Concepts, Calculations and Applications (3)**

Tissue engineering is a field of research dedicated to the design and construction of living tissues for use in repairing or regenerating tissue structures and functions compromised by disease or trauma. This course provides an introduction to interdisciplinary tissue engineering concepts, associated biochemical and biomechanical engineering calculations, and cardiovascular, musculoskeletal, and other tissue application examples. Topics covered in this course will span the entire process of creating an engineered tissue, including, among other topics: biomaterials for tissue engineering, cell-material interaction, wound healing response; techniques for cell isolation, recovery, and expansion; biodegradable polymer synthesis and degradation; scaffold design, fabrication, and cell seeding; bioreactors; special topics such as tissue

engineering of neural, bone, cardiovascular, cartilage, and other tissue.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 112 and BME 201 or BIOL 230W or B M B 251 and PHYS 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 446** Polymers in Biomedical Engineering (3) Foundations in polymer chemistry and physics, polymer design, characterization, and processing with a focus on biomedical applications.

### **Polymers in Biomedical Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: CHEM 112 CHEM 113 CHEM 202 or CHEM 210E MCH 210 or E MCH 211 and E MCH 213

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 450W** Biomedical Senior Design (3) Team based capstone design course with open ended project for industry or clinical applications related to Biomedical Engineering.

### **BME 450W Biomedical Senior Design (3)**

This course is a culminating design experience where students will be presented with open-ended industry and clinically sponsored design projects related to biomedical engineering. Students will work in multi-disciplinary teams to effectively design and prototype a solution for the sponsor. Students will be required to do needs assessment, project planning, budget planning, formulation of design specifications, analysis of the design, and documentation of results. Several design review reports and assessments will be used to monitor progress throughout the semester. Students will develop teamwork and communication skills and learn how to consider the ethical implications of their design, both in construction and use. Students meet with the instructor and sponsor on a regular basis for progress assessment. Notebooks are carefully maintained and critiqued. At the end of the semester, students will demonstrate their final design in a variety of formats that may include formal presentations, posters, websites, and written reports.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BME 401 BME 403 BME 440 ENGL 202C 7th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 494H** Honors Thesis (1-3 per semester/maximum of 6) Independent study research and design, leading towards honors thesis.

### **Honors Thesis (1-3 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Permission of program.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 497D** Polymers in Bioengineering (3) A foundational course in biomedical polymer design, synthesis, characterization, and processing with application such as devices, therapeutics, and regenerative medicine.

### **Polymers in Bioengineering (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
 Prerequisite: CHEM 112BIOE 201 orBIOL 230W orB M B 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BME 499** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Biomedical Engineering Technology (BE T)**

**BE T 101** Introduction to Medical Equipment Maintenance (1) Introduction to the field of clinical engineering and the management of medical equipment and systems.

### **BE T 101 Introduction to Medical Equipment Maintenance (1)**

BE T 101 is an introductory course in medical equipment management. It is an entry level course intended to give students the big picture of the field of biomedical and clinical engineering. The course covers the background and history of the field, exploring how medical equipment technology has changed as well as the management of the service of the equipment. The focus of this class will be from the perspective of the biomedical equipment technician, what skills are necessary, education requirements, training opportunities, certification, job duties and descriptions, and career paths. The types of employers, their organization structures, required regulations, recommended standards and information about the work place will be presented. Business ethics of working with medical equipment, patients, clinical care givers and other health care providers will be discussed. Topics covered include:

- Background and history of medical equipment management
- Changes in medical equipment technology
- Certification for biomedical equipment technicians
- BET job duties, descriptions and requirements
- BET continuing education needs
- Ethical decisions in medical equipment management
- Functions & Organization of clinical engineering departments
- Employer types
- Department organization charts
- Reporting structures
- Services provided by clinical engineering departments
- Regulatory and standards requirements
- Documentation systems

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE T 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE T 201 Medical Equipment & Systems I (5)** Introduction to the field of biomedical engineering technology, electrical wiring devices, theories of measurement, cardiovascular systems and ECG monitor operation.

### **BE T 201 Medical Equipment & Systems I (5)**

This course introduces the student to electrical safety standards and related wiring devices, methods and systems. Grounding and leakage current is studied so the student understands the causes of leakage current, safety limits, measurement and safe control of medical devices. Electrical wiring devices, over current protective devices, power quality devices and simplified hospital electrical distribution systems are discussed in relation to the electrical power delivery and quality required for medical devices. The electro-physiological theories of measurement, sensors, electrodes and measurement errors are discussed to provide an understanding of how signals are detected on the human body. A variety of transducers will be studied that are used with medical devices, such as: pressure, temperature, audio, relays, solenoids, lighting, video displays, motors, printers and batteries. The blood, heart, and cardiovascular system is studied in detail, as well as the electro-physiological signals of the heart. The normal and many abnormal electrocardiograph signals are studied pursuant to a thorough understanding of the function and operation of the heart. The electrocardiograph (ECG) machine is studied from an electrical/electronic design perspective so the student has an understanding of the electronic circuits required to measure and display the human ECG signal. The controls, operation, electrical safety testing, performance testing and general design of an ECG monitor is studied so the student has a full understanding of its operation, usage and preventative maintenance testing.

Topics covered include:

- electrical safety – grounding, leakage current and protective systems
- electrical wiring devices, over current protective devices, and isolated power
- power quality, disturbances and corrective methods
- simplified hospital electrical distribution system
- theory of measurement: terms, factors, and errors
- electrodes, sensors, and transducers devices and circuits
- cardiovascular anatomy and physiology
- bio-potentials: electro-conduction system of the heart
- common ECG waveforms: normal and abnormal
- ECG monitor application and connections to patient

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: EET 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE T 203 Biomedical Equipment Laboratory (Internship) (4)** Practical experience, within or related to the hospital environment, on a variety of biomedical instruments.

### **BE T 203 Biomedical Equipment Laboratory (4)**

The final semester internship is a curriculum requirement for the Biomedical Engineering Technology (BET) Program. It allows eligible students to develop entry-level skills in the biomedical field while gaining valuable work experience before graduation. The program consists of 400 hours of hands-on experience in an actual work environment on patient care and life support equipment. The student is expected to understand and perform basic fundamentals of the operation, minor corrective repairs and perform basic preventive maintenance and electrical safety tests to a wide variety of medical devices. During the internship, the student will be expected to participate in a wide variety of clinical procedures to learn the environment, application, problems, and the routine and abnormal situations that may occur in regards to the medical devices. Students will also be exposed to the organization and management of a clinical engineering department by attending various committees, investigating education and training for biomedical equipment technicians, investigating the risk based preventative maintenance system, investigating the clinical engineering department performance indicators, and investigating the required policy and procedures of a clinical engineering department. Students will be expected to use good communication and customer skills when working with co-workers, clinical personnel, patients, visitors and all others while conducting the internship. Students will be expected to document their activities as required by the course requirements as well as the requirements of the internship location. Students will be assigned an internship supervisor that they will take direction from on a daily basis. The student will be expected to work and follow the



requirements of the internship site and follow all required policies and procedures. A biomedical engineering technology student manual will be provided to the student detailing all of the requirements for the internship

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: BE T 204WBE T 206BI SC 004 orBIOL 141 ; must be the last class taken for the degree

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE T 204W Medical Equipment and Systems II (5)** Principles of medical equipment: operation, application; circuit and block diagrams; preventive maintenance inspections; and troubleshooting with report writing and presentations.

#### **BE T 204W Medical Equipment and Systems II (5)**

This course introduces various types of medical instrumentation in preparation for the biomedical internship (BET 203). Equipment operation and application, circuit and block diagrams, preventive maintenance, inspections, performance testing, and troubleshooting are explained or reviewed. In addition, the student is required to demonstrate communication skills for the biomedical field in the form of technical reports, equipment reviews, and in-service presentations. In studying the various medical devices, the human cardiopulmonary system, basic anatomy and physiology structures will be reviewed as they apply to that medical device or measurement.

Topics covered include:

- electrical safety
- ECG monitoring
- blood pressure monitoring (invasive/non-invasive)
- cardiac output measurement
- defibrillators
- pacemakers
- pulse oximeter
- surgical equipment & systems
- sterilization systems & process
- surgical fiber-optic scopes
- anesthesia gas machines
- electrosurgical units
- infusion devices
- dialysis equipment
- ventilators & respiratory therapy equipment
- clinical laboratory equipment
- general medical devices
- FDA (510K) & SMDA requirements
- regulation & standard organization review
- imaging systems overview
- X-ray equipment & system review
- report writing
- technical presentations

Lectures will be supported through laboratory exercises regarding medical devices (physiological ECG monitors, electrocardiographs, blood pressure monitors, noninvasive external pacemakers, defibrillators, pulse oximeters, infusion pumps, and electrosurgical units) and perform operational and preventative maintenance testing on those devices. Written laboratory reports outlining the laboratory activity are required. Reports are graded based upon technical quality, grammar and professionalism. Computers are used to simulate electrical circuits and systems and also produce high quality weekly medical device reports and laboratory reports.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: BE T 201BE T 205

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE T 205 Medical Electronics (4)** Solid state devices, diodes, power supplies, operational amplifiers, transistors, timing circuits, high power devices, circuits as applied to medical devices.

#### **BE T 205 Medical Electronics (4)**

BET 205 introduces solid state devices and circuits as they apply to medical devices. This course begins with the fundamentals of solid state devices, diode models and applications, then application of these fundamentals in linear power supply design. Students design a theoretical linear power supply as a term project, applying the fundamentals of diodes, transformers, filters and regulators. Operational amplifiers, transistor devices and circuits is presented along with the applications of amplifiers, switches, filters and other related circuits. Special solid state and high power devices will be discussed and their applications to medical device circuits. This course provides students with a broad exposure to a wide variety of solid state devices and their application to medical devices.

Topics covered include:

- fundamentals of solid state principles
- P-N junction, forward and reverse biasing
- diode models: ideal, practical and complete
- specialty diodes: zener and LED
- diode specifications and testing
- transformers: step up, step down & isolation
- rectifier circuits: half and full wave
- linear power supply: rectification, filters & regulation designs
- Switching Mode Power Supply (SMPS) fundamentals
- linear power supply design project
- operational amplifiers: amplifiers, comparators, filters and others
- transistors: BJT, JFET, MOSFET
- special power devices: photo detectors, optoisolators, TRIAC, DIAC and others
- timing circuits
- tuned amplifiers & band width

Topics are supported by laboratory exercises where students learn about solid state devices and power supplies. Students are required to complete a theoretical design of a linear power supply with given specifications. Students are also required to prepare written laboratory reports outlining the laboratory activity and power supply design project. Reports are graded on technical quality, grammar, and professionalism.

Students in BET 205 are required to use computers in to simulate electrical circuits and systems and also produce high quality laboratory reports.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2012  
 Prerequisite: EET 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE T 206 Medical Computers and Networks (4)** Introduction to computer hardware, software and networks for medical equipment; PC and medical equipment hardware; networking fundamentals.

#### **BE T 206 Medical Computers and Networks (4)**

This course provides an introduction to computer hardware, software and networks used by medical equipment with an in-depth background of PC and medical equipment hardware and networking fundamentals.

The topics covered include: Microsoft Office review and advanced applications; personal computer (PC) hardware fundamentals; formatting and sectoring hard drives; installing various Windows operating systems and other required software/drivers; networking hardware component fundamentals; administrator networking software settings and configurations; fundamentals of health level 7 (HL7) standards; fundamentals of digital imaging and communication in medicine (DICOM) standards; operation of DICOM viewer software for medical images; fundamentals of picture archive and communications systems (PACS) configurations for medical applications; fundamentals of The Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy and Security Rules in regards to medical equipment maintenance; creation of a simple PC network with several PCs and basic networking hardware components; creation of a simple physiological computer based network with several physiological devices and basic networking components; creation and testing of network cables using applicable tools and test equipment; troubleshoot and correct technical problems of a basic PC and medical equipment networks using appropriate software, tools and equipment; and analyzing and generating a written reports.

Lectures will be supported by laboratory exercises in which the student learns about PC hardware, PC software, network hardware, network configuration and troubleshooting these systems. Students will be required to prepare written laboratory reports outlining the laboratory activity. Reports will be graded based both on their technical quality and their grammatical and professionalism.

Students in BET 206 will be required to use computers in both class and laboratory exercises to use software, create and configure networks for PCs and physiological monitors.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2012  
 Prerequisite: BE T 201IST 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE T 210 Troubleshooting Medical Equipment (3)** Methods and strategies for troubleshooting medical equipment, systems and electronics components.

#### **BE T 210 Troubleshooting Medical Equipment (3)**

BE T 210 will provide students with methods and strategies for servicing medical equipment, systems and electronics components. Many different methods can be used to identify and solve problems that include using many different skill sets. This course introduced logical methods for troubleshooting medical devices including: equipment operation, application, normal and abnormal outcomes, tools, test equipment, simulators and analyzers. In addition to the technical skills of troubleshooting, the "soft" skills or "people" skills are investigated. How to communicate with others and the customer skills will be introduced. While working with medical equipment, individuals need to have an awareness of infection control and the steps that must be followed to protect them, the patients and co-workers. Cleaning, handling and general safety methods will be discussed.

Topics covered include:

- Safety procedures
- Skill set requirements
- Test equipment, simulators, analyzers and tools
- Troubleshooting methods
- Troubleshooting components
- Troubleshooting systems
- Troubleshooting medical equipment
- Hands on troubleshooting skills
- Customer skills
- Infection Control

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: BE T 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE T 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE T 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BE T 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Biorenewable Systems (BRS)**

**BRS 221** Engineering Principles of Biorenewable Systems (3) Application of engineering principles critical to agricultural and biorenewable systems.

**BRS 221 Engineering Principles of Biorenewable Systems (3)**

This course provides an overview of engineering principles to students in non-engineering majors, but who are likely to encounter challenges that require quantitative solutions. Problem solving skills are extremely important to technology. At the end of the course, students will be able to: solve problems related to biorenewable systems using a structured, logical method combining concepts from physics and math; recognize and apply unit factoring and dimensional analysis to problem solving; quantify physical relationships and apply engineering principles to evaluate basic engineering technology problems involving electrical systems, structural members, fluid mechanics, heat transfer, and psychrometrics. Hands-on examples are used throughout the course to tie the course material to applications in agricultural and biorenewable industries. Examples include residential wiring; sizing structural members made of wood, steel, and other materials; non-moving and flowing fluids in bioproduct and agricultural processing; heat transfer through wall, windows, and other materials likely to be found in construction and processing facilities; psychrometrics in environmental growth and drying facilities. This course provides the groundwork for topics explored in more detail later in the BioRenewable Systems curriculum.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: MATH 110 or MATH 140; PHYS 250 or PHYS 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRS 300 Introduction to Biorenewable Products (3)** Overview of bioproducts and their related industry sectors, including forest products, biocomposites, biofuels, bioenergy, bio-based adhesives, biochemicals, and bioplastics.

**Introduction to Biorenewable Products (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: W P 200W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRS 393 Bioresources Industry Tour (1)** A week-long tour of bioproducts and agricultural systems industries.

**BRS 393 Bioresources Industry Tour (1)**

This is a week long course, in which students will travel to tour relevant manufacturing facilities. Roughly half of the time (2.5 days) will be dedicated to the bioproducts industry, and the remaining time will be focused on agricultural systems. Bioproducts and agricultural systems are the two key components of the BioRenewable Systems major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: senior standing in BRS or B E

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRS 411 Biobased Fiber Science (4)** Theoretical and practical aspects of structure-property relationships for biobased industrial fibers, including fiber biological and chemical constitution and fiber-water relationships.

**BRS 411 Biobased Fiber Science (4)**

This course investigates fundamental aspects of biobased industrial fibers (also known as biofibers), and ties their underlying biological and chemical structure to macroscale properties. Bioproducts are defined as products created from biologically derived, renewable industrial feedstocks (wood, cotton, grasses, and bast fibers including jute, hemp, kenaf, etc.). The course begins with a look at the worldwide production of biofibers, and considers implications relating to sustainability. Elements of underlying biological and chemical structure are then investigated, including an introduction to relevant aspects of polymer science. The interaction of biofibers with water is a practical issue that bears great significance; this is the focus of the last third of the course. Students will learn principles of psychrometrics (water-temperature-environment relationships) including measurement of relative humidity and fiber moisture content. Final course subjects include industrial techniques for drying fibers, energy implications of these processes, and troubleshooting of biofiber industry issues relating to moisture.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: CHEM 110BRS 300

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRS 422 Energy Analysis in Biorenewable Systems (3)** Energy management, energy conversions, renewable energy alternatives, engineering economic analyses, national and international perspectives on energy resources.

### **BRS 422 Energy Analysis in Biorenewable Systems (3)**

This course focuses upon first understanding the various forms of energy in common use today and then analyzing the energy equivalents of various forms of energy. Forms of energy to be studied most extensively include electricity, fossil fuels, and renewable energy sources. Principles and applications of engineering economic analyses will be emphasized because these principles are needed to evaluate the feasibility of converting from one energy form to another. Specific application areas of emphasis include buildings, motors, and lights. For each application area, there will be discussion of the alternatives available for using energy in a more efficient and economical manner.

The infrastructure systems needed for providing electricity and natural gas to a specific location will be described as well as typical rate structures for the energy provided. Alternatives to the conventional energy systems will be identified and the course will conclude with discussion of energy strategies throughout the 21st century. Local, national, and international perspectives on energy resources will be infused throughout this course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: BRS 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRS 423 Deterioration and Protection of Bioproducts (3)** Timber, wood, and bioproduct deterioration from fungi, insects, fire; treatment of bioproducts for in-service protection.

### **Deterioration and Protection of Bioproducts (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: BRS 300  
Concurrent: BRS 411

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRS 426 Safety and Health in Agriculture and Biorenewable Industries (3)** Managing occupational safety and health in production agriculture, bioproducts and related operations.

### **BRS 426 Safety and Health in Agricultural and Biorenewable Industries (3)**

BRS 426 explores management aspects of occupational safety and health specifically as it pertains to both the agricultural and biorenewable systems industry sectors. Employers are increasingly demanding students have training in safety and health. Topics to be covered include principles of safety and health, hazard analysis, hazard prevention and control, human behavior and safety, training and education, safety and health regulations, agricultural emergencies and developing a written safety program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: BRS 393

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRS 428 Electric Power and Instrumentation (3)** Principles and application of electric circuits for power distribution, motors, automatic controls, and instrumentation used in agricultural and biorenewable industries.

### **BRS 428 Electric Power and Instrumentation (3)**

Nearly every facet of our modern society relies on electricity and electronics. Whether engaged in product development, manufacturing, production, testing, or management, graduates of technical programs benefit from a fundamental understanding of electrical/electronic systems. This course prepares students to analyze electrical/electronic systems applicable to agricultural and biorenewable industries. Upon completion of this course, the student will be able to: demonstrate correct use of common electronic measurement tools including multimeters, oscilloscopes and others; demonstrate sound electrical construction techniques including cable preparation, soldering, circuit board construction, and others; demonstrate sound troubleshooting skills for electrical and electronic systems; understand common elements of power distribution systems; understand simple measurement and control circuits represented by schematics or ladder diagrams; understand and apply various sensors to measure temperature, pressure, strain, force, proximity, speed etc.; understand the application of dataloggers, programmable logic controllers, and computer software to collect data and/or control simple processes; understand the function of common circuit components such as resistors, capacitors, inductors, diodes, op-amps, transistors, and transformers in simple circuits; understand basic maintenance and safety requirements for facility electrical systems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BRS 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRS 429W** Biorenewable Systems Analysis and Management (3) Theory of systems thinking; optimization and quantitative techniques for analysis of agricultural production and other biorenewable systems.

### **BRS 429W Biorenewable Systems and Analysis and Management (3)**

BRS 429W is a capstone course for the BioRenewable Systems major. The course covers systems analysis and optimization techniques including an introduction to systems theory, qualitative and quantitative analysis, linear programming, waiting line models, PERT/CPM, minimal spanning tree, calculus methods, simulation modeling for decision making, inventory, and energy audits. All topics are presented in the form of case studies that require the students to solve problems in realistic production and processing scenarios. The course also provides a writing-intensive structure. The course targets BRS students in their last semester because it integrates knowledge and experiences acquired in prior BRS, business, and agricultural science courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BRS 422 ; or concurrent A S M 425 or W P 417

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRS 437** Bioproduct Marketing and Sales (4) Business-to-business bioproduct sales and marketing fundamentals and market overview of key forest industry sectors including biorefinery value chain outputs.

### **BRS 437 Bioproduct Marketing and Sales (4)**

This course covers business-to-business (B2B) bioproduct marketing fundamentals and a market overview of key forest industry sectors (solid wood, composite panels, and engineered wood products) including biorefinery value chain outputs (environmental services, energy, fuels, and co-products) and personal selling of bioproducts. Students will apply B2B market principles and concepts toward an understanding of bioproducts industries and markets. Personal selling techniques will be developed and applied to enhance understanding of the industrial sales function within bioproduct firms. Marketing research for decision-makers will be examined.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BRS 300AG BM 101 or ECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRS 490** BioRenewable Systems Colloquium (1) Presentations and discussions of solutions to problems within the biorenewable systems industries.

### **BioRenewable Systems Colloquium (1)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Biotechnology (BIOTC)

**BIOTC 416** (MICRB 416) Microbial Biotechnology (2) Fundamentals of applied biotechnology; the use of microorganisms in the synthesis of biologically-important and industrially-useful products.

### Microbial Biotechnology (2)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: MICRB 201MICRB 202;B M B 442

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOTC 459** (HORT 459, BIOL 459) Plant Tissue Culture and Biotechnology (3) Principles and techniques for the in vitro culture, propagation, and genetic manipulations of plant cells.

### Plant Tissue Culture and Biotechnology (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: BIOL 230W ; orB M B 251B M B 252

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOTC 460** (AGRO 460) Advances and Applications of Plant Biotechnology (3) This course provides a comprehensive overview and current status of plant biotech research. The course provides knowledge of plant systems that fall in the category of GMOs.

### BIOTC (AGRO) 460 Advances and Applications of Plant Biotechnology (3)

This course will provide a comprehensive overview and status of current plant biotech research. The focus is on providing knowledge of the biology of plant systems. Consequences of development of a transgenic plant either for food (crops) or as a tool to understand molecular, genetic, and inheritance mechanisms of a trait will be discussed in detail. The course will deliver the current literature and understanding of mechanisms involved in herbicide resistance in transgenic plants. Specific topics that will be of interest to students from various disciplines include disease and insect resistance, quality traits, and secondary metabolites. Molecular biology of different pollination systems will be examined so that students will understand the concept of gene flow from transgenic to non-transgenic crops. Examples from recent developments on the beneficial use of transgenic plants as producers of modified compounds, starches, antibodies and their use in phytoremediation of toxic and organic pollutants will be discussed from the perspective of genetic and molecular plant systems. Gene expression of transgenic plant traits and the stability of an engineered crop will be discussed. Specific emphasis will be on different modes of inheritance that a transgenic plant can follow after its development and release into the environment. The course also prepares students for understanding the regulatory processes that are required for testing, moving, and environment release of transgenic crops. The laboratory component of the course will introduce students to the common technique of molecular biology that are used to detect expression in transgenic plants. Transgenic maize plants will be grown in a greenhouse and analyzed for expression of introduced genes.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009  
Prerequisite: BIOL 230WB M B 251 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOTC 479** Methods in Biofermentations (3) Bioprocessing principles and development; uses and operation of biofermentors; determination of biomass; problems of scale-up.

### Methods in Biofermentations (3)

General Education: None  
Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: MICRB 201MICRB 202;B M B 251B M B 252B M B 442

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BIOTC 489** Animal Cell Culture Methods (3) An overview of animal cell culture methodology and its practical application in bioprocess technology.

### **Animal Cell Culture Methods (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: MICRB 201MICRB 202;BIOL 230W orB M B 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Business Administration (B A)**

**B A 100** (GS) Introduction to Business (3) A comprehensive view of the contemporary environment of business.

### **B A 100 Introduction to Business (3) (GS)**

This course provides a broad overview of the study of business and its environment, organization, operation, and interrelationships with government and society. Topic areas include; economic systems, forms of business ownership, information, accounting, finance, management, and marketing principles, legal and regulatory environments, business ethics and international business. A student majoring in business will develop a broad basis for further study in a specific area in business, while other majors will become familiar with the American enterprise system and the functions and issues facing business today.

General Education: GS

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 100S** (GS) Introduction to Business (3) A comprehensive view of the contemporary environment of business.

### **Introduction to Business (3)**

General Education: GS

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 195** Cooperative Practicum with Business Offices (3-6) Cooperative practical work with business offices under the supervision of the instructor.

### **Cooperative Practicum with Business Offices (3-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1990

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None



Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 199 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 241** Legal Environment of Business (2) Examines the legal system's role and impact regarding business transactions, liability issues, and ownership of intellectual property. Students earning credit for B A 241 may not earn credit toward Smeal College baccalaureate degree for B Law 243 and/or B A 243.

### **B A 241 Legal Environment of Business (2)**

As an integral part of planning and management responsibilities, a business decision-maker must be able to identify risks and opportunities from many sources. The legal environment represents a significant segment of the decision-maker's landscape. This survey course is designed to develop the student's awareness and recognition skills with respect to the major inputs in the increasingly complex commercial legal environment. Students in this course will examine the design and function of the U.S. legal system in its roles as protector of property interests and facilitator of business transactions. Alternatives to judicial resolution and enforcement will also be examined. In addition, students will learn about the legal issues affecting the formation and enforcement of business agreements. This will include studying the impact of our economy's continued shift to digital technology for communication and documentation. Finally, tort liability and intellectual property issues from a business perspective will be examined with a special emphasis upon issues created by the Internet's rapid growth. Students earning credit for B A 241 may not earn credit toward a Smeal College baccalaureate degree for B LAW 243 and/or B A 243.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 242** Social and Ethical Environment of Business (2) Explores the social and ethical environment of business and ethical decision making in a business context.

### **B A 242 Social and Ethical Environment of Business (2)**

Modern businesses operate in an increasingly interdependent environment. The actions of businesses have major impacts on society. Conversely, society influences a wide range of corporate actions through laws and regulations as well as via public opinion and the media. With changes in information technology, corporate decisions that were once considered private are now subject to public scrutiny. Therefore, more than ever, these decisions must take into account the larger social environment. In this course, students will learn about a broad range of stakeholders and societal issues that affect corporate decision-making and they will consider the corporation's responsibility to society. They will also learn to apply ethical decision-making frameworks to a variety of ethical decisions faced by corporate managers. This course is taught in the sophomore year and therefore lays a broad foundation for other core business courses. For example, other courses tend to focus on a single stakeholder group such as customers (marketing), employees (management), or stockholders (finance). This course teaches students to think broadly about how a business fits into a more complex web of relationships within society.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 243** Social, Legal, and Ethical Environment of Business (4) Explores the ethical, political, social, legal and regulatory, technological, and demographic diversity environment of business. A student may not receive credit toward graduation for both B LAW 243 and B A 243.

**Social, Legal, and Ethical Environment of Business (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 250** Small Business Management (3) Analysis of problems of the small firm, particularly for the student who wishes to venture into business.

**Small Business Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: 3 credits in economics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 297A** Career Planning Strategies (1) This course attempts to determine if the students' personal interests, values, skills and goals are consistent with their chosen career. Activities include, resumes, mock interviews and networking.

**Career Planning Strategies (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 297A** Career Planning Strategies (1) This course attempts to determine if the students' personal interests, values, skills and goals are consistent with their chosen career. Activities include, resumes, mock interviews and networking.

**Career Planning Strategies (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 297A** Career Planning Strategies (1) This course attempts to determine if the students' personal interests, values, skills and goals are consistent with their chosen career. Activities include, resumes, mock interviews and networking.

### **Career Planning Strategies (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 297B** Introduction to Social Entrepreneurship (3) This course introduces students of any major to social entrepreneurship principles through a multidisciplinary and integrated learning, research, and outreach experience. The examination of case studies will provide examples of both successful and failed social ventures and stimulate discussion about the challenges and issues related to creating sustainable projects that address local and global problems. Emphasis will also be placed on the leadership and professional development of students through involvement in research, project design, implementation, and assessment.

### **Introduction to Social Entrepreneurship (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 297C** Project Risk and Change Management (1) This last course in the series introduces the student to risk and change management; team responsibilities, conflicts; quality; ethics; and closeout.

### **Project Risk and Change Management (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 297D** Project Initiation and Planning (1) Introduces the student to the project management process; the role of the Project Manager; project communications, and project leadership. It begins the planning process covering topics such as the objectives, scope, and success criteria.

### **Project Initiation and Planning (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 297E** Project Scheduling and Integration (1) This course continues to build upon the lessons learned in "Project Initiation and Planning". Content covers the work between breakdown structure, project schedule, PERT/GANTT/CPM methods, and project integration.

### **Project Scheduling and Integration (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 297F** MS Project Overview (1) Companies large and small require project plans developed in MS Project to track the status of their projects. Learn the proper methods for using MS Project 2010. You will learn the #1 and #2 mistakes even seasoned users make. Explore how to build project plans properly for effective project management.

### **MS Project Overview (1)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 297I Business Ethics (1)** Course designed to give students a set of tools to examine and analyze ethical business decisions and to evaluate their own ethical principles.

#### **Business Ethics (1)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 301 Finance (3)** An overview of finance for non-business majors. Topics include financial markets and institutions, investments, and financial decision making in organizations.

#### **B A 301 Finance (3)**

The goal of BA 301 is to provide insight into the thinking of both the financial manager and the functional manager that is needed to effectively lead and manage not only their business organization but also their personal financial lives. The course will enable the student to learn the key financial concepts, constructs, and models that are used by financial managers every day around the world. Understanding of the mathematics of finance, the use of financial calculators, and development of Excel financial model problem solving will be emphasized. Ethical financial decision-making will be a common theme that is integrated throughout the course.

Using a survey overview approach, the first five weeks of the course will cover concepts such as financial statements and analysis, financial ratios and analysis, long-term financial planning and budgeting, time value of money, discounted cash flow analysis, capital budgeting, break-even analysis, and systematic/unsystematic risk. The next five weeks will provide an overview of financial topics that are normally covered in detail in financial markets courses. These topics include financial systems, money markets, the Federal Reserve and monetary policy, derivatives and speculative markets, and legal and operational issues in financial markets. The final five weeks will cover general personal finance topics of interest such as money management strategies, insurance and risk management, consumer credit, tax strategies, investing in stocks, bonds, and Exchange-Traded Funds, and retirement and estate planning.

A student may not receive credit toward graduation for both B A 301 and FIN 100, or for both B A 301 and FIN 301.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: ACCTG 211;ECON 102 ; 3 credits of 200-level statistics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 301 Finance (3)** An overview of finance for non-business majors. Topics include financial markets and institutions, investments, and financial decision making in organizations.

#### **B A 301 Finance (3)**

The goal of BA 301 is to provide insight into the thinking of both the financial manager and the functional manager that is needed to effectively lead and manage not only their business organization but also their personal financial lives. The course will enable the student to learn the key financial concepts, constructs, and models that are used by financial

managers every day around the world. Understanding of the mathematics of finance, the use of financial calculators, and development of Excel financial model problem solving will be emphasized. Ethical financial decision-making will be a common theme that is integrated throughout the course.

Using a survey overview approach, the first five weeks of the course will cover concepts such as financial statements and analysis, financial ratios and analysis, long-term financial planning and budgeting, time value of money, discounted cash flow analysis, capital budgeting, break-even analysis, and systematic/unsystematic risk. The next five weeks will provide an overview of financial topics that are normally covered in detail in financial markets courses. These topics include financial systems, money markets, the Federal Reserve and monetary policy, derivatives and speculative markets, and legal and operational issues in financial markets. The final five weeks will cover general personal finance topics of interest such as money management strategies, insurance and risk management, consumer credit, tax strategies, investing in stocks, bonds, and Exchange-Traded Funds, and retirement and estate planning.

A student may not receive credit toward graduation for both B A 301 and FIN 100, or for both B A 301 and FIN 301.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ACCTG 211;ECON 102 ; 3 credits of 200-level statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 302 Supply Chains (3)** An overview of supply chain management for non-business majors focusing on the strategic importance of source, make and deliver processes.

### **B A 302 Supply Chains (3)**

The purpose of BA 302 is to provide non-business students with an introduction to the issues and decisions routinely faced by supply chain managers and the impact of effective supply chains on today's business environment. Using the Supply Chain Operations Reference model as a framework, this course considers how successful firms plan, integrate and execute sourcing, manufacturing, customer fulfillment, reverse logistics and sustainment processes across a complex marketplace to provide value to the customer. The course will look at the interplay and coordination of product, financial and information flows through a supply chain resulting in value creation for the customer and competitive advantage for the firm.

Students will consider the roles of drivers such as cost, quality, time, flexibility, innovation and information sharing in designing supply chain strategies in support of overarching business strategies. Through detailed exploration of models, case studies and real world events, coupled with the application of operation management tools and techniques, the course provides the opportunity to identify and dissect issues, and develop solutions to supply chain challenges not only faced by today's business managers, but also impact the customer. The course will examine supply chain organization, implementation and management planning, the evaluation and control of manufacturing processes, and the execution of supplier and customer management activities. Students will use basic information technologies and programs to leverage tools like business process mapping, value indexing, and total cost analysis to aid in the identification and mitigation of supply chain issues in a global business environment. Students will also be exposed to current supply chain issues such as sustainability and the impact of boundary-spanning information technologies as relevant keys to competitive advantage.

The course provides the basic supply chain knowledge and skills necessary for the non-business major to be an effective member of a cross functional team in a professional business environment while providing a level of understanding to benefit the student in navigating the complex customer fulfillment issues present as a consumer of goods and services in today's globally connected marketplace.

A student may not receive credit towards graduation for both B A 302 and and SCM 301.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ACCTG 211;ECON 102 ; 3 credits of 200-level statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 302 Supply Chains (3)** An overview of supply chain management for non-business majors focusing on the strategic importance of source, make and deliver processes.

### **B A 302 Supply Chains (3)**

The purpose of BA 302 is to provide non-business students with an introduction to the issues and decisions routinely faced by supply chain managers and the impact of effective supply chains on today's business environment. Using the

Supply Chain Operations Reference model as a framework, this course considers how successful firms plan, integrate and execute sourcing, manufacturing, customer fulfillment, reverse logistics and sustainment processes across a complex marketplace to provide value to the customer. The course will look at the interplay and coordination of product, financial and information flows through a supply chain resulting in value creation for the customer and competitive advantage for the firm.

Students will consider the roles of drivers such as cost, quality, time, flexibility, innovation and information sharing in designing supply chain strategies in support of overarching business strategies. Through detailed exploration of models, case studies and real world events, coupled with the application of operation management tools and techniques, the course provides the opportunity to identify and dissect issues, and develop solutions to supply chain challenges not only faced by today's business managers, but also impact the customer. The course will examine supply chain organization, implementation and management planning, the evaluation and control of manufacturing processes, and the execution of supplier and customer management activities. Students will use basic information technologies and programs to leverage tools like business process mapping, value indexing, and total cost analysis to aid in the identification and mitigation of supply chain issues in a global business environment. Students will also be exposed to current supply chain issues such as sustainability and the impact of boundary-spanning information technologies as relevant keys to competitive advantage.

The course provides the basic supply chain knowledge and skills necessary for the non-business major to be an effective member of a cross functional team in a professional business environment while providing a level of understanding to benefit the student in navigating the complex customer fulfillment issues present as a consumer of goods and services in today's globally connected marketplace.

A student may not receive credit towards graduation for both B A 302 and and SCM 301.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ACCTG 211;ECON 102 ; 3 credits of 200-level statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 303 Marketing (3)** An overview of marketing for non-business majors. Topics include customer behavior, service/product development, pricing, and promotion in diverse markets.

### **B A 303 Marketing (3)**

The goal of BA 303 is to provide broad-based exposure and understanding of marketing and its processes. The course is meant to be a "stand alone" marketing course for those interested in the role of marketing within the business context and will cover a range of topics from the basic (what is marketing) to the processes (market segmentation, marketing strategy, development of product, price, place and promotion) to the broader societal questions (why marketing exists, ethics, the future of marketing). There will also be an opportunity to examine marketing from the perspective of various industries for non-business students.

Exams will test factual knowledge of marketing and the marketing process. Written homework assignments will ask students to work both individually and in teams to apply course concepts. These may include assignments developing one's skill set in consumer psychology, target market selection, writing a positioning statement, developing a marketing plan, new product development concepts, promotional campaign ideas, and ethical questions to discuss and debate. Students may also be asked to form small groups for discussion and/or make presentations to the class based on set marketing topics specific to one's area of interest. Students will also be expected to participate in class discussions.

A student may not receive credit towards graduation for both B A 303 and MKTG 221 or MKTG 221W. Furthermore, a student may not receive credit towards graduation for both B A 303 and MKTG 301 or MKTG 301W.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 303 Marketing (3)** An overview of marketing for non-business majors. Topics include customer behavior, service/product development, pricing, and promotion in diverse markets.

### **B A 303 Marketing (3)**

The goal of BA 303 is to provide broad-based exposure and understanding of marketing and its processes. The course is meant to be a "stand alone" marketing course for those interested in the role of marketing within the business context and will cover a range of topics from the basic (what is marketing) to the processes (market segmentation, marketing strategy, development of product, price, place and promotion) to the broader societal questions (why marketing exists, ethics, the future of marketing). There will also be an opportunity to examine marketing from the perspective of various industries for non-business students.

Exams will test factual knowledge of marketing and the marketing process. Written homework assignments will ask students to work both individually and in teams to apply course concepts. These may include assignments developing one's skill set in consumer psychology, target market selection, writing a positioning statement, developing a marketing plan, new product development concepts, promotional campaign ideas, and ethical questions to discuss and debate. Students may also be asked to form small groups for discussion and/or make presentations to the class based on set marketing topics specific to one's area of interest. Students will also be expected to participate in class discussions.

A student may not receive credit towards graduation for both B A 303 and MKTG 221 or MKTG 221W. Furthermore, a student may not receive credit towards graduation for both B A 303 and MKTG 301 or MKTG 301W.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: ECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 303H Honors Core Marketing (2)** Junior Core Marketing - Honors Section.

### **B A 303H Honors Core Marketing (2)**

This course is an exploration of fundamental concepts and issues in marketing. In this course, we will discuss what marketing is and learn to analyze the marketing environment and our potential customers. Based on these insights, we will then discuss strategy alternatives and the key functions of marketing. A project is a major component of the course.  
<p>

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ACCTG 211B A 243 orB A 241 andB A 242ECON 102ECON 104ENGL 015MATH 110 orMATH 140MIS 204SCM 200 orSTAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 304 Management and Organization (3)** This course provides an overview of management for students not enrolling in a Penn State business program. Topics include differences in organizations, decision making, motivation, team effectiveness, corporate strategy and competitor analysis, and implementation in a global context.

### **B A 304 Management and Organization (3)**

This course is an introduction to management focusing on concepts that will help students understand the behavior of employees, teams, and organizations, and apply these concepts to their own careers. The course will initially use basic social science principles to examine how managers can motivate and coordinate activities among individuals and teams within an organization, using principles of personality, ability, values, attitudes, motivation, power, persuasion, leadership, team dynamics, and organizational culture and structure. Then, the course will shift to how whole organizations interact with their external environments. Students will learn to assess company, competitor and industry performance and use this analysis to set goals, plan firm strategies, and implement them.

B A 304 is an introduction and overview course that a body of knowledge that exists concerning the management of modern organizations. Management is critical to business success no matter the industry, the field or the arena. Seven key functions for any manager will be covered – organizational structure, operations, staffing, recruitment, leadership, culture (including ethics) and planning.

One key take away for B A 304 is the difference between leadership and management. What do these words mean to you? In recent years we have focused on leadership as the preferred ability to strive for with management skill losing favor. In general it has been said that leaders focus on "doing the right things" and managers focus on "doing things right". This will be a theme for review and discussion throughout the course as each subject area is covered.

A student may not receive credit towards graduation for both B A 304 and MGMT 100 or MGMT 100W. Furthermore, a student may not receive credit towards graduation for both B A 304 and MGMT 301 or MGMT 301W.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: ECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 304 Management and Organization (3)** This course provides an overview of management for students not enrolling in a Penn State business program. Topics include differences in organizations, decision making, motivation, team effectiveness, corporate strategy and competitor analysis, and implementation in a global context.

### **B A 304 Management and Organization (3)**

This course is an introduction to management focusing on concepts that will help students understand the behavior of employees, teams, and organizations, and apply these concepts to their own careers. The course will initially use basic social science principles to examine how managers can motivate and coordinate activities among individuals and teams within an organization, using principles of personality, ability, values, attitudes, motivation, power, persuasion, leadership, team dynamics, and organizational culture and structure. Then, the course will shift to how whole organizations interact with their external environments. Students will learn to assess company, competitor and industry performance and use this analysis to set goals, plan firm strategies, and implement them.

B A 304 is an introduction and overview course that a body of knowledge that exists concerning the management of modern organizations. Management is critical to business success no matter the industry, the field or the arena. Seven key functions for any manager will be covered – organizational structure, operations, staffing, recruitment, leadership, culture (including ethics) and planning.

One key take away for B A 304 is the difference between leadership and management. What do these words mean to you? In recent years we have focused on leadership as the preferred ability to strive for with management skill losing favor. In general it has been said that leaders focus on "doing the right things" and managers focus on "doing things right". This will be a theme for review and discussion throughout the course as each subject area is covered.

A student may not receive credit towards graduation for both B A 304 and MGMT 100 or MGMT 100W. Furthermore, a student may not receive credit towards graduation for both B A 304 and MGMT 301 or MGMT 301W.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: ECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 304H Honors Core Management (2)** Junior Core Business Management - Honors Section.

### **B A 304H Honors Core Management (2)**

The course will familiarize the student with basic concepts, theories and approaches that can lead to a more nuanced understanding of management practices. A learning objective is to experience and to relate the concepts in a "real" world context. The experiential exercises, video discussions and supplementary readings will help students accomplish this objective. Another objective is to synthesize and integrate seemingly unrelated management topics. Case discussions are particularly useful in accomplishing this type of learning. An additional type of learning is critical inquiry where students feel empowered to create and critique thought. The group project is aimed at accomplishing this type of learning.

There are several other skills required to become effective managers. Foremost among them are communication and inter-personal skills. The assignments and the course teaching style will make students aware of the importance of developing these skills.

Students are required to read assigned articles and/or cases for each class. They are asked to summarize the main themes underlying the readings and keep journals on what they have learned as well as what they would like to learn. Students in teams are also asked to choose a topic for research and presentation. Possible research topics are:

- \*Structure: Networks, virtual teams
- \* Skills: Skill obsolescence, recruiting for talent, employee churning
- \*Style: Transformation leadership
- \*Staff: Stock options, altruistic reasons for contribution
- \* System: Six-sigma, management information system
- \* Super-ordinate goals: Ethics and aesthetics, social responsibility
- \*Strategy: Stakeholder wealth maximization, triple bottom line.

Group projects will also be required. Topics will be approved based on proposals submitted early in the semester. Examples of projects are:

1. Understanding the functioning of organizations (e.g. Fraternities, McDonalds, student organizations) by observing/interviewing people to identify interesting facets about how organizations work and don't work.
2. Tracking the genesis of breakthroughs in organizations.
3. Desktop research on emerging organizational forms.



4. Designing and administering a team-building exercise to sensitize a group of freshmen on the virtues and challenges of work-force diversity.
5. Mapping the informal and formal organizational dynamics using "Organigraphs".
6. Interviewing faculty to identify emerging issues on management.

Projects will require a written report, oral presentation, and classroom discussion. The purpose of oral presentations is to give students a "feel" for what will be expected of them, as managers, in the real world. Students will be required to present their group papers as they would in a business environment. Appropriate visuals, etc. should be used, and the presentations should be polished and professional.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ACCTG 211B A 243 orB A 241B A 242ECON 102ECON 104ENGL 015MATH 110 orMATH 140MIS 204SCM 200 orSTAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 321 Contemporary Skills for Business Professionals (3)** Emphasizes the development of individual, group, critical thinking, and presentation skills, through the application of modern method and business technology.

### **B A 321B A 321 Contemporary Skills for Business Professionals (3)**

This course is designed to provide fundamental skills necessary for success in the business environment. BA 321 is one of a series of courses that collectively develop the skills and competencies required of a successful business administration student.

As a foundational course in the degree program BA 321 emphasizes the following:

- An introduction to student-centered learning, especially with opportunities for active and collaborative learning utilizing state of the art elements of technological business environment.
- An introduction to inquiry-based processes necessary for understanding and addressing issues and opportunities in current and emerging business environment relevant subsequent course work in the student's chosen option and professional practice.
- Development of basic communications skills, including oral, written, and multimedia, relevant to individual and group effectiveness.
- Team building and participation while completing projects that focus on understanding individual and cultural diversity and respecting the views of others. Additionally, students develop an understanding of and competence in the multiple roles that define successful teamwork.
- Establishing and respecting the roles within a team.
- Awareness of the importance of the needs and opportunities of the community with which the individual contributes as a business professional.
- Application of the hardware and software skills necessary for transferring knowledge of business topics in both face-to-face and virtual settings academic and professional.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: ACCTG 211;ECON 102 orECON 104;ENGL 015

Concurrent: SCM 200 or STAT 200 MIS 204

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 322 Negotiation Skills for Business Professionals (3)** Emphasizes the preparation and conduct of business negotiations in a range of situations.

### **B A 322 Negotiation Skills for Business Professionals (3)**

This course integrates the experiential and intellectual components of negotiation. Course instruction and learning activities emphasize the preparation for and conduct of business negotiations in a range of situations. These situations include integrative and distributive scenarios, development of negotiation relationships, and negotiation in multi-organization, multi-industry, multi-cultural, and multi-national environments. Basic negotiation theories will be addressed and applied through the recognition and the resolution of conflict by applying various bargaining strategies. Students will learn how to prepare for a negotiation event. Students will learn to select the appropriate negotiation strategies in order to match the needs of the situation. Students will develop the negotiation skills needed to meet the challenges facing today's executives. Students will develop the sophistication to analyze bargaining and conflict relationships, and an awareness of their individual bargaining style. Students will apply various techniques in order to: understand the basic elements of negotiation; make informed decisions about continuing a negotiation or walking away; participate or lead in team-based negotiations; and effectively manage international negotiations. A primary component of this course is application of negotiation theories through exercises in which the student assumes various roles within a negotiation scenario. Through practice and role playing, students will develop effective personal and professional negotiation skills.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2012  
 Prerequisite: ACCTG 211;ECON 102 orECON 104;ENGL 015  
 Concurrent: SCM 200 or STAT 200 ; MIS 204

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 342 Socially Responsible, Sustainable and Ethical Business Practice (3)** Course examines actions taken by corporations that impact global citizenship, environmental sustainability, and the economic stability of international societies. It further looks at relationships, rights, and responsibilities between businesses, business decision-makers and their stakeholders.

**B A 342 Socially Responsible, Sustainable and Ethical Business Practice (3)**

Businesses and other large organizations have come to influence nearly all aspects of life in contemporary industrialized societies. The actions taken by businesspeople have major impacts on individuals and on society as a whole. Conversely, the expectations of citizens and their representative bodies (e.g., governments, communities, unions, interest groups) influence a wide range of corporate actions. Students of B A 342 will examine these relationships, rights, and responsibilities between businesses, business decision-makers and their stakeholders.

As students enter their field of study, this course will introduced them to current ethical, social responsibility and sustainability issues that face business practitioners within their field and across related disciplines. Each business function – accounting, finance, marketing, risk, supply chain, human resource policies, etc. – has relationships and responsibilities within the larger social environment. This course considers commonalities across the business functions and teaches students to think broadly about how a business fits into a more complex web of relationships within society.

The course begins with an overview of the corporation's place and role in society as well as key concepts in understanding why knowledge related to corporate governance, ethics, sustainability and social responsibility issues is critical to professional managers' responsibility and long-term career success. The stakeholder model is reviewed along with the study and application of ethical decision-making frameworks to current ethical dilemmas. Sustainability and global responsibility are introduced within the context of government regulation versus responsible stewardship. The closing section of the course provides thought and discussion on issues facing business practitioners across key business functions.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2010  
 Prerequisite: MGMT 301MGMT 301W orB A 304 ; Prerequisite or concurrent:FIN 301 orB A 301;MKTG 301 orB A 303;SCM 301 orB A 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 364Y (US;IL) International Business and Society (3)** Business organizations and the sociocultural environment; current issues; corporate responsibility; international and multinational business environments.

**B A 364Y International Business and Society (3)  
 (US;IL)**

This writing-intensive course will provide an overview of the relationship between business organizations and the sociocultural environment. Current issues in the media and the scholarly literature will be used to discuss and analyze this relationship. Special attention will be given to the topics of business and government relationships, corporate responsibility, environmental issues, and topics related to international and multinational business environments.

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: ENGL 202DMGMT 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 395A** Practicum in Business Administration (1) Professional and guided work experience in business administration with private or public organizations. May be taken only as an elective.

#### **Practicum in Business Administration (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1990

Prerequisite: fifth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 411** Analyzing Business and Industry (3) Prepares students to obtain an enterprise-wide view of business and industry by integrating operational and financial decisions in a team and learning environment.

#### **B A 411 Analyzing Business and Industry (3)**

The course provides the students with a methodology for analyzing the business, introduces the students to sources of financial information available from private and public sources and trains the student to prepare and professionally present business analysis reports. The course, which adopts a user perspective, extends the students' basic knowledge of financial reporting and provides them with a broader context for understanding business that includes economic and social forces, the regulatory environment of businesses and their financial reporting, capital market operations and corporate governance. It applies concepts and decision tools that are studied throughout the curriculum such as present value, financial ratio analysis, break-even point analysis and statistical analysis.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: ACCTG 211; B A 301 or FIN 301; B A 302 or SCM 301; B A 303 or MKTG 301; B A 304 or MGMT 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 412H** Honors Integration and Research (2-3) The integration of the business core into a detailed financial, strategy and market analysis of actual companies selected by student teams.

#### **B A 412H B A 412H Honors Integration and Research (2-3 credits)**

The purpose of this course is to assist students in developing their Schreyer Honors Thesis. It proceeds by exposing students to research conducted within the various business majors; the research conducted by prior honors students; and having student teams conduct research on contemporary businesses and industries. Typical readings include materials related to evaluating an actual company, prior Schreyer Honors theses, contemporary business articles, prior course projects and supporting academic literature. Written company analyses and oral presentations are made by the teams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ACCTG 211;FIN 301 orB A 301;SCM 301 orB A 302;MKTG 301 orB A 303;MGMT 301 orB A 304

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 420 Preparation for Career Management (1)** This course emphasizes effective career planning by closely examining oneself, the business world, communication styles and strategies.

#### **B A 420 Preparation for Career Management (1)**

BA 420 develops students' career preparation and management skills through the close examination of self, the world of work and communication styles and strategies. This course is one of a series in the program which collectively develop the skills and competencies necessary for the business administration student.

The course is designed on the belief that (1) career decision-making is greatly enhanced by considering personal traits such as one's interests, values, goals, and approach to making decisions; and (2) through the exploration of self and world through out-of-classroom learning experiences. The student becomes empowered to apply prior classroom learning outside of the academic environment. These skills are utilized throughout a person's career

Students who successfully complete the course will be able to:

- Prepare resumes targeted to a range of industries and positions.
- Write effectively to prospective employers.
- Identify personal traits and qualities in the context of career management.
- Demonstrate effective interview techniques.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: B A 321 orB A 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 421 Project Management (3)** Introduction to Project Management covering all phases of a project including proposal development, planning, execution, and closing.

#### **B A 421 Project Management (3)**

BA 421 is designed to provide the fundamental skills necessary for success in the business environment. BA 421 is one of a series of courses that collectively develop the the skills and competencies necessary for business administration students.

BA 421 is designed to provide students with the fundamental understanding of the Project Management Book of Knowledge that defines the standards of the Project Management Institute (PMI) which is the professional credentialing body of the discipline. This introductory course in project management covers all phases of a project, including; proposal development, planning, execution and closing.

The course will also explore the application of the Theory of Constraints to project management, and will use project management software to demonstrate and reinforce class concepts. The software will also be instrumental in the execution of a business project.

By the end of the proposed new course, students should be able to:

- Identify the role of the project manager within organizations and projects.
- Understand the Processes and Procedures needed to Plan and Control a Project.
- Recognize the options available as well as the inherent strengths and weaknesses of different approaches.
- Define the project scope and priorities.
- Create Work Breakdown Structure (WBS) and integrate it with the organization.
- Estimate and interpret project times and costs.
- Construct project networks and find critical paths.
- Understand and Implement Activity Precedence Logic
- Identify, assess and respond to project risks.
- Schedule project resources and evaluate resource constrained projects.
- Differentiate between the options to accelerate project completion.
- Use Microsoft Project Management Software as a skilled tool for Project Management.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: B A 321 or B A 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 422W Strategic Business Planning (3)** Study of strategic planning and implementation in multi-industry, multi-cultural, and multi-national settings with emphasis on sustaining competitive advantages.

**B A 422W Strategic Business Planning (3)**

BA 422W is the capstone of the series of business administration courses in the BSB degree. These courses collectively develop the the skills and competencies necessary for the business administration student.

BA 422W is designed for students to examine the discipline of strategic management and to develop an appreciation of the criticality of strategic management in guiding a business entity through a changing and challenging environment. The course requires students to build upon their knowledge of business structure, internal and external environments, and functional design as each relates to strategy development and implementation. Students explore methods and techniques to identify strategies best suited to accomplish an entity's mission and its business objectives.

As a writing intensive (W) course, there is a strong emphasis on development and reinforcement of effective writing skills. Students prepare well reasoned, organized, and constructed bodies of work.

Upon successful completion of the course, students will be able to:

1. Identify environmental threats and opportunities impacting a firm.
2. Identify strengths, weaknesses and competencies of a firm.
3. Effectively apply critical thinking skills to design strategic alternatives and then recommend the best alternative.
4. Critique and evaluate strategic actions taken by firms.
5. Explain the profound effects that a strategic move (either at the corporate level or at the business level) can have on the entire organization.
6. Demonstrate exceptional skills in presenting complex business information and issues.
7. Efficiently research a firm or industry using a variety of sources.
8. Demonstrate proficiency in analyzing business cases and formulating well reasoned recommendations when no "right" answer exists.
9. Demonstrate effective leadership skills in a group environment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: B A 321; B A 322; B A 421; FIN 301; MGMT 301; MKTG 301; SCM 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 441 Strategies for Enterprise Sustainability (3)** An understanding and analysis of how environmental and sustainability issues are impacting business strategies and ultimately profits.

**B A 441 Strategies for Enterprise Sustainability (3)**

Enterprise globalization warrants a greater level of awareness and responsibility in seeing that products and services maintain a high level of integrity, quality, and reliability; products need to be produced and moved throughout the supply chain in a manner that does not cause unacceptable environmental or social burdens, but that also allows for acceptable profits. We will examine both external and internal forces, such as environmental groups, policy-makers, and consumers that impact business strategies. This will be put into the context of the "triple bottom line" with an understanding of its challenges and opportunities. Business students will benefit by a better understanding of environmental/sustainability issues that impact operations and strategies. Students will learn via analyses of cases studies and by working in teams to solve real-world problems faced by chosen organizations. Focus will include all key aspects of an enterprise, from procurement to product development, and from human resources to supply chain solutions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: B A 342

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 442 Sustainable Behavior of Consumers, Firms, and Societies (3)** Strategies to influence sustainable behavior considering consumer response and marketing communications.

**B A 442 Sustainability Behavior of Consumers, Firms, and Societies (3)**

Sustainability is a broad domain concerning the extent to which environmental, economic, and social practices are viable for current and future generations. Consumer awareness of sustainability issues has evolved from an emerging social

movement to mainstream values, but increasing sustainable behavior remains a challenge. This course is designed to provide students with the knowledge to enhance sustainable behaviors in firms, among consumers, and in society at large. In doing so, this course will include frameworks for understanding how to influence sustainable practices, consumer response to sustainability, and marketing communication issues as well as real-world examples of sustainable practices and issues, offering both a theoretical and applied approach. The course may also include a project which will entail student teams working on a real-world sustainable behavior problem in collaboration with a business or segment of the university campus when available or other course project addressing a relevant sustainability issue. Students should leave the course with an understanding of sustainability issues in the current marketplace and the knowledge and ability to influence sustainable behaviors. Students will enter their career with the knowledge and skills to be a sustainable business decision-maker and foster sustainable behavior.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 462 Business Strategy (3)** Interpretation of business concept in the analysis of problems related to the successful management of a company, institution, or organization.

### **Business Strategy (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: FIN 301MGMT 301MKTG 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 495A Business Internship (3-6 per semester/maximum of 6)** Guided professional practicum in business consisting of 3 or 6 credits of supervised fieldwork in business.

### **B A 495A Business Internship (3-6 per semester/maximum of 6)**

B A 495A facilitates the application of students' prior classroom learning in a field setting. This course is one of a series in the business program which collectively develop the skills and competencies necessary for success as a business administration student.

The course is designed to provide students with a firsthand opportunity to experience the challenges and rewards of the business professional. Essentially, an internship bridges the gap between the academic environment and the professional environment. Internships provide an opportunity for students to link theory with practice in a nonacademic setting. Internships provide practical, real-world experiences which cannot be simulated in the classroom.

Upon successful completion of an internship, students will:

- Have a better understanding of employer expectations related to career advancement.

- Have an enhanced strategic view of the industry/business segment in which they worked.
- Have experience integrating and using their knowledge and skills from the classroom.
- Have increased awareness of professional and technical areas of strengths and weakness.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: B A 321B A 322B A 420 and completion of 6 credits at the 300- or 400-level in the student's option

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 495B** Undergraduate Research in Business (3-6 per semester/maximum of 6) Guided student research in business, culminating in the presentation of the research project at a professional conference.

**B A 495B Undergraduate Research in Business (3-6 per semester/maximum of 6)**

BA 495B provides students an opportunity to apply prior coursework to address a business problem or research question in far greater depth than a traditional research paper. This course is one of a series in the business program which collectively develop the skills and competencies necessary for success as a business administration student.

The course provides the students with an opportunity to work intensively on a research project of extended duration and depth of analysis with a supervising faculty member. This course introduces the students to conducting business research on a more advanced level. Students will have the opportunity to develop the research question(s), read extensively in the academic literature, gather and analyze data, and thereby extend learning from prior coursework in a research setting.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: B A 321B A 322B A 420 and completion of 6 credits at the 300- and 400- level in the student's option

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 495C** Undergraduate Research in Business (3-9) Guided student research in business administration; application of analytical or research techniques to business problems.

**B A 495C. Undergraduate Research in Business (3-9)**

This course is a senior-level project activity that is intended to build upon all of a student's previous coursework in business, links the theoretical with day-to-day practical applications, and represents the single largest event in the Bachelor of Science in Business (BSB) program. This course is where the student will design a research project in which they have a particular interest and under the supervision of a faculty member will carry out data collection and analysis, prepare a comprehensive paper, and give a presentation of their work. Research as defined for this course means original research of actual business situations or phenomena, the findings, or results of which may be of value to others.

As with many of the other courses within the BSB curriculum, this course further reinforces the development of writing and presentation skills, but also builds upon the competencies attained in project management whereby the student rather than the instructor drives the time schedule and must coordinate their own unique set of resources, including scheduling time as needed with the supervising instructor.

This is one of the five signature BSB courses (B A 321, B A 322, B A 421, B A 495A, B, or C and B A 422W) and should be taken as close as possible to the end of the course of study. It is recommended that B A 495C be taken concurrently with A 422W, the capstone course for the BSB degree.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: B A 322B A 420

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 497B** Sustainable Marketing Strategy for Consumers, Firms, and Societies (3) Sustainability is a broad domain concerning the extent to which environmental, economic, and social practices are viable for current and future generations. Consumer awareness of sustainability issues has evolved from an emerging social movement to mainstream values, and marketing strategy plays an important role in a business' ability to respond to these issues in a genuine manner. This course focuses on the role of sustainability in the marketplace and marketing strategies to effectively engage customers and stakeholders around sustainable issues.

### **Sustainable Marketing Strategy for Consumers, Firms, and Societies (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: B A 342 and B A 497A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B A 499** (IL) Foreign Study--Business Administration (1-18) Study in selected countries of business institutions, functions, and current business problems.

### **Foreign Study--Business Administration (1-18)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: ACCTG 211; ECON 102; ECON 104; SCM 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Business Law (B LAW)**

**B LAW 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 243** Legal Environment of Business (3) Social control through law: courts, basic policies underlying individual and contractual rights in everyday society. May not be used to satisfy Smeal College baccalaureate degree requirements. Not available to students who have taken B A 243.

### **Legal Environment of Business (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: third-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**B LAW 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 299 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 340** Business Law (3) Course examines topics such as commercial paper, secured transactions, bankruptcy, suretyship, professionals' liability, malpractice, and related topics.

**Business Law (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 341** Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property (3) An introduction to the business environment emphasizing business contracts, liability issues arising from business relations, including those in the internet realm and intellectual property issues. Alternative dispute resolution and global perspectives will be integrated throughout.

**B LAW 341 Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property (3)**

Business decisions have legal consequences. Such decisions can represent both legal risks and opportunities. It is important for one entering business to have a fundamental understanding of the governing legal principles. This course will provide an introduction to the U.S. legal system, coverage of the major components of contract law, and an examination of business liability issues under tort law. In addition, the intellectual property issues of trade secrets,

trademarks, patents, and copyrights will be covered. The impact of digital technology and business globalization will be integrated into each topic discussed. The course will be taught in a lecture-discussion format to encourage interaction and exploration of difficult issues. The course text and materials will include key business legal cases.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: MGMT 301MGMT 301W orB A 304 ; Prerequisite or concurrent:FIN 301 orB A 301;MKTG 301MKTG 301W orB A 303;SCM 301 orB A 302

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 424** (R M 424) Real Estate Law (3) Analyze contemporary law applicable to various types of ownership interests and rights, methods of transferring ownership, and use of real property.

### **B LAW 424 B LAW (R M) 424 Real Estate Law (3)**

Analysis of contemporary law applicable to various types of ownership interests and rights, methods of transferring ownership, and use of real property. The objectives for this course are: (1) to provide students with an understanding of essential U.S. real estate property law, including the rights private property owners may obtain, how ownership and transfer are handled in view of present and future interests, constitutional issues that impact real estate ownership, and the legal aspects of modern real estate contractual transactions; (2) to teach students the ability to spot the legal issues arising from the above as future business leaders and (3) to introduce students to the legal reasoning process necessary to address and avoid the legal dilemmas presented by such issues. Instructional methods for the course will include detailed lectures and classroom discussion of readings and other materials. Student progress and mastery of the material will be evaluated through periodic examinations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: B LAW 341 orB LAW 243

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 425** (R M 425) Business and Environmental Regulation (3) Examines the interplay between environmental regulation and commercial activities, including property interests.

**B LAW (R M) 425 Business and Environmental Regulation (3)**

R M/B LAW 425 is an advanced business law course based on foundation knowledge in legal regulation, property rights, and enterprise. The course explores the interplay between environmental laws and property rights and includes topics such as; common law regulation of the environment, government power and private rights, zoning, protecting endangered species, regulating the transportation and storage of hazardous materials, and Federal regulation of water quality. Students will develop their comprehension and analysis of the legal reasoning processes along with the ability to identify legal issues from the perspectives of the government, property owners, and environmental interest groups. The instructional methods will include class discussions of readings and video presentations. To facilitate thorough analysis of the competing interests affecting environmental law, this course will employ the Socratic teaching method and place a special emphasis upon class discussion and interaction.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: B LAW 341 or B LAW 243

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 441** Business Law II: Agency, Employment and Business Structure (3) An examination of the laws governing agency relationships, employment, and the various structures of commercial enterprises.

**Business Law II: Agency, Employment and Business Structure (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: B LAW 341; FIN 301 or B A 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 444** Advanced UCC and Commercial Transactions (3) All articles of the Uniform Commercial Code, banking relationships, debtor- creditor law, and bankruptcy law.

**B LAW 444 Advanced UCC and Commercial Transactions (3)**

This course is designed to: (1) provide the student with a systematic study of the laws governing sales transactions, the instruments for financing those transactions and rights and liabilities of debtors and creditors (the Uniform Commercial Code governs these issues); (2) to explore current trends in the law affecting commercial transactions; (3) to develop further the student's legal reasoning processes; (4) to enhance the student's ability to identify legal issues from the business decision maker's and financial auditor's perspectives. Instructional methods will include lectures, readings, multimedia content, and class discussions. Student progress and mastery of the material will be evaluated through periodic examinations. Some state C.P.A. Boards require completion of this course as a prerequisite to obtaining certification as a public accountant. Completion of the course will be credited toward fulfillment of the requirements for the Legal Environment of Business Minor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: B LAW 341 B A 241 or B A 243; ACCTG 211 ; and FIN 301 or B A 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 445** Advanced Intellectual Property and Competition Law (3) Copyrights, trademarks, patents, and trade secrets followed by related topics in the regulation of competition.

**B LAW 445 Intellectual Property & Competition Law (3)**

The objectives for this course are to (1) provide students with an understanding of U.S. and international law that supports the creation of beneficial information via intellectual property rights, allows government to regulate information property through antitrust and privacy statutes, and promotes business development by encouraging competitive uses of information; (2) teach students the ability to spot the legal issues arising from the above as future business leaders and (3) introduce students to the legal reasoning process necessary to address and avoid the legal dilemmas presented by such issues. Instructional methods for the course will include detailed lectures and classroom discussion of readings and other materials. The course builds on the introductory business law curriculum by providing an advanced and detailed study of specific areas of law that are highly valuable to modern, technology-driven businesses.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: B LAW 441

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 446** Employment Law (3) Examines the legal and regulatory environment of employment relationships. Topics include anti-discrimination; worker health and safety; and labor relations laws.

**B LAW 446 Employment Law (3)**

The course is designed for business students seeking a solid understanding of labor relations and employment law. It is not a general overview or introduction to law course for those seeking to enter law school. Labor and employment law has developed and changed over the past seven decades, and continues to evolve as the economic model and means of productions changes globally. With the passing of the National Labor Relations Act and subsequent amendments thereto, including development in the ability of public employees to engage in concerted activity, the understanding of the modifications in the employer-employee relationships is necessary for successful business executives and front-line managers. While a thorough understanding of the underpinnings of these laws is necessary, this is only a portion of the issues at hand. The ability to apply these laws in current working environments along with interpreting and critiquing these laws will assist in the preparation of future corporate managers.

The course goes into detailed discussion regarding the employment at will doctrine, wrongful discharge, workplace torts, and employee privacy and monitoring. With this foundation, the course then covers civil rights and discrimination based on race, color, religion, gender, sexual orientation, family obligation, disability, and national origin are covered using Supreme Court cases that have tested the validity and soundness of our federal legislation. The closing part of the course focuses on organized labor through the process of unionizing and union membership, negotiations and economic pressure used to obtain concessions in collective agreements. Additionally, fair labor laws and occupational health and safety requirements to diminish workplace accidents and improve productivity is discussed.

For each of the topics presented, detailed analysis of prominent cases will be discussed with the expectation that students can apply these case decisions to current employer/employee situations. Exposure to differing opinions, reversed rulings, and detailed legal processes will provide students with a broad understanding of the complex nature of legal proceedings and how these processes impact labor and employment relations in the United States. Content synthesis and critical analysis are the learning goals of the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: B LAW 441

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 497A** (R M 497B) Entertainment Law (3) Provide students with an understanding of fundamental issues in entertainment law that arise in a business context.

#### **Entertainment Law (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**B LAW 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Chemical Engineering (CH E)**

**CH E 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 097S** Introduction to Chemical Energy Technology (1) This CH E FYS will overview the CH E field and curriculum with a concentration on Chemical Engineering in energy technology.

**Introduction to Chemical Energy Technology (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 100S** Exploring Chemical Engineering First-Year Seminar (1) The exploration of Chemical Engineering and available career opportunities.

**Exploring Chemical Engineering First-Year Seminar (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 210** Introduction to Material Balances (3) An integrated approach to the study of material balances and industrial chemical processes important in chemical engineering.

**CH E 210 Introduction to Material Balances (3)**

The objective of this course is to present an introduction to chemical engineering calculations, establish mathematical methodologies for the computation of material balances and to present an overview of industrial chemical processes. It is the introductory course in the chemical engineering curriculum and is normally taken in the sophomore year. It is prerequisite for several junior-level courses in the curriculum, including courses in process fluid dynamics, heat transfer and phase equilibrium.

The course reviews the fundamentals of chemistry and physics as they pertain to chemical problems and applies mathematics to the development of time-dependent equations to describe materials flow through a process. Examples of the processes studied include stoichiometry in combustion and other reactions, materials flow with recycle streams, humidification and drying process, and the analysis of non-steady systems. In addition, the course presents an introduction to Industrial Chemistry with an overview of steam reforming, ammonia synthesis and similar examples.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: or concurrent:MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 210H** Introduction to Material Balances (Honors) (3) An integrated approach to honor-level study of material balances and industrial chemical processes important in chemical engineering.

**CH E 210H Introduction to Materials Balances (Honors) (3)**

The objective of this course is to present an introduction to chemical engineering calculations, establish mathematical methodologies for the computation of material balances and to present an overview of industrial chemical processes. The course reviews the fundamentals of chemistry and physics as they pertain to chemical problems and applies mathematics to the development of time-dependent equations to describe materials flow through a process. Examples of the processes

studied include stoichiometry in combustion and other reactions, material flow with recycle streams, humidification and drying process, and the analysis of non-steady systems. The Honors version of the course places emphasis on the use of computational methods in the solution of chemical engineering problems through the use of advanced mathematical packages.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009  
Prerequisite: or concurrent:MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 220** Introduction to Chemical Engineering Thermodynamics (3) Chemical process applications of energy balances, equations of state, thermodynamic properties of real fluids, second law of thermodynamics, cycles.

### **CH E 220 Introduction to Chemical Engineering (3)**

This course is the introductory course in chemical engineering thermodynamics. It is normally scheduled in the sophomore year and is continued by a second course which covers the thermodynamics of phase transformations and chemical reactions. The emphasis of this course is in the development of the theory of thermodynamics and its application to pure substances. The theory is applied on the thermodynamic analysis of small- and large-scale processes with multiple streams and energy exchanges, how to compute heat and work loads, and how to assess the efficiency of the process with respect to energy utilization. Starting from small units, such as pumps, compressors, turbines, and heat exchangers, examples grow to include large systems such as power plants and refrigeration cycles, that may involve many interconnecting units and recycle streams. A parallel focus of the course is in the computation of thermodynamic properties through the use of charts, tables, and equations of state with emphasis on non-ideal systems.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009  
Prerequisite: or concurrent:MATH 230

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 220H** Introduction to Chemical Engineering Thermodynamics (Honors) (3) Chemical process applications of energy balances, equations of state, thermodynamic properties of real fluids, second law of thermodynamics, cycles.

### **CH E 220H Introduction to Chemical Engineering Thermodynamics (Honors) (3)**

CH E 220H is the introductory course in chemical engineering thermodynamics. The emphasis of this course is in the development of the theory of thermodynamics and its application to pure substances. The theory is applied on the thermodynamics analysis of small- and large-scale processes in closed and open systems. Students learn how to formulate the energy balance for a process with multiple streams and energy exchanges, how to compute heat and work loads, from small units, such as pumps, compressors, turbines, and heat exchangers, examples grow to larger systems such as power plants and refrigeration cycles, that may involve many interconnecting units and recycle streams. The Honors version of the course places special emphasis on (a) the connection between thermodynamics and molecular properties and (b) on the use of computational methods for the calculation of thermodynamic properties under non-ideal conditions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009  
Prerequisite: or concurrent:MATH 230

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 294** Research Project (1-12) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 294H** Research Projects (Honors) (1-12) Supervised off-campus, nongroup instruction including field experiences,

practica, or internships. Written and oral critique of activity required.

**Research Projects (Honors) (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 294H** Research Projects (Honors) (1-12) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Research Projects (Honors) (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 297A** Computational Tools (1) This 1-credit course will cover the key computational tools needed by Chemical Engineering students, including Excel, Mathematica.

**Computational Tools (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**CH E 300 Professional Development Seminar (1)** Lectures and discussion by visiting engineers and faculty on chemical engineering, job selection, patents, licensing, ethics, and other professional problems.

**CH E 300 Professional Development Seminar (1)**

The course objective is to offer an orientation to the chemical engineering profession and to promote professional attributes such as professional ethics, lifelong learning, and awareness of environmental and societal factors and to highlight their importance in the career lives of chemical engineers. The course consists of a one-hour lecture each week by visiting speakers and Penn State faculty. For some lectures, reading material is distributed a week before the lecture and in some cases, the students must turn in the questionnaire in which they have to answer various questions related to the topic of that week. The topics vary from year to year, but several key topics are included each time the course is taught: ethics, environmental issues, process safety, patent law and intellectual property, graduate school, and job opportunities in various industries.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: fifth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 320 Phase and Chemical Equilibria (3)** Pure component phase properties, solution properties, equilibria among phases, equilibrium stage separations, chemical reaction equilibria.

**CH E 320 Phase and Chemical Equilibria (3)**

The course covers the fundamentals of phase and chemical equilibrium with emphasis on vapor/liquid systems and their applications to separation processes. It is the second course in chemical engineering thermodynamics and leads to the study of separations and reacting systems. Computational methodologies are presented for the calculation of the properties of mixtures and the construction of phase diagrams (P-x-y, T-x-y) using activity coefficients or equations of state. The theory is applied to the analysis of equilibrium stage separation such as distillation and extraction including the construction of McCabe-Thiele diagrams. In the last portion of the course the principles of equilibrium are further applied to chemically reacting systems.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: CH E 210 with minimum grade of "C" CH E 220 with minimum grade of "C"

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 330 Process Fluid Mechanics (3)** An integrated study of the fundamentals and the quantitative design techniques involving flow of fluids in chemical processes.

**CH E 330 Process Fluid Mechanics (3)**

This course introduces the principles of fluid mechanics that are of fundamental importance to chemical engineers. The list of topics discussed in this course include the mechanical principles governing fluid flow, stress in a fluid, conservation of mass and momentum, using differential and integral balances, elementary constitutive equations, hydrostatics, exact solutions of the Navier-Stokes equations, approximate solutions using control volume analysis, mechanical energy balances and Bernoulli's equation, dimensional analysis and dynamic similarity, and introduction to boundary-layer theory and turbulence.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: CH E 210 with a minimum grade of "C"

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 330H Process Fluid Mechanics (Honors) (3)** An integrated study of the fundamentals and the quantitative design techniques involving flow of fluids in chemical processes.

**CH E 330H Process Fluid Mechanics (3)**

This course introduces the principles of fluid mechanics that are of fundamental importance to chemical engineers. The list of topics discussed in this course include the mechanical principles governing fluid flow, stress in a fluid, conservation of mass and momentum, using differential and integral balances, elementary constitutive equations, hydrostatics, exact solutions of the Navier-Stokes equations, approximate solutions using control volume analysis, mechanical energy balances and Bernoulli's equation, dimensional analysis and dynamic similarity, and introduction to boundary-layer theory and turbulence.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: CH E 210 with minimum grade of "C"

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 340** Introduction to Biomolecular Engineering (3) Introduction to concepts and principles of biomolecular engineering, with emphasis on biotechnology and pharmaceutical industries.

### **CH E 340 Introduction to Biomolecular Engineering (3)**

This course introduces students to the concepts and principles needed to apply chemical engineering principles to the analysis of biological systems, with particular emphasis on the biotechnology and pharmaceutical industries. Students will learn to use appropriate search engines to identify and characterize specific genes and proteins, discuss similarities and differences between biological and chemical processes, perform statistical analyses of biological data, and estimate rates of enzymatic reactions and bioreactor mass transfer. This course is required for the B.S. degree in Chemical Engineering.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: CH E 210 with "C" or better B M B 251 CHEM 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 350** Process Heat Transfer (3) An integrated study of the fundamentals and the quantitative design techniques involving heat transfer in chemical processes.

### **CH E 350 Process Heat Transfer (3)**

The objective of the course is to introduce to students heat transfer mechanisms in solids and fluids and their chemical process applications. At the conclusion of the course, the student should possess the ability to model steady and unsteady heat transfer in simple systems, and design heat exchangers and simple heat exchanger networks. The development of the material of this course requires use of thermodynamics and fluid mechanics, scheduled earlier in the curriculum, and sets the basis for the design of reactors and separation processes, which are covered in subsequent courses.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: CH E 210 with minimum grade of "C"

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 360** Mathematical Modeling in Chemical Engineering (3) Mathematical model formulation for chemical and physical processes, including applications of ordinary differential equations and numerical methods.

### **CH E 360 Mathematical Modeling in Chemical Engineering (3)**

This course covers the applied mathematical techniques necessary for the simulation of physical and chemical processes such as mass transfer and reacting systems, and the analysis of process dynamics. In the former area, the formulation of ordinary differential equations for a variety of situations of interest to chemical engineers is considered. Numerical methods and mathematical packages that form the basis for computer simulations are emphasized. In the latter area, the notions of steady-state, stability and controllability are introduced. The tools discussed in this course are used in subsequent courses on the analysis and design of chemical reactors and mass transfer processes.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: CH E 210 with minimum grade of "C" MATH 230 MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 410** Mass Transfer Operations (3) Introduction to principles and applications of mass transfer, with focus on the design of equilibrium stage and continuous contacting separation processes.

**CH E 410 Mass Transfer Operations (3)**

The objective of this course is to present the principles of mass transfer and their application to separation and purification processes. The course integrates fluid dynamics and thermodynamics and proceeds to develop rate expressions for mass transfer in multiphase, multicomponent systems. Starting with Fick's law and macroscopic balances the course moves to the design of large scale separation processes such as equilibrium stage separations (distillation, extraction) and continuous separation (absorption towers, scrubbers) for the separation and purification of chemical compounds. The course also introduces the use using modern software tools such as HySys, used in the actual design of such processes and also in the capstone design course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: CH E 320 and either CH E 330 or CH E 350

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 423** Chemical Energy Technology (3) This course provides an overview of current and prospective chemical energy storage and conversion technologies.

**Chemical Energy Technology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: CH E 210 with a minimum grade of "C"; prerequisite or concurrent: CH E 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 430** Chemical Reaction Engineering (3) Chemical reaction rates and equilibria, reactors, reactor design; emphasis on industrial chemical processes.

**CH E 430 Chemical Reaction Engineering (3)**

This course teaches the principles of reaction engineering and reactor design. It is one of the core subjects in the chemical engineering curriculum and it is normally scheduled in the senior year. Students learn how to apply stoichiometry in combination with a rate law to design a chemical reactor that produces the desired conversion of reactants. The design of various types of chemical reactors is discussed at length, including continuous stirred-tank (CSTR), plug-flow (PFR), continuous-operation and batch-operation reactors. Additional topics include heterogeneous reactors, catalytic systems and fluidized beds, the design and optimization of reactor networks, and safety. The course integrates fluid mechanics and heat transfer to the design and analysis of isothermal and non-isothermal reactors. It leads to the capstone design course in which chemical reactors are integrated into a chemical plant.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: CH E 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 432** (F SC 432) Petroleum Processing (3) A study of physical and chemical processes to convert crude oil into desired products with an outlook from present to future.

**Petroleum Processing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 438** Bioprocess Engineering (3) Introduction to the biotechnology field including consideration of upstream and downstream processing of biochemicals.

**Bioprocess Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 442** (MATSE 448) Polymer Processing Technology (3) Basic principles of polymer melt processing are reviewed and subsequently applied to the most important industrial processing operations.

**CH E 442 (MATSE 448) Polymer Processing Technology (3)**

CH E 442 involves both lectures and laboratory experiments illustrating the interrelations between structure, processing conditions, and physical properties of industrial polymer products. Students apply engineering fundamentals and principles of polymer melt rheology to analyze industrial processing operations. Unlike typical polymer processing courses offered at most U.S. universities, CH E 442 covers detailed analyses of individual processing operations, rather than dwelling on underlying polymer science fundamentals that are covered elsewhere in our curriculum. Students learn to optimize processing variables, given a particular set of materials and conditions, establishing how processing conditions impact the physical properties of finished polymer products. We explore the physics governing processing operations including extrusion, mixing, calendaring, blow molding, thermoforming fiber spinning compression molding, injection molding, and nanolithography.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2006  
Prerequisite: MATSE 447 or CH E 330

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 446** Transport Phenomena (3) Fundamental treatment of mass, heat, and momentum transfer; emphasis on transport properties and mathematical models of chemical engineering transport processes.

**CH E 446 Transport Phenomena (3)**

This is an intermediate course in transport phenomena intended to expand on the materials introduced in the required undergraduate courses on momentum, heat and mass transfer. It introduces the student to the rigorous formulation of transport problems using the conservation principles and flux expressions, and identifies the similarities and differences among the transport processes for momentum, heat, and mass. The main focus of the course is on microscopic treatment of transport problems, with particular emphasis on proper use of dimensional analysis and scaling arguments. Transport phenomena is a rather mathematical subject and the student is assumed to be familiar with ordinary and partial differential equations, elementary vector analysis, and elementary numerical techniques. This course is intended to prepare the student for a graduate-level course in transport phenomena.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: CH E 330 CH E 350 CH E 360 ; prerequisite or concurrent: CH E 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 446H** Transport Phenomena (3) Fundamental treatment of mass, heat, and momentum transfer; emphasis on transport properties and mathematical models of chemical engineering transport processes.

**Transport Phenomena (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CH E 330CH E 350CH E 360 ; prerequisite or concurrent:CH E 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 448** Advanced Mass Transfer Operations (3) Diffusion and mass transfer as applied to stagewise and continuous contact operations, including equipment design.

**Advanced Mass Transfer Operations (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: CH E 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 449** Bioseparations (3) Analysis and design of separation processes for the purification of biological molecules.

**CH E 449 Bioseparations (3)**

This course introduces students to the principles and applications of separation processes used for the purification of biological molecules, including fine chemicals, pharmaceuticals, and therapeutic proteins. By the end of the course students will be able to perform preliminary design calculations and scale-up of specific separation systems including centrifugation, filtration, chromatography, and membrane processes. Students will also be able to develop outlines of overall separation schemes appropriate for the purification of different biological products. This course is required for the Bioprocessing and Biomolecular Engineering Option in Chemical Engineering.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: CH E 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 450** Process Dynamics and Control (3) Analysis of time-dependent variables in chemical process plants; reactor design and control; computer applications.

**CH E 450 Process Dynamics and Control (3)**

The course is an introduction to chemical process dynamics and control and is offered as a technical elective. The first part of the course is devoted to the dynamical behavior of systems and the mathematical tools (differential equations, Laplace transforms) used in their analysis. The second part of the course covers the design and operation of various types of controllers, including proportional, integral and differential and their combinations. The theoretical principles are demonstrated with applications to chemical engineering processes such as storage tanks, chemical reactors and separation processes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: Prerequisite or concurrent:CH E 410CH E 430

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 452** Chemical Process Safety (3) This course provides an overview of Process Safety in the Chemical Industry, focusing on the nature of chemical plant accidents.

**CH E 452 Chemical Process Safety (3)**

The course will provide an overview of Process Safety in the Chemical Industry, focusing on the nature of chemical plant accidents, their causes, and steps to eliminate them, with emphasis on inherently safe designs. Chemical Plant accidents deal most often with Flammability and Toxicity issues and these are dealt with in great detail. The role of Human Error in accidents is also examined. Actual case studies (including Bhopal, BP Texas City, Piper Alpha) will be examined to show the relevance in today's workplace. The course requires active student participation via discussions of system designs, their weakness and improvements. Guest lecturers will also be invited to supplement the material. This is offered as a

senior elective in Chemical Engineering.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: Prerequisite or concurrent: CH E 410CH E 430

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 470 Design of Chemical Plants (3)** Lectures and practicum on methods and calculations, including economic evaluations for the design of chemical plants; formal technical report required.

### **CH E 470 Design of Chemical Plants (3)**

The chemical engineering capstone design course introduces the principles of process design and economic evaluation utilizing various industry computer tools, with special emphasis on process simulators. The student will develop critical design logic to evaluate a process, starting with block flow diagrams and simple material balances utilizing practical heuristics and then build the process flowsheet through computer simulation, flowsheet optimization, and detailed equipment design.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: CH E 410CH E 430

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 480M Chemical Engineering Laboratory (Honors) (3)** Data interpretation and analysis from student-operated experiments on pilot-plant equipment. Individual written and oral technical reports.

### **CH E 480M Chemical Engineering Laboratory (Honors) (3)**

CH E 480M is the laboratory course in chemical engineering. The objectives of CH E 480M is to provide hands-on experience with chemical engineering equipment and consists of a series of experiments that cover the major subjects in chemical engineering, namely, fluid flow, heat transfer, separations and reactions. The subject matter on which these experiments are based is taught in various junior-senior-level classes. This course does not introduce new material but focuses instead on planning, execution and interpretation of experiments. The special aspect of the honors section is that students will be given an open-ended experimental research project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: ENGL 202CCH E 320CH E 330CH E 350

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 480W Chemical Engineering Laboratory (3)** Data interpretation and correlation from student-operated experiments on pilot-plant equipment. Individual written and oral technical reports.

### **CH E 480W Chemical Engineering Laboratory (3)**

This is the laboratory course in Chemical Engineering. Its objective is to provide hands-on experience with chemical engineering equipment and consists of a series of experiments that cover the major subjects in chemical engineering, namely, fluid flow, heat transfer, separations and reactions. The subject matter on which these experiments are based is taught in various junior- and senior-level classes. CH E 480W does not introduce new material but focuses instead on planning, execution and interpretation of experiments.

The course is team-based and includes laboratory sessions as well as lectures. Evaluation is based on the written and oral reports given based on experiments performed. These reports undergo several drafts, in which at different times students or faculty evaluate the report, suggesting corrections. Course evaluation may also include a "pre-exam" to assure that the students understand technical material coming into the course. Peers assess each others' performance (contributing to the grade), as does the faculty.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: ENGL 202CCH E 320CH E 330CH E 350

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CH E 494** Research Projects in Chemical Engineering (1-6) An original problem, including a search of the literature, experimental investigation, and preparation in formal thesis form.

**Research Projects in Chemical Engineering (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: Permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 494H** Research Projects in Chemical Engineering (Honors) (1-6) An original problem, including a search of the literature, experimental investigation, and preparation in formal thesis form.

**CH E 494H Research Projects in Chemical Engineering (1-6)**

Undergraduate research projects for honors students leading to the generation of a thesis for the Schreyer Honors College. The content of this course typically falls within the research interests of the chemical engineering faculty. The work can be computational, theoretical or experimental in nature and culminates with the writing of an honors thesis. Students should select a thesis advisor prior to enrolling in this course and file an honors thesis proposal report form with the Schreyer honors College. A student outside of chemical engineering can take the course if they are working towards an honors thesis in chemical engineering. A student in chemical engineering can take this course with a co-advisor outside of chemical engineering; however, the CH E Faculty member is responsible for assigning the grade.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: Permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 497B** Bioremediation and Green Chemistry (3) Application of engineering and biological principles toward remediation of hazardous wastes. Degradation and synthesis of chemicals using genetically engineered microorganisms.

**Bioremediation and Green Chemistry (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: CH E 340

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 497B** Bioremediation and Green Chemistry (3) Application of engineering and biological principles toward remediation of hazardous wastes. Degradation and synthesis of chemicals using genetically engineered microorganisms.

**Bioremediation and Green Chemistry (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: CH E 340

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 497C** Polymers (3) Introduction to synthesis, structure, characterization and processing of polymers. Single molecule properties, polymer solutions, glasses, crystals and blends.

**Polymers (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: CH E 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 497D** Engineering Product Design (3) Students develop skills and techniques for managing and executing engineering design projects that are applied to projects sponsored by industry.

**Engineering Product Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CH E 330CH E 350

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CH E 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Chemistry (CHEM)

**CHEM 001** (GN) Molecular Science (3) Selected concepts and topics designed to give non-science majors an appreciation for how chemistry impacts everyday life. Students who have received credit for CHEM 003, 101, or 110 may not schedule this course.

**CHEM 001 Molecular Science (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CHEM 001 is designed for students who want to gain a better appreciation of chemistry and how it applies to everyone's everyday life. You are expected to have an interest in understanding the nature of science, but not necessarily to have any formal training in the sciences. During the course, you will explore important societal issues that can be better understood knowing some concepts in chemistry. The course is largely descriptive, though occasionally a few simple calculations will be done to illuminate specific information. The course does rely on your ability to think systematically, and to relate things to each other.

From year to year and instructor to instructor, the course may cover any number of a large variety of topics related to current events, including, but not limited to: air and water pollution, ozone depletion, global warming, acid rain, new and old methods of energy generation and energy use in modern society, examples of production and use of modern polymers, examples of production and use of modern drugs, examples of the chemistry of nutrition, examples of advances in biochemistry and how they affect us.



General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 003 (GN) Molecular Science With Laboratory (3)** Selected concepts and topics designed to give non-science majors an appreciation for how chemistry impacts everyday life. Students who have received credit for CHEM 001, 101, or 110 may not schedule this course.

**CHEM 003 Molecular Science with Laboratory (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CHEM 003 is a course that includes both lecture and laboratory. It is designed for students who want to gain a better appreciation of chemistry and how it applies to everyone's everyday life. You are expected to have an interest in understanding the nature of science, but not necessarily to have any formal training in the sciences. During the course, you will explore important societal issues that can be better understood knowing some concepts in chemistry. The course is largely descriptive, though occasionally a few simple calculations will be done to illuminate specific information. The course does rely on your ability to think systematically, and to relate things to each other.

From year to year and instructor to instructor, the course may cover any number of a large variety of topics related to current events, including but not limited to: air and water pollution, ozone depletion, global warming, acid rain, new and old methods of energy generation and energy use in modern society, examples of production and use of modern polymers, examples of production and use of modern drugs, examples of the chemistry of nutrition, examples of advances in biochemistry and how they affect us.

In the laboratory component, students will conduct experiments that are related to the lecture material being covered.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 005 (GN) Kitchen Chemistry (3)** An elementary discussion of the chemistry associated with foods and cooking.

**CHEM 005 Kitchen Chemistry (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CHEM 005 incorporates lectures, reading, problem-solving, and 'edible' home experiments to develop an understanding of chemical concepts and scientific inquiry within the context of food and cooking. The course will start from a primer on food groups and cooking, proceed to the structures of foods, and end with studies of the physical and chemical changes observed in foods. Students will develop an enhanced understanding of the chemical principles involved in food products and common cooking techniques.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 020 Environmental Chemistry (3)** Applications of chemistry to environmental problems, including air, water, thermal pollution; pesticides; drugs and birth control agents; food additives; etc. For non-chemistry majors; chemistry majors will not receive credit.

**CHEM 020 Environmental Chemistry (3)**

Topics include the study of air, air quality, and the effects of various substances that create air pollution. Significant detail is given to ozone and its interactions in various layers of the atmosphere. The study of fossil fuels and hydrocarbon chemistry leads to an extensive discussion of global warming. Water contamination due to acid rain and acid mine drainage is studied in conjunction with acid-base chemistry. The concept of pH is discussed in detail. Newer sources of energy including fuel cells, photovoltaic cells, biomass fuels, and nuclear energy are investigated with much consideration.

given to the economics of fuels. These energy topics require a study of electrochemistry, nuclear chemistry, radioactivity and organic chemistry. Biological topics of drug design, toxic substances, pesticides, genetic engineering and food safety complete the course by covering numerous aspects of organic chemistry and biochemistry. Most topics also deal with the associated analytical chemistry of the substances discussed and the challenge of sample procurement, sample preparation, chemical analysis, and result interpretation considering analytical error. Methods of chemistry data presentation to the general public are investigated and criticized.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 021** Environmental Chemistry Laboratory (1) Introduction of basic laboratory techniques and data analysis used in environmental chemistry.

### **CHEM 021 Environmental Chemistry Laboratory (1)**

This course will provide an introduction of basic laboratory techniques and data analysis used in environmental chemistry. The suggested laboratory experiments will consist of a broad range of scientific inquiry that will enhance the lecture material covered in CHEM 020. The course will provide laboratory experience in the chemistry of air, water, and solids. Experiments have been chosen that have a strong biology component such as Stream Ecology, Toxicity, Testing, and Dissolved Oxygen experiments. These experiments should relate to the BIOL 110 and 220 courses. The Chi-Square and Probability experiments will relate to STAT 250 course. The course will be an integral part of the Environmental Studies major providing an experimental chemistry background and experience.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

Concurrent: CHEM 020

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 101** (GN) Introductory Chemistry (2-3) Selected principles and applications of chemistry. Prior study of chemistry is not assumed. Students may take only one course for General Education credit from CHEM 101 or CHEM 110.

### **CHEM 101 Introductory Chemistry (2-3)**

CHEM 101 is an introductory chemistry course designed to prepare students for college level chemistry courses, such as CHEM 110 or CHEM 202. Prior study of chemistry is not assumed, so the course introduces the vocabulary along with some basic principles of chemical problem solving.

The course covers the following topics: matter and measurement, molecules and molecular compounds, ions and ionic compounds, chemical reaction types, stoichiometry, atomic and molecular weights, the mole, simple quantitative calculations with chemical reactions, the periodic table, nomenclature, electronic structure of atoms, simple periodic properties of the elements, chemical bonding, molecular geometry, and properties of various states of matter, acids and bases, and the basics of chemical equilibrium.

There are 2 and 3 credit versions of this course offered at different locations. The 3-credit version usually involves a laboratory component.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

Prerequisite: MATH 021 ; or satisfactory performance on the MATH placement examination-- i.e. placement beyond the level of MATH 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 106** (GN) Introductory and General Chemistry (5) Introductory chemistry and chemical principles for students who are required to take additional chemistry, e.g., CHEM 112, but are unprepared for CHEM 110.

### **CHEM 106 Introductory and General Chemistry (5) (GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

CHEM 106 is an extended version of the first-semester comprehensive general chemistry course. It includes more class time for preparing students so that they learn introductory chemistry and general college level chemistry in one semester.

As in CHEM 110, CHEM 106 introduces students to the basic principles of chemistry with an emphasis on the relationships between the microscopic structure and macroscopic properties of matter. Principles are illustrated with a wide variety of examples from the sciences, from engineering and technology, and from everyday life.

The course covers the following topics: matter and measurement, molecules and molecular compounds, ions and ionic compounds, chemical reaction types, atomic and molecular weights, the mole, quantitative calculations with chemical reactions, the periodic table, nomenclature, aqueous reactions and solution stoichiometry, thermochemistry, electronic structure of atoms, periodic properties of the elements, chemical bonding, molecular geometry, the gaseous, liquid, and solid states of matter, properties of solutions, some basic aspects of chemical equilibrium, and applications to the real world including environmental chemistry. GN credit for CHEM 106 requires that CHEM 111 also be completed.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 2013

Prerequisite: satisfactory performance on the Math placement test--i.e. placement beyond the level of MATH 022; or MATH 022 or MATH 041

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 108** Problem Solving in Chemistry (1) Techniques, strategies, and skills for solving problems in general chemistry for students potentially at risk in CHEM 110.

### **CHEM 108 Problem Solving in Chemistry (1)**

The purpose of CHEM 108 is to facilitate success in the first semester general chemistry course (CHEM 110). Students who need extra help in CHEM 110 are strongly encouraged to take CHEM 108 with CHEM 110. The course covers the same topics in the same sequence as the concurrent CHEM 110 course. It provides an opportunity for students to develop stronger problem solving skills through active and collaborative learning activities and skill building. CHEM 108 does not satisfy the General Education requirement and will not count toward graduation in some majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: recommendation by placement exam an advisor or the program

Concurrent: CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 110** (GN) Chemical Principles I (3) Basic concepts and quantitative relations. Students may take only one course for General Education credit from CHEM 110 or CHEM 101.

### **CHEM 110 Chemical Principles I (3) (GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CHEM 110 is the first semester of a two-semester, comprehensive general chemistry course that introduces the students to the basic principles of chemistry with an emphasis on the relationships between the microscopic structure and macroscopic properties of matter. Principles are illustrated with a wide variety of examples from the sciences, engineering and technology, and from everyday life. The course covers the following topics: matter and measurement, molecules and molecular compounds, ions and ionic compounds, chemical reaction types, atomic and molecular weights, the mole, quantitative calculations with chemical reactions, the periodic table, nomenclature, aqueous reactions and solution stoichiometry, thermochemistry, electronic structure of atoms, periodic properties of the elements, chemical bonding, molecular geometry, the gaseous, liquid, and solid states of matter, properties of solutions, some basic aspects of chemical equilibrium, and applications to the real world including environmental chemistry. GN credit for CHEM 110 requires that CHEM 111 also be completed.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 2013

Prerequisite: satisfactory performance on the Math placement tests -- i.e. placement beyond the level of MATH 022 ; or CHEM 101 and MATH 022 or MATH 041

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 110H** (GN) Chemical Principles I - Honors (3) Basic concepts and quantitative relations of chemistry at a level appropriate for students with advanced backgrounds and talents. Students may take only one course for General Education credit from CHEM 110 or CHEM 101. GN to receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and CHEM 111; (CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).

**Chemical Principles I - Honors (3)**

General Education: GN

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: satisfactory performance on the Chemistry and Math FTCAP tests-- i.e. placement beyond the level of CHEM 101 and MATH 022; orCHEM 101 andMATH 022 orMATH 041

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 111** (GN) Experimental Chemistry I (1) Introduction to quantitative experimentation in chemistry.

**CHEM 111 Experimental Chemistry I (1)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CHEM 111 is a one-credit introductory general chemistry laboratory. It is designed to complement the lecture course CHEM 110. The students are introduced to laboratory safety and good experimental technique, how to keep a proper laboratory notebook, interpret data, and write a formal report. The course introduces laboratory experimentation in the context of a variety of specific topics, such as reactions in solutions, spectroscopy, chemistry of natural waters, acids and bases, and the synthesis and analysis of chemical compounds. GN credit for CHEM 111 requires that CHEM 106 or CHEM 110 or CHEM 110H also be completed.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 2007

Prerequisite: or concurrent:CHEM 110 orCHEM 106

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 111H** (GN) Experimental Chemistry I (1) Introduction to quantitative experimentation in chemistry.

**Experimental Chemistry I (1)**

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: or concurrent:CHEM 110 orCHEM 106

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 112** (GN) Chemical Principles II (3) Continuation of CHEM 110, including an introduction to the chemistry of the elements.

**CHEM 112 Chemical Principles II (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CHEM 112 is the second semester of a comprehensive, two-semester general chemistry sequence following CHEM 110. It uses the same text as CHEM 110 and builds upon the subject matter of that course. The course covers the following topics: reaction rates and chemical kinetics, catalysis, acid-base equilibria, the pH scale, common-ion effect, acid-base titrations, factors that affect solubility, buffers, chemical thermodynamics, entropy, free energy, electrochemistry, oxidation-reduction reactions, oxidation numbers, voltaic cells, batteries, corrosion, electrolysis, chemistry of the nonmetals such as hydrogen, oxygen, nitrogen, halogens, noble gases, transition metals, modern materials, alloys and metallurgy, nuclear chemistry, radioactivity, fission and fusion. GN credit for CHEM 112 requires that CHEM 113 or CHEM 113B also be completed.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2009

Prerequisite: CHEM 110 orCHEM 106

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 112H** (GN) Chemical Principles II - Honors (3) Continuation of CHEM 110, including an introduction to the chemistry of the elements. GN to receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken. These courses are: (CHEM 106 or CHEM 110 or CHEM 110H) and (CHEM 111; CHEM 112 or CHEM 112H) and (CHEM 113 or CHEM 113B).

**Chemical Principles II - Honors (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2013  
Prerequisite: CHEM 110 or CHEM 106

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 113** (GN) Experimental Chemistry II (1) Continuation of CHEM 111, with emphasis on topics related to CHEM 112.

**CHEM 113 Experimental Chemistry II (1)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CHEM 113 is a second-semester, one-credit introductory general chemistry laboratory course meant to complement the lecture course CHEM 112. The course builds on material learned in CHEM 111 with emphasis on quantitative analytical procedures. Essential material covered includes proper use of a laboratory notebook, writing of a formal laboratory report, use of the chemical literature, experimental design, interpretation of data using statistics, laboratory safety procedures, and an appreciation for what instruments can and cannot do. The course introduces laboratory experimentation in the context of a variety of specific topics, for example: halogens, their compounds and their reactions chemical kinetics of a simple chemical reaction; acid-base equilibria and titrations; oxidation-reduction reactions and electrochemistry; separations of compounds using paper and liquid chromatography; separations using gas chromatography. GN credit for CHEM 113 requires that CHEM 112 or CHEM 112H also be completed.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2007  
Prerequisite: CHEM 111 . Prerequisite or concurrent: CHEM 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 113B** (GN) Experimental Chemistry II--Bioscience (1) A continuation of CHEM 111 with emphasis on topics related to CHEM 112 in the context of bioscience.

**CHEM 113B Experimental Chemistry II - Bioscience (1)**

CHEM 113B is a one-credit introductory general chemistry laboratory course meant to complement the lecture course CHEM 112. This course builds on material learned in CHEM 111. It has the same goals, and covers similar topics to CHEM 113, and for this reason should count as CHEM 113, regardless of major. The main difference is that CHEM 113B covers chemical topics in the context of experiments with biological relevance. The emphasis is on quantitative analytical procedures. Essential material covered includes proper use of a laboratory notebook, writing of a formal laboratory report, use of the chemistry literature, experimental design, interpretation of data using statistics, laboratory safety procedures, and an appreciation for what instruments can and cannot do. The course introduces laboratory experimentation in the context of a variety of specific topics, for example: alcohols; enzyme kinetics; acid-base equilibria and titrations; separations of compounds using paper and liquid chromatography, separations using gas chromatography. GN credit for CHEM 113B requires that CHEM 112 or CHEM 112H also be completed.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 111 . Prerequisite or Concurrent: CHEM 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 202** Fundamentals of Organic Chemistry I (3) Introduction to organic chemistry, with emphasis on the properties of organic compounds of biochemical importance. Because of duplication of subject matter, students may not receive credit

### **CHEM 202 Fundamentals of Organic Chemistry I (3)**

CHEM 202 is a one-semester, comprehensive course that introduces the students to the fundamental principles of organic chemistry including relationships between the molecular structure of organic compounds and their macroscopic properties. Some of the principles are illustrated with a variety of examples from nature and everyday life. The course covers the following topics: alkanes; alkenes, including polymers; alkynes; benzene and aromaticity; alcohols and phenols; ethers; aldehydes; ketones; carboxylic acids and their acyl derivatives; amines; alkyl halides; nomenclature; stereochemistry, including conformational analysis and chirality. Chemical reactions of the functional groups will be discussed along with the mechanistic details, including stereospecificity, of some of these processes. Biological molecules such as carbohydrates, lipids, steroids, peptides/proteins and nucleic acids, along with their importance in living systems, will be surveyed.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 101 or CHEM 110 or CHEM 106

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 203 Fundamentals of Organic Chemistry II (3)** Introduction to organic chemistry, with emphasis on the identification of organic compounds by characteristic chemical reactions and by spectroscopy. The course involves both lecture and laboratory. Because of duplication of subject matter, students may not receive credit for both CHEM 203 and CHEM 213.

### **CHEM 203 Fundamentals of Organic Chemistry II (3)**

CHEM 203 is a one-semester organic chemistry course that has both lecture and laboratory components. The lecture introduces students to the basic theory and application (structure determination) of different types of spectroscopy (nuclear magnetic resonance spectroscopy, infrared spectroscopy, and ultraviolet-visible spectroscopy) and mass spectrometry. Certain chemical reactions learned in CHEM 202 will be reviewed along with the mechanistic details of some of these processes. Special topics such as drug discovery, natural product isolation, and synthesis will be surveyed. The laboratory teaches students the fundamental techniques used by organic chemists such as recrystallization, melting point determination, distillation, extraction, thin-layer chromatography, and column chromatography. Mastery of these basic techniques lays the foundation for carrying out organic syntheses and/or natural product isolations. Students are given hands-on access to instrumentation for the characterization of synthetic products or organic unknowns using standard analysis methods such as IR, NMR, UV/V is spectroscopy, mass spectrometry, polarimetry, HPLC, GC and GC-MS. Students are responsible for writing laboratory reports for all experiments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 210 Organic Chemistry I (3)** Bonding theories for organic molecules; stereochemistry and conformational analysis; reactions (and mechanisms) of alkyl halides, alkenes, alkynes, aromatics, and alcohols.

### **CHEM 210 Organic Chemistry I (3)**

Organic chemistry is an essential subject for many scientific disciplines, particularly those in the life, materials, and chemical sciences, as well as chemical engineering. The fundamentals of organic chemistry, as developed in CHEM 210, the first part of a two-semester organic chemistry sequence, are required for scientists to understand the electronic structure and reactivity of simple and complex molecules. Concepts taught in CHEM 210 include hierarchical bonding models (Lewis dot, valence bond, molecular orbital), Lewis acids and bases, conformational analysis and stereochemistry, functional groups and their reactivity (alkenes, alkynes, alkyl halides, dienes, aromatics, alcohols, and ethers), organic reaction mechanisms focusing on electrophiles and nucleophiles, and aromaticity. Successful students will understand and be able to apply various structural and reactivity models to solving problems in organic chemistry.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: CHEM 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CHEM 210 Organic Chemistry I (3)** Bonding theories for organic molecules; stereochemistry and conformational analysis; reactions (and mechanisms) of alkyl halides, alkenes, alkynes, aromatics, and alcohols.

### **CHEM 210 Organic Chemistry I (3)**

Organic chemistry is an essential subject for many scientific disciplines, particularly those in the life, materials, and chemical sciences, as well as chemical engineering. The fundamentals of organic chemistry, as developed in CHEM 210, the first part of a two-semester organic chemistry sequence, are required for scientists to understand the electronic structure and reactivity of simple and complex molecules. Concepts taught in CHEM 210 include hierarchical bonding models (Lewis dot, valence bond, molecular orbital), Lewis acids and bases, conformational analysis and stereochemistry, functional groups and their reactivity (alkenes, alkynes, alkyl halides, dienes, aromatics, alcohols, and ethers), organic reaction mechanisms focusing on electrophiles and nucleophiles, and aromaticity. Successful students will understand and be able to apply various structural and reactivity models to solving problems in organic chemistry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 210H Organic Chemistry I - Honors (4)** Principles and theories; nomenclature; chemistry of the functional groups; applications of spectroscopy. Because of duplication of material, students may not receive credit for both CHEM 210 and 202.

### **CHEM 210H Organic Chemistry I - Honors (4)**

Chemistry 210H is the first semester of an in-depth two semester survey of organic chemistry. It should be followed by Chemistry 212H. The concentrated and fast-moving pace of this course is facilitated by four class periods/week, seven (biweekly) hour exams and an evening recitation dedicated to the informal discussion of the subject material covered in previous or pending hour exams. This course will emphasize the mechanistic underpinning of organic chemistry. That is, students will not only learn what happens in organic chemistry but also, and more importantly, why and how. It is hoped that students will develop an intuition for the structure, function and reactivity properties of organic compounds which is of fundamental importance for subsequent studies in the life, material and chemical sciences. The course begins with an introduction to the structural aspects of organic compounds and an appreciation of the three-dimensionality of the subject based upon the important concepts of molecular orbital theory, valence bond theory, hybridization and conformational analysis. Reaction mechanisms and organic synthesis, two important topics that are emphasized throughout the course, are introduced early in the context of addition reactions of alkenes and alkynes. Perhaps the most abstract/vexing topic in organic chemistry is next encountered, namely, stereochemistry. These fundamentals are then used to explore the reactivity properties of various classes of compounds including substitutions and eliminations of alkyl halides, free radical reactions of alkenes, isomerization and cycloadditions of conjugated pi systems, and electrophilic substitution reactions of aromatic compounds.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: CHEM 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 212 Organic Chemistry II (3)** Continuation of CHEM 210. Emphasis is placed on the role of organic reactions in biological chemistry.

### **CHEM 212 Organic Chemistry II (3)**

This course will continue to build upon the important concepts learned in the prerequisite course, CHEM 210, with an emphasis on reactions mechanisms and organic synthesis. The course will begin with conceptually new material that will be applied in the laboratory course, namely, the elucidation of the structures of organic compounds using mass spectrometry, infrared spectroscopy and nuclear magnetic resonance spectroscopy. The majority of the new material is concerned with the chemistry of carbonyl compounds and includes: 1) the nucleophilic addition reactions of ketones and aldehydes; 2) nucleophilic acyl substitution reactions of acid chlorides, anhydrides, esters and amides; 3) carbonyl alpha-substitution reactions and 4) carbonyl condensation reactions. The latter part of the course will be concerned with biologically relevant compounds such as amines, amino acids/peptides/proteins and carbohydrates.

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 212H Organic Chemistry II - Honors (3)** Continuation of CHEM 210(H). Emphasis is on the chemistry of carbonyl compounds, spectroscopic analysis and pericyclic reactions.

### **CHEM 212H Organic Chemistry II - Honors (3)**

CHEM 212H is the second semester of a comprehensive year-long treatment of introductory organic chemistry at an advanced level. CHEM 210H is recommended but not required. This honors course focuses more on depth than breadth, and will delve into some of the more modern approaches/theories to key topics. Most of the material derives from the chemistry of carbonyl compounds. The classic topics -- carbonyls as electrophiles and as nucleophile (enolate) precursors -- will be covered. In addition, discussions of stereochemical selectivity issues will provide the framework to introduce contemporary concepts of stereoelectronic and steric effects into these topics. For example, Cram, Felkin-Ahn and chelation-based models for stereoselective addition of nucleophiles to aldehydes/ketones will be developed, as will chiral auxiliary chemistry for stereoselective enolate addition reactions. In addition to carbonyl chemistry, an introduction to spectroscopic techniques for compound characterization will be included. These techniques include mass spectrometry, infrared spectroscopy, and nuclear magnetic resonance spectroscopy. Finally, a survey of pericyclic reactions, along with the molecular orbital (stereoelectronic) underpinnings of chemical selectivity observed in these processes, will be pursued. Class grades will be based on 5 exams, 5 (out of 6) homework assignments, and a final exam.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: CHEM 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 213 Laboratory in Organic Chemistry (2)** Basic laboratory operations; synthesis and chemical or instrumental analysis. Because of duplication of subject matter, students may not receive credit for both CHEM 203 and CHEM 213.

### **CHEM 213 Laboratory Organic Chemistry (1-2)**

A strong foundation in organic laboratory skills is provided by this laboratory course. Laboratory work includes learning the basic techniques and recrystallization/melting point determination, distillation, liquid/liquid extraction, thin layer, chromatography and column chromatography. Mastery of these basic techniques lays the foundation for carrying out a number of organic syntheses or natural product isolations. Students are often provided with hands-on access to instrumentation for the characterization of synthetic products or organic unknowns using standard analysis methods such as IR, NMR, UV/V is spectroscopy, mass spectrometry, polarimetry, HPLC, GC and GC-MS. Chemistry 210 is a prerequisite and CHEM 212 may be\* a co-requisite for this course, because they provide the theoretical background for the reaction chemistry as well as the spectroscopic characterization of organic molecules.

\*Note: The number of credits and meeting times vary from location to location. Some locations offer CHEM 213 as two one-credit courses to be taken in sequential semesters, whereas other locations offer CHEM 213 as a single-semester two-credit course. Normally, the latter format involves two 3-hour labs per week in addition to extensive written work outside of the laboratory. The prerequisite / concurrent requirement for CHEM 212 does not apply when CHEM 213 is taken as a 1 credit course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 210 . Prerequisite or concurrent:CHEM 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 213B Laboratory in Organic Chemistry--Bioscience (2)** Basic laboratory operations; synthesis and chemical or instrumental analysis of materials of biological significance. Because of duplication of subject matter, students may not receive credit for both CHEM 203 and CHEM 213.

### **CHEM 213B Laboratory in Organic Chemistry - Bioscience (2)**

A strong foundation in organic laboratory skills is provided by this intensive, 2-credit laboratory course. This course covers the same laboratory techniques as Chemistry 213 and fulfills the same course requirements for all science and science related majors. It is listed as a separate course because the organic content is focused on bioorganic chemistry and it also has a group project assignment. Students will attend two 3-hour labs per week in addition to extensive written work outside of the laboratory. The written work is divided into two parts that consist of pre-laboratory exercises that must be completed prior to attending each laboratory session and post-laboratory final reports due throughout the semester. The laboratory work during the first half of the semester involves learning the basic techniques of recrystallization/melting point determination, distillation, liquid/liquid extraction, thin layer chromatography, and column



chromatography. In the second half of the semester, these techniques are applied to an instructor-assigned group research project that focuses on bioorganic transformations. Each student performs a literature search that is utilized to produce a group project proposal. The group then carries out their proposed experiments and produces a group final report and project poster that is presented at a departmental poster session. Students are provided with hands-on instruction to carry out characterization of their isolated reaction products using IR, NMR, UV/VIS, polarimetry, HPLC, GC, and or GC/MS. Students are also required to identify an unknown which provides additional training in instrument operation and structural interpretation. Chemistry 210 is a prerequisite and Chemistry 212 is a pre- or co-requisite for this course, because these lecture courses provide the theoretical background for the reaction chemistry as well as the molecular characterization of organic molecules.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 210 . Prerequisite or concurrent:CHEM 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 213H** Laboratory in Organic Chemistry - Honors (2) Basic laboratory techniques learned in context via theme-based modules, spectral analysis, multi-step synthesis, and professional scientific writing. Because of similarity of subject matter, students may not receive credit for both CHEM 203 and CHEM 213.

#### **CHEM 213H Laboratory in Organic Chemistry - Honors (2)**

A strong foundation in organic laboratory skills is provided by this laboratory course. Laboratory work includes learning the basic techniques and recrystallization/melting point determination, distillation, liquid/liquid extraction, thin layer, chromatography and column chromatography in a specific context via theme-based modules. Mastery of these basic techniques lays the foundation for carrying out a multi-step synthesis for the Team Project assignment, which may require the use of more advanced laboratory techniques. Students are required to write professional final reports (ACS-style) for each experiment. Students are often provided with hands-on access to instrumentation for the characterization of synthetic products or organic unknowns using standard analysis methods such as IR, NMR, UV/V is spectroscopy, mass spectrometry, polarimetry, HPLC, GC and GC-MS. CHEM 210 is a prerequisite and CHEM 212 a co-requisite for this course, because they provide the theoretical background for the reaction chemistry as well as the spectroscopic characterization of organic molecules.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: CHEM 210 andCHEM 212

Concurrent: CHEM 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 221** Quantitative Analysis (4) Traditional methods of gravimetric, volumetric, and electrochemical analysis, emphasizing acid-base, solubility, and oxidation-reduction equilibria.

#### **CHEM 221 Quantitative Analysis (4)**

CHEM 221 is meant to provide the student with the tools necessary to develop an analytical approach to chemical problems. The principles, methodology and practical aspects of traditional and modern quantitative chemical analysis will be discussed. Topics covered in the course will include gravimetric, volumetric, and electrochemical analysis, emphasizing acid-base, solubility, and oxidation-reduction equilibria. In addition, the role of stoichiometry and chemical equilibrium in the practice of quantitative analysis will be emphasized. The theory and application of these techniques and will be covered both in lecture and laboratory.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 112 andCHEM 113

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 227** Analytical Chemistry (4) Analytical methods used in the biological and physical sciences with special emphasis on acid-base and complexation equilibria, electrochemistry, and the fundamental principles of spectroscopy and separations.

#### **CHEM 227 Analytical Chemistry (4)**

The purpose of this course is to provide students with a rigorous and comprehensive exposure to the analytical techniques and methods used in biotech, environmental, forensic, and pharmaceutical industrial and research laboratories. Laboratory and lecture are fully integrated emphasizing the importance of the laboratory component to

achieving mastery of overall course content. The laboratory combines skill-building exercises with open-ended, hands-on and inquiry-based thematic experiments that combine the concepts of precipitation, acid-base equilibria, chelation, redox, UV/VIS spectroscopy, extraction equilibria and their pH dependencies, and forensic applications of chromatography. Along with learning the chemistry, students will develop experience with computer-interfaced instrumentation, computer-assisted data acquisition, and manipulation of large data sets using computers. These are all crucially important skills that must be developed in students training to be scientists. Students are evaluated on their ability to write, speak clearly, work effectively as part of a team, have good organizational skills, be able to define a problem, gather and analyze samples, suggest solutions based on the data, and the application of these core competencies to real-world problems, in complex and challenging environments while paying attention to quality assurance, controls, external and internal standards and validation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 113 and MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 233 (GH;GN) (ENGL 233) Chemistry and Literature (3)** Exploration of key concepts of chemistry, the reciprocal influence of chemistry and literature throughout history, and the relationship of science to society, culture, and values.

**CHEM (ENGL) 233 Chemistry and Literature (3)  
(GN or GH)**

CHEM/ENGL 233 is a pedagogically innovative course that will be team taught by an instructor from the English department and one from the Chemistry department. Both instructors will be present in the classroom throughout the semester, providing joint presentations and leading discussions. Students may earn either GH or GN credit for the course, but not both. This course teaches both basic concepts of chemistry and their cultural elaboration in literature. It seeks to provide students with a nuanced understanding of how literature and science inform each other and negotiate cultural, religious, and political tensions. The course seeks to explore ways in which our modern world is defined by and dependent on a variety of sciences and technologies. The impact of scientific and technological discoveries continues to dominate discussions of who we are, where we come from, where we are going, and our place in the universe. Understanding how we, as a society, have acquired knowledge is especially important when the ideas, perspectives, and discoveries are perceived to be in conflict with our religious, cultural, or political beliefs. Understanding the origin and development of these ideas, perspectives, and discoveries is an essential component of science and scientific achievement, but too often our methods of teaching science focus almost exclusively on teaching facts and theories at the expense of the historical discovery and development of those facts and theories. This course teaches both the scientific facts and theories and the contexts of their production in order to sharpen students' abilities at critical evaluation of facts. The literary and scientific focus will vary from class to class, but may include writings by literary authors such as Edward Bulwer-Lytton, Bram Stoker, H. G. Wells, Garrett Serviss, William Butler Yeats, Arthur Machen, D. H. Lawrence, A. E. Waite, Aleister Crowley, Arthur Conan Doyle, and Camille Flammarion, and scientific texts by scientists such as William Crookes, William Ramsay, Frederick Soddy, Ernest Rutherford, Wilhelm Comad Roentgen, Henri Becquerel, J. J. Thomson, Niels Bohr, and Marie Curie. Like many literature courses, ENGL/CHEM 233 interprets history, assesses individual and social behavior, engages philosophical ideas, and expresses ethical and aesthetic values. It is especially useful at exploring cultural and social tensions involving scientific knowledge. For students in science programs, the course will explore the technical and conceptual dimensions of scientific knowledge in historical and cultural context. Political, cultural and personal motivations are integral components of the scientific method and deeply influenced the discovery of many of the fundamental chemical and physical concepts students are expected to master in their science curricula.

Students should expect to take two exams consisting of a midterm and a final, to write at least two papers for the course demonstrating their abilities at literary analysis and grappling with the themes of the course, and to make a group presentation to the class. Classroom discussion and general class participation will also be a factor in evaluation.

The course can be used as an elective credit toward the English Major and Minor, and can help students in English, Chemistry, or any other major fulfill General Education degree requirements.

General Education: GH;GN

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 294 Special Problems and Research (1-4 per semester, maximum of 12)** Designed for freshman or sophomore students who are prepared to undertake special problems and research by arrangement with a faculty member.

**Special Problems and Research (1-4 per semester, maximum of 12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 294H** Special Problems and Research - Honors (1-4 per semester, maximum of 12) Designed for freshman or sophomore students who are prepared to undertake special problems and research by arrangement with a faculty member.

**Special Problems and Research - Honors (1-4 per semester, maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1991

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 301** Environmental Chemistry and Analysis (3) Chemical principles, interpretation, and methods of analysis for groundwater, water supply, wastewater treatment, stream pollution.

**CHEM 301 Environmental Chemistry and Analysis (3)**

The objective of the course is to introduce students to water quality chemistry and the associated laboratory analytical techniques commonly used in groundwater, water supply, wastewater treatment, stream pollution control. This course will be instructed with classroom lectures, laboratory exercises, and a project. These laboratory exercises include pH, solids, turbidity, alkalinity, acidity, dissolved oxygen, biochemical oxygen demand, chemical oxygen demand, total organic carbon, chlorine residual, chlorine demand, nitrogen, phosphorus, nitrate, sulfate, chloride, hardness, and metals. This course involves two lecture periods and one laboratory period each week. The students will be evaluated with quizzes, midterm examination, final examination, laboratory reports, and a project report.

The course has a prerequisites of a two-semester General Chemistry course and the associated laboratory courses. This course is a prerequisite for Water Supply and Pollution Control which is one of core courses for Environmental Engineering Program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 112 and CHEM 113

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 310** Introductory Inorganic Chemistry (3) Conceptual and descriptive aspects of inorganic chemistry, focusing on structures, bonding, and properties.

**CHEM 310 Introductory Inorganic Chemistry (3)**

CHEM 310 covers the structure, bonding, and properties of inorganic molecules and solids. Theories and models of chemical bonding, including valence bond theory, crystal field theory, and molecular orbital theory are applied to inorganic molecules, coordination compounds, and solids. Aspects of structural inorganic chemistry are presented, including molecular geometry and structures of metallic, ionic, and covalent solids. Transition metal chemistry is discussed, including key aspects of bonding, properties, and reactions. The course also covers acids and bases, oxidation and reduction, and coordination chemistry. Special topics such as solid-state inorganic materials, inorganic nanoscience, and bioinorganic chemistry may also be included.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: CHEM 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 316** The Professional Chemist (1) Industrial employment opportunities and challenges; graduate and professional school opportunities; tailoring the chemistry curriculum to career goals.

**CHEM 316 The Professional Chemist (1)**

This junior-level seminar course is designed to help prepare chemistry majors to take advantage of opportunities provided by the Department and community of professional chemists in choosing, attaining, and furthering their career goals. A number of guest lectures cover a variety of career-related topics. Careers in the pharmaceutical, chemical production, biotechnology, and analytical sectors and other specialty companies will be discussed. Also, various academic careers paths are presented and compared. Preparing for chemistry graduate school and other post graduate training will be an important element of this seminar. Most of the meetings of the course will be primarily informational. A graded short presentation on a chemistry related topic is also required.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: fourth-semester standing in chemistry

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 395** Chemistry Teacher Assistant Training (1-2) Instruction and practice in the role of the teaching assistant in the undergraduate chemistry laboratory.

**Chemistry Teacher Assistant Training (1-2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1981

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 400** Chemical Literature (1) Instruction in use of the library and of the literature of chemistry.

**CHEM 400 Chemical Literature (1)**

CHEM 400 covers an orientation to use the library; sources of organic and inorganic synthesis information; use of relevant indexing and abstracting services; spectral data sources; patent literature; sources related to general chemical information, and properties data. Additional topics may be included as time permits.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: 12 credits of chemistry

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 402** Chemistry in the Environment (3) Chemistry of the atmosphere, natural waters, and the land surface with particular focus on human influence on processes occurring therein.

**CHEM 402 Chemistry in the Environment (3)**

Fundamental and descriptive aspects of the sources, reactions, transport, and effects of chemical species, both natural and synthetic, in water, air, soil, and living systems, and the influence of human activities on these processes. The goal of the course is to gain an understanding of the theory and application of the fundamental processes that determine the

distribution and transport of inorganic and organic substances in the environment; the techniques for determining important physicochemical properties that influence environmental fate; and the major sources of important classes of environmental chemicals. Rapid increases in technological sophistication have led to startling innovations in our everyday lives almost unthinkable a century ago. However, at the same time, advances in science and engineering have complicated how we live and react to the new technologies and, at times, force consideration of complex issues before our need for reflection. Approaching problems from different directions and perspectives is fundamental to our understanding of Earth processes. New and continued emphasis in global warming, loss of biodiversity, ozone layer depletion, acid mine drainage, sustainable development and energy use are only a few of the major environmental threats which require an intelligent and informed response. As such, the course provides a balanced discussion of the hard science and social sciences aspects of environmental issues.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 212 . Prerequisite or concurrent:CHEM 450 orCH E 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 406** (NUC E 405) Nuclear and Radiochemistry (3) Theory of radioactive decay processes, nuclear properties and structure, nuclear reactions, interactions of radiation with matter, biological effects of radiation.

### **CHEM 406 Nuclear and Radiochemistry (3)**

CHEM 406 provides a basic introduction to many of the important physical phenomena in nuclear and radiochemistry and the theories that describe them. The exposition of both experimental phenomena and theory complements the content of other upper-level courses in physical chemistry such as CHEM 450 and 452.

Specifically, the types of radioactive decay are described, and, using this information, the equations that relate the growth and decay, i. e., the kinetics, of radioactive nuclei are derived. In parallel, a variety of types of nuclear reactions, such as neutron capture are introduced and used to develop the equations that governing the kinetics of nuclear reactions, including the concept of cross section. To describe the nature of nuclear matter, the relationships between energy, binding energy, and mass, are developed and augmented with the introduction of related quantities including the nuclear magnetic-dipole moment, total angular momentum of the nucleus, and Fermi-Dirac and Bose-Einstein statistics. A basic introduction to quantum mechanics, including several problems of increasing complexity, namely, the one-dimensional particle-in-a-box, the three-dimensional particle-in-a-cubic-box, and the particle-in-a-spherical box is then provided. The latter problem forms the basis for developing the single-particle shell-model of the nucleus, which is compared to the single-particle shell-model of the atom, namely, the hydrogen-atom problem. The barrier-penetration theory of alpha-decay, Fermi's phase-space theory of beta-decay, and the selection rules for gamma-ray decay are then presented. Final topics include the interactions of radiation with matter and the biological effects of radiation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 452 orPHYS 237 orNUC E 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 408** Computational Chemistry (3) Introduction to numerical and nonnumerical computer uses in physical science.

### **CHEM 408 Computational Chemistry (3)**

CHEM 408 introduces some of the many ways in which computers are used in modern chemical research. The main emphasis is on "molecular modeling" including such topics as electronic structure calculation, molecular mechanics, molecular dynamics and Monte Carlo simulation methods. In lesser detail, chemical informatics will also be considered, time permitting. Discussion of the theoretical underpinnings of these various methods and their range of applicability will be combined with exercises illustrating the use of several current chemical software packages and with assignments based on critical reading of illustrative literature papers.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: Prerequisite or concurrent:CHEM 452

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 410** Inorganic Chemistry (3) Conceptual and descriptive aspects of nontransition elements, covering structural, thermodynamic, and kinetic features.

### **CHEM 410 Inorganic Chemistry (3)**

CHEM 410 covers structure and bonding in inorganic chemistry, including the chemistry of main group elements and selected topics in transition metal chemistry. Theories and models of chemical bonding (valence bond theory, crystal field theory, and molecular orbital theory) are applied to inorganic molecules, coordination compounds, and solids. The course also covers the following topics: periodic trends in the chemistry of the d- and p-block elements, structural solid state chemistry, magnetism of transition metal complexes and inorganic solids, ionic and covalent bonding in solids, electronic properties of metals, alloys, superconductors, and semiconductors, synthesis of inorganic materials, and properties of nanoscale inorganic solids.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 112 and CHEM 202 or CHEM 210 . Prerequisite or concurrent: CHEM 450 or CHEM 452

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 412 Transition Metal Chemistry (3)** Structure and bonding of compounds containing transition metals.

### **CHEM 412 Transition Metal Chemistry (3)**

CHEM 412 covers the chemistry of the transition metals, and in particular the d-block elements. Major areas of emphasis include coordination chemistry, organometallics, and the role(s) of transition metals in biology. The course covers the following topics: molecular symmetry with applications to bonding and vibrational spectroscopy, coordination chemistry, structural and optical isomers, crystal and ligand field theories, electronic structure and electronic transitions, spectroscopic methods for probing transition metal complexes, kinetics and thermodynamics of ligand substitution reactions, oxidation-reduction reactions, organometallic complexes and their basic reaction types, homogeneous and heterogeneous organometallic catalysts and their reaction cycles, the interactions of metal ions with biological molecules, the function of transition metal ions in metalloproteins, and medically-important transition metal complexes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 202 or CHEM 210 and CHEM 310 . Prerequisite or concurrent: CHEM 450 or CHEM 452

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 412 Transition Metal Chemistry (3)** Structure and bonding of compounds containing transition metals.

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CHEM 412 covers the chemistry of the transition metals, and in particular the d-block elements. Major areas of emphasis include coordination chemistry, organometallics, and the role(s) of transition metals in biology. The course covers the following topics: molecular symmetry with applications to bonding and vibrational spectroscopy, coordination chemistry, structural and optical isomers, crystal and ligand field theories, electronic structure and electronic transitions, spectroscopic methods for probing transition metal complexes, kinetics and thermodynamics of ligand substitution reactions, oxidation-reduction reactions, organometallic complexes and their basic reaction types, homogeneous and heterogeneous organometallic catalysts and their reaction cycles, the interactions of metal ions with biological molecules, the function of transition metal ions in metalloproteins, and medically-important transition metal complexes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 202 or CHEM 210 and CHEM 310 . Prerequisite or concurrent: CHEM 450 or CHEM 452

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 413 Chemistry of the Elements (4)** Theoretical and descriptive chemistry of the elements; laboratory synthesis and measurements in inorganic, coordination, and transition metal chemistry.

### **Chemistry of the Elements (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: CHEM 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 423W Chemical Spectroscopy (4)** Modern methods and instruments of spectroscopy and their applications to problems of chemical structure and analysis.

#### **CHEM 423W Chemical Spectroscopy (4)**

This course reviews modern methods and instruments of spectroscopy and their applications to problems of chemical structure and analysis. Topics include electronics, optics, and atomic and molecular spectroscopy (UV-VIS, Fluorescence, FTIR, Raman, liquid- and solid-state NMR). The course thoroughly integrates lecture and laboratory activities. The laboratory component incorporates skill-building exercises with open-ended guided-inquiry laboratory exercises and a semester-long laboratory- and literature-based research project. Students work in small groups (2-3 students) to complete each assignment. Students are required to write research papers during the semester. The reports are linked to the core course topics and the fifth is associated with the semester-long research project. All reports require students to search for and read the relevant published literature.

The course is designed to be rigorous and comprehensive in scope. The writing component for this course includes: maintaining a proper laboratory notebook; reports; and an oral poster presentation. All writing elements are reviewed and graded by the instructor and teaching assistants.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 227 or CHEM 221 CHEM 450 or prerequisite or concurrent: CHEM 452

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 423W Chemical Spectroscopy (4)** Modern methods and instruments of spectroscopy and their applications to problems of chemical structure and analysis.

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The course is designed to be rigorous and comprehensive in scope. The writing component for this course includes: maintaining a proper laboratory notebook; reports; and an oral poster presentation. All writing elements are reviewed and graded by the instructor and teaching assistants.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 227 or CHEM 221 CHEM 450 or prerequisite or concurrent: CHEM 452

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 425 Chromatography and Electrochemistry (3)** Gas, liquid, and other forms of chromatography; important techniques of electrochemistry.

#### **CHEM 425 Chromatography and Electrochemistry (3)**

The course topics include gas, liquid, and other forms of chromatography, mass spectroscopy, and important techniques of electrochemistry. The course material is designed to increase student understanding of both the analytical instruments used in the laboratory and the principles underlying the measurements. Evaluation of student performance is based on the level to which a student understands how an instrument operates and how particular components determine overall performance and specifications; limitations to measurements as a function instrument design; criteria by which one selects an appropriate instrument to obtain the desired measurements; and criteria by which one selects appropriate components to build an instrument for specific uses.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: CHEM 227 or CHEM 221/CHEM 450

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 427W (FRNSC 427W) Forensic Chemistry (4)** Analytical and instrumental methods used in the forensic sciences with special emphasis on the analysis and characterization of trace evidence.

#### **CHEM (FRNSC) 427W Forensic Chemistry (4)**

The purpose of this course is to provide students with a rigorous and comprehensive exposure to the techniques and methods used in private, state and federal crime labs in the analysis of trace evidence. The course thoroughly integrates lecture and laboratory activities to explore the history, controversies and current issues related to each topic. The laboratory component incorporates skill-building exercises with open-ended guided-inquiry laboratory exercises and a semester-long laboratory- and literature-based research project. Students work in small groups (2-3 students) to complete each assignment. Students are required to write five research papers during the semester. Four of the reports are linked to the core course topics and the fifth is associated with the semester-long research project. All reports require students to search for and read the relevant published literature.

The course is relevant to any student majoring in Forensic Sciences or who has an interest in obtaining employment in a crime lab. The course is required for accreditation through the American Association of Forensic Sciences and is recommended by the National Institute of Justice in their published recommendations for undergraduate curricula in the forensic sciences. The proposed course and the course in Forensic Anthropology/Biology comprise the core 400-level science courses required in the Forensic Sciences major.

The course is designed to be rigorous and comprehensive in scope. Grades will be based on in-class lecture examinations (20%), problem sets (10%), laboratory notebooks (15%), laboratory write-ups (30%), and a term project (written and oral presentations; 25%). The writing component for this course includes: maintaining a proper laboratory notebook; five approximately 10-page reports; and an oral poster presentation. All writing elements are reviewed and graded by the instructor and teaching assistants. Students are allowed to correct, or rewrite, and resubmit notebook entries for three separate submissions (notebooks are graded a total of eight times throughout the semester) and the written reports excluding the final project report. Students are required to submit a preliminary poster for a ) non-graded) review prior to the oral presentation. The writing component of the course accounts for 55% of the total course grade.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: CHEM 213/CHEM 227 and FRNSC 411 or CHEM 431W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 430 Structural Analysis of Organic Compounds (3)** Spectroscopic methods as tools in gross and detailed structural analysis and interpretation within the framework of modern theory.

#### **CHEM 430 Structural Analysis of Organic Compounds (3)**

This course is designed to introduce students to the spectroscopic techniques that are used to elucidate the structures of organic molecules of various molecular weights. Some theoretical background will be provided and is necessary, but the emphasis is on solving problems. The course starts with fundamental concepts and techniques learned in sophomore organic chemistry and builds toward state-of-the-art methods used by modern organic and bioorganic chemists. Topics to be covered include: UV spectroscopy, 1D- 1H and 13C NMR, spin-spin (scalar) coupling and chemical shifts, IR spectroscopy, simple and advanced mass spectroscopic techniques, stereochemistry, advanced NMR topics including advanced 1D and 2D NMR and correlation spectroscopies. Some consideration will also be given to the challenges associated with structure determination in biomolecules.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: CHEM 210 and CHEM 213  
Concurrent: CHEM 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 431W Organic and Inorganic Preparations (4)** Preparation, purification, and characterization of both organic and inorganic compounds by modern methods.

#### **CHEM 431W Organic and Inorganic Preparations (3)**



CHEM 431W is a one-semester, writing-intensive advanced laboratory course that focuses on the preparation, isolation, purification, and characterization of organic, organometallic, and inorganic compounds. Students are expected to use the techniques learned in the introductory organic chemistry laboratory and will learn more advanced techniques such as the use of air-free and anhydrous reaction conditions, glove bags, vacuum manifolds, vacuum distillations, flash chromatography, solvent stills, and gas-tight syringes. Molecular modeling techniques are also introduced. Students are given hands-on access to instrumentation for the characterization of synthetic products or organic unknowns using standard analysis methods such as IR, NMR, UV/V is spectroscopy, mass spectrometry, polarimetry, HPLC, GC and GC-MS. Students are expected to search the chemical literature using databases and online journals and to write formal lab reports in ACS style. The lab assignments include syntheses, separating an unknown mixture, and a team project, which includes a written proposal, synthetic work, a final report, and a poster presentation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: CHEM 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 432 Organic Reaction Mechanisms (3)** The study, evaluation, and discussion of the mechanisms of selected organic reactions.

### **Organic Reaction Mechanisms (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: CHEM 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 440 Instrumental Analysis (3)** General instrumental theory and methods used in common atomic and molecular analyses.

### **CHEM 440 Instrumental Analysis (3)**

This course presents analytical methods used by the chemistry community in a way that extends and compliments the treatment in CHEM 221. Preliminary discussions will entail sample preparation for organic and inorganic samples, quantitative measurements, sensitivity and limit of detection. Techniques addressed will cover the areas of separation, qualitative and quantitative optical spectroscopic techniques, mass spectrometry, electroanalytical techniques and surface analysis. In separation techniques, methods presented will be capillary electrophoresis, gas, liquid, and ion chromatography. In optical spectroscopy, methods presented will be infrared, Raman, nuclear magnetic resonance, ultraviolet and visible molecular absorption, chemiluminescence, inductively coupled plasma emission, atomic fluorescence, atomic absorption and emission spectrometry. Mass spectrometry methods presented will include time of flight, magnetic sector and electric sector mass spectrometry as well as interfacing with gas chromatography, liquid chromatography and capillary electrophoresis. Electroanalytical methods include amperometric, voltammetric and potentiometric techniques. Surface analysis methods discussed will be atomic force microscopy, scanning tunneling microscopy, Auger electron spectroscopy, X-ray photoelectron spectroscopy and secondary ion mass spectrometry.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 450 and CHEM 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 441 Elemental Analysis and Instrumental Design Laboratory (1)** An introduction to the use of modern instruments for problems in chemical structure and analysis.

### **CHEM 441 Elemental Analysis and Instrument Design Laboratory (1)**

CHEM 441 is one of three laboratory courses (CHEM 441, CHEM 443, and CHEM 445) which accompany the lecture course in instrumental analysis, CHEM 440. The topics for CHEM 441 are: 1) optics, flame atomic emission spectrometry & microwave induced plasma emission spectrometry, 2) electronics and data acquisition/signal analysis, and 3) basic ultraviolet-visible instrument design. Every student will have ample opportunity to become proficient in the operation of the instruments being studied. They will spend about half of the time learning the fundamentals of each instrument and will then carry out a specific experiment using each one.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: or concurrent:CHEM 440

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 443** Electrochemistry and Chromatography Laboratory (1) An introduction to the use of modern instruments for problems in chemical structure and analysis.

#### **CHEM 443 Electrochemistry and Chromatography Laboratory (1)**

CHEM 443 is one of three laboratory courses (CHEM 441, CHEM 443, and CHEM 445) which accompany the lecture course in instrumental analysis, CHEM 440. The topics for CHEM 443 are: 1) ion sensitive electrodes and cyclic voltametry, 2) gas and high performance chromatography, and 3) gas chromatography-mass spectrometry. Every student will have ample opportunity to become proficient in the operation of the instruments being studied. They will spend about half of the time learning the fundamentals of each instrument and will then carry out a specific determination for each one.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: or concurrent:CHEM 440

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 445** Atomic and Molecular Spectroscopy Laboratory (1) An introduction to the use of modern instruments for problems in chemical structure and analysis.

#### **CHEM 445 Atomic and Molecular Spectroscopy Laboratory (1)**

CHEM 445 is one of three laboratory courses (CHEM 441, CHEM 443, and CHEM 445) which accompany the lecture course in instrumental analysis, CHEM 440. The topics for CHEM 445 are: 1) flame atomic absorption spectrometry and fluorimetry, 2) infrared and ultraviolet-visible spectroscopy, and 3) nuclear magnetic resonance spectrometry. Every student will have ample opportunity to become proficient in the operation of the instruments being studied. They will spend about half of the time learning the fundamentals of each instrument and will then carry out a specific determination for each one.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: or concurrent:CHEM 440

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 446** X-Ray Crystallography (3) Theoretical and practical aspects of structure determination using x-ray diffraction, from crystal growth to structure solution.

#### **CHEM 446 X-Ray Crystallography (3)**

CHEM 446 introduces the student to the basic principles of molecular structure determination through the diffraction of X-rays by single crystals. The emphasis is on small organic, coordination and organometallic compounds. However the principles can provide the basis for extensions into disciplines ranging across geology, materials, molecular biology, and nanoscience. The course is organized in the same way that an actual crystal structure determination might proceed, with theoretical considerations introduced as needed. Techniques of crystal growth and selection are summarized. X-ray sources and instrumentation are described briefly. Unit cells, Miller planes, unit cell geometry and Bragg's law give rationale to the diffraction experiment. Space group symmetry is connected with data collection and the contents of the unit cell. Practical considerations of data collection and instrumentation are covered next. The theoretical description of structure factors and Fourier synthesis leads to consideration of solutions to the phase problem. The remainder of the course illustrates the process of structure solution using real data and software readily available to the students. All the details of publication of a crystal structure; the CIF, ORTEP figures and the format of the experimental section of most journals is described using actual student selected publications. Related structural techniques such as protein crystallography and molecular modeling may be reviewed time permitting.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 448** Surface Chemistry (3) Surface chemistry, emphasizing the physical and chemical aspects of surfaces important

for applications in colloids, catalysis, microelectronics and biocompatibility.

**CHEM 448 Surface Chemistry (3)**

CHEM 448 introduces the student to the basic principles of the chemical behavior of surfaces with an emphasis on the fundamental aspects, including surface structure, bonding, thermochemistry and dynamical behavior. The course is intended to provide the basis for extensions into disciplines ranging across geology, materials, environmental engineering, biology, agriculture, physics and nanoscience. Fundamental concepts and relationships of the chemical behavior of organic and inorganic substances that the student has already learned in previous courses will be assembled, correlated and directed towards understanding the behavior of the special case of the surfaces and interfaces of liquids and solids. Starting from the basic principles the student will be guided to evolve a fundamental understanding and predictive ability for important man made and natural applications and phenomena of practical interest, including colloids, surface coatings, lubrication, heterogeneous catalysis, weather, geology, chemical sensing, microelectronics and biocompatibility.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 450 and CHEM 452

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 450 Physical Chemistry - Thermodynamics (3)** Introduction to physical chemistry with primary emphasis on chemical thermodynamics and its molecular interpretation. (Graduate credit not allowed for students majoring in Biochemistry and Molecular Biology, Chemistry, or Chemical Engineering.)

**CHEM 450 Physical Chemistry - Thermodynamics (3)**

CHEM 450 is a physical chemistry course that introduces students to chemical properties of matter and the fundamentals of chemical thermodynamics. The theoretical foundations of thermodynamic principles are covered and illustrated with a wide variety of examples from the sciences, engineering and technology fields. The course covers the following topics: gas laws, equations of state, the First Law of Thermodynamics, work and heat, internal energy, enthalpy changes, heat capacity, the Second Law of Thermodynamics, entropy and entropy changes, the Third Law of Thermodynamics, Helmholtz and Gibbs energies, phase stability and phase boundaries, phase diagrams, phase equilibrium, surface tension, capillary action, partial molar quantities, thermodynamics of mixing, chemical potential, solvent and solute activities, colligative properties, the phase rule, thermodynamics of two-component systems, chemical equilibrium, spontaneity of chemical reactions, the response of equilibria to experimental conditions, and equilibrium electrochemistry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 112 and MATH 141; PHYS 211 or PHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 452 Physical Chemistry - Quantum Chemistry (3)** Introduction to physical chemistry with primary emphasis on molecular structure, spectroscopy, and chemical kinetics. (Graduate credit not allowed for students majoring in Biochemistry and Molecular Biology, Chemistry, or Chemical Engineering.)

**CHEM 452 Physical Chemistry - Quantum Chemistry (3)**

CHEM 452 is an introductory physical chemistry course that covers quantum chemistry, atomic and molecular spectroscopy, and chemical kinetics. If time permits, other possible topics include statistical thermodynamics, nuclear magnetic resonance, electron spin resonance, structures of solids, X-ray scattering, and processes at surfaces.

Quantum chemistry includes: development of wave mechanics, Schrodinger's equation, particle in a box, in a ring, on a spherical surface, free particle, barrier penetration, harmonic oscillator, postulates, hydrogen atom, helium atom, electron spin, atomic and molecular structure and symmetry. Spectroscopy includes: atomic spectra, microwave, infrared, and visible spectra of molecules. Chemical kinetics includes: rate laws, mechanisms, chain reactions, polymerization reactions, catalysis, molecular reaction dynamics (collision theory and activated complex theory), and nature of potential energy surfaces for reactions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 112 and MATH 141 and PHYS 211 or PHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 457 Experimental Physical Chemistry (1-2 per semester/maximum of 2)** Laboratory experiments designed to

illustrate the principles of physical chemistry and teach techniques of error analysis and the presentation of quantitative data. (Graduate credit not allowed for students majoring in Biochemistry and Molecular Biology, Chemistry, or Chemical Engineering.)

CHEM 457

### **CHEM 457 Experimental Physical Chemistry (2)**

CHEM 457 is a laboratory course designed to illustrate some of the principles of physical chemistry presented in CHEM 450 and 452 and to teach proper treatment and presentation of quantitative data. In this course, students will learn how to write quantitative laboratory reports complete with analysis of the uncertainties of the measurements they make. They will also learn how these uncertainties are propagated through each calculation that make use of the initial measurements. In doing so, students should become more aware of the importance of experimental design, proper use of instrumentation, and careful data collection.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: or concurrent:CHEM 450 orCH E 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 459W** Advanced Experimental Physical Chemistry (4) Laboratory experiments and projects for students interested in advanced study in physical chemistry.

### **CHEM 459W Advanced Experimental Physical Chemistry (4)**

CHEM 459W Advanced Experimental Physical Chemistry is a project-based course designed as a follow-up to CHEM 457. CHEM 459W provides students with further experience in laboratory techniques used for quantitative experimentation and with the processing and interpretation of quantitative data. Experiments and short research projects are designed to complement the theoretical knowledge acquired in lecture courses so as to enhance students' competence in problem solving in a research environment. Particular attention will be devoted to written communication of experimental results in an effective and concise manner according to American Chemical Society journal standards.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: CHEM 450CHEM 457 Prerequisite or concurrent:CHEM 452

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 464** Chemical Kinetics and Dynamics (3) Introduction to chemical kinetics and molecular dynamics.

### **CHEM 464 Chemical Kinetics and Dynamics (3)**

CHEM 464 is a one-semester course that introduces students to chemical kinetics and molecular dynamics, the branch of chemistry concerned with the rates of chemical reactions and the microscopic details of how reactions occur. The course covers old and new experimental, theoretical, and computational methods for kinetics and dynamics. Example systems are chosen from a variety of application including gas-phase reactions, reactions in solution, atmospheric chemistry, and reactions in biological systems. Topics covered are: basic concepts, phenomenological treatments, mechanisms, chain reactions, potential energy surfaces, collision theory, transition state theory, analysis, reactions of surfaces, photochemistry, molecular beams, Monte Carlo methods, molecular dynamics, energy requirements for reaction, and energy disposition.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: CHEM 450 orCH E 220 andCHEM 452

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 466** Molecular Thermodynamics (3) Introduction to physical chemistry with a primary emphasis on the statistical and molecular interpretation of thermodynamics.

### **CHEM 466 Molecular Thermodynamics (3)**

CHEM 466 is a physical chemistry course that emphasizes the statistical and molecular interpretation of thermodynamics. This focus enables the student to consider macroscopic properties based on the constituent molecular properties. After a very brief introduction to classical thermodynamics, the statistics of large systems is introduced, used to develop the Boltzmann distribution of energies and then combined with the quantum mechanical structure of energy levels to form a basis to predict and understand atomic and molecular properties such as heat capacity and chemical reaction equilibrium.

Solution thermodynamics, interfacial phenomena and colligative properties are discussed in terms of lattice models. The course then turns to a molecular view of transport and chemical reaction rates. Molecular transport is described in terms of random molecular motion and intermolecular forces that tie together to give macroscopic behavior such as ionic conductivity and mass diffusion. Reaction rates are formulated in terms of the distributions of energies and statistical probabilities of the combined reactants in a transition state. Cooperativity in phase transitions is discussed, followed by adsorption and catalysis. Examples with proteins and other biomolecules, as well as polymers and various solutions, appear throughout the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 450 or CH E 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 472 General Biochemistry I (3)** Basic structure and function of cellular components; principles of enzyme kinetics and regulation.

### **CHEM 472 General Biochemistry I (3)**

CHEM 472 will serve as an introductory course in biochemistry. The course will begin with a review a number of chemical concepts applicable to biochemistry including molecular interactions, acid-base reactions, buffers, titrations and basic thermodynamic and kinetic concepts. The focus will then shift to a discussion of the structures of the biomolecules that make up living matter including carbohydrates, lipids, membranes, proteins, and enzymes, emphasizing the relationship between chemical structure and biological function.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 474 Organic Synthesis (3)** Theory and methodology of organic synthesis applied to complex organic molecules.

### **CHEM 474 Organic Synthesis (3)**

CHEM 474 will present the theory and methodology of organic synthesis. The course will initially focus on the methodology necessary to synthesize complex organic molecules. This will include an in-depth look at functional group transformations, carbon-carbon bond forming reactions, ring-forming reactions, aromatic chemistry and heterocyclic chemistry. We will then discuss the use of retrosynthetic analysis and the "disconnection approach" to logically guide total synthesis. Finally, a number of literature syntheses will be used to examine the strategies involved in formulating a total synthesis emphasizing the compatibility of functional groups, sequence of reactions, use of protecting groups and the impact of stereochemistry.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: CHEM 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 476 Biological Chemistry (3)** Fundamentals of Biochemistry for Chemists. Students cannot receive credit for both CHEM 476 and B M B 401.

### **CHEM 476 Biological Chemistry (3)**

This course is designed to be an introduction to biological chemistry from a chemistry student's perspective. The course will cover the basics of protein, nucleic acid, lipid and carbohydrate structure. The three-dimensional structural aspects of these biological macromolecules will be emphasized, showing their structure-function relationships. The course will also cover some of the chemical logic in enzymatic reactions, drawing from advanced organic and inorganic chemistry concepts, and include a focus on physical processes such as reaction kinetics and binding equilibria. More advanced topics of interest to chemistry students will also be covered, including the biochemical aspects of drug design and discovery. Throughout, the approach will be to introduce the analytical tools that have led to major advances in biochemistry as well as the physical and chemical principles underlying each topic. The course will follow a textbook designed for chemistry students. It will also include reading assignments of several types, including historical papers and current scientific literature dealing with recent advances in the field. The course also includes assignments that require students to familiarize themselves with modern biochemical databases such as those from the National Center for Biotechnology Information.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: CHEM 212 andCHEM 450

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 476** Biological Chemistry (3) Fundamentals of Biochemistry for Chemists. Students cannot receive credit for both CHEM 476 and B M B 401.

### **CHEM 476 Biological Chemistry (3)**

This course is designed to be an introduction to biological chemistry from a chemistry student's perspective. The course will cover the basics of protein, nucleic acid, lipid and carbohydrate structure. The three-dimensional structural aspects of these biological macromolecules will be emphasized, showing their structure-function relationships. The course will also cover some of the chemical logic in enzymatic reactions, drawing from advanced organic and inorganic chemistry concepts, and include a focus on physical processes such as reaction kinetics and binding equilibria. More advanced topics of interest to chemistry students will also be covered, including the biochemical aspects of drug design and discovery. Throughout, the approach will be to introduce the analytical tools that have led to major advances in biochemistry as well as the physical and chemical principles underlying each topic. The course will follow a textbook designed for chemistry students. It will also include reading assignments of several types, including historical papers and current scientific literature dealing with recent advances in the field. The course also includes assignments that require students to familiarize themselves with modern biochemical databases such as those from the National Center for Biotechnology Information.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: CHEM 212 andCHEM 450

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 494** Chemical Research (1-10 per semester/maximum of 20) Experimental investigation of an original research problem. Preparation of a formal thesis is optional. (Credit not allowed for graduate students in Biochemistry, Chemistry or Chemical Engineering.)

### **Chemical Research (1-10 per semester/maximum of 20)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 494H** Chemical Research (1-10 per semester/maximum of 20) Experimental investigation of an original research problem. Preparation of a formal thesis is optional. (Credit not allowed for graduate students in Biochemistry, Chemistry or Chemical Engineering.)

### **Chemical Research (1-10 per semester/maximum of 20)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1988

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1982

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 497A** Biological Chemistry (3) The subject of this course is biological chemistry, or the molecular logic of the chemistry of life. This course presents the nomenclature, structure, synthesis, and reactivity of organic molecules with an emphasis upon reaction mechanisms and topics of relevance to biochemistry. This knowledge will then be applied to the understanding of the design and function of common pharmaceutical products.

#### **Biological Chemistry (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: CHEM 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHEM 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Chinese (CHNS)**

**CHNS 001** Level One Chinese A (4) Introductory study of Chinese language, with audio-lingual practice of Mandarin Chinese and attention to structure and the writing system.

#### **Level One Chinese A (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 002** Level One Chinese B (4) Continued audio-lingual practice of Mandarin Chinese, further study of structure, practice in reading and writing Chinese.

**Level One Chinese B (4)**

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2011

Prerequisite: CHNS 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 003** Level Two Chinese A (4) Continued audio-lingual practice of Mandarin Chinese, more extensive practice in reading and writing; study of Chinese culture.

**Level Two Chinese A (4)**

General Education: None

Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Spring 2011

Prerequisite: CHNS 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 051** Elementary Intensive Chinese for Graduate Students I (3) Intensive introduction to Mandarin Chinese: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**CHNS 051 Elementary Intensive Chinese for Graduate Students I (3)**

This is the first in a series of three courses designed to give students an intensive introduction to Chinese. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the Chinese vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 052** Elementary Intensive Chinese for Graduate Students II (3) Intensive introduction to Mandarin Chinese: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**CHNS 052 Elementary Intensive Chinese for Graduate Students II (3)**

This is the second in a series of three courses designed to give students an intensive introduction to Chinese. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Chinese vocabulary. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: CHNS 051 and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 053** Intermediate Intensive Chinese for Graduate Students (3) Continued intensive study of Mandarin Chinese at the intermediate level: reading, writing, speaking, listening, cultural contexts.

**CHNS 053 Intermediate Intensive Chinese for Graduate Students (3)**

This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Chinese. Continued intensive study of Chinese at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

On the model of the curriculum in English as a Second Language (ESL), which provides English-language skills in speaking, listening, reading, and writing as needed for international graduate students to meet the requirements of their graduate



programs and/or to prepare for their teaching or other professional expectations, this new series of foreign language courses is designed for English-speaking graduate students to obtain foreign-language skills in speaking, listening, reading, and writing as needed for them to meet the foreign language requirements of their graduate programs and/or prepare for their professional expectations.

Providing additional opportunities for graduate students to meet language requirements and to expand the range of foreign languages they can use is important and timely, as the University continues to implement its commitment to furthering internationalism, including at the graduate level. A new Graduate School Task Force, appointed by Dean Eva Pell, is addressing ways to more completely internationalize graduate education. Intercultural preparedness, including abilities to use languages other than English, is a crucial part of the preparation of a globally enabled workforce.

These intensive courses are planned as part of the offerings of the Summer Intensive Language Institute, an outreach program of the College of the Liberal Arts. They are designed specifically to allow graduate students an optimal opportunity to acquire elementary and/or intermediate language skills efficiently in an intensive pedagogical environment. Like the ESL series for English-language skills, where the curriculum for graduate students uses course numbers such as ESL 114G, 115G, 116G, 117G, etc., these foreign-language skills courses must carry lower-level numbers because their content is not at a level where upper level numbers or graduate numbers would be appropriate (the Graduate School's definition of 500-level courses requires advanced-level subject-matter).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: CHNS 052 or equivalent and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 110** (IL) Level Two Chinese B (4) Readings in selected modern Chinese literature (short stories, plays, essays, poems) and other texts; practice in conversation and simple composition.

#### **CHNS 110 Conversation, Reading, and Composition (4) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

As the fourth course in the Chinese language series, CHNS 110 continues to focus on the four skills of listening, speaking, reading, and writing. It intends to introduce students to frequently-used grammatical constructions in the Chinese language and to give students an active vocabulary of about 800 words.

Building on the skills students acquired in Chinese 001 to 003 (the prerequisites to Chinese 110), this course expands their knowledge of the language and cultures of the Chinese-speaking peoples in China, Hong Kong, Taiwan, and around the world. To that end, there are both language-learning objectives and socio-cultural ones in this course. About 85% of the class time will be spent in language learning and about 15% in cultural issues. Research indicates that the more knowledge students have about the context in which the target language is used, the higher their overall linguistic proficiency level will be. To facilitate students' learning of Chinese culture, CHNS 110 also incorporate into the curriculum a variety of culture-related activities, including interviewing native speakers, film screening, calligraphy workshops...etc. Class activities include group discussion, mini-presentations, and in-class conversation practice. Evaluation will be through means such as vocabulary and sentence pattern quizzes, weekly journals and reaction papers, chapter exams, in-class oral presentations, writing assignments, and a final oral interview with instructor.

Chinese 110 counts towards the Chinese minor and may also fulfill other requirements, such as providing credits towards the major in Comparative Literature or the major in Asian Studies—check with advisors in those majors.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
 Effective: Spring 2011  
 Prerequisite: CHNS 003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 120** (GH;IL) Introduction to Chinese Literature and Culture (3) Chinese cultural productions, classical through contemporary; literature and film; changing cultural settings in multiple Chinese-speaking locations. Taught in English.

**CHNS 120 Introduction to Chinese Literature and Culture (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides an introduction to Chinese cultural production from ancient times to the postmodern era, with an emphasis on literature. In its more recent segments, the course will include film as well as considerations of Chinese cultures in the Chinese diaspora (such as the United States) and throughout the Chinese-speaking world. Students will learn about major eras of Chinese literature and the diversity of Chinese cultures in such locations as mainland China, Taiwan, Hong Kong, and the worldwide Chinese diaspora. Readings will represent several genres, such as poetry, folktale, short story, novel, prose fiction, drama, and historical annals. Through this course students can develop a historical and cultural perspective in order to understand the contexts and value systems that have inspired literary works. Students will investigate such topics as the relation between social institutions and the individual, the traditional patriarchal system, the changing roles of women, westernization, and post modern consumer culture, among others.

Students will read literature and related materials from different periods, with examples from other media such as films where appropriate. Class work will include lectures or presentations by the instructor and student participation through means such as guided discussions, group discussions, and students' presentations. This participatory approach is intended to deepen students' appreciation of the texts, to help them understand value systems that may differ from, or else be shared with, those predominant in modern Western cultures, and to assist students in developing analytical and expressive abilities.

CHNS 120 is designed to be suitable for all students generally interested in China and the Chinese-speaking world, or interested in literature and other fields of humanistic study, whether or not they have previously studied Chinese culture. All materials will be available in English. The course is designed to count as General Education, as international cultures, and as a B.A. "Other Cultures" course.

This course will be taught in the active-learning mode, featuring a variety of instructional components such as lecture, discussion, oral presentations, web-based activities, etc., to provide students abundant opportunity for expressing their opinions. As a general education course, all versions will include writing, speaking, self-expression; information gathering, synthesis, and analysis; and international/intercultural components.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Other Cultures and Humanities  
 Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 120W** (GH) Introduction to Chinese Literature and Culture (3) An introduction to Chinese histories and societies through literature and visual culture. Readings drawn from both classical and modern traditions, covering the period from the 11th century B.C. to the contemporary era.

**Introduction to Chinese Literature and Culture (3)**

General Education: GH  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 121** (GH;IL) Chinese Film and New Media (3) Survey of Chinese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English.

**CHNS 121 Chinese Film and New Media (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is intended to provide an introduction to modern and cutting-edge forms of cultural production in the Chinese-speaking world from the twentieth century to the present day. Prior study of China is not required and materials

will be available in English. Students will learn about major technologies and forms of media, including film, TV, and various forms of new media (cell-phone novels, blogs, MMOGs, IM, and Web 2.0 for instance). Readings and screenings will cover several artistic modes including formalism, historiography, documentary, period drama, and experimental works. The course, or individual units within the course, will be structured so that students develop an historical perspective, allowing them to understand the cultural contexts that have inspired the creative works under study. By examining Chinese-language film and new media with attention to changing cultural settings, students will investigate such topics as the relation between social institutions and the individual, the formation and expression of identity, changing gender roles and family structures, the impact of technological and economic trends on social structure, and changing climates of censorship and freedom of expression. In addition, students will learn to think critically about various media's techniques and aesthetics of representation, and will become more engaged, critical spectators of film and related media.

Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytical and expressive abilities. Through critical reading, group discussion and interpretive writing, students will hone skills for evaluating modes of cultural production and consumption in the Chinese-speaking world. Evaluation will be through means such as in-class presentations, short writing assignments, midterms or quizzes, one analytic paper (3-7 pages), and in-class/on-line participation and discussion.

The course is designed to be suitable for all students generally interested in China, or interested in various fields of humanistic study, whether or not they have previously studied Chinese culture. It is designed to count as General Education and as a B.A.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 401 (IL) Level Three Chinese A (4)** Emphasis on oral proficiency through discussions of aspects of contemporary Chinese culture.

**CHNS 401 Advanced Conversation (4)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course aims to enhance students' abilities in speaking, listening, reading, and writing. The objectives in this course are: 1) to review, reinforce, and expand the basic grammar, 2) to expand knowledge of characters, vocabulary and idioms, 3) to be able to speak not only in single sentences, but in dialogues to perform basic communicative functions, 4) to be able to read and understand simple essays and stories, 5) to be able to write short compositions.

General Education: None  
Diversity: IL  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Spring 2011  
Prerequisite: CHNS 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 402 (IL) Level Three Chinese B (4)** Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Chinese culture.

**Level Three Chinese B (4)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language and Other Cultures  
Effective: Spring 2011  
Prerequisite: CHNS 401 OR EQUIVALENT

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 403W Level Four Chinese A (4)** Continuation of CHNS 402. Aims to improve students' proficiency in all four language skills, with a special emphasis on writing.

**CHNS 403W Level Four Chinese A (4)**

This is a four credit course designed for those who have completed Level Three Chinese B or the equivalent. The course aims to further develop students' proficiency in all four language skills, with a special emphasis on writing. Students will study several topics on current social issues in modern Chinese society, such as education and housing issue, woman's status, through a selected textbook, news reading, and by interviewing native speaker of Chinese from different regions. Via all the debatable topics, students will be guided to explore and practice various writing styles, such as description, narration, argumentation, and expository writing throughout the semester. Comparison of rhetorical strategies between Chinese and English writing will also be introduced to help students think and write more like a native when using the target language. The majority of reading and writing assignments will be done outside of class, with some guidance from the instructor. Class time will be used mainly for discussions of content, feedback on writing. All class activities will be conducted in Chinese.

Writing exercises include short response papers on topics, summaries of the readings, and short essays. Through the writing exercises, students will reflect more deeply on certain topics, synthesize information from course materials, provoke critical thinking and express their opinions and support ideas by referring to and citing from source texts. This will help students be prepared for a longer thesis in the next course in the sequence.

This course will help students further advance their writing skills by continuously building their vocabulary, understanding the target culture, and its social issues through various sources of structured and authentic materials. Students will also write a resume and formal letter that help them start building their career in Chinese.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: CHNS 402

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 404** Level Four Chinese B (4) Continuation of CHNS 403W. Aims to improve students' proficiency in all four language skills through content-based language learning.

**CHNS 404 Level Four Chinese B (4)**

This is a four credit course designed for those who have completed Level Four Chinese A or the equivalent. The course aims to further develop students' proficiency in all four language skills. Students will study several topics on current social issues in contemporary Chinese society. For example, economic spurt in China, environmental protection, values conflict between traditional Chinese culture and Western culture, etc. Students will learn those topics via a textbook, interviewing native speakers of Chinese from different regions, and variety of media, such as newspaper, TV news, and movie. The majority of reading and writing assignments will be done outside of class, with some guidance from the instructor. Students will be guided to use appropriate resources such as dictionaries, reference books, online dictionaries and other online resource to facilitate their learning. Class time will be used mainly for discussion of content, feedback on writing, and presentations by students. All class activities will be conducted in Chinese.

Students will be mainly evaluated by writing exercises and presentations. Writing exercises include short response papers on topics, summaries of the readings, short essays and a final thesis. Through the writing exercises, students will reflect more deeply on certain topics, synthesize information from course materials, provoke critical thinking and express their opinions and support ideas by referring to and citing from source texts. Presentations include debates, individual and group presentation, which will help students advance their communication and presentational skills. E-portfolio will sample the work students have done in the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: CHNS 403W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 410 (IL)** Chinese Through Film (3) This course is designed for students who finish Level Two Chinese or higher and aims to help them develop Chinese proficiency through movies.

**CHNS 410 Chinese Through Film (3)  
(IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course aims to provoke students' critical thinking on China-related issues and improve their Chinese language proficiency by encouraging them to reenact and remake selected scenes from the movies, investigate and discuss the social issues as shown from the movies. This is a three credit course designed to go beyond the day-to-day topics to further develop students' understanding of the social issues in contemporary China and thus enhance their Chinese language proficiency. Through watching movies in Chinese, students will listen to authentic Chinese and expose to broader aspects of Chinese people's lives and Chinese society. In addition, they will have opportunities to conduct culture comparisons between China and the U.S., East and West, which will enable them to make in-depth analysis when examining a complex social, political or economic issue in China. The follow-up class activities include both speaking and writing assignments. Depending on the topics, speaking assignments may include: reenactment or recreation of a selected scene from the movies, class or group discussions, debates and presentations. Writing assignments may include: writing a new story or different ending for the movies, and reflection essays.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2013  
Prerequisite: CHNS 110 or equivalent

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 411 (IL)** Chinese Written Characters (3) This course aims to establish a solid foundation of students' Chinese orthography and prepare students for continuing study in subsequent Chinese courses.

**CHNS 411 Chinese Written Characters (3)  
(IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course aims to equip students' knowledge and skills of Chinese orthography through both cognitive and meta-cognitive approach of learning, where it is expected to lay a solid foundation for students' continuing study of subsequent Chinese language courses. Students will learn and apply radical and component-building approach to synthesize their already-acquired characters, and further learn approximately 500 additional characters. Characters selected for study in this course are based upon the references of HSK (Hanyu Shuiping Kaoshi) Level V and TOP-Huayu (Test of Proficiency- Huayu) Intermediate level. Building upon these characters, students will further expand their

vocabulary volume through character association strategy and extensive reading. Cooperative learning approach will be largely incorporated to promote in-class active learning, such as developing and sharing character learning strategies through keeping learning journal, group reading, discussing cultural connotations of selected amount of characters, etc. Students will also learn the origin, history and evolution of Chinese characters through textbook reading and multimedia materials learning, such as DVD and You Tube video clips that help visualize the evolution process of selected characters for demonstration.

Instructional Objectives (what the student is expected to learn; what skills s/he will develop):

1. Understand the origin, history and evolution of Chinese characters
2. Develop and apply strategies on learning Chinese characters
3. Familiarize with available resources that assist Chinese characters learning and memorizing
4. Strengthen and synthesize students' existing knowledge of Chinese orthography
5. Learn approximately 500 new characters
6. Expand vocabulary volume derived from the acquired characters
7. Expand reading experience by reading semi-authentic and authentic articles that are constituted of the acquired characters
8. Strengthen listening and speaking skills of the target language through intensive in-class discussions and lectures

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: CHNS 110 or the equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 421 (IL) China Beyond China (3)** Study of modern and contemporary Chinese culture in its diversity and its intercultural contexts.

**CHNS 421 China Beyond China (3)  
(IL)**

In order to begin to understand Chinese culture, we cannot treat it as a monolithic, unified whole. This course will give an introduction to modern and contemporary Chinese culture (focusing on the 20th and 21st centuries) by paying special attention to China's inner diversity, as well as the continuous shaping of Chinese culture in contact, dialogue, and tension with other cultures. Through the study of literary texts, films, and other cultural material—as well as a small number of theoretical essays—this course will focus on:

- 1) Chinese culture in its variety by focusing on Chinese cultural spheres beyond the People's Republic (Taiwan, Hong Kong), the Chinese diaspora, as well as other ethnicities and cultures within Mainland China
- 2) The ways in which Chinese modernity was impacted by intercultural impulses, as well as the recent self-representation of China in the context of globalization.

Course Objectives include:

1. Understand modern and contemporary China in its cultural diversity, as well as shaped by intercultural and global processes.
2. Critically analyze processes of cultural contact and the representations of cultural differences.
3. Think critically about globalization with its impact on such categories as the local and the national.
4. Question your assumptions about the world, re-examine your own points of view, and understand cultures and value systems that may different from (or be shared with) your own.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: 3 credits in literature or other fields relevant to this course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 422 (IL) Gender and Sexuality in China (3)** Study of gender roles and the imaginary of sexuality in the literary, filmic, and artistic production of modern China.

**CHNS 422 Gender and Sexuality in China (3)  
(IL)**

This course explores gender roles and the imaginary of sexuality in the literary, filmic, and artistic production of modern China (from the end of the 19th century up to today), paying attention also to developments in Chinese cultural spheres beyond the People's Republic, such as Taiwan, Hong Kong, and the Chinese diaspora. This course will use the representation of gender, sex, and sexuality as a lens through which modern and contemporary Chinese culture can be understood in its historical, social, and aesthetic changes. For this purpose, the syllabus adopts a largely diachronic structure, with different foci for each week. The analysis of representations of gender and sexuality throughout the class

will focus on literary and filmic texts, as well as art, rather than on theoretical work on gender and sexuality (in China or in general).

Course Objectives include:

1. Critically assess the complex construction of gender roles and sexuality in modern and contemporary Chinese literature and film
2. Reflect critically on different ways of understanding and representing gender difference.
3. Critically assess the connections between gender and sexuality and changing political, historical, and cultural contexts.
4. Question your assumptions about gender and sexualities in the context of cultural difference, understand cultures and value systems that may be different from (or be shared with) your own.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: 3 credits in literature or other fields relevant to this course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 423 (IL)** The Warrior, the Courtesan and the Ghost in Classical Chinese Novels (3) This course provides an introduction to major classical Chinese novels by focusing on three character types: the warrior, the courtesan, and the ghost.

**CHNS 423 The Warrior, the Courtesan and the Ghost in Classical Chinese Novels (3) (IL)**

A narrowly defined notion of modern literature is a relatively recent phenomenon that dates back only to the early twentieth century in the Chinese context. There is, however, a long tradition of the vernacular novel that remains influential till today, in spite of its marginalization by the Western-influenced Chinese Enlightenment project. This course provides an introduction to major classical Chinese novels by focusing on three character types: the warrior, the courtesan, and the ghost. The warrior is commonly found in historical romances, tales about errant knights and assassins, and martial arts fiction. Although the typical setting for the courtesan is in novels about prostitution (Xia Xie Xiaoshuo), this course will relate this figure to other female types in various domestic space, thereby tracing the genealogical connections between the domestic fiction and the courtesan fiction. The ghost can be found in Accounts of the Strange (Zhi Guai) and Tales of the Miraculous (Chuan Qi). This course will relate this figure in these narrative genres with other types of the supernatural being, such as Gods and Demons. Most readings will be drawn from the Ming-Qing period (14th -20th c) but modern and contemporary literature as well as visual or media culture that consciously continue or rewrite these narrative traditions will be considered as well. All readings and class discussions will be in English. Knowledge of Chinese or Chinese literature is not assumed or required.

From year to year the content we cover might change, but this course will always explore:

- 1) Major classical Chinese narrative traditions that are radically different from the Western-influenced narrative modes of the twentieth century.
- 2) Pre-modern practices of literary reading and criticism and pre-modern notions of literacy, literature, and modes of circulation.

Course Objectives include:

1. Critically analyze major texts and genres of the classical Chinese novel.
2. Understand pre-modern practices of story-telling, literary circulation, reading, and criticism.
3. Think critically about pre-modern societies and their connections with the contemporary world.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: 3 credits in literature or other fields relevant to this course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 424 (HIST 482, ASIA 482)** Confucius and the Great Books of Early China (3) This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China.

**CHNS 424 (HIST, ASIA 482) Confucius and the Great Books of Early China (3)**

This course exposes students to the key texts, thinkers, and ideas that form the foundation of the Chinese classics and classical period. As the first part of a two-seminar series of courses (HIST 484), it provides an integral foundation for the study of Chinese history, culture, or literature. While the emphasis is on the texts and their main themes, the course will encourage historical engagement with the texts by placing them into a context of competing cultural, social, political trends. Readings may be grouped around categories of teachings such as Confucianism, Buddhism, and Daoism, or around thinkers such as "(Confucian) ritualists," "statesmen," "military strategists," "rebels," "recluses," and "spiritual leaders." Students will learn how each of these types of teachings and thinkers related to each other, as well as how they responded to the emergent, centralized political order of the day. This will help students better understand many of the recurrent intellectual, political, and religious themes that arise in later Chinese history as well.



General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 424 (HIST 482, ASIA 482) Confucius and the Great Books of Early China (3)** This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China.

**CHNS 424 (HIST, ASIA 482) Confucius and the Great Books of Early China (3)**

This course exposes students to the key texts, thinkers, and ideas that form the foundation of the Chinese classics and classical period. As the first part of a two-seminar series of courses (HIST 484), it provides an integral foundation for the study of Chinese history, culture, or literature. While the emphasis is on the texts and their main themes, the course will encourage historical engagement with the texts by placing them into a context of competing cultural, social, political trends. Readings may be grouped around categories of teachings such as Confucianism, Buddhism, and Daoism, or around thinkers such as "(Confucian) ritualists," "statesmen," "military strategists," "rebels," "recluses," and "spiritual leaders." Students will learn how each of these types of teachings and thinkers related to each other, as well as how they responded to the emergent, centralized political order of the day. This will help students better understand many of the recurrent intellectual, political, and religious themes that arise in later Chinese history as well.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 426 (IL) The Chinese Rhetorical Tradition (3 per semester/maximum of 6)** Study of the rhetorical works in ancient China as well as multiple facets of modern Chinese rhetoric.

**CHNS 426 The Chinese Rhetorical Tradition (3 per semester/maximum of 6) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course surveys the Chinese rhetorical tradition dating back two and a half millennia. Rhetoric is defined here as the study and practice of artful means of communication, including poetic, expository, and argumentative modes. The class will first delve into the works of competing intellectual schools in pre-imperial China (pre-221 BCE), which set a corner stone for thoughts and practice of communication in the imperial period (221 BCE - 1918). These schools, including the Daoist, the Confucian, and the Legalist, developed their rhetorical notions through engaging with the political, intellectual, and ethnic Other. From here the class will examine the multiple facets of modern Chinese rhetoric, which has undergone a continual contact and conflation with other rhetorical traditions in the global contact zone. The class will focus on topics such as feminist discourse, Chinese-American rhetoric, and the teaching of writing, which bear direct implications on our contemporary social life.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2011  
 Prerequisite: 3 credits in ENGL 015  
 Concurrent: ENGL 471

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 452 (IL) Contemporary China: Culture and Trends (3 per semester/maximum of 6)** Survey of aspects of the contemporary Chinese-speaking world. Includes readings from Chinese newspapers, magazines, and fiction. Topics may vary each semester.

**CHNS 452 Contemporary China: Culture and Trends (3) (IL)**

**BA - This course meets the Bachelor of Arts degree requirements.**

**This course surveys Chinese cultural production in the contemporary period**, with an emphasis on literature. Taught in Chinese; readings and assignments in Chinese.

The course will examine the diverse forms of cultural expression (literature, film, new media, theater, television) throughout the Chinese-speaking world. Students will learn about major cultural trends in such locations as mainland China, Taiwan, Hong Kong, and the worldwide Chinese diaspora. Readings will represent several genres, such as poetry, folktale, short story, novel, prose fiction, and drama. Through this course students can develop a historical and cultural perspective in order to understand the contexts and value systems that have inspired literary works in the contemporary period. Students will investigate such topics as the relation between social institutions and the individual, the traditional patriarchal system, the changing roles of women, westernization, and postmodern consumer culture, among others.

Class work will include lectures or presentations by the instructor and student participation through means such as guided discussions, group discussions, and students' presentations. This participatory approach is intended to deepen students' appreciation of the texts, to help them understand value systems that may differ from, or else be shared with, those predominant in modern Western cultures, and to assist students in developing analytical and expressive abilities.

Chinese 452 is designed to be suitable for students (Chinese majors) who have completed Chinese 401. The course is designed to count as international cultures, and as a B.A. "Other Cultures" course.

This course will be taught in the active-learning mode, featuring a variety of instructional components such as lecture, discussion, oral presentations, web-based activities, etc., to provide students abundant opportunity for expressing their opinions. The course will include writing, speaking, self-expression; information gathering, synthesis, and analysis; and international/intercultural components.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures

Effective: Spring 2010

Prerequisite: CHNS 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 453 (IL)** Chinese Film (3 per semester/maximum of 6) Selected films and directors representing various aspects of Chinese culture and cinema. Topics may vary each semester. Taught in Chinese.

**CHNS 453 Chinese Film (3)  
(IL)**

**BA - This course meets the Bachelor of Arts degree requirements.**

This course surveys Chinese film from the early twentieth century to the present time, with an emphasis on film and national history. Taught in Chinese; readings and assignments in Chinese.

The course will examine the diverse forms of film language in the works of filmmakers from mainland China, Taiwan, and Hong Kong. Readings will include interviews, reviews, film criticism, and other relevant texts (such as a short story that inspired a film).

Through this course students can develop a historical and cultural perspective in order to understand the contexts and value systems that have inspired Chinese-language films. Students will investigate such topics as the relation between social institutions and the individual, the traditional patriarchal system, the changing roles of women, westernization, and postmodern consumer culture, among others.

Class work will include lectures or presentations by the instructor and student participation through means such as guided discussions, group discussions, and students' presentations. This participatory approach is intended to deepen students' appreciation of the texts, to help them understand value systems that may differ from, or else be shared with, those predominant in modern Western cultures, and to assist students in developing analytical and expressive abilities.

Chinese 453 is designed to be suitable for students (Chinese majors) who have completed Chinese 401.

This course will be taught in the active-learning mode, featuring a variety of instructional components such as lecture, discussion, oral presentations, web-based activities, etc., to provide students abundant opportunity for expressing their opinions. The course will include writing, speaking, self-expression; information gathering, synthesis, and analysis; and international/intercultural components.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures

Effective: Spring 2010

Prerequisite: CHNS 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 454 (IL)** Introduction to Classical Chinese (3 per semester/maximum of 6) Basic patterns and structures of Classical Chinese to the first millennium B.C. to the 19th century.

**CHNS 454 Introduction to Classical Chinese (3)  
(IL)**

**BA - This course meets the Bachelor of Arts degree requirements.**

This course introduces students to the basic patterns and structures of Classical Chinese. Classical Chinese is a language shaped in the latter half of the first millennium B.C. that still persists as a living medium of expression today. Knowledge of Classical Chinese is important to help students read and understand sophisticated modern Chinese texts, which make frequent use of Classical allusions and constructs. In this course, students will learn basic grammar, syntax, and commonly-used vocabulary. The cultural and literary implications of classical Chinese will be discussed throughout the course in order to provide the students not only with the linguistic knowledge of classical Chinese, but the rich historical backgrounds implied in this particular style of Chinese.

The main goal of the course is for students to acquire skills in reading Classical Chinese and expand their knowledge and understanding of ancient Chinese culture, society and history in relation to modern and contemporary Chinese culture, such as Confucianism and family values. With this knowledge and training, not only will students be more comfortable reading the Chinese Classics, they will also thereby increase their proficiency in modern Chinese and their knowledge of Chinese culture.

This course will fulfill the Intercultural Cultures and B.A. "Other Cultures" and foreign language requirements.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Foreign Language

Effective: Spring 2010

Prerequisite: CHNS 401 or equivalent (such as study abroad credit)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 455 (IL)** Masterpieces of Traditional Chinese Literature (3) Survey of traditional Chinese literature, including poetry, historical narratives, philosophical texts, and drama and novel.

### **CHNS 455 Masterpieces of Traditional Chinese Literature (3) (IL)**

**BA - This course meets the Bachelor of Arts degree requirements.**

CHNS 455 Masterpieces of Traditional Chinese Literature presents an overview of China's literary tradition, focusing, in particular, on literary techniques used in a variety of text types such as poetry, essays, fiction and drama.

This course aims to develop students' advanced knowledge of the features of traditional Chinese literature and its intellectual, cultural, and social background. Through close reading of selected major works, students will become familiar with the features of various genres.

For example, students will study prose writings, the major poetic forms and some of the important poets from the Tang period, and aspects of literati culture through close reading of texts from the late imperial period.

At the end of this course, a student will have read and discussed sample writings from philosophical and poetic traditions and well as sample writings on the cultural and scholastic activities of the literati. Students should also be able to deal with classical texts on a reasonable level, to identify problematic passages and to be able to clarify them with the help of secondary reference material. Students should also be able to appreciate some of the civilizing aspects of Chinese culture as well as literary and poetic devices such as tonal patterns, rhyme schemes, structure and writing techniques, and discussion of the poets and their work, and have an understanding of the main genres in classical Chinese literature and philosophy.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Foreign Language

Effective: Spring 2010

Prerequisite: CHNS 401 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 496A** Level Two Chinese (1-6) Continued audio-lingual practice of Mandarin Chinese, more extensive practice in reading and writing; study of Chinese culture.

**Level Two Chinese (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: CHNS 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 497A** Essentials of Chinese Grammar (3) Equip intermediate learners of Chinese with a comprehensive and profound understanding of the form, meaning and use of essential grammatical structures in Chinese.

**Essentials of Chinese Grammar (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CHNS 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Civic and Community Engagement (CIVCM)

**CIVCM 211** (GS;US;IL) (CAS 222, AYFCE 211) Foundations: Civic and Community Engagement (3) Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.

### **Foundations: Civic and Community Engagement (3)**

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Civil Engineering (C E)

**C E 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 100S** Topics and Contemporary Issues in Civil and Environmental Engineering: First-Year Seminar (1) First-Year Seminar exploring a specific topic or contemporary issue in civil and environmental engineering.

### **C E 100S Topics and Contemporary Issues in Civil and Environmental Engineering: First-Year Seminar (1) (FYS)**

The first-year seminar in civil engineering will provide an opportunity for students to explore a specific topic or contemporary issue, which may fall within one of the Department of Civil and Environmental Engineering's technical emphasis areas, or include many of the facets of civil engineering. Civil engineers plan, design, construct, operate, and maintain the physical works and facilities essential to modern life: highways, streets, bridges, dams and levees, water distribution and wastewater collection, and treatment systems. Civil engineers work with architects and other engineers in the design and construction of buildings and industrial structures and facilities. They also have a major responsibility for identifying and remediating environmental hazards.

The specific course topic, chosen by the course instructor, will vary by section and semester and will be indicated by the section subtitle. Examples of the topics that may form the core of a seminar section include droughts and floods, lessons from structural failures, engineers as environmental change agents, beneficial reuse of treated wastewater, highway accident reconstruction and engineering, and landmark civil engineering projects.

Within the context of the specific seminar topic, each section will provide students with an introduction to the civil engineering field, exposure to some of the professional skills and competencies associated with academic study and the practice of engineering, and access to relevant student and professional societies.

Each seminar section will include an active learning element that may include laboratory experiments, group projects, class discussions, and possible trips, providing close interaction with the faculty member teaching the course. This seminar course will help incoming students become acclimated to University life and become aware of available resources and support services.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 209** Fundamentals of Surveying (2) Fundamental surveying measurements, traverse computations, coordinate geometry, mapping, CAD applications. Intended for architectural engineering students. (The lecture will be taught concurrently with C E 211.)

**Fundamentals of Surveying (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: E G 130MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 254** (GHA;US) Personal & Occupational Safety (3) Students will learn about principles of safety in work and personal settings.

**C E 254 Personal & Occupational Safety (3)  
(GHA; US)**

This is a 3 credit course designed for students who want an understanding of safety, practices related to the individual's wellness and developing knowledge, attitudes, habits and skills needed for a safe healthful lifestyle. General safety topics that are relevant to students as they adjust to the transition into and through college are introduced through a values and decision making approach to learning. The students will understand direct and indirect cost related to an accident; identifying the major occupational and general injuries and deaths and the role of workers compensation, and safe procedures. OSHA will be discussed including its structure & organization, citations & fines, inspections, various standard areas, and developing an effective safety program. The course content will also be related to principles of personal and general safety including, preventive and protective systems, highway/road safety, general child safety, emergency response, and how safety is integrated with their lifestyle and our society.

The course is designed to give students a broader understanding of both short-term and long-term wellness and how it is affected by safety behavior.

General Education: GHA  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 310** Surveying (3) Fundamental surveying measurements, traverse computations, coordinate geometry, mapping, GPS and GIS, circular and parabolic curves, earthwork, boundary surveys, CAD applications.

**C E 310 Surveying (3)**

This is an introductory course in the fundamentals of surveying designed for Civil Engineering students. It includes basic measurement techniques of distance and angles, both horizontal and vertical. Traverse measurements analysis and mapping are discussed. Boundary surveys and legal descriptions are studied. Instruction includes the analysis of circular and parabolic curves, earthwork, and the use of coordinate geometry. Global positioning and graphic information systems are studied.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: EDSGN 100MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 321** Highway Engineering (3) Highway engineering principles, vehicle and driver characteristics; geometric and pavement design; highway drainage; traffic engineering, capacity analysis, and signal timing.

**C E 321 Highway Engineering (3)**

This course provides an introduction to highway engineering and is designed for civil engineering students. It includes topics such as vehicle motion, highway cross-sections, horizontal and vertical alignment, and sight distance. Other topics are pavement design, drainage analysis, traffic engineering and highway capacity. The students will also have a CAD lab where they design a highway using computer software. The semester project provides hands-on highway design experience. This course serves as a prerequisite for advanced highway engineering study.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: C E 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 332** Professionalism, Economics & Construction Project Delivery (3) Introduction to engineering management process; economic analysis; pricing; contract documents; estimating; ethics; professional practice and engineering economy.

**C E 332 Project Development (3)**

The first five weeks of the course introduces concepts relating to engineering ethics, professionalism including the importance of licensure, and engineering economy. The remainder of the semester concentrates on project development and the design and construction of the delivery process. Topics include: scope of design services; conceptual cost estimates; the bidding process, estimating; and risk management.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 333W Construction Management I (3)** Components of a construction organization, managerial terminology and documents, labor laws and relations, insurance and safety.

### **C E 333W Construction Management I (3)**

The object of this course is to have a broad understanding of the business process in the construction industry. The construction industry offers a variety of organization with each having specialized needs and processes in operating an effective business. The professional constructor deals with a complex process of decisions and auctions that start from the time of projects conception until the project is completed. The course addresses issues involving legal and code requirements, necessary documents in selecting projects, developing estimates, determining delivery systems, planning and scheduling, and managing a construction project. Also covered are the liability issues that will be required, insurances or bond requirements, and the ethical role of the constructor. The managerial and safety role of the professional constructor is also introduced.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 335 Engineering Mechanics of Soils (3)** Soil compositions, classification, subsurface exploration, ground water flow, stress analysis, compaction, soil behavior, bearing capacity, lateral earth pressure, slope stability.

### **C E 335 Engineering Mechanics of Soils (3)**

This course explores the engineering properties of soils, fundamental soil mechanics, and their applications of foundation design and analysis. Specific topics covered in this course include soil compositions, soil classification, subsurface exploration, ground water flow and seepage analysis, stress analysis, compaction, consolidation, strength behavior, bearing capacity, lateral earth pressure, and slope stability analysis.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: E MCH 213 ; Prerequisite or concurrent:GEOSC 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 336 Materials Science for Civil Engineers (3)** Introduction to civil engineering materials; their structure and behavior: relationship between structure and behavior.

### **C E 336 Materials Science for Civil Engineers (3)**

This course introduces engineering students to the structure, properties and behavior of construction materials, providing the bridge between engineering mechanics and engineering design. The course is an engineering science course focused at providing the students with a working knowledge of the nature and engineering properties of construction materials to understand prediction models and statistical variations for quality control. The course provides an introduction to aggregates, concrete, asphalt, timber, steel, structural alloys, and polymers used in the civil infrastructure and in building construction.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: E MCH 213 ; Prerequisite or concurrent:STAT 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**C E 337 Civil Engineering Materials Laboratory (1)** Laboratory investigating the physical and mechanical properties of civil engineering materials; soils, aggregates, concrete; steel; wood; and polymers.

**C E 337 Civil Engineering Materials Laboratory (1)**

The understanding of the structure, physical and mechanical properties and behavior of engineering materials is at the very core of engineering design. A command of this knowledge is essential for all civil engineers. This 1-credit laboratory provides a hands-on experience with the testing and evaluation of civil engineering materials, including soils, aggregates, concrete, steel, wood and polymers. In addition, this lab builds on the topics of professional communication and engineering in groups that are present throughout the Civil Engineering curriculum. This course is required for all Civil Engineering majors and is a required laboratory component for ABET review. The course also may serve selected Architectural Engineering students that currently enroll in Material Science for Engineers. The laboratory will be taught every semester with an offering of 4-6 sections per semester.

The Civil Engineering Materials Laboratory is directly tied to Engineering Mechanics of Soils and Material Science for Civil Engineers. It replaces the laboratory component of both of the existing courses to create a comprehensive materials laboratory experience. By creating a stand-alone course, students may schedule the laboratory separate from the lecture time, eliminating multiple course conflicts. The course meets 3 hours each week throughout the semester with an introductory lecture and training session on lab safety. Concurrent or previous enrollment in Engineering Mechanics of Soils or Material Science for Engineers ensures that the students have completed the Strength of Materials course and have a clear point of reference to the relevance of the material in the course.

The Civil Engineering Materials Laboratory will incorporate the use of a variety of equipment, including universal testing machines, Charpy fracture toughness device, Rockwell Hardness device, soil compaction devices, sieves, plasticity index devices, concrete mixing equipment, electronic strain devices, direct/biaxial/triaxial shear devices and other similar equipment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: C E 335 or C E 336 or concurrent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 340 Structural Analysis (3)** Analysis of statically determinate and indeterminate trusses, beams, and frames; reactions, axial forces, shears, moments, deflections. Introduction to influence lines.

**C E 340 Structural Analysis (3)**

The course includes an introduction to structural systems and basic analysis methods for beams, frames, and trusses. Topics covered include the analysis of statically determinate and indeterminate structures, deflection calculations, influence lines, and an introduction to the stiffness method and a software package for structural analysis. Analysis of an indeterminate structure on campus is given as a course project. The structure is analyzed with traditional hand calculations that are compared to a computer analysis.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 213 . Prerequisite or concurrent: CMPSC 201 or CMPSC 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 341 Design of Concrete Structures (3)** Design of reinforced concrete beams, slabs, and columns, with emphasis on ultimate-strength methods; prestressed concrete; building and bridge applications.

**C E 341 Design of Concrete Structures (3)**

This course provides students with an understanding of the structural design process, the mechanics of reinforced concrete, and the ability to design and proportion structural concrete members including slabs, beams, and columns for strength, serviceability, and economy. Design procedures are based on the Building Code Requirements for Structural Concrete published by the American Concrete Institute. The mechanics underlying the code design equations are explained as well as their application to practical design problems. In addition to regular homework assignments the students complete a design project in which the design of specific components is integrated into the design of the structure as a whole.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: C E 340 . Prerequisite or concurrent: C E 336

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**C E 342 Design of Steel Structures (3)** Design of steel tension members, beams, columns, beam-columns, and connections; elastic and plastic methods; design applications.

**C E 342 Design of Steel Structures (3)**

This is a first course in design of steel structures intended to develop a fundamental ability to evaluate and design steel tension members, beams, columns, beam-columns, composite beams, and connections. Discussion of design requirements focuses on failure mechanisms and behavior, evaluation of existing components, and the process to develop economical steel member designs. All discussions are based on the current American Institute of Steel Construction steel design specifications with an overview of historical requirements as appropriate. Students complete a design project of a multi-story, steel, commercial building that is intended to synthesize the course material and create a realistic context for the course. Weekly assignments are typically derived from the course project. Computer applications are an important component of these assignments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: C E 336 C E 340

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 360 Fluid Mechanics (3)** Mechanics of fluids; flow in conduits and around bodies, friction and energy loss, fluid measurements.

**C E 360 Fluid Mechanics (3)**

The course objective is to provide students with the fundamental physical and analytical principles of fluid mechanics through the understanding of the: conservation of mass, conservation of energy, and the conservation of momentum equations. The student will demonstrate the understanding of these fundamentals by solving problems dealing with: fluid properties, fluid statics, pressure on plane and curved surfaces, buoyancy and floatation, kinematics, systems, control volumes, conservation principles, ideal incompressible flow, impulse-momentum, and flow of a real fluid.

Fluid mechanics is a prerequisite to all courses in hydrosystems and environmental engineering. It is typically offered fall and spring semesters and during summer session. A series of homework problems are assigned after each lecture and there are typically 3 examinations given during the semester and final examination during the final examination period.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 370 Introduction to Environmental Engineering (3)** Nature and scope of environmental issues; air, water, land impacts; fundamentals and processes of pollution control.

**C E 370 Introduction to Environmental Engineering (3)**

The objectives of this course are to introduce science and engineering principles for dealing with natural and engineered environmental systems; to provide quantitative tools to solve environmental engineering problems dealing with water and wastewater treatment, air pollution control, and management of solid and hazardous wastes; and to identify alternative ways to deal with pollution and to minimize pollution.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 110; MATH 111 or MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 371 Water and Wastewater Treatment (3)** Water treatment; water storage; design of water distribution and wastewater systems; pumping stations.

**C E 371 Water and Wastewater Treatment (3)**

This course includes engineering design of water and wastewater treatment facilities, and it emphasizes quantitative problem solving. Numerous examples pertain to contemporary water and wastewater treatment facility designs. This course will nurture the ability to use the techniques, skills and state-of-the-art engineering tools so as to prepare students for water and wastewater treatment engineering practice.

Water treatment-related topics include: water quality criteria for potable water, reactor characteristics, reaction rates in

water and wastewater treatment, mixing and flocculation sedimentation, rapid sand filtration, chlorination and alternative disinfection. Wastewater pretreatment, biological principles for treatment of wastewater, suspended growth bio-systems, attached film bio-systems, nutrient removal processes, and de-watering and treatment processes for sludges is also included.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2002  
 Prerequisite: C E 360C E 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 396** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1993

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 397A** Geotechnical Engineering for A E Majors (4) Soils, soils stresses, consolidation and settlement, strength and groundwater flow.

#### **Geotechnical Engineering for A E Majors (4)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 410W** Sustainable Residential Subdivision Design (3) Residential subdivision process; site selection; conservation and neo- traditional design; utility design and layout; best management practices for erosion and stormwater.

#### **C E 410W Sustainable Residential Subdivision Design (3)**

The course is designed for seniors and graduate students in Architectural and Civil Engineering interested in learning the principles of sustainable residential design and development. The course is typically offered one semester each year. The objective of this course is to provide the students with a working example of the residential land development process from a regional perspective.

The course provides an overview of zoning legislation and regulations followed by an analysis of market trends and information sources. Conservation and neo-traditional design techniques emphasize sustainable development principles

for maximizing profits while complying with open space zoning. Access design principles focus on traffic calming strategies and development of a well-defined transportation hierarchy. Students are introduced to key components in utility design including the basic principles of water and wastewater transport. Best management practices for erosion control and stormwater management are reviewed and included as part of the residential design process. Finally the students are asked to use realistic data to estimate costs and profit margins for development.

To work effectively in residential design, students must be proficient in applying the principles of mathematics, economics and engineering software (CAD or similar) included in accredited programs of engineering. Students will be exposed to engineering/design calculations associated with each of the phases of residential land development. Technical Release 55, the stormwater management design manual, and the BMP Handbook for erosion control and stormwater management supplement the text. The CAD lab will be utilized for approximately 25% of the class.

At the completion of the class, students will present a written project narrative and an oral presentation describing a full-scale residential development designed by the project team. This project is open ended and includes at a minimum a market analysis, engineering calculations, a cost estimate, and a full set of engineering drawings which include, soils, contours, open spaces, lot boundaries, roads, utilities and stormwater control systems details. Five preliminary mini-reports will be written and submitted over the course of the semester. These reports will be evaluated by the instructor for both content and professional writing, and returned to students. Students will be encouraged to consult with the instructor for additional feedback. The reports will be revised and incorporated into the final report. In addition to the team development project, students will receive a mid-term and final exam.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: A E 372 or C E 332 ; seventh-semester standing in Architectural or Civil Engineering

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 421W Transportation Design (3)** Design of streets and highway facilities; emphasis on geometric elements, intersections and interchanges, roadway drainage, and pavement design.

### **C E 421W Transportation Design (3)**

This course provides advanced study in highway engineering and is designed for civil engineering students who are interested in Transportation Engineering careers. It includes topics such as functional classification, highway cross-sections, horizontal and vertical alignment and sight distance. Other topics are pavement design, drainage intersection and interchange design and highway signs. The students will also have a CAD lab where they design a complete highway system. The semester project provides hands-on highway design experience and includes the planning and operational aspects of a new highway design. This course serves as a capstone design course with writing projects. Students are expected to do in-class presentations of their projects.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: C E 321

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 422 Transportation Planning (3)** Transportation systems planning, programming, and management; modeling and simulation, data collection, analysis, and forecasting.

### **C E 422 Transportation Planning (3)**

In this course, students acquire basic knowledge on the history and recent developments in transportation planning problems and quantitative methods. They will develop an understanding of transportation planning, transportation modeling, transportation system simulation, data collection techniques, and gain laboratory experience with each. Students will use mathematical/statistical models and GIS software to analyze, simulate, and forecast the demand for transport services. They will gain familiarity with the software used in transportation planning practice.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: 3 credits in probability or statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 423 Traffic Operations (3)** The highway capacity manual, concepts and analyses, freeway operations, signalized and unsignalized intersections, signal coordination, traffic impact studies.

### **Traffic Operations (3)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1997  
Prerequisite: C E 321

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 432 Construction Project Management (3)** Fundamentals of project management, construction scheduling using the CPM technique, construction project preplanning, and control of quality, safety, and costs.

**C E 432 Construction Project Management (3)**

This course introduces students to the basic practical aspects of the construction process and the quantitative methods used to manage projects within budget, deadline, and prescribed quality. Students will understand the construction market and the inter-relationships among the various players involved. Focus in this course is on integrating the various facets of construction cost estimating, planning, scheduling, control, and overall project management.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: C E 332

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 435 Foundation Engineering (3)** Bearing capacity, settlement, and structural design of shallow foundations; lateral earth pressure; retaining and sheet-pile walls; introduction to deep foundations

**C E 435 Foundation Engineering (3)**

C E 435 provides students with a working knowledge of the state-of-practice of foundation engineering, covering bearing capacity, settlement, and structural design of shallow foundations; lateral earth pressure; design of retaining and sheet-pile walls; and an introduction to deep foundations. The course is an elective for students in the civil engineering major and serves as an essential prerequisite for continued study in the areas of construction and structural engineering. The course is delivered in lecture format, and concentrates on practice-oriented design problems in foundation engineering.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: C E 335 . Prerequisite or concurrent: C E 341

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 436 Construction Engineering Materials (3)** Design, production, application, specification, and quality control of construction materials unique to civil engineering.

**C E 436 Construction Engineering Materials (3)**

C E 436 provides students with a working knowledge of the safe design, production and application of quality construction materials unique to civil engineering. The course builds upon the understanding of civil engineering materials gained in the introductory course. C E 436 focuses on the materials design and quality control of aggregates, steel, portland cement concrete, and asphalt concrete.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: C E 336/STAT 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 437 Engineering Materials for Sustainability (3)** Environmental impact of materials; life-cycle assessment; material selection to optimize performance; design, evaluation, and production of green construction materials.

**Engineering Materials for Sustainability (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: C E 336 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 438W Construction Engineering Capstone Design (3)** Construction project integrating geotechnical reports; materials specifications; quality control; equipment; estimation; scheduling; design details: excavations, foundations, retaining walls, formwork, pavements.

### **C E 438W Construction Engineering Capstone Design (3)**

This course is intended to establish the foundation for organizational and procedural understanding in construction engineering. The student will gain the knowledge necessary to apply engineering principles in analyzing economical approaches to construction problems. This course will cover construction methods, equipments, and cost estimation of the construction materials, excavation, foundation, and other phases of civil engineering construction projects.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: C E 432 and C E 435 or C E 436

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 439W Geotechnical and Materials Engineering Design Capstone (3)** Subsurface site evaluation; integrated design of retaining walls, foundations, pavements, and materials for airports, highways, dams, or other facilities.

### **Geotechnical and Materials Engineering Design Capstone (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: C E 435 and either C E 436 or C E 437

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 441 Structural Design of Foundations (3)** Design of concentrically and eccentrically loaded square, rectangular, and combined footings; analysis and design of mat foundations; retaining walls; piles caps; flexible retaining design, and caissons.

### **C E 441 Structural Design of Foundations (3)**

This course prepares the structural engineering student to analyze, proportion, size reinforcing, and select steel sections for structural foundations designs based on the state of practice presented in ACI 318, AISC, and available industry literature. Structural foundation analysis techniques for many foundation types are presented with extensive use of EXCEL in the design process. Analysis and design of foundation systems are developed for concrete shear walls, concentrically loaded square and rectangular footings, eccentrically loaded square and rectangular footings, and combined footings. Use of approximate and finite element analysis methods for analyzing mat foundations and grid foundations are presented. Working knowledge of retaining wall, pile cap, and flexible earth retaining structure design methods are also developed. This course is an elective for students in the civil engineering major and serves as an essential prerequisite for continued study in structural engineering and advancement to the structures capstone course. This course is delivered in lecture format and concentrates on practice-oriented structural foundation analysis and design problems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: C E 341

Concurrent: C E 342

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 445 Advanced Structural Analysis (3)** Analysis of trusses and frame stiffness matrix method of analysis. Analysis of indeterminate beams, trusses, and frames using classical methods.

### **C E 445 Advanced Structural Analysis (3)**

The course is an advanced analysis which includes an analysis of structures using classical and matrix methods. Topics covered include the analysis of statically determinate and indeterminate beams; trusses and frames. An introduction to the stiffness method and a software package for structural analysis will also be covered.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008  
Prerequisite: CET 430

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 447 Structural Analysis by Matrix Methods (3)** Analysis of truss and frame structures using flexibility and stiffness methods of matrix analysis. Computer applications.

**Structural Analysis by Matrix Methods (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: C E 340

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 448W Advanced Structural Design (3)** Wind, snow, seismic, bridge loads; building design using steel, concrete, and prestressed concrete; advanced steel connections; capstone project; computer applications.

**C E 448W Advanced Structural Design (3)**

The objectives of the course are to develop an understanding of advanced structural engineering design issues in a capstone context that will merge knowledge gained in prerequisite structural design and analysis courses. Building on concepts introduced in introductory steel building, concrete building, and foundation design, students will gain proficiency in structural conceptualization, environmental and induced load determination, modeling and analysis, detailed design of steel and concrete structures, and graphical communication.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: C E 342C E 441 ; Prerequisite or concurrent: ENGL 202C

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 449 Advanced Structural Design (3)** Special systems, frames and bracing in steel, wood and reinforced or precast concrete. Introduction to composite construction.

**C E 449 Advanced Structural Design (3)**

This course provides students with an understanding of advanced structural design processes, the mechanics of special systems (such as prestressed concrete) as well as the ability to design and proportion structural connections and bracing members including reinforced concrete and steel. The course will also introduce the LRDF approach and composite construction in which the design of specific components is integrated into the design of the structure as a whole.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CET 430CET 431CET 432

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 454 Safety (3)** This course will focus on safety issues as they relate to OSHA.

**Safety (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 456 Planning and Scheduling (3)** Theory and practice used in planning and scheduling projects; defining task and resources, creating logic diagrams, and monitoring the projects.

**C E 456 Planning & Scheduling (3)**

"Planning and Scheduling" encompasses construction tenets and fundamentals including organizing, staffing, directing, and controlling representing concepts and principles integral to career applications in project and design management.

Students who successfully complete this course will be able to:

- 1) understand and use planning, scheduling, and control techniques for managing construction projects
- 2) understand scheduling techniques and computer applications in critical path methods, PERT, and resource scheduling
- 3) understand construction financing and schedule / cost relations
- 4) understand the principles of project tracking, progress measurements, trend analysis, and forecasting

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: C E 333WCET 435I E 303

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 458 Construction Management II (3)** Procedures in construction organization including procurement, ethics, field supervision, legal and managerial problems, personnel, cost accounting, and construction business practices.

### **C E 458 Construction Management II (3)**

This course presents policies, procedures, and applications in construction management and organization including procurement, ethics, field supervision, legal and managerial problems, personnel, cost accounting, and construction business practices. The course encompasses construction tenets and fundamentals including planning, organizing, staffing, directing, and controlling. Students who successfully complete this course will be able to:

- 1) understand organizational issues concerning development of a project delivery system
- 2) comprehend the roles and responsibility of the Resident Project Representative and members of the construction team and the respective utility of the resident inspection office responsibilities
- 3) know the various documentation construction records/reports normally
- 4) recognize the salient features of specifications and drawings and the fundamentals for using them in contract administration
- 5) become familiar with the prevailing construction laws, policies, and procedures dealing with labor and safety
- 6) understand the utility of meetings during construction and the principles and techniques of negotiation
- 7) apply risk management through contractual allocation of risk and liability
- 8) become well versed in planning/orchestrating during reconstruction operations
- 9) apply management principles of directing and controlling construction operations and resources including CPM scheduling, inspections, tests, and contractor submittals
- 10) understand the concept of value engineering in construction operations
- 11) understand the critical control issues involved with measurement and payments, controlling construction materials and workmanship, and changes and extra work

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: C E 333WC E 456

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 461 Water-resource Engineering (3)** Qualitative and quantitative description of the hydrologic cycle, flood and drought frequency analysis, climate and land use change impacts, risk analysis and uncertainty, water resource management at regional, national and global scale.

### **Water-resource Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: C E 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 462 Open Channel Hydraulics (3)** Free surface flow in rivers, canals, steep chutes, stilling basins, and transitions.

### **C E 462 Open Channel Hydraulics (3)**

This is an advanced senior level course dealing with steady gradually varied flow. The laws of conservation of mass, energy and momentum are applied to gradually varied steady flow problems in rectangular and non-rectangular channels. Basic definitions and equations governing flow are developed for uniform and nonuniform flow conditions. The students will use their knowledge of fluid mechanics, calculus, numerical analysis and computer science to solve practical open channel flow problems.

General Education: None

Diversity: None

Bachelor of Arts: None



Effective: Spring 2002

Prerequisite: C E 360

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 465W Water Resources Capstone Course (3)** Hydraulic design of river structures and open channels including supercritical and spatially varied flow; hydrologic/hydraulic computer modeling; design project.

### **C E 465W Water Resources Capstone Course (3)**

This course is designed to provide seniors in the water resources area with a major design project. In addition, the course has a writing component, which satisfies the University's writing across the curriculum requirement.

Projects cover hydrologic and hydraulic design. Hydrologic analysis is performed to size the hydraulic structure systems that convey the design flows. The students utilize Geographic Information Systems data bases, utilize several state of the art computer models, and are required to write several computer programs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: C E 461 . Prerequisite or concurrent: C E 462

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 472W Environmental Engineering Capstone Design (3)** Principles and design of unit operations for water; domestic and industrial wastewater treatment; equipment selection and application.

### **C E 472W Environmental Engineering Capstone Design (3)**

This course will integrate engineering science and design skills through application to an open-ended environmental problem dealing with one or more of the following: industrial sustainability and pollution prevention; water transmission and treatment; wastewater collection and treatment; solid waste collection, treatment, and disposal; remedial investigation and feasibility studies for a hazardous waste site.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: C E 370C E 371

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 475 Water Quality Chemistry (4)** Chemistry applicable to the understanding and analysis of water quality, pollution, and treatment.

### **C E 475 C E 475 Water Quality Chemistry (4)**

C E 475 Water Quality Chemistry is a senior/graduate-level course focused on both theoretical aspects of water chemistry and applied aspects of engineering practice. The course will cover a wide range of fundamental chemical principles that will be investigated further in the laboratory exercises and through an independent research project. The course covers reaction stoichiometry and reaction type with specific examples of processes typically encountered in water, wastewater and hazardous waste treatment situations. The course distinguishes between kinetic and equilibrium reactions and presents mathematical formulations for both types of reactions. The course reviews thermodynamics and electrochemistry and relates them to equilibrium constants and the spontaneity of reactions. The course covers redox reactions especially with respect to the corrosion of civil infrastructure, the generation of acid rock drainage, and biological wastewater treatment processes. The course covers acid/base reactions especially with respect to disinfection of drinking water and pH adjustments commonly used to enhance air stripping of pollutants. The course introduces the use of computer models for determining chemical speciation of acid/base constituents. The course covers alkalinity and the carbonate system especially with respect to the issues of acid rain, acidification of the Earth's oceans, and limestone buffering of surface waters in Pennsylvania. Computer models are used to calculate chemical speciation in carbonate-containing systems. The course covers pH-dependent solubility of common minerals – primarily carbonates, hydroxides and aluminosilicates. The course covers engineering applications related to metal solubility including water softening, coagulation for turbidity removal in water treatment plants, heavy metal generation from acid rock drainage, and heavy metal removal in hazardous waste treatment. The course covers complexation reactions especially with respect to effects on metal solubility and toxicity. Computer models are used to calculate chemical speciation in multi-complexant systems. The course covers analytical chemistry especially with respect to the most common parameters measured in water and wastewater treatment systems, and with respect to the principles of measurement (i.e. gravimetric, spectrometric, volumetric, potentiometric analyses). The course involves a research project on a local water quality problem of concern. In the past, this project has focused on the proposed "Beneficial Reuse" of wastewater in Centre County, and on the impact of acid rock drainage from the construction of I-99 on Buffalo Run in Centre County.

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: C E 370CHEM 110CHEM 111

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 476 Solid and Hazardous Wastes (3)** Characteristics and treatment of solid wastes and hazardous wastes.

**C E 476 Solid and Hazardous Wastes (3)**

Solid waste management continues to be a major area of concern for the Environmental Engineering profession. Based on the principle of the conservation of mass, we know that all of our wastes must be deposited in either the air, water or land environments. With improvements in air and water pollution control technologies, resulting in solid residuals, an increasing waste load is being placed on the land. Environmental impacts are being addressed as a future need.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: C E 370C E 371

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 479 Environmental Microbiology for Engineers (3)** Intro microbiology for engineers; microbe structure, function, and diversity; environmental ecosystems; diagnostic labs.

**C E 479 Environmental Microbiology for Engineers (3)**

C E 479 Environmental Microbiology for Engineers is a senior/graduate-level course comprised of three main sections: (1) the fundamentals of microbial structure, function, nutrition, and growth for students with no prior formal instruction in microbiology; (2) microbial diversity and ecology; and (3) the application of these fundamental microbial principles to environmental systems. In the fundamentals section, the course covers microbial nomenclature, macromolecules, cell biology, energetics, growth, and genetic regulation. This is illustrated with calculations of thermodynamic constraints in microbially catalyzed reactions, the calculation of efficiencies based on energy conservation from common pathways, and the connection of these efficiencies to microbial growth in a chemostat. Building on these fundamental concepts of metabolic potential and conserving energy and acquiring reducing equivalents from redox reactions, the second section covers the reactions and energetics of the primary microbial functional diversity such as phototrophy, lithotrophy, autotrophy, anaerobic respirations, and fermentations. It also introduces modern molecular biology techniques for studying microbial systems, and pulls the concepts of functional diversity together by illustration with the major nutrient cycles, including discussions of environments in which each reaction might be encountered. Finally, the last section applies these ecological principles to several specific engineered environments of interest. Homework assignments throughout the semester involve questions about the methods, findings, or applications of recent articles that highlight the recently covered material, giving the students experience in the critical evaluation of primary literature and demonstrating the relevance of the material to environmental microbiology research and application. Complementing the progression of the lectures are eight instructional laboratories that provide hands-on application of diagnostic microbiological techniques to the characterization of environmental enrichment cultures and pure cultures. For example, a microscopy lab immediately follows the lecture material on cell biology, an enrichment experiment follows the material on nutrition, an enumeration experiment follows the section on microbial growth, etc. The final seven weeks of the laboratory period are devoted to group projects, in which students apply the techniques they have learned as appropriate to answer specific short-term research hypotheses. The final period is devoted to group presentations of their projects.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: CHEM 111C E 370

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 488C Capstone Project - Construction (4)** This course consists of a project either selected by the students with approval or assigned by the instructor.

**C E 488C Capstone Project - Construction (4)**

This course integrates the structural design and construction skills through an application to a project focusing in the construction management area. The course is serves as the capstone of the senior student's education courses.

The course C E 488C identifies the student selection of a construction capstone project.

The student works on a team during the course project process. The team will be evaluated on different assignments during the project as well the final product. The team will submit a final written report as well make an oral presentation. The SDCET advisory board is invited to participate in the oral participations.

The 4 credit hour course is separated into two parts which are taken in two consecutive semesters. The first course offering is for 1 credit to provide the students an overview of the course and an introduction to the project. The course is then repeated for 3 credits the following semester for the project. This is to allow the necessary time for students to

complete the project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: eighth-semester Structural Design and Construction Engineering Technology student. Previous or concurrent: CET 430 CET 431 CET 432 CET 435 C E 456

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 488D Capstone Project - Structural Design (4)** This course consists of a structural design project either selected by the students with approval or assigned by the instructor.

#### **C E 488D Capstone Project - Structural Design (4)**

This course integrates the structural design and construction skills through an application to a project focusing in the construction management area. The course serves as the capstone of the senior student's education courses. The course C E 488D identifies the student selection of a structural design capstone project. The student works on a team during the course project process. The team will be evaluated on different assignments during the project as well as the final product. The team will submit a final written report as well as make an oral presentation. The SDCET advisory board is invited to participate in the oral presentations.

The 4 credit hour course is separated into two parts which are taken in two consecutive semesters. The first course offering is for 1 credit to provide the students an overview of the course and an introduction to the project. The course is then repeated for 3 credits the following semester for the project. This is to allow the necessary time for students to complete the project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: eighth-semester Structural Design and Construction Engineering Technology student. Previous or concurrent: CET 430 CET 431 CET 432 and CET 435

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 494 Senior Thesis (1-9)** Students must have approval of a thesis adviser before scheduling this course.

#### **Senior Thesis (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 494H Honors Senior Thesis (1-6)** Investigation of an original project in the area of Civil Engineering.

#### **C E 494H Honors Senior Thesis (1-6)**

Investigation of an original project in the area of Civil Engineering. The thesis topic must be approved by the honors advisor and thesis advisor and submitted as a thesis proposal to the Schreyer Honors College prior to scheduling the course. Students may register for a total of 6.0 credits over their last two semesters.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 497A** Building Information Modeling (3) Building Information Modeling (BIM) is a centralized data-rich virtual project model that facilitates documentation, design exploration, model-based quantity take off and estimating, interference checking, construction coordination and sequencing, digital fabrication and 3D building information capture and visualization.

### **Building Information Modeling (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: EDSGN 100;C E 332 orC E 333W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 497B** Ecological Engineering (3) Design, construction, and operation of wetland systems for water pollution control.

### **Ecological Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: C E 370

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 497C** Residential Construction Design Project (1) Designed for students who have an interest in residential or real estate development. Interdisciplinary teams will develop a complete design and investment package for a real life new residential or real estate development.

### **Residential Construction Design Project (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 5th semester standing or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C E 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Civil Engineering Technology (CET)**

**CET 308** Construction Methods and Materials (3) The study of the methods and materials used in the construction industry.

**Construction Methods and Materials (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MATH 022MATH 026ED&G 100 orEG T 101 andEG T 102

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CET 342** Civil Engineering Materials - Concrete and Bituminous (3) Properties and tests for aggregates, portland cement, fresh and hardened concrete, concrete mix designs. Bituminous Materials: properties, mixtures and tests.

**Civil Engineering Materials - Concrete and Bituminous (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: MATH 022MATH 026

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CET 343** Soils Mechanics (3) This course presents the fundamentals of engineering soil mechanics related to civil engineering.

**CET 343 Soil Mechanics (3)**

This course presents the fundamentals of engineering soil mechanics related to civil engineering. The course provides the initial exposure to soil mechanics, presenting the fundamentals essential to further study in foundation engineering and other advanced courses. The course begins with coverage of how soil properties influence the different types of structures or facilities built by structural and construction engineers. Students study the formation of natural soil deposits by the geological and biological events in the earth's history. The soil sampling procedures are briefly explained, and then various index properties of soils are determined, and utilized in engineering classifications of soils. Options available for compacting soils in the lab and field are studied. The laboratory tests for finding soil permeability are studied, followed by coverage of empirical equations for estimating the permeability. Simple cases of seepage are analyzed using graphical flow net method. Elastic half-space theories and approximate methods are used for estimating the stress distribution in soils. The concepts of pore water pressure and effective stress are introduced. The covered strength theories include the unconsolidated undrained shear strength parameters. Elastic compression and consolidation compression are covered in this course. The course ends with simple field soil investigation procedures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: MATH 140 Statics

Concurrent: ET 322 or E MCH 213 or MCH T 213

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CET 361** Fluid Flow (3) Fluid flow theory; hydrostatics; dimensional analysis and similitude; pipe flow; flow measurement; open channels; flow forces; fluid machinery.

**Fluid Flow (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MATH 140 Statics Dynamics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CET 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CET 430 Structural Analysis (3)** Analysis of determinate structures; use of influence lines; deflection of structures; classical methods of analysis of statically indeterminate structures.

### **Structural Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: Statics Strength of MaterialsMATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CET 431 Structural Design-Steel (3)** Design of steel beams, columns, truss members, decks, bar joists and selected connections.

### **Structural Design-Steel (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: Statics Strength of MaterialsMATH 140  
Concurrent: CET 430

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CET 432 Structural Design-Reinforced Concrete (3)** Design of reinforced concrete beams, columns, slabs, and selected framing systems for bending and shear. Introduction to formwork design.

### **Structural Design-Reinforced Concrete (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: Statics Strength of MaterialsMATH 140  
Concurrent: CET 430

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CET 434 Foundations (3)** Analysis and design of footings, piling, retaining walls; consideration of construction problems involving soils and foundations of structures.

### **Foundations (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CET 343CET 430CET 432

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CET 435 Construction Estimating (3)** Methods and techniques used in estimating construction cost; practice in takeoffs, costing and final bid preparation; microcomputer applications/class projects.

### **Construction Estimating (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ED&G 100ET 200C E 333W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CET 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an

individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CET 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Classics and Ancient Mediterranean Studies (CAMS)**

**CAMS 001 (GH)** Greek and Roman Literature (3) Selected readings within a chronological and thematic context of significant and influential masterworks of Greece and Rome.

### **CAMS 001 Greek and Roman Literature (3) (GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course provides an introduction to the most important literary genres of Greek and Roman literature, which form the basis for Western literature. Content and emphasis may vary each time the course is offered, depending on whether the syllabus concentrates on Greek literature, Roman literature, or a combination of the two. Typically the course surveys Greek or Roman literature or examines a general topic in greater depth such as "Homer and the Tragic Vision," "Greek and Roman Drama," "Greek and Roman Epic," "Greek and Roman Prose," or "Love in Roman Literature." The course's primary objective is to promote an understanding of major literary themes and rhetorical conventions, especially within ancient Mediterranean contexts (literary, social, or historical). Students will learn how to read texts critically, by gathering information and developing methods of interpretation. They will become familiar with the different cultural assumptions that underpin ancient Greece and Rome. And they will be asked to demonstrate their newly acquired understanding of Greek and Roman literature through a variety of exercises, which aim to develop their skills in writing and speaking. Evaluation methods may take the form of periodic quizzing or testing, with an emphasis on writing coherent short paragraph answers and longer essays; additionally, students may be evaluated through oral presentations, classroom discussion or participation, the writing of short to medium length papers (1-7 pp.), and group projects that aim at collaborative learning. CAMS 001 is an introductory course that may be credited toward every Classics and Ancient Mediterranean Studies major, option, and minor. CAMS 001 is also a General Education course in the Humanities (GH).

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 004 (GH;US;IL)** (J ST 004, RL ST 004) Jewish and Christian Foundations (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationships to culture.

### **CAMS (J ST/RL ST) 004 Jewish and Christian Foundations (3) (GH;US;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Jewish and Christian Foundations seeks to help students better understand the Bible as the scriptural background for both Judaism and Christianity. Some people believe the Bible is "scripture," self communicated by God to humanity. To others, this text is a compendious collection of poetry, historical writing, law, myth, and mystical writings, which stems from the religious, political, and cultural milieu of the ancient Near East. Some people believe this is a book designed to bring people to belief in the power and reality of the god discussed in these writings. For others, the book is a source of both unity and division among people in the world, and must be treated as ambiguous in nature. Still others see the biblical

text as the single most important collection of literature to have shaped the religious, political, and imaginative contours of western civilization. This course focuses on selected portions of the biblical text, representing diverse strands of historical remembrances, interpreted and re-interpreted in light of critical historical events, and serving, first as an oral, and later as a written account of the life, beliefs, and hopes of Jewish and Christian peoples. Readings from both the Hebrew Bible (the Christian "Old Testament") and the Christian scriptures (the "New Testament") will be used. RL ST 004 provides a broad discussion of the origin of both Judaism and Christianity within a historical and geographical framework. The principle teachers, writers, and "founders" are discussed, including Moses, Isaiah, David, Ezra, Jesus, Peter, and Paul. Students are challenged to read and understand these important writings which have interpreted the human condition and which have oriented generations of people towards a transcendent referent associated with love and loyalty. Evaluation methods may include two hour examinations, a final examination, and two short writing assignments. The examinations are not cumulative. Class participation will also be a factor in overall evaluation for the final grade. RL ST 004 may be used to fulfill requirements for the Religious Studies, Classics and Ancient Mediterranean Studies and Jewish Studies major/minor. Finally, students will be challenged to evaluate and respond to the literature as it touches on human experience experiences which all people share regardless of their personal religious affiliation.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 005 (GH;IL) (HIST 005) Ancient Mediterranean Civilizations (3)** Survey of the history and cultures of ancient Mediterranean civilizations in Mesopotamia, Egypt, Syro-Levant, Anatolia, Greece, and Rome.

**CAMS (HIST) 005 Ancient Mediterranean Civilizations (3)  
(GH;IL)**

This course provides an introduction to the history and cultural traditions of the ancient civilizations of the Mediterranean. From the origins of cities and the invention of writing, it surveys the intellectual, artistic, and political traditions that laid the foundations for the later civilizations of Europe and western Asia. Students will acquire a basic historical framework for the ancient Mediterranean from the third millennium BCE through the end of antiquity in the first millennium CE. Within this framework cross-cultural relationships of time and ideas will be established among religious texts, epic literatures, and political and legal traditions. In the part of the world where the division between Asia and the East and Europe and the West was born, the course will examine the development of regional and ethnic identities along with the historical development of concepts of the universal nature of humanity. This course is designed to serve as the foundation course for all majors in the department of Classics and Ancient Mediterranean Studies (CAMS).

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 010 (GH;IL) Mesopotamian Civilization (3)** Cultural, technological, literary, political, and economic achievements of peoples who occupied the region of Mesopotamia (4,000-331 B.C.E.), in historical context.

**Mesopotamian Civilization (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 012 (GH;IL) (J ST 012, RL ST 012) Lands of the Bible (3)** Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

**CAMS (J ST/RL ST) 012 Lands of the Bible (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CAMS/J ST/RL ST 012 introduces students to the lands, cities, and peoples associated with the Hebrew and Christian scriptures. Using methodologies from historical geography, archaeology, ancient history, epigraphy, and anthropology, students study the Fertile Crescent, from the Nile Valley, through the Levant and its Jordan River valley, to Mesopotamia--the river valleys of the Tigris and Euphrates. Students will study the cities and states of the cultures along these rivers in the Bronze and Iron Ages, including Memphis/Saqqarah, Thebes, Ugarit, Jerusalem, Lachish, Megiddo, Shechem, Samaria, Hazor, Ebla, Babylon, Ur, Petra, Jericho, Akko, and others. These are the lands of the Hebrew and



Christian scriptures, but also cities that have been revealed through modern study. For example, the texts excavated at Ugarit (Syria) in the 1920's shed light on the relations between ancient Israelites and their Canaanite neighbors in the period of the "Conquest" and the monarchies of the Iron I and Iron II periods. Students will learn that the culture of the ancient Near East is inexorably linked to an understanding of the religious traditions that grew up in the region, including Judaism, Christianity, and Islam. Classes will be a combination of lecture, discussion, and problem-solving, with frequent use of slides and occasional use of artifacts to illustrate the topics at hand. Students are evaluated on three of the following five means: a midterm test, a final essay examination, a five to seven page term paper, a team research oral presentation, a team research poster presentation. Participation in class discussion will also be evaluated. This course fulfills three credits of the General Education or the B.A. humanities requirement. For majors in CAMS, the course fulfills the requirement of three credits in Near Eastern literature and language, civilization, or archaeology. The course fulfills the three credit requirement for courses in RL ST 001-099 for the Religious Studies major, and the Jewish Studies major's requirements. The course also would fulfill three credits of the six credit requirement for courses in any field that may be below the 400-level for the Religious Studies Minor, three credits of the nine credits required in course work for the Jewish Studies Minor, and three of the 18 credits required for the CAMS minor.

General Education: GH

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities and Social and Behavioral Sciences

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 012U** (GH;IL) (J ST 012U, RL ST 012U) Lands of the Bible (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

### **Lands of the Bible (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities and Social and Behavioral Sciences

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 015** (GH) Wonders of the Ancient World (3) Overview of ancient world by focusing on the famed "Seven Wonders" and similar achievements from 3000 B.C.E.-1st Century C.E.

### **Wonders of the Ancient World (3)**

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 020** (GH) Egyptian Civilization (3) The culture, history, literature, and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.

### **CAMS 020 Egyptian Civilization (3) (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CAMS 020 is a thematic introduction to the major features of ancient Egyptian civilization. If you have heard of hieroglyphics, Tutankhamen, or the Rosetta Stone and wanted to learn more, CAMS 020 will provide the background and significance of these and many other aspects of ancient Egypt. The course begins with a brief historical overview, and then presents topics such as language and writing, the Pyramid Age, kingship, Egyptian imperialism, Egyptian literature, everyday life, Egyptian religion, death and afterlife, women in Ancient Egypt, and science and medicine. The course concludes with a consideration of Egyptomania, the modern fascination with ancient Egyptian culture.

CAMS 020 is taught in lecture and discussion format and will be offered once a year. In some semesters the enrollment is limited to 50 students. In other semesters where enrollment is limited to 120 there are two lectures per week and a discussion section taught by a graduate assistant. Students will make small-group oral presentations in class or in these sections based on library and web-based research. Evaluation will be based on these presentations, on two in-class essay and short answer tests, and a final essay examination. In some sections a term paper may replace the final essay examination. CAMS 020 fulfills a humanities general education or B.A. requirement, and also the requirement for a course in Near Eastern language, literature, history, civilization, or archaeology of the CAMS major. CAMS 020 may be used to fulfill the requirements for 12 credits of course work at any level towards a CAMS minor.

General Education: GH

Diversity: None

Bachelor of Arts: Humanities  
Effective: Fall 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 025 (GH;IL)** Greek Civilization (3) The origin and development of the ancient Greek people; their political and social institutions, public and private life.

**CAMS 025 Greek Civilization (3)**  
**(GH;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Greek Civilization, CAMS 025 GH;IL, is an interdisciplinary and multimedia introduction to the major features of Greek civilization and its importance to the Western heritage. It shows how the ideals, achievements, but also the failures of ancient Greeks have shaped the values of Western civilization. The course begins with an overview of the geography of the areas around the Mediterranean Sea that were inhabited by Greeks in antiquity, the reasons for the location of major settlements, and an introduction to the precursors of the Hellenic peoples, such as the Minoans, whose cultural achievements preceded and influenced the earliest Greeks. The course then follows the 1,500-year long development of Greek history, literature, philosophy, art and archaeology from its early stages in the second millennium B.C.E. through the Hellenistic period. The course presents the political, social, religious, and economic structures of ancient Greece and issues of gender, slavery, foreigners, colonization, and imperial ambition that reward modern re-evaluation. The course particularly emphasizes the development of the Greek city-state, the polis, the unique political system of democracy, and the tension between the individual and the state through the sixth and fifth centuries B.C.E. that saw its greatest successes and the failures that led to the death of Socrates in 399 B.C.E. In this course students may gain an appreciation for the greatest achievements of Greek culture in the fields of literature and philosophy, in the work of poets from Homer and Hesiod to Aeschylus, Sophocles, and Euripides and from the great Ionian thinkers such as Thales to philosophers such as Plato and Aristotle. Because classical culture constitutes a major influence on modern western civilization, such study enables us to see where various aspects of our own society come from and so better understand ourselves. This course, then, emphasizes the similarities between the ancient Greeks and the modern world, thereby establishing the relevance of this study, while at the same time pointing out the differences between these two cultures, thereby providing the critical distance necessary for reflecting on ourselves.

In this course students prepare group projects and oral presentations and write essays that involve the use of library and Web-based tools such as Perseus, an extensive electronic resource for all aspects of ancient Greek culture. In this course students will read (English translations of) original Greek texts, will view many examples of Greek art, architecture, and artifacts, and will hear examples of music based on literary or mythological themes that originated with the Greeks. Through the readings, lectures, and discussions, students may learn methods for interpreting the historiographical, literary, and material evidence upon which we base our understanding of the ancient Greeks.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 033 (GH;IL)** Roman Civilization (3) Origin of the Romans; sociopolitical development; food, homes, education, marriage, family life, amusements, private and public worship.

**CAMS 033 Roman Civilization (3)**  
**(GH;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Roman Civilization (CAMS 033) provides a comprehensive survey of one of the major and most interesting societies from which contemporary western culture developed. For over 1200 years, the Romans expanded and ruled over the largest empire in recorded history. An understanding of their successes and failures can inform our own understanding of modern politics and international relationships. Many ideas in such diverse areas as government, law, military organization and strategy, the calendar, social practices, urban life, literature, art, and architecture clearly derive from Roman practices. Knowledge of the Romans, and the similarities and important differences between their lives and ours provides an opportunity to reflect on human values and contemporary culture.

The course includes discussion of the origins of the Romans, how they saw it themselves, and the rather different picture painted by modern archaeology. How the Romans expanded and maintained their power with long periods of peace from what is now Great Britain to the borders of India, and how their power waned in the later Roman period is one of the great illustrations of political institutional design. Roman society included various social groups, from slaves to the wealthy members of the traditional nobility. The opportunity for movement from slave to freedman or freedwoman to landowner helps explain why for generations Roman rule was widely accepted. Roman urban life, with its great public meeting halls, baths, arenas, race courses, and luxurious houses and comfortable apartment blocks was eagerly accepted across Europe, North Africa, and the Near East. Many of these areas were more intensively and successfully populated under the Romans than at any time since. The greatest achievements of Rome's poets, Virgil's "Aeneid" and Ovid's "Metamorphoses" remain rich sources for current writers, composers, and choreographers. Major Roman historians and thinkers also continue to inform and inspire. Religious beliefs and the causes for the growth of Christianity are also important features of the

Roman Empire. Almost two thousand years separate us from the summit of Roman power and yet we still benefit from a study of their society to understand our own.

The class meetings include twice weekly lectures for all students enrolled and once a week discussion sections of thirty students or less. Small enrollment classes meeting three times each week may also be scheduled. Assignments include individual and group papers, tests, and a final examination. Students are expected to participate actively in class discussions.

In addition to twice weekly lectures for the 200 students in this course, smaller discussion sections of 30 students or less are scheduled once per week. All students will be expected to participate actively in the class discussions. In addition, students will write one individual paper and a longer paper based on collaborative work. In preparation of the written papers, students will gather information from both computer/electronic resources and use of the library. WEB resources for the study of classical antiquities and ancient texts are extremely rich. By integrating these various sources, students will be expected to synthesize various sources and to analyze the relationships between ancient and modern culture. A major assignment in this course requires collaborative learning and the preparation of a written paper in groups of 4 students. Study of the Romans includes learning in detail about the geography, resources, and cultures of a very large area of the world from southern Scotland to North Africa, and from Gibraltar to the borders of India. Many basic features of these areas remain relatively unchanged, and the realities of the resources and climate continue to regulate modern societies who inhabit the same spaces, often less successfully.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 044 (GH;IL) (RL ST 044)** Ancient Near Eastern and Egyptian Mythology (3) Survey of major ancient Mediterranean myths, gods, and goddesses in their cultural contexts; influence on later cultures.

**CAMS (RL ST) 044 Ancient Near Eastern and Egyptian Mythology (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course introduces students to a selection of major ancient Mediterranean and Egyptian myths, gods, and goddesses. Ancient Canaan, Mesopotamia, and Egypt (geographically approximating the contemporary Middle East) were primary locations for the development-beginning already in the fourth millennium B.C.E.-of highly complex urban civilizations, many of which persisted until the turn of the Era. These ancient societies were responsible for notable technological achievements, such as writing, sophisticated irrigation systems, and the wheel, and for notable cultural achievements, such as impressive legal codes, highly developed astronomical research, and complex religious systems. This course will acquaint students with some major religious writings stemming from these fascinating old world cultures. The class discusses in some detail a limited range of stories about the divine realm, creation, the flood, kingship, life and death, and sexuality. The course pursues such comparisons by studying myths against the background of the different cultures that produce them. Because a number of these religious myths are historically related, the course will also critically compare the similarities and the differences between them. To underscore how important historical and geographic settings are to understanding these stories, the course uses different techniques of instruction such as small group discussions, slides, lectures, and films.

Three of the world's major religions-Judaism, Christianity, and Islam-trace their roots to the religions of the ancient Near East and Egypt. Hence, some attention will be paid to the similarities and differences between the views expressed in these myths and the views developed in classical Judaism, Christianity, and Islam. By grappling with issues such as divine character, self-identity, and female/male relationships in the ancient Mediterranean world, students will be better acquainted with how classical Judaism, Christianity, and Islam innovate beyond the religious heritage to which they are indebted.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 045 (GH;IL)** Classical Mythology (3) Introduction to Greek and Roman divinities, heroes and heroines; survey of the major myths and their influence on Western culture.

**CAMS 045 Classical Mythology (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The aim of CAMS 045 is to introduce students to the stories that have shaped western art and civilization for a longer time and more profoundly than any others: the myths of ancient Greece and Rome. It is a common assumption that the ancients needed myth because they had no science, and that the birth of science was the death of myth. We beg to differ. A recurring theme of this course is that while science has replaced myth to explain how the world works, myth has always

played several other roles in human experience, and continues to do so. Even today myth is everywhere: in literature, the performing arts, and the visual arts, in both high and popular culture. Myth reveals truths about our humanity, and it reaches people at a gut level--which is why it is still of vital interest to novelists, theologians, psychologists, politicians, ad agents, poets, and scriptwriters

The course has several objectives. First and foremost, we want students to come to know, appreciate, and enjoy the myths themselves, by reading them directly in English translations of ancient epics, dramas, and other literary works. Second, we hope that students will come to appreciate the pervasiveness of myth, and its power, not just in past cultures, but also in other cultures throughout the world as well as our own. Third, central to the course are the significant differences between classical antiquity and modern Western societies including the contrast between Polytheistic Paganism and Judeo-Christian Monotheism. The differences in values and practices such as the attitudes toward human sexuality, general relations, slavery, and socioeconomic relations are also discussed. This course will provide valuable experience in the fundamental skills requisite for success both in the University and the workplace: reading, writing, and research. Examples of the evaluation methods may include: a five-page paper, which will be critiqued and returned for correction and rewriting before receiving a final grade, carried out collaboratively with three or four other students, and a group project involving library research and the creation of a WWW-based exhibition of a mythological theme.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 050 (GH)** Words: Classical Sources of English Vocabulary (3) An introduction to English word forms stressing the most frequently occurring Latin and Greek elements and their derivatives.

**Words: Classical Sources of English Vocabulary (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 070 (GH;IL)** (J ST 070, RL ST 070) Prophecy: The Near East Then and Now (3) Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.

**CAMS (J ST, RL ST) 070 Prophecy: The Near East Then and Now (3)**  
**(GH;IL)**

The objective of this course is to introduce students to the prophetic traditions of the ancient Near East and the Bible of the Judeo-Christian traditions. The course will explore the development of prophetic circles in the ancient Near East (incl. Egypt, Syria, Canaan, and Mesopotamia) and then focus on the major prophetic traditions of the Hebrew Bible (to include at least Isaiah, Jeremiah, Ezekiel, Amos, Hosea, Micah, Haggai, Zechariah, and Daniel) and how these traditions were understood in early Judaism and nascent Christianity. Special attention will be paid to the roles of priests, kings, and prophets in ancient Israel to better understand Israelite and Judaeon prophetic traditions in ancient Israelite society. The course will then examine the rise of apocalypticism and its modern manifestations in the coalition of conservative Christians and Jews in "Zion" -- the new Jerusalem. Additional emphasis will be placed on the religious and political interactions which manifest themselves in the prophetic movements--then and now--including the rhetoric of ideology and propoganda. Important figures and events illustrate these cultural and political trends, in antiquity, and in the contemporary setting.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 083S (GH;IL)** First-Year Seminar in Classics and Ancient Mediterranean Studies (3) Critical approach to the study of ancient Mediterranean languages, literatures, and/or material cultures.

**CAMS 083S First-Year Seminar in Classics and Ancient Mediterranean Studies (3)**  
**(GH;FYS;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The first-year seminar in Classics and Ancient Mediterranean Studies (CAMS) is concerned with interesting and challenging features of one or more of the cultures that surrounded the Mediterranean Sea in antiquity, from around 3,500 B.C. to 500 A.D. While the topic of CAMS first-year seminars varies, in all, you will be introduced to the civilizations

that surrounded the Mediterranean Sea in ancient times and why their great accomplishments, their struggles, and their failures remain important to us even today, thousands of years later. You will learn about ancient literature and physical remains that provide information about these cultures. In this class, you will learn to assess theories about ancient societies, the types of evidence that exist for antiquity, and how to gain access to academic resources in the library and in electronic form. The topics of the seminars vary. Some current seminars include a critical study of widely believed "Ancient Mysteries," such as the continent of Atlantis and Pyramid Power; a seminar on the relationships among Christians, Jews, and Pagans in the later Roman period; and Word Power, a course that gives you linguistic tools to understand the sources and nature of much of our modern English vocabulary. You will read selections of ancient literature in English translation and examine the remains of the societies that produced them to ponder basic questions about the meaning and value of human life. Some knowledge of ancient Mediterranean cultures has always been indispensable to intelligent participation in western society. Their social, political, economic, and legal systems, their religious experience, their language and art all are of interest, and their contribution to our own present world view can hardly be overemphasized. Today, the oldest of humanistic disciplines is more vital, more wide-ranging, and more current than ever before. By reading ancient literature, studying the structure of ancient languages, and learning about the religious, political, and social ideas formulated in antiquity, you may gain important insights into our own culture and come to understand the common humanity all people share.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 090** (GH;IL) (J ST 090, RL ST 090) Archaeology of Jerusalem: Past and Present (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

**CAMS (J ST/RL ST) 090 Archaeology of Jerusalem: Past and Present (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Jerusalem, a holy city for Judaism, Christianity and Islam, is symbolically depicted in art and literature as the physical and spiritual center of the world. Throughout its history, this "city of peace" was a focal point attracting numerous cultures and peoples, the latter sometimes as prophets and more often as conquerors. The reasons for Jerusalem's centrality and significance during the past five millennia as a heavenly and earthly capital are explored in this course.

The course curriculum will survey the religious, political, archaeological and historical record of ancient Jerusalem, beginning with its earliest settlement during the fourth and third millennia BC. Jerusalem's urbanization in the second millennium BC, its role as the capital of biblical Israel and Judah during the First and Second Temple periods, and its transformation as a center of Christianity and later Islam are studied utilizing the testimony of artifacts, architecture, and iconography in relation to the written word. Throughout the ages and continuing into the 21st century, Jerusalem remains a contested city for the three monotheistic faiths. The holy city's impact on the politics of the modern Middle East will be critically examined in light of Jerusalem's history and recent archaeological discoveries and their modern-day interpretation.

Objectives include the critical evaluation of archaeological, historical and literary evidence and its relationship to modern-day political and religious perceptions of Jerusalem. The course will encourage research skills (including library training sessions) and writing and oral communication skills based on an analytical approach to the texts and material culture relevant to Jerusalem.

This course will fulfill three credits of the General Education or the B.A. humanities requirement and the GI requirement. For majors in CAMS, the course will fulfill the requirement of three credits in Near Eastern literature and language, civilization, or archaeology; and for those in the CAMS ancient Mediterranean archaeology option it will fulfill the three credits of archaeology course work requirement. The course will fulfill three credits of course work concerned with the ancient period or with the land of Israel.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 100 (GH;IL) (HIST 100)** Ancient Greece (3) Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization.

**CAMS (HIST) 100 Ancient Greece (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements**

The course presents a survey of ancient Greek history and culture beginning with the Bronze Age palace-states of Crete and Mycenae, examines the emergence of Greek city-states, notably Athens and Sparta, traces their transformation through conflicts among themselves and with the Persian empire, and describes their eventual eclipse by the kingdom of Macedon. Since this course treats the beginnings of historical writing among the Greeks, students learn to evaluate diverse historical texts and their relationship to legend, myth, and poetry. The nature of historical thought itself is emphasized throughout the course. Also emphasized is the debate between the egalitarian Justice of democracy, the sober wisdom of oligarchy, and the overwhelming power of monarchy, as experienced by the Greeks down to the end of the fourth century B.C.E.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 101 (GH;IL) (HIST 101)** The Roman Republic and Empire (3) History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire.

**CAMS (HIST) 101 The Roman Republic and Empire (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course fulfills 3 credits of the General Education-Humanities (GH) requirement and is an introduction to the ancient Roman empire: how that empire came into being, how it evolved, how it came to govern much of the Mediterranean and European world, and how that empire declined. Particular stress is placed, through readings and discussion, on the sources of our knowledge of the past and on the social and legal structures employed by a past society to govern an ethnically- and religiously-diverse population. This course complements other courses on the ancient Mediterranean world (such as HIST/CAMS 100) and is a prerequisite to more advanced (400-level) courses in ancient Mediterranean history. An example of evaluation includes: three brief quizzes, a take-home mid-term permitting library and Internet use, and a final examination; all examinations require student synthesis and expression of what has been learned through written essays of varying length. Emphases in the course is on student engagement through class discussion of the topics presented in the texts and lectures.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 102 (GH;IL) (HIST 102, J ST 102, RL ST 102)** Canaan and Israel in Antiquity (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

**CAMS (HIST/J ST/RL ST) 102 Canaan and Israel in Antiquity (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

From the domestication of animals and the dawn of agriculture to the development and socialization of monotheism, the world of the first civilizations led to that of the Bible and ancient Israel. This course, involving a critical view of Biblical texts in light of other ancient sources, archaeology and historical methods, explains the nature and the evolution of society, religion and thought in the Biblical era. Learn how civilization arose, and how the state appropriated religion and applied it for its purposes. How the science of administration developed and deployed ideological tools to further its own ideas of the West developed. This course is deeply subversive, particularly of religious and academic shibboleths. The only authority in this class is that of the most persuasive reader, and doctrines, whether religious or political, will have to be checked at the door.

An example of evaluation may be: weekly participation in discussion; mid-term and final essay examinations involving a critical evaluation of ancient text's claims in combination with archaeological evidence; a research essay, where the class or section size is lower than 30; an ability to read critically, bringing different classes of evidence to bear on issues arising from the texts, and construct coherent and compelling arguments to a particular thesis. The course provides a Near Eastern counterpart to HIST 100, 402 and a Near Eastern aspect to the Jewish Studies major. It complements RL ST 110,

by offering historical exploration of the culture under study in that course. Related courses include ANTH 012, HEBR, 010, ENGL 104, RL ST 004, and RL ST 111. The course helps round out the majors in History and Jewish Studies, particularly in ancient history. It also extends the program in Religious Studies (history of religions), and it contributes to the ancient stream of the prospective program in Jewish Studies and History.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 104 (GH) (HIST 104) Ancient Egypt (3)** The history and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.

**Ancient Egypt (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 105 (GH;IL) History of the Ancient Near East (3)** History of the Ancient Near East from the end of the Neolithic to the Hellenistic period.

**CAMS 105 History of the Ancient Near East (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The objective of this course is to introduce the student to the history of Ancient Near Eastern societies. The geographic areas to be covered include Mesopotamia, Iran, Anatolia, Syro-Palestine, and Egypt. This course will stress the variegated nature of civilizations in those geographic areas and focus on the written texts and material culture through which we can reconstruct the history of the Ancient Near East. This course complements similar introductory courses in ancient Mediterranean history and civilizations. This course satisfies major and minor requirements for programs of study in the Dept. of Classics and Ancient Mediterranean Studies. This course will be offered once a year, enrolling cap 50. The methods of evaluation include a mid-term and final examinations, two brief quizzes, a term paper and active class participation. A special emphasis will be placed on those aspects that permit us to relate to the seemingly arcane mechanisms lying behind the social, religious, and political interactions which characterize the history of these civilizations, especially ideology, economy, and propaganda. Major figures and events will be presented as being as symptomatic of cultural or political trends.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 109Y (GH;IL) Writing Systems of the World (3)** Writing intensive overview of the world's writing systems throughout history.

**CAMS 109Y Writing Systems of the World (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The objective of this course is to provide students with a broad overview of the world's writing systems in historical context. Students will be introduced to the origins, mechanisms, and conventions of diverse writing systems used by different cultures throughout the world. This preliminary overview will enable students to address a wide variety of theoretical issues raised by the origins and development of different writing systems. This course satisfies major and minor requirements for programs of study in the Department of Classics and Ancient Mediterranean Studies. This course will be offered once a year, enrolling cap 25. The methods of evaluation include a mid-term and final examinations, two brief quizzes, a term paper and active class participation.

Special attention will be given to the history of writing systems. For instance, we will examine how the earliest writing systems in the Near East and East Asia originated and developed orthographic strategies and standards to record the linguistic realities for which they were designed; what processes and mechanisms facilitated the creation of the first alphabet in the Ancient Near East; how modern scholars have been able to decipher scripts lost long ago (such as Egyptian hieroglyphs, and Mesopotamian cuneiform), and how some decipherment processes are advancing and improving our

knowledge of other civilizations (such as the Mayan and the Indus Valley).

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 110** (GH;US;IL) (J ST 110, RL ST 110) Hebrew Bible: Old Testament (3) Introduction to the history, literature, and religion of ancient Israel.

**CAMS (J ST/RL ST) 110 Hebrew Bible: Old Testament (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Hebrew Bible is the record of the interaction between the people of ancient Israel and their God. As a religious text, the Bible is inextricably intertwined with the cultures of Israel's neighbors, including the Canaanites, Syrians, Greeks, Assyrians, Babylonians, Arabs, Egyptians, and the peoples of the eastern desert. To study the Hebrew Bible and its development during the first millennium BCE is to study the history, culture, and literature of the entire region. Hebrew Bible introduces students to the literature of ancient Israel, its rituals, the stories which established a people's identity, and which defined their moral behavior. Great figures of the texts, such as Moses, David, Solomon, Bathsheba, Ruth, Jeremiah, Daniel, and Ezra, teach us important lessons about life and how people of faith attempted to relate to one another, to God, and to people outside their ethnic group. Students will read from the text and from a textbook which contains scholarly opinion from a variety of sources. Recent archaeological and epigraphical studies will be incorporated into the course to enhance our work. The ultimate goal will be to assess the meaning of the texts in their ancient Near Eastern environment, and to understand the development of Hebrew religion and the beginnings of Rabbinic Judaism. Students will be evaluated using an hour examination, a 6-8 pp. "hermeneutical essay," a final examination, class attendance and discussion. As an introduction to the scriptures of the Hebrew Bible/Old Testament, RL ST 110 utilizes the methodologies used in the academic study of religion. The course is related or linked to many courses in religious studies which use these same methods or which are related to the history and development of Judaism, Christianity, or Islam. RL ST 110 may be used to fulfill requirements for the Religious Studies major. RL ST 110 may also be used to fulfill the US;IL or GH requirements in the major or minor in RL ST, CAMS and J ST.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 111** (GH;IL) (J ST 111, RL ST 111) Early Judaism (3) Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

**CAMS (J ST/RL ST) 111 Early Judaism (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Early Judaism will introduce students to the history of Judaism as reflected in Jewish literature from the period of the Babylonian exile (587/6 BCE) to the closure of the Babylonian Talmud (ca. 600 CE). In this period, ancient Hebrew religion was transformed into a new world religion-Judaism. Students will read selections from the Bible, and from other religious literature, including the Dead Sea Scrolls, the Apocrypha, the Christian Scriptures, the Mishnah, and the Talmudim. By tracing the development of various Jewish "parties," students will appreciate how Classical Judaism evolved, and how the early Church emerged from Jewish roots in the first centuries CE. Early Judaism grew from its roots in the period of Achaemenid domination. Jews were dispersed throughout the eastern Mediterranean, so influences from Persian, Hellenistic, and Roman thought naturally influenced the faith's development. Students in Early Judaism will develop a new appreciation for the basic beliefs and practices of Judaism as well as for the beginnings of the Jesus movement and the development of the early Christian Church. Theological and historical questions concerning the origins of evil, the primacy of prayer, the beginnings of Jewish religious architecture, and the rise of anti-Semitism will be explored. Religion is always linked inextricably to culture. Judaism's transformation in contact with diverse cultures will become evident throughout RL ST/CAMS/J ST 111. The methodologies used in this course will enable students to read and evaluate primary and secondary sources used in the academic study of Judaism. Many other courses in Religious Studies (001, 004, 110, 120, 124), Jewish Studies (010 and 102), and Classics and Ancient Mediterranean Studies, as well as History and Art History are closely related or linked to this course. RL ST 111 may be used to fulfill 3 credits in the Humanities, or to fulfill the GI requirement in the major or minor. The course will be offered once each year, with an enrollment of 65. This course will satisfy 3 credits towards the minor in Jewish Studies or the major in Religious Studies, plus being cross-listed with CAMS, fulfilling part of the requirement for courses in supporting or related areas of all Classical and Ancient Mediterranean Studies majors. The course also provides an excellent addition to other courses, such as CAMS 010, "Mesopotamian Civilization;" CAMS 044, "Ancient Near Eastern Mythology;" CAMS 045 "Classical Mythology;" CAMS 033, "Roman Civilization; and CAMS/ANTH/J ST 012, "Archaeology of the Lands of the Bible."



General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 115** (GH;IL) Literature of the Ancient Near East (3) Reading and study of literary works from the Ancient Near East, especially from Mesopotamia and Ancient Egypt.

### **Literature of the Ancient Near East (3)**

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Other Cultures and Humanities  
 Effective: Fall 2012  
 Prerequisite: 3 credits from the following list: CAMS 005 CAMS 010 CAMS 020 CAMS 105

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 120** (GH) (J ST 120, RL ST 120) New Testament (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

### **CAMS (J ST/RL ST) 120 New Testament (3) (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course introduces the student to the New Testament (NT), the principal religious text of Christians. As such, it is one of the most significant and most studied texts in human history. Written in Greek between approximately 55 C.E. and 110 C.E. the New Testament consists of 27 individual books, each written by a separate author (authors), that were later assembled into the "New Testament." Because of the growth of Christianity, the NT has influenced every aspect of our world-to name only a few: history, politics, economics, literature, philosophy, ethics, medicine, science, the arts (music, architecture, the visual arts), gender roles, theater and drama, law, psychology, and sociology. After introducing the student to the academic study of religion and the "historical-critical method," our study begins by examining the materials from which the NT's text is reconstructed, and the period in which the NT was authored. This includes exploring other parallel phenomena (such as miraculous hearings, resurrections, and virgin births) in contemporaneous Graeco-Roman religions. After this background is in place, the course turns to an examination of the gospels and their interrelationships, the pictures of Jesus presented (and their relationship to first-century B.C.E. Judaism), variations among Christian understandings of Jesus reflected in the NT and other contemporaneous Christian writings (he was a man, an angel, a lesser divinity), Paul and his life and writings, and the emergence of Christianity from Judaism as a distinct, new, apocalyptic religion. Along the way, we examine the manuscript tradition of the NT, changes that have been made to its text, and different interpretations of certain passages in the NT. We also examine the historical-critical tools scholars use to date and sequence passages in the NT (form, redaction, literary, and historical criticism, for example), for one can correlate the evolution of early Christian theology with the evolution of the NT's text.

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 120H** (GH) (J ST 120H, RL ST 120H) New Testament (3) Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

### **New Testament (3)**

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 121** (RL ST 121, J ST 112) Jesus the Jew (3) A historical critical examination of the life of Jesus of Nazareth within the context of first century Palestinian Judaism.

### **Jesus the Jew (3)**

General Education: None

Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 122 (GH;IL) (J ST 122, RL ST 122) Apocalypse and Beyond (3)** This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

**CAMS (J ST/RL ST) 122 Apocalypse and Beyond (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course offers a scholarly survey of apocalyptic literature and apocalyptic imagination about the end of the world, from its beginnings in the ancient Near East and the Bible to some examples from the modern world. The course will cover three areas: 1) the ancient literary genre of apocalypse in the Near East; 2) apocalyptic writings in the Jewish and Christian traditions (especially the books of Daniel and Revelation in the Bible, and the Qumran Dead Sea Scrolls), as well as within Islam, which generated Western apocalyptic thinking throughout the ages; and 3) some historical examples and discussion of the sociological underpinnings of apocalyptic groups in the medieval to modern periods. Additional attention will be paid to the impact that apocalyptic worldviews have had on the secular world, especially in the fine arts and cinema.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 123 (GH;IL) (J ST 123, RL ST 123) Ancient Monotheisms: Judaism, Christianity, Islam (3)** Examines the origins and early development of the three major monotheisms of ancient Near East: Judaism, Christianity, and Islam.

**CAMS (J ST/RL ST) 123 Ancient Monotheisms: Judaism, Christianity, Islam (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the origins and early development of the three major monotheistic religions: Judaism, Christianity, and Islam. These three related religious traditions originate in the Near East and all center around a belief in the existence of one single god (monotheism).

The aim of the course is to describe and compare core events, major beliefs, practices, and significant historical trends in each monotheistic tradition from their respective beginnings to around 750 C.E. The course begins with the origins of Judaism, the first religion in the Near East to be monotheistic. It then examines how Christianity branched out of Judaism in ancient Palestine, as well as how Islam emerged in Arabia in the 7th century C.E. within a historical context rich in Jewish and Christian influences.

All three religions share basic beliefs about the nature of deity, the role of the written word in revelation, and prophets as messengers. Equal emphasis will be placed on these commonalities and on the major tenets and practices that differentiate these three religions.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 124 (GH;US;IL) (J ST 124, RL ST 124) Early and Medieval Christianity (3)** Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.

**CAMS (J ST/RL ST) 124 Early and Medieval Christianity (3)**  
**(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course traces the development of one of the world's "Big 5" religions from the death of its founder (about the year 30 CE) down to the middle ages. It focuses on significant trends, controversies, personalities, and turning points. These are not just diverse in terms of chronological breadth, but are also spread geographically from the eastern end of the Roman Empire (the border with Persia) to northern Europe. Attention is given to the various manifestations of Christianity (Judaic, Hellenistic, Latin), and the linkage between local patterns (culture, history and predispositions) and how these shaped the sort of Christianity that took root in particular areas. Students typically will be evaluated on four "pop" quizzes, a midterm and a final exam. The course can be used towards a major or minor in Religious Studies, Classical and Ancient Mediterranean Studies, and Jewish Studies and used to fulfill 3 credits in the Humanities for non-majors.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 133 (GH)** Archaeology of the Levant and Ancient Israel (3) Archaeology of the Levant and Ancient Israel to c. 1000 B.C.E.; relationship between archaeological and textual evidence.

**CAMS (J ST/RL ST) 133 Archaeology of the Levant and Ancient Israel (3) (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Ancient Canaan, a region that included present-day Israel, Jordan, Palestine, Lebanon, and southern Syria, traditionally served as the land bridge and crossroads that connected the great empires of Mesopotamia and Egypt of the ancient Near East. Its strategic geographic location has ensured its significance throughout history. In the past as in the present, many different cultures and peoples have influenced and controlled this region resulting in a very multicultural past reflecting the history of the entire Ancient Near East. This is the background to origins of the Israelites at the one of the second millennium B.C.E. and the impact of this history is still evident in modern political events of the region. This course will focus on Canaan in the southern Levant from the origins of agriculture to the emergence of ancient Israel down to ca. 1000 B.C.E. Students will examine cultural, social and political developments and transitions in Canaan and Israel in antiquity that will include the development and emergence of urban society; pastoral nomadism; the age of internationalism of the Middle Bronze - Late Bronze Ages; religion and cultic practices; Egyptians in Canaan during the 13th and 12th centuries B.C.E.; daily life in Canaan; the arrival and settlement of the Philistines; and the Emergence of Israel. Emphasis will be placed on a critical reading of contemporary historical and Biblical texts and an analysis of the archaeological evidence in order to reconstruct the history, culture, and society of Canaan and ancient Israel. The course grade will be based on active participation (attendance, discussion sessions, group presentations and individual oral presentations), one midterm exam and one paper on a topic that requires a critical examination of both historical texts and archaeological evidence. The course fulfills three credits of the General Education or the B.A. humanities requirement and the GI requirement. For majors in Classical and Ancient Mediterranean Studies, the course fulfills the requirement of three credits in Near Eastern literature and language, civilization, or archaeology; and for those in the CAMS ancient Mediterranean archaeology option it fulfills the three credits of archaeology course work requirement. The course fulfills three of the nine credit requirement for courses in RL ST 100-299 for the Religious Studies major, and the Jewish Studies major's requirement for three credits of course work.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 134 (GH;IL) (J ST 134, RL ST 134)** Archaeology of Biblical Israel (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.

**CAMS (J ST/RL ST) 134 Archaeology of Biblical Israel (3) (GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Ancient Israel and the Levant, a region that included present-day Israel, Jordan, Palestine, Lebanon, and southern Syria, traditionally served as the land bridge and crossroads that connected the great empires of Mesopotamia and Egypt. Its strategic geographic location has ensured its significance throughout history. Many different cultures and peoples have influenced and controlled this region resulting in a very multi-cultural past reflecting the history of the entire Ancient Near East. This is the background to the origins of the Israelites at the end of the second millennium B.C.E., the birth of the Hebrew Bible, and the emergence of Judaism, Christianity and Islam. This course will focus on Biblical Israel in the southern Levant from the emergence of Ancient Israel (ca. 1200 BCE) through the Second Temple and Roman periods concluding with the development of the region as the "Holy Land" for Jews, Christians and Moslems. Students will examine the emergence of Israel; the arrival and settlement of the Philistines; state formation and the period of the United and Divided Monarchies; the fall of Israel and Judah to the Assyrians and Babylonians; the return from exile during the Persian period; Hellenism and the influence of the Roman world on Palestine; the reemergence of Judah during the Second Temple

period; the destruction of the Second Temple and emergence of Rabbinic Judaism; Palestine and its role as the "Holy Land" to Jews, Christians and Moslems. The course grade will be based on active participation (attendance, discussion sessions, group presentations and individual oral presentations), one midterm exam and one paper. This course fulfills three credits of the General Education or the B.A. humanities requirement and the GI requirement. For majors in Classical and Ancient Mediterranean Studies, the course fulfills the requirement of three credits in Near Eastern literature and language, civilization, or archaeology; and for those in the CAMS ancient Mediterranean archaeology option it fulfills the three credits of archaeology course work requirement. The course fulfills three of the nine credit requirement for courses in RL ST 100-299 for the Religious Studies major, and Jewish Studies major's requirement for three credits of course work. CAMS/J ST/RL ST 134 GH may be used to fulfill the requirements for 12 credits of course work at any level towards a Classical and Ancient Mediterranean Studies minor.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 140 (GH;IL) Classical Archaeology--Ancient Greece (3)** Literary sources and material evidence for society; culture of the inhabitants of Greece in ancient times.

**CAMS 140 Classical Archaeology-Ancient Greece (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Greek Archaeology (CAMS 140 GH;GI) presents the literary and physical evidence for ancient Greek culture, especially in the Late Bronze Age from about 1550-1100 B.C. and in the Classical Period of the fifth and fourth centuries B.C., when the city of Athens was at its height of political and cultural influence. The course emphasizes the archaeological sites that illustrate these stages, on the island of Crete, at Troy, and on the Greek mainland at places such as Delphi, Olympia, and Athens. The connections among political and economic changes and the artifacts, both impressive buildings and humble fragments of broken pottery, are emphasized. The course begins with some fundamental principles of archaeology, with particular emphasis on survey methodologies; the various scientific and comparative methods used to establish dating; problems with existing ethical guidelines concerning the destructive marketing of antiquities; and the connections among geography, environment, and human settlement patterns. The great sites of the Bronze Age Aegean, including Knossos, Troy, Mycenae, and Pylos are described with discussion of the connections to Egypt and the Ancient Near East. The use of pottery and other artifacts to trace political structure on Crete is demonstrated. The decipherment of the Early Greek Linear B language provides evidence for relating economic and political organization to the results of surveys and excavation at various sites. The course briefly touches on the ceramic evidence for the collapse of this Bronze Age society and the Iron Age transition to Classical culture, including the reintroduction of writing, cultural interchange through Mediterranean trade, and colonization. The course culminates with a detailed consideration of the city of Athens, with emphasis on the economic and political center in the Agora; housing, coinage, funerary practices and monuments. Lectures illustrate some ways that archaeologists have used information provided by ancient authors such as Herodotus, Pausanias, and Thucydides to understand the excavated areas of the Athenian Agora and nearby sites. This course has two in-class essay examinations and a comprehensive final examination. Collectively these count for 75 percent of the course grade. In addition, students are graded on five assignments, each of which comprises 5 percent of the course grade. Four are essays based on textbook assignments. The fifth consists of a team-led classroom review of the previous six to eight classes. Assignments require use of Perseus II, a major and reliable Web resource for the study of ancient Greek civilization.

CAMS 140 is a counterpart to CAMS 133 and 150, an appropriate prerequisite for CAMS 440W, and an appropriate parallel to CAMS/HIST 100 or a successor to CAMS 025. CAMS 140 is one of three courses accepted as a prerequisite for students enrolling in the Penn State Education Abroad Program in Athens.

CAMS 140 fulfills common requirements in the major under two categories: (1) for a 3 credit course concerned with Greek or Roman language, literature, civilization, or archaeology, and (2) 6 credits of study in the general field of Classics and Ancient Mediterranean Studies at any level. CAMS 140 may be used to fulfill the requirements for 12 credits of course work at any level toward a CAMS Minor. CAMS 140 is an approved General Education Humanities course that may fulfill three credits of the six-credit requirement. It may also be used to fulfill the three credit B.A. humanities requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 150 (GH;IL) Classical Archaeology--Ancient Rome (3)** Literary sources for the development of Roman civilization in relation to the relevant archaeological discoveries.

**CAMS 150 Classical Archaeology-Ancient Rome (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements**

Roman Archaeology (CAMS 150 GH) presents the literary and physical evidence for ancient Roman culture, from its formation in the Republican Period through Late Antiquity, over 1200 years later. The course emphasizes three archaeological sites that illustrate stages of Roman culture, Cosa, Pompeii, and Ostia. The connections between political and economic changes and artifacts, both impressive buildings and humble fragments of broken pottery, are emphasized. The course begins with some fundamental principles of archaeology, with particular emphasis on survey methodologies; the various scientific and comparative methods used to establish dating; problems with existing ethical guidelines concerning the destructive marketing of antiquities; and the connections among geography, environment, and human settlement patterns. The site of Cosa, in Etruscan territory, is used to demonstrate features of Roman urbanism in the Republic and the ways in which influences enter Roman culture from other Italic cultures, both Etruscan and Greek. The course then turns to the extraordinarily well preserved site of Pompeii. This course emphasizes the planning and organization of housing at Pompeii, as well as the artifacts and decoration typical of Pompeii at different stages in its history. The public baths, arena, temples, tombs, and forum are also emphasized. The port of Ostia, where an ethnically diverse population was housed in impressive apartment blocks, provides information on economic and social relationships through a series of funerary reliefs, and the well published excavations. Throughout the course, comparisons to Rome and its major monuments enable students to become familiar with the Roman and Imperial fora and landmark structures such as the Pantheon, the Colosseum, and the Baths of Caracalla. Lectures illustrate some ways that archaeologists have used information provided by ancient authors such as the Elder and Younger Pliny, Vitruvius, Suetonius, and others to understand Roman culture. Assignments include essays based on the assigned readings and participation in student group-directed classroom reviews throughout the semester. Students will be evaluated on essay tests and a final examination, which assess students' ability to identify artifacts and discuss their significance, to compare cultural features at various stages of historical development, and to interpret the relationship between written and physical evidence for Roman culture. Collectively these count for 75 percent of the course grade. In addition, students are graded on five homework assignments, each of which comprises 5 percent of the course grade. Four are essays based on textbook assignments. The fifth consists of a team-led classroom review of the previous six to eight classes. CAMS 150 GH is an appropriate prerequisite for CAMS 440W, an upper level archaeology course. CAMS 150 GH is one of several courses that fulfill common requirements in the major under two categories: (1) for a 3 credit course concerned with Greek or Roman language, literature, civilization, or archaeology, and (2) 6 credits of study in the general field of Classics and Ancient Mediterranean Studies at any level. CAMS 150 GH may be used to fulfill the requirements for 12 credits of course work at any level toward a CAMS Minor. CAMS 150 GH is an approved General Education course that may fulfill three credits of the six credit Humanities requirement. It may also be used to fulfill the three credit B.A. humanities requirement.

Classroom discussion, written assignments based on text readings, and student led review classes are required in CAMS 150. As it is available, assignments will require the use of Perseus II, a major and reliable Web resource for the study of ancient Greek and Roman civilization. In CAMS 150, students have an opportunity to study the geographically dispersed areas of Roman settlement across a long period of time, from Britain to Africa and Spain to Mesopotamia. CAMS 150 allows students to see how the Romans were influenced by the non-Roman cultures of the Mediterranean region as they gained political and economic control over them, and how these regions were Romanized. Students have an opportunity to master the geography and historical developments of this wide-flung area over a 1,200-year period. By seeing how Mediterranean cultures were interrelated in antiquity through trade, colonization, invasion, and accommodation, students are led to reflect on cultural interchange in the present. Some class time is devoted to consideration of the problems brought about by the antiquities market in destroying a shrinking resource for understanding our past. The difficulty in regulating the trade in antiquities through current ethics guidelines permits students to consider the difficult relationship between policy and enforcement in this area, and ethical choices more generally.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 151** (HEBR 151, J ST 151) Introductory Biblical Hebrew (3) Fundamentals of Biblical Hebrew grammar, syntax, and vocabulary.

**CAMS (J ST/HEBR) 151 Introductory Biblical Hebrew (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

The aim of CAMS/J ST/HEBR 151 is to introduce students to the fundamentals of Biblical Hebrew as quickly and thoroughly as possible. Biblical Hebrew is the language in which the Old Testament was written, between the period of approximately 1200-200 B.C.E. This focuses primarily on the morphology and syntax of Biblical Hebrew. Drills on each point of grammar, as well as translation of sentences from Hebrew to English and English to Hebrew, and brief passages taken from the Bible are the basis of the student's homework throughout the semester. By the end of the semester, the students will be prepared to read short, unmodified passages of the Bible. The course will focus primarily on reading and writing, though students will read aloud in class regularly in order to ensure correct pronunciation and understanding. CAMS/J ST/HEBR 151 will prepare students to continue with CAMS/J ST/HEBR 152 and then 400-level courses.

The course goals, in addition to providing the students with a firm grounding in Hebrew grammar and vocabulary, include giving the students a basic understanding of the history of the Biblical text. The primary focus will be on mastering paradigms and syntax, but the students will also be introduced to the Biblical texts themselves, which together form such an important piece of literature.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 152** (HEBR 152, J ST 152) Intermediate Biblical Hebrew (3) Intermediate study of Biblical Hebrew grammar, syntax, and vocabulary.

**CAMS (J ST/HEBR) 152 Intermediate Biblical Hebrew (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CAMS/J ST/HEBR 152 continues from CAMS/J ST/HEBR 151, which is a prerequisite for enrollment. After a brief review of key grammar and morphology from the first semester, the course will complete the process of providing students with a sufficient grasp of Hebrew vocabulary, morphology, and syntax to enable them to read unadapted passages from Biblical Hebrew texts (with the aid of a lexicon) by the end of the course. Class sessions will focus on grammar drills, sentences, and similar exercises as homework to supplement class work. As the semester progresses, students will read more and more from actual Hebrew texts, rather than composed sentences by the textbook author, so that when the students enter more advanced classes, they will find the transition to reading Hebrew as smooth as possible.

In tandem with the increasing emphasis on Hebrew written by ancient Hebrews, the course will continue to focus on the linguistic and cultural background for the texts that the students read. Students will be evaluated on a combination of written work, including frequent quizzes, tests, homework completion, and course attendance and participation. CAMS/J ST/HEBR 152 will prepare students to continue with courses at the 400-level.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 153** (GH;IL) (J ST 153, RL ST 153) Dead Sea Scrolls (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.

**CAMS (J ST/RL ST) 153 Dead Sea Scrolls (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will explore early Judaism through what is known about it from the Dead Sea Scrolls, Jewish documents dating from approximately 225 B.C.E. to 68 C.E. that were discovered in 1947-1956 along the Dead Sea in Jordan (now the West Bank of Palestine). The course will be divided into three parts: 1) a short introduction to Judaism, especially the history of early Judaism, from the writing of the Hebrew Bible (Old Testament) to the Talmud; 2) a discussion of the caves above the Dead Sea and their relationship to the archaeological site called Khirbet Qumran; and 3) a survey of the contents of the 900+ Dead Sea Scrolls and select readings of some of them. These scrolls are primarily of three kinds: "biblical" books (books that came to comprise what is now known as the Hebrew Bible/Old Testament) and their commentaries or translations; "apocryphal" or "pseudepigraphical" books (previously known Jewish writings that never made it into the Hebrew Bible, such as Tobit, Enoch, etc.); and "sectarian" Jewish writings (previously unknown writings that seem to come from a minority Jewish group).

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Other Cultures and Humanities  
 Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 160** (GH;IL) (J ST 160, RL ST 160) Sacrifice in Ancient Religions (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.

**CAMS (J ST/RL ST) 160 Sacrifice in Ancient Religions (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Sacrifice (from Latin sacer "holy" + facere "to make") is one of the most prominent and troubling aspects of religion, in

that it involves making an offering or slaughtering an animal to a deity. Its destruction and violence is often at odds with other rituals and core understandings within a religion, so why is it done and what good does it bring? This course will first examine some competing definitions and theories of sacrifice, and then turn to its manifestations in the ancient societies and religions of Greece, Rome, Egypt, Mesopotamia, Israel/Palestine (along with its neighbors Hatti and Phoenicia), as well as some examples from outside the Mediterranean world and the Near East, such as Mesoamerica or Vedic religion.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 180 (GH;IL) (HIST 180) Ancient Warfare (3)** Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire.

**CAMS (HIST) 180 Ancient Warfare (3)  
(GH;IL)**

Warfare has occupied a central place in the civilizations of the Mediterranean from the earliest times. The prehistoric origins of warfare is a hotly debated topic and constitutes the starting point for this course. Most scholars are agreed that military culture grew in step with sociopolitical development over the course of the third millennium BCE. In the following centuries, the Egyptians, and later the Assyrians and Persians, took great strides in developing sophisticated tactical systems, using infantry, chariotry, and cavalry. These matters occupy a little over the first third of the course. Across the Aegean Sea, Bronze Age (Mycenaean) Greece was ruled by elites occupying massively walled citadels, their leaders buried surrounded by their weapons. But how did these warriors fight? Do the epic poems of Homer memorialize Bronze Age combat? In the Archaic Period (700-500 BCE) infantry warfare in Greece was transformed by the appearance of the heavily-armored infantryman (the hoplite), deployed in a tight formation (the phalanx). The processes involved in the appearance of this kind of warfare, its nature, and its affects on Greek society and culture will be the focus of our attention for the second third of the course. On the periphery of the Mediterranean basin stood a variety of warrior cultures (the Scythians, Celts, or Germans). Numerous warrior-dominated polities vied with each other in Archaic Italy, but one of them, sitting on a ford on the river Tiber, ultimately rose to be the greatest military power produced by the ancient Mediterranean world – Rome. The Roman legions first won and then ensured the security of a Mediterranean-wide empire that stood for 700 years and evolved ultimately into world's first standing army of professional volunteers. The Roman military system holds our attention for the final third of the course. The course defines "warfare" broadly to include both tactical and strategic, as well as cultural and ideological, matters. Even this canvas is too vast to be surveyed in all its richness, so the major themes explored are: (i) what is war, where does it come from, and how did it change as civilization spread?; (ii) in what ways did warfare develop in the periods under study, in terms of strategy, tactics, and weapons technology?; (iii) how do different warfare practices reflect essential facets of the various cultures under consideration?

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 197A (WMNST 197A) Women in Greece and Rome (3)** This course is an introductory survey of the life and status of women in the Classical world as represented in literature, art, and historical sources. Through the analysis of Greek and Roman textual, visual, and archaeological evidence we will examine the domestic, sexual, social, legal, and religious roles of women in these cultures. We will also consider current debates concerning women in ancient Greece and Rome while we discuss and acknowledge the contemporary filters through which we view the ancient evidence.

**Women in Greece and Rome (3)**

General Education: None  
Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 200** (GH) (PHIL 200) Ancient Philosophy (3) Examines the thought and influence of major Western thinkers from the pre-Socratics to the neo-Platonists, emphasizing Plato and Aristotle.

### **CAMS (PHIL) 200 Ancient Philosophy (3) (GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

CAMS (PHIL) 200 satisfies the GH requirement. As part of the history of philosophy sequence required of undergraduate philosophy majors, this course is designed to present students with a survey of ancient Western Philosophy beginning with the pre-Socratics, continuing with Plato (Socrates), Aristotle, and the post-Aristotelians, and concluding with neo-Platonists and early Christians. Emphasis will be placed on Plato and Aristotle. The class will examine the historical and cultural foundations from which ancient Western philosophy grew, and will explore issues which were focal points of ancient philosophy, such as the nature of reality, change, permanence, truth, form, and matter. Students will critically consider these issues in required comparison/contrast papers, a position paper, a collaborative project, and a comprehensive final exam. Students will also be evaluated on class participation. The course is a prerequisite to Philosophy 400-level courses and it will be offered once a year with an enrollment of 35 students. For students studying ancient languages, particularly Greek, this course will offer an important exposure to the interpretation of philosophical text. For Classical and Ancient Mediterranean Studies majors, PHIL/CAMS fulfills the requirement under Supporting Courses for three credits in Greek or Roman literature and language, civilization, or archaeology; and it also fulfills the requirement for six credits for study at any level from an approved list in the general field of Classics and Ancient Mediterranean Studies

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 210** (GH;IL) (J ST 210) Numismatics and the Historian (3) Numismatics--the scholarly study of coins and medals--is a major tool in the study of Classical history and archaeology.

### **CAMS (J ST) 210 Numismatics and the Historian (3) (GH;IL)**

**WHY STUDY NUMISMATICS?** Numismatics is the scholarly study of coins. Coinage has been used in the ancient world since the 7th century BCE. Eventually, minted money—i.e. coinage—came to supplant money in other forms, replacing barter as the primary means of exchange in economies around the world. Coinage became a tool of governments to impose taxation upon their subject peoples, and to spread propaganda about governmental goals or issues. Coins are works of art, but they are common, widely circulating “works of art,” which also accomplish a daily monetary function to run commerce and the monetary system of an economy. Coins are also historical records, containing valuable information for the historian who is attempting to reconstruct the history of another time or place. For archaeologists, coins sometimes



are the only means of providing absolute dates for excavated strata. The interpretation of numismatic evidence, like any other pieces of evidence in the historical puzzle, however, requires special knowledge and expertise. This course is not a course in "coin collecting," although the collector may find the course helpful or interesting. It is an investigation of the development of coined money in the ancient world, with special investigations into (1) how coins were struck and used in Phoenicia of the 5th and 4th centuries BCE; (2) the variety and early uses for coins in the Greek city states of the 6th-4th centuries BCE; (3) the development of Jewish coins in the Holy Land, from Persian times to the period of the 2nd Revolt (early 2nd century CE); and (4) the development of coinage in the Roman economy of the 1st—5th centuries CE.

Photographs of coins will enhance class work. With the cooperation of the Palmer Museum, on Penn State's University Park Campus, the class will have access at several points during the semester to view and work with coins from the Palmer's collection of ancient Jewish coins. Students will leave the course with a new understanding of what coins are, how they developed, and what they can teach us about ancient history and economics.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 250U** (GH;IL) Honors Classics in Literature and Film (3) This honors course explores the Classical Tradition as it thrives in the literature of later epochs and film.

**CAMS 250U Honors Classics in Literature and Film (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Classics in Literature and Film has as its objective an exploration of the vital, continuing life of classical literature--its influence on the artistic production of later centuries and the ways in which ancient works re-emerge globally as modern literature and cinema whose verbal and visual rhetorical devices engage motifs and themes of recurring intercultural concern through the millennia. Readings include epic, drama and lyric poetry, all of which encompass global political, philosophical and artistic concerns. The demands of the course reading and film viewing require the strong engagement and critical acumen that should be a staple of students in the Honors College. CAMS 250U relates to programs of study in literature, film & classical studies.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2001  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1997

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 400W** Comparative Study of the Ancient Mediterranean World (3) Comparative study of ancient Mediterranean civilizations.

**CAMS 400W Comparative Study of the Ancient Mediterranean World (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

CAMS 400W provides students in the Classics and Ancient Mediterranean Studies (CAMS) Major, and other undergraduate and graduate students in allied fields, a capstone overview of research methodologies as they are applied to contemporary issues in ancient Mediterranean studies. The course is interdisciplinary in nature, and stresses the interactions among the ancient cultures of the Mediterranean region. The specific course content varies depending on the current research interests of the department faculty and the work undertaken by participating students. The course is organized as a seminar with participation by department faculty, and, when appropriate, visiting speakers. The topics concern issues of chronological, geographic, and cultural breadth. Students are expected to give an oral presentation of their research on a relevant topic during the last three weeks of the semester.

This course requires a sequence of written assignments that constitute drafts in the process of writing an extended research paper. These consist of a statement of the problem, an annotated bibliography, a preliminary draft, and a final paper revised in light of the instructor's comments on the assignments. This paper and an oral presentation in class based upon it will constitute about half of the final grade. A quiz and essay final examination will constitute the remainder of the grade.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2001  
Prerequisite: 3 credits in Classics and Ancient Mediterranean Studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 405** (IL) Law & Economy in the Ancient Near East (3) This course is an overview of the legal and economic texts and institutions in the Ancient Near East.

**CAMS 405 Law & Economy in the Ancient Near East (3)  
(IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course will introduce the students to the legal and economic institutions of the Ancient Near East, as well as to the many theoretical issues raised by their study, such as: the matter of land tenure; the role played by the temple and the palace in the economic structure; the nature of law within political theology and kingship; and the legal and economic status of specific social groups (women, the elderly, slaves, children).

Since most of the topics to be examined are widely debated, the course will provide the students with a broad overview of scholarly theories and intellectual schools. In order to accomplish such an objective, the readings for the class will include both introductory works (taken, for instance, from Sasson, *Civilizations of the Ancient Near East*) and more advanced and specific articles and works (e.g., R. Westbrook, *A History of Ancient Near Eastern Law*). Students will be asked to prepare these readings, which will be available in the library or in electronic format, so they will be ready to take part in class discussions.

The source book for the basic legal texts will be M.T. Roth's edition of law collections. Moreover, students will be expected to give a presentation based on some of the optional readings listed on the syllabus. Thus, every class will consist of lecture on the topic and a critical and open discussion of the assigned readings. Every lecture will take into

account the assigned readings and will be accomplished by some handouts.

Students will be evaluated on the basis of class participation (including a class presentation), as well as on writing assignments. The writing assignments will include take-home examinations.

This course complements other existing courses in areas such as Ancient Near Eastern studies, biblical studies, Classics, Ancient History, and Linguistics. Moreover, this is one of the several history and culture courses in CAMS that provide detailed overviews of major civilizations of the Mediterranean and Near Eastern regions.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS courses.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 410 Classical Epic (3)** Homer, Hellenistic Epic, and Vergil; influences on later epic.

### **Classical Epic (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 411W Classical Drama (3)** Masterpieces of Greek tragedy (Aeschylus, Sophocles, Euripides) and comedy (Aristophanes, Menander); their influence on Roman writers.

### **CAMS 411W Classical Drama (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The aim of this course is to read, interpret, discuss, and write about the best known and most influential examples of classical drama (in English translation). Students will become conversant with the formal and thematic aspects of Greek tragedy and comedy. (The course could also include a module devoted to Roman adaptations of Greek drama.) The Greek playwrights to be read are Aeschylus, Sophocles, Euripides, and Menander. (Roman playwrights would include Plautus, Terence and Seneca.) The objectives of this course include learning how to read, analyze, and interpret tragedy and comedy within a literary, cultural, and historical framework that is fundamentally different from our own. At the same time as students come to grips with the cultural differences of Greek drama, they will be invited to ponder why these texts are still relevant to modern readers and audiences. The second objective of this course is to give students a forum in which they may reenact the critical debates and dramatic conflicts that characterize the ancient Greek theater. Class time will be devoted to structured discussion on set topics. Toward the end of the semester students will give 15-minute presentations on different aspects of classical drama that illuminate the texts read in class: for example, the design of Greek theaters and ancient theatrical production, the religious and civic functions of tragedy, gender roles, tragic and comic heroism, myth, rhetoric, philosophy, and the legacy of Greek tragedy and comedy in the modern world. The third objective of the course is to focus on developing critical writing skills and communicating clearly with readers. Students will write six papers of varying length (three papers in two drafts) and two essay exams (mid-term and final). The process of writing will provide a vehicle for close-reading and critical interpretation of classical drama. Students will also learn in classroom discussion and in feedback from the instructor and other students that critical writing entails drafting ideas and revising them. Finally, participants will learn how to write properly documented and well-argued research papers.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 420 Introductory Targumic Aramaic (3)** Fundamentals of Aramaic grammar, syntax, and vocabulary.

### **CAMS 420 Introductory Targumic Aramaic (3)**

The aim of CAMS 420 is to introduce students to the fundamentals of Targumic Aramaic as quickly and thoroughly as possible. Targumic Aramaic, is the dialect used by Jews in the last few centuries BCE in their translations of the Bible into Aramaic. Targumic Aramaic texts remain vital within Judaism and Biblical study. This course focuses primarily on the morphology and syntax of Aramaic. Drills on each point of grammar, as well as translation of sentences from Aramaic to English and English to Aramaic, and brief passages taken from the native texts are the basis of the student's homework throughout the semester. By the end of the semester, the students will be prepared to read short, unmodified passages of actual Aramaic. The course will focus primarily on reading and writing, though students will read aloud in class regularly in order to ensure correct pronunciation and understanding. CAMS will prepare students to work with Aramaic in related

courses in CAMS, in particular those dealing with other Aramaic dialects, the Bible, and other related ancient languages. The course goals, in addition to providing the students a basic understanding of the history of the Aramaic literary tradition. The primary focus will be on mastering paradigms and syntax, but the students will also be introduced to real Targumic Aramaic texts, which are of great importance to understanding the history of Biblical textual transmission.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 440W** Studies in Classical and Ancient Mediterranean Archaeology (3-6) Selected topics in the literary sources and material evidence for classical and ancient Mediterranean society.

### **CAMS 440W Studies in Classical Archaeology (3-6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CAMS 440W is a writing-across-the-curriculum upper level archaeology course on various topics in the broad field of ancient Mediterranean archaeology. The course will vary depending on the specific topic, which could be a study of authors such as Herodotus and/or Pausanias in relation to the archaeological record; epigraphy; numismatics; food production and consumption (e.g., diet, subsistence requirements, public dining, symposia, Roman dining, furnishings) from the literary and archaeological record; various classes of ancient Mediterranean ceramics; or the archaeological study of a specific urban site, such as Troy, Babylon, Egyptian Thebes, the Athenian Agora, or Pompeii with an emphasis upon economic and social organization.

In most semesters the topic will emphasize interdisciplinary themes, such as comparative state formation, or Egyptian-Greek-Persian relations, or the cultural development of a particular society, such as the Etruscan, that was strongly influenced by interaction with other Mediterranean cultures.

Students will learn of major publications in the field of study, and how to conduct searches of the previous archaeological literature and the related literary record. As one requirement, students will complete a research paper on a topic related to the particular theme of the course that semester. The sequence of writing assignments is designed to allow students to develop a project, to search for related publications, to develop a proposal, and to revise drafts of the final paper.

The course is also intended to provide students with a practical background in Classical and ancient Mediterranean archaeology that will help prepare them for fieldwork at ancient Mediterranean sites, for the interpretation of archaeological publications, and, as relevant, for utilizing the literary and/or epigraphic record for interpreting archaeological evidence.

Those considering enrolling in this course may obtain information about the specific topic by asking the faculty member listed as teaching the course or the Undergraduate Officer in the Department of Classics and Ancient Mediterranean Studies.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2000

Prerequisite: 3 credits from: ANTH 002ART H 311CAMS 010CAMS 020CAMS 025CAMS 033CAMS 140CAMS 150HIST 100HIST 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 442 (IL) (KINES 442)** Sport in Ancient Greece and Rome (3) An examination of the continuity of sport in Greek and Roman societies.

### **CAMS (KINES) 442 Sport in Ancient Greece and Rome (3) (IL)**

This course examines the continuity of sport in ancient Greek and Roman societies. It investigates the role of athletic festivals in both cultures as well as the value placed on physical activity as part of the educational process.

The objectives of the course are to enable students to gain an appreciation for the continuous involvement of the ancient Greeks in the areas of competitive athletics and gymnastics[Kinesiology] as an important part of their value system. Moreover, the course will provide a comparison of Greek and Roman attitudes of athletics and gymnastics.

Typical topics include athletics during the Minoan /Mycenaean Bronze Age, Athenian and Spartan philosophies regarding education, the importance of spectator sports in Roman society and their link to politics.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2008

Prerequisite: CAMS 025CAMS 033CAMS 140CAMS 150CAMS 100CAMS 101 or KINES 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 470 (IL)** Languages and Cultures of the Ancient Near East (3) This course is an overview of the languages and cultures that populated the Ancient Near East.

**CAMS 470 Languages and Cultures of the Ancient Near East (3)  
(IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course aims to provide students with a wide overview of the languages spoken in the Ancient Near East. The goal is to go beyond the merely linguistic sketches of the main grammatical features of these languages. In fact, the focus will be placed on historical, literary, social, anthropological, and ethnic matters: language contact settings; relations between language and ethnicity; sociolinguistic aspects of language evolution, language variation, bilingualism, and diglossia; relations between historical and social patterns and the literary, bureaucratic, and popular uses of language; etc.

In order to address this ample variety of issues, the students will be introduced first to the essential set of facts needed to comprehend the sociolinguistic history of each region, i.e., basic overviews of the languages in question, their linguistic affiliation, the main periods of their history as evolving linguistic realities, and their different writing systems. These overviews will immediately open the door to the discussion of a tapestry of topics concerning the realities behind these languages, especially their speakers and their ethnic, historical, and political identity. This inquiry into the facets of language as an inherently human reality will lead to a miscellaneous constellation of problems, such as, for instance, the construction of a national identity through the use, revival, or vindication of a concrete language or dialect.

Students will be required to do a number of readings before each class. These readings will include basic historical sketches of the languages and linguistic traditions with which the course will deal. Moreover, students will be expected to give a presentation based on some of the optional readings listed on the syllabus. Thus, every class will consist of a lecture on the topic and a critical and open discussion of the assigned readings. Every lecture will take into account the assigned readings and will be accompanied by some handouts.

Students will be evaluated on the basis of class participation (including a class presentation), as well as on writing assignments. The writing assignments will include take-home examinations.

This course complements other existing courses in areas such as Ancient Near Eastern studies, biblical studies, Classics, Ancient History, and Linguistics. Moreover, this is one of the several history and culture courses in CAMS that provide overviews of major civilizations of the Mediterranean and Near Eastern regions.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS courses.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 471 Sumerian (3)** Introduction to the Sumerian language and the cuneiform writing system.

**CAMS 471 Sumerian (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Sumerian was the language originally spoken in the south of Ancient Mesopotamia (modern Iraq) during the third millennium b.c.e. After it died out as a spoken language, Sumerian became the essential cultural vehicle for a wide variety of literary, scholarly, and religious genres, and it was preserved in writing until the practical disappearance of the Mesopotamian civilization by the second century of our era.

This course aims to familiarize students with the basics of Sumerian grammar and enable them to read royal inscriptions from the Early Dynastic and Ur III periods (3rd millennium b.c.e.) as well as provide them with a preliminary introduction to some literary and non-literary texts. Students will be introduced to a variety of genres: royal inscriptions, administrative documents, letters, incantations, and literary texts.

Because of the specific nature of the writing system and the fact that most Sumerian texts are available only in copies, students will also be introduced to the cuneiform script, its basic structure, and a basic repertoire of signs.

Students will be required to do all the assigned exercises in advance, and participate in class. Special emphasis will be put on class participation: every students will be asked to read and translate in class. Furthermore, occasional quizzes are by no means a remote possibility. In addition, there will be a mid-term and a final examination.

This course complements other existing courses in areas such as Ancient Near Eastern studies, biblical studies, Classics, Ancient History, and Linguistics. Moreover, this is one of the courses in CAMS that provide an introduction to as essential language of the Mediterranean and Near Eastern regions.

General Education: None

Diversity: None

Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS course.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 472 Akkadian (3)** Introduction to the Akkadian language (Babylonian & Assyrian) and the cuneiform writing system.

### **CAMS 472 Akkadian (3)**

(BA) This course meets the Bachelor of Arts degree requirements.

Akkadian is the cover term for the East Semitic dialects spoken and written in Mesopotamia (modern Iraq) from the mid-third millennium b.c.e. to about the first century c.e. These dialects (Babylonian and Assyria) are all quite similar. As is customary, the course will focus on Old Babylonian, as this is the "classical" variety of the language, and served as the basis for the dialect of the vast majority of later Akkadian texts (Standard Babylonian). This course aims to familiarize students with the basics of Akkadian grammar and enable them to read a wide variety of genres: legal texts, letters, omens, royal inscriptions, and literary compositions.

Because of the specific nature of the writing system and the fact that many texts are available only in copies, students will also be introduced to the cuneiform script, its basic structure, and a basic repertoire of signs. Every meeting will follow a similar structure: the first part will be devoted to the exercises corresponding to the lesson in the textbook that was explained the previous day; and the second part will be an explanation of the next lesson, the exercises of which will have to be prepared for the next meeting.

Students will be required to do all the assigned exercises in advance, and participate in class. Special emphasis will be put on class participation: every student will be asked to read and translate in class. Furthermore, occasional quizzes are by no means a remote possibility. In addition, there will be a mid-term and a final examination.

This course complements other existing courses in areas such as Ancient Near Eastern studies, biblical studies. Classics, Ancient History, and Linguistics. Moreover, this is one of the courses in CAMS that provide an introduction to an essential language of the Mediterranean and Near Eastern regions.

General Education: None

Diversity: None

Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2009

Prerequisite: 6 credits in any undergraduate CAMS courses

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 480 (J ST 480) Greeks and Persians (3)** Development and achievements of the Achaemenid kingdom; relationships between Persians and Greeks.

### **Greeks and Persians (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2001

Prerequisite: CAMS 010CAMS 025 orCAMS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 481 (IL) Introduction to Middle Egyptian & Hieroglyphics (3)** An introduction to the language and script of Ancient Egypt, familiarizing the student with grammar, syntax and lexicon.

### **CAMS 481 Introduction to Middle Egyptian & Hieroglyphics (3)**

This course is offered as a basic introduction to that stage in the evolution of the Egyptian language known as "Middle Egyptian" (used as a vernacular c. 2300-1700BC, and as a "literary" dialect c. 2200-1350BC). First encountered in caption texts and snippets of conversation of the workers and peasants in late Old Kingdom mastaba depictions, Middle Egyptian originally was the vernacular of the "street" during the outgoing Old Kingdom. In the upheaval that swept away the monarchy and elite of the Old Kingdom the language which characterized the Pharaonic court (Old Egyptian) was swept away as well. In the subsequent First Intermediate Period, the language that everyone speaks is a lower class register. Middle Egyptian was given a fillip shortly after the turn of the millennium when the new regime of the 12th Dynasty (c. 1991-1786 BC) established a writing school and adopted this dialect as the accepted literary medium. The scribes of this institution produced a number of literary pieces, hymns and poetry which although created in writing, were intended for oral dissemination parlando. They rapidly became classics and were copied and learned by heart for centuries into the future. Middle Egyptian was used in every walk of life from monumental inscriptions, religious, and mortuary texts to letters, business documents and accounts, and the output from Dyn. 12 through 18 was prodigious. Even beyond the 14th Century BC learned scribes would continue to make the attempt at composing in Middle Egyptian, even though the language was no longer spoken, and as a quasi-ecclesiastical speech it continued down to Greco-Roman times. By that time its restriction to temple texts gave the false impression that both language and script had always had the purpose of conveying religious concepts, hence the Greek misnomer 'hieroglyphs', i.e. holy script.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Foreign Language

Effective: Summer 2012

Prerequisite: 6 credits of any CAMS course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 490** Ancient Mediterranean Languages (3-6) Variable topic study of an ancient language of the Mediterranean basin and related areas, other than Greek, Latin, or Hebrew.

**CAMS 490 Ancient Mediterranean Languages (3-6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CAMS 490 is a variable topic course in ancient languages, other than Greek, Latin, and Hebrew, that are offered by the Department of Classics and Ancient Mediterranean Studies. The course expands the range of ancient languages of areas in the Mediterranean region which students may study at Penn State. The course permits students of Latin, Greek, or Hebrew to learn the basics of other ancient Mediterranean languages, thereby extending their understanding of the structural similarities and differences of the region's writing systems. The languages taught at present include Egyptian and Sanskrit. Other languages, such as Akkadian, Hittite, Ugaritic, or Aramaic may be offered in future years. The course consists of three major components: The course begins with an overview of the language of study with respect to the language systems of the ancient Mediterranean world in a historical context. Next students learn the essential features of the language of study including its forms, grammar, and lexicon. In the second part of the semester, students read selected texts of various genres as appropriate, including literary and historical texts and inscriptions. The known features of the oral language will also be discussed. The course complements advanced courses such as LATIN 450W, The History of the Latin Language, and other advanced language offerings in Greek, Latin, and Hebrew. It also complements offerings in historical-comparative and Indo-European linguistics such as LING 102(GH).

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2011

Prerequisite: LATIN 003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 492** Intermediate Field Methods (3-6) On-site experience in archaeological fieldwork in the ancient Mediterranean region.

**CAMS 492 Intermediate Field Methods (3-6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Students will have the opportunity to participate in a practicum in archaeological fieldwork at Mediterranean sites under the direction of an experienced research archaeologist. Activities will include surveying recognition and recording of stratigraphy and standing remains, recovery of artifacts and ecofacts, and on site conservation. Students will keep a journal and be graded on it as well as on their development of skills in excavation and interpretation. This course may be used to fulfill a requirement for the Classics and Ancient Mediterranean Studies option of the CAMS major and as a 400-level course for the CAMS Minor. The course will be available when CAMS faculty conduct archaeological fieldwork or students participate in projects approved by CAMS archaeology faculty. Estimated enrollment will vary depending on project, funding, etc.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2000

Prerequisite: approval by field school director

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 493** Intermediate Field Analysis (3-6) On-site experience in archaeological analysis in the ancient Mediterranean region.

**CAMS 493 Intermediate Field Analysis (3-6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Students will have the opportunity to participate in archaeological fieldwork at Mediterranean sites under the direction of an experienced research archaeologist. Activities will include analysis of materials recovered in archaeological projects including maintaining an objects database, artifact sorting and reparation, recognition of pottery types, recording finds, proper handling and storing of finds, and understanding the role of artifacts in archaeological interpretation. Students will keep a journal and be graded on it as well as on their development of skills in recording and interpreting archaeological data.

This course may be used to fulfill a requirement for the Classics and Ancient Mediterranean Studies option of the CAMS



major and as a 400-level course for the CAMS Minor. The course will be available when CAMS faculty conduct archaeological fieldwork or students participate in projects approved by CAMS archaeology faculty.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2000  
Prerequisite: approval by field school director

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1997

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAMS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1997

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CAMS 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## College Student Affs (CSA)

**CSA 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSA 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSA 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Commonwealth College (CWC)

**CWC 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that

may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or

internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CWC 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CWC 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Communication Arts and Sciences (CAS)**

**CAS 083S** (GS) First-Year Seminar in Speech Communication (3) Introduction to major theoretical, critical, research and pedagogical issues in human communication.

**First-Year Seminar in Speech Communication (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 084S** (GH) First-Year Seminar in Communication Arts and Sciences (3) Introduction to significant issues surrounding effective human communication; humanities emphasis.

**First-Year Seminar in Communication Arts and Sciences (3)**

General Education: GH

Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 100 (GWS) Effective Speech (3)** Introduction to speech communication: formal speaking, group discussion, analysis and evaluation of messages.

**Effective Speech (3)**

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 100A (GWS) Effective Speech (3)** Principles of communication, implemented through presentation of speeches, with some attention to group discussion and message evaluation.

**CAS 100A Effective Speech (3)  
(GWS)**

This general education course studies the purposeful use of oral communication as a means of addressing practical problems, both professional and civic. It is designed to introduce students to principles of effective public speaking, implemented through the design and presentation of individual speeches and through practice in message analysis and evaluation. Class size is limited and class meetings involve considerable attention to developing public speaking skills through in-class activities, collaborative learning, peer critiques, and analysis of public speeches and other messages. At least three individual, graded speeches are required in this course. Additional presentations (graded or non-graded) may be required by some instructors. Course work may also include instruction and practice in group decision making. Assessment includes evaluation by examination (one or two; no final exam is given in the course) and by occasional quizzes and other activities, all of which emphasize the mastery and application of the conceptual content of the course. Public presentations are evaluated for content, organization, and presentation.

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 100B (GWS) Effective Speech (3)** Principles of communication, implemented through group problem solving, with some attention to formal speaking and message evaluation.

**CAS 100B Effective Speech (3)  
(GWS)**

This is a general education course designed to introduce students to principles of effective communication with a specific focus on group problem solving. The goal of CAS 100B differs from the goal of the other sections of CAS 100, with the goal of CAS 100B directed toward skill development in effective group communication, with less emphasis on formal public speaking and message evaluation. Toward the end, class size is limited and class meetings involve considerable attention to group dynamics, teamwork, and effective communication within groups. Through in-class activities, peer critiques, and analysis of both process and product, this course is designed to allow students to actively work in groups and engage in self-analysis of their own group processes. Structurally, this course begins with discussion of the principles of effective communication and public presentation and then covers significant course content addressing group communication and group process. This course enables students to work more effectively in groups, develop teams, and make effective group and individual presentations. At least one individual speech, several group communication activities, and one message evaluation are required in this course. Evaluation methods include evaluation beyond formal exams. Public presentations are evaluated for content, organization, and presentation; group work is evaluated for process effectiveness and outcomes; critical evaluation of messages is assessed in individual assignments; and all course content is covered on exams. There is one midterm exam and one final exam, with the possibility of quizzes on lecture and reading materials throughout the semester.

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CAS 100C (GWS) Effective Speech (3)** Principles of communication, implemented through analysis and evaluation of messages, with some attention to formal speaking and group discussion.

**CAS 100C Effective Speech (3)  
(GWS)**

This is a general education course designed to introduce students to principles of effective communication with a specific focus on the analysis and evaluation of messages. Toward the end, class size is limited and class meetings will involve considerable attention to individual and group work in message analysis and critique. Through in-class activities, lecture, and discussion, this course focuses on the critical analysis of persuasive messages. This course will enable student to be better prepared to analyze both written and oral messages, work in groups, and develop effective presentations. Students will deliver a minimum of two public speeches and work on at least one group assignment. Public presentations will be evaluated for content, organization, and presentation. Exams will test students ability to synthesize and apply course concepts from the textbook and lectures.

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 100H (GWS) Effective Speech (3)** Introduction to speech communication: formal speaking, group discussion, analysis and evaluation of messages.

**Effective Speech (3)**

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 100S (GWS) Effective Speech (3)** Principles of communication, implemented through presentation of speeches, with some attention to group discussion and message evaluation.

**Effective Speech (3)**

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 101 (GS) Introduction to Human Communication (3)** Introduction to major theoretical, critical, research and pedagogical issues in human communication.

**Introduction to Human Communication (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 126 Developmental Listening (3)** Introduction to effective strategies of listening, with an emphasis on studying, note taking, test taking, and research paper writing.

**CAS 126 Developmental Listening (3)**

This course designed to assist first year students in developing a comprehensive understanding of their role as students, the nature of the learning process and the role of communication in successful learning. A critical objective of the course is for students to understand the integral relationship of communication to academic success. Therefore, considerable attention is given to learning processes and the significant impact of communication on these processes and subsequent learning outcomes. Within this larger context students will be provided opportunities to engage in activities designed to enhance their skills in the following areas: listening, speaking and writing; self awareness and self monitoring; classroom



management; time management; study management and learning strategies; exam management; resource management; and researching and developing a thesis in a research paper. Student achievement is evaluated through class participation, including working in groups; a research paper and oral presentation based on developing an effective argument; an academic planning project; reflection papers; quizzes; and two exams. CAS 126 is available only to students participating in the Comprehensive Studies Program, Penn State's Act 101 Program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 137H (GWS) (ENGL 137H) Rhetoric and Civic Life I (3)** Within a liberal arts framework and with attention to public discourse-- speaking, writing, online communication, and visual presentation--this course instructs students in the arts, practices, and principles of rhetoric.

### **Rhetoric and Civic Life I (3)**

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 138T (GWS) (ENGL 138T) Rhetoric and Civic Life II (3)** This course builds rhetorical skills in oral, written, visual, and digital contexts and introduces deliberation and advocacy in civic and disciplinary spheres.

### **CAS (ENGL) 138T Rhetoric and Civic Life II (3) (GWS)**

ENGL/CAS 138T, Rhetoric and Civic Life II, expands knowledge and aptitudes built in ENGL/CAS 137H by asking students to use rhetorical skills and principles to develop strategies for persuasion and advocacy in the context of civic issues. The course continues the multimodal emphasis--the focus on oral, written, visual, and digital communication--used in 137H and adds new components as well. Students will develop a repertoire of communication skills through hands-on practice at composing and delivering speeches and essays, and they will work with digital media to create multimedia texts, podcasts, and websites. Students will reflect on these different modes as themselves rhetorical choices. The course's civic and ethical components take center stage as students learn how to deliberate important public issues thoughtfully and with civility and respect. They will learn the difference between persuasion and advocacy and develop strategies for both in the context of pertinent local, national, and global issues. They will participate in a public deliberation forum on topics they generate and vote on. The forum will be organized to allow small deliberative action groups as well as large forum-style meetings. The course focuses on ethics in many contexts--e.g., community action and public deliberation; ethics of persuasion; ethical controversies in the disciplines. Students will be encouraged to explore percolating disciplinary interests and to share knowledge in online disciplinary communities. Students will work throughout the semester to design and build a final electronic portfolio that represents their academic work with an eye to their imagined professional futures. The portfolio assignment is designed to permit assessment of learning outcomes and encourage students to move toward qualifying for the College of the Liberal Arts Excellence in Communication Certificate (<http://laus.la.psu.edu/current-students/paterno-fellows-program/excellence-in-communication-certificate>), a mechanism which helps students hone their communication abilities throughout their Penn State careers by creating and perfecting an online portfolio.

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: ENGL 137H or CAS 137H

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 175 (GH) Persuasion and Propaganda (3)** An introductory examination of how symbols have been used to create belief and action in revolutionary, totalitarian, and democratic settings.

### **Persuasion and Propaganda (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CAS 195** Careers in Communication (1) An introduction to a variety of careers in the field of communication arts and sciences.

### **Careers in Communication (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 200** (US;IL) Language, Culture, and Communication (3) Introduction to language, language development, cultural literacy, culture, and intercultural communication.

### **CAS 200 Language, Culture, and Communication (3) (US;IL)**

This course defines culture broadly, including how people conceptualize and enact reason, rationality, race/ethnicity, sex/gender, power, and age. Course content is organized into three large units: (1) how culture shapes language use; (2) how language use shapes culture; and (3) how culture and language (both verbal and nonverbal) operate together and influence each other, including how language is used to create, and negotiate understandings of culture. In the first unit, the class examines the effects of preconceived cultural beliefs on behavior; that is, how beliefs that a culture takes for granted as being true filter persons' perceptions of reality. This unit also covers the concepts of self-fulfilling prophecies, cultural stereotypes about age, the possibility of cross-cultural universals (e.g., politeness), and African-American culture. In the second unit, the class examines how the structure of different culture's languages (e.g., their vocabulary and grammar) shapes how persons experience the world and thus shapes their "reality." In the third unit, the class takes the position that various aspects of culture (e.g., race/ethnicity, sex/gender, power, and age) are constantly being constructed and re-constructed through language. This unit examines how persons accomplish being "a woman," "African American," "old," "polite," "powerful," etc. This class is interdisciplinary and incorporates materials from anthropology, applied linguistics, linguistic anthropology, communication studies, and sociology. Grades are based on three in-class exams (two midterms and a final), which are closed-book and involve short-answer and essay-type questions. Attendance is mandatory. This is one of the three core/required courses for the major. This course ties into another core course, Communication Theory, by discussing several key Communication Theories in different ways, such as the Sapir/Whorf hypothesis, Politeness Theory, and various theories of language. This course ties into those dealing with race and gender.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 201** (GH) Rhetorical Theory (3) History and theory of public advocacy and civic discourse.

### **Rhetorical Theory (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 202** (GS) Introduction to Communication Theory (3) Survey of human communication studies in relational, interpersonal, group, organization, intercultural, health, technology and communication systems.

### **Introduction to Communication Theory (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 203** (GS) Interpersonal Communication (3) Exploration of competent communication and the skills necessary to manage personal and professional relationships.

### **Interpersonal Communication (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 204** Communication Research Methods (3) Overview of the skills necessary to evaluate commonly reported communication research.

### **Communication Research Methods (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 205** The Voice and Its Use (3) Emphasis on procedures to improve vocal effectiveness in personal and professional communication; not offered at University Park campus.

### **The Voice and Its Use (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 206** (GH) Mediation and Communication (3) Presentation of the history, theory, and practice of mediation as a means of resolving conflict through communication.

### **CAS 206 Mediation and Communication (3)**

There are two overall objectives to this course. First, the course will acquaint students with conflict as a normal part of the human condition, and with the efforts of humans for thousands of years to resolve conflict in a peaceful way. The specific method of conflict resolution addressed by the course is mediation, which involves the intervention of a third party who is neutral in the conflict. Modern uses of mediation to resolve conflict extend from the playground to essential functions in society, for example, labor relations, legal systems, government operations, including international relations, and family disputes. While Western methods will be emphasized, mediation also plays an important role in non-Western cultures. For example, Hawaiian, Palestinian, Native American, and Chinese cultures rely on mediation to resolve conflict and rebuild relationships. In fact, mediation is the most popular means of conflict resolution in China, Taiwan, and Japan. Second, the course will acquaint students with the essential means by which mediation is accomplished, communication.

The success of the mediation depends on the ability of the mediator to communicate well in specific ways when addressing the assembled parties, and when interacting with them individually. The course will also acquaint students with communication issues in mediation under study by both professional mediators and communication scholars. This course relates to lower-division Communication Arts and Sciences courses in rhetoric and interpersonal communication, in that it demonstrates how the different theories and practices they discuss can be integrated to produce important positive outcomes not only to individuals in conflict, but also to cultures. This course relates to upper-division Communication Arts and Sciences courses in rhetorical theory, interpersonal communication theory and research, conflict resolution and family communication theory and research, by providing an introduction to communication issues arising from an important context of communication, mediation, issues that can stimulate both further theory and research. This course relates to upper division courses in Labor Studies and Industrial Relations dealing with workplace dispute resolution and collective decision-making, and in Human Development and Family Studies dealing with interventions and resolving problems, to the extent that these courses discuss mediation. This course introduces the communication bedrock on which mediation rests.

General Education: GH  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 211** Informative Speaking (3) Planning, organizing, adapting, and presenting informative speeches and oral reports on technical/scholarly projects, both by manuscript reading and extemporaneously.

### **Informative Speaking (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 212** Professional Public Speaking (3) Organizing, adapting and presenting ideas in public informative, persuasive, technical and ceremonial speeches.

### **Professional Public Speaking (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 213** Persuasive Speaking (3) Planning, organizing, and adapting techniques of persuasion to achieve personal and public goals; engaging in critical assessment of persuasive messages.

### **Persuasive Speaking (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 214W** Speech Writing (3) Writing speeches for delivery in political, professional, and ceremonial settings; emphasis on composition and language for oral presentation.

### **Speech Writing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 215** Argumentation (3) Theory of argument: gathering of evidence, analysis of proposition, case building,

cross-examination, refutation, composition and delivery of argumentative speech.

**Argumentation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 216 (AEE 216) Practical Parliamentary Procedure (3)** Practice in presiding over and participating in meetings conducted under rules of order.

**CAS (AEE) 216 Practical Parliamentary Procedure (3)**

The purpose of this course is to familiarize participants with the basics of parliamentary procedure found in the world's most widely used parliamentary authority; Robert's Rules of Order Newly Revised. The course will emphasize the motions and procedures commonly used in business meetings of civic organizations, boards and committees, corporations, and conventions. Students will have the opportunity to become accredited as an Accredited Parliamentarian (AP) in the Society of Agricultural Education Parliamentarians (SAEP) if the student remits the accreditation fee.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 216 (AEE 216) Practical Parliamentary Procedure (3)** Practice in presiding over and participating in meetings conducted under rules of order.

**CAS (AEE) 216 Practical Parliamentary Procedure (3)**

The purpose of this course is to familiarize participants with the basics of parliamentary procedure found in the world's most widely used parliamentary authority; Robert's Rules of Order Newly Revised. The course will emphasize the motions and procedures commonly used in business meetings of civic organizations, boards and committees, corporations, and conventions. Students will have the opportunity to become accredited as an Accredited Parliamentarian (AP) in the Society of Agricultural Education Parliamentarians (SAEP) if the student remits the accreditation fee.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 222 (GS;US;IL) (CIVCM 211, YFE 211) Foundations: Civic and Community Engagement (3)** Conceptual foundations of public scholarship and orientation to contemporary themes and issues in civic and community engagement.

**CAS 222 (YFE/CIVCM 211) Foundations: Civic and Community Engagement (3)  
(GS;US;IL)**

This course uses lectures, case studies, and hands-on practice to provide a foundation for students' orientation to public scholarship, civic engagement, and the relationship between learning and democratic practice. Core concepts about democracy in America, the land-grant university's historic mission, and about service learning and public scholarship are introduced. Students learn about a range of ways that citizens within the United States as well as in other countries participate in democratic decision making. Students also are introduced to diverse political perspectives and civic practices for different ethnic and cultural groups within the United States and internationally. Civic practices in different parts of the world are embedded in the economic conditions and cultural norms of the particular contexts. Students also are introduced to global citizenship/public issues such as environmental sustainability and labor and educational practices, and learn about opportunities for civic engagement within the U.S. and internationally.

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 250 Small Group Communication (3)** Skill development in the areas of group discussion, leadership, and teamwork.

**CAS 250 Small Group Communication (3)**

This course serves to develop students' skills in decision-making, problem-solving, and leadership. To provide opportunities for students to develop competence as communicators and leaders, this course will address both theory and practices. Learning from case studies and analyzing real-world problems are at the center of exploring group communication in this course. CAS 250 fulfills the skills requirements for our majors and minors and is the skills course associated with an organizational communication pathway emphasis in the major. Additionally, involvement in groups is essential to learn about group processes; therefore students will participate in a variety of group-based assignments and presentations. Evaluations will be determined at the individual level (e.g., exams, papers, attendance, peer evaluation) and at the group level (e.g., group presentation, group process, group paper). There will be two exams, a problem analysis report, and at least two small papers required in addition to the final group project and presentation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 252 Business and Professional Communication (3)** Interviewing, briefing, conferring, and decision making; analyzing and evaluating formal and informal patterns of communication in organizations.

**Business and Professional Communication (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 253 Health Communication (3)** To introduce students to principles of health message design and the general theories and models used to guide these efforts.

**CAS 253 Health Communication (3)**

This course is designed to provide students with theoretical principles for practice in planning and evaluating health messages for dissemination by health organizations, policy makers, and other interested publics. CAS 253 emphasizes the potential positive and negative outcomes associated with specific messages designed to impact individuals' knowledge and behavior with health consequences. It emphasizes the importance of audience segmentation on goal selection in guiding health message design, as well as the effects and effectiveness of source and channel selection for reaching particular audiences. The CAS 253 Health Communication course is one of a series of electives for Communication Arts and Sciences majors or minors interested in pursuing careers in organizational communication, health communication, sales, and training and development in small groups. The course is possibly linked to those with interests in biobehavioral health.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 255 Peer Tutoring for Public Speaking (3)** This course will prepare students to become peer tutors in public speaking.

**CAS 255 Peer Tutoring for Public Speaking (3)**

This course will prepare undergraduates for work as peer tutors in the area of public speaking. Students will begin by considering peer tutoring as an opportunity for civic engagement, and public speaking as integral to the democratic process. Students will review and practice elements of the speaking process both to become excellent speakers themselves and also highly competent tutors for their peers across the university's curriculum. In addition to instruction on elements of public speaking, students will study and practice the art of critique. This course will include in-class instruction, discussion, and activities, as well as a practicum in which students will participate in reviews of peers' work at all stages of the speaking process.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013 Ending: Summer 2014

Prerequisite: CAS 100A orCAS 137H orENGL 137H orCAS 138T orENGL 138T or approved higher level speaking course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 271 (US;IL) Intercultural Communication (3)** Introduction to intercultural communication. Focus on topics such as language, identity, prejudice, and intergroup relations on a domestic/ international level.

**CAS 271 Intercultural Communication (3)  
(US;IL)**

This is an introductory course that also fulfills an intercultural and international competence (GI) requirement. CAS 271 is designed to give undergraduate students an introduction to the various issues, trends, and historical perspectives pertaining to communication within U.S. domestic and international cultures. Students will be graded on the following required assignments: (1) exams, (2) book reviews, (3) opinion-editorial position papers, (4) a class-organized campus tour designed to accent the achievements and contributions of people of color who are or have been affiliated with Penn State University, (5) journal of personal reflections concerning racial, ethnic, cultural and international communication issues, (6) six abstracts of journal articles that when synthesized will comprise a six-article literature review, (7) final presentation on cultural relationship building through communication. CAS 271 is an introductory survey course that is highly recommended to students as a course preceding several other 300 and 400-level courses on interpersonal, group and intercultural communication, relationships, and processes.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 272 (GH) Political Communication and Technology (3)** This course examines how interactive communication technologies reshape political rhetoric, discursive civic culture, deliberation, and participatory democracy.

**CAS 272 Political Rhetoric and Discourse Online (3)  
(GH)**

This course examines how interactive communication technologies reshape political rhetoric, discursive civic culture, deliberation in the online public sphere, and participatory democracy. It traces the evolution of the public sphere and explores theoretical and empirical issues related to online political discourse (blogs, political discussion fora, viral politics of social networking sites), cyberactivism, smart mobs, networked publics, and peer-to-peer production (You Tube, Wikis). CAS 272 concentrates on online rhetorical and discursive strategies of candidates for public office, and individuals and organizations campaigning on specific issues and causes. It emphasizes civic engagement and includes topical areas such as mechanisms of online public spheres, citizen generated discourse and content, viral politics, connections between social networking sites and political discourse, and behaviors such as networked activism. It examines how various interactive communication options have affected political discourse, campaign communications and public deliberation. It provides students with hands-on experiences in analyzing the rhetorical and persuasive strategies involved in creating video content, writing blogs, creating wikis and twitter messages. It teaches students how they could use these communication options in working for political campaigns, civic action groups and non-profit institutions. The goal of the course is to help students understand the opportunities and constraints involved in using interactive communication technologies for civic and political actions, and facilitate their development as informed citizens. Class activities focus on identification and critique of rhetorical strategies employed when using interactive communication technologies, and learning to create content such as weblogs, wikis, and mashups. Students will be graded on exams, participation in discussion groups, analyzing and connecting course concepts to real world examples, creating content such as mashups, and analysis of rhetorical strategies of political candidates and activist groups. CAS 272 is highly recommended to students interested in examining the potential of interactive communication technologies for civic and political action.

General Education: GH

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 280W Storytelling and Speaking (3)** Principles of oral performance from storytelling to the printed page; includes oral performance of stories, speeches, prose, drama, and poetry.

**Storytelling and Speaking (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 283** Communication and Information Technology I (3) Introduction to communication technology and information management; intended for students in the Liberal Arts.

**Communication and Information Technology I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 294** Research Topics (1-12) Supervised student activities on research projects identified on an individual or small group basis.

**Research Topics (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003  
Prerequisite: prior approval of assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 295** Internship (1-16) Supervised nongroup instruction, including field experiences, practicums, or internships. Written and oral critique of activity required.

**Internship (1-16)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**CAS 297A** Intercultural Communication in Action: The Case of Austria (1-3 An optional embedded 12-day program offered with CAS 271. The course offers formal and informal opportunities for students to engage in dialogue with Austrians from a variety of backgrounds. The objective is for students to develop sensitivity and flexibility in intercultural communication settings to benefit their personal and professional lives.

**Intercultural Communication in Action: The Case of Austria (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

Concurrent: CAS 271

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 302** Social Influence (3) Explores how humans influence others through communication.

**Social Influence (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 311** Methods of Rhetorical Criticism (3) Principles for the analysis and evaluation of public discourse.

**Methods of Rhetorical Criticism (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 321** Rhetoric and Law (3) A survey of the literature on the role of rhetoric in law, including trial advocacy, appellate argument, and judicial reasoning.

**CAS 321 Rhetoric and Law (3)**

A survey of the literature on the role of rhetoric in law, including trial advocacy, appellate argument, and judicial reasoning. Rhetoric and Law explains how knowledge of rhetorical principles enhances the understanding of legal documents, reasoning, and performance. This course surveys classical to contemporary rhetorical literature demonstrating its utility to the study of law. Students will examine the role rhetoric plays in jury deliberation, trial advocacy, appellate argument and judicial reasoning. Students will demonstrate their understanding of rhetorical theory by participating in a mock trial. In this exercise, students will deliver opening statements, closing arguments as well as

conduct direct and cross-examination of witnesses. Finally, the class will examine United States Supreme Court majority and dissenting opinions as rhetorical documents.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 340 Communication and Civility (3)** Communication behaviors contributing to civil and uncivil discourse; their implications in business, public life, across cultures and in interpersonal relationships.

### **Communication and Civility (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 352 Organizational Communication (3)** This course examines the function and structure of communication in both formal and informal situations.

### **Organizational Communication (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 360 Communication for Teachers (3)** Analysis of dynamics of instructor-student communication implemented through structured exercises in instructor listening, verbal and nonverbal message-making.

### **Communication for Teachers (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 373 The Rhetorics of War and Peace (3)** This course explores how war and peace are advocated.

### **CAS 373 The Rhetorics of War and Peace (3)**

In *The Wealth of Nations* (1776), the first classic of capitalism, Adam Smith speaks of "the art of war," deploying a phrase from Sun-Tzu's *The Art of War* that would later appear in Baron von Clausewitz's *On War* and also in contemporary U.S. military handbooks. This course argues that war is indeed an art, and a thoroughly rhetorical one in which the political economy of persuasion is as important as high-tech weaponry and whiz-bang battle plans. By considering some of war's most thoughtful theorists, by discussing wars past and present, and by reading powerful defenses and trenchant critiques of war, this course will help students understand how wars are managed rhetorically. This course satisfies a grave need: for living in the post-9/11 world requires the critical rhetorical skills necessary to understand not just how war is waged or how it structures our lives but how war is advocated and defended. The trajectory of this course will thus make the full arc from war to peace. Perhaps most importantly in this time of grave post-modern warfare, this semester's readings and discussions will make us all better rhetorical scholars capable of imagining alternative futures. From the realities of war comes the possibility of peace.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 375** Rhetoric and Public Controversy (3) Survey of important events in the history of public address, including speeches, debates, and persuasive campaigns and movements.

**Rhetoric and Public Controversy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 383** Culture and Technology (3) This course will examine the area of cyberculture as it relates to communication studies.

**Culture and Technology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 390** (GS) Qualitative Research Methods (3) An overview of Qualitative Research Methods, including how to conceive, design and execute a research study.

**CAS 390 Qualitative Research Methods (3)  
(GS)**

This course provides students with an understanding of both qualitative research methods and the theoretical frameworks that inform qualitative inquiry. Additionally, this course focuses on tools for data collection such as individual and focus-group interviewing and observing and recording interaction. This course provides practical experience for students in collecting and analyzing qualitative data with and without the use of technology and examines particular difficulties in the interpretation and reporting of qualitative findings. Qualitative Research Methods is course that bridges disciplinary boundaries and is useful to any student who will be investigating human interaction.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 395** Forensics Practicum (1-2 per semester/maximum of 16) Provides students in forensics the opportunity for supervised participation in the activity in class and in intercollegiate competition.

**Forensics Practicum (1-2 per semester/maximum of 16)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 398A** Public Relations (3) Public understanding of organizations and institutions; identification and analysis of public; media relations; public relations practice.

**Public Relations (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 402** Speech and Human Behavior (3) General semantics, thought, and human behavior; not offered at University Park campus.

**Speech and Human Behavior (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 403** Interpersonal Communication Theory and Research (3) Examining behavior within interpersonal encounters, with emphasis on both theoretical/applied explanations for how and why people act during such interactions.

**Interpersonal Communication Theory and Research (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: CAS 203

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 404** Conflict Resolution and Negotiation (3) Theories and strategies important for conceptualizing, developing, and managing conflict negotiation, mediation, and third-party intervention.

**Conflict Resolution and Negotiation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: CAS 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 405** Family Communication Theory and Research (3) Explores the nature and functions of communication in family life; emphasis on meaning, patterns, and styles of family communication.

**Family Communication Theory and Research (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: CAS 101CAS 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CAS 406H** Honors Course in Communication Arts and Sciences (3) Individual study and seminar in selected areas or issues of speech communication.

### **Honors Course in Communication Arts and Sciences (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: an all-University average of B; approval of the departmental Honors Committee

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 409** (PL SC 409) Democratic Deliberation (3) Explores the theory and practice of democratic deliberation in elections, town meetings, juries, legislatures, and other public institutions.

### **CAS (PL SC) 409 Democratic Deliberation (3)**

Many modern democracies have made strides to become more deliberative in how they make decisions. This course looks closely at the most promising innovations in self-government while also reviewing the persistent anti-deliberative and undemocratic features of modern societies and governments. Topics covered in the course include deliberative democratic theory, political conversation, common forms of public meetings, mediated deliberation, campaigns and elections, the jury system, and deliberative democracy on larger social scales.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: CAS 137CAS 175CAS 201CAS 202CAS 216CAS 250CAS 272 orPL SC 001PL SC 017PL SC 112PL SC 130

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 410W** Mother-Daughter Communication (3) Explores the mother-daughter relationship with an emphasis on understanding mother-daughter communication.

### **CAS 410W Mother-Daughter Communication (3)**

The mother-daughter relationship has been explored in literature, film, and in the social sciences. This course will examine the mother-daughter relationship through social, psychological, developmental, and relational communication lenses. The course challenges students to explore the socially constructed nature of the mother-daughter relationship in film and literature and investigate the many ways this unique relationship is understood through the social sciences. In addition to examining the social construction of the mother-daughter relationship across time, contemporary social science theories will be discussed and students will be challenged to assess how these theories do or not help to explain their own personal maternal relationships. This course satisfies the university writing intensive requirement, which means that over 80% of the final grade is based assessment of writing. Evaluation will include a series of multiple choice and short essay quizzes, a mid-term paper, and a final application paper. This mother-daughter communication course is an upper division course that contributes toward students' personal development and complements students' interests in pursuing counseling, pastoral, health, gerontology, social services and other career ambitions involving a need to understand family relationships. CAS 410 may be used to fulfill Major or Minor requirements for upper division credits. This course relies heavily on whole-class and small group discussion.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: CAS 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 411** Rhetorical Criticism (3) Principles of rhetorical criticism examined through analysis of selected texts and critics.

### **Rhetorical Criticism (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2003

Prerequisite: CAS 201 orCAS 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 415** Rhetoric of Film and Television (3) Rhetorical analysis of the artistic forms and cultural structures of film and television; intensive study of selected examples.

**Rhetoric of Film and Television (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 2003  
 Prerequisite: CAS 100 or COMM 150

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 420** Rhetorical Theory (3) Ancient, medieval, Renaissance, Enlightenment, and contemporary theories of rhetoric.

**Rhetorical Theory (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 2003  
 Prerequisite: CAS 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 421** Communication and Aging (3) Concentrates on the pivotal role that communication plays in the social process of aging.

**CAS 421 Communication and Aging (3)**

Communication and Aging is a course that concentrates on the pivotal role that communication plays in the social process of aging. An understanding of the communicative behavior of older adults can result in significant improvements in our ability not only to describe the essential components of a quality life, but to actively intervene in the various factors that help each of us adapt to the many physiological, psychological, social and economic challenges of the aging process. Topics covered in this course include: the theories of social aging; attitudes and ageism; mass media use and portrayals; work, leisure, and retirement; family relationships such as siblings, grandparent-grandchild, parent-child; friendships; health and aging; death and dying; and successful aging. This course places communication and our interactive behavior at the heart of the aging process and helps us combine the growing bodies of literature in physical, psychological and social aging as we attempt to grasp the process of life long development.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2007  
 Prerequisite: Three credits of CAS

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 422 (US)** (AF AM 422) Contemporary African American Communication (3) A focused study on the continuities between African and African American culture and communication.

**CAS (AAA S) 422 Contemporary African American Communication (3) (US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

At least once a year, this multidisciplinary course is designed to serve both Speech Communication and African and African American Studies. It is concerned with the relationship between a people's culture and world view and their systems of rhetoric/communication. It also provides a focus on the continuities between African and African American culture and communication. Specifically, it offers an approach to ascertaining the salient features of African and African American communication for community development. Special emphasis is given to the development and rhetoric of the Civil Rights Movement. The course utilizes videos, guest lectures, tapes of speeches, etc. to clarify objectives and stimulate classroom discussion. Students will be evaluated on two exams, one oral report, a final paper and class participation. Even though students need 400-level courses for their major and minor, this course is not required for Speech Communication majors. However, it does meet the Intercultural and International Competency requirement because it focuses on the communication of African Americans and how that communication has affected all Americans. The course will accommodate ten students in Speech Communication and ten students in African and African American Studies to ensure active discussion of issues.

General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Spring 2013  
 Prerequisite: CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 426W** Communication Ethics (3) Ethical issues in public and private communication; role of communication in expressing and realizing individual and social values.

**Communication Ethics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2003  
Prerequisite: CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 438** Rhetoric of Documentary (3) Rhetorical analysis of the documentary in film, television, and other media; historical and critical analysis of functions and form.

**Rhetoric of Documentary (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: CAS 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 450W** Group Communication Theory and Research (3) Selected theories of problem solving through group discussion emphasizing participation and leadership.

**CAS 450W Group Communication Theory and Research (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CAS 450W: Group Communication Theory and Research is a writing-intensive course in which students study a broad range of theories and perspectives concerning the role of communication in decision-making and problem-solving groups through a variety of writings by leading scholars in the area of Group Communication. The objectives of CAS 450W are: (1) to expose students to various facets of group life and theories that account for their performance; (2) to provide a summary knowledge of representative findings from research on group interaction; (3) to develop critical skill in the assessment of theoretical arguments and the adequacy of the evidence on which they are based; and (4) to enhance students' capacities for addressing, both orally and in writing, substantive issues posed by the subject matter. Theoretical material is examined with a view toward determining how to improve the performance of decision-making and problem-solving groups. Hence, the course has a strong concern with the identification of communication practices on which students can draw in making choices concerning how to participate in such groups. The course incorporates a discussion, rather than lecture, format. Attendance is required. Students will receive a set of questions in advance of each reading assignment that will provide a basis for discussion in the class sessions. The questions for the first five reading assignments will also serve as topics for a series of five short position papers that fulfill the writing intensive component of the course. In addition to the position papers, students are required to complete a midterm and final examination, both of the open-book, essay variety, and a course paper exploring a significant communication issue raised in the course. Among the topics covered in the course are the impact of member characteristics on interaction, the social dynamics of groups, the management of conflict, argument and decisional outcomes, leadership, and principles of meeting management. Students completing the course will have not only a better understanding of why decision-making and problem-solving groups both succeed and fail, but also a much improved basis for contributing effectively to them. CAS 450W satisfies requirements in the Communication Arts and Sciences Major and Minor, the Liberal Arts Business Minor, and the Dispute Management and Resolution Minor. It may also be used as an elective and is complementary to courses dealing with groups and group process in Psychology, Sociology, and Management.

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2003  
Prerequisite: CAS 100 or CAS 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 452** Organizational Communication Theory and Research (3) Explores the nature and functions of communication in organizations; emphasis on concepts, tools, and skills for effective management of communication.

**Organizational Communication Theory and Research (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

Prerequisite: CAS 202 or CAS 252

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 452W** Organizational Communication Theory and Research (3) Explores the nature and functions of communication in organizations; emphasis on writing and exploring concepts, tools, and skills for effective management of communication.

**CAS 452W Organization Communication Theory and Research (3)**

This course is designed to further introduce you to the field of Organizational Communication. Emphasis is placed on macro-organizational variables that can systematically affect micro-communication behaviors: in other words, how could something like the hierarchy of the organization influence who you talk with as an organizational employee. The purpose of the course is to provide you with a basic understanding of communication-relevant behaviors and activities in organizations. This includes things like leadership, teamwork, conflict management, and diversity. Additionally, we will examine various theories of and approaches to studying communication within organizations. My hope is that when you've successfully completed the course you've mastered these objectives:

- Develop a vocabulary and understanding of organizational communication concepts.
- Become familiar with the historical, current, and future issues and problems facing organizations.
- Apply theoretical perspectives and concepts to organizational situations and settings.
- Identify and understand the relationships between macro (e.g. structure and hierarchy) and micro (e.g. social support and stress) organizational communication variables.
- Experience locating, reading, synthesizing, and evaluating scholarly research appropriate for organizational communication phenomena.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004

Prerequisite: CAS 202 or CAS 252

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 453** Health Communication Theory and Research (3) Principles of communication about health across the lifespan and within health-care contexts.

**CAS 453 Health Communication Theory and Research (3)**

This is an upper division course designed to provide students with a comprehensive introduction to multiple discourses about health and health care. CAS 453 emphasizes the communication about health and health care that reaches us everyday through many and varied professional, personal, and mediated forms. Interactions with health care providers were once limited primarily to physicians and nurses. Today, careers in health care are among the most rapidly expanding job areas, and a bewildering array of technicians and technical and professional titles greets the client of formal health care. Awareness and understanding of how to assess these various roles increases the ability of students to interact competently with care providers. Family, friends, and the cultural groups that nurture our youth and sustain our adulthood interact with us about health on a regular basis as well. Awareness and understanding of the impact that interactions with these primary social network members has on interactions with health care providers increases the likelihood that both provider and client will be better understood and better served.

Every message about health and health care carries an ethical dimension in its content. The course will increase a students' critical thinking and informed decision-making skills associated with others efforts to influence them regarding their own health practices. It also frames discussion about the ethics of and ethical decision-making associated with health communication. Students will examine communication about health in many situations and contexts to illustrate how it reflects efforts to assign labels to illness and disease, and sometimes the environmental and political contributors to the situation. Students will assess whether communication about health and health care places the responsibility on individuals, institutions, society, or some combination for the particular health condition or situation. Finally, students will evaluate how communication is used to invoke personal, professional, and societal norms of conduct associated with standards of conduct that should promote health and well-being.

The course is linked to the courses in interpersonal communication, organizational communication, health communication, and small group communication, as discourse about health crosses societal, cultural, and personal contexts. CAS 453 is one of the upper division courses that may be used to fulfill Major or Minor students' requirements for upper division credits.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 455 (US)** (WMNST 455) Gender Roles in Communication (3) Explores the literature on gender research in the discipline of human communication.



**CAS (WMNST) 455 Gender Roles in Communication (3)  
(US)**

This 400-level course is a theory and application course which also satisfies an intercultural requirement. CAS/WMNST 455 strives to ensure that students understand female and male differences and similarities in communication patterns, perceptions of the opposite sex, and expectations and stereotypes regarding the opposite sex. Many researchers find that gender communication is "cross cultural," i.e., that women and men come from two different cultures, and therefore misunderstanding of each others' intent and expectations may frequently occur. This course examines how distinctions in meaning and interpersonal dynamics may create these two differing cultures, and promotes understanding and possibilities for adaptation. It also investigates when and if changing communication styles is desirable, and in which settings. A goal of the course is to help students to solve puzzles toward understanding those we work with and relate to, as well as to apply their knowledge to their own lives and contexts. The course content and format reflects these goals. CAS/WMNST 455 begins with theoretical information, later applying it to situations of interest to most -- relationships, language use differences (verbal and nonverbal), media messages, and workplace issues. Lecture incorporates considerable discussion and exploration of gender issues, and most topics are followed by activities, which illustrate how theories work in real life. This course is useful for any students seeking an intercultural course. It is recommended to Communications Arts and Sciences and Women's Studies majors and minors due to emphasis on communication theory and gender issues. Business, counseling, psychology, sociology, education and any social science majors may fulfill a US requirement through 455.

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: CAS 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 460H** Introduction to Honors Thesis (3) This course will guide students through steps that result in Honors Thesis Proposal.

**Introduction to Honors Thesis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: Student must be in good standing in Schreyer Honors College. CAS 201 or CAS 202; CAS 204

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 470** Nonverbal Communication (3) Examining ways nonverbal messages, such as gestures, posture, vocal intonation, and facial expressions, affect us on a daily basis.

**Nonverbal Communication (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: 6 credits in Communication Arts and Sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 471 (US;IL)** Intercultural Communication Theory and Research (3) Intercultural and cross-cultural communication research theory and practice as applied within and across national boundaries.

**CAS 471 Intercultural Communication Theory and Research (3)  
(US;IL)**

This course is designed to introduce theoretical approaches to cross-cultural communication from a variety of disciplines, e.g., speech communication, anthropology, linguistics, sociology, sociolinguistics, psychology, and has a double aim of combining theory with practical application and empirical observation. We will be utilizing a number of readings, films, and such mass media elements as films, magazines, newspapers, and television programs and commercials, as well as actual interviews with people from other cultures. Classes will be conducted through lecture sessions, class discussions, and small group activities. Specific: To examine characteristics of communication, language, and culture; to consider which aspects of language, communication, and culture may be universal, culture-specific or individual characteristics of speakers; to examine cultural values and their relationships to communication involving members of the same cultural group and members of groups outside of that culture; to raise awareness of both similarities and differences within and between cultural groups; to analyze how effective communication is achieved and to identify potential sources of miscommunication and/or misunderstanding; to raise awareness of our own cultural norms, preferences, and expectations; to increase acceptance, understanding, and appreciation of similarities and dissimilarities among people. Students will be evaluated on two midterm exams (undergrads) or two extended analytic journals (grads) 25%, observation journals (6 total) 15%, thought journals (4 total) 15%, article presentation and critique 15%, final paper and oral report

25%, and participation 5% The content and focus of this course is related to any field which has the potential of dealing with persons of other cultures, including but not limited to biobehavioral health, business and marketing, and education. This course is inherently related to Speech Communication Majors and Minors, but is also valuable from a cross-disciplinary perspective since we deal squarely with issues of humanity, tolerance, values, and communication.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: CAS 271

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 475 Studies in Public Address (3)** History and criticism of public discourse; intensive analysis of selected public addresses and social movements.

**Studies in Public Address (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Social and Behavioral Sciences  
Effective: Spring 2003  
Prerequisite: CAS 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 478 Contemporary American Political Rhetoric (3)** Analysis of selected speeches, debates, and persuasive campaigns and movements in recent American political history.

**Contemporary American Political Rhetoric (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: CAS 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 480 Group Performance of Literature (3)** Applying storytelling skills and performance theory to the group presentation of literature; criticism of literature through group presentations.

**Group Performance of Literature (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2003  
Prerequisite: CAS 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 483 Communication and Information Technology II (3)** Theory and application of interactive internet-based communication and information management; for students who want a Liberal Arts approach.

**Communication and Information Technology II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003  
Prerequisite: CAS 283

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 490 Peer Tutoring for Public Speaking (3)** This course will prepare students to become peer tutors in public speaking.

**CAS 490 Peer Tutoring for Public Speaking (3)**

This course will prepare undergraduates for work as peer tutors in the area of public speaking. Students will begin by considering peer tutoring as an opportunity for civic engagement, and public speaking as integral to the democratic process. Students will review and practice elements of the speaking process both to become excellent speakers themselves and also highly competent tutors for their peers across the university's curriculum. In addition to instruction on elements of public speaking, students will study and practice the art of critique. This course will include in-class

instruction, discussion, and activities, as well as a practicum in which students will participate in reviews of peers' work at all stages of the speaking process.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CAS 100A orCAS 137H orENGL 137H orCAS 138T orENGL 138T or approved higher level speaking course

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 494 Research Topics (1-12)** Supervised student activities on research projects identified on an individual or small group basis.

#### **Research Topics (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2003

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 494H Research Topics (1-12)** Supervised student activities on research projects identified on an individual or small group basis.

#### **Research Topics (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CAS 497A** Interpersonal Influence (3) Examines how individuals in friend, family, and work relationships create and evaluate messages intended to change the behavior of others.

**Interpersonal Influence (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 498A** Communication, Training, and Development (3) Instruction in the knowledge and skills needed to effectively design and deliver customized training programs; specific focus on the role of communication systems and rhetoric in the process.

**Communication, Training, and Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 498A** Communication, Training, and Development (3) Instruction in the knowledge and skills needed to effectively design and deliver customized training programs; specific focus on the role of communication systems and rhetoric in the process.

**Communication, Training, and Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAS 499 (IL)** Foreign Studies (1-9) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-9)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Communication Sciences and Disorders (CSD)**

**CSD 100 (GHA;US)** Preventing Vocal Abuse, Misuse, and Disorders (3) Principles of the voice mechanisms, preventing vocal abuse, and promoting vocal health across the life span.

**CSD 100 Preventing Vocal Abuse, Misuse, and Disorders (3)  
(GHA;US)**

CSD 100, Preventing Vocal Abuse, Misuse, and Disorders is a 3 credit course intended to be the first course for all University students exploring communication sciences and disorders as a possible major, and students interested in learning specifically about vocal hygiene, voice use, vocal abuse and voice disorders. Principles of the voice mechanisms, preventing vocal abuse, and promoting vocal health across the life span are core principles of the course. The focus of this course is on preventing voice disorders and promoting activities that contribute to healthy vocal habits across the life span. The course is designed to integrate theoretical knowledge, practice-based, and measurement-focused activities to assist learners in understanding, achieving, maintaining, and promoting a lifetime of healthy vocal activities. Learning activities include: mini-lectures, power point presentations, information/research gathered via library and Internet resources and specialized computer instrumentation for analyzing voice qualities. The educational objectives of the course are to: 1) develop a basic understanding of the normal and disordered vocal mechanism; 2) understand the need for maintaining and promoting lifetime wellness in your vocal activities and habits for any occupational choice; 3) learn about the prevention of vocal disorders across the life span from vocal nodules to laryngeal cancer; 4) understand the subjective and objective measures of vocal qualities to assist in changing and altering vocal abuses and misuses while improving and enhancing good vocal habits, and 5) developing an understanding of how vocal behaviors influence social behaviors, employment, and quality of life. The course includes an overview of the anatomy and physiology of the respiratory and vocal mechanisms, physics of voice production, development of vocal abuses and resulting pathologies, disorders including vocal growths, paralysis, voice disorders associated with cleft lip and cleft palate, syndromes, neurodegenerative disorders, aging and head and neck cancer. Students are required to complete readings from web-based texts, internet sites (e.g. NIH, National Voice Academy, American Speech-Language Hearing Association, National Cancer Institute), multiple choice and true false tests and one written research-to-practice assignment.

General Education: GHA  
Diversity: US  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 101 (GHA;US) Preventing Hearing Loss (1.5)** Assessment, intervention, and prevention of hearing loss caused by loud music and recreational and industrial noise.

**Preventing Hearing Loss (1.5)**

General Education: GHA  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 146 (US;IL) Introduction to Communication Sciences and Disorders (3)** Classification of speech, language, and hearing disorders, diagnostic and treatment procedures; skills and responsibilities of the speech-language pathologist and audiologist.

**CSD 146 Introduction to Communication Disorders (3)  
(US;IL)**

CSD 146, Introduction to Communication Sciences and Disorders (INTRO TO CSD), is a 3-credit course typically offered every semester. The course is intended as the first course for Communications Sciences and Disorders majors or for students exploring Communications Sciences and Disorders as a possible major. For Communications Sciences and Disorders majors, CSD 146 is a required course, requiring a grade of "C" or better, and should be taken during the first or second year (semester standing 1-4) since CSD 146 is a prerequisite for CSD 230, 245, 395W, 442, 444, 451, and 459W. The educational objectives of the course are to introduce students to speech, language, and hearing disorders and the professions of speech/language pathology and audiology. This is done by providing an overview of the normal aspects of speech, language, and hearing followed by an overview of speech, language, and hearing disorders with emphasis on assessment and intervention strategies. The course includes an overview of the anatomy and physiology of the speech and hearing mechanisms, physics of sound, and linguistic and psycholinguistic development. Students are required to complete several observations of speech, language, or hearing therapy or assessment in the Penn State Speech and Hearing Clinic and readings from a required text and Internet sites. Students are evaluated by three to four tests and their clinical observation reports.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 218 American Sign Language I (3)** Introduction to sign language; provides basic receptive and expressive skills; includes out-of-class practice.

### **CSD 218 American Sign Language I (3)**

CSD 218, American Sign Language I (AM SIGN LANG 1), is a 3-credit course that can be taken by any student interested in learning sign language. Several sections of the course are offered every semester. For Communications Sciences and Disorders majors, the course is highly recommended as an elective. The intent of the course is to provide students with a basic understanding of receptive and expressive sign language skills. The educational objectives are that students will (a) acquire a basic knowledge of expressive and receptive skills in American Sign Language (ASL), content variety signing, and finger spelling, (b) acquire a knowledge of the role of ASL in the lives of deaf people and to other cultural aspects of deafness, (c) develop and demonstrate a 600 word sign language vocabulary, and (d) demonstrate basic sign language communication skills. Students meet the educational objectives by attending class, completing reading assignments, observing video tapes, and practicing sign language inside and outside of class. Students will be evaluated using five tests. One test concerns aspects of the deaf culture as it pertains to the use of ASL and the grammatical structure of ASL. Four tests assess knowledge of vocabulary and communication skills by having the instructor sign vocabulary and questions and having students write down or sign back the answer. CSD 218 is a prerequisite for CSD 318, Sign Language I

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 230 Introduction to Audiology (3)** Basic measurement procedures, evaluation, and screening of hearing loss using pure-tone and speech audiometry, immittance, and physiological measurements.

### **CSD 230 Introduction to Audiology (3)**

CSD 230, Introduction to Audiology (INTRO TO AUDIOLOGY), is a 3-credit course typically offered during Fall semester. The course is prerequisited by Communications Sciences and Disorders 146, required for Communications Sciences and Disorders majors, and should be taken during the second or third year. The course can also be taken by students exploring CSD as a major. The intent of this course is to provide students with a basic understanding of hearing measurement procedures, screening for hearing loss, and the educational, social, and vocational problems of hearing impaired individuals across the age span. The educational objectives are that students will acquire an understanding of: 1) acoustics as related to hearing testing, 2) anatomy and physiology of the auditory system, 3) common disorders of the auditory system, 4) the basic principles of measuring hearing sensitivity, speech understanding ability, and middle ear function, 5) screening for hearing loss, and 6) the educational, social, and vocational problems caused by a hearing loss across the life span. Students meet the educational objectives by attending and participating in class discussions, completing assigned readings, participating in workshops, observing hearing testing, and completing several examinations

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 269 (GS;US;IL) Deaf Culture (3)** Explores the economic, social, psychological, and political aspects of the deaf culture and its interaction with the majority hearing culture.

### **CSD 269 CSD 269 Deafness and Society (3) (GS;US;IL)**

explore this community as being a distinct culture having its own rules of social interaction, values, group norms, and identity. The educational objectives are that the student will acquire an understanding of: 1) the development of the American Deaf Community, 2) factors affecting an individual's choice to affiliate with the Deaf Community, 3) history and current trends in deaf education, 4) American Sign Language (ASL) and other forms of communication used by Deaf Americans, 5) social, emotional, and psychological aspects of deafness, 6) diversity with the Deaf Community, and 7) deafness in the literature, media, and the arts.

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 300 (US;IL)** Developmental Considerations in the Assessment and Treatment of Language Disorders (3) Using a developmental framework to interpret problems in child language acquisition.

**CSD 300 Developmental Considerations in the Assessment and Treatment of Language Disorders (3) (US;IL)**

CSD 300, Developmental Considerations in the Assessment and Treatment of Language Disorders (DEV OF LANG DIS), is a 3-credit course typically offered every Fall semester. For Communications Sciences and Disorders majors, CSD 300 is a required course, requiring a grade of "C" or better, and should be taken during the second or third year (semester standing 3-6). The course is oriented toward students who intend to pursue a career in speech-language pathology and provides the foundation for higher level speech and language courses in Communications Sciences and Disorders. The overall educational objective of the course is to introduce students to child language development as the foundation for assessing and treating children with language disorders. This is done by lecture and active learning experiences so that students understand (a) several theories and information concerning the relations between normal and abnormal language development in children, (b) how individual, cultural, and linguistic differences contribute to language development, (c) the relations between theories of language development and empirical research, and (d) the interaction between normal and abnormal language development in children. Students are required to complete reading assignments and participate in group activities.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: CSD 146

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 301 Acoustic Principles in Communication Sciences and Disorders (3)** Explores the fundamental concepts of acoustics as applied to individuals with communicative disabilities; special emphasis is placed on the acoustic analysis of speech.

**CSD 301 Acoustic Principles in Communication Sciences and Disorders (3)**

CSD 301, Acoustic Principles in Communication Sciences and Disorders (ACOU PRIN IN CSD), is a 3-credit course typically offered every Spring semester. For Communications Sciences and Disorders majors, CSD 301 is a required course, requiring a grade of "C" or better, and should be taken during the second or third year (semester standing 3-6). The educational objectives of the course are to introduce students to fundamental concepts of acoustics and to apply those concepts to individuals with communicative disabilities and to the acoustic analysis of speech. This is done through lecture, active learning, and problem solving experiences. The course includes a detailed overview of the physics of sound, sound propagation, sound measurement, the generation, acoustic principles, measurement of speech sounds, and the acoustical analysis of speech for normal and disordered speakers. Students are required to have a scientific calculator capable of exponentiation, logarithms, and trigonometric functions. Students are evaluated by two to three tests during the semester and a comprehensive final examination.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: CSD 146

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 311 Clinical Phonetics (3)** Introduction to phonetic transcription of speech emphasizing articulatory phonetics of American English, its dialects, and disordered speech; extensive transcription experiences.

**CSD 311 Clinical Phonetics (3)**

CSD 311, Clinical Phonetics (CLINICAL PHONETICS), is a 3-credit course typically offered every Fall semester. For Communications Sciences and Disorders majors, CSD 311 is a required course, requiring a grade of "C" or better, and should be taken during the second or third year (semester standing 3-6). The educational objectives of this course are to introduce students to the phonetic transcription of speech sounds using the Internal Phonetic Alphabet, provide an overview of articulatory phonetics, describe representative sounds from languages of the world with primary emphasis on American English and its dialects, and the transcription of disordered speech production. Through lecture and active learning experiences, students will be expected to read and transcribe broad and narrow phonetic symbols, become familiar with sociolinguistic factors and non-organic and organic speech disorders that affect pronunciation. In addition, students will be expected to describe the phonetic capabilities of humans including the articulatory basis of speech sounds, aspects of speech production, and speech sounds produced by the world's languages and disordered speakers. Recitation and extensive practice in transcription of live speech are integral parts of the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 318 American Sign Language II (3)** Review of basic signing, plus continued development of signing skills.

**CSD 318 American Sign Language II (3)**

CSD 318, American Sign Language II (AM SIGN LANG II), is a 3-credit course that can be taken by any student interested in learning sign language provided they have taken CSD 218, Sign Language I. The course is offered every semester. For Communications Sciences and Disorders major's, the course is highly recommended as an elective. The intent of the course is to provide students with an intermediate and some advanced understanding of receptive and expressive sign language skills. The educational objectives are that students will: 1) acquire intermediate and some advanced knowledge of expressive and receptive skills in American Sign Language (ASL) and content variety signing, 2) acquire conversational skills for interaction with members of the Deaf community, and 3) continue to develop signed vocabulary, ASL grammar, fluency in the use of signs and finger spelling, and knowledge of the Deaf culture. Speech is not permitted in the classroom. Students meet the educational objectives by attending class, completing reading assignments, observing video tapes, practicing sign language inside and outside of class, and spending at least 10 hours outside of class conversing in ASL with others who sign.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003  
Prerequisite: CSD 218

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 331 Anatomy and Physiology for Speech and Hearing (3)** Structure and function of the physical systems involved in speech and hearing, including respiration, phonation, articulation, perception, and neurology.

**CSD 331 Anatomy and Physiology for Speech and Hearing (3)**

CSD 331, Anatomy and Physiology for Speech and Hearing (ANAT SPCH HEAR), is a 3-credit course typically offered every Fall semester. For Communications Sciences and Disorders majors, CSD 331 is a required course, requiring a grade of "C" or better, and should be taken during the second or third year (semester standing 3-6). The overarching goal of this course is to provide a comprehensive foundation for understanding normal anatomy and physiology of the speech and hearing mechanisms (respiration, phonation, articulation, neurology, and perception), which is essential for evaluating and treating individuals with speech, language, or hearing disorders. Through lectures and active learning experiences, students will be expected to (a) distinguish between principles of anatomy and physiology, (b) demonstrate knowledge of terminology, concepts, and theories related to anatomy and physiology of the speech and hearing mechanism, and (c) understand how normal anatomy and physiology of the speech and hearing mechanism relates to understanding communication disorders.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**CSD 433** Aural Rehabilitation (3) Methods for improving receptive skills of persons with hearing impairments; clinical observation and practice.

**CSD 433 Aural Rehabilitation (3)**

CSD 433, Aural Rehabilitation (AURAL REHAB), is a 3-credit course typically offered during Fall semester. The course is prerequisites by CSD 230, required for Communications Sciences and Disorders majors, and should be taken during the second, third or fourth year. Through lecture, reading, and active learning experiences, students will gain a basic understanding of the principles of aural rehabilitation for hearing impaired (HI) and deaf infants, children, and adults. Specifically, students will gain an understanding of: 1) hearing loss and hearing handicap in relation to speech understanding and communication, 2) the principles of amplification systems and assistive listening and alerting devices, 3) assessment of communication and communication strategies, 4) auditory training, 5) speech reading, 6) aural rehabilitation for adults, and 7) aural rehabilitation for infants/children. In addition, students will also acquire knowledge concerning the roles and work-sites of professionals working with HI and deaf individuals, and the impact of hearing loss and deafness on the individual, family, and society.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2003

Prerequisite: CSD 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 442** Introduction to Disorders of Articulation and Phonology (3) Etiology, diagnosis, and treatment of articulation disorders.

**CSD 442 Introduction to Disorders of Articulation and Phonology (3)**

CSD 442, Introduction to Disorders of Articulation and Phonology (DIS OF ARTIC/PHON), is a 3-credit course typically offered every spring semester. This course is required for Communications Sciences and Disorders majors, prerequisites by CSD 146, 300, and 311, and should be taken during the third or fourth year. The intent of this course is to provide students with a basic understanding of the etiology, diagnosis, and treatment of children having articulatory and phonological disorders. The course is designed to facilitate critical thinking through problem solving. The educational objectives are that students will acquire an understanding of: 1) the theoretical and practical bases of language and dialectal variations, 2) normal and abnormal articulatory and phonological acquisition, 3) factors related to phonological disorders, 4) assessment procedures and analysis and interpretation of assessment results, and 5) remediation concepts, principles, and methodologies. Students meet the educational objectives by attending and participating in class discussions, completing assigned readings, multiple choice examinations, and three written projects or papers.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: CSD 300CSD 311 plus 3 additional CSD credits at the 300-level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 444** Introduction to Organic Disorders of Speech and Language (3) Etiology, diagnosis, and principles of treatment of stuttering, and of speech- language disorders having organic bases.

**CSD 444 Introduction to Organic Disorders of Speech and Language (3)**

CSD 444, Introduction to Organic Disorders of Speech and Language (ORGANIC SP/LAN DIS), is a 3-credit course typically offered fall semester. The course is required for Communications Sciences and Disorders majors, prerequisites by CSD 146 and 331, and should be taken during the third or fourth year. The intent of this course is to provide students with a basic understanding of stuttering, related fluency disorders, and other organic disorders. The course is designed to facilitate critical thinking through problem solving with emphasis on the etiology and treatment of organic speech disorders. The educational objectives are that students will acquire an understanding of: 1) stuttering and related fluency disorders with emphasis on causation theories and assessment techniques, and 2) other organic disorders causing speech disorders with emphasis on stroke and closed-head trauma. Students meet the educational objectives by attending and participating in class discussions, completing assigned readings in the text, handout packet, and on the Internet, and completing four tests.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: CSD 301CSD 331 plus 3 additional credits in CSD at the 300-level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 451** An Introduction to Augmentative and Alternative Communication (3) Examination of assessment and intervention issues in augmentative and alternative communication techniques with persons with severe communication disorders.

**CSD 451 An Introduction to Augmentative and Alternative Communication (3)**

CSD 451, An Introduction to Augmentative and Alternative Communication (INTRO TO AAC), is a 3-credit course typically offered fall semester. The course is required for Communications Sciences and Disorders majors, prerequisites by CSD 146 and 300, and should be taken during the third or fourth year. The intent of this course is to examine assessment and intervention issues in augmentative and alternative communication (AAC) techniques for persons having severe communication disorders. Students will be expected to spend outside of class time becoming familiar with common AAC devices located in the department's AAC laboratory. The educational objectives are that students will acquire an understanding of: 1) persons with severe communication disorders who may require AAC, 2) terminology and principles of AAC applications, 3) types and evaluation of existing AAC systems and emerging technology, 4) assessment issues for children and adults concerning the use of AAC devices, 5) intervention, learning, and therapy issues for children and adults who use AAC, 6) research in AAC, and 7) theoretical issues. Although the course will focus on non-electronic AAC applications, students will be expected to spend time in or outside of class becoming familiar with common electronic AAC devices located in the department's AAC laboratory. Students meet the educational objectives by attending class, participating in class discussions, group projects, constructing an AAC system, completing assigned readings, and examinations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: CSD 300 plus 6 additional CSD credits at the 300-level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 459W** Principles of Clinical Management in Communication Disorders (3) Survey of principles and practices for diagnosing, interviewing, counseling, treating, reporting, and programming in Communication Disorders.

**CSD 459W Principles of Clinical Management in Communication Disorders (3)**

CSD 459W, Principles of Clinical Management in Communication Disorders (PRIN CLIN MGMT), is a 3-credit writing-intensive course offered each semester. The course is required for Communications Sciences and Disorders majors, prerequisites by CSD 146, and should be taken during the third or fourth year. The intent of this course is to closely review the principles and practices for assessing and treating people across the life span who have a communication disorder as well as reviewing, interviewing, counseling, and report writing skills. Overall, this "how-to" course is designed to provide students with practical solutions and methods when serving persons with communication disorders. The educational objectives are that students will acquire an understanding of: 1) report writing with emphasis on different styles and the need for clear documentation and explanations, 2) assessment with emphasis on interviewing skills, preparation and test administration, interpretation of the results, and oral and written presentation, 3) therapy practices with emphasis on task analysis, behavioral objectives, and implementation, 4) documentation with emphasis on lesson plans, mid and final reports, documentation specific to school versus medical settings, and billing, and 5) client and family counseling and group sessions. Students meet the educational objectives by attending and participating in class discussions, quizzes, writing assignments, and class projects.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: CSD 300CSD 230 plus 3 additional credits in CSD at the 300-level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 462 (US;IL)** Clinical Bases of Language Disorders (3) Description of pathological language and cognitive development, and principles of assessment and remediation among individuals with communication disorders.

**CSD 462 Clinical Bases of Language Disorders (3)  
(US;IL)**

CSD 462, Clinical Bases of Language Disorders (LANG DISORDERS), is a 3-credit course typically offered Spring semester. The course is required for Communications Sciences and Disorders majors, prerequisites by CSD 300, and should be taken during the third or fourth year. The course is designed to be an overview of language disorders with emphasis given to child language disorders. Specifically, the course provides information with a wide range of language disorders that affect individuals having different disabilities such as autism, hearing impairment, mental retardation, cerebral palsy, specific language impairment, learning disabilities, and traumatic brain injury. Through lecture, active learning experiences, and out-of-class assignments, students will learn to differentiate communication characteristics and associated problems for specific populations and become familiar with basic assessment and intervention principles. In addition, students will gain information of associated educational and medical problems common to individuals with language disorders.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: CSD 300 plus 6 additional credits in CSD at the 300-level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 494H** Senior Honors Thesis (1-6) Independent study related to a student's interests directed by a faculty supervisor and culminating in the production of a thesis.

#### **Senior Honors Thesis (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: Approval of honors thesis advisor.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 495A** Speech Therapy Practicum (1-6) Demonstration and practice in examination, diagnosis, and treatment of speech problems.

#### **CSD 495A Speech Therapy Practicum (1-6)**

CSD 495A, Speech Therapy Practicum (SPCH THPY PRACT), is a variable credit (1-6 credit) course offered every semester. The course is not required for Communications Sciences and Disorders majors. Fourth year Communications Sciences and Disorders students having a GPA of 3.0 can apply to take this course by contacting the Penn State Speech and Hearing Clinic, Coordinator of Clinical Services; however, Communications Sciences and Disorders graduate students are given priority. Typically, undergraduate students enroll in this course for 1-2 credits. Students enrolled in this course are student clinicians and provide assessment and treatment to clients of the Penn State Speech and Hearing Clinic. Students are highly supervised by Communications Sciences and Disorders clinical faculty and may be paired with Communications Sciences and Disorders graduate students. Students must adhere to all of the policies and procedures stated in the Penn State Speech and Hearing Clinical Policy Manual. Students are evaluated using outcome-based competency measures that includes oral and written reports skills.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: CSD 442

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 495B** Audiology Practicum (1-5) Demonstration and practice in examination, diagnosis, and treatment of hearing impairment problems.

#### **CSD 495B Hearing Impairment Practicum (1-5)**

CSD 495B, Audiology Practicum (AUDIOLOGY PRACT), is a variable credit (1-5 credit) course offered every semester. The course is not required for Communications Sciences and Disorders majors. Fourth year Communications Sciences and Disorders students having a GPA of 3.0 and an interest in Audiology can apply to take this course by contacting the Penn State Speech and Hearing Clinic, Coordinator of Audiological Services; however, Communications Sciences and Disorders graduate students are given priority. Typically, under-graduate students enroll in this course for 1-2 credits. Students enrolled in this course are student clinicians and provide hearing assessment and treatment to clients of the Penn State Speech and Hearing Clinic. Students are highly supervised by Communications Sciences and Disorders clinical faculty and may be paired with Communications Sciences and Disorders graduate students. Students must adhere to all of the policies and procedures stated in the Penn State Audiology Clinic Policy Manual. Students are evaluated using outcome-based competency measures that includes oral and written reports skills.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: CSD 433

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CSD 497H** Neural Mechanisms of Speech and Language (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Neural Mechanisms of Speech and Language (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Communications (COMM)**

**COMM 001** Newspaper Practicum (1-3 per semester/maximum of 8) A newspaper/print media practicum. Credits do not fulfill Communication major credits in all programs.

**Newspaper Practicum (1-3 per semester/maximum of 8)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 002** Newspaper Editorial Staff (1-3 per semester, maximum of 8) A newspaper/print media practicum. Credits do not fulfill Communication major credits in all programs.

**Newspaper Editorial Staff (1-3 per semester, maximum of 8)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: COMM 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 003** Radio Practicum (1-3 per semester/maximum of 8) A broadcast media practicum. Credits do not fulfill Communication major credits in all programs.

**Radio Practicum (1-3 per semester/maximum of 8)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**COMM 004** Television Practicum (1-3 per semester/maximum of 8) A broadcast media practicum designed to provide students experience with TV and video production in a variety of contexts.

**Television Practicum (1-3 per semester/maximum of 8)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 100** (GS) (AM ST 106) The Mass Media and Society (3) Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films.

**COMM 100 The Mass Media and Society (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Mass Media and Society is an overview of the interaction between mass media and society. By drawing from selected topics, the course pays particular attention to the social influences (e.g., economics, politics, technology, law and culture) that shape media messages. Among others, the course examines the nature of media controllers as well as the character of "users" and "consumers" of media products. By so doing, students are informed about the overall structure and scope of the mass media and led to understand the power and influences associated with media messages and practices. By the end of the semester, each student should have a better understanding of the dynamic nature of the mass media in an information society.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 100S** (GS) The Mass Media and Society (3) Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films.

**COMM 100S The Mass Media and Society (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Mass Media and Society is an overview of the interaction between mass media and society. By drawing from selected topics, the course pays particular attention to the social influences (e.g., economics, politics, technology, law and culture) that shape media messages. Among others, the course examines the nature of media controllers as well as the character of "users" and "consumers" of media products. By so doing, students are informed about the overall structure and scope of the mass media and led to understand the power and influences associated with media messages and practices. By the end of the semester, each student should have a better understanding of the dynamic nature of the mass media in an information society.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 110** (GH) Media and Democracy (3) This course considers the role of the mass media with regard to developing civic awareness and engagement in democratic societies.

**COMM 110 Media and Democracy (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

COMM 110 seeks to introduce students to the important role of the mass media in developing conceptions of democracy and democratic participation in contemporary societies. Utilizing current events, popular culture and the students' own relationship to media as the template, this course is designed to stimulate student thinking about the interrelationship between the dynamics of US culture, news, politics, and civil society in order to develop a greater understanding and appreciation of what civic engagement and global awareness can do towards nurturing democracy's principles and practices.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 118** (GS) Introduction to Media Effects (3) Examination of individuals' selection, uses and perceptions of media and the effects of media on individuals' attitudes, beliefs, and behaviors.

**COMM 118 Introduction to Media Effects (3)  
(GS)**

Aside from working and sleeping, individuals in the United States spend more time consuming media than any other single activity. By the time the average person reaches the age of 65, he or she will have spent over six full years of life watching television - not to mention the additional time spent reading newspapers and magazines, listening to the radio, using the Internet, and playing videogames. Given the centrality of media in the lives of most people, it is imperative that we understand and critically explore the variety of ways in which we perceived and are influenced by media messages. The purpose of this course is to introduce students to the study of the effects of media on individuals and on society. This course will overview a broad range of media theories that have examined media as a social force, that have explored factors that affect individuals' selection of and perceptions of media messages, and that have studied how media affect viewers' attitudes, beliefs, and behaviors. These theories will be used to examine a variety of different types of content, including media violence, portrayals of race and gender, politics, advertising, and entertainment, among others. Students will be assessed by exams on these theories and topics, by group-based writing assignments, and by an assignment requiring students to locate, identify, and critically evaluate media content that illustrates the theories and issues covered in class.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 120** Advertising and Society (3) History and structure of advertising in American society; the role of advertising in the economic and communications systems; regulation. May not be used to fulfill requirements of any major in the School of Communications.

**Advertising and Society (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 150** (GA) The Art of the Cinema (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.

**COMM 150 The Art of the Cinema (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Communications 150 is an introduction to cinema studies. The course assumes, as film historian John Belton puts it, that

films can reveal, both directly and indirectly, something about cultural identity and memory, and that movies "can be analyzed--even psychoanalyzed--to reveal something about the cultural conditions that produced them and attracted audiences to them." The course seeks both to familiarize students with works they probably haven't seen and to "defamiliarize," through critical and historical analysis, works they very well may have seen. Movies are examined as formal constructs, market commodities, and cultural artifacts--as reflections, however distorted, of life in the twentieth century.

Topics include the emergence of the cinema as an institution; the global dominance of classical Hollywood cinema; American film industry organization (production, distribution, exhibition, vertical integration, the studio system, the star system); analysis of film styles (national cinemas, historical movements); analysis of film genres (e.g., silent film melodrama, *film noir*, comedy, the war film, the western); consideration of film audiences (reception, spectatorship, criticism); introduction to film aesthetics (film art and appreciation); and alternative cinemas (independent, documentary and experimental cinemas).

COMM 150 emphasizes media literacy and seeks to help students develop critical thinking, reading and viewing skills. All sections integrate lectures and readings with viewing feature films during the weekly practicum period. Many sections also incorporate slides and film or video clips during the lecture periods to allow students to exercise their critical viewing skills regarding certain teaching points. Students prepare for film screenings by reading, listening to lectures, and analyzing examples of relevant works. Introductory lectures seek to provide a critical and historical context for each week's screening; follow-up lectures offer critical analysis and examinations reward close viewing. The core purpose of the course, therefore, is to make film viewing a conscious, critical and analytic activity.

COMM 150 serves as a prerequisite for most upper-level film studies courses. It is required for Media Studies majors who have chosen the Film/Television option, and is among three courses (along with COMM 100 and COMM 180) from which all Media Studies majors are required to choose. It has no prerequisite and assumes no prior exposure to film studies, and so is directed primarily to students outside the field.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 150H (GA)** The Art of the Cinema (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.

#### **COMM 150H The Art of the Cinema (3) (GA)**

This course takes a critical and historical approach to cinema, exploring relationships between classical and contemporary films and society and culture. It stresses critical thinking, analytical viewing, and essay writing (rather than memorization of facts or aesthetic evaluation of movies). COMM 150H assumes that the cinema reveals, both directly and indirectly, something about collective experience, identity, and culture, and that movies can be analyzed--even psychoanalyzed--to reveal something about the cultural conditions that produced them and attracted audiences to them. The course seeks both to familiarize students with works they probably haven't seen and to "defamiliarize," through critical and historical analysis, works they very well may have seen. Students will examine movies as formal constructs, market commodities, and cultural artifacts--as reflections, however distorted, of society in the twentieth and twenty-first century.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 150S (GA)** The Art of the Cinema (3) The development of cinema to its present state; principles of evaluation and appreciation; examples from the past and present.

#### **COMM 150S The Art of the Cinema (3) (GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Communications 150S is an introduction to cinema studies. The course assumes, as film historian John Belton puts it, that films can reveal, both directly and indirectly, something about cultural identity and memory, and that movies "can be analyzed--even psychoanalyzed--to reveal something about the cultural conditions that produced them and attracted audiences to them." The course seeks both to familiarize students with works they probably haven't seen and to "defamiliarize," through critical and historical analysis, works they very well may have seen. Movies are examined as formal constructs, market commodities, and cultural artifacts--as reflections, however distorted, of life in the twentieth century.

Topics include the emergence of the cinema as an institution; the global dominance of classical Hollywood cinema;

American film industry organization (production, distribution, exhibition, vertical integration, the studio system, the star system); analysis of film styles (national cinemas, historical movements); analysis of film genres (e.g., silent film melodrama, *film noir*, comedy, the war film, the western); consideration of film audiences (reception, spectatorship, criticism); introduction to film aesthetics (film art and appreciation); and alternative cinemas (independent, documentary and experimental cinemas).

COMM 150S emphasizes media literacy and seeks to help students develop critical thinking, reading and viewing skills. All sections integrate lectures and readings with viewing feature films during the weekly practicum period. Many sections also incorporate slides and film or video clips during the lecture periods to allow students to exercise their critical viewing skills regarding certain teaching points. Students prepare for film screenings by reading, listening to lectures, and analyzing examples of relevant works. Introductory lectures seek to provide a critical and historical context for each week's screening; follow-up lectures offer critical analysis and examinations reward close viewing. The core purpose of the course, therefore, is to make film viewing a conscious, critical and analytic activity.

COMM 150S serves as a prerequisite for most upper-level film studies courses. It is required for Media Studies majors who have chosen the Film/Television option, and is among three courses (along with COMM 100 and COMM 180) from which all Media Studies majors are required to choose. It has no prerequisite and assumes no prior exposure to film studies, and so is directed primarily to students outside the field.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 160 Basic News Writing Skills** (1) Grammar, punctuation, spelling, and word usage skills required of journalists.

### **COMM 160 Basic News Writing Skills (1)**

COMM 160 is a one-credit course that will provide instruction in the basic writing skills required of all journalists. The course will cover three main topics: (1) spelling and word usage, (2) grammar, and (3) punctuation. Students will be assessed by exams on each of the three course parts and a comprehensive final exam. Writing is the lynchpin of the journalism curriculum and it is essential that students possess the basic writing skills necessary to be successful in journalism classes. For that reason, COMM 160 will be a prerequisite to all writing courses in the journalism curriculum. Students will be advised to take the course in their freshman year.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 168 (GH) American Journalism: Values, Traditions, and Practices** (3) This course is designed to give students a broad overview of American journalism, its past, present and future; its traditions, principles and values.

### **COMM 168 American Journalism: Values, Traditions, and Practices (3)**

This course is aimed at consumers of news. This course will appeal to students with varying backgrounds who have an interest in how and why the news is gathered, presented, and marketed the way it is. This course explores where the American news business has come from, where it is now, and where it is going. The principles, practices and traditions of American journalism are studied. Students will gain an understanding of how a confluence of financial and competitive pressures is changing -- and in some cases, distorting -- journalism's institutions and values. This will be a team taught course involving faculty from the College of Communications as well as guest presenters from the news industry.

The first few weeks of the course focus on the historic development of the American press from the Colonial period to the present. The legal and constitutional framework under which the news media operate in the United States are also examined. The second segment will look at a news organization's obligations to its community, and a journalist's duty to uphold core values: seek the truth, act independently and be accountable. The role American journalism played in crucial times of the country's history, such as the abolition movement, the great reforms, the Civil Rights era and in cleaning up political corruption are also examined. Students will also gain an understanding of how these principles have begun to fray under financial and corporate pressures in the hothouse environment of the Internet age. Considerable effort will be devoted to making sure students understand the differences in news standards among, for example, major national newspapers and unedited web sites or politically-oriented cable networks. The course will discuss the economic realities of the news as a business. How newspapers and broadcast outlets traditionally made their money and why that is eroding. Finally, students will get some "hands on" experience through exercises that will require them to distinguish between acceptable and unacceptable journalism, and spot flaws in journalistic practice.

Students will be required to do independent research in historical archives and assess how the news media covered major events. Each student will be part of a group to make a presentation to the class on one of several major topics. Students will also be required to write a book review and a film review. There will also be one major exam. Depending on the size of the class, discussion and debate will be encouraged.



General Education: GH  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 170** Introduction to the Sports Industry (3) The course provides a basic understanding of how the principles of business apply in the industry of sports.

### **COMM 170 Introduction to the Sports Industry (3)**

Since 1987 the sports industry has grown from \$50 billion to more than \$200 billion. It has become one of the ten leading industries in the United States. It is also an industry that is unlike any other in its structure and operating principles. In traditional business, the participants compete vigorously with one another for revenue and profits. By contrast, in almost every sports venture, the competitors, while competing on the field of play, must cooperate off the field in order for the venture to be profitable.

Students in this course will study the unique aspects of the sports industry. They will begin to understand the workings through learning the history. Students will study the effect of the sports industry on the mass media and vice versa. The interrelationships of sports with the print, broadcast and electronic media will be considered. Students will learn how the basic principles of law, marketing, labor relations, profitability, finance and economics apply to the sports industry.

The effect of legislation and regulation on the sports industry will be covered.  
 The subject of ethics in sports will also be examined.

The course will explore the formation and structure of leagues and governing agents in the sports industry. Professional, amateur, collegiate, international and Olympic sports will be included.

An emphasis will be placed on current events in the sports industry. Students will be required to read and discuss the contents of weekly editions of Sports Business Journal. They will apply the principles learned in class and through the readings to the business problems of the day as reported in the Journal.

Career opportunities in the sports industry and related fields will be explored. Students will be able to begin to evaluate their interest and ability to pursue careers in this area.

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Career opportunities in the sports industry and related fields will be explored. Students will be able to begin to evaluate their interest and ability to pursue careers in this area.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 180** (GS) Survey of Electronic Media and Telecommunications (3) The development of electronic media and telecommunications, emphasizing social, economic, political and global impact.

### **COMM 180 Survey of Electronic Media and Telecommunications (3) (GS)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course is an introduction to electronic communications (telecommunications) and their consequences for society and the economy. Until a few years ago, this primarily meant over-the-air television, radio and cable TV, and a dial-up telephone. Increasingly, however, the field has expanded to include a wide variety of broadcast, wire-based and wireless forms of video, data and voice communications. The rapid convergence of previously disparate industries and services, especially the melding of television, telephone and Internet systems, will be a dominant theme in the course. At the same time, a global system of electronic communications has been steadily evolving. This class is also about the dynamics of that changing system; it is about the origins of the telecommunications system, and its future. To better understand these developments, we will examine powerful interacting forces that are shaping the world of information by drawing on history, economics, technology studies, politics, and culture.

While the course is intended primarily for Telecommunications majors planning careers in these fields, all students will benefit from the course by learning to critically analyze media structures and programming and to better appreciate the importance of ICTs (Information, Communication and Technology) in their lives. This course serves both as an introductory

core course for students in the Telecommunications major and as a broad social science course for students in other departments across the university. For students within the Telecommunications major, the course introduces the key terminology, concepts and issues in the field as well as the range of career options within the telecommunications industries. For students outside the major, this course provides a grounding in the current shift from an industrial society to an information society in which electronic media play a pervasive role in our personal, social, economic, and political lives.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 190 (GS) (GAME 140) Gaming and Interactive Media (3)** Introduction to business and social aspects of interactive media, videogame and simulations industries.

**COMM 190 (GAME 140) Gaming and Interactive Media (3)**

The course is an introduction to the digital interactive media industries for students who may consider seeking employment in that sector, which includes video games and simulations, products for education, training, medicine, business, government/military, and virtual environments for a range of applications. Students will learn about industry structures, basic economics, business models, work flow, types of enterprises, job descriptions, and opportunities. It examines both the national and global markets. It provides students with a factually and theoretically informed appreciation of these industries.

The course will build on the students' personal and social experiences of these media, but it is not a course about playing or designing games or mastering individual applications. No special knowledge or experience in playing video games, using "serious games," or experiencing virtual worlds is required. It will provide students with the foundation to make a well-informed choice about careers in this sector and respond to their natural curiosity about this pervasive part of their lives.

The course is divided into five segments. The first provides general context: history, scale and scope of the field, information on industry structure, business models and operations, and types of skills required. The second focuses on the video game industry, including social, regulatory and ethical issues. Video games are now a major media industry, having surpassed in U.S. revenue both the movie and recorded music industries. The third section looks at "serious games." A "serious game" is a game designed for a primary purpose other than pure entertainment, such as education, scientific exploration, health care, emergency management, city planning, military, engineering, religion, etc. The fourth segment looks at simulations and virtual worlds and their multiple models and uses (entertainment, learning, business, research, etc.), and the development of related online communities. The final section will examine the interrelationship of these industries with the other entertainment industries in terms of planning, marketing, finance, production, etc. It will conclude with a look ahead at new technologies, markets, business models, advancements in artificial intelligence and the convergence of virtual and material worlds.

The course will employ presentations, class discussions, outside readings, demonstrations, videos, class exercises, online explorations, guest experts (in person and via technology), and experiences in virtual worlds.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 190 (GS) (GAME 140) Gaming and Interactive Media (3)** Introduction to business and social aspects of interactive media, videogame and simulations industries.

**COMM 190 (GAME 140) Gaming and Interactive Media (3)**

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well-informed choice about careers in this sector and respond to their natural curiosity about this pervasive part of their lives.

The course is divided into five segments. The first provides general context: history, scale and scope of the field, information on industry structure, business models and operations, and types of skills required. The second focuses on the video game industry, including social, regulatory and ethical issues. Video games are now a major media industry, having surpassed in U.S. revenue both the movie and recorded music industries. The third section looks at "serious games." A "serious game" is a game designed for a primary purpose other than pure entertainment, such as education, scientific exploration, health care, emergency management, city planning, military, engineering, religion, etc. The fourth segment looks at simulations and virtual worlds and their multiple models and uses (entertainment, learning, business, research, etc.), and the development of related online communities. The final section will examine the interrelationship of these industries with the other entertainment industries in terms of planning, marketing, finance, production, etc. It will conclude with a look ahead at new technologies, markets, business models, advancements in artificial intelligence and the convergence of virtual and material worlds.

The course will employ presentations, class discussions, outside readings, demonstrations, videos, class exercises, online explorations, guest experts (in person and via technology), and experiences in virtual worlds.

General Education: GS

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1993

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 205** (GS;US) (WMNST 205) Gender, Diversity and the Media (3) Explores the relationship between media and society through critical analysis of its role in social reality.

#### **COMM (WMNST) 205 Women, Minorities, and the Media (3) (GS;US)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course is aimed at consumers of media in any form. It explores the relationship between the media and society through critical analysis of media and its role in education about and creation of social reality. Students research literature on human diversity issues in media representation. Students explore economic, political and social implications of media practice. Course content is designed to help build deeper understanding of gender, race, ethnicity, ability, sexual orientation and class diversity in media. Students explore the role of media and media literacy within the pluralistic democratic US society in the context of a diverse global society. Communication theory helps explain how media representations impact human construction of meaning in social relationships.

General Education: GS

Diversity: US

Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 205 (GS;US) (WMNST 205) Gender, Diversity and the Media (3)** Explores the relationship between media and society through critical analysis of its role in social reality.

**COMM (WMNST) 205 Women, Minorities, and the Media (3)**  
**(GS;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is aimed at consumers of media in any form. It explores the relationship between the media and society through critical analysis of media and its role in education about and creation of social reality. Students research literature on human diversity issues in media representation. Students explore economic, political and social implications of media practice. Course content is designed to help build deeper understanding of gender, race, ethnicity, ability, sexual orientation and class diversity in media. Students explore the role of media and media literacy within the pluralistic democratic US society in the context of a diverse global society. Communication theory helps explain how media representations impact human construction of meaning in social relationships.

General Education: GS  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 215 Basic Photography for Communications (3)** An introduction to photography, emphasizing both technical skills and aesthetics with both the camera and in the darkroom.

**COMM 215 Basic Photography (3)**

An introduction to photography as a means of visual communication, emphasizing aesthetic and technical approaches. Students will learn basic picture-taking principles, camera handling, photographic aesthetics, and photographic production techniques. Students will be encouraged to explore photography as an aesthetic, expressive, and socially significant medium. This will be achieved through individual and group criticism of each student's photographs, as well as through analysis of examples of the work of prominent photographers. Another aim is to give students first-hand experience in making photographs. Students will complete a series of assignments designed to introduce various principles and techniques such as depth of field, action photography, and portraiture. Students will supply their own cameras and are expected to buy supplies such as film, printing paper, and mounting materials. At the end of the semester, students will be able to produce photographs that tell a story and write captions for their photographs. In addition, they will have a knowledge of the aesthetics of photography, will understand the importance of both form and content, and will have the ability to critically evaluate photographs.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 230W Writing for Media (3)** The application of creativity to the practical concerns of narrative script and radio/television spot writing.

**COMM 230W Writing for the Media (3)**

This course is an introduction to writing for various kinds of mass communication media. Students will practice writing public relations news releases, public information announcements, print, television and radio advertisements, as well as news stories and editorials. Students will be given weekly writing assignments, some of which will be re-writes of earlier submissions. In-class exercises will include various writing exercises designed to get students more comfortable with writing for media. Prerequisite: ENGL 015 and ENGL 202.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: ENGL 015 and ENGL 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 241** Graphic Design for Communications (3) Introduction to basic design principles, critical analysis of visual material, and solving graphics problems utilizing traditional and digital production tools.

**Graphic Design for Communications (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 242** Basic Video/Filmmaking (3) Introduction to basic motion picture techniques, emphasizing practical experience in filmmaking.

**COMM 242 Basic Video/Filmmaking (3)**

COMM 242 is an introductory course that emphasizes the development of creative expression and technical skills in film and video production. Students will explore modes of moving image representation through screenings, lectures, discussions, and especially through hands-on film and video making. Students are required to construct projects that have both clear intentions and technically competent execution. The work of the course will facilitate the development of basic skills in image design, editing, and writing as they apply to single camera techniques for documentary, narrative, and experimental film and video. The course will also provide a basic cultural and historical context for the various production modes, and students will be encouraged to consider their own projects in relation to the work of other video and film artists. Creative collaboration and group critique are essential elements of the course. Students will be required to produce some collaborative projects, and to respond critically to the work of the other students in the course. Students will make projects using 16mm film and video cameras, microphones, portable lighting, and nonlinear editing stations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: COMM 150 and second third or fourth semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 250** (GA) Film History and Theory (3) Exploration of film theory and criticism in the context of aesthetic, technological, and economic evolution of film history.

**Film History and Theory (3)**

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: COMM 150

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 251** The Nature of Media (3) A theoretical, cultural, and philosophical study of print and non-print media, including their histories, possibilities, limitations, and interrelationships.

**COMM 251 The Nature of Media (3)**

An examination of the theory, history, practice, and meaning of media. Within the framework of various media theories, students examine how print media, broadcast media, film, telephones, the Internet, and other technological forms communicate. Executives and practitioners from various media outlets visit the class to discuss what happens in the real world and what career opportunities might be available. Emphasis is placed on a final creative project which should reflect each student's understanding of the nature of media and how it creates the culture we live in.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 260W** News Writing and Reporting (3) News and news values; legal and ethical problems of reporting; writing and reporting news for the mass media.

**COMM 260W News Writing and Reporting (3)**

COMM 260 introduces students to the basics of news reporting and writing. Through a combination of lecture, discussion, and writing assignments, students learn how to write news stories that are accurate, fair, clear, and concise. The goals of COMM 260 are to produce students who can:

- \* Demonstrate an understanding of the importance of accurate, thorough, and fair news writing
- \* Write concise, well-organized stories with effective leads that get the reader's attention and tell the most important news
- \* Gather information through the use of interviews, documents, and basic reference materials
- \* Generate story ideas that reflect an understanding of the elements of newsworthiness (timeliness, prominence, proximity, conflict, novelty, and impact)
- \* Produce copy free of misspellings, grammatical errors, AP style errors, and factual errors
- \* Understand the legal, ethical, and historical principles underlying journalism, including the role of journalists in society
- \* Appreciate the joy and importance of being well informed

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004

Prerequisite: ENGL 015 or ENGL 030; COMM 160 ; third-semester standing and typing proficiency

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 261 (GH) The Literature of Journalism (3)** Representative nonfiction by writers such as Susan Sheehan, George Orwell, Joan Didion, Alice Walker, Truman Capote, C. D. B. Bryan, Russell Baker.

**COMM 261 The Literature of Journalism (3) (GH)**

The Literature of Journalism introduces students to 20th century nonfiction by people who were/are considered journalists. Most of the work originally appeared in magazines or newspapers and in some cases was expanded on before being published as a book. This is not a course in literary journalism, although some of the books assigned might qualify as such. Instead, the course is designed to give students a greater appreciation for the journalistic enterprise and different styles of writing. Students will also see how different writers influenced other writers. Students will read works by Hunter Thompson, Alex Haley, Joan Didion, Truman Capote, George Orwell, and James McBride, among others.

General Education: GH

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 269 Photojournalism (3)** Photography for communication in print and online; creating photographs for newspapers, magazines and the Web; digital camera and software skills.

**COMM 269 Photojournalism (3)**

Photography as a medium for communication; creating visual content for newspapers, magazines, and online publications; digital camera and editing techniques.

Students complete a series of assignments that help them learn to produce visual content for newspapers, magazines, and online publications. Major topics of the course include fundamentals of digital photography for multimedia and print, ethics, composition, caption writing, photo editing, and the use of electronic imaging software.

Through individual and class projects, students critically evaluate their own work and the work of others. Students use class assignments to create a portfolio.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: or concurrent: COMM 260W or COMM 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 270 Introduction to Multimedia Production (3)** Introduction to multimedia project activities to explore image editing, layout, the integration of texts and images and web architecture.

**Introduction to Multimedia Production (3)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 271 Principles of Multimedia Journalism (3)** The course introduces how journalists work with the tools of multimedia and how multimedia is changing journalism.

### **COMM 271 Principles of Multimedia Journalism (3)**

Journalists have never had better tools to cover the news than they do today. Every news organization can now tell stories with text, video, sound and images. Reporters can interact with their audience while covering stories in real time. Audiences have unprecedented choice in when and where they can access information. These innovations are allowing the news industry to reinvent itself. But there are major challenges. What does it take to be competitive in a 24/7 news cycle? What is the best way to work with text, video, still images and sound? How much do reporters and editors need to know about these tools? What role do social media have in this mix? Are ethical standards and being lost in the scramble to gain audience and grow revenue? This course will introduce multimedia news and be a foundation for skills courses. It will examine the latest platforms and tools of the trade, adding value with multimedia, the roots and development of multimedia, working in a cross-platform environment, multimedia reporting and editing, data visualization, intellectual property rights, ethical issues, citizen journalism, social media and the news, business models for multimedia journalism, finding a job, and other subjects.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 271 Principles of Multimedia Journalism (3)** The course introduces how journalists work with the tools of multimedia and how multimedia is changing journalism.

### **COMM 271 Principles of Multimedia Journalism (3)**

Journalists have never had better tools to cover the news than they do today. Every news organization can now tell stories with text, video, sound and images. Reporters can interact with their audience while covering stories in real time. Audiences have unprecedented choice in when and where they can access information. These innovations are allowing the news industry to reinvent itself. But there are major challenges. What does it take to be competitive in a 24/7 news cycle? What is the best way to work with text, video, still images and sound? How much do reporters and editors need to know about these tools? What role do social media have in this mix? Are ethical standards and being lost in the scramble to gain audience and grow revenue? This course will introduce multimedia news and be a foundation for skills courses. It will examine the latest platforms and tools of the trade, adding value with multimedia, the roots and development of multimedia, working in a cross-platform environment, multimedia reporting and editing, data visualization, intellectual property rights, ethical issues, citizen journalism, social media and the news, business models for multimedia journalism, finding a job, and other subjects.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 282 Television Field Production (3)** Explore the particularities of single camera pre-production and production and analog and digital videotape editing.

### **COMM 282 Television Field Production (3)**

COMM 282 provides an introduction to the pre-production, production and post production techniques when creating video content. The course will explore the grammar and syntax of constructing and criticizing video messages in single camera productions. Students will apply shooting and editing concepts while doing a variety of projects typical of single camera shoots. Students will learn the particularities of single camera production from the textbook, the lectures, discussions and classmates' experiences.

While learning the technical aspects of video production, the students will learn the managerial aspects of production. Students will practice and apply the processes of budgeting, topic and location research, script writing, production treatments, dealing with unions, releases, etc.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 283W** Television Studio Production (3) Students will learn the technical aspects of multi-camera studio television production.

### **COMM 283W Television Studio Production (3)**

Communications 283W is an advanced video course. The course builds on the principles learned in Communications 282.

- The purpose of this course is two fold. The first goal is to learn the technical aspects of multi-camera (studio) television production. Students will learn how to brainstorm ideas, write program proposals, treatments and scripts for various formats of television studio production. Incorporated in the technical aspects of the class, the students will learn how to produce and direct a studio production. They will also learn all the crew positions in a television studio production including audio, teleprompter, technical director, assistant director, videotape, floor manager, character generator operator and camera crew.

- The second goal of this course is to apply the grammar and syntax of constructing and criticizing video messages to multi-camera television productions. Students will apply shooting, producing and directing concepts while doing a variety of projects typical of multiple-camera shoots. They will learn the particularities of multi-camera television production from lectures, discussions and their own experiences.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: COMM 282 or COMM 242

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 292 (GH)** Introduction to Media & Politics (3) This course explores the intersection of media and politics, introducing students to the critical analysis of mediated political discourse.

### **COMM 292 Introduction to Media & Politics (3) (GH)**

COMM 292 examines how mass media and political institutions interact to shape public thinking and debates around social goals, priorities, and policies. The course explores how media structures, routines, and practices shape political decision making; how political forces influence mass media institutions; and how public opinion and media audiences are formed. Students will gain an understanding of these issues through in-depth case studies, class discussions, and written assignments, helping students to develop their own informed views and to learn to express them constructively. The course is designed for both Communications majors and other students with an interest in media and politics.

General Education: GH  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 294** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**



General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 304** Mass Communication Research (3) Introduction to research methods in mass communications.

#### **COMM 304 Mass Communication Research (3)**

This course provides an introduction to the logic and methods of social science research as it is employed to study topics in media. Students will be introduced to key principles of social scientific reasoning, including aspects of concept explication and effective measurement, evaluation and demonstration of causality, and reliance on empirical data. Core standards of evidence are presented for both quantitative and qualitative data, but a focus is placed on statistical evidence and reasoning. Topics include effective question wording, ethical treatment of research participants, experimental research designs, sampling and survey research, content analysis, and sound interviewing techniques. In addition, students address key ideas in statistical analysis, including principles of inference, common descriptive statistics, and widely used tests of both bivariate and multivariate relationships. Presentation of this material includes training in effective use of appropriate statistical software. Based on this training, students should be able to contribute to sound research on media-related topics in both the academic and professional environments.

In addition, significant attention is paid to evaluating research done by others. Students read and assess original research and consider the merits of such research as well as its applicability to novel studies. Based on this training, students should be prepared to better understand the results presented in social scientific research, particularly within the field of media studies, and apply this knowledge to future coursework. Beyond this, students learn how to critically evaluate quantitative research when presented in media content, such as public opinion polling, and when making professional judgments about sound organizational strategies as a response to research conducted by others. At the end of this course, students should be better prepared to engage with the increasingly complex array of statistical information available to modern companies and citizens.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: 3 credits from STAT 200SCM 200 or PSYCH 200 ; and 3 credits from COMM 100COMM 110COMM 118COMM 150COMM 180COMM 260WCOMM 320 or COMM 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 315** Applications for Media Writing (3) Tutorial and practice in various kinds of journalistic and commercial writing, emphasizing basic skills.

#### **Applications for Media Writing (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2012

Prerequisite: COMM 160 and ENGL 202A ENGL 202B ENGL 202C or ENGL 202D

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 320** Introduction to Advertising (3) Advertising management in business, including communication theory; common industry practices; basics of copy, media, and budget decision; and environmental influences. A student may not receive credit for both COMM 320 and MKTG 322.

### **COMM 320 Introduction to Advertising (3)**

COMM 320 introduces students to the advertising industry and provides a foundation for understanding what advertising is and how it developed to its current state, what it tries to accomplish, how it works, and how it can affect society. The class includes numerous examples of advertising, from the 1880s to the 2010s, to illustrate the topics covered. The goal is have students think more clearly and critically about the commercial actors behind advertising, their strategic objectives, how advertising messages help achieve specific marketing goals, and the possible social impacts. This course provides the basis for all further courses students take in the advertising sequence.

During the course students: learn the basic concepts and vocabulary essential to the fields of advertising and brand promotion; understand the process and effects of advertising and brand communications; are introduced to the strategic and conceptual decisions advertisers face when deciding the best way to both say and deliver a message within the public marketplace; learn the landscape of the advertising industry, including understanding how the industry works and how it is organized; understand current trends in the advertising and marketing industries, and examine their implications for both industry and society; are exposed to the history and role of professionals and institutions in shaping communications; gain an understanding of the diversity of groups in a global society in relationship to communications. Specific topics covered in the course include definitions of marketing, advertising, and integrated marketing communication (IMC). Students learn what it means to be a brand, as well as how brand equity is developed by marketers. The fundamentals of brand positioning are also explored, in the context of brand promotion and evolution. The psychological processes that underlie persuasive commercial messages are explored. The differences between subliminal and non-conscious routes to persuasion are presented and discussed.

The course also includes a review of promotional activities outside of traditional advertising, including public relations, direct marketing, personal selling and sales promotions. The role of social media and other online communications in the promotional mix are explored. The legal and ethical dimensions of commercial communication are outlined. Students are asked to think critically about the implications of marketing harmful products, selling to susceptible target audiences, using controversial appeals and the perpetuation of negative stereotypes.

Students' understanding of course content is assessed by three multiple-choice exams and four online quizzes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1989

Prerequisite: fourth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 320H** Introduction to Advertising (3) Advertising management in business, including communication theory; common industry practices; basics of copy, media, and budget decision; and environmental influences.

### **COMM 320H Introduction to Advertising (3)**

COMM 320 introduces students to the advertising industry and provides a foundation for understanding what advertising is and how it developed to its current state, what it tries to accomplish, how it works, and how it can affect society. The class includes numerous examples of advertising, from the 1880s to the 2010s, to illustrate the topics covered. The goal is to have students think more clearly and critically about the commercial actors behind advertising, their strategic objectives, how advertising messages help achieve specific marketing goals, and the possible social impacts. This course provides the basis for all further courses students take in the advertising sequence.

During the course students: learn the basic concepts and vocabulary essential to the fields of advertising and brand promotion; understand the process and effects of advertising and brand communications; are introduced to the strategic and conceptual decisions advertisers face when deciding the best way to both say and deliver a message within the public marketplace; learn the landscape of the advertising industry, including understanding how the industry works and how it is organized; understand current trends in the advertising and marketing industries, and examine their implications for both industry and society; are exposed to the history and role of professionals and institutions in shaping communications; gain an understanding of the diversity of groups in a global society in relationship to communications.

Specific topics covered in the course include definitions of marketing, advertising, and integrated marketing communication (IMC). Students learn what it means to be a brand, as well as how brand equity is developed by marketers. The fundamentals of brand positioning are also explored, in the context of brand promotion and evolution. The psychological processes that underlie persuasive commercial messages are explored. The differences between subliminal and non-conscious routes to persuasion are presented and discussed.

The course also includes a review of promotional activities outside of traditional advertising, including public relations, direct marketing, personal selling and sales promotions. The role of social media and other online communications in the promotional mix are explored. The legal and ethical dimensions of commercial communication are outlined. Students are asked to think critically about the implications of marketing harmful products, selling to susceptible target audiences, using controversial appeals and the perpetuation of negative stereotypes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: fourth-semester standing; A student may not receive credit for both COMM 320H and MKTG 322.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 331 Visual Communication Theory and Analysis (3)** This course explores visual theory pertaining to movies, television production, and graphic design, emphasizing semiotics, the psychology of vision, and reception theory.

### **COMM 331 Visual Communication Theory and Analysis (3)**

This course explores visual communications theory pertaining to movies, television, and graphic design. Students will be introduced to semiotics, the psychology of vision, and reception theory. Students will analyze images and processes of visual communications in movies, television and graphic design through papers and oral presentations. The course provides an understanding and application of visual theories as they apply to movies, television, and graphic design through the use of case studies. It builds on theories presented in COMM 100 and COMM 150, and gives students opportunities to analyze issues and trends in visual media.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: COMM 150

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 332 Reporting (3)** Practice in researching and gathering material for and preparation of news stories for print media.

### **COMM 332 Reporting (3)**

The course is an introduction to the various tools and techniques of researching and gathering information, using a combination of traditional research methods and new computer-based technologies. It develops performance and critical skills focusing on concepts of news, fact checking, finding and developing sources, interviewing, writing styles, and structures of different story types. It also provides solid grounding in historical, ethical, and legal dimensions of U.S. newspaper journalism within a comparative media system context. For the duration of the course, there shall also be continuous discussion on the role of the journalist in society, where students shall examine the legal provisions and ethical considerations that govern the practice of journalism, the unwritten "social contract" between journalists and their audiences, and the nature of the relationship between journalists and those who wield political and economic power in the community.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: COMM 260W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 333 Film History for Filmmakers I: The Development of the Cinema to 1960 (3)** History of the art, industry, economics, culture, and technology of cinema from its origins to 1960.

### **COMM 333 Film History of Filmmakers I: The Development of the Cinema to 1960 (3)**

Film History I describes the prehistory and history of the medium of cinema to 1960. The course explores the artistic, technical, economic development of the cinema, and the cultural contexts in which this development occurred. The course covers narrative, experimental, and documentary cinema and trains students in the techniques of close formal analysis of the cinema. The course stresses formal, thematic, and cultural analysis of the cinema throughout the first decades of its history. This course is integral to the curriculum in Film-Video. It provides Film-Video students with a detailed description of trends in their art form. It provides students with intensive study in the history of an influential medium in the development of the concept of mass media and communications.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: COMM 150 Film-Video major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 337W Intermediate Documentary Production (3)** Writing-intensive exploration of documentary video techniques and aesthetics through the completion of short exercises.

**COMM 337W Intermediate Documentary Production (3)**

This course is a writing-intensive intermediate technical and aesthetic course in documentary production. In producing a series of short visual exercises students will explore the conventions of the documentary form, formal concepts of the visual image -- both still and motion, the principals of controlling light and sound recording, the conventions of editing, and idea development. Written work and group critique will also inform the study of non-fiction modes of visual media.

Students will also gain experience in the writing of media criticism and analysis as well as learning the writing styles specific to non-fiction media. Writing assignments include both informal and formal writing assignments and are integral parts of the course.

Technically this course builds on the skills and knowledge obtained in the beginning production course. Students work independently and collaboratively on the production of short media projects using video and digital technologies that provide project-driven experience in the disciplines of writing, producing, directing, camera work, sound, and editing. This course introduces new technologies and production techniques in relation to non-fiction modes. Students will develop ideas for one or more documentary projects and will have the opportunity to work in a variety of production roles. The course will require a significant amount of work outside of class. Students are encouraged to participate in class discussions and contribute critical feedback on their classmates' projects.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: COMM 242 and Film-Video major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 338 Intermediate Narrative Production (3)** Exploration of narrative film or video techniques and aesthetics through the completion of short exercises and projects.

**COMM 338 Intermediate Narrative Production (3)**

This course is an intermediate aesthetic and technical production course in short-form narrative production. Through screenings, discussions, readings and creative production projects, students will explore the collaborative process of narrative filmmaking and the conventions of the fiction form. This course builds on the skills and knowledge obtained in the beginning production course. Students work independently and collaboratively on the production of short media projects using video and digital technologies that provide project-driven experience in the disciplines of writing, producing, directing, camera work, sound, and editing.

The success of any narrative film depends on a focused collaborative effort by a number of individuals to tell a story. In this course, students will explore the process of producing a short narrative video using traditional production techniques. An emphasis is placed on learning the responsibilities and established practices of key production roles such as producer, director, cinematographer, sound designer and editor. Working in small groups, students will develop a short project where they will apply the processes associated with pre-production, production and post-production. Students will be building on their technical and aesthetic knowledge of digital video formats through lectures, demonstrations, outside readings and class exercises; videos will be viewed throughout the semester to demonstrate these concepts. Students will participate in class discussions and contribute critical feedback on their classmates' projects. The emphasis will be on the exploration of visual and aural expression and a fundamental mastery of the digital medium as it applies to traditional narrative production.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: COMM 242 and Film-Video major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 339 Intermediate Alternative Production (3)** Exploration of alternative film or video production techniques and aesthetics through the completion of short exercises and projects.

**COMM 339 Intermediate Alternative Production (3)**

COMM 339 is an intermediate level course in alternative film and video aesthetic theory and technique. The class is designed to expose students to a broad range of alternative and avant-garde filmmaking concepts, including classical and contemporary experimental practices, animation and new forms of cross disciplinary media production.

The course is designed to encourage students to think about film and video production as the beginning point in an expanding journey of creative exploration. It exposes students to a diverse range of historical and contemporary alternative or experimental filmmaking practices and forms and enables them to:

- Expand their creative horizons beyond preconceived and popular forms of film culture.
- Develop their abilities to discover their own personal filmmaking focus and language.
- Learn the skills necessary to create unique bodies of work in film and video media.
- Critically assess the success of their own and their fellow students' efforts.

Students will create several short projects over the course of the semester. Formal parameters will be discussed and explored in advance of the assignments and students will be expected to complete three discrete projects either on their own or with a group. Formal evaluation will be comprised of group critique, oral feedback from the instructor and written self-evaluation.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2010  
 Prerequisite: COMM 242 and Film-Video major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 340** Intermediate Cinematography and Editing Techniques (3) Exploration of film and video production techniques through the use of camera, lighting, audio and digital post-production equipment.

### **Intermediate Cinematography and Editing Techniques (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2011  
 Prerequisite: COMM 242 Film-Vido major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 342W** Idea Development and Media Writing (3) Introduction to various modalities of idea development and written expression for media production.

### **COMM 342W Idea Development and Media Writing (3)**

This writing-intensive course is designed to introduce students to various modalities of idea development and expression for audio-visual projects. Writing as an ideational, descriptive or reflexive tool is an integral element of each modality.

Learning objectives encompass the development of skills in the following areas:

- Conceptualization: finding, refining and articulating the idea into a clearly worded proposal
- Visualization: translating the proposal into a visual and highly imagistic form
- Decision-making: deciding what form and genre would best suit the visual form of the idea
- Intellectual articulation: explaining and rationalizing the visual idea in a written form, either as a treatment or script.
- Manifestation: initial preparation for production of developed idea(s) into selected audio-visual formats.

Emphasis will be placed on using written work as an integral part of the creative process. As a designated "W" course, students will gain experience in the writing of media criticism and analysis as well as learning the writing styles specific to the profession. Writing assignments will include informal writing such as exercises in intuitive and timed writing, one minute response papers and collective story telling. Formal writing assignments will include observational essays, descriptive essays or stylistic "treatments", formal narrative proposals, analytic and editorial story reports, and self-reflexive critique papers.

Students will progress through a series of creative exercises that support the development of the above skills consisting of:

- Written and oral exercises in synthetic thinking and idea generation. These will be comprised of short 200-500 word in class "warm up" exercises and include assignments in intuitive and timed writing, one minute response papers and collective story telling.
- Exercises in visual thinking, visual storytelling and image composition (photography as well as other forms of two dimensional imagery) to be undertaken in a complementary structure with written assignments comprised of observational essays and narrative translations of visual data.
- Longer (750-1500 word) written assignments in various forms (descriptive, persuasive, analytical, editorial and critical) tailored to the professional requirements of the film-video major; these include descriptive essays or stylistic "treatments", formal narrative proposals, analytic and editorial story reports, and self-reflexive critique papers.

Written feedback from the instructor will be provided on a regular basis, as well as in class peer critique and story workshops. Students will be required to redraft and rewrite assignments as needed.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2011  
 Prerequisite: COMM 242 and Film-Video Major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 346** Writing for the Screen I (3) A beginning course in narrative Screenwriting emphasizing analysis, creativity, and critiquing skills necessary for the development of storytelling.

**COMM 346 Writing for the Screen I (3)**

The course is about the creative process of conceiving and fashioning films that wish to order experience into a meaningful and expressive narrative structure. It is designed for students who wish to delve more deeply into screenwriting and those wishing to develop a script for senior-level production. It continues to develop screenwriting and storytelling skills introduced in Introductory Film and Video Production and Media Writing, and seeks to further hone their creative skills as writer-filmmakers.

A large part of classroom sessions will be conducted in a traditional writers workshop structure, focusing on the presentation, discussion, and critiquing of written work; other sessions will concentrate on the analysis and critiquing of professional screenplays, with particular emphasis on close-reading of individual scenes, and study of screenwriters writing about the process.

Scripts produced will be limited to short-form work, target length being no more than 15 pages maximum. Such a length combines both the virtues of disciplined, sharply-focused perceptions with a length sufficient for developed narrative arcs and tonal and thematic complexity. Scripts produced in this class will be appropriate for all of the advanced single semester advanced production courses and submission as part of a student's application for the two-semester advanced production for groups course.

Assessment is based on the progress of creative written work throughout the semester, as well as participation within the critiquing process, both verbally in class discussions and in critical writing submitted to each other and the instructor. Each individual will be expected to: (a.) display an understanding of the various creative elements of filmic storytelling – including visual story-telling, character, dialogue, narrative structure, and theme - and how those elements create and amplify meanings in the work; (b.) thoroughly develop original and meaningful narratives and effectively convey them cinematically; (c.) hone the specific writing and (most especially) re-writing skills needed for successful screenwriting through their application and practice; (d.) illustrate the ability to thoughtfully and constructively critique their own work as well as that of their fellow writers in the class. During the semester students will be expected to learn to write original and creative constructed pitches, treatments, and scripts.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: COMM 342W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 350 (IL) Comparative Media Cultures (3)** Intercultural examination of economic, political, philosophical, and historical forces that shape various societies' newsgathering routines and content.

**COMM 350 Comparative Media Cultures (3)  
(IL)**

Utilizing a case study approach, students examine how and why news organizations and styles have developed in different ways in different cultures. The course begins with a sociology of news work, and an examination of the ownership of news outlets and the economic constraints and opportunities each medium and media culture offers. A staple of the course will be an intercultural comparative study of different news products, analyzed for visual structure, stereotyping and objectivity. The effects of the Internet on cultural messages, "The Global Village," and intercultural news exchanges will be examined, as well as the legal and ethical precedents and boundaries created for news in different societies. The First Amendment and the right to privacy are examined in the context of news and personal freedoms in other cultures.  
Prerequisite: COMMS 251

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: COMM 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 360 Radio Reporting (3)** Reporting, writing, producing, and presenting radio news programs, focusing on the development of news judgment and writing skills.

**COMM 360 Radio Reporting (3)**

COMM 360 provides an introduction to broadcast news writing and radio production. Students take this course after they have completed an introductory print reporting course but before they take advanced courses that focus on television news production. This course is designed to introduce students to the general principles of broadcast writing used in both the radio and television mediums. As a prerequisite for 400-level courses, COMM 360 is offered on a regular basis to allow students to complete curricular requirements in a timely manner.

Students learn the techniques needed to report, write and produce radio news. During the semester, students report on news and learn to produce, anchor and engineer a newscast.

Learning objectives for COMM 360 are that students:

- \* demonstrate an understanding of professional ethical principles in news reporting and apply those principles in newsgathering;
- \* demonstrate basic proficiency in the tools used to report and produce broadcast-quality radio news;
- \* demonstrate the ability to write news for a broadcast format;
- \* demonstrate the ability to produce quality work on deadline;
- \* apply an understanding of news values in the creation of a newscast; and
- \* demonstrate the ability to supervise other students in a working newsroom.

Students work together in a broadcast facility to produce a radio newscast. They are evaluated throughout the semester on their ability to integrate skills and concepts they learn into their broadcast stories. Upon successful completion of the course, students will have learned the theories and skills at the core of their broadcasting profession.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: COMM 260W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 363 Desktop Publishing (3)** Practical and theoretical approach to visual communication production in newspaper journalism, advertising, public relations, and other communication industries.

### **COMM 363 Desktop Publishing (3)**

An introduction to publication design and production for the print media, with an emphasis on newspaper, newsletter, advertising, and magazine design. Students critically analyze existing publication designs in order to develop their visual literacy and visual analysis vocabularies. For assignments, students make layouts and designs using desktop publishing and visual editing software, learning to combine visual and textual elements in publications to make them elegant, consistent, and visually appealing as well as readable and accessible. Assignments are critiqued in class discussion sessions designed to further develop critical visual vocabularies. Unique design issues associated with online and interactive media design are also discussed.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: COMM 215 or COMM 241

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 370 Public Relations (3)** Public understanding of organizations and institutions; identification and analysis of public; media relations; public relations practice.

### **COMM 370 Public Relations (3)**

This is the introductory course in public relations. It is a survey course that will provide students with a foundation for understanding the role and function of public relations and public opinion in American society, business and industry. The course defines the role of public relations, its societal value, and the workplace settings where public relations is practiced. Students are introduced to the interrelationships between the disciplines of public opinion and public relations and the many definitions of public relations and how they vary from organization to organization. Students learn how individuals, interest groups, organizations, corporations and politicians monitor and analyze public attitudes, opinions and issues that impact individual citizens, groups, organizations, institutions, and society. Students examine public relations from a historical perspective and study important social campaigns that have laid the groundwork for public relations in the modern era. Students are introduced to a myriad of communications theories and how they apply to different scenarios ranging from persuasion to crisis communications. The course helps students develop an understanding of the history, structure, and functions of public relations, the four-step public relations process (research, objectives, programming, and evaluation), the tools used to carry out public relations, ethics in public relations, and legal framework adhered to by public relations practitioners. Additionally, students are taught to appreciate the value of public relations in solving problems and making policy, i.e., the importance of being involved in the decision-making body of a corporation or public relations firm. Students are also shown why individual as well as institutional credibility is critical to public relations practice.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: fourth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 370H Public Relations (3)** Public understanding of organizations and institutions; identification and analysis of public; media relations; public relations practice.

**COMM 370H Public Relations (3)**

This is the introductory course in public relations. It is a survey course that will provide students with a foundation for understanding the role and function of public relations and public opinion in American society, business and industry. The course defines the role of public relations, its societal value, and the workplace settings where public relations is practiced. Students are introduced to the interrelationships between the disciplines of public opinion and public relations and the many definitions of public relations and how they vary from organization to organization. Students learn how individuals, interest groups, organizations, corporations and politicians monitor and analyze public attitudes, opinions and issues that impact individual citizens, groups, organizations, institutions, and society. Students examine public relations from a historical perspective and study important social campaigns that have laid the groundwork for public relations in the modern era. Students are introduced to a myriad of communications theories and how they apply to different scenarios ranging from persuasion to crisis communications. The course helps students develop an understanding of the history, structure, and functions of public relations, the four-step public relations process (research, objectives, programming, and evaluation), the tools used to carry out public relations, ethics in public relations, and legal framework adhered to by public relations practitioners. Additionally, students are taught to appreciate the value of public relations in solving problems and making policy, i.e., the importance of being involved in the decision-making body of a corporation or public relations firm. Students also show why individual as well as institutional credibility is critical to public relations practice.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: fourth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 371 Visual and Video Communication (4)** A study of the technical and aesthetic factors in visual production, including visualization, composition, lighting, sound, performance, and project management.

**COMM 371 Visual and Video Communication (4)**

This course introduces students to visual communication theory through exercises and examples utilizing modern desktop video technology. Students produce visual storytelling exercises using digital video camcorders and computerized non-Linear editing software. Small teams of students will work together to write scripts, design storyboards, then shoot video and assemble raw clips into short storytelling videos. Visual literacy and visual communication theories are made more understandable when applied through basic video production exercises. Includes a 1-credit lab section that meets once a week in small groups to complete video production exercises. Prerequisite: COMMS 251.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: COMM 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 372 Digital Public Relations (3)** This course discusses digital strategies and techniques for public relations.

**COMM 372 Digital Public Relations (3)**

This course provides students with a conceptual and applied overview of how digital media are used in the field of public relations. Digital media combines traditional public relations content creation with social media, search and mobile, thus transforming static news into conversations and connecting directly with target audiences online. This hands-on experience will be supported by theoretical, strategic and professional best practices. A specific focus will be on current digital tools while preparing students for future growth and changes by covering trends, strategy, and analytics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: COMM 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 373 Crisis Communications in Public Relations (3)** The course is designed to introduce students to organizational risk assessment and protecting an organization's reputation in times of crisis.

**COMM 373 Crisis Communications in Public Relations (3)**

All organizations, large or small, face the prospect of a crisis. At best, a crisis is a challenge; at worst, it has the potential



to destroy the organization's ability to conduct business. Nearly half of Fortune 500 companies operate without a crisis communications plan in place, yet there are scores of examples of crises that should serve as a warning to businesses to prepare for the worst. This course is designed to introduce students to organizational risk assessment and how to protect the company's reputation while minimizing the. Students learn to deliver positive media interviews in order to deliver key messages to target publics. In times of crisis, public perception is reality. It is the practitioner's job to be prepared and to act quickly and efficiently in times of crisis and be able to work with the media, not against them. It is also important that practitioners address their audiences with the right messages at the right time. Students will learn how to assemble a crisis communication team, hold a news conference to address a crisis, manage key information, and maintain effective media relations during a time of high anxiety. Students will learn the basic anatomy of a crisis in order to be able to respond with clarity and vision in the heat of a crisis. From product-tampering to oil spills, students will be able to recognize the warning signs of a crisis and identify the five stages of a crisis. In a world connected by the Internet and social media, it's likely the news media will be at the organization's doorstep before the public relations director gets there, and it places enormous pressure on corporate leadership and government leaders to make decisions quicker and respond to media queries as quickly as possible. Successful crisis management begins before a crisis occurs. It is the responsibility of crisis management specialists to see the crisis coming and move to minimize the impact or even relegate the impending crisis to a problem. It is far better to be proactive than reactive. Having a crisis management plan is important, but avoiding a crisis by identifying its weaknesses; identifying the resources the company can use before, during and after a crisis; identifying any perceived threats that can turn into a crisis, and identifying the things that company does well in a crisis can go a long way toward negating long-term negative effects of a crisis.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: COMM 260W and COMM 370 or COMM 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 374 Audio Production (3)** Theory and practice in studio recording and broadcasting techniques, including continuity/news writing, control room operation and audio production.

### **COMM 374 Audio Communication (3)**

Studio techniques for the production of audio essays, musical portraits, news, and on-air editorials and radio drama are explored through various writing and control room exercises. Students learn how to make interesting, marketable audio material suitable for both broadcast and non-broadcast markets. This course also covers the aesthetic limitations of each format and the marketing potential in the current broadcast and narrowcast markets. The cultural genesis and brief history of each medium and format provides the context for the producer, as will readings covering the ethical and legal constraints particular to each production medium.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: COMMS 180 or COMM 251 or COMM 100 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 381 Telecommunications Regulation (3)** Overview of the regulation of electronic media.

### **COMM 381 Telecommunications Regulation (3)**

Telecommunications Regulation offers students an introduction to a wide range of regulatory and policy issues affecting the telecommunications industries. These industries include traditional radio and television broadcasting, cable, satellite, telephone (wired and wireless), broadband, and the internet. This class is especially useful for students interested in careers in telecommunications, electronic commerce, public policy, information science, business management, law, information policy, and other related fields. Students taking this course will learn how regulations can affect business opportunities and how public policy shapes the development of the world's communications infrastructure.

New developments in technology, business practices and regulatory philosophy are leading to dramatic changes in the regulatory climate in telecommunications. The goal of this course is to help you understand the implications of these changes for business strategy and for society as a whole. Some of the questions we will consider include: Why do we regulate telecommunications? What are the legal parameters of regulation? How does the regulatory process work? Why do "experts" disagree on the proper way to regulate? How do regulations influence business strategy and industry development? How do regulations affect the way individuals communicate and acquire information? How can we choose the best policies for the future to balance reliance on marketplace forces versus the need for Government intervention?

This course emphasizes an economic and legal approach to regulation. Readings will include primary documents such as FCC regulations, court cases, and statutes as well as historical and economic analyses of telecommunications regulation. Students enrolled in Telecommunications Regulation are expected to have a basic understanding of the various telecommunications industries and should be familiar with fundamental economic concepts such as those taught in an introductory economics course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: COMM 180;ECON 102 orECON 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 383** Advanced Video Production (1-3) Advanced video production techniques and production management issues.

**COMM 383 Advanced Video Production (1-3)**

This course uses rotating topics to teach advanced video and television production techniques. Building on the concepts and skills taught in the introductory production course, students will learn advanced techniques in production budgeting, preproduction planning, location scouting, logistics, advanced lighting and audio techniques, post-production techniques, video formats and distribution issues. Each semester the instructor will choose an appropriate project that will serve as the focus of the course. Projects that occur outside the studio will include logistical issues such as power supply and safety and environmental considerations. Examples of projects include coverage of live sporting events, development of scripted and non-scripted programs, and exploration of alternative distribution platforms via the Internet and alternative telecommunications networks.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: COMM 283W and permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 383A** Webcast Production (1.5) Explore all aspects of producing a live television show. Final project is streaming a live webcast online.

**COMM 383A Webcast Production (1.5)**

The purpose of this course is to learn all aspects of producing a live video webcast. The first goal is to learn the technical aspects of video production. The class will learn how to plan a live remote broadcast including site selection and evaluation, audio and video techniques, lighting and contingencies for outdoor productions, converting a video signal into an IP stream, and streaming the signal live over the Internet.

The second goal of this course is to apply the acquired skills to the production of a live webcast. In the spring semester, the class will produce a live, 46-hour webcast of the Penn State Dance Marathon. In the fall semester, the class will produce a live webcast of the Penn State Homecoming parade.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: COMM 282 orCOMM 242

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 384** Telecommunications Promotion and Sales (3) Principles of marketing services applied to telecommunications and information products/services; models of customer-focused selling and their applications to media time sales.

**COMM 384 Telecommunications Promotion and Sales (3)**

The two-fold objective of this course is learning the foundations of service marketing and achieving technical proficiency in applying models of customer-focused selling. The context is the ever-changing marketplace for voice, video, and data services in computing, telephone, broadband (cable) and broadcasting. Topics covered include principles of services marketing and of customer-focused selling, electronic marketing, distribution and sales, selling media advertising products, (television, radio, Web), niche position marketing for voice, video and data services, marketing and advertising trends in Ecommerce. Classroom time is devoted to lecture, discussion, team activities and presentations. Other course work may involve online discussion groups and other forms of electronic distributed learning, creating and presenting sales presentations to actual clients and study by case method.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: COMM 180 orCOMM 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 385** Media Programming Strategies (3) Framework, principles, and strategies for media programming from perspective of content distributors and media outlets.

**COMM 385 Media Programming Strategies (3)**

This course will expose the students to the framework, principles, and strategies for content distribution via wired and wireless networks. Students will learn programming strategies for cable and broadcast networks, local television stations, cable systems, Internet sites, and other distribution outlets. The class will explore programming from the perspective of the network or outlet that acquires programming content as well as the perspective of the content producer trying to obtain distribution. The course explores how new technologies, laws, and social trends influence programming strategies. Students will learn audience analysis including Nielsen ratings and Internet measurement techniques. The class typically includes multiple group projects, presentations and written reports that evaluate programming strategies in addition to quizzes and exams. By the end of the course students should have a fundamental understanding of programming strategies, trends, and terminology.

Broader course objectives include the understanding and application of ethics, diversity, the role of professionals in the industry, critical thinking, written and oral presentations including the use of visual information, appropriate use of mathematical concepts, professional writing, clear communication, and conducting and evaluating research.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: COMM 180

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 386 Telecommunications History (3)** Historical development of telecommunications systems in the United States, including telegraph, telephone, radio, television, and the internet.

**COMM 386 Telecommunications History (3)**

Telecommunications History examines the development of electric and electronic communication systems in the United States within their economic, political, social and cultural contexts. Students will look at the origins and growth of communications systems and how those systems arise from and are constrained by existing social conditions. The evolution and impact of the telegraph, telephone, radio, television and Internet systems and industries will be among major topics addressed. In the process of examining the evolution of specific industries, students will be exposed to broader theories of technology and social change. As a 300-level course, students will be expected to acquire modest skills in historical research, including library, Internet and some original research such as oral histories.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 387 Telecommunications Management (3)** Introduction to basic principles of management as they apply in electronic media industries.

**COMM 387 Telecommunications Management (3)**

This course aims to introduce students to the operation and management of the broadcast, cable and telecommunications industries. It is one of three required courses for the telecommunications major of the College of Communications, and is the entry-point into the major's management sequence.

The learning objectives for the course is to provide an understanding of the management function in the media and telecommunications industries; to familiarize students with sources of information about firm and markets; to provide basic training in critically evaluating and using financial information; and to improve writing skills. An associated objective is to prepare students for successful careers in the media and telecommunications industries, by building awareness about industry events and trends, and communicating information about job designations and career paths.

The class provides a broad survey of management topics and includes modules devoted to topics such as financial management, marketing and sales, and human resources. These topics are customized to accommodate the management issues specific to the media and telecommunications industries, such as program management, ratings analysis and the Federal Communications Commission's Equal Employment Opportunity (EEO) guidelines. A special module devoted to management ethics is included in the course.

Topical coverage for the course includes not only the radio and television industries that have been the traditional mainstay of telecommunications careers, but also industries such as cable, wireline and mobile telephony, and the dot-com sector in which increasing numbers of telecommunications majors are finding job opportunities.

The learning goals are accomplished through lectures, in-class exercises, and a research-based company report assignment. In-class assignments may include quizzes, simple essays, and discussion exercises. The company report assignment helps students develop skills in research, financial analysis and writing. In addition to in-class exercises and the research report, three exams spaced evenly through the semester are used in assessment.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2011  
 Prerequisite: COMM 180;ECON 102 orECON 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 400 In the Game: TV Sports Magazine (3)** Students will produce, report, anchor and direct half-hour sports magazine show.

#### **COMM 400 In the Game: TV Sports Magazine (3)**

Magazine shows have expanded beyond traditional news subjects to cover various aspects of American culture. None is more prominent and prevalent than the coverage of sports. In the Game: TV Sports Magazine is a sports story-telling course in which students examine sports-related topics in their context within society. Students will use writing, photography, editing and technical skills gained from their journalism skills courses. The goal will be to produce sports enterprise stories.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014  
 Prerequisite: COMM 465COMM 283W orCOMM 242 and permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 401 Mass Media in History (3)** Relationship of news media to social, economic, and political developments in the Western world.

#### **Mass Media in History (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 402 International Reporting (3)** International Reporting is an advanced level course in the College of Communications designed to give student journalists experience in reporting the news in a foreign country.

#### **COMM 402 International Reporting (3)**

International Reporting is an advanced level course in the College of Communications designed to give student journalists experience in reporting the news in a foreign country. The course is offered in the spring semester only. The key component is a 10-day reporting trip over the spring break to a foreign country. In its first three semesters, the class has gone to Mexico City and Shanghai, and Cape Town, South Africa. The course has been approved as an embedded program by the Office of Global Programs. Admission to the course is highly selective and open only to junior and senior journalism majors. Students must apply for admission and present examples of their work as well as recommendations by a member of the journalism faculty.

The aim of this course is to help young journalists acquire the skills they will need to compete in an industry where increasingly the threads of even the most local stories either come from, or lead, overseas. This is not a course aimed at training students to become foreign correspondents. Rather, we hope to prepare students to function in a foreign environment, and to recognize, overcome and ultimately benefit from the linguistic, cultural, economic and legal challenges that working in another country will entail.

The course has three segments. In the first half of the semester we study the history, culture, politics and economics of the country to which we are traveling. We also develop and refine our ideas for the stories we will report when we get

there. We will also learn about foreign reporting and how it differs from the reporting we have been used to doing here. The second part of the course consists of supervised travel to our target country. Here, we report the stories we have selected, file blogs and video posts to ComMedia, and also meet with local journalists, officials and students of the host country. Depending on the country in which we are working, students also have the opportunity to collaborate, when appropriate, with students from local universities. The final half of the semester is devoted to supervised individual work aimed at turning our reporting into stories suitable for publication or broadcast. Although students are required to acquire a general working knowledge of the country to which we are traveling, and will be tested on it, in the end they will be evaluated almost entirely on their work product. This results-oriented approach has been chosen because it most closely replicates the environment of a professional newsroom.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: COMM 260WCOMM 360COMM 465 and permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 403** Law of Mass Communications (3) Nature and theories of law; the Supreme Court and press freedom; legal problems of the mass media.

### **COMM 403 Law of Mass Communications (3)**

This discussion-intensive seminar provides an in-depth analysis of contemporary First Amendment issues ranging from the protection of violent media content and sexually explicit speech to defamation and invasion of privacy. Students explore the legal standards, public policies and theories that protect - and restrict - the Constitutional rights of free speech and free press. The primary area of study in this course is the law of mass communications and, in particular, legal issues facing the entertainment and news media. Using a law school casebook, written by a Harvard Law School professor, we will cover legal issues related to topics such as sex and violence in the media, defamation, privacy, and copyright.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 403H** Law of Mass Communications (3) Nature and theories of law; the Supreme Court and press freedom; legal problems of the mass media.

### **COMM 403H Law of Mass Communications (3)**

This discussion-intensive seminar provides an in-depth analysis of contemporary First Amendment issues ranging from the protection of violent media content and sexually explicit speech to defamation and invasion of privacy. Students explore the legal standards, public policies and theories that protect - and restrict - the Constitutional rights of free speech and free press. The primary area of study in this course is the law of mass communications and, in particular, legal issues facing the entertainment and news media. Using a law school casebook, written by a Harvard Law School professor, we will cover legal issues related to topics such as sex and violence in the media, defamation, privacy, and copyright.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 405** Political Economy of Communications (3) Structure and functions of American and other mass communications systems and their relationship to political and economic systems.

### **COMM 405 Political Economy of Communications (3)**

COMM 405 takes a critical look at the structure and performance of the U.S. mass media within the U.S. and global political economy. The normative purpose of the course is to evaluate whether the media system is performing in such a way as to support and promote a democratic society. We will look at theoretical approaches to the study of political economy; the origins and development of capitalism and the mass media; the structure of contemporary capitalism; the ownership and control of mass communications; the origins of advertising and its effects on the U.S. economy and the mass media; the economic structure and organization of the recorded music and filmed-entertainment industries; and the political economy of democratic communications.

General Education: None

Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011  
Prerequisite: ECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 405H** Political Economy of Communications (3) Structure and functions of American and other mass communications systems and their relationship to political and economic systems.

**COMM 405H Political Economy of Communications (3)**

COMM 405H takes a critical look at the structure and performance of the U.S. mass media within the U.S. and global political economy. The normative purpose of the course is to evaluate whether the media system is performing in such a way as to support and promote a democratic society. We will look at theoretical approaches to the study of political economy; the origins and development of capitalism and the mass media; the structure of contemporary capitalism; the ownership and control of mass communications; the origins of advertising and its effects on the U.S. economy and the mass media; the economic structure and organization of the recorded music and filmed-entertainment industries; and the political economy of democratic communications.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: ECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 406** Electronic News Gathering and Editing (3) Intermediate level skills in creating and editing television news packages.

**COMM 406 Electronic News Gathering and Editing (3)**

This course is designed to provide a substantial background in video production techniques coupled with electronic newsgathering and the use of video equipment. Although students enrolled in this course would be expected to have a basic understanding of video production from previous courses, more advanced editing techniques, along with sustained practice in interviewing, taping, organizing and writing various types of news and feature packages, should provide an excellent preparation for subsequent internships or employment. This is a "hands-on" course and will provide extensive opportunities for practical application of material covered in class. Students will be evaluated on the quality of their productions. This course serves as a supporting course in the Communication and Media Studies major.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: COMM 315 or COMM 283W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 407A** Media and Government (3) This course examines the relationship between politics, governance, and news media, and provides a foundation for understanding media's role in public policy.

**COMM 407A Media and Government (3)**

The course is designed to broaden, inform, and empower thinking about media influence on the ways people think about issues and how that influences public policy choices. The course will also analyze the various ways in which elected officials seek to craft messages and manipulate media to encourage support for policy agendas and initiatives. Through the process of examining the relationship between these powerful forces, students will gain critical thinking skills that will better prepare them to consume and create media and to function as citizens in American democracy.

This course will examine the symbiotic relationship between politics, governance, and media, particularly news media, and will provide a foundation of classic media theory combined with new thinking on media's role in public policy formation and its impact on the larger society. The course will emphasize the importance of political narratives, how they are constructed and communicated and also how they influence elections and public policy choices. Primary sources will provide diverse perspectives on the many questions that will emerge from readings and discussions.

This course is only offered as part of the Washington, D.C. Program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 407B Perspectives on American Journalism (3)** The course examines a number of current issues and topics surrounding journalism including: ethics, state of the industry, and news vs. entertainment.

**COMM 407B Perspectives on American Journalism (3)**

Journalism is a unique occupation. News editors, reporters, producers, anchors, and other media professionals have a special responsibility to the public – the responsibility to provide their readers and audience members with the information they need in order to make choices about how to vote, what issues to get involved with, how to live their daily lives. While journalists – unlike members of other professions – have very few laws that exist specifically to govern their work, their duty to the public carries with it a number of important ethical burdens and responsibilities to the public and to society as a whole.

The course examines a number of current issues and topics surrounding journalism. While there will be new themes and topics for each week's class, nearly all of the topics are interrelated, and each class will build on what has gone before. Among the topics that will be covered are the current state of the news industry, the ethical guidelines that journalists are supposed to follow, the blurring of lines between news and entertainment, and the news media's role in making people famous or infamous. The issues that we examine in this course will be most directly related to the practice of journalism, although we may touch on other aspects of communications (e.g. advertising or public relations) from time to time. Our goal will be to examine news coverage with a critical eye – to think about the reasoning and decision-making that shape the final products that we read or view. The class meetings themselves will center on discussion of the readings and presentation of real-world examples drawing from current news stories and issues involving the news industry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 407C Media and World Politics (3)** COMM 407C helps to make sense of the impact of media, public opinion and non-state actors shaping foreign policy.

**Media and World Politics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 408 (S T S 408) Cultural Foundations of Communications (3)** Examination of oral, scribal, print, industrial, and electronic cultures; analysis of impact of technology on communications and social structure.

**COMM (S T S) 408 Cultural Foundations of Communications (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

COMM (S T S) 408 traces the development of communications technologies and their impact on culture over the last 500 years. Students will examine how different tools for communicating changed the way people organized and made sense of their worlds. The course begins by looking at oral cultures and moves on to the scribal, print, industrial, electronic and post-industrial or postmodern cultures, studying the media developments that marked each of these eras. With each period and its corresponding technology students will examine how and why the new media altered not only the *form* of communication (the type of speech, form of writing and/or speed of information transfer), but also how such changes altered the *content* of knowledge (how people made sense of their lives and communities). Readings are drawn from a range of disciplinary perspectives on the issues, from history, sociology and anthropology, to philosophy, communication studies and cultural theory.

The historical and theoretical knowledge provided by the course will give students a solid foundation for coming to terms with media trends in present-day society and for thinking through their possible epistemological, political and cultural impacts.

The course is a communications elective for the Journalism and Telecommunications majors and the Media Studies minor.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2009

Prerequisite: select 3 credits from COMM 100COMM 110COMM 118COMM 150COMM 180COMM 251COMM 260WCOMM 320COMM 370 ; or 3 credits of S T S

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 409** News Media Ethics (3) Ethical problems in the practice of journalism; principal public criticisms of news media; case study approach.

**COMM 409 News Media Ethics (3)**

Ethics is about doing the right thing - which, in the news business, is rarely as easy as it sounds. Is it ever OK for reporters and photographers to intrude on grieving families? Is it ever OK to lie to get information? Are the sex lives of politicians and celebrities our business? COMM 409 will give students a fuller understanding of how journalists do their jobs and how they should make ethically sound decisions. This class is more about learning to ask the right questions than learning the right answers. We'll rely on recent news coverage to get us in the habit of working through the moral dilemmas that reporters routinely confront.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 409H** News Media Ethics (3) Ethical problems in the practice of journalism; principal public criticisms of news media; case study approach.

**COMM 409H News Media Ethics (3)**

Ethics is about doing the right thing - which, in the news business, is rarely as easy as it sounds. Is it ever OK for reporters and photographers to intrude on grieving families? Is it ever OK to lie to get information? Are the sex lives of politicians and celebrities our business? COMM 409H will give students a fuller understanding of how journalists do their jobs and how they should make ethically sound decisions. This class is more about learning to ask the right questions than learning the right answers. We'll rely on recent news coverage to get us in the habit of working through the moral dilemmas that reporters routinely confront.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 410** (IL) International Mass Communications (3) The role of international media in communication among and between nations and peoples.

**COMM 410 International Mass Communications (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the role of international mass media in communications and debates about global questions and/or crises between and among nations and peoples. These roles will be examined using such theories as imperialism, hegemony, information society, modernization, globalization, capitalism, cultural industries, propaganda, and others. Among other issues the course will examine the way in which media report, portray, represent, misrepresent, and construct knowledge about global questions and crises that may border on social injustices, health, the politics of armament, disarmament, and recognition of statuses of states. The course may also explore other issues of international importance not limited to those involving economic questions such as balance of trade, global debt, and financial crises. In addition, this course provides avenue for the appraisal of mediated debates between nations at such platforms as the United Nations (UN), the World Health Organization (WHO), and the World Trade Organization (WTO) among other international and bilateral organizations that serve as platforms for consideration of issues of global importance. Students are led to understand ways in which states relate and communicate with each other in the environment of supranational governance. Students are exposed to these issues through readings in pertinent theories, ICT-enhanced conversations, and critical examinations of applicable concepts, exposure to contemporary issues via media messages; including those presented via newspapers, newsmagazines, broadcast documentaries, films, and other media products that will aid students' ability to better appreciate issues of historical and contemporary relevance to the global community.

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science



Effective: Spring 2014

Prerequisite: select 3 credits from the following COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 W COMM 320 or COMM 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 411 Cultural Aspects of the Mass Media (3)** The mass media as creators and critics of mass culture in American life; relationships between the media and mass culture.

### **COMM 411 Cultural Aspects of the Mass Media (3)**

This course examines the mass media as creators and critics of mass culture in American life and the relationship between the media and the mass culture.

What are the mass media? What is culture? What are the relationships between mass media and culture? How do mass media help construct the way we live our lives? Do the mass media reflect or condition social reality? How does one study or engage the mass media? Why would you want to anyway? This course is designed to answer some of these questions by promoting a critical understanding of the mass media from historical, social, philosophical, cultural, and economic perspectives. Ultimately, the course will equip students to address these opening questions on their own terms, without simply allowing the mass media to provide their own pictures of how they should be understood. One of the goals of this course is to denaturalize the way people view the mass media-as simply a given, or as pure unmediated reality. Media culture has been and continues to be made. Course materials and lectures will provide several ways of thinking about and studying the conditions of media making and interpretation.

Students are encouraged to think as broadly and creatively as possible: to this end, the course will make use of research across a wide range of academic fields such as sociology, history, ethnography, cultural studies, literature, politics, gender studies, economics, art, and philosophy. The course is a communications elective for the Journalism and Telecommunications majors and the Media Studies minor.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2009

Prerequisite: 6 credits in the arts or the humanities; and 3 credits selected from the following COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 W COMM 320 or COMM 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 411H Cultural Aspects of the Mass Media (3)** The mass media as creators and critics of mass culture in American life; relationships between the media and mass culture.

### **COMM 411H Cultural Aspects of the Mass Media (3)**

COMM 411H takes a cultural studies approach to media and more generally culture and politics. The class is predicated upon three assumptions about media. First, media must be examined in context. Second, media play a significant role in the construction of our lived reality. Third, these constructions and all attempts to study them are political and implicated in relations of power. As such, this course treats media as part of cultural and political processes that are not separable, but instead co-constitutive. In other words, these three assumptions have some immeasurable effect on each other and impact our understanding of their relationships.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: 6 credits in the arts or the humanities; and 3 credits selected from the following COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 260 W COMM 320 or COMM 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 412 Sports, Media and Society (3)** Sport and media relationship in American culture.

### **COMM 412 Sports, Media and Society (3)**

This course is designed to help students more critically view the role of sport media in American culture. The influence of/relationship between sport media and issues such as race, gender, sexuality (homophobia), nationalism, capitalism/consumerism, violence and civic life will be examined. Issues in relation to journalism ethics and the production of sport media also will be examined.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 413** The Mass Media and the Public (3) Nature of mass communications, relationships between mass media and public, media influences on opinion; social pressures on the media.

### **The Mass Media and the Public (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2009

Prerequisite: 3 credits selected from the following: COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 WCOMM 320 or COMM 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 413W** The Mass Media and the Public (3) Social-level and political theories of the relationships between media and public; media influences on public opinion; social pressure on the media; political communications.

### **COMM 413W The Mass Media and the Public (3)**

This course is designed to explore the complex and dynamic relationships among the media, public, and government. These relationships are examined through the lenses of sociological and political theories regarding the nature and process of mass communication. The central questions answered in the course are: "How do the media influence the public, its opinions, and social and political behavior?" and "How does the public - through social pressures, and political constraints - influence media performance and content?" Special attention is paid to modes of inquiry in communication research, social functions and control of the media, social construction of reality, political communication, and public opinion. The goals of the course are to introduce students majoring in professional areas of communications to theoretical frameworks that help explain media practices, advance the understanding of the communications research literature for Media Studies majors, and develop skills of all students to be informed and critical consumers of the media. The course is required of Media Studies majors and is a communications elective for the Journalism and Telecommunications majors, the Corporate Communications and Journalism options in Communications, and the Media Studies minor.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2011

Prerequisite: select 3 credits from the following: COMM 100 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 WCOMM 320 or COMM 370 and select 3 credits from the following: COMM 304 COMM 420

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 414** Media Management (3) Theoretical bases and practical approaches for management and administration of communications projects, organizations, and resources.

### **COMM 414 Media Management (3)**

Students examine various management styles and how they are applied in various media industries. Special issues in media management such as intellectual rights and work-for-hire contracts are covered. General business management topics are also covered, such as human resource management, sales, motivation, working with unions, managing talent and other assets, and maximizing profits within the framework of very basic business principles. In addition, this course includes topics useful for small media business startups and freelance media content producers. Usually this course utilizes a case/book study approach relying heavily on in-class discussion.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: COMM 100 or COMM 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 415** Advanced Photography for Communications (3) Advanced applications in documentary photography emphasizing the narrative qualities of imagery, and utilizing digital technologies.

### **COMM 415 Advanced Photography (3)**

An advanced undergraduate examination of documentary photography with the goal for each student to produce a portfolio of pictures suitable for exhibition or to show prospective employers. Each week students complete photographic assignments designed to simulate commercial photography work and to give experience with a variety of photographic techniques and subjects. Assignments include topics such as portraiture, documentary photo story production, studio lighting, fill-flash lighting, and sports photography. Classroom exercises include demonstrations of various techniques as well as critique sessions to discuss student assignments and other photography work.

General Education: None

Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2010  
 Prerequisite: COMM 215 or COMM 269 and permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 417 Ethics and Regulation in Advertising and Public Relations (3)** Ethical issues in practice of advertising and public relations; legal and regulatory issues; case studies.

### **COMM 417 Ethics and Regulation in Advertising and Public Relations (3)**

The purpose of this course is to help students gain an understanding of the complex legal and ethical issues they may face in advertising and public relations practice. Through an examination of historic and contemporary issues and cases, students will develop a professional framework for evaluating ethical dilemmas. Perspectives of advertisers, public relations practitioners, agencies, government, media, clients and advocacy groups will be examined, with a focus on social responsibility in professional practice.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2007  
 Prerequisite: COMM 320 or COMM 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 418 Media Effects: Theory and Research (3)** Investigation of social and psychological effects of media messages and technologies via theories and empirical evidence pertaining to processes of effects.

### **COMM 418 Media Effects (3)**

This is an upper-level undergraduate course on the social and psychological effects of media messages and technologies, which moves beyond a simple introduction of media theories. Drawing on social and behavioral research in communication, psychology and related disciplines, it will attempt an advanced understanding of media effects via theories and empirical evidence pertaining to the processes of effects. Emphasis will be placed on rigorous examination of theory testing and theory development. The class will assume a general familiarity of basic communication theories pertaining to the relationship between media and public (COMM 118) and a working knowledge of quantitative research methods (COMM 304W).

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: COMM 118 and COMM 304 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 419 (US;IL) World Media Systems (3)** Comparative study of modern mass systems and the evolution and structure of specific countries' systems.

### **COMM 419 World Media Systems (3) (US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is a comparative study of modern mass media systems with focus on the ways in which two or more countries' media have evolved and are structured by the political, economic, social, and cultural environments within which they exist. Students will be exposed to the theories and practices of media systems – as explained in such normative expositions as the four theories of the press and other contemporary iterations. One objective of the course is for students to gain a better appreciation of the structure and location of the media system in the United States vis-à-vis greater awareness of media systems in other political contexts where media cultures may vary from the U.S. matrix. Across the board of sampled countries' media systems, students will be exposed to the ways in which each country's media have developed, are shaped, and are continually shaped by factors that include history, political cultures, evolving legal regimes, media regulations, finances, media economics, new technologies, institutional arrangements, citizens' access to information, or lack thereof.

Another objective of this course is to equip students with a toolbox and framework with which they can replicate comparative media systems analyses in other countries and regions of interest as they contemplate study abroad and/or long-term career (employment, graduate studies) engagements. To achieve foregoing objectives students will be exposed to readings in theories of media systems and to academic articles using comparative methodologies to examine structural evolution of media in tandem with countries transformations over time. Students will analyze historical or contemporary media systems' developments through careful comparisons and applying critical thinking skills. In the process, students develop analytical skills useful in contending with academic and professional environments.

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2014  
 Prerequisite: COMM 410 ; and select 6 credits in the arts or the humanities

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 419H (US;IL) World Media Systems (3)** Comparative study of modern media systems of mass communications in selected foreign countries.

**COMM 419H World Media Systems (3)**  
**(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Students in this course will have the opportunity to discover the variety of media systems in the world today and, more importantly, how they got that way and what functions they perform for their respective societies. Students will evaluate each media system's history and analyze the functions of the mass media in the respective contexts. They will examine the historical, social, economic and cultural forces that influence the adoption of a national media system. They will compare perspectives on the problems and issues in freedom of expression within national media systems and evaluate the organization, regulation and economics of those systems. Finally, students will analyze the national development of media systems and the impact of the mass media in the modernization of peasants.

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2009  
 Prerequisite: select 6 credits in the arts or the humanities; and 3 credits from the following: COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 WCOMM 320 or COMM 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 420 Research Methods in Advertising and Public Relations (3)** Primary and secondary research methods used in the development of solutions to advertising and public relations problems.

**COMM 420 Research Methods in Advertising and Public Relations (3)**

This course is designed to provide an introduction to the logic and methods of social science research and its applications in the professional practice of advertising and public relations. Students will be introduced to methods of primary research used in the advertising and public relations fields such as survey, focus group, content analysis, and experimental design. Students will also become more familiar with basic and advanced statistical techniques and statistical software used in the field. Understanding how research is conducted and the strengths and limitations of research findings is a critical first step in developing the ability to apply research findings to communication problems in advertising and public relations.

In addition to helping students understand how to conduct research, this course is also designed to help them become critical consumers of the research conducted by others. Advertising and public relations problems often require the identification, understanding, synthesis, and application of data collected by others in developing problem solutions. Understanding secondary sources of data commonly used in the field, such as Simmons, Nielsen, Arbitron and SRDS, is an essential component of professional expertise.

Problem-solving in advertising and public relations requires decision-making in a turbulent and dynamic marketing environment. To help students learn how to relate research tools and outcomes to the advertising and public relations problems at hand, this course will examine the role of research in decision-making at the critical steps in the problem-solution process. As part of developing understanding of this decision-making process, students will also become more aware of the ethical issues associated with research in advertising and public relations.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2002  
 Prerequisite: COMM 320 or COMM 370; STAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 421W Advertising Creative Strategies (3)** Planning, designing, writing advertisements; introduction to graphics and production techniques and processes; layout and copywriting practice and critiques.

**COMM 421W Advertising Communications Problems (3)**

This course is designed to provide students with an overview of the intellectual and practical skills involved with the development of advertising creative work. Students are introduced to research and thinking strategies that lead to creative ideas and are provided with computer software and other training that facilitates the execution of advertising based on their ideas. The course requires students to complete several creative projects, in distinct product categories (e.g., packaged goods, durable goods, public services, consumer services), over the course of the semester. Before developing advertising, students will be expected to research the product, service or idea that constitutes the creative project. They will gain an understanding of the kinds of information most valuable to creative professionals in the development of ideas, and be provided with an overview of research strategies leading to the discovery of such information. After completing the required research, students will produce briefs that summarize findings and serve as a platform for further work on their creative projects. Given the course's designation as writing intensive, these documents will be evaluated both for their content and the degree of accuracy demonstrated in grammar, spelling, punctuation and word choice. Since the evaluation of creative ideas is inherently subjective, these written research documents are usually weighted more heavily in the calculation of final course grades. Students will use their own research as the platform for generating creative ideas to advertise their product, service or idea. Instruction on creative thinking techniques will be provided as tools for this activity. As ideas are developed, students are encouraged to share their work with their peers and the instructor for feedback. In "workshop" fashion, these in-class critiques of creative work serve to refine and improve ideas. Over the course of the semester, students work toward finalizing creative solutions. By semester's end, each student will be expected to submit a final portfolio of work that demonstrates proficiency in the subject matter covered by the course. Traditionally, the final portfolio includes creative briefs and ads developed from them.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004

Prerequisite: COMM 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 422 Advertising Media Planning (3)** Analysis, selection, and scheduling of advertising media; examination of algorithms, technologies, and software used in media planning.

### **COMM 422 Advertising Media Planning (3)**

This course is designed to provide an introduction to the concepts and techniques of media planning. The course will cover traditional and online media options. The student will learn to use software models to facilitate media decisions. Secondary sources of research used in the media planning process will be discussed. The design, construction, implementation and evaluation of effective media plans that meet specific advertising objectives will be detailed. Ethical media planning processes will be reviewed. The goal of the course is to develop critical thinking skills that will improve decision making in a dynamic and turbulent media environment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1986

Prerequisite: COMM 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 424 Advertising Campaigns (3)** Advertising campaign problems from the viewpoint of the national advertiser and advertising agency; production of a complete advertising campaign.

### **COMM 424 Advertising Campaigns (3)**

This comprehensive capstone course is designed to provide an opportunity to showcase your creativity and knowledge about advertising communications. Strategic integrated marketing communications concepts are emphasized. The campaign proposal developed in this course will showcase the full weight of your knowledge and skill in the area of advertising communications. Students will need a background in creative design and practices, media planning principles and practices, and research methods used to delineate appropriate target groups and evaluate campaign effectiveness. A strong focus will be on understanding the audience and developing message strategies that have a high potential to influence attention and marketing behaviors. During the course you will create a complete advertising/marketing communications campaign proposal that reflects a set of communication goals derived from a set of measurable objectives all designed to meet the needs of your client.

A situation analysis will be developed to provide a detailed assessment of the product or service environment. This includes analysis of the product class, lifecycle, generic and brand level competition, and target group identification. The goal is to gain relevant information that can be used to make justifiable strategic decisions related to the advertising campaign. Strategic goals and objectives will be developed that allow the direction and efficacy of the campaign to be measured. Tactics must reflect the strategies developed in the campaign. Campaigns include diagnostic and performance benchmarks used to evaluate the progress of a set of predetermined measurable objectives. The goal is to provide timely feedback that allows the agency and client to evaluate the effectiveness of the campaign. This is especially important as client -agency relations continue to adapt a series of formal measures of campaign effectiveness.

The class is designed to develop critical thinking skills. For example, each strategic decision presented in a campaign must have a fully explicated rationale that is based on quantitative and qualitative criteria. Research tools will be presented in class that allow and support the development of measurable objectives. The campaign proposal must include a series of benchmarks designed to evaluate the progress of the campaign at key time points. The campaign will have a complete media plan that includes selected media, cost efficiencies, and media schedule. Students will be expected to be familiar with media principles and media planning software.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: COMM 420 or COMM 304; COMM 421 W COMM 422

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 425 Advanced Advertising Campaigns (3)** An academic option for student AAF members who will develop an integrated advertising campaign to be presented in District competition.

### **COMM 425 Advanced Advertising Campaigns (3)**

The class is structured along the lines of a real-world advertising agency and the manner in which they might pitch a new account. Students work through the research and situational analysis to develop an integrated communication plan, campaign budget, and message strategies for a client.

The client is provided by the National Student Advertising Competition. This group provides undergraduate advertising students with a realistic problem that is solved through team effort, knowledge and creativity.

Students might have the opportunity to pitch their plan to the NSAC client.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: COMM 420 COMM 421 W COMM 422 COMM 424 or COMM 471 and permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 426 International and Intercultural Strategic Communication (3)** Advertising and public relations in the international and intercultural arenas; multicultural strategic communications strategies.

### **COMM 426 International and Intercultural Strategic Communication (3)**

COMM 426 will provide students with a framework for applying their existing public relations and advertising tools in the global arena. Working internationally and/or interculturally challenges the advertising, public relations or marketing executive to think outside his or her own "cultural box." Some of the challenges include finding research about consumers, competitors and the marketplace outside of North America and Western Europe, understanding local cultures and customs, understanding the importance of ethnicity, and building an integrated core of professional communications that work with a common purpose, even if they come from different backgrounds - or are on different continents.

The emphasis will be on developing a methodology for researching international and intercultural strategic communications problems, and then discussing possible communications-based solutions. To that end, case studies from both the international advertising and international public relations disciplines will play an important role in the course. Additionally, students will be exposed to a number of frameworks for analyzing culture, coming from the areas of anthropology (Schwartz' 10 Value Domains), social psychology (Bond's essay on impression management in multicultural organizations) and international business (Hofstede's Dimensions of National Culture).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: COMM 320 or COMM 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 427 Client/Agency Relations (3)** Building and maintaining client/agency relationships in advertising, public relations and direct response agency business functions.

### **COMM 427 Client/Agency Relations (3)**

Client/Agency relations provides students with an understanding of advertising, public relations and direct response agency business functions, and the important role of building and maintaining client/agency relationships. It covers the phases of pre-relationship (identifying, prospecting, pitching and winning accounts), developing relationships with clients and maintaining and enhancing these relationships over time. Client/agency relationships are built on the development of

viable partnerships with clients, establishing strategies to support and maintain the vitality of client business success, and the on-going delivery of fresh creative ideas from all agency disciplines.

Today's agency has become a resource for all integrated marketing communication (MARCOM) needs. This includes, but is not limited to, advertising, promotion, public relations, direct response marketing, event marketing, customer-relationship marketing, interactive internet communication and branding ideas. This course covers the integration of these disciplines on behalf of an agency's clients.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: Advertising Option - Prerequisite or concurrent - One can be taken concurrently: COMM 421 COMM 422 .

Public Relations Option - Prerequisite: COMM 471 Prerequisite or concurrent: COMM 473

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 428A** Principles of Strategic Communications (3) Principles of Strategic Communications provides an overview of the various media and communications methods that comprise modern integrated marketing campaigns.

### **COMM 428A Principles of Strategic Communications (3)**

Principles of Strategic Communications will introduce students to strategic communications in the context of integrated marketing communication (IMC). It will overview the industry by providing a foundation for understanding what IMC is and how it developed to its current state, what it tries to accomplish, how it works, and how it can affect society. It lays the groundwork for other courses in the strategic communications sequence. The fundamentals of consumer psychology will be introduced, along with theories of persuasion. In addition to traditional advertising, the course will review other critical functional areas of IMC such as public relations, sales promotion and direct marketing. The role of the internet and emerging new media technologies will also be covered. The advantages and disadvantages for different media will be summarized, and the basics of media planning will be introduced. Course content is present in the context of strategy and planning, with the goal of illustrating how various elements in the promotional mix work together to achieve campaign objectives. The importance of effective measurement and accountability at each point of campaign development and execution will be explained. Finally, the ethical and regulatory environment for IMC will be explored.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: COMM 230W and permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 428A** Principles of Strategic Communications (3) Principles of Strategic Communications provides an overview of the various media and communications methods that comprise modern integrated marketing campaigns.

### **COMM 428A Principles of Strategic Communications (3)**

Principles of Strategic Communications will introduce students to strategic communications in the context of integrated marketing communication (IMC). It will overview the industry by providing a foundation for understanding what IMC is and how it developed to its current state, what it tries to accomplish, how it works, and how it can affect society. It lays the groundwork for other courses in the strategic communications sequence. The fundamentals of consumer psychology will be introduced, along with theories of persuasion. In addition to traditional advertising, the course will review other critical functional areas of IMC such as public relations, sales promotion and direct marketing. The role of the internet and emerging new media technologies will also be covered. The advantages and disadvantages for different media will be summarized, and the basics of media planning will be introduced. Course content is present in the context of strategy and planning, with the goal of illustrating how various elements in the promotional mix work together to achieve campaign objectives. The importance of effective measurement and accountability at each point of campaign development and execution will be explained. Finally, the ethical and regulatory environment for IMC will be explored.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: COMM 230W and permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 428B** Strategic Communications Law (3) Analysis of laws and regulations affecting online advertising and strategic

communications.

### **COMM 428B Strategic Communications Law (3)**

Strategic communications law focuses on the key legal issues affecting strategic communications, advertising and marketing in an online environment. Major topics include First Amendment protection for commercial speech; advertising regulation including spam and the use of trademarks and copyrights; privacy regulation including the collection of user data and use of endorsements, and procedural issues such as jurisdiction and analysis of various regulatory authorities. Additional topics will include domain names, marketing to minors and current developments in advertising and Internet law.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: COMM 428A and permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 428C Strategic Communications in a Global Environment (3)** Strategic Communications in a Global Environment will provide students with a framework for applying public relations and advertising tools across media platforms and across cultures.

### **COMM 428C Strategic Communications in a Global Environment (3)**

Strategic Communications in a Global Environment will provide students with a framework for applying public relations and advertising tools across media platforms and across cultures. While cross-cultural communication has always been a challenge for strategic communicators, introducing online elements to campaigns exposes strategic communications professionals to a host of new challenges, including a wide range of ethical and legal dilemmas emanating from new to abilities to collect sensitive data from audiences, often without their knowledge. Students will be exposed to a number of frameworks for segmenting publics in this new environment, both geographically and psychographically, and will learn the skills to work with colleagues across borders and cultures to create effective, ethical strategic communications campaigns.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: COMM 428A and permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 428D Research & Analytics (3)** This course covers online research methods for strategic communication, including web analytics, online surveys, online interviews, and content analysis.

### **COMM 428D Research and Analytics (3)**

Increasingly, organizations are using the web as a vehicle for communicating with key audiences such as customers, shareholders, volunteers, donors, community members, and government entities. In this class students will be exposed to theories and practices in the areas of online research and analytics with a focus on understanding how customers perceive the organization, assessing the engagement with target audiences online, measuring the value of relationships that organizations initiate and build online, and tracking how web site visitors experience an organization's site. The course will expose students to tools for tracking and measuring online communication, and it will help students understand how to prioritize audiences and communication to maximize the effectiveness of measurement. Research methods taught in this class include web analytics, online surveys, online interviews, content analysis, and online focus groups. Gauging the impact of online communication helps organizations engage in more efficient and effective communication practices. Practitioners in strategic communication need to understand how to measure and evaluate the effectiveness of their communication in this medium. This course will prepare students to conduct online research in practice.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: COMM 428ASTAT 200 and permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 428D Research & Analytics (3)** This course covers online research methods for strategic communication, including web analytics, online surveys, online interviews, and content analysis.

### **COMM 428D Research and Analytics (3)**



Increasingly, organizations are using the web as a vehicle for communicating with key audiences such as customers, shareholders, volunteers, donors, community members, and government entities. In this class students will be exposed to theories and practices in the areas of online research and analytics with a focus on understanding how customers perceive the organization, assessing the engagement with target audiences online, measuring the value of relationships that organizations initiate and build online, and tracking how web site visitors experience an organization's site. The course will expose students to tools for tracking and measuring online communication, and it will help students understand how to prioritize audiences and communication to maximize the effectiveness of measurement. Research methods taught in this class include web analytics, online surveys, online interviews, content analysis, and online focus groups. Gauging the impact of online communication helps organizations engage in more efficient and effective communication practices. Practitioners in strategic communication need to understand how to measure and evaluate the effectiveness of their communication in this medium. This course will prepare students to conduct online research in practice.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: COMM 428/ASTAT 200 and permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 428E Social Media Strategies (3)** This course covers social media theory, tools and best practices to prepare students for current and future use of social media.

### **COMM 428E Social Media Strategies (3)**

Social media – including social networking, podcasting, bookmarking, blogging, microblogging, location-based, wikis, and other collaborative content creation platforms – are changing the field of public relations. While many public relations professionals claim to be social media “experts,” those who can demonstrate true expertise are rare and much sought after. This course narrows the focus from the broad field of social media to cover the specific tools and best practices needed to conquer current and future use of social media in public relations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: COMM 428A and permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 430 Mass Media and Politics (3)** Study of mass media as institutions and the effects of the mass media on politics, public policy, and citizens.

### **COMM 430 Mass Media and Politics (3)**

In Mass Media and Politics, we address issues and relations of the political realm, the media institutions, and the public sphere. Particular attention is dedicated to the influence of and coverage by both the domestic and international news media. In addition, we also examine topics such as bias in the media, women and politics, political campaigns, and advertising, ideology and hegemony, and cultural representations in the media. Of importance are notions of how and why mass media influences the national political debate, as well as what mass media exports in terms of culture and what this means to the political reality of other nations. The discussion of these issues is often couched in terms of technologies, especially emerging and traditional mass media technology systems such as convergence technologies, the World Wide Web, television, radio, and newspapers. Prerequisite: COMMS 251.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: COMM 100 or COMM 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 433 Film History for Filmmakers II: The Development of the Cinema from 1960 to the Present (3)** History of the art, industry, economics, culture, and technology of cinema from 1960 to the present.

### **COMM 433 Film History for Filmmakers II: The Development of the Cinema from 1960 to the Present (3)**

Film History for Filmmakers II presents the history of the medium of cinema from 1960 to the present. The course explores the artistic, technical, economic development of the cinema, and the cultural contexts in which this development occurred. The course covers narrative, experimental, and documentary cinema and trains students in the techniques of close formal analysis of the cinema. The course builds upon formal, thematic, and cultural analysis of the cinema

introduced in Film History I. This course is integral to the existing curriculum. It provides Film-Video students with a detailed description of trends in their art form. It provides students with a more intensive study in the history of an influential medium in the development of the concept of mass media and communications. The course will be taught each Spring semester.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2010  
 Prerequisite: COMM 333

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 436 Advanced Audio Production (3)** Advanced concepts and techniques of audio production in analog and digital formats with hands-on experience in recording, mixing and editing.

### **COMM 436 Advanced Audio Production (3)**

This course builds on the concepts and techniques of audio production in both analog and digital formats introduced in COMM 374 and includes in-depth examination of sound theory and hands-on practice in advanced projects involving recording, mixing and editing in analog and digital formats. This course provides an understanding of technical and aesthetic aspects of advanced audio production, and provides students the opportunity to demonstrate advanced skills in recording, editing and mixing. Students gain an understanding of professional studio and field practices and develop advanced studio and field projects suitable for a portfolio.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: COMM 374

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 437 Advanced Documentary Production (3 per semester/maximum of 6)** Advanced exploration of documentary production techniques and aesthetics through the completion of a short video project.

### **COMM 437 Advanced Documentary Production (3 per semester/maximum of 6)**

This course is designed to enable students to produce portfolio-quality work while bringing together ideas, processes, practices, and theories in the service of documentary production. Students will explore the history, conventions and theory of the documentary film form, while developing and producing a film or video work for screening at the end of the semester. Working in small crews with others from the class and using sophisticated production equipment, students will write and produce short digital video projects. Utilizing a workshop structure, class time will be focused on discussion and analysis of the challenges faced by individual productions as well as on providing the support, guidance, and critique necessary for a successful production. Particular emphasis is given to the traditions of social criticism, the creative treatment of actuality, the individual and collective points of view.

The history of documentary form is illustrated by comparing the work of the American "Direct Cinema" style embodied in the work of Drew Associates to the French "Cinema Verite" style developed by Jean Rouch. The evolution of these styles into what we now just refer to as "Verite" filmmaking is put into practice through a series of exercises that incorporate a variety of points of view.

Analysis of the above works, as well as examples from Barbara Kopple, Errol Morris, and Frederick Wiseman, provide students with a springboard to develop their own style, vision, and personal creative voice. An examination of Bill Nichols taxonomy of non-fiction film classification further contextualizes aesthetic and theoretical issues for students. A series of lectures, discussions, readings, and screenings move students through the personal and collaborative process of documentary production.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2011  
 Prerequisite: COMM 337W COMM 340 COMM 342W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 438 Advanced Narrative Production (3 per semester/maximum of 6)** Advanced exploration of narrative production techniques and aesthetics through the completion of a short film or video project.

### **COMM 438 Advanced Narrative Production (3 per semester/maximum of 6)**

This course is designed to enable students to produce portfolio-quality short projects that bring together ideas, processes, practices, and theories in the service of narrative production. Over the course of the semester, students will

pursue an entire project from conception to completion through intensive pre-production, production, and post-production stages. Working in small crews composed of fellow classmates and using sophisticated production equipment, students will write and produce short digital video projects. Utilizing a workshop structure, class time will be focused on discussion and analysis of the challenges faced by individual productions, as well as providing the support, guidance, and critiques necessary for a successful production. There will be an emphasis on the thorough execution and evaluation of the steps taken toward completion of their project.

As a workshop, specific topics pertaining to the three stages of production will be reviewed as necessary. Students will be expected to hand in a pre-production packet (budget, schedule, script breakdown and lined script) before proceeding to the production phase.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: COMM 338COMM 340COMM 342W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 439** Advanced Alternative Production (3 per semester/maximum of 6) Advanced exploration in experimental and animation forms through the production of a film or video project.

#### **COMM 439 Advanced Alternative Production (3 per semester/maximum of 6)**

Advanced Alternative Production is a senior level course focusing on the development and expression of the individual filmmaker. The emphasis of the course is on exploring the history, conventions and modes that surround the experimental and animation film forms and using this knowledge in creating work that challenges conventions of mainstream media. The course involves viewing works of classic and contemporary alternative media, discussing its contribution or value in communications, and using these examples as models for exploration.

Utilizing a workshop structure, class time will be focused on discussion and analysis of the challenges faced by individual productions, as well as on providing the support, guidance, and critique necessary for a successful production. There will be an emphasis on the thorough execution and evaluation of the steps taken toward completion of their project.

This course assumes a working knowledge of intermediate film and video production and post-production techniques. Additional production and post-production techniques may be introduced based on the students' interest.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: COMM 339COMM 340COMM 342W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 440** Advanced Cinematography and Lighting Techniques (3) Advanced exploration in camera, lighting, audio, and color-grading techniques, emphasizing technical skills as well as aesthetics.

#### **COMM 440COMM 440 Advanced Cinematography and Lighting Techniques (3)**

This course is a comprehensive approach to techniques, equipment and procedures of film and video production with an emphasis on both practical skills and aesthetics. The course is divided into four sections that will employ a combination of lectures and workshops in camera, lighting, audio and color grading. The course will focus on understanding the theory and procedures underlying dynamic composition, visual and psychological perspective, practical and emotive lighting and sound, color, and the conveyance of meaning through color and continuity. In addition, students will learn accepted procedures in care and use of film and video cameras, sound recording equipment, lighting and grip gear, as well as proper organization, media storage and maintenance techniques specific to post-production. Students will work individually and collaboratively to produce projects for critique and evaluation.

The emphasis of the course is on the artistic and technical aspects that allow an idea to be cinematically realized on celluloid and/or a suitable digital format. The course involves viewing the work of outstanding, established cinematographers and videographers in great detail, and assessing their contributions to film aesthetics and history through the detailed, direct analysis of film excerpts and sequences from landmark films and video work, and the discussion of assigned reading materials on both film and video technique. Students then work in specific film and video production positions to reproduce precisely scenes from the films analyzed. By doing so, students will develop an understanding of the technology and artistic vision used in film and video production so that they may be better prepared to successfully create challenging and thought-provoking projects. In addition, this course also allows for an exploration and comparison of the ever-changing technology used in film and video production. Through this direct use of multiple visual and audio formats, students will discover the creative advantages and disadvantages of various media used to fulfill their artistic vision.

COMM 440 is a support course for the senior level production courses. Student cinematographers in COMM 448 (Adv. Production for Groups) are strongly encouraged to take this course concurrently. It can also be taken as an elective technique course in conjunction with any of the one-semester mode specific advanced production courses (COMM 437, COMM 438, or COMM 439).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: COMM 340COMM 342W and two of the following:COMM 337COMM 338 orCOMM 339 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 441** Advanced Graphic Design for Communications (3) Theory and practice designing graphic visual communication in commercial, non- commercial, and fine art formats for print and on-line media.

### **COMM 441 Advanced Graphic Design (3)**

An advanced examination of graphic design. Students develop proficiencies in the art, craft, formats, and vocabulary of commercial graphic design by creating original work in a series of hands-on projects. During the semester, students learn to research, organize, and interpret verbal and visual information and to solve increasingly complex communication problems. They will further refine their creative problem solving and collaborative production skills. By semester end, students will have begun to develop their own styles and are able to verbally articulate it to others. Assignments generally include topics such as interactive media design, animation, advertising design, and infographic design.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: COMM 241 orCOMM 371

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 443** Producing Workshop (3) This course will immerse students in the language and practice of producing film and video projects.

### **COMM 443 Producing Workshop (3)**

Through a combination of lecture, readings, screenings, and practical exercises, students will learn the fundamental producing skills needed to begin to understand creative producing in an increasingly complex global marketplace. Producing students will learn how to bring stories all the way from development through post-production and beyond. Students will be afforded an opportunity to develop their creative voices, all the while developing their communication and problem-solving skills. The course will follow a standard production timeline starting with pre-production topics such as the basics of pitching, script development, and financing. The second portion of the class will focus on production issues particularly as they apply to independent film production. This will include line producing and production management, including scheduling/budgeting, script breakdowns, assembling talent and crew, location scouting, and running a set. Finally post-production and distribution topics will be addressed including discussions of trends from major trade publications that impact the industry.

Throughout the semester students will complete practical exercises that will help build their skills at translating a script into a realized project with a minimum budget and maximum production value.

COMM 443 is a support course for the senior level capstone production courses. Student producers in COMM 448 (Adv. Production for Groups) are strongly encouraged to take this course concurrently. It can also be taken as an elective technique course in conjunction with any of the one-semester mode specific advanced production courses (COMM 437, COMM 438, or COMM 439). The prerequisites are in place to ensure students have the necessary production background taught in the intermediate-level courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: COMM 340COMM 342W and two of either:COMM 337WCOMM 338 orCOMM 339

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 444** Advanced Post-Production Techniques (3) This course offers intensive practical experience in editing, motion graphics and sound mixing techniques, emphasizing both technical skills and aesthetics.

### **COMM 444 Advanced Post-Production Techniques (3)**

Through a combination of lectures, readings, screenings, and practical exercises, students will learn advanced post-production techniques needed to produce high quality finished film and video pieces. The course includes modules on the theory and aesthetics of editing, motion graphics, visual effects, 2D animation, audio signal processing and audio mixing. The course will enable students to develop creative skills for translating ideas into short films and to serve as post-production support for senior level productions. Specific design strategies and approaches will be discussed. Students will also be required to demonstrate competence in a variety of digital graphics programs. Throughout the semester students will work individually and collaboratively on practical exercises for critique and evaluation, developing technical, analytical and critical skills.

The course is divided into three sections. In the first section students will focus on the procedures for successful post-production supervision and workflow management, including an exploration of accepted professional practices of editing departments. Students will explore advanced methods of picture editing in all modes and will edit and critique a professionally produced scene. In the second section of the course, students will work on graphics, animation and special effects procedures generally accepted as part of film-video post-production processes. The focus will be on techniques that translate to a variety of software and work environments; including manipulation of picture and text, light and color effects, compositing of multiple images and manipulation thereof. The third section of the course will focus on the practice of preparing elements for a professional audio mix and use of advanced digital audio workstations. This section will feature a discussion of the theory and practice of how tracks are organized, advanced psychoacoustics and signal processing, preparing a multi-track project for mix, and completion of a mixed sound design project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: COMM 340COMM 342W and two of the following:COMM 337COMM 338 orCOMM 339

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 445 Directing Workshop (3)** An advanced aesthetic and skill production course in directing for the screen.

### **COMM 445 Directing Workshop (3)**

This course is an advanced aesthetic and skill production course in directing for the screen. The class is designed to introduce more advanced directing concepts and techniques as well as to more deeply explore the collaborative processes of working with a creative team on effectively integrating the aesthetics of cinematography, production design and acting performance in film narrative.

The first section of the course will focus on understanding the actor's preparation and process with the goal of developing the appropriate and effective communications skills to coach performance. Students will thoroughly explore scenes for interpretation of subtext and motive, and will learn accepted practices of script preparation. Casting and audition styles will be investigated and demonstrated, as will various types of rehearsal techniques. At the end of this section students will workshop a scene in a small group, blocking it and executing it to illustrate concepts of character relationships, stage and camera craft to produce a short scene for discussion and critique.

The second section of the course will be an advanced aesthetic exploration of the visual vocabulary, including cinematic, psychological and fine art concepts that contribute to the planning and design of screen direction. Students will then analyze the technical means to execute this aesthetic vision through production design, lighting and composition. In practice the students will then translate this analysis into a working scene plan and will produce a short scene for discussion and critique. Students will also be introduced to professional practices such as location and studio set protocols and on-set safety procedures.

The third section of the course will explore narrative conventions and their relationship to screen genres in the interest of understanding the film language shared between filmmaker and audience. At the end of the section students will produce a short classic scene with an alternative interpretation for discussion and critique.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: COMM 340COMM 342W and two of the following:COMM 337COMM 338 orCOMM 339

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 446 Writing for the Screen II (3)** An advanced course in screenwriting that further develops elements of storytelling technique.

### **Writing for the Screen II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1994

Prerequisite: COMM 346

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 448 Advanced Group Production I (3)** A two semester advanced production course emphasizing intensive collaborative film-video production from script through post-production.

### **COMM 448 Advanced Cinematography and Sound Workshop (3)**

This course is designed to enable students to produce portfolio-quality work in any production mode (alternative, documentary, narrative) and to bring together ideas, processes, practices, and theories in the service of this production.

Over the course of the semester, students will engage in intensive pre-production and production of an approved film or video project. Utilizing a workshop structure, class time will be focused on discussion and analysis of the challenges faced by collaborative productions as well as providing the support, guidance, and critique necessary for a successful production. There will be an emphasis on the thorough execution of every step of pre-production, principal photography, and preparation for post-production in spring semester. Students will fill a single production role (such as producer, director, cinematographer, sound designer, editor) throughout the two semesters and are strongly encouraged to take concurrently the supporting technique course for that production role.

Students will be assigned individual exercises specific to their production role in addition to the collaborative work of the project's production.

Production groups will be formed the first week of class. The first part of the semester is devoted to the development of the projects and pre-production. Roughly half way through the semester, the projects will begin production, with shooting and editing to be completed the following semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: COMM 340COMM 342W and two of the following:COMM 337COMM 338 orCOMM 339 and permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 449** Advanced Group Production II (3) Continuation of advanced production course emphasizing intensive collaborative film-video production from script through post-production.

#### **COMM 449 Advanced Film and Video Projects (3)**

This course is the second half of a two-semester production course designed to enable students to produce portfolio-quality work in any production mode and to bring together ideas, processes, practices, and theories in the service of this production. Students from the fall semester will complete production and engage in intensive post-production in order to have a high-quality finished project to submit to film festivals by the end of the semester. Utilizing a workshop structure, class time will be focused on discussion and analysis of the challenges faced by individual productions as well as providing the support, guidance, and critique necessary for a successfully completed project. Students will continue in the same production role (producer, director, cinematographer, sound designer, editor) from the fall semester, learning new skills for their role in the post-production phase.

Students will be assigned individual exercises specific to their production role in addition to the collaborative work of the project's production. It is expected that all production group members will continue into the spring as well.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: COMM 448

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 451** (AM ST 451) Topics in American Film (3 per semester, maximum of 6) Critical and historical studies of American films. Analysis of directing, cinematography, editing, screenwriting, and acting.

#### **Topics in American Film (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: COMM 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 452** Topics in International Cinema (3 per semester, maximum of 6) Critical and historical studies of topics in non-American film. Analysis of theory, direction, cinematography, editing, and screenwriting.

#### **Topics in International Cinema (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1989

Prerequisite: COMM 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**COMM 453 (IL) (CMLIT 453) Narrative Theory: Film and Literature (3)** Comparative study of the aesthetics and techniques of film and literature; close analyses of masters of each art form.

**Narrative Theory: Film and Literature (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2006

Prerequisite: COMM 150 or 3 credits in literature

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 454** Documentary in Film and Television (3 per semester, maximum of 6) Study of representative films from various documentary movements, examining form, technique, trends, and audience objectives.

**Documentary in Film and Television (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 455** Advanced Film Theory and Criticism (3 per semester, maximum of 6) Close examination of classic and contemporary film theory and critical perspectives.

**Advanced Film Theory and Criticism (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1989

Prerequisite: COMM 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 456** Media Criticism and Theory (3) Critical and theoretical approaches to the analysis of media and communication.

**COMM 456 Media Criticism and Theory (3)**

To what extent does media (television, movies, print, radio, Internet, etc.) shape our awareness of not only the world around us but also ourselves as thinking human beings? Is it all a matter of perception and relative exposure to these media? How do we approach everyday interfaces with the immense number of media messages in both public and private spaces? Where do our opinions of the validity of both the informational and the aesthetic standards of media messages come from? In this class we attempt to come to terms with the rise and apparent predominance of media as a dominant cultural institution.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: COMM 371

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 457** Media Audiences and Contexts (3) Survey of the ways media attempt to influence audience reception and how audiences hold sway over media content.

**COMM 457 Media Audiences and Contexts (3)**

The course begins with an examination of how the mass audience is conceived as a statistical entity by analyzing quantitative methods such as the Nielsen ratings. Much of the course is then spent interrogating how this statistical information is used and by whom. If the audience is created as a commodity and is sold to advertisers, what ethical guidelines are in place? How do audience profiles influence the programs we see and consume? As media become more and more fragmented, how does the problem of audience as a commodity get resolved? Students utilize a case-study approach to explore a variety of audience problems and present their findings in papers, demonstrations, and exhibitions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: COMM 100 or COMM 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 458 Media Law and Ethics (3)** The study and practice of key issues in media law and ethics, including libel law, conflict of interest, truth in advertising.

**COMM 458 Media Law and Ethics (3)**

An examination of the role of the mass media in American society in regard to the rights, responsibilities, and duties of practicing media professionals. The semester is almost evenly divided between law and ethics topics. Students examine current laws in mass media with the goal of preparing them to be lawful and responsible members of the profession. Law topics include defamation, privacy, intellectual property and protection of anonymous sources. Students also get an introduction to ethical theories and their practical applications in media industries. Topics include journalistic responsibilities, objectivity, conflicts of interest, invasion of privacy, and the ethics of persuasion and entertainment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: COMM 100 or COMM 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 459 Cultural Effects of Interactive and Online Media (3)** Study of the global social impact and rhetorical limitations of converging media, emphasizing cross-cultural media influences.

**COMM 459 Cultural Effects of Interactive and Online Media (3)**

An examination of the various effects of digital media on society and culture. The nature of digital media affects content and production, the way people use media, and social interaction. Topics include convergence, the information society, the global village, and the various changes in the ways media producers do their work. Various aspects of changes including philosophical, economical, and political are examined with the goal of helping students understand how to prepare for future changes in media industries.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: COMMS 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 460W Reporting Methods (3)** Techniques in reporting news and trends at the local, regional, and county levels. Emphasis on both deadline and interpretive reporting.

**Reporting Methods (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1990

Prerequisite: COMM 260W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 461 Magazine Writing (3 per semester/maximum of 6)** Students will learn about idea conception, writing, and editing of magazine stories.

**COMM 461 Magazine Writing (3 per semester/maximum of 6)**

Students will learn about idea conception, writing, and editing of magazine stories. They will walk through the idea process, including how to pitch their ideas to editors. They will learn about research and reporting for stories, and then begin the process of organizing and writing their material. They will write stories and then work with editors to rewrite and improve the story for publication.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: COMM 260W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 462 Feature Writing (3)** Reporting and writing the human interest article for newspapers and magazines.



**COMM 462 Feature Writing (3)**

COMM 462 teaches the fundamentals of reporting and writing feature stories for newspapers and magazines. Students learn reporting and writing techniques for various types of feature stories. The course emphasizes the development of sound journalistic judgment and proper ethical standards. Students write various types of features stories.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: COMM 260W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 463 Newspaper Design (3)** This course will cover newspaper design. Students will learn to solve design problems, edit photos, and work with industry software.

**COMM 463 Newspaper Design (3)**

This upper-division course will cover contemporary design theory, grid systems, typography, color and photography as they pertain to newspapers. Students will develop skills necessary to solve design problems associated with the editing process. Students will also learn to use photo editing and page layout software.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009  
Prerequisite: COMM 160COMM 260COMM 467 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 464W Editorial, Opinion and Commentary Writing (3)** Introduces techniques of editorial, opinion and commentary writing.

**COMM 464W Editorial, Opinion and Commentary Writing (3)**

COMM 464W teaches the fundamentals of writing editorial, opinion and commentary articles. Students learn the techniques of gathering information and writing various types of opinion articles. The course emphasizes the development of sound journalistic judgment and proper ethical standards. Students write various types of opinion articles.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: COMM 260W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 465 Television Reporting (3)** Television news reporting and production.

**COMM 465 Television Reporting (3)**

COMM 465 provides an introduction to television news reporting and production. Students learn the techniques of reporting and writing news for television. They also learn the audio and video techniques required to produce television news stories. The course emphasizes the development of sound news judgment and proper ethical standards. Students complete actual news assignments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: COMM 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 466 Public Affairs Broadcasting (3)** Students research, write, produce and direct public affairs shows and in-depth reports.

**COMM 466 Public Affairs Broadcasting (3)**

This is an advanced field production and reporting course focusing on the exploration of timely public affairs issues on

the local, state and national level. Students learn to research a topic, conduct effective television interviews in the field, and produce in-depth reports with emphasis on solid broadcast writing, visual storytelling, editing, fairness, balance and accuracy.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: COMM 465 or COMM 283W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 466 Public Affairs Broadcasting (3)** Students research, write, produce and direct public affairs shows and in-depth reports.

### **COMM 466 Public Affairs Broadcasting (3)**

This is an advanced field production and reporting course focusing on the exploration of timely public affairs issues on the local, state and national level. Students learn to research a topic, conduct effective television interviews in the field, and produce in-depth reports with emphasis on solid broadcast writing, visual storytelling, editing, fairness, balance and accuracy.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: COMM 465 or COMM 283W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 467 News Editing and Evaluation (3)** Concepts and procedures involved in processing news for various news media, but with emphasis on print media editing.

### **COMM 467 News Editing and Evaluation (3)**

The goal of the course is to qualify the student to be a proficient newspaper copy editor. These skills can be easily transferred to editing assignments on a Web site, in magazines and other publications, in broadcasting, and in public relations. Even if the student does not intend to become a copy editor, the course should help him or her do a better job of writing. The course emphasizes editing for accuracy, clarity, precision in language, and fairness of content. Students will learn about evaluating the relative importance of news and writing headlines, captions and other display elements. The course familiarizes the student with editing photographs and graphics and designing a newspaper page.

Skill in editing is particularly important to the student majoring in print journalism. It is useful to anyone who regularly works with words. The student is evaluated through written work (editing copy, writing headlines and captions) and through quizzes, examinations, or other methods the instructor chooses to assess a familiarity with the theory and principles of the course.

Because students need an opportunity to practice their skills under supervision, the course must be taught in a laboratory setting in which each student has access to a computer connected to the Internet.

COMM 260W is a prerequisite. COMM 467 builds on the student's understanding of reporting and news writing techniques by teaching rigor in the use of language.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: COMM 260W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 468 Graphic Applications in Print Communications (3)** Issues, concepts, and practice identified with contemporary design strategies for print journalism, advertising, and public relations.

### **Graphic Applications in Print Communications (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1988  
Prerequisite: COMM 260W or COMM 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**COMM 469** Photography for the Mass Media (3) Development of an informed and critical approach to photocommunication; individual and team projects, seminars, and critiques.

**Photography for the Mass Media (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1986  
Prerequisite: COMM 269

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 470A** Convergent Media News Service: Newspaper Production (3) Practicum emphasizing newsgathering and reporting for newspaper and for additional media formats.

**Convergent Media News Service: Newspaper Production (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002  
Prerequisite: COMM 260W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 470B** Convergent Media News Service: TV (3) Practicum emphasizing television news package production for periodic campus news program and for additional media formats.

**Convergent Media News Service: TV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002  
Prerequisite: COMM 260W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 470C** Convergent Media News Service: Radio and Online Publications (3) Practicum emphasizing streaming radio news package production or production of news pieces for online publications and for additional media formats.

**COMM 470C Convergent Media News Service: Radio and Online Publications (3)**

The digital revolution and cross media ownership has challenged all areas of communications, especially the electronic and print news media. Most media outlets now have an online presence along with their traditional operations. Increasingly news outlets are producing news packages for more than one media outlet, which can include online production of breaking news reports presented with text, images, movies and/or sound bites. Currently students preparing for news careers must have traditional news skills across media along with multimedia computer-based skills to develop versatility in reporting and production. This practicum in streaming radio and online news provides opportunities to produce pieces for streaming radio and online publications and also to reformat these pieces for other media outlets such as the newspaper or television. It will also give students the opportunity to produce news pieces suitable for a cross-media portfolio.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: COMM 242 or COMM 374 and COMM 260W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 471** Public Relations Media and Methods (3) Analyzing media and audiences for public relations purposes; planning, designing, and writing public relations communications; press relations and publicity methods.

**COMM 471 Public Relations Media and Methods (3)**

COMM 471 introduces students to the methods used in public relations to generate news media coverage for organizations and individuals. The public relations practitioner must understand the goals of the client organization and its publics to establish effective and ethical communication between them. This course focuses on writing and is designed to assist students in developing and improving professional writing skills for public relations practice, in many forms and for a wide variety of media. Students will learn the importance of different writing approaches required for specific publics and news media organizations. In this course students learn to: (1) locate, read, and evaluate research materials; (2)

develop clear, concise program objectives based on the organizations' or clients' goals and the results of their research; (3) determine materials that need to be developed and written to achieve the program objectives; (4) develop newsworthy story ideas; (5) write clear, concise copy that is accurate and logically organized; (6) write in a variety of formats commonly used in public relations practice, including: pitch letters, news releases, position papers, backgrounders, public service announcements; and (7) design media kits.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: COMM 260W and COMM 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 472 Public Relations Event Planning (3)** Effective planning, organization, implementation and evaluation of events planning.

### **COMM 472 Public Relations Events Planning (3)**

This course links the public relations theories and practices with skills and techniques required for effective events planning. Students will build on their understanding of public relations introduced in COMM 370 by working on projects that are designed to help them to develop skills in conceptualizing public relations events, designing events, selecting sites, analyzing audiences, budgeting, and promoting/marketing. Students will gain experience in event conceptualization and implementation through in-class exercises and discussions, and public events projects. These assignments will provide students the opportunity to develop portfolio materials.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: COMM 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 473 Public Relations Campaigns (3)** Case studies and problems in publicity and public relations in industry, government, and institutions.

### **COMM 473 Public Relations Problems (3)**

This capstone course in the public relations major is designed to provide the student with the opportunity to develop a comprehensive public relations/marketing communications campaign plan based on the four-step process of public relations programming. Those steps include formative research, objectives, programming, and evaluative research. Initially, students will critically analyze award-winning public relations problems, cases, and programs that will provide a foundation for understanding the public relations planning process. Students will be introduced to public relations and communications theories that provide the foundation for excellence in program development. The public relations campaign plan will be developed from the analysis of primary and secondary research sources. The campaign plan will begin with a situation analysis that includes the client's historical, financial, and competitive position in the marketplace. Previous public relations, advertising, and marketing communications programs will be reviewed and evaluated. Additional secondary research will include a content analysis of the client's news media coverage as well as an analysis of the psychographic and demographic profiles of previously targeted publics. Account teams will design and conduct surveys and focus groups as part of the formative research required in setting the program objectives, strategies, and tactics. The public relations plan will require the development of a media plan, media objectives, production timetable, and budget for implementing the program objectives, strategies, and tactics. Students will apply their critical thinking skills and creative abilities to design and produce communication executions that will communicate the program message to the targeted publics. Those creative abilities include a working knowledge of writing, desktop publishing, photography, and graphic communication. The final phase of the public relations/marketing communications plan will include the design of evaluative research to measure the effectiveness of the program objectives. Those research methods will include content analysis, survey research, and focus groups. Students will work in account teams where each team will be responsible for developing a public relations counseling firm, where team members will produce a firm manual outlining the firm's mission statement, organizational policies, organizational chart, records of all meetings with clients, records of all firm meetings, time sheets for each firm member, a weekly summary of firm activities, project budget reports, bi-weekly evaluations of firm members, and a client presentation plan. The final public relations plan will be presented to the client for evaluation and critique. The final goal of the course is to provide students with the technical and managerial knowledge and experience required for effective public relations program design and implementation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: COMM 370 COMM 420 or COMM 304 and COMM 471

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 474** Depth Reporting (3) Exploration of strategies for developing indepth newspaper or magazine articles, with an emphasis on gathering information and long-form writing.

**COMM 474 Depth Reporting (3)**

This is an upper-level undergraduate course designed to prepare students for writing in-depth newspaper or magazine articles, which extends beyond the basics of writing and reporting techniques emphasized in courses such as News Writing and Reporting, Reporting Methods, and the Feature Article. Depth stories are comprehensive accounts that go well beyond a basic news story or feature. An emphasis on longer, more comprehensive stories that require extensive research and interviews gives students an opportunity to be more than technicians following a rigid set of journalistic guidelines or principles. Depth stories require journalists to spend days, weeks or months exploring and investigating a topic and writing a lengthy story that must be cemented with effective transitions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: COMM 260W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 475** Issues for Newsroom Managers (3) Newspaper and television management, the state of the industry and topics that prospective employees should know about.

**COMM 475 Issues for Newsroom Managers (3)**

This is an upper level course for students with an interest in newspaper or/and television management. Issues that managers deal with and management approaches will be covered, emphasizing practical experiences. The basic text may be a packet based on professional experiences of instructor. There will be two papers of roughly 1,500 words. There will be one oral presentation, accompanied by a short summary outlining the main points. The class will consider major issues affecting the industry - the economy, the effort to attract younger audiences and how the look of a product forms the basis of what the audience thinks about the brand and whether it appeals to them. The class will consider how the Internet can be an asset to TV stations and newspapers, if used effectively. Students will evaluate some TV and newspaper Internet sites. The role of advertising and community relations for newspapers and television stations will be discussed. Newspaper opinion pages and public (or interactive journalism) will be covered. The importance of a good local report, and evaluating how effective local coverage is, will focus on state newspapers and television stations. The role of The Associated Press and other news agencies and their approach to coverage and how they relate to local media will be covered. Leadership, management and decision-making will be part of the course. The traits of effective leaders and managers will be discussed. There will be some in-class exercises on managing and ethics. Strategy focusing on the start-up of USA TODAY will illustrate how local newspaper can make strategic gains by following the same checklist. There will be occasional video on the topics covered.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: COMM 260W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 476** Sports Writing (3) Techniques in sports reporting and writing for media.

**COMM 476 Sports Writing (3)**

This is an upper-level course designed to prepare students to write sports stories for news outlets. These specialized stories - including contest coverage, analysis, columns, enterprisers, profiles, and sidebars - require skills that go beyond those taught in classes such as News Writing.

As the popularity of high-school, college, and professional sports grows, the sports section has become one of the most widely read sections of newspapers. Many magazines as well cover a variety of sports. Modern sports writing requires sportswriters to not only attend games and interview coaches, but also to use statistics, profile sports figures, and explore trends in sports industry. Through a variety of story assignments, the course provides students with the skills that will prepare them for the demands of being modern sportswriters. The course grounds them in the ethical principles that all journalists must follow.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: COMM 260W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 476 Sports Writing (3)** Techniques in sports reporting and writing for media.

### **COMM 476 Sports Writing (3)**

This is an upper-level course designed to prepare students to write sports stories for news outlets. These specialized stories - including contest coverage, analysis, columns, enterprisers, profiles, and sidebars - require skills that go beyond those taught in classes such as News Writing.

As the popularity of high-school, college, and professional sports grows, the sports section has become one of the most widely read sections of newspapers. Many magazines as well cover a variety of sports. Modern sports writing requires sportswriters to not only attend games and interview coaches, but also to use statistics, profile sports figures, and explore trends in sports industry. Through a variety of story assignments, the course provides students with the skills that will prepare them for the demands of being modern sportswriters. The course grounds them in the ethical principles that all journalists must follow.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: COMM 260W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 477 Sports Broadcasting (3)** Techniques of sports broadcasting for radio and television.

### **COMM 477 Sports Broadcasting (3)**

This is an upper-level course designed to prepare students to broadcast sports events and news. These specialized broadcasts - including play-by-play, studio sportscasts, field reporting, and features - requires myriad skills that go beyond those taught in classes such as Broadcast Journalism I (Radio News Reporting) and Broadcast Journalism II (Television News Reporting).

As the popularity of high-school, college, and professional sports has exploded, sports shows have become some of the most popular on radio and television. Myriad networks and shows are devoted to sports coverage exclusively. But increasingly knowledgeable sports viewers demand more from sports broadcasters than game coverage and opinion pieces. Modern sports broadcasting requires journalists to not only attend games and interview coaches, but also to use statistics, profile sports figures, and explore trends in sports. Through a variety of story assignments, the course will give students the experience that will prepare them for the demands of being modern sports broadcasters. And it will ground them in the ethical principles that all journalists must follow.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: COMM 260W COMM 360

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 478 Sports Information (3)** Techniques of effective media relations used in a sports information office.

### **COMM 478 Sports Information (3)**

This is an upper-level course designed to prepare students for a specialized form of modern media relations, sports information. Sports information professionals combine skills of both journalists and public relations specialists, so the advanced techniques go beyond those taught in introductory classes such as News Writing and Public Relations Methods.

As the popularity of high-school, college, and professional sports has exploded, sports information professionals have increasing demands put on them. More and more journalists, working for a variety of publications and broadcasts, cover sports today. Moreover, the growing complexities of modern sports - from the impact of drugs to the enormous salaries of many athletes - means that sports information professionals have to provide more than simple information on athletes, coaches and sporting contest. Through a variety of assignments, the course will provide students with the experience that will prepare them for the demands of being sports information professionals. And it will ground them in the ethical principles that all media relations specialists must follow.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: COMM 260W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 479 Telecommunication Economics (3)** Economic, regulatory/business issues in the design/operation of large-scale telecommunication networks such as telephone, cable, wireless, and computer networks.

### **COMM 479 Telecommunication Networks (3)**

The objective of the course is to help students understand the economic, regulatory, and business aspects of the physical infrastructures underlying modern telecommunications. We will discuss the large-scale technological systems such as telephone, cable, wireless and computer networks over which media and telecommunications services are delivered today. We will not be discussing the content offered over telecommunications networks as much as the infrastructures themselves: the conduits over which information is delivered to the home and the workplace.

With technological convergence and regulatory changes, telephone, cable and wireless networks have acquired the capability to provide services earlier reserved exclusively for one or the other network. For example, we can now access telephone services over wireless networks or over the Internet. Similarly, Web content is available with the traditional telephone modem, as well as over cable, wireless and even satellite networks. In the not too distant future, it may become more meaningful to talk in terms of consumer network to a broadband conduit for all types of content, rather than to particular services such as cable television or long-distance telephony.

It thus becomes necessary for those who wish to participate in the telecommunications industry of the future to have a clear understanding of the way large-scale telecommunications infrastructures are put together and operated. Existing courses in the telecommunications curriculum provide instruction in the technology and content aspects of the media and telecommunications industries. The proposed course will complement these existing courses by focusing on the economic, regulatory and business aspects of large-scale networks, in a historical and policy context.

What are the mechanisms by which large-scale telecommunications systems such as telephone, cable, wireless and computer networks are deployed over time? What are the costs involved in the initial deployment and expansion, and how do they influence policy? How do planners evaluate and choose between alternative technologies of delivering services? What are the economic justifications for and against government regulation of networked technologies? How do companies charge for services provided over networked systems? What problems do we face as more and more services--such as real-time gaming and interactive television--are added to telecommunications networks, and what are some of the current proposals to solve these problems? These are some of the questions that will be discussed in class.

Students taking this course will be expected to have no more familiarity with telecommunication infrastructure issues and basic economic terms and concepts than will be acquired in COMM 180, and ECON 002 or ECON 014. All additional concepts will be introduced at a sufficiently introductory level.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: COMM 180 and ECON 102 or ECON 014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 480 Television News (6)** Produce a weekly television newscast.

### **COMM 480 Television News (6)**

COMM 480-Television News will help prepare students for a career in television newscast content, presentation and production with a strong multimedia component. Students will gain experience in all aspects of producing a newscast. The class will meet Mondays and Fridays, but they will be expected to produce content on a daily basis, whenever and wherever stories in Centre County happen. After a few weeks of training, we will produce the Centre County Report each week with elements BOTH ONAIR and ONLINE. This is NOT a newscast focusing only on Penn State activities. Students must be prepared to produce a newscast that informs the larger audience of Central Pennsylvania.

COMM 480 needs the best students to produce the Centre County Report. Students will primarily serve as the news-editorial side of the newscast (anchors, reporters, sports, producers and some in-field photojournalists and studio camera operation) or as the technical team (director, technical director, audio, graphics, studio camera operator AND field production/photojournalists).

By the end of this course, students will have the skill set to:

1. Pursue a career in television news
2. Write solid television news scripts
3. Enhance your storytelling ability
4. Enhance your ability to produce and technically support a newscast
5. Understand the importance of multimedia
6. Produce an effective resume tape

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: COMM 360COMM 465 permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 481 Advanced Multimedia Production (3)** Advanced work in multimedia production using web authoring, video editing, audio editing, image editing and animation software.

### **COMM 481 Advanced Multimedia Production (3)**

This course builds on the foundations of multimedia production developed in COMM 270 giving students the opportunities to create multimedia website projects. Students will apply advanced multimedia concepts and techniques to website production and demonstrate versatility in multimedia software. Working individually and in teams, students will develop projects for clients using multimedia software, including web authoring, video editing, audio editing, image editing and animation software. These projects will be uploaded to the World Wide Web, and will serve as portfolio materials for the students. This course emphasizes skills development in multimedia and visual media in support of program objective to help students develop cross-media skills and versatility in media.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: COMM 270 orCOMM 260W plus one of the following:COMM 269COMM 360COMM 460COMM 462 or permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 482 Advanced Communication Workshop (4)** Conceptualization, planning, and execution of a visual product on a selected topic utilizing an intensive group project-oriented laboratory approach.

### **Advanced Communication Workshop (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: COMM 371

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 483 Wireless Communications Industry (3)** A broad examination of the wireless phone industry including its development, current structure and future.

### **COMM 483 Wireless Communications Industry (3)**

Since the 1990s, the wireless industry has transformed "how" people communicate. The ability to offer mobile communication services to consumers allowed the telecommunications industry to rapidly expand and create new products and services. Throughout this period of rapid growth, new players emerged from relative obscurity while incumbent telecommunication providers weighed the benefits & drawbacks of deploying this new technology.

Although wireless devices have become pervasive throughout the United States, few people appreciate the technology and partnerships that are required to offer wireless services for millions of customers. This course will address a variety of wireless topics to allow students to develop a greater understanding and appreciation of the wireless industry. In terms of course design, there are three distinct elements: (1) The early days of the wireless and the key figures and events that shaped an industry, (2) A current state view of the tier 1 carriers, device manufacturers and product offerings, (3) The emerging trends in the wireless industry and the potential impact on consumer products and services.

By the end of this course, the objective is for students to view the wireless industry quite differently. Students will understand the relationship between wireless spectrum, carrier, device manufacturer and products. The industry landscape will be clearer to students and they will be well positioned to pursue a career in wireless.

In this course, students will learn to:

Demonstrate an understanding of the key watershed events and entrepreneurs that initially shaped the wireless industry  
Think critically, creatively and independently

Demonstrate an understanding of the current wireless industry landscape

Apply tools and technologies appropriate for the communications professions in which they will work

Appreciate the evolution of the wireless industry and be positioned to contribute to the development of the next generation of wireless products & services.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: COMM 381 andCOMM 387



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 484** Emerging Telecommunications Technologies (3) Overview of technology of electronic media and related societal issues.

**COMM 484 Emerging Telecommunications Technologies (3)**

COMM 484 will introduce the technologies in telecommunications and information processing, with an eye toward giving students the necessary perspective on how these technologies work and how markets develop. The course investigates old, new and prospective technologies primarily through an interactive classroom analysis of incumbent or emerging companies bringing products and services to market. Students will conduct their analysis by examining materials not customarily used by undergraduates including stock prospectuses, company annual reports and Internet searches. The class will consider recent strategic alliances, mergers and acquisitions (whether consummated or not) in the context of whether and how technologies drove the deal.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1992

Prerequisite: COMM 180

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 484H** Emerging Telecommunications Technologies (3) Overview of technology of electronic media and related societal issues.

**COMM 484H Emerging Telecommunications Technologies (3)**

COMM 484H will introduce the technologies in telecommunications and information processing, with an eye toward giving students the necessary perspective on how these technologies work and how markets develop. The course investigates old, new and prospective technologies primarily through an interactive classroom analysis of incumbent or emerging companies bringing products and services to market. Students will conduct their analysis by examining materials not customarily used by undergraduates including stock prospectuses, company annual reports and Internet searches. The class will consider recent strategic alliances, mergers and acquisitions (whether consummated or not) in the context of whether and how technologies drove the deal.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: COMM 180

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 485** Analysis of Broadcast-Cable Policy (3) Analysis of current policy issues in Broadcast/Cable. Standards and methods for evaluating telecomm policy processes and outcomes.

**Analysis of Broadcast-Cable Policy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: COMM 381 or COMM 483

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 486** Telecommunications Ethics (3) Drawing on normative theory and political philosophy, this course explores problems in ethics and social responsibility in telecommunications.

**COMM 486 Telecommunications Ethics (3)**

In this course the instructor and students work together to consider and analyze ethical issues in contemporary telecommunications practice. Using the tools of ethical and political philosophy, students will discuss current cases in often long-standing problem areas such as truth, privacy and content control. The intention is that all involved will develop a greater sensitivity to the ethical dilemmas confronting telecommunication professionals and a greater ability to evaluate media performance. The course also strives to help students gain a deeper insight into their own ethical principles and become more keenly aware of the foundations and professional implications of those principles.

In the first few weeks of the semester, students will review the major ethical theories and theorists. They will discuss the nature and types of normative analysis, including the major systems of ethical thought, the process of ethical reasoning and the meta-ethical problems of definition and justification. They will also explore the foundations of political philosophy as they relate to the role of telecommunications industries in democratic society. Related topics will include

the nature and history of professional norms and values, the development of ethical codes within specific industries and existing organizational processes for the applications of those standards (the clearance process).

In the remainder of the semester, students will discuss case studies involving various ethical dilemmas in professional practice across all segments of the relevant industries including, broadcasting, cable, telephony and the Internet. Special attention will be given to contemporary problems in areas such as social networking and Internet search companies. Topics will include: content control in entertainment and advertising, including issues involving race, gender and age; freedom of expression; privacy; intellectual property; international and cross-cultural issues; truth and anonymity; system access and power; questions of civic engagement; image ethics in a digital age; and broader philosophical questions about the inherent social nature of telecommunications technology.

There are, of course, no 'correct' answers in these cases; stress is placed on the process of analysis. Students will be evaluated on their ability to articulate their assumptions and formulate coherent ethical rationales based on those assumptions.

Comm 180 is a prerequisite for this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: COMM 180

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 487** Advanced Telecommunications Management and Leadership (3) Strategic management, leadership and ethics issues including marketing, financing, entrepreneurship, and innovation.

### **COMM 487 Advanced Telecommunications Management and Leadership (3)**

This senior-level capstone course discusses a range of strategic management, leadership and ethics issues in telecommunications and media firms. Learning objectives include creative problem-solving, critical thinking and writing, basic financial literacy and management considerations in ethics, globalization, diversity and free speech. Specific areas of emphasis include marketing, programming, customer service, technology adoption, finance and strategic planning. Broadly, the aim is the honing of critical and creative problem solving skills and the enhancement of collaboration and communication skills.

The course also stresses the fiduciary and social responsibilities that adhere to the telecommunication manager's role.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: COMM 387

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 488** Writers' Seminar (3) Workshop designed for advanced students interested in professional writing, involving extensive mutual and self-criticism.

### **COMM 488 Writer's Seminar (3)**

This course is designed for advanced students interested in professional writing in the theatre, screen, and media arts. The class work involves submission and extensive revision of a variety of written projects. Revisions are based upon direct feedback from the instructor, as well as mutual critiques from classmates. Students will also learn the technique of self-criticism of their writing and in doing so develop a sense of their own writing style and subject matter preferences.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: COMM 230W or COMM 260W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 489W** Media and Information Industries (3) The structure, conduct and performance of firms and industries in the electronic media and information sectors.

### **COMM 489W Media and Information Industries (3)**

The objective is for students to examine and learn how to apply concepts of structure, conduct and performance to firms and industries in the electronic media and information sectors, primarily in North America. Industries include broadcasting television and radio, broadband/cable television, satellite television, videogaming, Hollywood, music recording, home video, advertising, online content and entertainment and sports media. Topics include competition and competitive advantage, mergers and concentration of ownership, strategic behavior, industrial organization, industry

finance basics, industry practices in pricing, marketing and distribution, the economic impact of technological change and advances in e-commerce, industry and firm profitability and innovation, and the relationship between Wall Street and media industries. Class time is devoted to lecture, discussion (particularly about research and writing) and student presentations. Students are evaluated on an original research project, performance on tests, homework and contributions to discussion. There may also be online discussion and collaboration.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: COMM 387 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 490** Issues in Electronic Commerce: Policy and Implementation (3) Analysis of policy, strategic issues, and implications raised by the rapid growth of electronic commerce over the Internet.

### **COMM 490 Issues in Electronic Commerce: Policy and Implementation (3)**

This senior level course teaches students about the unique business, policy, regulatory and legal aspects of commerce on the Internet, as well as the social implications of the global implementation of such commerce for areas such as privacy and consumer protection. Learning objectives include creative problem-solving, critical thinking and writing, basic financial literacy and management considerations in ethics, globalization, diversity and free speech.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: COMM 180 for telecom major; permission of instructor for non-telecom majors

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 490A** Convergent Media Seminar (3) This seminar examines media convergence issues, trends, and effects on society through discussions, presentations, and creation of a capstone project.

### **Convergent Media Seminar (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002  
Prerequisite: seventh- or eighth-semester standing and 3 credits of COMM 470A COMM 470B or COMM 470C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 491** International Telecommunications and Trade Policy (3) Development in the law, policy, and business of international telecommunications; emphasis on multilateral forums--International Telecommunications Union and World Trade Organization.

### **COMM 491 International Telecommunications and Trade Policy (3)**

The study of international telecommunications policy requires an interdisciplinary perspective. Students should understand the past and present technological, business, philosophical, geographical and legal environment. Success in either the public or private sectors may depend on one's ability to anticipate and react to future trends and upheavals. This course will provide a forum for students to investigate and debate ongoing or anticipated conflicts in international telecommunications and trade policy. The resulting confrontations may stem from technological innovation, real or perceived changes in the marketplace, or the imperatives of prevailing regulatory, political or economic philosophies. Conflict resolution often results from persuasive advocacy, coalition building, and accommodation of outsiders with new perspectives or entrepreneurial visions, rather than applying legal precedent or treaty interpretations. The course also will examine how various nations have organized and reorganized the telecommunications sector. In this portion, we will consider such developments as privatization, liberation, deregulation and globalization.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: COMM 180

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 492** Internet Law and Policy (3) Development in the law, policy, and business of Internet-mediated communications and commerce; emphasis on impact on existing legal, regulatory, and economic models.

### **COMM 492 Internet Law and Policy (3)**

This course will provide a forum for students to investigate and debate ongoing or anticipated conflicts in Internet-mediated telecommunications, information processing and commerce. The resulting confrontations may stem from technological innovation, real or perceived changes in the marketplace, or the imperatives of prevailing regulatory, political or economic philosophies. Conflict resolution often results from persuasive advocacy, coalition building, and accommodation of outsiders with new perspectives or entrepreneurial visions, rather than applying legal precedent or treaty interpretations. Internet mediation has the potential to change how we communicate, educate, inform, entertain, and transact business. Technological and marketplace convergence means that Internet mediation will have a profound impact on many legal, regulatory and economic constructs, i.e., the preexisting templates we use to describe and understand the communications process and impact on individuals and society. The course also will examine the growing body of cases that have addressed aspects of Internet-mediation in each of the following general categories:

- \* Speech-commercial and political speech, obscenity, forums analysis
- \* Legal and Regulatory Consequences of Convergence-the juxtaposition of telecommunications and information processing technologies, markets and regulatory regimes
- \* Governance and regulation of the Internet-whether the need exists for government intervention on such matters as numbering and domain registration
- \* Intellectual Property Rights-the impact of Internet-mediation on copyright, trademark and patent laws
- \* Electronic Commerce-the law and policy of Internet-mediated transactions, privacy and encryption concerns
- \* Equity, Competition Policy and Consumer Protection Concerns-what, if anything, should governments do to remedy market failures

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2001  
 Prerequisite: COMM 180

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 493 Entrepreneurship in the Information Age: Senior Seminar (3)** Provides students with knowledge/tools to take their innovation/technology idea through the business planning, capital, and operations budgeting processes.

#### **COMM 493 Entrepreneurship in the Information Age: Senior Seminar (3)**

COMM 493, an active learning course, provides students with knowledge and tools to take their own idea for a media or communications innovation and determine the feasibility of launching it as a small business. Students bring their own ideas for a communications product or service. They work through the market feasibility, business planning, capital and operations budgeting processes to finally researching and seeking start up capital. The final product produced by each student is a comprehensive business plan suitable for launching a real business. This course is designed for both students plan to pursue careers as entrepreneurs and those who wish to learn more about small business management in the information age. Topics include entrepreneurship, business planning and budgeting, starting and managing a small media or communication technology firm, economic history of media, telecommunications and information innovation, trends and opportunities in media and information sectors, high tech start up legal and employment issues, financing options, overview of venture capital, IPOs and market capitalization, market feasibility analysis. Cases of recent successes and failures in the information and media sectors are used to illustrate principles of business planning, market and financing trends and entrepreneurship. In addition to producing a business plan complete with market feasibility analysis and financial forecast reports, there may also be quizzes and exams. Classroom time is devoted to lecture, project work and discussion.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2001  
 Prerequisite: COMM 387

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 494 Research Project Courses (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project Courses (1-12)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 494H Research Project Courses (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 495** Internship (1-3 per semester/maximum of 6) Supervised practicum with newspapers, broadcasting stations, public relations, and advertising agencies.

**Internship (1-3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: continuing student majors in the College of Communications; departmental approval

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 495A** Internship (1-6 per semester/maximum of 6) Supervised practicum with newspapers, broadcasting stations, public relations, and advertising agencies.

**Internship (1-6 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: continuing student majors in the College of Communications; departmental approval

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 497A** Promotional Video Agency (3) Advanced experience in a team environment producing strategic communication videos for campus clients, including those in athletics and academic units. Students will fill a variety of roles related to strategic marketing, including needs analysis, developing solutions, managing client relations and creating effective video.

**Promotional Video Agency (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 497B** International Documentary Production (3) UP classroom work will consist of research and proposal of a short personal observation film. Students will shoot their film during an 9 day trip to Ireland. Project will be edited upon return, and shown at final screening June 11.

**International Documentary Production (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 497F** Sports Journalism Projects (3) Students will travel to Ireland to cover the Croke Park Classic, with the stories, photos, and multimedia elements produced by the students distributed in real time to the commonwealth's newspaper through the Pennsylvania News Media Association. On their return, the team will produce a final round of stories to be packaged in the Lion's Roar, a College of Communications showcase.

**Sports Journalism Projects (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 498A** In the Game (3) Produce half-hour sports magazine style show to air on College HD channel and Web. Students will produce, report, anchor and direct the show. Registration by application.

**In the Game (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 498B** Wireless Devices and Global Markets (3) Wireless Devices and Global Markets is a new course that examines the market for wireless devices, from Android smartphones to iPhones and iPads. Students will learn about next generation smartphones and get to develop a unique product design concept.

**Wireless Devices and Global Markets (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 498C** Business Reporting (3) Skills of business reporting and writing for the news media.

**Business Reporting (3)**

General Education: None  
Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 498D** Business of Sports Journalism (3) Contemporary issues where business and sports intersect in the college and professional ranks.

### **Business of Sports Journalism (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMM 499** (IL) Foreign Study--Mass Communications (1-12) Study of mass communication systems and practices in selected foreign countries.

### **Foreign Study--Mass Communications (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: departmental approval

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Communications-CI (COMMS)**

**COMMS 438** Magazine Editing (3) Study and practice of the editing and design of magazines and newsletters.

### **COMMS 438 Magazine Editing (3)**

Prepares students to manage, edit, and design newsletters and magazines. Topics include copyediting, layout and design, and managing serial publication work flows. Students in this course are expected to be proficient writers, as they need a critical eye when editing for writing style, grammar, and punctuation. Students do various assignments that build practical skill level in copyediting, headline and photo caption writing, layout, design, and publication management.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Community and Economic Development (CEDEV)**

**CEDEV 430** Principles of Local Economic Development (3) Concepts, strategies, and techniques of local economic analysis, planning, and development; case studies and decision-making exercises.

### **CEDEV (AG EC) 430 Principles of Economic Development Planning (3)**

This course is designed to introduce the issues giving rise to concern for rural and regional economies, and the theories, concepts and tools of rural and regional economic development. The goal is to integrate theory and practice and apply them to economic development problems. Tools are presented in a "how to" manner. Topics include current issues in rural economies, the economic view of rural development; business retention, expansion and location; entrepreneurship and its role in the economy; understanding the local economic structure and the forces of change; introduction to economic growth theories; export base theory and economic base analysis; the role of labor and capital in development; techniques of market area, central place, shift-share and input-output analysis; policies of local economic development and growth.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: introductory course in economics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CEDEV 452** Community Structure, Processes and Capacity (3) Social organization, processes and change in communities; use of sociological principles in analysis of community problems and development.

**CEDEV (R SOC) 452 Rural Organization (3)**

This course combines an introduction to the social theories of communities with real-life examples of applications to understanding community problems and concerns. The focus is on the special circumstances facing small towns and rural communities, but the concepts are applicable in all communities, from urban neighborhoods to suburbs. Topics covered include local community in a global economy, power and decision-making, the role of governments and other social institutions, development of community and the importance of building social infrastructure as well as economic and physical infrastructure, multi community collaboration and building sustainable communities. Those taking the class will gain experience in conducting a case study of a small Pennsylvania community, build skills in working in a team, and gain understanding of the complexity of factors that influence community (and your own) well-being. If your future career involves operating within a community setting this course can increase your knowledge of that setting and how to function within it. And, even if you don't plan on working with communities in your job, you will be living in a community. This course can help you to understand the ways that you can contribute to improving your own quality of life by becoming involved in your community. Grades in this class are based on the community case study report, take-home mid-term and final exams, short team exercises, and class participation. Graduate students taking the course also are required to write reaction papers to three different topics during the semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: 6 credits in rural sociology sociology or psychology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Community, Environment and Development (CED)

**CED 152** Community Development Concepts and Practice (3) Concepts and practice of community development.

**CED 152 Community Development Concepts and Practice (3)**

Community development is broadly recognized as a process by which places (communities, small towns, neighborhoods) and the people in them, improve their economic and/or social well-being. Health of the environment and sustainable use of natural resources ensure the long-term well-being of human populations and so are central to sustainable community development. The practice of community development requires the ability to identify and understand the interrelationships of economy, society and environment locally, nationally and globally. Community development hinges on the capacity of local communities and residents to influence and determine their own futures.

Students will gain an introduction to the concepts and models of community development and will become familiar with the roles of community development practitioners in developed and developing country settings. They will be able to identify the consequences of development strategies for social, economic and environmental well-being, focusing on the interrelationships of these aspects of development. Students will be introduced to strategies to identify capacity and resources available in communities and those that need to be enhanced. Models of decision-making will be introduced and students will work in teams in class with a focus on successful team functioning, identifying commonalities and shared interests to foster decision-making, and being able to extend that experience to working with groups in a community.

Students will gain knowledge and understanding of the relevant concepts, processes and practice through readings and in-class lecture and discussion. Case studies of specific community development issues will give students the opportunity to apply the concepts and skills they learn in class, and to work in teams where students take on perspectives of different stakeholders and attempt to reach a resolution. Examples will be used throughout the course to portray important concepts. This knowledge and associated skills can be used to form the basis for further training and a career in community development or to provide a basic understanding for those interested in volunteering in their own community.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: R SOC 011 or SOC 001; ECON 104

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 155 (GS)** Science, Technology and Public Policy (3) This course will survey the main issues that relate science and technology to public policy.

**Science, Technology and Public Policy (3)**



General Education: GS  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 201** Introductory Environmental and Resource Economics (3) Apply principles of economics to analyze environmental protection policies and natural resource use decision. Examine contemporary policy issues.

**E RRE (AG EC) 201 Introductory Environmental and Resource Economics (3)**

An introduction to the concepts, theories, and applied methods used in the economic analysis of environment and natural resource issues. The course covers topics such as the principles of market efficiency, why the market often fails where environmental and natural resource issues are concerned, and environmental policy prescriptions and tools designed to correct this market failure. These principles and tools are explored with respect to air and water pollution, management and use of renewable natural resources such as forests and fisheries, and the unique problems of managing nonrenewable resources such as minerals and oil. The course aims to give students an understanding of how traditional economic principles can be used to suggest and evaluate possible responses to the environmental and resource problems facing society.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013  
 Prerequisite: AG BM 101 orECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 230** Development Issues in the Global Context (3) Exploration of issues related to economic development in national and international contexts, where key interrelationships between and among developed and developing regions are made explicit.

**CED 230 Development Issues in the Global Context (3)**

Local communities - in both developed and developing countries -- are influenced by strong global forces that affect the well-being of their residents. Community economic development is one approach to enhance improve economic outcomes. This course will use an issue-oriented approach to help students understand economic development patterns and resultant issues in the U.S. as compared to what is observed and what is of critical concern in other places. Topics will include the concept of globalization, economic restructuring trends, investment in human capital and the ability to retain this often mobile form of capital, migration and change in patterns of migration, and environmental effects of development in different contexts. Each year that the course is taught, there will be a focus on patterns of economic development by region in the U.S. but with comparisons to three other selected countries -- one in Latin America, one in Asia and one in Africa. Students will be encouraged to compare and contrast economic and related social issues that arise in these contexts, with particular emphasis given to recent economic trends and events and to the rate of change compared to the past.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013  
 Prerequisite: ECON 102ECON 104R SOC 011 orSOC 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 297** Special Topics (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9 per semester/maximum of 9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 309** Land Use Dynamics (3) Theory of land use and land use decision-making.

**CED 309 Land Use Dynamics (3)**

Land is a key natural resource for society. Decisions related to land use are understood through alternative theories that

serve to explain why prevailing land use patterns occur and change. This course examines the theoretical foundations of land use and policy practices to better understand how land use may change in the future in response to changes in land prices, population growth, human preferences and especially preferences for natural amenities, and the quality of the natural environment, among other factors. Given current issues including the twin problems of urban sprawl and land abandonment, the course will also examine the role of land use policy and specific programs to guide and provide greater public control over land use decisions. Students will gain an appreciation of the importance of land as a resource, and the potential for irreversibility in many land use decisions. Knowledge will be gained of the relevant theories, trends and policies through readings and in-class lecture and discussion.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: ECON 102 or equivalent; GEOG 160

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 375H Community, Local Knowledge, and Democracy (3)** Understanding community decision-making, citizen-expert interactions and methods for resolving seemingly intractable conflicts associated with public issues.

### **CED 375H Community, Local Knowledge, and Democracy (3)**

Decisions made in our communities have far reaching effects on individuals, families, neighborhoods, the local economy, the environment, the health and welfare of all citizens, and the community as a whole. These decisions or choices are the result of the collective action of community leaders and citizens, either through governmental, non-governmental, or community organizations. This course will familiarize students with principles, concepts and skills essential to understanding processes of community decision making and community development. These processes involve countless human interactions, which ultimately lead to choices that affect the future economic, environmental, political, and social viability of citizens, their families, and the sustainability of their communities. These interactions are central to community decision making and community development, and to the functioning of local democracy. The nature of these interactions and the way in which they take place determine if desired community outcomes occur or not. This course seeks to reveal important, sometimes neglected or underdeveloped, factors in community decision making, specifically issue framing, tensions between local and expert knowledge, methods for resolving seemingly intractable conflicts associated with public issues, and the nature and role of participatory processes in debate, deliberation, and doing public work. This course will enable students to use these factors for analyzing community decision making situations and as community development tools in professional practice. In addition, students will be challenged to examine ethical issues in community decision making and community development professional practice.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: Prerequisite or concurrent: CED 152

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 404 Community, Environment and Development Research Methods (3)** Students will learn empirical research methodology in the areas of community, environment and development.

### **CED 404 Survey Research Methods (3)**

CED 404 teaches students practical approaches to empirical research in the areas of community, environment, and development (CED). The course covers research tools commonly used by CED professionals at the local level, including secondary data analysis, surveys, focus groups, and participatory research. As importantly, students learn and practice the basic mindset required for developing and exploring research questions. Students discuss and practice appropriate methods for presenting research results, including writing for different genres.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: CED 201 or ECON 302/ECON 428

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 404 Community, Environment and Development Research Methods (3)** Students will learn empirical research methodology in the areas of community, environment and development.

### **CED 404 Survey Research Methods (3)**

CED 404 teaches students practical approaches to empirical research in the areas of community, environment, and

development (CED). The course covers research tools commonly used by CED professionals at the local level, including secondary data analysis, surveys, focus groups, and participatory research. As importantly, students learn and practice the basic mindset required for developing and exploring research questions. Students discuss and practice appropriate methods for presenting research results, including writing for different genres.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: CED 201 orECON 302ECON 428

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 409** Land Use Planning and Procedure (3) General land use planning laws and procedures.

### **CED 409 Land Use Planning and Procedure (3)**

This course provides students with an understanding of the legal and procedural aspects of land use planning as found in the United States. The emphasis of the course is to explain the sources of land use planning authority, the processes by which it is applied and the potential conflicts that arise in the application of this authority. As a result of taking this course, students will be expected to learn and explain a) the objectives of land use planning systems and a comparative analysis of these systems; b) the bases on which land use planning law and procedure is applied across the U.S.; c) policies, strategies and principles that can be applied to land use planning decisions; d) several land use planning models currently applied in American jurisdictions, including the structure of each land use planning system; e) the procedural steps used to engage the land use planning system by property owners and government officials; f) typical conflicts that arise in creating, changing or enforcing land use planning measures; g) how land use planning conflict is resolved in various systems.

Student performance will be measured in two midterm exams and a final exam. The instructor reserves the right to give additional exams to aid in measuring student knowledge and understanding of course material. Each test will primarily be short essays questions that ask for an explanation, discussion, comparison or application of specific concepts and principles. Case studies also will be used to present students with situations to hone their analytical, organizational and problem solving skills on specific problem situations. This will ask students to analyze a given set of facts, assess the issues raised by the facts from the perspectives of individuals who are described in the situation and form and present a response that addresses a specific question posed to the student.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: 6 credits of B LAW CED ECON E R M E RRE PL SC R EST SOC S T S (any combination)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 410** The Global Seminar (3) Exploration of critical global issues relevant to sustainable development and the environment. Collaborative with other universities worldwide.

### **CED 410 The Global Seminar (3)**

The Global Seminar course will help students gain an understanding of the implications of global change in a world of limited natural resources. The course will help students to understand the difficulties that society faces in balancing the environment with human needs; appreciate the challenge of balancing competing needs at different levels (individuals, communities, organizations, governments); understand trade-offs and the role of policy; and explore and critically assess avenues for effectively dealing with global issues. Students participating in the Global Seminar have the opportunity of direct interaction with students from other universities and academic institutions who may have different perspectives on these issues. To allow this interaction, the Global Seminar is offered jointly with other universities from across the world, with students engaging in global videoconferences, virtual classroom discussions and group work with student peers at other universities. Case studies are used, with critical assessment of important global issues related to development and environment, with a particular focus on food production and natural resources. Specific cases vary by course offering but may include cases related to: population dynamics, biodiversity, water quality, waste management, GMOs, BSE, organic food production, novel protein foods, among others. Issues of long-term sustainability are explored to gain a better understanding of the implications of alternative choices. The course is offered in collaboration with Cornell University, with students using Cornell's Blackboard system. The course is intended to strengthen linkages for students with other universities for study and research.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: ECON 102 orECON 104;R SOC 011 orSOC 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 417** Power, Conflict, and Community Decision Making (3) Impact of institutions on human interdependence and behavior, the structure of power, and community decision making and public policy.

**CED 417 Power, Conflict, and Community Decision Making (3)**

Community decision making and public choice is the result of collective action among individuals. The purpose of this course is to develop frameworks for analyzing conflict, power, and public choice. This course enables students to understand how culture and institutions affect the nature of human interdependence and behavior, shape patterns of influence and power, and impact community decision making and policy.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: R SOC 011 or SOC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 417** Power, Conflict, and Community Decision Making (3) Impact of institutions on human interdependence and behavior, the structure of power, and community decision making and public policy.

**CED 417 Power, Conflict, and Community Decision Making (3)**

Community decision making and public choice is the result of collective action among individuals. The purpose of this course is to develop frameworks for analyzing conflict, power, and public choice. This course enables students to understand how culture and institutions affect the nature of human interdependence and behavior, shape patterns of influence and power, and impact community decision making and policy.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: R SOC 011 or SOC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 420 (US;IL) (WMNST 420)** Women in Developing Countries (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

**CED (WMNST) 420 Women in Developing Countries (3)  
(US;IL)**

The purpose of this course is to increase understanding of women's lives in third world countries at the time when women's movements, grassroots activism, and feminism are on the rise in the third world. The course examines third world women's challenges to Western definitions of feminism and traces the theoretical shifts and practical changes related to women's issues in African, Asia, and Latin America. Students participate in studying specific community and agricultural development projects. Topics include feminist critiques of development and post-colonialism, ecofeminism and environment, sexuality and reproduction, global restructuring, and grassroots community activism. This course will add diversity to both the rural sociology, community and economic development, and women's studies curricula. International, gender, ethnic, and racial issues are core components of the course. The course will be an elective for Women's Studies majors and minors and will serve graduate students in rural sociology, women's studies, and other fields.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: 5th semester standing or above

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 420 (US;IL) (WMNST 420)** Women in Developing Countries (3) Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

**CED (WMNST) 420 Women in Developing Countries (3)  
(US;IL)**

The purpose of this course is to increase understanding of women's lives in third world countries at the time when

women's movements, grassroots activism, and feminism are on the rise in the third world. The course examines third world women's challenges to Western definitions of feminism and traces the theoretical shifts and practical changes related to women's issues in African, Asia, and Latin America. Students participate in studying specific community and agricultural development projects. Topics include feminist critiques of development and post-colonialism, ecofeminism and environment, sexuality and reproduction, global restructuring, and grassroots community activism. This course will add diversity to both the rural sociology, community and economic development, and women's studies curricula. International, gender, ethnic, and racial issues are core components of the course. The course will be an elective for Women's Studies majors and minors and will serve graduate students in rural sociology, women's studies, and other fields.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: 5th semester standing or above

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 425** International Community and Economic Development (3) International community and economic development.

### **CED 425 International Community and Economic Development (3)**

Eight of ten people on the planet live in developing countries where problems such as hunger, malnutrition, infant mortality, inadequate housing, underemployment, over-urbanization, and environmental degradation often are severe. This class will focus on community and economic development in developing countries. Through lectures, readings, a series of topical videos, and in-depth class discussions, students will obtain a firm grounding in the ways development has been defined, the social and economic problems facing developing countries today, the basic ways in which economic development has been approached theoretically and empirically, the implications for developing countries of being embedded in a globalizing economy, the influence of multinational corporations, the policies that developing countries have followed to foster economic growth, the nature of foreign aid, the causes and consequences of Third World debt, the promise of micro-enterprise and the informal economy, rural development and land reform, and other topics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: CED 152

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 427W** (S T S 427W) Society and Natural Resource (3) Analysis of the relationships between societal development and enhancement and natural resources.

### **CED (S T S/SOC) 427W Society and Natural Resources (3)**

There is a common tendency to portray environmental and natural resource problems as biophysical in nature. The implication of this tendency is that such problems are best addressed by scientists and engineers who discover evidence of and devise new technologies to fix them. Another common tendency is to assume that people resist solutions to environmental and natural resource problems because of individually held anti-environmental attitudes. In contrast to these two perspectives, sociologists point out that environmental and natural resource problems often lie at the intersection of biophysical processes and social, political, economic, belief, value, and knowledge systems. The goals of this writing-intensive course are to introduce students to the complexity of environmental and natural resource problems and to teach them to think sociologically. In addition to reading assigned books and articles, students will participate in a simulation to negotiate a global environmental treaty, attend a field trip to learn about alternative energy strategies, and conduct research on a local environmental or natural resource issue. After taking this course, students should be better prepared to engage in debates with academics, politicians, and other citizens regarding the causes and potential solutions to environmental and natural resource problems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: R SOC 011 or SOC 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 429** Natural Resource Economics (3) Optimal management of resources; roles of markets and other institutions; resources and economic development; public policy.

### **Natural Resource Economics (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013  
 Prerequisite: ECON 302 and MATH 110 or MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 430** Principles of Community Economic Development (3) Concepts, strategies and techniques of local economic analysis, planning and development; case studies and decision-making exercises.

### **CED 430 Principles of Community Economic Development (3)**

This course is designed to introduce the issues giving rise to concern for rural and regional economies, and the theories, concepts and tools of rural and regional economic development. The goal is to integrate theory and practice and apply them to economic development problems. Tools are presented in a "how to" manner. Topics include current issues in rural economies, the economic view of rural development; business retention, expansion and location; entrepreneurship and its role in the economy; understanding the local economic structure and the forces of change; introduction to economic growth theories; export base theory and economic base analysis; the role of labor and capital in development; techniques of market area, central place, shift-share and input-output analysis; policies of local economic development and growth.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: introductory course in economics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 431W** Economic Analysis of Environmental and Resource Policies (3) Economic analysis of environmental and natural resource policies, benefit-cost analysis, non-market valuation techniques; resource damage assessment.

### **Economic Analysis of Environmental and Resource Policies (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013  
 Prerequisite: ECON 302

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 450 (IL)** International Development, Renewable Resources, and the Environment (3) Theories of agricultural and economic development, with particular attention to interactions between development, renewable resources, and the environment.

### **International Development, Renewable Resources, and the Environment (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2013  
 Prerequisite: 6 credits in agricultural economics or economics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 452** Rural Organization (3) Social organization and change in rural communities; use of sociological principles in analysis of rural problems and rural development.

### **CED 452 Rural Organization (3)**

This course combines an introduction to the social theories of communities with real-life examples of applications to understanding community problems and concerns. The focus is on the special circumstances facing small towns and rural communities, but the concepts are applicable in all communities, from urban neighborhoods to suburbs. Topics covered include local community in a global economy, power and decision-making, the role of governments and other social institutions, development of community and the importance of building social infrastructure as well as economic and physical infrastructure, multi community collaboration and building, and sustainable communities. Those taking the class will gain experience in conducting a case study of a small Pennsylvania community, build skills in working in a team, and gain understanding of the complexity of factors that influence community (and your own) well-being. If your future career involves operating within a community setting, this course can increase your knowledge of that setting and how to function within it. And, even if you don't plan on working with communities in your job, you will be living in a community. This course can help you to understand the ways that you can contribute to improving your own quality of life by

becoming involved in your community.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: 6 credits in rural sociology sociology or psychology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 475 CED Integrated Capstone Experience (3)** An experiential-learning course that provides a capstone learning experience for seniors graduating from the Community, Environment and Development major.

### **CED 475 CED Integrated Capstone Experience (3)**

A well-designed capstone experience provides students with a valuable reflective and integrative experience as they complete their baccalaureate degree programs. This course is designed to encourage students to reflect, integrate and apply the knowledge that they have learned in previous coursework for the CED major. The course is built on discussion and exercises that require integration. Like the CED program more generally, this course relies on case studies to help students apply the skills that they have learned to actual cases that challenge communities and regions in developed and developing areas of the world. The CED program is also designed to include experiential-learning exercises throughout the program; this course engages students in a significant in-depth experience or project that will vary year-by-year. The experience could be in the United States or in another country. The project will be hands-on and action-oriented. Evaluation is based on assessment of active participation in class discussions, papers that provide critical assessments of the case studies assigned to the class, and a final project conducted in the field, either in the U.S. or internationally.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: senior status only

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 494H CED Honors Research Project (1-12)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **CED Honors Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 495A Internship in Community, Environment, and Development (1-15)** Supervised field experience in an environmental setting.

### **Internship in Community, Environment, and Development (1-15)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: prior approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 496A** Community of Practice: Special Issues in Community, Environment, and Development (3) A student-led course with a focus on co-creation. Subject matter will center around CED. Together, we will decide what we will learn, how we will learn it, and we will assess our learning.

**Community of Practice: Special Issues in Community, Environment, and Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 497** Special Topics (1-18) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 497A** Practicum in Facilitation & Community Engagement (1) Community process skills, such as brainstorming, SWOT, and facilitation, often are of unsung importance to successful Community, Environment, and Development work. Such skills help a practitioner bring together people with varying perspectives and interests, actively and constructively engage them, and work them to define common goals, and make decisions and reach solutions that satisfy the group's needs. The CED Practicum complements existing courses in the CED program, and is designed to increase students' effectiveness and comfort level working with and within groups, and the community level. The course will create a living laboratory setting for hands-on practice and skill building in facilitation and other techniques essential for engaging and working with communities. This class will be especially useful for students to increase their portfolio of skills, as they consider career options.

**Practicum in Facilitation & Community Engagement (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CED 152

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 497C** Exploring Indigenous Ways of Knowing in the North American Context (0.5-3) Explore through readings and reflections, concepts and values distinctive to indigenous ways knowing in the North American context.

**Exploring Indigenous Ways of Knowing in the North American Context (0.5-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: CED 497B

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CED 499B** (IL) (AGECO 499B) Issues in Economic, Community and Agricultural Development in Kenya Practicum (0.5) Implement and assess viable economic and youth development options for vulnerable youth in Kenya.

**Issues in Economic, Community and Agricultural Development in Kenya Practicum (0.5)**



General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: CED 499A or AGECECO 499A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Comparative Literature (CMLIT)

**CMLIT 001** (GH;IL) Introduction to Western Literatures Through the Renaissance (3) Introductory comparative survey of European and American literatures of Ancient through Renaissance periods, considering genre, themes, cultural and literary values.

### Introduction to Western Literatures Through the Renaissance (3)

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 002** (GH;IL) Introduction to Western Literatures Since the Renaissance (3) Introductory comparative survey of European and American literatures, post-Renaissance through Modern, considering genre, themes, cultural, and literary values.

### Introduction to Western Literatures Since the Renaissance (3)

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 003** (GH;IL) Introduction to African Literatures (3) Comparative analysis of drama, essay, novel, poetry, and stories from traditional oral forms to contemporary expressions of African literary styles.

### CMLIT 003 Introduction to African Literatures (3) (GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 003, Introduction to African Literatures, provides an introduction to the wonderful variety of African literary production, from early oral epic traditions, through the colonial/post-colonial period, to recent Nobel Prize winning authors. We will read texts written in English or translated into English from French or African languages, including several recorded from the oral tradition, as well as some texts from the African Diaspora. These literatures come from different geographic and cultural areas of Africa, and are composed in a variety of forms (novel, drama, epic, poetry), and range in date from 2,000 BCE to the colonial period to the modern national era. The focus of the course, however, is on the 20th century. We will also consider the ways in which history, culture and geography impact literary production. African literary and cultural influences on Western traditions may also be explored. Students will be evaluated on some or all of the following: short answer/essay exams, in-class discussion and group work, written assignments, collaborative presentations, and a final comprehensive exam/essay. Writing and speaking will always be included. This course fulfills a requirement for the Comparative Literature major and the World Literature minor. This course also fulfills the General Education Humanities requirement and the Bachelor of Arts Humanities and Other Cultures requirement. It also satisfies the United States and International Competence requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 004** (GH;IL) (ASIA 004) Introduction to Asian Literatures (3) Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

**CMLIT 004 Introduction to Asian Literatures (3)**  
**(GH;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 004 is an introduction to Asian cultures through literary readings and other cultural texts (film is often included). No knowledge of Asian languages is needed. Though concentrating on East Asian and modern/contemporary literature, the course allows for the study of race, gender, culture, religion, philosophy, and ethnicity in a comparative, global, and historical perspective. While improving your understanding of difference and diverse cultures, this course incorporates not only works recognized as major, but also lesser known and even marginalized works by Asian writers as we study cultural and social identities and contexts. The course often focuses on fiction, though it includes readings from several literary genres. We will question generalizations about the meaning of "Asian" by showing the wide range of characteristics that can be found in Asian literary productions in different times and places. CMLIT 004 is one of the many choices of survey courses which count towards the Comparative Literature major and the World Literature minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities and Other Cultures requirement, and the United States and International requirement.

General Education: GH

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 004U (GH;IL) Introduction to Asian Literatures (3)** Comparative interpretations of narrative, drama, lyric, and other writings from East Asia and other regions, viewed as world literature.

**Introduction to Asian Literatures (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 005 (GH;US;IL) Introduction to Literatures of the Americas (3)** Comparative interpretation of the oral and written literary traditions of North, Central, and South America.

**CMLIT 005 Introduction to Literatures of the Americas (3)**  
**(GH;US;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 005, Introduction to Literatures of the Americas, allows you to explore the great variety of literatures of the Americas, including translations of texts written in Spanish, French, Portuguese, and Amerindian languages, as well as texts originally written in English. Readings include many genres and artistic forms dealing with histories and accounts of "American" issues, such as conquest, nationalism, slavery, diaspora, and immigration. You will also consider the various influences among these traditions in terms of time period and genre. This course investigates the literary and cultural notion of "America," and what it means to be "American," in terms of the entire hemisphere. We will deal with issues of race, ethnicity, class, religion, as well as other vital concerns of identity and "Americanness" as reflected in both oral and written literary traditions through the history of the Americas. At the conclusion of this course, you should be able to understand and make - comparisons among the many "American" literary traditions. This course fulfills requirements for the Comparative Literature major, the World Literature minor, General Education Humanities, Bachelor of Arts Humanities, and General Education United States and International Competency.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 006 (GH;IL) (PHIL 006) Philosophy and Literature in Western Culture (3)** Explores fundamental issues of human existence through the traditions of western literature and philosophy.

**CMLIT (PHIL) 006 Philosophy and Literature in Western Culture (3)**  
**(GH;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce students to the various interpretive approaches to literature and philosophy. The

class will explore key philosophic themes as these are exhibited in imaginative literature, and in doing so will practice both philosophical interpretation of literature and literary treatment of philosophy. The central themes of this course could include, for example, self-knowledge and self-deception; self-isolation, alienation and community; conflict of moral responsibilities; the use and abuse of language; the meaning of art; the ideal of a "simple life;" normalcy and madness. The class will ask such questions as what counts as literature, what purpose it serves, what is the relationship between literature and ideology, and whether a text can be considered independently from what the author wanted to say in it. Students may be graded by a variety of methods, including exams, papers, and individual and group projects. One example might be a collaborative annotated bibliography project, a collaborative position paper, individual evaluations of position papers, and a comprehensive final exam. This course is a non-major General Education Humanities course. It may be used to fulfill minor requirements in philosophy. This course may be used to fulfill an additional-course requirement in either the minor or the major in Comparative Literature, although it is geared primarily towards non-majors. This course will be offered once a year with an enrollment of 25-200 students depending on location. This course deals with literature and philosophy in the western tradition, and thus helps to complete the range of our other courses on western literature, such as Comparative Literature 001 and 002 (survey courses of Western Literature to the Renaissance, and Western Literature since the Renaissance), and Comparative Literature 401W and 402W (upper level chronological courses on Western Literature). This course differs from those however, by its strong emphasis on philosophical texts.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 010** (GH;IL) World Literatures (3) The development of literature around the world--from epic, legend, lyric, etc. in the oral tradition to modern written forms.

**CMLIT 010 The Forms of World Literature: A Global Perspective (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

As a one-semester introduction to the range and diversity of world literature from the ancient past to the present, CMLIT 010 is intended to help you read (or listen to) a work of literature from any time or place and to appreciate it more fully--whether it belongs to the more familiar types of literature you may have read in the Western tradition or is a fable, folktale, hero story, play, or narrative from another cultural tradition. You will practice expressing your ideas through written exams and in-class and on-line discussions/activities. Discussion sessions allow interaction with the instructor and with other students in the class.

This course presents a global sampling of masterpieces of world literature. Through active class participation, you will become familiar with various literary genres and become proficient in the analysis of the similarities and differences between texts from many different time periods and cultures. CMLIT 010 is one of the choices of survey courses which can count toward the Comparative Literature major and the World Literature minor. This course also fulfills the General Education humanities requirement, the Bachelor of Arts humanities requirement, and the United States and International requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 011** (GH;IL) The Hero in World Literature (3) The figure of the hero/heroine examined in world literature as a vehicle for expressing social and cultural values.

**CMLIT 011 The Hero in World Literature (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine the concept of heroism and of heroes throughout the world in different time periods and different literary genres. We will examine different types of heroes and theories of heroism, as well as gender relations involved in concepts of heroes/heroines, and the roles of anti-heroes, villainous heroes, and the enemies of heroes. Heroes represent the most ideal values of a particular society. By examining heroes revered by a variety of societies, a greater awareness of values both specific to individual cultures and universal across cultures can be reached. Through comparisons of a variety of heroes, literary and social roles in the formulation and manipulation of heroic types can be assessed. The objectives of this course include expanding your awareness of the values of different cultures, examining the consequences of value systems as explored in literature, and increasing your skills of critical analysis on a body of literature designed to encourage you to accept, reject, or question specific ideas of good and evil, proper behavior, and appropriate action within cultural contexts. CMLIT 011 is one of the many choices of survey courses which count towards the Comparative Literature major and the World Literature minor. This course also fulfills the General Education

Humanities requirement, the Bachelor of Arts Humanities requirement, or the United States and International requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 011U** (GH;IL) The Hero in World Literature (3) The figure of the hero/heroine examined in world literature as a vehicle for expressing social and cultural values.

### **The Hero in World Literature (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 012** (GH;IL) Introduction to World Drama and Performance (3) The power, ethics, and excitement of drama and related forms of performance literature, presented in a global and comparative context.

### **CMLIT 012 Introduction to World Drama and Performance (3)** **(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Introduction to World Drama will enable students to discover the power and excitement of drama in a global context. Students will encounter a variety of cultural contexts as they observe how playwrights portray local histories and lifestyles, in settings from many parts of the world. The course will offer (1) an introductory overview of concepts and terms associated with understanding drama. It will present (2) traditional dramatic forms such as tragedy, comedy, history play, allegory, Noh, etc., as seen in plays prior to the twentieth century; and (3) recent dramatic forms such as testimonial, other politically engaged plays, drama online or on film, etc., as seen in plays from the twentieth and twenty-first centuries. Attention will be given to (4) the dramatic contributions of multiple cultural groups in the U.S., with African American, Asian American, Latino, and other U.S. plays seen not in isolation, but in relation to world drama. Finally, (5) the course will consider ways in which drama, as a form of world literature, can have an international and intercultural impact, both in earlier periods (for example, the ancient Sanskrit play "Shakuntala," from India, influenced the German writer Goethe's play "Faust" in the nineteenth century) and recently, when global circulation and international collaboration are increasingly frequent. Class work will include lectures or presentations by the instructor, presentations by students, web based activities, and focused discussions. Where feasible, attendance at one or more live theatrical performances will be encouraged.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 013** (GH;IL) Virtual Worlds: Antiquity to the Present (3) Virtual worlds from ancient to postmodern, in a comparative and global context that includes literature, film, and online multiplayer games.

### **CMLIT 013 Virtual Worlds: Antiquity to the Present (3)** **(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

What are virtual worlds? And why do they speak so intensely to us about the present?

This course puts immensely popular online virtual worlds like World of Warcraft into a historical perspective. Beginning with Homer, students will work through some of the major imaginative worlds of literary history, including those of the Bible, Dante, Shakespeare, Goethe, Lu Xun, Basho, Balzac, and others. We will conclude with two weeks of reading and discussion about the meaning and value of contemporary online virtual worlds.

We will analyze the ways in which virtual worlds represent/reflect on the cultures from which they emerge; their ethical stances and structures; and the alternative imageries they embody.

Students will be expected to spend at least 10 hours in such worlds as part of the course.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 083S** (GH;IL) First-Year Seminar in Comparative Literature (3) International topics in literature and culture; each seminar will have a specific topic as announced (see the Comparative Literature Web site).

**CMLIT 083S First-Year Seminar in Comparative Literature (3)**  
(GH;FYS;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

One of the most important trends of our time is the increasing emphasis on internationalism and globalization. This course offers an international, intercultural approach to the study of literature, crossing the boundaries of time, place, nationalities, languages, and cultures. The range of literature taught in Comparative Literature as a discipline draws from every continent of the globe and from the ideas, experiences, and inspiration of women and men across thousands of years.

With an entire world of literature to choose from, the content of the course varies with the expertise and interests of the faculty member. Sample topics include 'Literature and Illness,' 'Literary Reflections of Biblical Themes,' 'The Power of Literature to Change Our Lives,' and 'America Seen Through Foreign Eyes.' Each seminar focuses on a specific topic that highlights the nature of literary study and research, presents debates in the discipline, and opens the way to further investigations. Topics for each semester are posted on the department's website: .

At the end of the seminar, students will be acquainted with representative texts from multiple literatures, with the methods of comparative literature study, and with selected important literary genres, themes, periods, and styles.

This seminar can be used to fulfill the General Education or Bachelor of Arts Humanities requirement, the Intercultural/International Competence requirement, and the first-year seminar requirement. Students will have gained experience in writing, speaking, information synthesis, and international approaches. The seminar will help prepare students for a variety of additional courses in literature and the humanities generally.

In addition to the academic topic of this course, students should gain a general introduction to the University as an academic community, including exploring their responsibilities as members of that community. They should also develop an understanding of the academic tools and resources available to them, including the opportunity to work with faculty and other students who share their academic interests.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 100** (GH;IL) Reading Across Cultures (3) Comparative approaches (studying international literary periods, themes, genres, etc.) and principles of literary interpretation introduced through readings representing various cultures.

**CMLIT 100 Introduction to Comparative Literature (3)  
(GH;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 100 is an introductory course to the discipline of Comparative Literature. The course is built around a central theme (or series of themes) and the reading assignments are chosen to complement this central concept of the course. Past themes have included "Literatures of the Body," "Mortality and Immortality," "Art and Life," "Personal Narratives The Diary," "Close Encounters Africa and the West," "Knowledge and Power," among others. Through various traditional (books) and non-traditional (film, multimedia, hypermedia) texts from around the world, students will develop the ability to analyze literature in different ways. Students will examine the works both within their individual and diverse cultural contexts, and in their relationship to broad or universal themes that transcend the boundaries of time and place. As an introductory course, CMLIT 100 is intended to lay a solid foundation for further study in any college-level courses on cultures or literature. Through an examination of a wide range of world literature, we will explore the practical aspects of what it means to deal with literary works in a comparative global context. The course is intended to help you develop your analytical and comparative skills and to simultaneously introduce you to a wide variety of interesting world literatures. Students are evaluated on essay exams, in-class discussion, group projects, and a final comprehensive exam/essay. Evaluation may also include web-based activities, on-line discussion and written student journals/reaction papers. Note CMLIT 100 is a required course for students intending to major in Comparative Literature and is recommended for students in other humanities fields. General Education students are also encouraged to enroll. The course fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and the General Education United States and International Cultures requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 101 (GH;US;IL) Race, Gender, and Identity in World Literature (3)** Identity and race, gender and heritage, centrality and marginality, self and other, as expressed in literary works from around the world.

**CMLIT 101 The Theme of Identity in World Literatures; Race, Gender, and Other Issues of Diversity (3)  
(GH;US;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines issues of race, gender, religions, and ethnicity as expressed in literary, social, and cultural contexts. We will address these questions in works from a variety of traditions and time periods. Literary works from around the world show a wide range of response to the "other" -- idealization of difference as exotic, fear of difference as threat, the desire to suppress difference or force it into conformity, the recognition of difference within ourselves, etc. The scope includes authors who are themselves members of racial, sexual or ethnic groups with which you may be less familiar. You will also consider the question of who and what constitutes identity as perceived by oneself and by others.

CMLIT 101 is one of the many choices of survey courses, which count towards the Comparative Literature major and the World Literature minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and the United States and International Cultures requirement.

In general, this course will be taught in the active-learning mode, featuring in-class discussion, writing projects and web-based activities. Specifically:

- Writing, speaking, self-expression: Students will write essays and/or papers, which require the analysis and comparison of various literary works from the standpoint of identity issues.
- Engagement in collaborative learning and teamwork: Small discussion groups both in-class and on-line will facilitate learning as a group activity. Activities may include group in-class presentations.
- Application of intercultural/international competence: Students will deal with a wide range of texts from around the world and compare/contrast the texts focusing on issues of diversity. This course, by definition, deals directly with issues of inter- and intra-cultural identity.
- Dialogue pertaining to social behavior, community, and scholarly conduct: The discussion of diversity issues is related to students' perception of their own identity and reaction to the notion of the "other." Implicit in this discussion is the issue of "community" creation of the "other" and individual response to the community.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 105 (GH;IL) The Development of Literary Humor (3)** Literary humor expressed as satire, comedy, and farce--from ancient times to the present--in an international and multicultural context.

**CMLIT 105 The Development of Literary Humor (3)**

**(GH;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 105 is a broadly international course dealing with the nature of comedy and humor in literature. You will read samples from a broad spectrum of humor, including comedy, wit, satire, parody, irony, and farce. Through discussion and writing, you will also examine the techniques through which humor criticizes human nature, analyzes society, and expresses differing world views. The syllabus may be represented chronologically or divided into topics or literary forms that suggest various emphases, functions, and objects of literary humor. This course will provide opportunity to discuss both the widespread, or even universal, aspects of literary humor, and the diversity of literary humor across cultures and time periods. At the conclusion of this course, you should be able to understand and compare various literary forms and social, political, and cultural contexts that define humor and to assess the extent to which literary humor is or is not translatable across cultures or ethnic communities, or other groups. This course fulfills requirements for the Comparative Literature major, the World Literature minor, General Education Humanities, Bachelor of Arts Humanities, and General Education International/Intercultural Competency. Student performance in this course will be measured in a variety of ways, including some or all of the following (always including writing and discussion): -in-class and/or take-home essays/exams -literary diaries or reaction papers -in-class and/or online discussion/participation -individual and/or group in-class presentations/projects -research or topic papers

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 106 (GH;IL) The Arthurian Legend (3)** The growth and development of the legend of King Arthur, from medieval Europe to modern Japan.

**CMLIT 106 The Arthurian Legend (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to familiarize students with the legends about and surrounding King Arthur and the Round Table fellowship. Through a series of readings, students will survey the development of the legends of Arthur from their beginnings in early medieval Europe to their modern adaptations in many cultures around the world. The Arthurian legend is an ideal vehicle for showing the ways in which literary works capture and express changing value systems in different cultural and historical situations, and thus the course is a good example of comparative (international) approaches to literary study. Classes will discuss the changing cultural ideals represented, the different characterizations of the central figures, and the literary techniques employed. Lectures and discussions will be supplemented by overheads, slides, music, and films or film clips dealing with Arthurian themes. Throughout, the course will ask why and how the stories of Arthur and the Round Table fellowship have captured the imagination of artists, political and religious leaders, and readers throughout the ages and around the world. Finally, it will ask how the practical concerns of daily life are developed in this literature-for example, how does this highly imaginative literature address practical concerns such as striking a balance between one's short-term goals and personal gratifications, and one's long-range obligations to other people? Means of evaluation will be selected from the following (always including writing): essay exam questions, short answer and objective questions, reading journals, quizzes, in-class discussion, group projects (including web sites), research and critical papers, and final comprehensive written exam. CMLIT 106 is not required for the Comparative Literature major but may be selected to fulfill one of the course requirements for the major or the World Literature Minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and the United States and International Cultures requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 107 (GH;IL) Exploration, Travel, Migration, and Exile (3)** An international selection of journey narratives, from the real to the imaginary; travel narratives as critiques of self and society.

**CMLIT 107 The Literature of Exploration: Extraordinary Voyages from Antiquity into the Future (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 107 compares the literatures of travel and exploration from ancient times to the future, from narratives of journeys actually experienced through narratives of journeys imagined in the mind. The notion of the journey is broadly defined as encompassing both literal and metaphorical experiences, including travel journals and diaries, epic adventures, quests of introspection, dreams and visions, and depictions of the future. Through reading, discussion, and writing, you will examine and compare the different roles that travel can play in the imaginations of both the individual writers and the

cultures from which they come. You will not only explore recurrent themes and timeless topics, but also the ways in which travel writing can both reinforce and subvert the basic value-systems, stereotypes, or other assumptions present in its cultural context. For many writers, traveling elsewhere is a means of evaluating their own societies, as well as a means of recording their responses to encountering real or imagined new places. The journeys of this course, which vary greatly from each other, will also allow you to consider some of the vast unknowns of the individual human mind and imagination. By traveling through this course, you will have the opportunity to develop the analytic reading, thinking, and writing skills necessary for the understanding of a variety of literatures and cultures, as well as the exploration of your own identity as an individual. This course fulfills requirements for the Comparative Literature major, the World Literature minor, General Education Humanities, Bachelor of Arts Humanities, and General Education International/Intercultural Competency. Student performance in this course will be measured in a variety of ways, including some or all of the following (always including writing and discussion): -in-class and/or take-home essays/exams -literary diaries or reaction papers -in-class and/or online discussion/participation -individual and/or group in-class presentations/projects -research or topic papers.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 108 (GH;IL)** Myths and Mythologies (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.

**CMLIT 108 Myths and Mythologies (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course offers a survey of several different cultural traditions as expressed in myth, as well as discussion of myth in its literary, social, geographical, political, and religious contexts. Various theories of the evolution and analysis of myth will be examined. Mythological traditions from around the globe will be compared in order to determine qualities which they share and examine ways in which they are unique. This course will help you see the world in new and exciting ways, based on the wide variety of global myths. At the same time, you will consider the permanent human issues which connect all of these traditions to each other, to the modern world, and to you.

CMLIT 108 is one of the choices of survey courses, which count toward the Comparative Literature major and the World Literature minor. This course also fulfills the General Education humanities requirement, the Bachelor of Arts humanities requirement, the United States and International Cultures requirement, or the B.A. other cultures requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 108U (GH;IL)** Myths and Mythologies (3) World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world.

**Myths and Mythologies (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 109 (GH;US;IL)** Native American Myths, Legends, and Literatures (3) Myths, legends, and literatures of Native American cultures.

**CMLIT 109 Native American Myths, Legends, and Literatures (3)**  
**(GH;GI)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 109, Native American Myths, Legends, and Literatures, will allow you to read many traditional tales and selected works of modern literature representing a variety of American indigenous peoples. We will be examining the ways in which the myths, legends, and literary works reflect the cultural values and religious beliefs of the tribal nations from which they derive. You will learn how to read critically, analyzing symbols, archetypes, and motifs through the comparison of selected tales to others from the same and from different cultures, allowing you to recognize the rich



diversity and unique oral traditions of Native American culture. You will also examine various geographical, historical, political, and social conditions which contribute to myth-making. Through the application of various theories of myth analysis, you will also synthesize the information learned about various Native American traditions with a view toward understanding the distinctive identities of Native American cultures, including where applicable their position as minority cultures, and also seeing their participation in universal human beliefs and concerns. Typically, students will be evaluated on any combination of papers, tests, class participation and/or projects, and legend-collection assignment. CMLIT 109 may follow upon CMLIT 108. However, each can be taken separately. CMLIT 109 can serve as a foundation for other courses dealing with the literatures of the Americas or for other courses dealing with minority literatures and cultures. Some students would take CMLIT 109, Native American Myths, Legends, and Literature, to fulfill the three-credit cultural diversity requirement; others would use it for the general education humanities slot. Liberal Arts majors could select it as their "Other cultures" course. CMLIT 109 is not required for the CMLIT major but may be selected to fulfill one of the course requirements for the major or form part of a student's choices for the World Literature minor.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 110 (GH;US;IL) (J ST 131) Jewish Literature: An International Perspective (3)** Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas.

**CMLIT 110 Jewish Literature: An International Perspective (3)**  
**(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 110 will provide an introduction to the multiple worlds of Jewish experience and the different literatures they continue to inspire. Jewish literary creativity has varied widely with the personal and communal experience of writers in many parts of the world, and in many different time periods. Readings usually range from the first Jewish literary text, the Hebrew Bible, to twentieth-century works, including writings about the Holocaust. The course typically includes units such as Jewish writing and culture in Eastern Europe, in the Americas, in Spain during the Middle Ages, and in Israel and the Middle East today. The material may be organized chronologically, thematically, or by regions or languages. Texts that critique or apparently suppress Jewish identity, as well as texts with representations of Jews by writers of other heritages, may be included for comparative purposes. We will include writings by Jewish authors who have written in languages usually associated with Jewish tradition (such as Hebrew and Yiddish) and in other languages (such as Spanish, Arabic, German, English, etc.). Topics discussed in the literature may focus on questions of Jewish identity and continuity, the situation of Jews as a minority people, the immigrant and diasporic experience, representations of the Holocaust, and the establishment of Israeli culture as a mixture of several traditions. We will question generalizations about the meaning of "Jewish" by showing the wide range of characteristics associated with Jewish literary productions, and the great diversity of depictions of Jews and Jewish lifestyles, in different times and places. In addition to our primary focus on literary texts, we may include examples of other cultural productions (film, music, the visual arts, philosophy, etc.). All offerings of the course include writing assignment and discussion in the evaluation methods. The syllabus often includes 2 or 3 midterm exams (with essay questions); a final exam, paper, or project; oral presentations; participation in online discussions. CMLIT 110 counts towards the Comparative Literature major and the World Literature minor. No prior knowledge of Jewish tradition is required, and General Education students are welcome. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and the United States and International Cultures requirement.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 111 (GH;IL) Introduction to Literatures of India (3)** Narrative, lyric, religious, oral, and dramatic literature, as well as film from India studied in translation from a global perspective.

**CMLIT 111 Introduction to Literatures of India (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 111 examines readings and cultural texts from India and other parts of South Asia, including both classical and modern texts from a variety of traditions. Readings from languages other than English will be in translation. You will read, discuss, and write about these texts from the viewpoint of race, gender, culture, religion, philosophy, and ethnicity in a comparative, global, and historical perspective. While improving your understanding of difference and diverse cultures, this course incorporates lesser known and even marginalized works by Asian writers in this study of cultural and social identities and contexts. CMLIT 111 will also help you understand the influence of classical texts, as well as classical and modern culture, on recent literary productions of South Asia. You will gain an understanding of different national

literatures and cultures, as well as knowledge of the historical, philosophical, and political contexts that produced them. Ideas such as "the other," gender, and Orientalism will also be included in discussions of the texts. CMLIT 111 is one of the many choices of survey courses which count towards the Comparative Literature major and the World Literature minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, or the Intercultural/International requirement. Methods of evaluation might include at least 2-3 unit quizzes based on identification/short description and/or 2-3 short essays; in-class discussion; group presentation; use of discussion threads of coursetalk for supplemental discussion; creative project/final essay.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 120 (GH;IL)** The Literature of the Occult (3) Important literary works dealing with witchcraft, demonology, vampirism, ghosts, and related concepts, from biblical times to present.

**CMLIT 120 The Literature of the Occult (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 120 is the study of literatures of the occult. Through readings of creative and critical works, you will develop an enhanced awareness of the variations among cultures and historical periods in accepting, fostering, tolerating or sometimes suppressing-unorthodox traditions. Our range of readings from world literature will show that what is rejected or scorned in one cultural context may be tolerated or even honored in another. You will also explore the social, political, ethical and religious implications of "occult." The course will be designed to compare various manifestations of the occult in literatures from around the globe and throughout history. You will explore issues of difference, and will develop an awareness of the tendency to demonize the 'strange' and 'inaccessible.' Through various texts from around the world, you will develop the ability to analyze literature in different ways. Readings will be examined both within their cultural context, and in relation to widely found or perhaps universal themes of the occult which transcend the boundaries of time and place. CMLIT 120 is one of the many choices of survey courses which count towards the Comparative Literature major and the World Literature minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, or the United States and International Cultures requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 122 (GH;US;IL)** Global Science Fictions (3) A study of the relationships between science, literature, and film, from an international and interdisciplinary perspective.

**CMLIT 122 Global Science Fictions (3)**  
**(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

A course on science fiction and the fictions of science from an international and interdisciplinary perspective. Includes a history of the idea of science, of its engagement with and by fictional, filmic, dramatic, and poetic narratives, within an explicitly comparative framework that includes material from Europe, the Americas, Asia, and Africa.

Students will develop a theory of genre and its development over time; they will recognize regional, cultural, and historical differences and forms of change that affect the intellectual development of the arts and sciences. They will practice and master these skills through class discussion, short papers, and/or quizzes and exams.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 130 (GH;IL)** Banned Books: International and Comparative Perspectives (3) The world of banned books, their history, and their politics, studied comparatively and internationally.

**CMLIT 130 Banned Books: International and Comparative Perspectives (3)**

**(GH;IL)**

This course examines one of the most documented events in the history of book reception—the banning of books. Bannings provide a useful window onto the myriad functions of culture in social identity formation. In order to understand how and why offense is given and taken, students will learn to place texts in a specific context of their historical production and reception and also to extrapolate connections between disparate moments when taboos were named. Incorporating examples from a range of global systems of censorship, the course examines differences in the modes and effects of repression and the sometimes surprising connections between church and monarchy, fascism and democracy.

This course raises the following questions:

- How has censorship been justified? When, if ever, is censorship justifiable?
- What are the grounds on which censorship can be judged successful or incomplete?
- Who censors? Who is censored?
- What are local categories of censorship? Though books are banned for reasons of blasphemy, sedition, and obscenity in various guises in several cultures, are these global categories?
- How do writers write against a ban? How do they write within it?
- What are the roles of importation, technologies of circulation, and geography in the censorship of texts? How do border-crossings and forms of miscegenation offend?
- Is there a unifying aesthetics to books that offend?

Class work emphasizes discussions, group work, writing exercises, and student presentations. This participatory approach is intended to deepen students' appreciation of the works and the historical, literary, and ethical problems they present. The course will help students understand value systems and historical contexts in which they were produced and in which they caused offense. It will also ask students to draw connections between seemingly unrelated moments of offense in order to assist students in developing both analytical and expressive abilities.

The course is designed to be suitable for all students, whether or not they have previously studied literature or comparative literature.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 131 (GH;IL)** Crime and Detection in World Literature (3) Issues of ethics, truth, justice, and social order as embodied in crime and detective literature, presented in comparative contexts.

**CMLIT 131 Crime and Detection in World Literature (3)**  
**(GH;IL)**

This course studies the origins and development of crime and detective literature from an international and interdisciplinary perspective. Beginning with early Greek tragedies, the course traces literature's investment in issues of crime, violence, detection, forensics, and social justice through a variety of historical and cultural contexts; this may include the classical era, the early modern period, the Enlightenment, the industrial era, and the modern/ contemporary world. Some of the questions addressed may include reigning myths about law and order; the rise of urban societies and mass culture; the construction of the detective figure, the witness, the criminal, and the victim as models of subjectivity; issues of gender and sexual violence; and the nature of justice.

Students will learn about the history of the idea of crime and its relationship with literary form. They will develop ideas about the contribution of literary thinking to ideas of social justice, as well as a theory of genre and its development over time; they will recognize regional, cultural, and historical differences and forms of change that affect the intellectual development of literature and detection alike. They will practice and master these skills through class discussion, short papers, and/or quizzes and exams.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 132 (GH;IL)** Nobel Prize Literature (3) Introduction to Nobel Prize winning literature and the culture of the prize in international and historical context.

**CMLIT 132 Nobel Prize Literature (3)**  
**(GH;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course will provide an introduction to Nobel prize-winning literature. Students will learn about the authors and their works in cultural and historical context. Readings will cover several genres (such as poetry, drama, short story, and novel)

and will include authors from an array of linguistic and cultural traditions (such as African, Latin American, Middle Eastern, European, North American, and Asian). In addition to reading primary literature, students will enrich their understanding of literary history by exploring secondary material such as essays, short biographies, reviews of author's works, and the authors' Nobel Prize acceptance lectures. The course will begin by introducing Alfred Nobel, founder of the Nobel Prize, and by surveying the parameters guiding how the prize has been awarded since its inauguration in 1901. Further readings may be organized temporally or thematically, but will be structured so that students develop a global perspective, allowing them to understand the variety of cultural contexts that have inspired the creative works under study.

By examining the primary literature in connection with developing trends in prize culture, students will investigate such topics as pacifism and optimism in international prize culture, narrative and rhetorical techniques, the formation and expression of identity, changing gender roles and social expectations, the development of global Englishes, the emerging notion of world literature, and the changing climates of censorship and freedom of expression.

Class work includes some lecture but emphasizes guided discussions, group work, short writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to assist students in developing analytical and expressive abilities, and to encourage students to pursue individual areas of interest by researching cultural norms and historical situations in a range of times and places. Through critical reading, group discussion, short writing exercises, and group presentations, students will hone skills for evaluating modes of cultural production and valuation. Evaluation will be through means such as in-class presentations, short writing assignments or quizzes, and a final exam or final paper.

The course is designed to be suitable for all students generally interested in literature and the globalization of culture. Prior study of literature is not required and all materials will be available in English.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 140** (GH;IL) Literature and the Other Arts: International and Comparative Perspectives (3) A comparative, international examination of the relationship between literature and non-literary art forms.

**CMLIT 140 Literature and the Other Arts: International and Comparative Perspectives (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

All around the world, literature and other forms of creative expression are related in many fascinating ways. Writers and artists often find inspiration from each other, and some artists work across a wide spectrum of genres and embody several identities at once. In different times and places, how have writers and artists reacted to critical events or lifecycle experiences? What techniques have writers, artists, composers, and choreographers shared?

In examining a broadly international range of materials, in this course we will consider (1) how artists and writers depict common themes such as nature, death, aging, love, and more; (2) ways in which art and literature relate to each other; and (3) how literature and other arts are influenced by, and in turn exert influences upon, their cultural and social contexts. Using a global perspective, we will examine relationships between literature and a variety of artistic forms, such as painting, photography, comics, film, theatre, opera, music, sculpture, and more.

Students will practice enabling skills for reading across genres, media, and cultures, and for expanding their skills in analyzing and synthesizing information, their awareness of a wide variety of value systems and cultural traditions in different times and places, and their horizons of literature in global contexts. Evaluation methods will typically include class participation, short essays or papers or projects, and exams. This course can be used as a course for the major in Comparative Literature or the minor in World Literature.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 141** (GH;US;IL) Religion and Literature (3) Major religious themes as expressed in literary masterpieces; sacred texts from various cultures read as literature.

**CMLIT 141 Religion and Literature (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 141 is an introduction to literature, to religious writing, and to the many ways in which literature draws upon or interacts with religion. Among the many possible relationships between religion and literature are: straightforward

dramatization of sacred texts; allegory; expression of mystical experience; exploration, dramatization, and individualization of theological issues; the creation of literature to promote or to meet the needs of piety; and utilization of religious imagery and symbolism as a poetic resource. Readings will include sacred texts, and also literature that draws upon or responds to sacred texts and religious traditions. It may also include avowedly secular literature that shows some relationship to religious tradition, and even literature questioning or critical of specific religious traditions or their adherents. Students will read works from a range of historical periods and world societies, both Western and non-western. Students will be evaluated on essay exam questions, short answer and objective exam questions, reading journals, quizzes, in-class discussion, group projects, research and critical papers, and final comprehensive written exam. CMLIT 141 is not required for the CMLIT major but may be selected to fulfill one of the course requirements for the major or for the World Literature Minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and the United States and International Cultures requirement.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 142 (GH;IL) The Psychology of World Literature (3)** A comparative, psychological approach to world literature from the perspectives of writer, narrative, character, and reader.

**CMLIT 142 The Psychology of World Literature (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course explores various psychological approaches to the discussion of literature from the perspectives of writer, narrative, character and reader. Can authors, narrators, and fictitious characters be "psychoanalyzed"? To what extent do cultural variants affect a psychological approach to literature? Are there psychological universals that transcend time and culture? How does an awareness of psychology affect the reader? All of these issues will be discussed and compared with an eye to speculating the ways in which the human mind creates literature and literature impacts the human mind.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 143 (GH;US;IL) Human Rights and World Literature (3)** Human rights violations discussed in tandem with their literary representation, presented in a global and comparative context.

**CMLIT 143 Human Rights and World Literature (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

"Human rights" refers to basic rights and freedoms to which all humans are entitled, often held to include the right to life and liberty, freedom of thought and expression, and equality before the law. But these ideas have not always been a part of human thought and some scholars believe that without certain forms of literature today's understanding of human rights would not exist. Through comparative analysis of a variety of human rights storytelling genres that reflect a range of contexts, this course will suggest that it is impossible to understand human rights without also thinking about the stories that create and sustain their idea.

One main premise of this course is that the representation of human rights violations is always a vexed undertaking. It is both urgent and necessary, while also incomplete and inadequate. In order to explore this dilemma, this course focuses on the intersection between human rights advocacy and the various cultural forms that explicitly attempt to participate in human rights discourse. The course will cover a variety of cultural forms such as comic books, movies, photography, novels, testimonials, poetry, plays, etc. that reflect on human rights atrocities such as slavery, the Holocaust, war, dictatorships, apartheid, Genocide, and more.

At the center of the course are questions about aesthetics and ethics. What are the risks and obligations of human rights storytelling and how are these linked to specific cultural forms and aesthetic practices? This course examines a range of human rights stories through a balance of context and close reading, where stories are studied both for what they say and how they say it.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 153 (GH;IL)** International Cultures: Film and Literature (3) Comparison of narrative techniques employed by literature and film in portraying different cultures, topics may vary each semester.

**CMLIT 153 International Cultures Through Literature and Film (3)  
(GH;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course will compare narrative and artistic techniques employed by literature and film in portraying different social and cultural environments, which will range widely around the globe and may include Africa and the Middle East, East Asia, and South America, as well as European and North American examples. Students will view approximately twelve to fourteen films and read five to six novels or other texts such as short stories, plays, and poems. The purpose of this course is to have students examine how the selected artists have developed their intentions and their subject matter in their respective medium, literature or film, and to allow students to study modes of narration across different cultures and media. Through a combination of lectures and comparative discussions, students will examine how narrative components, including plot, genre, environment, character, and point of view are developed in films and fiction from diverse cultures.

The comparative nature of the course allows students to understand, evaluate, and appreciate both the universal and unique qualities of the human condition. The study of narrative technique will help students develop analytical skills in discussing and writing about the literary and cinematic expression of cultural values.

Student performance will be evaluated through means such as midterm and final short answer and essay examinations, a short initial paper (1-2 pages), and a final comparative paper (4-5 pages). The individual instructor may choose to replace or supplement some of these assignments with oral presentations. The examinations and papers will allow the student to demonstrate competency in evaluating and comparing cultures, artists and mediums, and in expressing their ideas.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 153U (GH;IL)** International Cultures: Film and Literature (3) Comparison of narrative techniques employed by literature and film in portraying different cultures, topics may vary each semester.

**International Cultures: Film and Literature (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 184 (GH;IL) (ENGL 184)** The Short Story (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the Nineteenth and Twentieth Century.

**The Short Story (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 185 (GH;IL) (ENGL 185)** World Novel (3) Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation.

**CMLIT(ENGL) 185 The Modern Novel in World Literature (3)  
(GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

In this course, which is cross-listed with English, students will read examples of the modern novel from around the world. Focusing on novels written outside of America and England, this class will explore the development of the modern novel as a genre across a number of world cultures. As an example, moving from the beginnings of literary modernism (the late nineteenth century) through the early and mid twentieth century, the course will consider works by writers such as the following: Chinua Achebe, Italo Calvino, Albert Camus, Simone deBeauvoir, Fyodor Dostoevsky, Isak Dinesen, Marguerite

Duras, Natalia Ginzburg, Herman Hesse, James Joyce, Thomas Mann, Gabriel Garcia Marquez, Kenzaburo Oe, and Marcel Proust. This course will address the ways in which the world novels under consideration constitute examples of various literary forms and styles. The class will examine the differences and distances between literary movements such as social realism and magical realism, modernism and postmodernism. The goals of this course will be to hone students' critical reading and writing skills while granting them the ability to think about the modern novel as a distinct genre in a comparative global context. Students will be asked to read a minimum of five to six novels, spending an average of two weeks studying each work. They will be asked to complete at least three writing assignments including at least two kinds of writing such as the essay, essay exam, or semester-long reading journal. This course will prepare students for additional college-level literature courses by helping them to develop the analytical skills necessary to analyze complex written texts. This course fulfills a General Education Humanities requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 189 (GH;IL) (ENGL 189) Modern Drama (3)** Playwrights who set the world's stage for twentieth-century drama; issues that continue to shape the contemporary theatrical world.

**CMLIT (ENGL) 189 The Founders of Modern Drama (3)**  
(GH)

**(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT/ENGL 189 will constitute a wide-ranging study of plays by authors often credited with the making of modernist drama. The class will approach these plays from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Ibsen, Strindberg, Chekhov, Shaw, Wilde, Galsworthy, O'Neill, Beckett, and Yeats. Topics under consideration will vary from class to class but may include a chronological introduction to the development of modern drama, a consideration of a principal theme or themes in modern drama through a number of plays, or a consideration of plays in the context of historical events or formal or aesthetic elements. Time allotted for the study of the works under consideration will vary. This class will prepare students for advanced courses in dramatic literature as well as other academic courses that engage in the verbal and written analysis of complex written texts. The course may be used as an English or Comparative Literature major credit or as credit toward the English or Comparative Literature minor.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 190 (GH;IL) Literary and Cultural Theory: An Introduction (3)** A comparative introduction to literary and cultural theory, and its impact on the study of literature.

**CMLIT 190 Literary and Cultural Theory: An Introduction (3)**  
(GH;IL)

This General Education course offers students a broad and international introduction to the history of literary and cultural theory in the humanities, with a particular focus on how that theory has affected and continues to affect the study of literature, and on the critical problems -- of agency and subjectivity, of meaning and interpretation, or self and other -- that it addresses.

Students in this course will learn to navigate the fundamental theoretical and philosophical perspectives that have dominated the humanities and especially literary studies in international contexts over the course of the last two centuries. They will be introduced to major philosophical themes, such as the problems of ideology, the subject, or the aesthetic, and learn how thinkers in a number of different national locations and historical moments have thought about those themes.

Substantial attention will be paid to the \*locations\* of theory: to the ways in which theory emerges from historically, culturally, nationally and linguistically specific contexts that have shaped it. Substantial attention will also be paid to the ways in which theory has been used to study literature; in some versions of the course one or more literary or cultural proof-texts will be used to illustrate the forms of illumination various theoretical approaches provide.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CMLIT 191** (GH;US;IL) (GAME 160) Introduction to Video Game Culture (3) A comparative, international look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.

**CMLIT 191 (GAME 160) Introduction to Video Game Culture (3)**

This course is a comparative introduction to the nature and history of video games as cultural artifacts, from Pong to online role-playing. It introduces students to academic discussion on and creative work in new digital forms including hypertexts, video games, cell phone novels, machinima, and more. Students will survey major debates over the meaning and value of video games, and study some of the major theoretical terms and perspectives developed to elaborate the cultural and sociological value of video games.

The course extends students' skills in literary interpretation to a variety of new objects, and makes them aware of the role medium plays in aesthetic development and production. Students will leave with a far sharper understanding of how the interpretive tools used in the humanities can be extended to include new media, and with a sense of the historical role video games have played and will continue to play in global cultural production.

Because the course is historically focused, it will spend significant time looking at the differential development of video games in three major regions: the United States, Europe, and East Asia (especially Japan).

General Education: GH

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 191** (GH;US;IL) (GAME 160) Introduction to Video Game Culture (3) A comparative, international look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.

**CMLIT 191 (GAME 160) Introduction to Video Game Culture (3)**

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Because the course is historically focused, it will spend significant time looking at the differential development of video games in three major regions: the United States, Europe, and East Asia (especially Japan).

General Education: GH

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**CMLIT 199** (IL) Foreign Study--Comparative Literature (3-6) Course offered on comparative literary topics as part of a foreign-study program.

**Foreign Study--Comparative Literature (3-6)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 295** Internship (1-18) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1997

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 300H** Honors Thesis (3) Individual projects involving research, reading, and writing; preparation of an honors thesis in comparative literature or world literature.

**Honors Thesis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995  
Prerequisite: Participation in the University Scholars program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 399** (IL) Foreign Study--Comparative Literature (3-6) Special course offered on comparative literary topics as part of a foreign-study program.

**Foreign Study--Comparative Literature (3-6)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005  
Prerequisite: third-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 400Y** (US;IL) Senior Seminar in Literary Criticism and Theory (3) Discussions of theories of literature, of literary criticism, and particularly of the distinct methods of comparative study; individual projects.

**Senior Seminar in Literary Criticism and Theory (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: seventh-semester standing; 18 credits in literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 401Y** (IL) The Western Literary Heritage I (3) Major literary movements and authors in the literature of the Western world from the beginnings through the early Renaissance.

**The Western Literary Heritage I (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: 3 credits in literature or history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 402Y (US;IL)** The Western Literary Heritage II (3) Major literary movements and authors in the literature of the Western world from the late Renaissance to the present time.

### **The Western Literary Heritage II (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: 3 credits in literature or history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 403 (US)** (LTNST 403) Latino/a Literature and Culture (3) Literary and other forms of cultural expression (film, music, art, and theater) are compared across different Latina/o communities.

### **CMLIT (LTNST) 403 Varieties of Latina/o Cultural Expression (3) (US)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course provides students with a multi-faceted comparative view of Latina/o literature in relation to other forms of cultural expression. First, the course presents a variety of cultural expressions to students in an effort to teach them the different ways that form affects content. Each text will be studied in its historical context as well, thereby providing students with a sense of Latina/o cultural history. Second, this course compares works from within the same genre, allowing students to recognize the ways that Latina/o culture has worked to build identity, to deconstruct identity, and to challenge cultural stereotypes. Such comparison further facilitates comparison of the ways that different cultural forms have been used by diverse Latina/o communities. Third, this course compares cultural forms, allowing students to see how Latina/o poetry affects music or how Latina/o theater affects novels. Fourth, this course will include texts that represent a variety of linguistic and national contexts, including many countries in Latin America, thereby allowing students to see the relationship between history, culture, language, geography, and identity. These are all themes that are at the center of both Latina/o Studies and Comparative Literature. A comparative perspective facilitates appreciation of the vast and varied ways that Latina/o communities have used cultural expression. A particular point of contact between Latina/o Studies and Comparative Literature is the influence of hybridity. A central issue explored in this course concerns the intricate connections between multiple ways of expressing identity, in the arts, literature, music, etc., in diverse circumstances, such as locations where Latina/o cultures may be in the mainstream (such as in Latin America) and in the minority (in the U.S.). Drawing upon approaches offered by comparative literature and theories such as post-structuralism, feminism, and post-colonialism, we will examine the complex process through which Latina/o culture has been defined, disseminated, contested, and commercialized. Of particular interest from a comparative perspective are the ways that Latina/o cultures are created through hybridization, processes of mutual borrowing and differentiation, as well as through transnational processes of migration, urbanization, and cultural contact. The course's objective is to show not only how complex societies consolidate a shared culture but also how diverse Latina/o communities have produced a multiplicity of cultures that have been expressed via a broad range of cultural registers. These communities often span vast geographical areas, not only in the U.S. but across the Americas as people continue to look to their countries of origin for artistic inspiration.

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2011

Prerequisite: 3 credits in the humanities or in any LTNST course or 4th-semester proficiency in Spanish

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 404 (IL)** (ASIA 404) Topics in Asian Literature (3) Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan.

### **CMLIT 404 Topics in Asian Literature (3) (IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course focuses on Asian literature in a comparative and international frame. Different iterations of this course will have different topics as well as different historical or geographic foci, but may include literatures from the countries of East Asia (China, Japan, Korea), Southeast Asia (Thailand, Vietnam, Laos, Indonesia, Cambodia), or South Asia (Bangladesh, India, Pakistan). Because the course is comparative it will highlight relationships between and among literary traditions of Asia, or between Asia and the rest of the world, whether in the fields of poetry, drama, or fictional and non-fictional prose.

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2011  
Prerequisite: 3 credits in literature or related field appropriate to this course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 404Y (IL) (ASIA 404Y) Topics in Studies of Asian Literature (3)** Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan, taught with focus on written analysis and interpretation.

### **CMLIT (ASIA) 404Y Topics in Studies of Asian Literatures (3)**

This course focuses on Asian literature in a comparative and international frame. Different iterations of this course will have different topics as well as different historical or geographic foci, but may include literatures from the countries of East Asia (China, Japan, Korea), Southeast Asia (Thailand, Vietnam, Laos, Indonesia, Cambodia), or South Asia (Bangladesh, India, Pakistan). The various course modules will incorporate writing to allow students to further explore their understanding of Asian literatures. Because the course is comparative, it will highlight relationships between and among literary traditions of Asia, or between Asia and the rest of the world, whether in the fields of poetry, drama, or fictional and non-fictional prose. The course will provide students with opportunities to develop writing skills necessary for academic scholarship in comparative literature and Asian Studies.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: 3 credits in literature or related field appropriate to this course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 405 (US;IL) Inter-American Literature (3)** This course examines the development of literature in Canada, the United States, Spanish America, the Caribbean area, and Brazil.

### **Inter-American Literature (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: 3 credits in literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 406 (IL) Women and World Literature (3)** Literature written by women, especially women from non-Western cultures; the spectrum of genres in which women writers have excelled.

### **Women and World Literature (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: 3 credits in literature or in women's studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 408 (IL) Heroic Literature (3)** Traditional heroes, their traits and adventures; typical themes and examples chosen from the epics and sagas of world literature.

### **Heroic Literature (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: 3 credits in literature or folklore

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 410 (IL) Literary Translation: Theory and Practice (3)** Emphasizing literary translation, a study of the theoretical and

practical problems encountered in the processes of translation, transmission, and interpretation.

**CMLIT 410 Literary Translation: Theory and Practice (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the history and practice of literary translation, ranging across space and time to provide a comparative, international perspective. It addresses such issues as the difficulties of literary language; theories of translation and translatability; theories of semantic equivalence; alternative modes of translation including sound- and graph-translation; and the history of important moments of translation in shaping the literary imagination. No second language is required, but students interested in learning how to translate literature may be given assignments allowing them to practice important skills connected to that task.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2011

Prerequisite: 18 credits in a foreign language

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 415 (GH;US;IL) World Graphic Novels (3)** Critical analyses of form, genre, medium, and discourse of the graphic novel and its historical precedents in an international and comparative context.

**CMLIT 415 World Graphics Novels (3)  
(GH; US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course considers the graphic novel (also known as graphic fiction, comics, or sequential narrative) as an emergent literary medium and global phenomenon. The course focuses on texts that engage issues of contemporary identity, ethnicity, sexuality, technology, and/or history (personal, family, and national). These graphic novels engage these issues through the medium of text joined with image. This course explores the aesthetic of sequential narrative, its methods of production and consumption, and its place in a contemporary culture of reading. Assigned texts include titles from the United States, France, Japan, Italy, Canada and Norway. All texts will be read in English translation.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Summer 2010

Prerequisite: 3 credits in literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 422 (IL) African Drama (3)** Traditional and popular drama forms; modern anglophone and francophone drama; nationalism and social criticism in contemporary African drama.

**African Drama (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 423 (IL) African Novel (3)** From traditional oral narratives to modern autobiographical, historical, satirical, sociological, and allegorical forms; novelist as social critic.

**African Novel (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 429 (ENGL 429) New Media and Literature (3)** New media literary genres; critical discussion of creative works in digital media.

**New Media and Literature (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 430 (IL) Global Modernisms (3)** A comparative investigation of global Modernisms, with an emphasis on the relations between modernism, modernity, and modernization.

**CMLIT 430 Global Modernisms (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course explores and reassesses, comparatively, the ironies, conundrums, paradoxes, and the self-defying and self-engendering strategies of Modernism's relentless activity as aesthetic movement and as complement to modernity. Readings from theoretical texts and literary works across cultural contexts, international traditions, and linguistic frontiers.

Students will learn how to do critical analyses of written texts, and how to analyze and write about the history of aesthetic and particularly literary modernism and the concepts of modernism, modernity, and modernization. Students will leave the course as better critics of literary work and with an increase ability to perform literary and cultural analysis that relies on a solid grasp of relevant historical and theoretical contexts. Grading will involve a combination of class discussion, writing assignments, and exams, depending on class size and instructor preference.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2010  
Prerequisite: 3 credits in literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 435 (IL) Cultures of Globalization (3)** Cultural and literary effects of the process of globalization, with an emphasis on world literatures and transnationalism.

**CMLIT 435 Cultures of Globalization (3 per semester/maximum of 6)  
(IL)**

This course focuses on the cultural and literary effects of the process of globalization, with an emphasis on world literatures and transnationalism. It invites students to think about the ways in which the globalization of culture, politics, and/or the economy affects literary production, and the ways in which such literary features as genre, form, medium, style, and theme in turn reflect and attempt to shape our understanding of the global and its becoming.

The course will have a significant focus on primary material (literature, film, other media) and secondary material (philosophy, journalism, criticism, and so on). It will introduce students to the main theoretical concepts that govern thinking about globalization and global culture, as well as to important literary and cultural texts that articulate those values. It will prepare them for further research in comparative literary studies and in the critical history of globalization.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: 3 credits of literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 438 (IL) Fantastic Worlds: International and Comparative Perspectives (3)** A comparative, international study of fantastic worlds in literature and visual culture.

**CMLIT 438 Fantastic Worlds: International and Comparative Perspectives (3)  
(IL)**

This course will explore a wide range of "fantastic" narrative voices, crossing the boundaries of genres, periods, and nations, through literary and visual texts from the 19th century to contemporary eras, and from Asia to Americas. Students will examine various types of literary techniques and concepts, such as magic realism, grotesque realism, the absurdity, the fantastic, etc., and learn how texts best capture/grasp the nature of "realities" in their creation of "fantastic" worlds. Students will develop more profound understanding of literatures through global lenses, develop and refine critical thinking, in speech and writing, and comparative methods of literary analysis, and develop communications skills in essays, response papers, class discussions, presentation and research papers.

## Instructional objectives:

- 1) Students will develop more profound understanding of literatures through global lenses
- 2) Students will develop and refine critical thinking, in speech and writing, and comparative methods of literary analysis
- 3) Students will develop communications skills in essays, response papers, class discussions, presentation and research papers

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: 3 credits in literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 443 (US;IL) Transatlantic Literature (3 per semester/maximum of 6)** Comparative literary and cultural relations across the Atlantic Ocean; may include Europe, Africa, the Americas, and/or the Caribbean.

**Transatlantic Literature (3 per semester/maximum of 6)**

General Education: None

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2011

Prerequisite: 3 credits in literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 446 (IL) Postcolonial Literature and Culture (3)** Postcolonial literature and theory in a comparative and international context.

**CMLIT 446 Postcolonial Literature and Culture (3 per semester/maximum of 6)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Taking a comparative and transnational approach, this course will provide an advanced introduction to the field of postcolonial literature and theory. Readings will include the foundational anti-colonial writings of the early twentieth century, the postwar literature of decolonization, and the most recent literature on cultures of globalization. Themes to be discussed may include nationalism, subalternity, neocolonial formations, migration, and cultural translation. In general, this course will be taught in the active learning mode, featuring in-class discussion, writing projects, and group presentations.

CMLIT 446 is one of the many courses, which count towards the Comparative Literature major and the World Literature minor.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Summer 2010

Prerequisite: 3 credits in the study of literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 448 (IL) Literary Cultures of Buddhism (3)** Comparative exploration of various Buddhist literary cultures, from the classical Indian subcontinent to modern movements like the Beats and dalit writing.

**CMLIT 448 Literary Cultures of Buddhism (3)  
(IL)**

This course will provide an in-depth exploration of various cultures of Buddhist literary production. Readings will cover a broad temporal and geographical range. Prior study of Buddhism or literature is not required and materials will be in English. Students will learn about major genres of Buddhist literature, such as sutras (scripture), j?taka (stories of the Buddha's previous incarnations), hagiography, miracle tales, religiously inspired poetry, and k?an meditational riddles. The course will also examine the various forms into which contemporary authors have adapted these materials (such as manga, novels, memoirs, and film). The course, or individual units within the course, will be structured so that students develop an historical perspective, allowing them to understand the literary cultures that gave rise to the works under study.

Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytical and expressive abilities.

The course is designed to be suitable for all students generally interested in religious cultures of writing, in Buddhism, or in literature, whether or not they have previously studied in any of these areas. The Comparative Literature major requires

a certain number of electives at the 400-level, of which this could be one, depending on its content. Further, the course is designed to count as General Education and as an IL ("International") course. It will be taught, as feasible, every 2-3 years with an enrollment of 20-30 students. With the addition of supplementary reading and research assignments, the course may also be suitable for certain graduate students. This course would benefit from access to a laptop and digital projector.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2010  
 Prerequisite: 3 credits in literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 449 (IL)** Literary Cultures of Islam (3) Comparative discussion of the literary cultures of Islam from the seventh century to the present.

**CMLIT 449 Literary Cultures of Islam (3-6)  
 (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an advanced introduction to the literary cultures of the Islamic world, from the seventh century to the present. No prior knowledge is required. Works will be read in translation. Students will study the foundational text of Islam, the Quran, as a literary text, and learn about major genres of Islamic literatures (ghazal, masnavi, and maqamah, among others). They will also examine how these genres have been adapted in modern literature and media (novels, memoirs, and film). Supplementary historical readings will be provided to contextualize the primary texts.

CMLIT 449 is one of the many courses which count toward the Comparative Literature major and the World Literature minor.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Other Cultures and Humanities  
 Effective: Summer 2010  
 Prerequisite: 3 credits in the study of literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 453 (IL) (COMM 453)** Narrative Theory: Film and Literature (3) Comparative study of the aesthetics and techniques of film and literature; close analyses of masters of each art form.

**Narrative Theory: Film and Literature (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Fall 2006  
 Prerequisite: COMM 150 or 3 credits in literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 455 (IL)** Ethics, Justice, and Rights in World Literature (3) Concepts of ethics, justice, and rights, appearing in world literature and/or film.

**CMLIT 455 Ethics, Justice, and Rights in World Literature (3)  
 (IL)**

The course will consider how literature and culture address common concerns, including morality, justice, equality, and agency from different perspectives, aesthetic styles, and formal constraints. Students will consider how cultural texts, like legal and philosophical texts, have the power to influence politics and society. Literature is important for understanding ethics, justice, and rights because it teaches ways of thinking and of relating to others that are central to social values. How do we develop the commitment to social equity? How do stories develop ideas of altruism, of prejudice, of pathos, and more in their audience? What role does culture play in developing the moral imagination required to think through social crises? Each class will explore one or more interrelated topics through a variety of cultural and philosophical works. Readings might include works by Melville, Shakespeare, Kafka, Glaspell, Morrison, Capote, Garcia Marquez, and others. Topics might include: formalism; the paradoxes of equity; narrative, storytelling, and framing; custom, law and the political order; law, society, and power; interpretation, authority, and legitimacy; punishment, retribution, and redemption; and others. This course will provide an opportunity to think about the law and ethics in a new way, to read engaging works of fiction and non-fiction, and to examine the humanistic and philosophical perspectives that are at the core of the ethical imagination.

General Education: None  
 Diversity: IL



Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: 3 credits in the study of literature

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 459 Topics in Theory (3)** Selected topics in this history of theory and literary criticism within a global, comparative context.

**CMLIT 459 Topics in Theory (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Covers specific topics in the history and practice literary criticism, cultural and political theory, and the history of ideas, within a comparative context. Introduces students to major issues, ideas, thinkers, schools, or traditions that have shaped the study of comparative literature. Students will learn how to read, think critically about, and write about theoretical texts, and how to analyze literary texts through the lenses of theory.

They will also engage critically with problems of intellectual and literary history and genealogy.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2010  
Prerequisite: 3 credits in literature

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 470 (IL) The Modern Novel (3)** Major novels of Joyce, Proust, Kafka, Thomas Mann, Nabokov, and others; their contributions to the art of the novel.

**CMLIT 470 The Modern Novel (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the modern novel in a comparative and transnational perspective. It explores the basic connections between the modern period and the novel as a form, noting the rise to prominence of the novel in the modern period, and focuses on several important examples of the genre. Some versions of this course may adopt specific organizing themes, such as the novel and the city, the novel and war, the novel and love, and so on. Other versions may focus on the historical development of the novel over time or on crucial interpretive or narratological issues, including the problems of character, time, or point of view; still others may concentrate on major sub-genres of the modern novel, including realism, magic realism, modernism, and postmodernism.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2011  
Prerequisite: 3 credits in literature

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 471 (IL) Poetry and Poetics (3)** Theoretical and practical concepts in the comparative, global history of poetry and/or poetics.

**CMLIT 471 Poetry and Poetics (3)  
(IL)**

This course explores theoretical and practical concepts in the history of poetry and/or poetics. Like all comparative literature courses, it pursues this task through discussions of poetry from a wide variety of national or linguistic origins and ranges widely across historical period, medium, and social form, where appropriate.

Students will develop a broad array of interpretive skills appropriate to poetry and poetics; they will acquire a knowledge of a wide variety of poetic forms; they will undertake comparative analyses of poems and poetic structures; they will learn how to think about poetics outside poetry.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: 3 credits in literature

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 480** (IL) The International Folktale (3) Traditional tales from various parts of the world: their origin, characteristics, forms; their transmission as oral narrative and written literature.

**The International Folktale (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: 3 credits in literature or folklore

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 486** (IL) Tragedy (3) Development of tragic drama and its relationship to social background and philosophical theory.

**Tragedy (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 487** (IL) Comedy (3) Development of comic drama and its relationship to social background and philosophical theory.

**Comedy (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 488** (IL) (ENGL 488) Modern Continental Drama (3) From Ibsen to the drama of today: Strindberg, Chekhov, Hauptmann, Pirandello, Ionesco, Beckett, Genet, and others.

**Modern Continental Drama (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 489** (IL) Contemporary World Fiction (3) A survey of developments in contemporary world fiction in translation.

**CMLIT 489 Contemporary World Fiction (3)  
(IL)**

The purpose of this course is to expose students to the developments in world fiction in the last 50 years and to expose them to a range of authors from a number of countries. This course, then, also involves getting to know the novel-writing histories of those countries and in many cases, the recent histories of those countries (for example, in novels like Rushdie's *Midnight's Children* or Garcia Marquez's *Hundred Years of Solitude*). The class will approach these fictions from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Pamuk, Grass, Murakami, and Marquez. Time allotted for the study of the works under consideration will vary.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: 3 credits in literature

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 490** Video Game Studies (3) A comparative look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.

**CMLIT 490 Video Game Studies (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

The video game industry is larger than the film industry, and yet the academic study of video games has only just begun. This course is a comparative introduction to the nature and history of video games as cultural artifacts, from Pong to online role-playing. It introduces students to academic discussion on and creative work in new digital forms including hypertexts, video games, cell phone novels, machinima, and more. Students will learn basic narrative theory, and study its impact on game studies and game production. They will survey major debates over the meaning and value of video games, and review its history from Pong to contemporary games, including online world-based games.

The course extends students' skills in literary interpretation to a variety of new objects, and makes them aware of the role medium plays in aesthetic development and production. Students will leave with a far sharper understanding of how the interpretive

tools used in the humanities can be extended to include new media, and with a sense of the historical role video games have played and will continue to play in global cultural production.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2010

Prerequisite: 3 credits in literature

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 491 (IL) Literary Adaptation: International and Comparative Perspectives (3)** A comparative, international study of adaptations between literature and other media (film, theater, photography, music).

**CMLIT 491 Literary Adaptations: International and Comparative Perspectives (3 per semester/maximum of 6) (IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

From the very first expressions of literary impulses in prehistoric times, and continuing through the present, literary material has been re-used and creatively recycled through processes of adaptation and appropriation, often involving translations not only between languages, but also between media. This course uses a global perspective to explore the processes and aesthetics of adaptations of literary works, including adaptations into other genres or media, such as the visual arts, a film, opera, stage play (or vice versa — adaptations from other media into literature). Drawing upon a broadly international selection of materials, we will explore multiple discourses surrounding adaptation; address the importance of translation and the dynamics between languages, audiences, and texts; study how adaptations address common themes such as race, class, gender, and sexual orientation; discuss international taxonomies of literary genres; and critically assess different cultural notions of authorship, intellectual property, and communal vs. individual ownership. From year to year the works and authors studied in this course may change.

Course objectives include (1) to encourage students to think critically about adaptations within and between cultures and media, in different parts of the world (2) to critically evaluate several of the often conflicting analytical paradigms which characterize the study of literary adaptations; (3) to assess varied approaches to genre in adapted works in different cultural settings; (4) to understand different perspectives on the concept of the author, such as the literary author and the 'author' in theatre studies; (5) to question assumptions about the world, re-examine personal points of view, and understand an expanded international range of ethical and value systems as expressed in literature. For methods of student evaluation, see the syllabus for each section; options include class presentations, response papers, research projects, and exams. This course may form part of the Comparative Literature major, the World Literature minor, and other majors.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2010

Prerequisite: 3 credits in literature or other fields relevant to this course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMLIT 499** (IL) Foreign Study--Comparative Literature (3-6) Advanced courses offered on comparative literary topics as part of a foreign-study program.

**Foreign Study--Comparative Literature (3-6)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005  
Prerequisite: 18 credits or equivalent in the appropriate foreign language; 6 credits in literature or related field appropriate to this course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Comparative and International Education (CI ED)**

**CI ED 401** (IL) (EDTHP 401) Introduction to Comparative Education (3) Origins, nature, scope, basic literature, and methodology of comparative education. Study of sample topics.

**CI ED (EDTHP) 401 Introduction to Comparative and International Education (3) (IL)**

The course introduces undergraduate students to global issues in education and provides a survey of schooling practices used in various educational systems around the world. Students will have the chance to create an individual research project that will allow them to explore one country and one global educational issues in depth. Students are required to attend all classes, participate in the discussion sections, and take notes on the films shown. These films play an integral part in the course and provide students with views into classrooms and schools around the world. Students will also have access to international databases and be expected to make use of these databases in developing their projects. Finally, in-class discussions will focus on how comparative educational studies have been used by politicians to influence educational reform around the world.

In this course, we will survey the state of public education in the world today. Each student will focus on one nation and provide a synopsis of educational practice in that nation. We will then move on to focus on global or cross-national issues such as how competition between "core" nations like Singapore and the U.S. drives reform (GOALS 2000 or No Child Left Behind). Other issues will include power differences between north and south, education for democracy, barriers to girls and women's education in developing nations, as well as education and national identity.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: 5th semester standing or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CI ED 440 (EDTHP 440) Introduction to Philosophy of Education (3)** Introduction to the examination of educational theory and practice from philosophical perspectives, classical and contemporary.

**CI ED (EDTHP) 440 Introduction to Philosophy of Education (3)**

The major objective of EDTHP (CI ED) 440, Introduction to Philosophy of Education, is to broaden and deepen the students' understanding of the nature of education. Such a study involves exploring the ends as well as the means of education. It includes both an examination of some of the distinctive or defining characteristics of "educated persons" as well as the different elements of the learning experience (including curricula, pedagogies, and evaluative processes) that encourage the development of such persons. As part of developing an understanding of the educational enterprise, this course will introduce students to some of the important ideas and theories that comprise the rich tradition of educational philosophy. In the design of a course of this nature with constraints established by space, time, and the background of the student, it is necessary to confront the task of making judicious selections from the vast literary wealth accumulated over the centuries. In doing so, the decision made has been to focus primarily on the literary contributions of western philosophers of education. In the interest of making the sample varied and interesting, however, an effort has been made to include writings of some philosophers of education from different cultural contexts. The educational thoughts of A.S. Neill, John Dewey, Eliot Wigginton, Maxine Greene, Paolo Freire, Mohandas Karamchand Ganddhi, David Orr, Ivan Illich, and Wendell Berry, among others, will be explored in this class. The exposure to diverse, rich, and provocative ideas of the educators included for study here will, it is hoped, stimulate students to re-examine and further develop their own philosophy of education into a more comprehensive, coherent, and consistent one.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ENGL 015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CI ED 444 (WL ED 444) Language, Culture and the Classroom: Issues for Practitioners (3)** Critical understanding of cultural linguistic diversity to facilitate the inclusion of English Language Learners in a globalized classroom.

**CI ED (WL ED) 444 Language, Culture and the Classroom: Issues for Practitioners (3)**

In this course we will focus on the issues of power raised by the use of Standard English as the school language while in its grounds there are an increasing number of students who are using more than one language/dialect to communicate. We will also discuss how language mutates into an exceptional hegemonic/counterhegemonic device central to the problematic regarding school socialization. Finally, we will critically understand teachers' and schools' roles in building a safe classroom where diversity of languages and cultures are welcome and encouraged.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: WL ED 300 or WL ED 400

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CI ED 457** Principles of Integrated Pest Management (3) Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester and graduate students.

### **Principles of Integrated Pest Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Must take two or more of the following: ENT 313 and/or HORT 238

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CI ED 457** Principles of Integrated Pest Management (3) Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester and graduate students.

### **Principles of Integrated Pest Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Must take two or more of the following: ENT 313 and/or HORT 238

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CI ED 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CI ED 497A** Cultural Diversity in the Workplace (3) The purpose of this course is to encourage students to engage in critical thinking and dialogue regarding diversity in a rapidly globalizing workplace. The material in this course will help identify sources and implications of "otherness" in the work environment through the use of personal accounts, texts, news media, movies, and a final project.

### **Cultural Diversity in the Workplace (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Computer Engineering (CMPEH)**

**CMPEH 449** VLSI Digital Circuits (3) Modern approaches to using VLSI technology; logic circuits, cell layout and design on CAD systems.

### **VLSI Digital Circuits (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEH 472** Microprocessors (4) Principles of microprocessors, hardware architecture, assembly language, programming,

interfacing, and applications of microprocessors will be studied.

### **CMPEH 472 Microprocessors (4)**

This course is designed to provide students with strong foundation in microprocessor programming and hardware interfacing both in the classroom and laboratory settings. This course is a required course in the Electrical Engineering BS curriculum and is intended to be taken by students who have completed their digital systems and first electronics course requirements. As such, the course integrates materials from the above undergraduate electrical courses in addition to related math, engineering, and science courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: CMPEN 271 and CMPEN 275 or CMPEN 270

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Computer Engineering (CMPEN)**

**CMPEN 111S Computers and Computer Hardware (1)** A brief orientation to University life and resources and an introduction to computers and computer hardware.

### **CMPEN 111S Computers and Computer Hardware (1)**

This course contains two components: an orientation to University life and an introduction to the hardware aspects of computer engineering. In the orientation to University life, students learn about the responsibilities of and expectations on a student including ethical behavior, and explore some of the academic and non-academic resources of the University. In the introduction to computer engineering students learn about some of the fundamental concepts, devices, and methodologies that are involved in the design and use of digital and computer hardware. This exploration begins with a foundation of logic and critical thinking. Logic is examined first from a theoretical problem solving standpoint. The discussion then progresses to an implementation perspective examining how logic devices are created and used. Included is a look at some CAD tools and some logic design laboratory exercises. Using logic as a basic building block, the organization and design of a computer is then examined, ending in an exploration of some of the contemporary methods used to make computers faster and more efficient.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 270 Digital Design: Theory and Practice (4)** Introduction to digital systems and their design. Topics include combinational and sequential devices and circuits, modern design tools and design practices. Students may take only one course for credit for CMPEN 270 or 271 and CMPEN 270 or 275.

### **CMPEN 270 Digital Design: Theory and Practice (4)**

CMPEN 270 is a first course in digital systems and digital system's design. It lays the groundwork for many later courses in computer organization and architecture and switching theory. The course includes both a lecture component to introduce important concepts, principles, methodologies and theories and a laboratory component in which the lecture material can be applied and practiced. The course introduces the theoretical foundation for digital systems including number systems, a variety of commonly used codes and Boolean algebra. Combinational devices, logic gates, and sequential devices, latches and flip-flops are introduced along with design techniques, methods and tools. Design criteria and objectives are considered and design trade-offs are examined. Higher level design elements are also examined such as decoders, multiplexers, counters, and registers, and their use in system design. Students are exposed to a variety of design tools and implementation techniques, including schematic capture tools, simulation tools, Hardware Description Languages (HDL) and HDL design tools. Laboratory work includes the design, construction and debugging of a variety of digital circuits, and the use of standard laboratory tools such as the oscilloscope and logic analyzer, and various software design tools.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: PHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 271** Introduction to Digital Systems (3) Introduction to logic design and digital systems. Boolean algebra, and introduction to combinatorial and sequential circuit design and analysis. Students may take only one course for credit for CMPEN 270 or 271.

### **CMPEN 271 Introduction to Digital Systems (3)**

This course introduces students to logic design and digital systems. The course begins with an overview of number systems, base conversions, and binary arithmetic. Boolean algebra is presented and several basic theorems and postulates are introduced. Boolean algebra is then used to model digital devices. Canonical forms for expressing Boolean functions are introduced including sum-of-products and product-of-sum forms.

Basic Small Scale Integrated (SSI) combinational devices are introduced along with a description of their operations characterization, and use. The basic symbols used in a logic diagram/schematic are introduced and the principles involved in reading and creating logic diagrams/schematics are discussed.

A systematic design methodology for combinational circuits is covered, including the concepts of function minimization using Karnaugh maps, handling don't care conditions, and designing multiple output circuits. Medium Scale Integrated (MSI) combinational devices and functions such as multiplexors and decoders are discussed and their use in a variety of applications is explained. Simple programmable logic devices and their use in implementing combinational functions is covered. The process of combinational circuit analysis is discussed and the use and interpretation of timing diagrams is introduced. Binary arithmetic is reviewed along with binary addition and subtraction circuits. Various negative number codes are discussed including 2's complement, 1's complement and sign-magnitude representation.

The concept of state and memory is introduced along with various sequential devices including the R-S latch, the D latch and the D, T, and J-K flip-flops. Timing considerations such as set-up and hold times for sequential devices is discussed along with various flip-flop triggering methods. The basic model for a sequential circuit/finite state machine is introduced. A systematic design methodology for creating synchronous sequential circuits is covered including state table/diagram creation, state reduction, state assignment, and circuit implementation. The process of sequential circuit analysis is also described.

Special sequential devices and circuits are introduced including counters and registers. Their use in various applications is highlighted. The course ends with a discussion of memory devices including RAM's and ROM'S.

Throughout the course, students use a schematic capture and design simulation CAD tool to model and test a variety of circuits.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

Concurrent: PHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 275** Digital Design Laboratory (1) Introduction to digital design techniques. Students may take only one course for credit for CMPEN 270 or 275.

### **Digital Design Laboratory (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

Concurrent: CMPEN 271 ; PHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CM PEN 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CM PEN 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CM PEN 331** Computer Organization and Design (3) Introduction to major components of a computer system, how they function together in executing a program, how they are designed.

#### **CM PEN 331 Computer Organization and Design (3)**

The goals of the course are to introduce students to the major components of a computer system (the data path, the control path, the memory system, the I/O system), how they function together in executing a program, and how they are designed. The relationships between instruction set design, addressing modes, fetch and execute operations, and their impact on the underlying architecture are presented. Students will develop skills both in assembly language programming and in designing architecture components in a hardware description language (VHDL or verilog).

CM PEN 331 is a required course for both computer engineering and computer science majors.

CM PEN 331 requires access to PCs/workstations with commercial hardware description language tools (e.g., Synopsys VSS compiler and simulator) and a modern assembler/debugger (e.g., SPIM MIPS assembler, simulator, and debugger).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: CM PEN 271 or CM PEN 270; CM PSC 121 or CM PSC 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CM PEN 351** Microprocessors (3) Microprocessor architecture; memory system design; assembly language programming; interrupts; the stacks and subroutines; memory and I/O interfacing; serial I/O and data communications; microprocessors applications.

#### **Microprocessors (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CM PEN 271; CM PEN 275

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CM PEN 352W** Embedded Systems Design (3) Design/development of embedded systems for data acquisition, process control, and special-purpose computing systems; peripheral interfacing, serial/parallel communications and bus systems.

#### **CM PEN 352W Microprocessor-based System Design (3)**

In this course students learn how to design application specific embedded systems. Embedded systems are increasingly important as they are used in industrial applications, personal computing, and consumer products. Embedded systems are based on microprocessors and microcomputers, but are not intended to be general-purpose computers. In the laboratory students will design, implement, and validate application specific embedded systems. Being a writing-across-curriculum course, students will learn effective techniques of reporting their technical designs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: CMPEN 351 orCMPEN 472;E E 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 362 (E E 362) Communication Networks (3)** Data transmission, encoding, link control techniques; communication network architecture, design; computer communication system architecture, protocols.

### **CMPEN (E E) 362 Communication Networks (3)**

CMPEN (E E) 362 is an elective course in both the electrical and computer engineering curricula which provides an overview of the broad field of data and computer communications. First, a general model of the communication task is presented, including the layered concept by which each layer provides services for the layer above. First, the lowest (physical) layer is studied. This involves signal design, Fourier analysis representations, bandwidth concepts, transmission impairments and communication media properties. Then the next higher (link) layer is considered which involves organizing bits into frames, data link and error control methods (including frame sequence numbering and error detection principles). Multiplexing to share a link is studied, including frequency division multiplexing, dedicated time division multiplexing, and statistical time multiplexing.

At the network layer level, there are two categories: broadcast (usually local area) and switching networks. Broadcast and local area network studies include bus, tree and star topologies, Ethernet, optical fiber bus networks, ring networks, and medium access control protocols.

Switching and routing concepts for networks are explained, including both circuit and packet switching, datagrams and virtual circuits. Properties of frame relay and asynchronous transfer mode (ATM) networks are described. Internetworking frame structures, routing and protocols are studied. Also, bridge routing for local networks is described.

At the still higher transport (network end-to-end control) layer, transport protocols, including TCP/EP, are described.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: CMPEN 270 orCMPEN 271

Concurrent: STAT 301 or STAT 318 or STAT 401 or STAT 414 or STAT 418

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 371 Advanced Digital Design (3)** Theory, design, and implementation of digital circuits based on combinational and sequential circuits; implementation of designs using hardware description language.

### **CMPEN 371 Advanced Digital Design (3)**

Students will learn advanced concepts in digital design for complex combinational and sequential logic, and learn how to effectively use minimization and synthesis techniques. Contemporary CAD tools and target digital technologies including Field Programmable Gate Arrays (FPGAs) are utilized. The use of a hardware-description language for digital design is introduced. In the laboratory portion, students will implement, simulate, and test designs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: CMPEN 271;CMPEN 275;CMPSC 121 orCMPSC 201;E E 210 orE E 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CMPEN 396** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 411** VLSI Digital Circuits (3) Basic building blocks of CMOS design, design rules, chip planning, layout design, system power and timing, simulation of VLSI structures.

**VLSI Digital Circuits (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPEN 371 or CMPEN 471; E E 310

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 416** (E E 416) Digital Integrated Circuits (3) Analyses and design of digital integrated circuit building blocks, including logic gates, flip-flops, memory elements, analog switches, multiplexers, and converters.

**CMPEN 416 Digital Integrated Circuits (3)**

CMPEN 416 is a technical elective available to electrical and computer engineering students. It is intended for students who wish to specialize in the field of digital circuits. This course introduces the basic concepts involved in the design of digital circuits, which find practical application as logic and memory circuits in computers and other digital processing systems. The course emphasizes integrated circuit process-compatible circuit design techniques in recognition of the amazing synergy that has characterized the relationship between computer circuits and integrated circuit processing technology. This course includes three lectures and a two-hour laboratory each week. The only prerequisite is E E 310, a basic circuits course required for both electrical engineering and computer engineering students.

CMPEN 416 begins with a review of the bipolar junction transistor (BJT) device and proceeds into the more advanced Ebers-Moll device model. This is followed by an examination of a series of BJT-based saturating and non-saturating digital circuits of ever increasing complexity illustrating the evolution of the modern bipolar logic circuit families. The next phase of the course reviews the metal oxide semiconductor field effect transistor (MOSFET) and proceeds along the same path taken for the bipolar transistor circuits. Various MOSFET logic circuit families are introduced and analyzed. Computer semiconductor memory circuits are considered next. Both BJT and MOSFET versions of both static and dynamic read-write and read-only memories are considered. The cell array, memory addressing circuits, and sense amplifier designs are all examined in detail. This is followed by the related subject of programmable logic arrays, the final topic.

The emphasis of the laboratory component of the course is to compare the performance of representatives of each class of circuits to computer simulations of the same circuits. Parameters such as input-output voltage transfer characteristics,

noise margins, and propagation delays are evaluated by building and measuring laboratory models. Most of the laboratory exercises require the student to evaluate a specified circuit, but the final exercise requires the student to design a circuit to meet a predefined set of specifications, then to prove that the design meets the requirements by measuring the circuit performance. Students are required to write a formal engineering report detailing the results of each laboratory exercise.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: E E 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 417 (E E 417) Digital Design Using Field Programmable Devices (3)** Field programmable device architectures and technologies; rapid prototyping using top down design techniques; quick response systems.

**CMPEN (E E) 417 Digital Design Using Field Programmable Devices (3)**

Field Programmable Devices, such as Field Programmable Gate Arrays (FPGAs) and Complex Programmable Logic Devices (CPLDs) are widely used for rapid prototyping and quick response-time designs. The objective of this course is to introduce the student to digital design using Field Programmable ICs, and to provide an understanding of the underlying technologies and architectures of these Integrated Circuits.

The course begins by introducing design alternatives for modern electronic systems identifying and classifying alternative system solutions, and evaluating when particular design solutions are optimal. These alternatives include microprocessors, microcontrollers, off-the-shelf digital ICs, Programmable logic ICs (FPGAs and CPLDs), and various forms of Application Specific Integrated Circuit (ASIC) designs. A homework assignment requires the student to quantitatively evaluate the cost, complexity, packaging, and time-to-market issues for a complex system design specification.

Next, the underlying Field Programmable Logic IC architectures and technologies are studied in detail. Following a broad survey of available programmable IC vendors and on-chip programming technologies (and their cost/performance trade-offs), several specific case studies are presented in the class. The first is the Xilinx XC4000xl line, because of the target boards used in the CAD laboratory component for this class. The initial lab portions of the class help the students to specify their design using various forms of design entry tools and also allows them to see how their design map on to the underlying FPGA architecture. The students also learn the underlying algorithms used by the design software they use in their Labs.

Next, the systematic top-down method for specifying complex designs using VHDL is introduced. Students are given a supporting homework assignment to develop high-level behavioral models for a simple digital system to reinforce this segment of the course. VHDL behavioral synthesis is now introduced as a preferred path to go from high-level system behavior to actual implementation on the FPGA. The strengths and weaknesses of synthesis are discussed, as are the emerging CAD tool trends. Additional VHDL-based homework assignments reinforce behavioral design and synthesis using commercial CAD tools.

The final segment of the class covers special topics that identify current trends in digital system architecture and programmable logic design. These include such topics as partially reconfigurable architectures and dynamic reconfiguration techniques, system design for testability, and field programmable analog arrays. Applications of FPGAs in special purpose computing environments such as signal processing, Java acceleration and image processing are also introduced. In the laboratory, student design project assignments explore larger and more complete system specifications of such things as controllers, CPU and memory design, and signal processing blocks. These assignments reinforce the lecture content as the students model, synthesize and implement their digital designs on the target Xilinx FPGA boards.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: CMPEN 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 431 Introduction to Computer Architecture (3)** Introduction to computer architecture. Memory hierarchy and design, CPU design, pipelining, multiprocessor architecture.

**CMPEN 431 Introduction to Computer Architecture (3)**

This course will introduce students to the architecture-level design issues of a computer system. They will apply their knowledge of digital logic design to explore the high-level interaction of the individual computer system hardware components. Concepts of sequential and parallel architecture including the interaction of different memory components, their layout and placement, communication among multiple processors, effects of pipelining, and performance issues, will be covered. Students will apply these concepts by studying and evaluating the merits and demerits of selected computer system architectures.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: CMPEN 331 or CMPEN 371

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 431H** Honors Introduction to Computer Architecture (3) Honors course in principles of computer architecture: memory hierarchies and design, I/O organization and design, CPU design and advanced processors.

### **CMPEN 431H Introduction to Computer Architecture (3)**

This course will introduce students to the architecture-level design issues of a computer system. They will apply their knowledge of digital logic design to explore the high-level interaction of the individual computer system hardware components. Concepts of sequential and parallel architecture including the interaction of different memory components, their layout and placement, communication among multiple processors, effects of pipelining, and performance issues, will be covered. Students will apply these concepts by studying and evaluating the merits and demerits of selected computer system architectures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPEN 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 441** Operating Systems (3) Resource management in computer systems. Process scheduling, memory management, file system design, I/O management, Unix operating system.

### **Operating Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 360

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 454 (E E 454)** Fundamentals of Computer Vision (3) Introduction to topics such as image formation, segmentation, feature extraction, matching, shape recovery, object recognition, and dynamic scene analysis.

### **CMPEN 454 Fundamentals of Computer Vision (3)**

CMPEN 454 is an introduction to computer vision. The goal of computer vision is to make computers understand and interpret visual information. Computer vision systems bring together imaging devices, computers, and sophisticated algorithms for solving problems in areas such as industrial inspection, medicine, document analysis, autonomous navigation, and remote sensing. The course involves both pedagogical written assignments and computer projects.

The beginning of the course gives an overview of computer vision and introduces low level image analysis techniques for binary images. Binary vision systems are useful when the silhouette of imaged objects convey enough information to recognize them. Examples can be found in optical character recognition, chromosome analysis and recognition of industrial parts. Moreover, many techniques developed for binary systems can be applied to gray level or color images. Next, the course covers image segmentation and contours. These topics are the foundation of most computer vision techniques. For an image to be correctly interpreted, it must be partitioned into regions that correspond to distinct objects or parts of objects. First, region based techniques such as thresholding, split and merge, region growing and texture analysis are introduced. Next, edge based techniques using gradient and Laplacian operators are discussed. Finally, contour representations and curve approximations linking edges into region boundaries are studied.

Next, depth from vision, with emphasis in stereo vision, is considered. Calculating distances to and among various points in the scene is important in many computer vision tasks such as inspection, robot manipulation, and autonomous navigation. In this part of the course the geometry of stereo systems and how to obtain depth maps from stereo image pairs is studied. Also, alternative 3D imaging sensors such as laser based range finders and radars are discussed.

Following stereo, the topic of computer vision is broaden to understand sequences of images over time. In this section techniques using information on spatial and temporal changes are used to design computer vision systems capable of coping with moving and changing objects, changing illumination and changing viewpoints. Visual motion is important primarily for two reasons. First, motion is a very important cue to understand the scene structure. Second, biological systems do use motion to infer properties of the surrounding world with very little a priori knowledge.

Finally, the topic of 3D object recognition is discussed. Object recognition entails two main issues: object identification and object localization. Identification determines the objects being imaged while localization determines their position in the world and with respect to the sensors. This topic builds upon all the different techniques discussed until this point.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MATH 230 or MATH 231; CMPSC 121 or CMPSC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CMPEN 455 (E E 455) Digital Image Processing (3)** Overview of digital image processing techniques and their applications, image sampling, enhancement, restoration, and analysis; computer projects.

**CMPEN (E E) 455 An Introduction to Digital Image Processing (3)**

E E/CMPEN 455, a technical elective available to both electrical and computer engineering seniors and graduate students, discusses many current techniques for processing and manipulating digital images. The course involves both pedagogical written assignments and computer projects.

The beginning of the course gives an overview of digital image processing systems and digital image fundamentals. During this unit, important elements of human visual perception are reviewed; these ideas help motivate many of the computer-based techniques described in subsequent units. Also, the standard model for a digital image, in addition to the concepts of sampling and quantization, are described. Finally, basic topological concepts between digital image pixel are discussed.

The next unit considers image transform analysis, with a primary focus on Fourier-based techniques. The one-dimensional Fourier transform is reviewed, and then two-dimensional Fourier transform analysis is discussed. To bridge the gap from the continuous world to the digital world, the sampling theorem is introduced. Next, the Discrete Fourier Transform and its properties are described. Fourier-based filtering techniques, such as the ideal low-pass and Butterworth filters are then introduced. The Fast Fourier Transform is also discussed. Finally, the Discrete Cosine Transform, used later in JPEG and MPEG, is introduced.

The next unit discusses techniques for image enhancement and segmentation. These techniques include point-based techniques based on histogram analysis. They also involve linear and nonlinear mask-based methods for noise reduction and region sharpening. Further, techniques of mathematical morphology, which involve an application of set-theoretic concepts to image processing, are described. Finally, image segmentation methods, based on edge detection and thresholding, are described.

The final unit considers the concept of image compression. Techniques for image encoding and decoding are discussed. A brief model of the encoding-decoding process is described. Next, compression techniques, such as run-length encoding and Huffman coding, are described. Finally, the multimedia image-compression methodologies, JPEG and MPEG, are discussed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 353 or E E 350; CMPSC 121 or CMPSC 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 461 Communication Networks (3)** Data transmission, encoding, link control techniques, network architecture, design, protocols, and multiple access.

**CMPEN 461 Communication Networks (3)**

This course introduces students to fundamental concepts and principles underlying data communication networks, with an emphasis on the Internet and its five-layer architecture: the application, transport, network, link, and physical layers. The fundamental issues to be covered include, but not limited to, reliable communication over an unreliable network layer, connection establishment/teardown and handshaking, congestion and flow control, path determination, multiple access control. The student learning these principles will gain knowledge that lasts long after today's network standards and protocols have become obsolete.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: CMPEN 271; CMPSC 121 or CMPSC 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 471 Logical Design of Digital Systems (3)** Basic switching theory and design of digital circuits, including combinational, synchronous sequential, and asynchronous sequential circuits.

**Logical Design of Digital Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPEN 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 472 Microprocessors and Embedded Systems (3)** Microprocessors: architecture, design, assembly language, programming, interfacing, bus structure, and interface circuits and their use in embedded systems.

**CMPEN 472 Microprocessors and Embedded Systems (3)**

In this course students should learn about the operation and design of microprocessor-based systems, including both hardware and software aspects with an emphasis on real time control environments and embedded systems. After completing the course, students should be able to develop, write and debug programs in a microprocessor's assembly language and use standard assembly language program development tools. They should also be able to interpret and analyze basic microprocessor system hardware.

This course is a senior level elective for students in computer engineering and computer science.

The course requires the use of general department computing facilities consisting of UNIX workstations running the appropriate program development tools.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPEN 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 472H Honors Microprocessors and Embedded Systems (3)** Honors course in microprocessors: architecture, design, assembly language, programming, interfacing, bus structure, and interface circuits and their use in embedded systems.

**Honors Microprocessors and Embedded Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPEN 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 473 Microcomputer Laboratory (3)** Design of digital systems using microprocessors.

**CMPEN 473 Microcomputer Laboratory (3)**

This laboratory course provides senior students with both theory and practice in designing, implementing, and debugging microprocessor-based systems. Students are guided through a series of projects in which they design, develop, and implement all of the components in a microprocessor based single-board system. After completing the course students will be able to design microprocessor based systems, including both software and hardware design. Students will also be able to use standard system design tools including standard laboratory equipment.

This course is a senior level elective for computer engineering majors. CMPEN 472 is a prerequisite for this course.

The course requires the use of a design laboratory including standard test equipment such as an oscilloscope, logic analyzer and signal generator as well as a PC with appropriate design software and a microprocessor or EPROM emulation system.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPEN 472

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 475 Functional Verification (3)** Introduce concepts, methods, and technology for effective functional verification of modern electronic systems.

**CMPEN 475 Functional Verification (3)**

Verifying design correctness of increasingly complex system-on-chip designs poses a major challenge to the semiconductor industry. Functional or logic errors in a chip design that are not identified early in the design phase can dramatically increase a project's overall cost and schedule. Further, design verification is consuming an ever-increasing portion of IC development time and cost. As much as 70% of effort in a complex IC design project is now attributed to verification.

This course will cover five key aspects of verification: an introduction to verification; a detailed description of simulation-based dynamic verification; formal verification; verification methodologies and advanced techniques; and case studies. First, the course will place verification in the context of the chip design process and introduce the verification cycle. Then, it will cover essential methodology principles and introduce the first hands-on example. It will also delve into various topics in dynamic verification, including the basic constructs of stimuli, monitors, checkers, observations categories, assertions, and test benches. Various case studies on actual industry and research designs will be provided.

The course will be supplemented by lab-assignments that provide hands-on experience to experiment with methodologies taught in lectures.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: CMPEN 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 480** Computer Engineering Design (3) Engineering design and modeling, engineering economy, project planning, capstone project selections, and technical communication skills.

### **CMPEN 480 Computer Engineering Design (3)**

This course prepares senior computer engineering students for industrial engineering design and project management. It covers the engineering design process, project planning and evaluation, engineering ethics, and engineering economy. In addition, students select, specify, and start their capstone design project, which is completed, in the follow-up course, CMPEN 481. Students are expected to carry out a group design project that is on par with industrial expectations. Upon completion of this course a student should have a solid understanding of the engineering design process, a clear capstone project description, should have completed some preliminary design work, and be adequately prepared to complete the project in CMPEN 481.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPEN 352W;CMPEN 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 481** Computer Engineering Project (3) Group or individual design projects in the area of computer engineering.

### **Computer Engineering Project (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPEN 480

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 482W** Computer Engineering Project Design (3) Computer engineering design project, project management, documentation, reporting, and group and individual communication skills.

### **CMPEN 482W Computer Engineering Project Design (3)**

The two principle goals of CMPEN 482W are (1) to introduce the fundamentals of systems engineering and systems engineering management, and (2) to develop written and oral communication skills. The course explores the process of translating a problem statement into an effective and economical computer system that meets the needs of the customer. Topics include a comparison of popular process models, analysis and derivation of requirements, requirements allocation and flow down, the work breakdown structure, object-oriented analysis and modeling, the design and development of the user interface, reliability engineering, scheduling, costing, and ethics. Communication skills are developed through oral presentations and a sequence of writing assignments, beginning with a description of requirements and leading to a final design document.

CMPEN 482W is not a prerequisite for any other course.

CMPEN 482W requires access to PCs or Unix workstations having a C++ compiler. Other specialty hardware or software may be required on a semester-by-semester basis.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E E 310;E E 353;CMPSC 473;ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPEN 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Computer Engineering Technology (CMPET)

**CMPET 005** Engineering Methods in Engineering Technology (1) Introduction to experimental and computer methods in engineering technology; applications of experimental concepts through student involvement in computer exercises.

### **CMPET 005 Engineering Methods in Engineering Technology (1)**

Engineering Methods in Engineering Technology is a follow-on computer skills course to EET 002S. Its purpose is to teach EET students how to use computers to help solve technical problems. The course begins by focusing on the use of the mathematical and graphing capabilities of spreadsheet programs to help analyze and present technical data. This is followed by investigation of more sophisticated problem-solving and analytical software such as Mathcad, Matlab, Mathematica, etc. (depending upon availability). Finally, the basic electronic simulations introduced in EET 002S are extended to include more sophisticated circuit analyses using PSpice, Electronic Workbench, etc. In all cases, the problem studied in CMPET 005 are typical of the applications that will be seen in future technology classes and in the engineering technology field. In some cases, again depending on availability of the software, students are exposed to the capabilities of modern 4th generation programming languages such as Visual Basic, LabView, HPVee, etc.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: EET 101MATH 081

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 117** Digital Electronics (3) Fundamentals of digital circuits, including logic circuits, boolean algebra, Karnaugh maps, counters, and registers.

### **CMPET 117 Digital Electronics (3)**

Digital Electronics covers fundamentals of both combinatorial and sequential digital logic circuits. Basic topics include Boolean algebra, binary codes, Boolean logic simplification and minimization theorems, and Karnaugh maps. Combinatorial and sequential logic topics include the theory and operation of arithmetic circuits, registers, counters, multiplexers, encoders/decoders, all major types of flip-flops, A-D and D-A conversions, counters, and memory systems. The course focuses primarily on small and medium scale devices using TTL logic with some use of MOS devices. Significant emphasis is placed on the use of manufacturers' data books to define device operating characteristics.

CMPET 117 is generally taken concurrently with CMPET 120, which is a digital electronics laboratory course. The lab exercise in CMPET 120 are coordinated with the CMPET 117 lecture material.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: Prerequisite and/or concurrent:EET 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 120** Digital Electronics Laboratory (1) Laboratory study of digital electronics circuits.

### **CMPET 120 Digital Electronics Laboratory (1)**

Digital Electronics Laboratory is a one credit laboratory that meets for a single 2-hour session each week. It is normally taken concurrently with CMPET 117. The lab exercises in CMPET 120 expose students to the digital devices that are described in the CMPET 117 lecture course and give them an opportunity to observe and understand their operation in practical terms. The exercises cover basic logic gate functions using AND, OR, NOT, NAND, and NOR devices. Students also investigate the operation of flip-flops, adder circuits, binary counters, shift registers, encoders and decoders, and memory units. Often, students are required to complete a digital design project as part of the CMPET 120 course. Many faculty also require selected labs to be submitted as formal reports. Digital simulation software is also commonly used in this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Concurrent: EET 105 CMPET 117

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 211** Embedded Processors and DSP (3) Introduction to micro-controllers and embedded controllers with applications, including concepts of digital signal processing.

### CMPET 211 Embedded Processors and DSP (3)

CMPET 211 provides students with a basic understanding of microprocessors and microcontrollers with an emphasis on integrated embedded control of real world applications. The course provides a background in micro-processor/controller architecture, presents the operation and application of microcontroller peripherals, and introduces assembly language and higher level structured programming language. This can be a structured language such as C++ or PIC Basic. The intent is to introduce the students to a more powerful programming language capable of developing algorithms for embedded control of real world processes. Students will learn the analog to digital (ADC) and digital to analog (DAC) process and understand the resolution and aliasing consequences of these conversions.

With the ADC and DAC material mastered, the course will then introduce students to basic applications of Digital Signal Processing (DSP), such as digital filtering and noise reduction. Simple discrete Fourier transforms can be covered along with sampling theory and digital aliasing.

Although some of the mathematical theory underlying DSP techniques, such as Fourier and Hilbert Transforms, digital filter design and signal compression, can be fairly complex, the numerical operations required to actually implement these techniques are relatively simple and will be shown. DSP chips and applications will be covered to illustrate how to carry out such operations incredibly fast and efficiently.

Topics covered include:

- Microprocessor, microcontroller, and embedded system architecture
- Microcontroller peripherals
- Assembly Language Syntax and Programming
- Structured Programming and Algorithms
- Input and Output interfacing
- ADC and DAC conversions
- Sampling and DSP

The course will emphasize the concepts, principles, procedures, and programming models used by engineers and technologists to design, develop and implement digital control for real world instrumentation. Particular emphasis will be given to embedded controllers for process control.

Lectures will be supported by laboratory exercises in which the student will develop, assemble, download, and run programs on the target processor. Programming activities will focus on the development of algorithms for control of real world processes. Students will be required to prepare written laboratory reports outlining the program documentation. Reports will be graded based both on their technical quality and their grammatical and professionalism.

Students in CMPET 211 will be required to use computers in both class and laboratory exercises to develop and test their programs.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: CMPET 117CMPET 120

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1993

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 301** Algorithmic Processes for Electrical Systems (3) Algorithms, languages, notations and applications of object- and procedure- oriented languages to electrical and electronic problem solving.

**CMPET 301 Algorithmic Processes for Electrical Systems (3)**

Algorithmic Processes for Electrical Systems is a required course for junior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. It is essential for Electrical Engineering Technology students to acquire a working knowledge of a computer language commonly used in practice. This course will prepare the student to analyze a problem and implement a structured procedural design and also an object-oriented design. This course is a follow-up course to CMPET 005 and CMPET 211, and prepares the student for several more advanced courses in the program related to computer analysis of circuits and systems.

This course covers properties of algorithms and languages, software development process, notations for describing algorithms, applications of object- and procedure-oriented languages to electrical and electronic problem solving, high-level language programming, integrated development environment, and structured programming. Laboratory exercises parallel lecture material.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: CMPET 211  
Concurrent: MATH 141 or MATH 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 333** Computer Networking (3) Introduction to Local Area Networks (LANs) and Wide Area Networks (WANs), including transmission mediums, protocols, topologies, software, and hardware.

**CMPET 333 Computer Networking (3)**

The purpose of the course is to understand the principles of networking as applied to local area networks (LANs) and wide area networks (WANs). The students learn internetworking models such as the OSI seven-layer, Ethernet, and Cisco three-layer models. Network topologies and various connectivity devices are investigated to form networks. Cisco IOS is introduced and console port and web interfaces are used for configuring Cisco devices. Subnetting is discussed and Cisco switches and routers are used for the implementation of LANs and WANs. Various protocols such as ARP, ICMP, IP, and TCP are presented and a software protocol analyzer is utilized. Applications such as file-sharing and remote data collection are investigated. Laboratory exercises reinforce concepts developed in lecture.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: EET 212WCMPET 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 333** Computer Networking (3) Introduction to Local Area Networks (LANs) and Wide Area Networks (WANs), including transmission mediums, protocols, topologies, software, and hardware.

**CMPET 333 Computer Networking (3)**

The purpose of the course is to understand the principles of networking as applied to local area networks (LANs) and wide area networks (WANs). The students learn internetworking models such as the OSI seven-layer, Ethernet, and Cisco three-layer models. Network topologies and various connectivity devices are investigated to form networks. Cisco IOS is introduced and console port and web interfaces are used for configuring Cisco devices. Subnetting is discussed and Cisco switches and routers are used for the implementation of LANs and WANs. Various protocols such as ARP, ICMP, IP, and TCP are presented and a software protocol analyzer is utilized. Applications such as file-sharing and remote data collection are investigated. Laboratory exercises reinforce concepts developed in lecture.

General Education: None

Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: EET 212WCOMPET 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMPET 355** Intermediate Microprocessors and Microcomputers (3) Microprocessor architecture and assembly language programming. Hardware and software of basic microprocessors. Input/output structure in microcomputers.

### **COMPET 355 Intermediate Microprocessors and Microcomputers (3)**

Intermediate Microprocessors and Microcomputers is a required course for junior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. This course builds upon prerequisite digital logic, microprocessors and electronics courses. It includes microprocessor architecture and assembly language programming, hardware and software of basic microprocessors, and input/output structure in microcomputers.

The course covers a review of number systems, digital logic, computer architecture, software development process; the microcontroller, specifications, block diagrams; assembly language programming; jump, loop and call instructions; I/O port programming, addressing modes, arithmetic instructions and programs, logic instructions and programs, single-bit instructions and programs, counter/timer programming, serial communication, interrupts programming, real world interfacing, and bus interfacing to external memory. Laboratory exercises parallel lecture material.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: EET 212WCOMPET 301EET 341

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMPET 355** Intermediate Microprocessors and Microcomputers (3) Microprocessor architecture and assembly language programming. Hardware and software of basic microprocessors. Input/output structure in microcomputers.

### **COMPET 355 Intermediate Microprocessors and Microcomputers (3)**

Intermediate Microprocessors and Microcomputers is a required course for junior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. This course builds upon prerequisite digital logic, microprocessors and electronics courses. It includes microprocessor architecture and assembly language programming, hardware and software of basic microprocessors, and input/output structure in microcomputers.

The course covers a review of number systems, digital logic, computer architecture, software development process; the microcontroller, specifications, block diagrams; assembly language programming; jump, loop and call instructions; I/O port programming, addressing modes, arithmetic instructions and programs, logic instructions and programs, single-bit instructions and programs, counter/timer programming, serial communication, interrupts programming, real world interfacing, and bus interfacing to external memory. Laboratory exercises parallel lecture material.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: EET 212WCOMPET 301EET 341

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**COMPET 401** Data Communication and Networking (3) Signal representations, communication techniques, interfacing, serial and parallel communication, modems, error detection, LAN and WAN protocols.

COMPET 401

### **COMPET 401 Data Communication and Networking (3)**

This course is designed to provide the students with a foundation in signal presentation, communication techniques, serial and parallel communication, modems, and other interfacing methods. The networking technologies for local and wide area networks are also studied in detail. The range of topics covered depends on students' background. Topics: Part 1. (2 weeks) Overview: Introduction Protocols and Architecture; Part 2. (9 weeks) Data Communications: Data Transmission Media Data encoding Communication techniques Data Link Control Multiplexing; Part 3. (4 weeks) Local and Wide Area Networks: LAN and WAN protocols Switching techniques Bridges and routers High speed networks Internetworking Internet resources. This course is a required course in the Computer Engineering Technology Option of the Electrical Engineering Technology BS curriculum.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: CMPEN 271 orCMPET 117

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 402** Data Communication and Networking Laboratory (1) Network operating systems, LAN and WAN protocols, serial and parallel communications, modems, FAX, and other interfacing methods.

#### **Data Communication and Networking Laboratory (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: or concurrent: CMPET 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 403** Switching Circuit Design (4) Analysis and design of advanced combinational and sequential circuits using IC logic devices and PLD's while promoting the use of software development tools.

#### **CMPET 403 Switching Circuit Design (4)**

This course is designed to enhance students' abilities to analyze and design complex digital systems. The course will include the following topics:

1. Review of combinational circuits' analysis and design using, karnaugh maps with up to six variables and Quine-McCluskey method
2. Advanced combinational logic analysis and design with MSI logic circuits
3. Hazard in digital systems
4. Review of analysis and design of synchronous finite state machines (Moore and Mealy methodologies)
5. Synchronous sequential logic design using One-hot finite state machines
6. State reduction for completely and incompletely specified circuits/systems
7. Analysis and design of asynchronous sequential circuits/systems
8. Logic circuit testing and testable design
9. Introduction to Hardware Description Language

This course is a technical elective in the Electrical Engineering Technology BS curriculum and is intended to be taken by students who have completed their first digital systems course requirements. As such, the course integrates materials from the above undergraduate electrical course in addition to related math, engineering, and science courses. No special facilities are required for this course other than laboratories available to the Electrical Engineering Technology Program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: CMPEN 271 orCMPET 117;CMPEN 275 orCMPET 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 412** Microcomputers (4) Design, architecture, programming, and interfacing of microprocessors, enhanced by lab experiments.

#### **CMPET 412 Microcomputers (4)**

E E T 412 is an intermediate course in microprocessor architecture, programming, and interfacing. It details the inner workings of a contemporary microprocessor, including its registers, busses, external connections, instruction set, and its available support devices for memory management, data transfer, clocking and interfacing. It includes a laboratory in which students program in machine language, assembly language, and high level language. Labs also teach students to interface a microprocessor to the user keyboard, the user display, floppy and hard disk drives, and external serial and parallel devices. E E T 412 is intended as an intermediate course, offered to students who have already had some exposure to microprocessor systems, microcomputer architecture, and low-level computer programming.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: CMPEN 271 orCMPET 117;CMPEN 275 orCMPET 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 456** Advanced Microprocessors, High Level Interfacing (3) Operating systems; systems programming; high-level application programming; high-level hardware and software protocols; serial and parallel digital communications.

**CMPET 456 Advanced Microprocessors, High Level Interfacing (3)**

Advanced Microprocessors, High Level Interfacing is a required course for senior-level students pursuing the computer engineering technology (CET) option in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. Topics of this course include operating systems, systems programming, high-level application programming, high-level hardware and software protocols, serial and parallel digit communications.

The purpose of this course is to extend and augment the topics covered in the earlier computer oriented courses, and build upon the foundations established there. It covers large scale embedded systems along with the related hardware and software design considerations. It is organized around a few intensive projects that cover the breadth of the material. The need for operating systems is discussed, as well as their important features including system services, command processing, device drivers, interrupt handling, memory and device management, system libraries, dynamic linking, virtual memory, multitasking, and inter-task communication. Unique considerations of real time operating systems are reviewed, such as throughput, task blocking, semaphores and special services. The gray area between operating systems and application programming known as systems programming is addressed, including standardization, generalization, choice of language, and make-buy decision issues.

A large part of the course is spent on high-level application programming. Topics include structured programming, user-written functions, data structuring and packetizing, and use of commercial libraries and other intellectual property.

Protocols based on current technology such as EPP, RS232, RS485, IIC, DeviceNet, USB, IEEE488, IEEE1394, are covered. Binary and character-based data transfer is discussed, along with communication layers and error detection, correction, and recovery issues. Serial and parallel communication topics include analysis and evaluation of the pros and cons of each protocol, debugging, monitoring, timing, and throughput.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: CMPET 355

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPET 457 Software Engineering (3)** Application of modern techniques in software development, including program design based on new methods and tools.

**CMPET 457 Software Engineering (3)**

Software engineering is a required course for senior-level students pursuing the computer engineering technology (CET) option in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. Topics of the course include application of modern techniques in software development including program design based on current methods and tools. The purpose of this course is to stress a rigorous and systematic approach to embedded software development that represents current best practices and is widely accepted by business, industry and regulatory agencies governing embedded software. This includes proper planning and implementation.

Knowledge of generally accepted core standards and guidelines is stressed, including safety planning, hazards analysis, software management planning, requirements specification, design documents, coding, test plans, test specifications, test logs, test reports, design reviews, structured code walk-throughs, verification and validation, and reporting. The Unified Modeling Language (UML) is introduced and followed, including the components of UML, class diagrams, object diagrams, use-case diagrams, state diagrams, sequence diagrams, activity diagrams, collaboration diagrams, component diagrams, and deployment diagrams. Object oriented concepts include classes, abstraction, inheritance, polymorphism, encapsulation, message sending, associations, and aggregation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: CMPET 355

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Computer Information Systems (CINSY)**

**CINSY 446 Database Management (3)** Designed to provide students with explanation, comparison of techniques, methodology of systems, limitations, application of various database management systems.

**Database Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: 3 credits in programming

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CINSY 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Computer Science (CMPSC)**

**CMPSC 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 100** Computer Fundamentals and Applications (3) Introduction to computer fundamentals and applications to data processing environments.

#### **Computer Fundamentals and Applications (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995  
Prerequisite: 2 entrance units in mathematics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 101** (GQ) Introduction to C++ Programming (3) Properties of algorithms, languages, and notations for describing algorithms, applications of a procedure-oriented language to problem solving. A student may receive credit for only one of the following courses: CMPSC 101, 200, 201, 202, 121.

#### **Introduction to C++ Programming (3)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 2010  
Prerequisite: 2 entrance units in mathematics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 102** Introduction to Visual Programming (3) Problem solving for non-majors; high-level language programming; control structures, functions, parameters, recursion, arrays, records/ structures; verification; debugging; documentation.

#### **Introduction to Visual Programming (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: 2 entrance units in mathematics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 109** Introduction to Data Processing with COBOL (3) Study of the COBOL programming language and its applications in industry.



**CMPSC 109 Introduction to Data Processing with COBOL (3)**

CMPSC 109 is an introductory COBOL course, designed particularly for students in the Management Information Systems major at Behrend, but also appropriate for students in other Business majors and students from any major with an interest in programming in a data processing environment. The course assumes no prior study in programming.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: 3 credits of programming

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 111S** Logic for Computer Science (1) An introduction to logic and its application to problem solving and computer science.

**CMPSC 111S Logic for Computer Science (1)**

Computer Science provides the fundamental tools for analyzing problems and designing solutions to these problems which can be implemented on a computer. Logic plays an important role in this process, from a general-purpose tool for reasoning about knowledge to a special-purpose language for specifying the behavior of programs and designing hardware. This course examines the role of logic in problem solving and its application to computer science and computer engineering. Example problems will be drawn from a variety of sources, including brain teasers, puzzles, and mathematics. We will show how these problems and their solutions apply to real problems involving computers. We will also explore a number of the important areas of computer science and computer engineering including Boolean and Digital Logic, Designing Arithmetic Hardware, Cryptography and Security Programming Languages, Networking and Wireless Communication, Artificial Intelligence, and Computer Ethics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 121** (GQ) Introduction to Programming Techniques (3) Design and implementation of algorithms. Structured programming. Problem solving techniques. Introduction to a high-level language, including arrays, procedures, and recursion.

**Introduction to Programming Techniques (3)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2010

Prerequisite: MATH 110 or prerequisite or concurrent MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 122** Intermediate Programming (3) Object-oriented programming, recursion, fundamental data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), the basics of algorithmic analysis, and an introduction to the principles of language translation.

**Intermediate Programming (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 121

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 199 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 200 (GQ)** Programming for Engineers with MATLAB (3) Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, 102, 200, 201, or 202.

**CMPSC 200 Programming for Engineers with MATLAB (3)**

CMPSC 200 is a service course offered to engineering and science majors. The course teaches basic programming concepts including: algorithm development, data types, number representation, control structures, functions, plotting and basic numerical analysis techniques. The course enables students to develop computer programs in MATLAB to solve simple engineering problems. The basic numerical analysis techniques covered in the course include matrix operations, systems of equations, solving equations, roots, curve fitting, interpolation, numerical integration and ordinary differential equations.

Students analyze physics-based and engineering problems; develop algorithms to solve the problems; implement the algorithms in the MATLAB programming environment; and produce informative output in both numerical and graphical form. The general programming concepts learned in the course are commonly found in most programming language environments. The problem-solving skills learned in the course can be utilized in upper-level engineering and science courses.

The lecture portion of the course gives students the conceptual and syntactical background needed for the successful completion of practical programming assignments during the laboratory portion of the course. The laboratory instruction involves hands-on programming by individual students or student teams assisted by a teaching assistant and/or instructor.

Evaluation methods may include examinations, in-class labs, and programming projects. The course is generally held in a STEC room where each student has access to a computer. The course will be offered during the Spring semester.

General Education: GQ  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MATH 140  
Concurrent: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 201 (GQ)** Programming for Engineers with C++ (3) Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, 102, 200, 201, or 202.

**Programming for Engineers with C++ (3)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2008  
Prerequisite: MATH 140  
Concurrent: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 202 (GQ)** Programming for Engineers with FORTRAN (3) Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, 102, 200, 201, or 202.

**Programming for Engineers with FORTRAN (3)**

General Education: GQ  
Diversity: None

Bachelor of Arts: Quantification  
 Effective: Spring 2008  
 Prerequisite: MATH 140  
 Concurrent: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 203 (GQ)** Introduction to Spreadsheets and Databases (4) Design, use, and programming of spreadsheets and data bases with applications from a range of disciplines.

#### **Introduction to Spreadsheets and Databases (4)**

General Education: GQ  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Spring 2008  
 Prerequisite: 2 entrance units in mathematics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 208 (GQ)** (GAME 250) Technical Game Development (3) Introduction to the tools and techniques required to implement games in a virtual environment.

#### **CMPSC 208 (GAME 250) Technical Game Development (3)**

First, students learn about game and player elements by creating characters and objects and the means of user interactivity. Both orthographic and perspective views are introduced to assist in character design. Objects and characters are created using fundamental geometric primitives like scale, rotation, translation and extrusion. The set operations, union, intersection, and subtraction, are applied to create compound objects. Bezier and NURB curves are introduced to create objects with irregular contours. Students also learn to design graphical user interfaces (GUIs) and handle mouse and keyboard events to support user interactions.

Second, students are introduced to methods of storytelling and guide them to build narratives for games. Methods of proximity and collision detection in the environment are studied for both static and dynamic objects. Dynamic objects are programmed to move and behave in a deterministically, random, or probabilistically under a variety of lighting methods including ambient, directional, point and diffuse lights are introduced. A number of particle systems are developed with different considerations of randomness, vector direction and velocity. The concept of linear interpolation is illustrated and applied to texture mapping to improve the look and feel of objects.

Third, students are introduced to functions, propositional logic, loops, and randomness to model game behavior. Students will learn to combine a series of primitive actions into a function for control and reuse. Propositional logic will guide students to define conditions and develop game rules. Loops are introduced to simplify the implementation of repeated game behavior. Randomness enables the simulation of many life-like object movements. Students will learn and practice how to write concurrent, event drive and sequential processing algorithms for game objects.

Fourth, students are introduced to the game development process of pre-production, production and post-condition phases and have them apply it to their own project. The topic of maintenance will be introduced with an emphasis on refactoring techniques, critical to improving the quality of game and providing flexibility for future updates.

This course has a significant applied element. Game engine tools are used to develop prototypes of games and playtest them. Lab assignments are given throughout the semester and a final project requires students to demonstrate mastery of all aspects of the course.

General Education: GQ  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: MATH 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 208 (GQ)** (GAME 250) Technical Game Development (3) Introduction to the tools and techniques required to implement games in a virtual environment.

#### **CMPSC 208 (GAME 250) Technical Game Development (3)**

First, students learn about game and player elements by creating characters and objects and the means of user interactivity. Both orthographic and perspective views are introduced to assist in character design. Objects and characters are created using fundamental geometric primitives like scale, rotation, translation and extrusion. The set operations, union, intersection, and subtraction, are applied to create compound objects. Bezier and NURB curves are introduced to create objects with irregular contours. Students also learn to design graphical user interfaces (GUIs) and handle mouse and keyboard events to support user interactions.

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This course has a significant applied element. Game engine tools are used to develop prototypes of games and playtest them. Lab assignments are given throughout the semester and a final project requires students to demonstrate mastery of all aspects of the course.

General Education: GQ

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MATH 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 221** Object Oriented Programming with Web-Based Applications (3) This course will continue with object-oriented programming and will introduce graphics, virtual machines, programming language concepts and web-based programming using Java.

### **CMPSC 221 Object Oriented Programming with Web-Based Applications (3)**

CMPSC 221 introduces graphics, virtual machines, programming language concepts and web-based programming using Java. Topics include object oriented design, event-handling methods, Web technologies, virtual machines, graphical user interfaces, API programming. This course uses Java as the object oriented computer language to complement the C++ computer language from the previous programming course in preparing computer science and computer engineering majors to meet immediate demands in solving computational problems.

CMPSC 221 is the third course in a 3-course uninterrupted programming sequence. This course extends the understanding of basic paradigms and concepts in computer science and computer engineering with a second course of object oriented design, classes and subclasses. Web technologies, client-server computing, common gateway interface (CGI) programs, client-side scripts, and Java applets are just a few of the concepts presented in the third course that stresses the principles of graphical user interfaces (GUI). The 3-course programming sequence reinforces fundamental, intermediate and advanced levels of sophistication in both C++ classes and Java classes with GUI in the third course of the uninterrupted programming sequence.

CMPSC 221 develops web-based object oriented programming and design including the concepts of net-centric computing. CMPSC 221 includes the concepts of a virtual machine and intermediate code generation (Java-specific). The course covers the creation of a program employing (GUI) user interface features: text box, list box, radio buttons, and check boxes to name a few. Another program to be written is a server-side program which will translate a client request into a database query, execute it, and resultant data. Other topics cover issues of security, permissions and file management with regard to a client/server system.

CMPSC 221 programming assignments in Java requires an understanding of the entire process of client/server development. A small-group semester project must be successfully completed within time-lines by following these steps: interface prototyping, program design, implementation of both client and server programs, unit testing, and documentation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 122

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 297A** Developing .NET Solutions With Visual Basic.NET (1) Students will learn the basic of the VB.NET programming language. Topics include the .NET Framework, understanding the VB.NET language and syntax, an introduction to Object-Oriented Design and Programming for VB.NET, Windows Forms, and debugging and deploying VB.NET applications.

#### **Developing .NET Solutions With Visual Basic.NET (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 297B** Developing .NET Solutions with C# (1) Learn the basics of the C# programming language. Topics include the .NET Framework, understanding the C# language and syntax, an introduction to Object-Oriented Design and Programming for C#, Windows Forms, and debugging and deploying C# applications.

#### **Developing .NET Solutions with C# (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 302** Intermediate Visual Programming (3) OO programming, visual programming, classes, objects, ADTs, inheritance, recursion, regular expressions, user-defined controls, documentation, testing, verification, productivity tools.

### **CMPSC 302 Intermediate Visual Programming (3)**

This course forms the second of a two course sequence of courses for non-major students. It is designed to build upon concepts and skills presented in the first course, CMPSC 102, with the intent of enabling the student to develop larger scale programs and interface with databases and Web servers using a visual programming language. Some of the topics covered in this course will be object-oriented programming, inheritance, string manipulation, regular expressions, creating custom controls, creating controls dynamically, interfacing with databases and using an appropriate platform, such as ASPX.net to create web pages.

This course forms the second of a two course sequence of courses for non-major students. It covers advanced features of the target language, building larger scale programs and interfaces to databases and web servers. It builds on the skills covered in CMPSC-102 and introduces creating new controls, dynamically placing controls at run time, arrays and lists of controls, the use of regular expressions, more in-depth treatment of classes and objects, including inheritance and polymorphism, multi-dimensional arrays, lists, unit testing and project deployment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: CMPSC 102 or CMPSC 121

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 311** Introduction to Systems Programming (3) Unix system programming in C; organization of programs and data; program analysis and support tools; software standards; common system functions.

### **CMPSC 311 Introduction to Systems Programming (3)**

System Programming concerns the development of software components and methods for their combination, independent of any particular application. This course will provide information and experience required to understand, design and implement components of large software systems.

In general, students should be able to evaluate design alternatives according to standard practice, specifications, performance analysis, robustness, etc. To concentrate attention, we investigate one system and one programming language in detail, through demonstration programs, short- and long-term programming assignments. The specific system is Unix, a family of operating systems forming a complete standardized programming environment based on the idea of software tools. The specific language is C, which is widely used for operating system implementations, and which forms the basis for the C++ and Java languages studied in the prerequisite courses. This will help students understand operating system services available to application programmers, and provide a firm ground for study of operating systems in general.

There are several themes of the course:

(1) Understand computer systems, especially low-level influences on high-level goals. This includes the machine-level representation of programs and data structures; the memory hierarchy and its impact on performance; access to stored information via file systems, and access to other computer systems via networks.

(2) Understand existing system software and software standards, especially the UNIX toolset. This includes preparing a program (editors, static analysis, development environments); running a program (compilers and interpreters, assembler, linker, loader, debugger, profiler, tracer); controlling parts of a program (memory management, threads); communication between programs (within one system using signals, between systems using sockets and communication protocols); and combinations of software tools with scripting languages.

(3) Understand "real code", such as selections from the Linux operating system kernel and GNU utilities and libraries, and through comparative selections from Solaris, Linux, and Mac OS X.

(4) Understand system performance, including experiments on program performance and optimization techniques.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 312** Computer Organization and Architecture (3) Data representation, digital logic, instruction set/control logic, machine/ assembly languages, advanced architectures, memory hierarchy, I/O devices, overall system design.

### **Computer Organization and Architecture (3)**

General Education: None

Diversity: None

Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: CMPSC 121 or equivalent

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 313 Assembly Language Programming (3)** Program design, addressing modes, subroutines, parameter passing, stacks, bit manipulation, text processing, DOS functions, macros, I/O, high level language interfaces.

### **CMPSC 313 Assembly Language Programming (3)**

This is a course in assembly language programming for IBM PCs and compatibles. Students will gain experience writing efficient, well-documented programs that are easily maintained. The course investigates the architecture and instruction set of a typical microcomputer based on the Intel 80x86 microprocessors. Topics include the basic structure of computers, the internal behavior of computers, program design, testing, debugging, machine architecture, addressing, BCD and binary arithmetic, subroutines and parameter passing, stacks, text processing, bit manipulation, DOS functions, macros, I/O routines, high level language interfaces and the assembly process.

This course is important because assembly language is often used in programs where small size or fast execution is critical. Knowledge of assembly language is also useful in debugging programs written in high level languages. It also helps bridge the gap between hardware and high level languages.

After successfully completing CMPSC 313, the student should be able to: explain the 80x86 architecture, including registers and segment:offset addressing; describe different ways data are represented in a computer and work with binary and hexadecimal numbers; describe the functions of an assembler; implement program designs in 80x86 assembly language, including: writing, documenting, testing and debugging a program in PC assembly language; manipulating strings; coding basic algorithms such as searching and sorting in assembly language; calling and passing parameters to subroutines; utilizing DOS functions; and interfacing with a high level language; explain how the underlying hardware affects software design and performance; appreciate the factors that contribute to program efficiency.

Students will be evaluated on homework (35% of grade), semester exams (35%), and a final comprehensive exam (30%).

The major only requires that a student have experience with assembly language programming. This course is intended for students who have not had any experience with assembly language programming before entering the program. It will also serve as an elective. The material learned in this course is beneficial in understanding concepts in the required courses CMPSC 422, CMPSC 472, and CMPSC 460, as well as in the elective courses CMPSC 428 and CMPSC 470.

No special facilities are required for this course. The software necessary is available in the computer labs or for students to use at home. This course will be offered once per year, with an expected enrollment of 55.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: CMPSC 312

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 335 Fundamentals of Communication Networks (3)** Introduction to the composition of communication networks, including trans- mission mediums and protocols, transfer methods, topologies and software, and communications hardware.

### **Fundamentals of Communication Networks (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: 3 credits of programming

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 360 Discrete Mathematics for Computer Science (3)** Discrete mathematics and foundations for modern computer science. Topics include sets, relations, logic, algorithms, graphs, finite state machines and regular expressions.

### **Discrete Mathematics for Computer Science (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008

Concurrent: CMPSC 122

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or

internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 402** UNIX and C (3) UNIX OS including file system, utilities, and shell scripting; C programming, including I/O, pointers, arrays, dynamic memory, macros, and libraries.

**CMPSC 402 Unix and C (3)**

The primary goal of the course is to provide students with sufficient information to enable them to write structured and readable C programs for realistic applications. In particular, after completing the course students should be familiar with and be able to use pointers and dynamic memory management techniques.

A secondary goal is for the students to be fluent in using the Unix operating system, particularly those parts needed for program development.

Students will be evaluated on midterm and final exams, and four to five problem sets. The exams will be worth 50% of the total grade and the problem sets will be worth the remaining 50%.

This course is an elective in the computer science (COMP) BS program. Students in other programs generally use it as an elective. Students cannot take this course after having taken CMPSC 422.

No special Facilities, are needed for this course. The course will usually be offered once a year with an expected enrollment of 30-40.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: CMPSC 121

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 412** Data Structures Lab (1.5) Programming with common data structures; recursion; stacks, queues, dictionaries, priority queues; string searching and manipulation; sorting; trees; combinatorics.

**Data Structures Lab (1.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013

Concurrent: CMPSC 462 or CMPSC 465



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 413 Algorithms Lab (1.5)** Programming with common algorithm design techniques; divide and conquer, greedy method, dynamic programming, and tree and graph traversals.

**Algorithms Lab (1.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

Concurrent: CMPSC 463

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 421 Net-centric Computing (3)** This course introduces JavaScript and AJAX for creating Rich Internet Applications, and XML for client-server communication and Web Services.

**CMPSC 421 Net-centric Computing (3)**

This course will build on the client-server computing concepts and techniques that students learned about in prerequisite courses. The goal of the course is to introduce students to the most significant and fundamental of those technologies that are used in the computing paradigm known by a number of terms including "Net-centric", "Web 2", and "cloud" computing.

On the client: We will use Dynamic XHTML, Cascading Style Sheets, JavaScript and AJAX to develop the client side of Rich Internet (or Web) Applications.

For client-server-communication: We will learn how to create and validate XML documents and use these as the primary language for transmission of data from the server to the client. We will also consider how JavaScript Object Notation (JSON) can sometimes be used as a viable alternative to XML for server to client data transmission.

On the server: We will learn about a variety of server-side technologies for consuming, storing, transforming, and generating content. We will use the three main types of XML parsers to consume, transform, and generate XML; we will use XSL and XPath to style and transform XML; we will use XML binding tools to convert XML to and from classes (in some high-level language); we will use Data Access Objects and object-relational mapping tools for data persistence. We will learn how servers use Web services and RSS feeds to provide XML structured content, and we will consume existing Web services and RSS feeds and produce simple Web services.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: CMPSC 221 or SWENG 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 426 Object-oriented Design (3)** Object-oriented analysis and design; design patterns such as creational, structural, and behavioral patterns; UML; and unified process.

**CMPSC 426 Object-Oriented Design (3)**

The primary goal of this course is to study the object-oriented design paradigm, including modeling languages, classes and objects, the inheritance relationship, polymorphism, and software engineering topics relating to object-oriented design. Study of this topic should provide a solid understanding of object-orientation for students to use in studying diverse topics such as operating systems, software engineering, and database design. This course is an elective for students in the BS COMP program. The course builds on topics learned in earlier object-oriented programming courses.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: CMPSC 221 CMPSC 462

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 428 Programming in Ada (3)** Structured program design using Ada; strong typing, data abstraction, packages, subprograms, separate compilation, visibility, exceptions, generic units.

**CMPSC 428 Introductory Ada and Program Design (3)**

Ada is a modern language with a broad field of use, appropriate for both technical and administrative applications. Ada is also a standardized language with strong support internationally; most other languages are found in different versions and dialects for different computers. Excellent programming craftsmanship depends on excellent tools, and the programmer's most important tool is the programming language used. Students should find Ada to be an extremely good programming environment and should discover that developing and implementing object-oriented programs in such a rich language provides benefits that will carry well into their careers.

After successfully completing CMPSC 428, the student should be able to: use Ada to develop programs, from the initial problem statement to the final implementation, using top-down design and structured programming principles; test programs written in Ada; use appropriate data structures and language constructs when developing programs written in Ada; use operators, operands, expressions, and statements in the development of Ada programs; use the various control structures inherent in the Ada language; use the data types inherent in the Ada language; create generic types, subprograms, and packages; create and use complex data types; describe the software engineering goals of understandability, modifiability, reliability, efficiency, and portability; describe the software engineering concepts of data abstraction, modularity, information hiding, and completeness; implement exception handling in Ada programs; develop concurrent programs in Ada using multiple tasks.

Students will be evaluated on homework (35% of grade), semester exams (35%), and a final comprehensive exam (30%).

This course is an elective in the computer science (COMP) BS curriculum. This course is intended for juniors or seniors. The material learned in this course is beneficial in understanding programming concepts covered in the required courses CMPSC 462, CMPSC 460 and CMPSC 422, as well as in the elective course CMPSC 470. This course is also a prerequisite for the elective course CMPSC 429.

No special facilities are required for this course. The software necessary is available in the computer labs or for students to use at home. This course will be offered once per year, with an expected enrollment of 40.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: CMPSC 121

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 430 Database Design (3)** Relational database model, query languages, integrity, reliability, normal forms for design.

### **CMPSC 430 Database Design I (3)**

The main goal of this course is to explore the relational database model, with special emphasis on the design and querying of relational databases. Secondary goals include exploration of the mathematical basis for relational databases and exploration of the relationship of database to the rest of computer science. Study of these topics should improve student skills in programming, modeling the structure of data and using and administering databases.

Grades will be based on midterm and final exams totaling 250 points, and 10 - 12 homework assignments totaling approximately 200 points. Grades will be based directly on percentage of the total points received from those listed.

This course is an elective for students in the BS COMP program and is required for admission into the MS COMP program. The course builds on concepts learned in earlier programming, data structure and discrete mathematics courses.

No special facilities are required for this course. This course will be offered once per year, with an expected enrollment of 60 - 70 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: CMPSC 462

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 431W Database Management Systems (3)** Topics include: conceptual data modeling, relational data model, relational query languages, schema normalization, database/Internet applications, and database system issues.

### **Database Management Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: CMPSC 221;ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 436 Communications and Networking (3)** Data transmission, basic signaling, data encoding, error control, communication protocols, security, network topologies, routing, switching, internetworking, emerging high speed

networks.

### **CMPSC 436 Communications and Networking (3)**

This course introduces the elements and architecture of computer and data communication networks, demonstrates the fundamental principles of computer networking, and provides experience in the practical use of current networking technology. Topics in this course include: data communications (basic signaling, data transmission, data encoding, errors and error control), communications architecture and protocols (communication protocols, internetworking, transport protocols, layered network architecture, network security) and computer networks (WANs, LANs, network topologies, internetworking, routing and switching strategies and emerging high speed networks).

After taking CMPSC 436, students should be able to:

- 1) understand the fundamentals of networking concepts and terminology
- 2) define and contrast the classifications local area network (LAN), metropolitan area network (MAN), and wide area network (WAN)
- 3) name and describe basic networking elements
- 4) define the roles of clients, servers, and peers as they relate to computer networks
- 5) define the term "protocol" and explain how it relates to computer networks
- 6) identify specific network management areas and describe the organizational issues relating to each of them

Students will be evaluated on homework (35% of grade), semester exams (35%), and a final comprehensive exam (30%).

This course is an elective in the computer science (COMP) BS curriculum. This course is intended to be taken by second semester juniors or seniors.

No special facilities are required for this course. This course will be offered once per year, with an expected enrollment of 60.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: CMPSC 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 438 Computer Network Architecture and Programming (3)** Network architectures, communication protocols, internetworking, network security, client-server computing, web application development, programming with APIs.

### **CMPSC 448 Machine Learning and Algorithmic AI (3)**

Machine learning and artificial intelligence are closely-related branches of computer science that deal with the development of software that can "learn" how to perform useful tasks from prior data. Machine learning is mostly concerned with inferring trends from data in order to use them for future predictions. Artificial intelligence is mostly concerned about how to use knowledge gained from previous data to achieve specific goals.

This course provides an introduction to important concepts in machine learning and artificial intelligence, as well as probabilistic and mathematical tools needed for applications of technology from both fields. Students will learn about important models and algorithmic frameworks used in machine learning such as linear models, neural networks, decision trees, support vector machines, k-nearest neighbor, adaboost, k-means clustering, and agglomerative clustering as well as methods for evaluating and tuning these models. Students will also learn about key artificial intelligence concepts such as A\* search and reinforcement learning which are used by software agents (such as game AI's) to navigate and explore their environment.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014  
 Prerequisite: CMPSC 221CMPSC 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 441 Artificial Intelligence (3)** Problem solving, search techniques including local search and genetic algorithms, knowledge representation, planning, learning, and neural networks.

### **CMPSC 441 Artificial Intelligence (3)**

The primary goals of this course are (1) to provide the students with an introduction to Artificial Intelligence concentrating on some fundamental areas of AI, and (2) to provide the students with a working knowledge of LISP so that they can investigate some basic problems in AI using LISP as a vehicle language.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: CMPSC 122CMPSC 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 442** Artificial Intelligence (3) Introduction to the theory, research paradigms, implementation techniques, and philosophies of artificial intelligence.

### **Artificial Intelligence (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 122 or equivalent  
Concurrent: CMPSC 465

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 443** Introduction to Computer and Network Security (3) Introduction to theory and practice of computer security with an emphasis on Internet and operating system applications.

### **Introduction to Computer and Network Security (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 473CMPEN 362

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 444** Secure Programming (3) Secure software design principles/practice, common threats, applied cryptography, trust management, input validation, OS-/programming language- specific issues, software validation.

### **CMPSC 444 Secure Programming (3)**

This course presents an overview of the principles and practice of secure software design. The course begins with a presentation of overarching principles of secure software development that enable the design, implementation, and testing of secure systems that can withstand attacks. These principles and strategies for realizing them will be illustrated through an analysis of common security issues and pitfalls in the software development process. The course will cover a variety of programming languages including C/C++, Java, and scripting languages; different classes of systems including standalone applications, client/server systems, and peer-to-peer applications; and development issues specific to different operating systems. Students will develop and analyze programs that demonstrate security principles, strategies, coding techniques, and the use of tools that can help make code more resistant to attacks.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: CMPSC 221  
Concurrent: CMPSC 430 or CMPSC 431 or CMPSC 421W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 448** Machine Learning and Algorithmic AI (3) Evaluation and use of machine learning models; algorithmic elements of artificial intelligence.

### **Machine Learning and Algorithmic AI (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: STAT 319 or STAT 415 and CMPSC 122 or prior programming experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 450** Concurrent Scientific Programming (3) Problems of synchronization, concurrent execution, and their solution techniques. Design and implementation of concurrent software in a distributed system.

**Concurrent Scientific Programming (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 121CMPSC 201 orCMPSC 202;MATH 220;MATH 230 orMATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 451** (MATH 451) Numerical Computations (3) Algorithms for interpolation, approximation, integration, nonlinear equations, linear systems, fast FOURIER transform, and differential equations emphasizing computational properties and implementation. Students may take only one course for credit from CSE/MATH 451 and CSE/MATH 455.

**Numerical Computations (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: 3 credits of programming;MATH 230 orMATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 452** Numerical Analysis (3) Algorithm efficiency and accuracy, function interpolation and polynomial approximation, numerical differentiation and integration, initial-value problems, and approximation of eigenvalues.

**CMPSC 452 Numerical Analysis I (3)**

General principles for evaluating the accuracy and efficiency of floating point algorithms; methods for solving single equations and systems of linear equations, function interpolation and polynomial approximation, numerical differentiation and integration, initial-value problems, approximation of eigenvalues.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: MATH 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 455** (MATH 455) Introduction to Numerical Analysis I (3) Floating point computation, numerical rootfinding, interpolation, numerical quadrature, direct methods for linear systems. Students may take only one course for credit from CMPSC (MATH) 451 and CMPSC (MATH) 455.

**Introduction to Numerical Analysis I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MATH 220;MATH 230 orMATH 231 ; and 3 credits of programming

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 456** (MATH 456) Introduction to Numerical Analysis II (3) Polynomials and piecewise polynomial approximation; matrix least square problems; numerical solution of eigenvalue problems; numerical solutions of ordinary differential equations.

**Introduction to Numerical Analysis II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 455

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 457** Computer Graphics Algorithms (3) Graphics systems/hardware, color models, transformations, projections, clipping, hidden line/surface removal, aliasing, parametric curves/surfaces, 3D modeling animation.

**CMPSC 457 Computer Graphics Algorithms I (3)**

Concepts and techniques needed to draw geometrical objects with a discrete device: Coordinate systems, clipping, curves and regions, geometric transformations, parallel and projective projections, hidden line and surface removal, animation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: CMPSC 122;MATH 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 458** Fundamentals of Computer Graphics (3) Fundamentals of computer graphics: input/output devices, transformation, projection, clipping, hidden line/surface elimination.

### **Fundamentals of Computer Graphics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 311;MATH 220;MATH 230 orMATH 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 459** Scientific Visualization (3) Visualization techniques for data analysis and presentation. Applying visualization and perceptual theory. Using extending platform independent visualization software.

### **CMPSC 459 Scientific Visualization (3)**

Visualization of scientific data and processes has always been important for gaining insights into scientific phenomena. Historically, such visualization has taken place in the scientist's imagination and was then rendered in drawings, graphs and diagrams. The rapid advance of computer technology, and in particular, computer graphics, has made new tools available to the scientist to aid in the interpretation and communication of scientific information. In this course students will study a variety of computer graphics, scientific visualization, and virtual reality techniques and apply them to scientific visualization projects. The projects will be drawn from all of the sciences and the resulting projects will then be available to faculty and students to use as tools in their disciplines.

The prerequisites for this course are CMPSC 122. Students will apply the writing skills gained in ENGL 202C and refine them in the context of scientific writing. They will also have the opportunity to apply the knowledge and skills gained in CMPBD 360 and its predecessors, CSE 103 and CSE 120 within the context of a significant natural science or mathematical visualization problem. Software and languages used in this course will change as the discipline of scientific visualization evolves. Currently, programming will be done in C++ and Java; VRML and other virtual reality languages, and scientific specialty languages such as IDL, muPad, xpp, Mathematica, Maple, etc. Projects initiated in this course can form the basis for further development as a 494 research project.

The course will take advantage of a variety of computing platforms available at Behrend including Windows NT and Unix.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 122

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 460** Principles of Programming Languages (3) Design and implementation of high level programming languages and survey of language paradigms including imperative, functional, and object-oriented programming.

### **CMPSC 460 Principles of Programming Languages (3)**

The primary topics of this course include run-time systems for imperative programming languages and aspects of the object-oriented, functional and declarative paradigms that have applications in industrial software development. Study of these topics should improve student skills in programming, debugging and problem solving.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: CMPSC 312;CMPSC 462  
Concurrent: CMPSC 469

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 461** Programming Language Concepts (3) Fundamental concepts of programming language design, specifications,

and implementation; programming language paradigms and features; program verification.

### **Programming Language Concepts (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 221;CMPSC 360

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 462 Data Structures (3)** In-depth theoretical study of data structures such as balanced trees, hash tables, priority queues, B-trees, binomial heaps, and Fibonacci heaps.

### **CMPSC 462 Data Structures (3)**

The primary goals of this course are (1) to provide the students with a set of basic data structures useful in the design of efficient algorithms, and (2) to provide the students with the ability to design and analyze new data structures as needed to solve problems. The secondary goal of this course is to introduce basic algorithm analysis techniques to prepare the students for the follow up course CMPSC 463, Design and Analysis of Algorithms. This is a required course in the BS COMP program. It is also a prerequisite for a number of other courses in the COMP program such CMPSC 463, 460, 430, etc.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: CMPSC 360

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 463 Design and Analysis of Algorithms (3)** Recurrences, algorithms design techniques, searching, sorting, selection, graph algorithms, NP-completeness, approximation algorithms, local optimization algorithms.

### **CMPSC 463 Design and Analysis of Algorithms (3)**

The primary goals of this course are (1) to provide the students with fundamental techniques for designing and analyzing algorithms, and (2) to introduce some techniques for dealing with inherently intractable problems. This is a required course in the BS COMP program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: CMPSC 462

Concurrent: MATH 318 STAT 301 or STAT 318

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 464 Introduction to the Theory of Computation (3)** Computability/Complexity: finite automata, regular & context-free languages, Turing machines, Church-Turing Thesis, undecidability, reducibility, completeness, time/space complexity, P versus NP.

### **CMPSC 464 Introduction to the Theory and Computation (3)**

CMPSC 464 introduces students to an essential part of theoretical computer science: how to define abstract mathematical models of computational devices (automata), how to characterize their computational power by studying the family of languages that they can recognize (formal languages), and what the limitations of even the most powerful computational devices are (computability). The course studies regular languages by means of deterministic and nondeterministic finite-state automata and regular expressions; it studies context-free languages through the use of context-free grammars and pushdown automata; and it studies computability by means of Turing machines and recursive and recursively-enumerable languages. The unsolvability of the halting problem for Turing machines is proved by a diagonalization argument, and this result is then used to show that various problems about languages are unsolvable, such as the problem of determining whether two context-free grammars generate the same language.

Finally, the concept of computational complexity is introduced, and the classes P and NP are defined. (Informally, the former class consists of problems that can be solved computationally in a manageable amount of time, and the latter consists of problems for which a proposed solution can be verified in a manageable amount of time.) The concept of an NP-complete problem is defined, and some specific problems are proved to be values to the variable of a Boolean formula that will make the formula true).

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: CMPSC 465

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 465** Data Structures and Algorithms (3) Fundamental concepts of computer science: data structures, analysis of algorithms, recursion, trees, sets, graphs, sorting.

### **Data Structures and Algorithms (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: CMPSC 122;CMPSC 360 orMATH 311W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 467** (MATH 467) Factorization and Primality Testing (3) Prime sieves, factoring, computer numeration systems, congruences, multiplicative functions, primitive roots, cryptography, quadratic residues. Students who have passed MATH 465 may not schedule this course.

### **Factorization and Primality Testing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 360 orMATH 311W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 469** Formal Languages with Applications (3) Regular, context free, recursive, and recursively enumerable languages; associated machine models; applications.

### **CMPSC 469 Formal Languages with Applications (3)**

The primary goal of this course is to explore formal language theory, including regular, context free and recursively enumerable languages. Notations for specifying these languages (regular expressions, finite automata, context free grammars and turing machines) are emphasized. Applications of these languages, including pattern recognition, scanning, parsing, specification of programming language syntax and Unix shell programming, are also discussed. Study of these topics should provide a solid theoretical basis for students to draw on in studying diverse areas such as algorithm analysis, complexity theory and compiler construction.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: CMPSC 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 470** Compiler Construction (3) Compiler design and implementation; scanning, parsing, semantic analysis, optimization (including static analysis), code generation, garbage collection, and error detection.

### **CMPSC 470 Compiler Construction (3)**

The primary topics of this course are areas of compiler construction that are applicable both in building compilers and in many other areas of computer science. Both the concepts and the implementation of these techniques will be emphasized. Study of these topics should improve student skills in programming, debugging and software engineering. This course is an elective for students in both the BS COMP and MS COMP programs. The course builds on concepts learned in earlier programming, data structure and computer organization courses.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: CMPSC 221CMPSC 312CMPSC 462CMPSC 469

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**CMPSC 471** Introduction to Compiler Construction (3) Design and implementation of compilers; lexical analysis, parsing, semantic actions, optimization, and code generation.

**Introduction to Compiler Construction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 461

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 472** Operating System Concepts (3) Theoretical and practical issues of operating systems design and implementation, process management, concurrent programming, memory management, scheduling, I/O, and security.

**CMPSC 472 Operating Systems Concepts (3)**

A course on operating systems is an essential part of a computer science education. This course is intended as an introduction to study the concepts, structure and mechanisms that underlie operating systems. A tremendous range and variety of computer systems exist for which operating systems are designed. Rather than focus on individual operating systems, this course discusses the key mechanisms of modern operating systems, the types of design trade-offs and decisions involved in operating system design and the context within which the operating system functions.

After completing CMPSC 472 the student should be able to:

- (1) describe and understand the four major components of an operating system: process management (including synchronization, scheduling, mutual exclusion, deadlocks and concurrency), input/output (including disk scheduling and disk I/O), memory management (including virtual memory, paging, segmentation and addressing) and management of the file systems
- (2) describe and understand how a centralized operating system functions
- (3) describe and understand the various components of an operating system
- (4) describe the various goals of protection and the security problem in general
- (5) compare centralized operating systems with distributed operating systems

Students will be evaluated on homework (35% of grade), semester exams (35%), and a final comprehensive exam (30%).

This course is required in the computer science (COMP) BS curriculum. It is intended for seniors to take this course in their fall semester. This course is also an admission requirement for the (COMP) MS program.

No special facilities are required for this course. The software necessary is available in the computer labs or for students to use at home. This course will be offered once per year, with an expected enrollment of 80.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: CMPSC 312;CMPSC 462

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 473** Operating Systems Design & Construction (3) Design and implementation of computer operating systems; management of various system resources: processes, memory, processors, files, input/output devices.

**Operating Systems Design & Construction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 311;CMPEN 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 474** Operating System & Systems Programming (3) Operating Systems overview and principles; processes and signals; concurrency and synchronization; memory and file management; client-server computing; scripts; systems-programming.

**Operating System & Systems Programming (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 122;CMPSC 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 475** Applications Programming (3) Development of software for devices including smart phones, tablets, handheld units, and other general purpose computing platforms.

**Applications Programming (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: CMPSC 221;CMPSC 311 orCMPSC 312 'CMPSC 462 orCMPSC 465

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 479** Language Translation (3) Design and implementation of compilers, lexical analysis, syntax/semantic analysis, optimization, and code generation.

**Language Translation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 465

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 483W** Software Design Methods (3) Applications of scientific knowledge and methods in the design and construction of computer software using engineering concepts.

**Software Design Methods (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 221;CMPSC 465;ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 484** Computer Science Senior Project I (2) Computer science capstone project with documentation emphasis.

**CMPSC 484 Computer Science Senior Project I (2)**

This course is phase one preparation for completing a design for a project to serve as the capstone to the computer science degree program. The course provides instruction and specification of a simulated real-world work environment and associated activities to employ and integrate computer science concepts. Technical instruction and delivered products will be required.

Students enrolled in the program will: 1) produce a design for a significant senior project using a cooperative, team approach, 2) present concepts, progress, and products to and interact with peer and faculty review boards. The course will: 1) provide the student with an opportunity to work in a team environment designed around sound development practice, 2) present to students current team organization and management techniques, 3) describe various forms of written communication targeted to different audiences, and 4) reinforce the technical knowledge attained through the computer science curriculum.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: ENGL 202C;CMPSC 221;CMPSC 465

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 485W** Computer Science Senior Project II (3) Computer science capstone project with documentation emphasis.

**Computer Science Senior Project II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 484

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 487W** Software Engineering and Design (3) Software development process, life cycle; requirements analysis, specification, design, prototyping, testing, project management, and documentation.

### **CMPSC 487W Software Engineering and Design (3)**

The primary goal of this course is to familiarize students with the wide variety of techniques and methodologies used in software engineering to assist in the development of large software systems. Issues discussed include the human factors involved in developing software, models of the software development process, the use of formal methods in software engineering, software validation and verification, and software maintenance.

A second goal is to help students understand the importance of written communication in software engineering, and to provide opportunities for students to improve the quality of their writing - specifically in describing software systems. The primary means of accomplishing this goal is a semester long project in which students write requirements for a large software system. In writing these requirements, students describe the system for non-technical readers (clients and users) and specify it for technical readers (other system developers).

A final goal is to emphasize the role of teams in software development. Modern software systems are simply too large to reasonably be produced by one person, so the ability to work as part of a team is vital. To support achieving this goal, techniques and tools for working in groups are discussed in the course, and students work on the semester project in teams.

This course is a required course in the computer science (COMP) BS curriculum, and is intended to be taken by seniors as the capstone course for the major. As such, the course integrates material from many (potentially all) of the undergraduate computer science courses. This course is also available as an elective for students in the MS COMP program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: ENGL 202CCMPSC 221CMPSC 462

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 488** Computer Science Project (3) Project design and implementation with an emphasis on team work, documentation, and the employment and integration of computer science concepts.

### **CMPSC 488 Computer Science Project (3)**

This class provides a hands-on experience designing and developing a real-world software system. The course will emphasize collaboration and teamwork to employ and integrate computer science concepts. Students will work on a project that will serve as the capstone to the computer science degree program. Technical instruction, research, software implementation and delivered products will be required.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: CMPSC 487W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 494H** Senior Honors Thesis (1-6) Supervised Honors thesis research in computer science and engineering.

### **Senior Honors Thesis (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: approval of a thesis adviser in the department

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experience, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 497A** Game Development with HTML 5 (3) Game design of 2D assets using HTML 5, with the specific intention of creating games for mobile applications.

#### **Game Development with HTML 5 (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: CMPSC 121

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 497B** Big Data Analytics (3) The ease of large-scale data collection is driving commercial interest in distributed processing algorithms for performing various analytic tasks. In this course we will take an in-depth look at MapReduce (and related programming models) with applications to processing text data such as Tweets and also an emphasis on graph data. The course will be graded based on projects, class participation, and exams.

#### **Big Data Analytics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: CMPSC 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 497C** Cyber Security Contest Problem Practice (1-6) Students will learn about common offensive and defensive cyber security strategies. They will apply these strategies to solve scenarios created by the instructor.

#### **Cyber Security Contest Problem Practice (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: CMPSC 122

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 497D** Hands-on Experience on Programming Manycores (3) This course focuses on programming emerging manycore architectures. Specifically, we will focus on Intel Xeon Phi and NVIDIA Kepler, and the students will optimize (in

a collaborative fashion) two large scale parallel applications from the parallelism, data locality and energy angles.

### **Hands-on Experience on Programming Manycores (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CMPSC 461

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 497F** Introduction to Bioinformatics (3) This course will introduce the biological problems and computational solutions that motivate computational biology. Topics will be organized around the three main themes: 1) Genomes, including assembly and annotation of genomic sequences; 2) Evolution, including reconstructing evolutionary relationships, personal genomics, and detecting disease associated traits; and 3) Function, including analysis of functional genomics experimental assays and regulatory relationships between genes. We welcome participation from students majoring in BMB, CMPSC, and other disciplines, and therefore lecture material will not assume prior knowledge of biological or computational topics.

### **Introduction to Bioinformatics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CMPSC 499 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Corporate Communication (CC)**

**CC 401** Corporate, Non-Profit, and Government Public Relations (3) Explores issues affecting profit and non-profit public relations, including crisis management, consumer and employee affairs, environmental problems and global concerns.

### **CC 401 Corporate, Non-Profit, and Government Public Relations (3)**

This course examines closely the function of public relations in all three settings and allows students practice by exposing them to simulations, case studies, and a public relations consulting project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: MKTG 310 and sixth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CC 402** The Media and Public Relations (3) Publicity strategies involving a variety of media resources.

**CC 402 Media Relations (3)**

This course focuses on understanding the different requirements, styles, and techniques of various media and on writing and preparing public relations materials for the media.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: MKTG 310 and sixth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CC 403W Studies in Public Relations (3)** Capstone course for the major in Corporate Communication; focuses on case studies in public relations: problems and solutions.

**CC 403W Studies in Public Relations (3)**

This is the capstone course in Corporate Communication that develops students' abilities to analyze public relations situations, to devise strategies to accomplish the organization's goals, and to write materials effectively in a variety of situations for many audiences.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: MKTG 310 and sixth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CC 495A Internship in Corporate Communication (3)** Internship in a business or agency appropriate for a major in Corporate Communication.

**CC 495A Internship in Corporate Communication (3)**

Communications experience in businesses or agencies that may include activities in writing, media production, planning, public relations, advertising, employee relations, or training.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: MKTG 310 and sixth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Counseling Psychology (CNPSY)

**CNPSY 254 (US) Understanding Discrimination: An Educational and Employment Perspective (3)** Study of the effects of educational and employment discrimination on United States social groups/identities.

**CNPSY 254 Understanding Discrimination: An Educational and Employment Perspective (3) (US)**

This is an undergraduate course designed to acquaint class participants with discrimination that is present in the United States, particularly as it relates to employment and education, and to provide participants with experiential and skill building activities that will allow them to serve as social justice allies for members of these populations.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CNPSY 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CNPSY 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CNPSY 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Counselor Education (CN ED)**

**CN ED 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 100** Effective Career Decision-Making (3) Examination of internal and external factors that contribute to career development to assist students undecided about major or career.

**CN ED 100 Effective Career Decision-Making (3)**

CN ED 100 teaches students career decision-making skills by closely examining internal factors, the world of work, and decision-making styles and strategies. The premise of this course is that career decisions are greatly enhanced by: (1) considering personal traits such as interests, values, abilities, decision-making styles and other factors; (2) gathering information about the world of work and education; and (3) integrating knowledge about the self and the world through an on-going process. Learning the career decision-making process is empowering and skills learned in the course can be valuable throughout life as individuals encounter crossroads that may prompt career changes. CN ED 100 is intended for students who are undecided about their major and career selection. The course format consists of lectures, discussions,

and experiential learning activities designed to help students analyze their personal traits and to relate their traits to career theories, occupational fields and work settings. Self-assessment activities include reflective writing, use of established career assessment inventories, and completion of various activities. Diverse information is shared on majors and occupations as well as information gathering strategies. Students more closely discuss their career development and progress in formal small group sessions, facilitated by career counseling professionals. Five classes of the semester are devoted to these meetings.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 197A Leadership Development - Lio Ambassadors (1)** Introduces students to key leadership concepts and facilitates students' use of leadership development through their duties as a Lion Ambassador.

#### **Leadership Development - Lio Ambassadors (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 198 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 200 Peer Mentoring (1)** This course will prepare students for the roles and responsibilities of being a Peer Mentor.

#### **CN ED 200 Peer Mentoring (1)**

"Peer Mentoring" is designed to present to the student the basic principles, characteristics, and benefits of a peer mentoring relationship. Peer Mentoring is a beneficial relationship to both the mentee and mentor and ultimately can aid in college retention rates. Once this knowledge is gained, students in the course will learn how to deal with the various situations that could occur during the transition process. This course offers the student the opportunity to develop intellectual relationships with faculty, current campus peer mentors, and fellow classmates who share similar academic interests in leadership, mentorship, and role modeling. In this course, students will be introduced and learn to apply active listening skills, the hidden rules of college, how to conduct mentee interactions both virtually and in person, intrinsic and extrinsic motivation, along with cultural and self-awareness. Once introduced to the multi-layer elements of the course, students will demonstrate their knowledge of these skills through their in class involvement. The course is delivered as an interactive learning environment where in class exercises and hands-on demonstrations help the student understand the principles and implications of peer mentoring. Additionally, students will work on a campus resource project outside of the classroom that will be presented to the entire campus community at the conclusion of the semester. The course is open to all students, however, students interested in taking the course must get course entry approval by the faculty member in charge to determine the student's true interest in peer mentoring.



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 280** Job/Internship Search and Professional Skills (1) This course will teach students how to implement a career strategy to effectively secure a job/internship.

**Job/Internship Search and Professional Skills (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 297A** Freshman Experience I (2) This course is designed to help entering students in their transition from high school to college. This course will help new students to develop and utilize effective educational strategies.

**Freshman Experience I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 297B** Transition to College Life (2) The Transition to College Life course is designed to help new PSU Berks students become familiar with the university and hone skills they'll need to succeed in college. Students develop a clear understanding of their personal learning strengths and needs, and discover how resources and self-advocacy can support their success in college.

**Transition to College Life (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 301** Student Organization Management (2) Exploration and development of leadership and group process skills necessary for effectively managing student organizations in higher education settings.

**Student Organization Management (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 302** The Role of the Resident Assistant: Theory and Practice (3) An analysis of the various roles of the resident assistant, including interpersonal facilitator, disciplinarian, program developer, and activities facilitator.

**CN ED 302 The Role of the Resident Assistant: Theory and Practice (3)**

This course is an analysis of the various roles of the resident assistant, including interpersonal facilitator, disciplinarian, program developer, and activities facilitator. This course is designed to prepare class participants for service as competent, well-balanced Resident Assistants in Penn State's multicultural and learning-centered residence hall communities. Specific topics include community building, communication skills, intercultural sensitivity and assisting students in distress. Upon completion of this course, students will be able to:

Demonstrate the five roles of a Resident Assistant in support of the vision and mission of Residence Life;

Develop skills to make critical judgments in a logical and rational manner;

Exhibit proficiency in communication skills, conflict mediation, and creating intentional community building experiences;

Translate and model ethical decision making both locally and globally.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 303** Career Search Strategies for Educators (1) An aid in preparing students with information helpful for entry into education and alternative job markets.

**Career Search Strategies for Educators (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 304** Education of the Peer Assistant (3) Student development theories: skill development in listening, informing, and referring culturally diverse peers in individual and group situations.

**Education of the Peer Assistant (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: limited to students selected as peer assistants or similar positions

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 401** Foundations of Chemical Dependency Counseling (3) An overview of diagnosis and assessment, models for chemical dependency prevention, counseling, and recovery; contexts of chemical dependency treatment.

### **Foundations of Chemical Dependency Counseling (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: 3 credits in general psychology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 404** Group Procedures in Guidance and Counseling (3) The nature and functioning of groups in educational and agency settings. Provides prospective counselors with experience in the group process.

### **Group Procedures in Guidance and Counseling (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: 6 credits in counselor education; 6 credits in psychology sociology or individual and family studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 416** Interpersonal Relationships and Alcohol and Other Drugs (AOD) Dependency (3) This course examines families with chemically dependent members, dynamics, appropriate interventions, and treatment.

### **Interpersonal Relationships and Alcohol and Other Drugs (AOD) Dependency (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: CN ED 401 or RHS 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 420** Chemical Dependency: Youth at Risk (3) Study of youth who are at-risk of developing chemical dependency including the characteristics and factors related to chemical dependency.

### **Chemical Dependency: Youth at Risk (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: CN ED 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 421** Counseling Strategies for Preventing Chemical Dependency (3) Examines helping professional's role in primary and secondary prevention of substance abuse, and related problems like delinquency, suicide, and pregnancy.

### **Counseling Strategies for Preventing Chemical Dependency (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: CN ED 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 422** Foundations of Addictions Counseling (3) Study of the fundamental principles of counseling individuals with a wide variety of addictions.

### **CN ED 422 Foundations of Addictions Counseling (3)**

Students explore the fundamental principles of addictions counseling from a wide range of perspectives. These include the psychopharmacological aspects of alcohol and abusable drugs, along with theories and assessments of addictive disorders. Many treatment models are considered, and are examined in the context of individual, group, and family therapy perspectives. The course also addresses the research literature on codependence, COA's AA and other 12-step programs, dual diagnosis, relapse, prevention, and multicultural and gender issues.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: a minimum of 12 hours of coursework in sociology psychology education or family studies.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 423** Student Assistance Programs (3) Exploration of early stages of adolescent "at-risk" behavior and skills for student assessment and intervention within schools and communities.

### **Student Assistance Programs (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: CN ED 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 424 (WF ED 424)** Facilitating Career Development (3) This course provides individuals with relevant skills and knowledge to assist others in planning careers and obtaining meaningful work.

### **CN ED (WF ED) 424 Facilitating Career Development (3)**

This course provides individuals with relevant skills and knowledge to assist others in planning careers and obtaining meaningful work. This course addresses the following 12 Career Development Facilitator (CDF) competencies: 1) helping skills, 2) labor market information and resources, 3) assessment, 4) diverse populations, 5) ethical and legal issues, 6) career development models, 7) employability skills, 8) training clients and peers, 9) program management/implementation, 10) promotion and public relations, 11) technology, and 12) consultation.

These 12 competencies are identified by the National Career Development Association (NCDA) for those who (will) deliver career development programs and services in a variety of settings. Potential job titles of CDFs include career group facilitator, job search trainer, career resource center coordinator, career coach, career development case manager, intake interviewer, occupational and labor market information resource person, human resource career development coordinator, employment/placement specialist, and workforce development staff.

With certain years of work experience in career development, students who complete this course are eligible to apply for the Global Career Development Facilitator (GCDF) certification through the Center for Credentialing & Education (CCE), which is affiliated with the National Board for Certified Counselors (NBCC). A GCDF is a person who works in any career development setting or who incorporates career development information or skills in their work with students, adults,

clients, employees, or the public. As of January 2011, about 18,000 individuals acquired the GCDF certification world-wide including Bulgaria, Canada, China, Germany, Japan, Romania, Turkey, South Korea, and New Zealand.

The goal of the GCDF credential was to provide standards, training specifications, and credentialing for diverse career development practitioners. This GCDF credential differentiates two levels of career practice, which are 1) career counseling and 2) career facilitation that does not require a counseling degree. This differentiation reflected the reality where many individuals who are currently providing career assistance are not professional counselors.

This course is taught by a nationally and internationally trained CDF Instructor (CDFI) who is certified by the NCDA. In addition, the CDF curriculum is updated every three years by the Career Development Leadership Alliance (CDLA) under the supervision of the NCDA CDF Advisory Council in order to keep up with recent changes in the field.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: 300-400 level Psychology HD FS or Education courses or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 430 Couples and Family Counseling (3)** The theory and practice of counseling with couples and families emphasizing family development and major intervention approaches.

### **CN ED 430 Couples and Family Counseling (3)**

Students study the theory and practice of couples and family counseling with an emphasis on models of family development and major approaches to intervention with couples and families. Systemic models of family intervention are emphasized as well as the study of other historically important and contemporary approaches to couples and family therapy. The course blends didactic and experiential learning.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: A minimum of 12 hours of coursework in sociology psychology education or family studies.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 431 Counseling and Teaching Youth at Risk (3)** This course is focused on how to counsel and/or teach youth at risk for a variety of social, emotions, and educational problems.

### **CN ED 431 Counseling and Teaching Youth at Risk (3)**

This course is designed to provide participants with an overview of information focused on counseling and teaching youth at-risk. Emphasis will be placed on identifying youth-at-risk for depression, suicide, eating disorders, pregnancy, AIDS, use and/or abuse of alcohol and drugs, homelessness, gang membership, difficulties related to sexual orientation, and several other at-risk behaviors. Ideas for primary, secondary and tertiary prevention from individual, family, school and community perspectives will also be presented. The course provides a varied format structured to include lecture/discussion, audio-visual presentations, participant self-evaluation of their own at-risk behaviors, role-plays and small group discussion.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: A minimum of 12 hours of coursework in sociology psychology education or family studies.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 432 Ethical, Legal, and Professional Issues in Counseling (3)** Examination of the current ethical and legal issues related to professional counselors and counseling.

### **CN ED 432 Ethical, Legal, and Professional Issues in Counseling (3)**

Participants explore an overview of ethical and legal issues related to the professional practice of counseling. Topics include responsibility, competence, public statements, confidentiality, professional relationships, licensing and other regulatory programs, and research. The course emphasizes clinical strategies relevant to legal and ethical issues.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: A minimum of 12 hours of coursework in sociology psychology education or family studies.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CN ED 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Criminal Justice (CRIMJ)**

**CRIMJ 012** (GS) (CRIM 012, SOC 012) Criminology (3) Explanations and measurement of crime; criminal law; characteristics of criminals and victims; violent, property, white-collar, organized, and sexual crimes.

### **CRIMJ (CRIM /SOC) 012 Criminology (3) (GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Criminology is the study of the causes of criminal behavior. As such this course is an introduction to the topic with special focus on the major theories explaining criminal behavior including differential association, anomie, control theory and labeling theory. A key focus of the class is examining the most recent scientific research testing the basic theories. The students learn the various research techniques that have been used to study criminal behavior including crime statistics such as the Uniform Crime Report that serves as a monitor on crime trends. Several important areas of study that link understanding criminal behavior and its distribution across the social system are investigated including age, gender, race and ethnicity. One goal of the course is to promote a more complete understanding of crime and how it is enmeshed in human social life. The course concludes by using the knowledge base generated in the course to study the link of our understanding of criminal behavior and the emerging crime control policies of the past few decades. Finally, the course reviews the impact and effectiveness of some of these policies.

Throughout the course, the lectures as well as the readings emphasize the complexity of explaining human behavior and criminal behavior in particular. One aspect of the course is the use of a term paper on the objective and subjective availability of crime to the student. This paper emphasizes the complexity of the student's social life and the role that these factors may have on whether they have engaged in criminal behavior and their analysis of the causes of their criminal behavior. This project personalizes the various theories and helps the student understand the importance of their social environment in whether they have or will engage in crime.

Discussion and questions are encouraged in all sections. Sections of this course may include group research projects, debates, and library or internet-based research. Along with personal contact, students have the opportunity to communicate with teaching assistants and faculty members via e-mail. Writing assignments, along with in-class examinations, are required in all sections.

This course meets a General Education requirement in the Social and Behavioral Sciences for non majors, is required for the CLJBA and CLJBS majors, and may be used in the SOC majors and minors.

The Sociology Department at University Park offers one or two large-enrollment versions of this course (up to 350 students) every semester. Other campuses offer smaller sections (Abington--40, Fayette--50, and Berks and Wilkes Barre--25) each semester.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 013** (GS) (SOC 013) Juvenile Delinquency (3) Juvenile conduct, causes of delinquency, current methods of treatment; organization and function of agencies concerned with delinquency.

**Juvenile Delinquency (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 083S** (GS) (CRIM 083S) First-Year Seminar in Criminal Justice (3) Critical approaches to issues in criminal justice and criminology.

**CRIMJ (CRIM) 083S First-Year Seminar in Criminal Justice (3)**  
**(GS;FYS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Each section of this course will be limited to 20 students who will be instructed by an experienced faculty member. Each section will focus on a well-defined body of scholarship that addresses a relatively specific topic while at the same time providing an opportunity to broadly survey existing knowledge in the discipline. For example, some sections may address very broad questions that encompass the entire field, such as criminal justice policy, issues related to social justice, or explanations of crime. Other sections may focus on justice system responses to certain types of crime, such as violent crime, white collar crime, organized crime, or transnational crime. Finally, some sections may take a comparative and international approach, and consider how justice systems are administered or how patterns of crime vary in a range of countries and jurisdictions. Each section will emphasize the development of discussion writing, and analytical skills and will give students the opportunity to work individually and in small groups. Students can expect to gain a general introduction to the University as an academic community and to explore their responsibilities as members of that community. They will also become familiar with the learning tools and resources available to them, and they will be able to establish relationships with faculty and other students who share their academic interests. This course fulfills a general education or Bachelor of Arts requirement in the social/behavioral sciences. A section of the course will be offered once a year. Students will write essays in class or out of class, engage in classroom discussion and group exercises, and make presentations.

**Faculty Member Proposing Course:** Thomas S. Bernard

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 100** (GS) (CRIM 100) Introduction to Criminal Justice (3) Overview of the criminal justice system, including legal foundations, processing and correction of offenders, extent and types of crime, victims.

**CRIMJ (CRIM) 100 Introduction to Criminal Justice (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides an overview of the criminal justice system in the United States. Topics to be covered include: the extent of crime in the United States; competing and complementary goals of the criminal justice system; sources of criminal law; the history and development of the system; the functions of police, attorneys, courts and correctional agencies; the interactions between different parts of the system; and the impact of crime on the victim. Students are evaluated on two exams (20% each), two written assignments (30%), and a final exam (30%). This course is a prescribed

course in the CLJBA, CLJBS, ADM J BS and ADM J BA majors, and it is also a prerequisite for most 400-level courses in Crime, Law, and Justice.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 113 (US) (CRIM 113)** Introduction to Law (3) Introduction to law in society with a focus on criminal law, judicial code, laws of sentencing and corrections, criminal procedure.

**CRIMJ (CRIM) 113 Introduction to Law (3)**

Introduction to the law is designed to provide CLJ majors with an introductory level of knowledge of the criminal law, and other legal codes such as the Judicial Code, laws of corrections, probation and parole, and the rules of criminal and appellate procedure. The course will serve as a gateway course to taking more advanced criminology and criminal justice courses. CRIMJ (CRIM) 113 is one of the Prescribed Courses in the CLJ curriculum and is used as a prerequisite for many 400 level courses including CRIM 467 AND 469. Students will be evaluated on three exams consisting primarily of objective (multiple choice) questions and short answer questions.

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 159 (GH;US) (HIST 159)** History of the FBI (3) Survey of the FBI's history with special emphasis on civil rights and liberties and bureaucratic development.

**CRIMJ (HIST) 159 History of the FBI (3)  
(GH;US)**

The History of the FBI introduces students to the 100-plus years history of the Federal Bureau of Investigation. With such a long history, studying the FBI engages students with each of the various historical time periods from the late 19th century to the present, including Reconstruction, the Gilded Age, Progressive Era, First World War, the New Era, the Great Depression, the Second World War, the Cold War, post-Cold War, Age of Terrorism, and contemporary history. Students will understand the evolution of Federal law enforcement, bureaucracy, the increasing power of the Executive branch, the targeting of various minority groups, civil rights and civil liberties issues, and the growth of a national security role for the federal government over time. In its long history the FBI has intersected with a wide variety of groups and issues, and this reality will further expose students to the histories of African Americans, gays and lesbians, women's groups, Latinos, Native Americans, war protestors, students, various political dissenters, immigrants, targeting of morality, obscenity, and labor organizing.

Because the FBI is responsive to both the political and policy interests of presidents and the influences of American society, students will come to appreciate the influences that politics has on bureaucracy and law enforcement, as well as the different social, political, economic, and cultural influences that each historical time period have exerted on the FBI to help shape its priorities and structure.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 200** Introduction to Security and Loss Control (3) A general introduction to the field of private security and asset protection.

**CRIMJ 200 Introduction to Criminal Justice (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on a body of scholarship addressing the critical issues, policies, and complexities of the criminal justice system. It includes specific topics on key components of the system while demonstrating the intra-relationships of the system. Students will be provided numerous opportunities to broadly survey the concept of justice as well as



investigate comparative issues on a governmental level and internationally. Students will also focus on specific social and justice system challenges such as substance abuse, family violence, minorities and justice, street crime, corrections for adults and juveniles, sentencing patterns, and ethics. Students will also analyze the global impact of criminality as they study transnational crime and the challenges faced by the collaboration of nations. Students will be required to familiarize themselves with electronic web sites, refereed journals, and national and international events for class discussion, research, and writing assignments. Students will learn how to comprehend legal decisions and legal procedures. By the end of the course students will be expected to integrate the information of the semester into comparisons and critical evaluation of the criminal justice system components. Frequency of enrollment: Every semester with 35 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 201** Legal and Ethical Issues in Private Security (3) Detailed examination of legal issues and ethical considerations in private sector security.

**CRIMJ 201 American Legal System (3)  
(US)**

The American Legal System studies jurisprudence as power, culture, social control, political reform, justice for the underserved and underrepresented, security for the powerful elites, and the economic sustainability of a global environment. This course requires students to consider law as a living institution as well as a mechanical monster devoid of concern for racism and classism. Students are then required to focus on the realities of law and the consequences of promoting social and economic reform. How do we determine the ethics of the process with the ethics of those who practice law or work within the process? Do we want local courts to address our conflicts or would we rather wait for the Supreme Court to initiate a prescriptive or descriptive decision? Do we want case law ruling our lives or statutory law? How do we resolve the issues of voter turnout at elections with the politicalization of Supreme Court and Appellate Justice selection? Where do we place the study of private law (property, family, tort, probate, and corporate law) with the study of public law (constitutional, criminal, and administrative law)? What is common to both and how do we gain an understanding through research and writing about similar legal objectives? Where do we place the study of intellectual property and technology? This course focuses on the price of justice, its timeliness, and the unintended consequences of both sound and poor legal decisions. Do we want the Supreme Court to engage in constitutional policymaking or remand the decisions to the lower courts and in some cases the disputing parties? These issues are also addressed looking at international and cultural issues as they combine ethnicity, religion, environment, economic development, gender and ritual. How do we resolve immigration issues in light of recent violence? Documentaries, case studies, problem based learning, day to day social interaction, and popular films provide numerous activities for discussion, analysis, and integration in writing and for discussion.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 210** Policing in America (3) Police organization and operations in America.

**Policing in America (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: or concurrent: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 220** Courts and the Prosecution Process (3) Purpose and function of criminal courts in society, organization, jurisdiction and staffing; prosecution, adjudication, and sentencing of offenders.

**Courts and the Prosecution Process (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 221** Issues in the American Criminal Justice System (3) Examination of the models of the criminal process, functions of the justice system, and approaches to crime and punishment.

**Issues in the American Criminal Justice System (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 230** Corrections in America (3) Punishment and treatment of sentenced offenders, correctional institution organization, staffing, inmates, and subcultures.

**Corrections in America (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 234** Fundamental Techniques of Scientific Criminal Investigation (3) Traditional and innovative technical approaches utilized by law enforcement scientists; capabilities and limitations of technical techniques highlighted.

**CRIMJ 234 Fundamental Techniques of Scientific Criminal Investigation (3)**

This course is designed to introduce students to the fundamental methods by which scientific-criminal investigations are pursued. Course objectives focus upon a familiarity with various strategies and techniques of scientific criminal investigation within the law enforcement context so that students may understand both the potentials and limitations of such methods. The course maintains a focus upon traditional methods of scientific criminal investigation as well as examination of scientific developments that have altered investigation in recent years. While this course cannot produce expertise in the more sophisticated technologies of criminal investigation, it serves as a basic introduction to the field. As such, it is designed to give an overview of various possibilities, so that students completing the course will have a general grasp of the various strategies and techniques that are available for criminal investigation and will be in a position to call upon the necessary and appropriate expertise when the occasion arises. The course design alerts students to many of the limitations of the various strategies and techniques of scientific criminal investigation, equipping them to judge the validity of various findings and to assess the qualifications, and methods employed by different experts. The course gives special attention to strategies and tactics of interrogation and to means of corroborating interrogation data with scientific data obtained from other investigative techniques. The course provides an introduction to various techniques of fingerprinting, including ink pads and dusting techniques, as well as several techniques for bringing out latent fingerprints, with an emphasis on the careful collection and preservation of this evidence. It will introduce methods of drug testing, including techniques for insuring the validity of specimens and basic chemical analysis kits currently available for drug testing, with an emphasis on the careful collection and preservation of this evidence. It demonstrates and provides practical experience in breathalyzer utilization, as well as other investigative techniques for assessing driver impairment resulting from excess alcohol intake. It provides a basic introduction to DNA technology to the point of equipping students with a fundamental understanding of DNA evidence, including probabilities associated with various findings. Throughout the course, there is special stress on the concept of crime scene investigation, including strategies for cordoning off crime scenes and restricting contamination of evidence, basic crime scene mapping, and analysis of evidence such as blood splattering, foreign objects, unusual markings, hair and fiber samples, and other aspects of evidence. Finally, the course stresses preparation of investigative reports, with an emphasis upon clarity of presentation, attention to relevant details, preparation for presentation of evidence in court, and careful and concise writing.

**Faculty Member Proposing Course:** Richard A. Ball

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 240W** Field Research in the Criminal Justice (4) Field research and observational strategies appropriate to the identification, investigation, and analysis of research questions in criminal justice.

**CRIMJ 240W Field Research in Criminal Justice (4)**

Administration of Justice majors who are interested in completing an internship must first complete CRIMJ 240W. As augmented, this course attempts to introduce students to research strategies appropriate to the identification,

investigation, and analysis of research questions in the administration of justice, while also providing intensive training in the use of various investigative strategies and intensive training in analysis of findings derived from such research, as well as preparation for an internship and extensive writing experience. As augmented, it will involve additional writing assignments by which students will demonstrate their ability to identify researchable questions, lay out their investigative strategies in written form and produce in writing analyses of their findings and conclusions, with recommendations for policy if appropriate. Considerable time is devoted to strategies for identification of research questions. Students will be required to perform an analysis of a setting in administration of justice, locate and specify aspects of the setting that require systematic research in order to explicate the setting or provide information on problems that might be solved by various administrative approaches or promising programs, projects or policies that might be adopted by other agencies. The course will provide an overview of field research methods appropriate to investigation of administration of justice issues such as those identified earlier. The course will include introduction to the theory and rationale of field research in the social sciences and considerable training and experience in field research methods across several different areas of methodology. The overview of field research methods introduces students to the variety of field methods that are available to researchers in administration of justice. Students will then proceed to an understanding of the issues associated with the theoretical perspectives and epistemological assumptions underlying the various field methods examined in the preceding overview. Here attention will be given to the assumptions upon which each research method is built and the strengths and weaknesses of each method. As augmented, this course is designed to require students to take special account of the weaknesses of the various methods and learn how to counter these weaknesses by augmenting the research strategy by complementary methods where appropriate. As augmented, the course is designed to teach students the reasons for use of various methods as well as the methods themselves. Because this course places such emphasis on data collection, and because research is best learned by doing it, the course is further augmented with additional research exercises. Students are required to spend additional time in the field research exercises beyond that required for a 3-credit course, completing as much as 20 hours of participant observation for sharpening their observational skills, as 10 hours of focus group work, with much of this effort aimed at sharpening their ability to interpret communications from several different sources with respect to the same events, and as 20 hours of interviewing, using several different interviewing techniques. These efforts concentrate upon developing students' ability to elicit information from interviewees and cross-validate the information through a variety of interview techniques. Students must complete several papers demonstrating their ability to organize their research finding and present them in understandable form. The research writing elements in this course include development of hypotheses, preparation of a research proposal, development of literature reviews, description of research settings, and preparation of research bibliographies. Finally, this course is designed to serve as a bridge in preparation for a successful internship experience. As such, it must succeed in teaching students how to develop and conduct a research study on their own before graduation

**Faculty Members Proposing Course:** Lisa Morris and Richard A. Ball

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 241 (PUBPL 241) Computer Applications in Public Affairs/Criminal Justice (3)** Introduction to computer applications for criminal justice and public affairs agencies.

#### **CRIMJ (PUBPL) 241 Computer Applications in Public Affairs (3)**

The student will gain a working knowledge of microcomputer and Internet applications to utilize them in course and/or job functions. The class will be treated primarily as a lab. The purpose is to make the student familiar with popular computer applications in current use. Applications covered include: Word Processing (Microsoft Word); Spreadsheet (Microsoft Excel); Presentation Package (Microsoft PowerPoint); Database (Microsoft Access). Internet Applications include: email - Webmail; World Wide Web Browser - Netscape Communicator and Internet Explorer; and creating a Homepage.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 250W (CRIM 250W) Research Methods in Criminal Justice (3)** Fundamental concepts of social science research including design, measurement, sampling, and interpretation of the study of crime, law, and justice.

#### **Research Methods in Criminal Justice (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: CRIMJ 012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 260** (GQ) Statistical Analysis for the Social Sciences (3) Methods of collection, presentation, and analysis of quantitative data in the social science; procedures, interpretation, and application.

**CRIMJ 260 Statistical Analysis for the Social Sciences (3)**

This course covers the theory and methodology of statistical analysis. This course includes mathematical calculation of Univariate and Bivariate models, including mean, mode median, variance and standard deviation, Crosstabs with Chi-Square, Independent and Paired Samples t-tests, Anova and Tukey's H.S.D, Correlation and Regression. It also makes use of SPSS and publically available data sets to examine univariate data, and test hypotheses at both the bivariate and multivariate level. Students become familiar with the calculations behind the analysis, and engage in the analysis and reporting of actual data.

General Education: GQ

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: 2 units of High School Algebra and CRIMJ 100 or permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 290** Introduction to Internship Experience (1) Planning and preparation for field experience in a criminal justice agency setting.

**Introduction to Internship Experience (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CRIMJ 100 ; Prerequisite or concurrent: CRIMJ 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 300H** Honors Seminar: Issues and Trends in Criminal Justice (3-6) Discussion of various, specific criminal justice topics, such as discretionary decision-making, due process, equal protection, violence, and recidivism.

**Honors Seminar: Issues and Trends in Criminal Justice (3-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: fifth-semester standing and admission to Schreyers Honors College

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 304** Security Administration (3) Interdisciplinary analysis of security and loss prevention; its administration, role in crime control and prevention, and relationship to criminal justice.

**Security Administration (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1990

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 310** Forensic Science I (3) Presentation of the techniques, skills, and limitations of modern crime laboratory.

**CRIMJ 310 Forensic Science I (3)**

Presentation of techniques, the principles underlying the techniques, skills and limitations of the modern crime laboratory for student who has no background in the forensic sciences form the basis of the course. The nature of physical evidence is emphasized along with limitations that technology and knowledge impose on its individualization and characterization. Particular attention is paid to the meaning and role of probability in interpreting the individual significance of scientifically evaluated evidence. Major, lecture topics include the following: The Crime Scene; Physical Evidence; Physical Properties of Glass, Soil, and Plastics; Organic Analysis; Inorganic Analysis; the Microscope; Hairs, Fibers, and Paints; Drugs; Forensic Toxicology; Forensic Aspects of Arson and Explosion Investigation; Forensic Serology; Forensic Anthropology; DNA; Finger Prints; Fire Arms; Tool Marks and Other Impressions; Document and Voice Examination; and Forensic Science on the Internet. To understand the techniques used in crime scene analysis hands-on activities as formal experiments in the laboratory setting form part of the course. The specific objectives of the laboratory components of the courses are: 1) To provide a first set of laboratory experiments for criminal justice and general science students who have had little or no previous science laboratory experience. 2) To show beginning students in criminal justice and general science the significance of physical evidence at the scene of a crime. 3) To demonstrate what happens to physical evidence when it is sent to the laboratory so that students will know what is needed, how much is needed, and how to prepare 4) To educate the student in basic laboratory practices so that they can ask and/or answer questions more intelligently in a court of law. And probably most important, to educate students so that they will not unintentionally destroy physical evidence at a crime scene, and will in fact try to preserve it for the trained forensic scientist. The experiments are designed to provide students with an overview of what can be done as a prelude to making them potential professional forensic scientists/criminologists. The proposed courses are meant for students majoring in the Administration of Justice Programs and should augment their knowledge of criminology and reinforce approaches utilized by law enforcement scientists. Students will carry out hands on experiments in biology, chemistry and physics in a dedicated laboratory setting. Use of instrument to analyze specimens and gather/interpret data using computers and statistical techniques form part of the course. Students will be graded based on their understanding of the principles involved in selecting and using specific laboratory techniques and on the quality of results of their laboratory experience. It is anticipated that the course will be offered once a year, first part during fall semester and the second part during the following semester. Since laboratory space and instruments are limited class size will not exceed fifteen.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 311** Forensic Science II (3) Continuation of CRIMJ 310 including statistical analysis of data from crime scene.

**CRIMJ 311 Forensic Science II (3)**

Presentation of techniques, the principles underlying the techniques, skills and limitations of the modern crime laboratory for student who has no background in the forensic sciences form the basis of the course. The nature of physical evidence is emphasized along with limitations that technology and knowledge impose on its individualization and characterization. Particular attention is paid to the meaning and role of probability in interpreting the individual significance of scientifically evaluated evidence. Major, lecture topics include the following: The Crime Scene; Physical Evidence; Physical Properties of Glass, Soil, and Plastics; Organic Analysis; Inorganic Analysis; the Microscope; Hairs, Fibers, and Paints; Drugs; Forensic Toxicology; Forensic Aspects of Arson and Explosion Investigation; Forensic Serology; Forensic Anthropology; DNA; Finger Prints; Fire Arms; Tool Marks and Other Impressions; Document and Voice Examination; and

Forensic Science on the Internet. To understand the techniques used in crime scene analysis hands-on activities as formal experiments in the laboratory setting form part of the course. The specific objectives of the laboratory components of the courses are: 1) To provide a first set of laboratory experiments for criminal justice and general science students who have had little or no previous science laboratory experience. 2) To show beginning students in criminal justice and general science the significance of physical evidence at the scene of a crime. 3) To demonstrate what happens to physical evidence when it is sent to the laboratory so that students will know what is needed, how much is needed, and how to prepare 4) To educate the student in basic laboratory practices so that they can ask and/or answer questions more intelligently in a court of law. And probably most important, to educate students so that they will not unintentionally destroy physical evidence at a crime scene, and will in fact try to preserve it for the trained forensic scientist. The experiments are designed to provide students with an overview of what can be done as a prelude to making them potential professional forensic scientists/criminologists. The proposed courses are meant for students majoring in the Administration of Justice Programs and should augment their knowledge of criminology and reinforce approaches utilized by law enforcement scientists. Students will carry out hands on experiments in biology, chemistry and physics in a dedicated laboratory setting. Use of instrument to analyze specimens and gather/interpret data using computers and statistical techniques form part of the course. Students will be graded based on their understanding of the principles involved in selecting and using specific laboratory techniques and on the quality of results of their laboratory experience. It is anticipated that the course will be offered once a year, first part during fall semester and the second part during the following semester. Since laboratory space and instruments are limited class size will not exceed fifteen.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 345** Criminal Justice and the Community (3) Justice agencies and the community's crime prevention and participation strategies; community involvement in policy development.

### **Criminal Justice and the Community (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 389** Gangs and Gang Behavior (3) The history, structure, and practices of gangs in America as well as societal reaction to them.

### **CRIMJ 389 Gangs and Gang Behavior (3)**

This class takes a look at gangs: their history, structure, activities, and practices-as well as law enforcement practices targeting gangs and gang members. This class examines the following types of gangs: Outlaw Motorcycle Gangs, Supremacists and Militias, Skinheads, African-American, Latino, and Asian Gangs. It also addresses relatively recent phenomena in gang involvement: (1) the rise of the independent girl gang; (2) middle class suburban gangs (Goths); and, (3) anti-drug and anti-sex Straight-Edge gangs. Both the positive and negative functions of gangs are examined critically through a comparison of conventional and non-conventional youth activities. It concludes with an examination of emerging trends in gang development and activities, including the link between street gangs and organized crime. This course complements CRIMJ 403-Juvenile Law and Justice and is recommended for students wishing to pursue a career in juvenile intervention. It consists of three examinations (objective and subject measures), three traditional essays (out-of-class), and four directed asynchronous message board essays (using ANGEL course management software). This course will be offered annually with a projected enrollment of 25 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 406** (SOC 406, CRIM 406) Sociology of Deviance (3) Theory and research concerning behaviors and lifestyles viewed as significant departures from a group's normative expectations.

### **CRIMJ (CRIM/SOC) 406 Sociology of Deviance (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Sociology of Deviance focuses on the theory and research in social construction of social norms, the violation of norms, and social reaction to the violation of norms. The course focuses on the role of social structure and power in the

definition of deviance, on structural, cultural, and social psychological processes involved in deviant behavior, and the dynamics of social reaction to deviance. The course includes some content focusing on criminal deviance, but also emphasizes non-criminal deviance, as well as the role of social movements and social change in constructing and contesting deviance definitions. CRIMJ/SOC/CRIM 012 and CRIM/CRIMJ 250W are prerequisites. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the "Crime" component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization. The evaluations methods will include written assignments on course readings (25%), research papers (25%), and/or essay-style exams (50%). This course will be offered once a year with 25-40 seats per offering.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: CRIMJ 100 and CRIMJ 113 and CRIMJ 230 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 407 (US) (CRIM 407) Victimology (3)** This course will explore the legal, emotional, and social responses to the process of victimization by offenders and third parties.

### **CRIMJ 407 Victimology (3) (US)**

Victimology studies the victim-offender relationship. Victimization is analyzed using the Bible, Anglo-Saxon Law, Common Law, and legal precedent as a historical development of the status of "victim." Cultural changes during the 1950s and 1960s resulted in the reemergence of the victim and the designation of social services and community awareness for victims. Social scientific studies of the status of unique groups analyzed victimizations according to demographics and socioeconomic status. Political viability of victims in terms of restitution and community response are viewed in terms of Census data, the Department of Justice's National Crime Victimization Survey and The Uniform Crime Reports, Morbidity Reports, Emergency Room Reports, and the Insurance Industry Reports. The above data is evaluated in terms of age, race, education, socioeconomic status, and gender. The development and merging of culture, sub-cultural liaisons, social relationships, leisure activities, and routine transactions are reviewed as they apply to personal and unique group victimizations. Comparative issues and transnational crime are addressed under the format of globalization, gender, economics, and cultural mores. Interdisciplinary evaluation of Victimology considers psychology, medicine, sociology, criminal justice, legal studies, and mass media. Documentaries, case studies, problem based learning, and popular films provide numerous activities for discussion, analysis, and integration in writing and for discussion.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 408 Police Administration (3)** Principles of administration as they relate to a police organization; and policy development.

### **CRIMJ 408 Legal Aspects of Law Enforcement (3)**

This course is one of the law enforcement offerings directed at students interested in pursuing a career in the field. This course builds upon legal courses and the police administration course. It is intended to challenge students to comprehend the complexities of working within a litigious society where policing is often the target of simultaneous praise and criticism. Research is introduced to allow students to consider alternatives to conflicts and the court's interpretation of the efficacy and constitutionality of such efforts. Civil liberties, use of force, use of technology, and communications have played significant roles challenging public safety. The consistent expansion of the role of law enforcement presents complexities that are often different according to the jurisdiction and community sentiment. Issues of hiring, training, education, accreditation, force, and racial profiling are the basis for assignments, research, and directed projects and class discussion.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CRIMJ 100 or CRIM 100 and CRIMJ 210 or CRIM 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 410 The Pennsylvania Court System (3)** Tracing the steps of criminal cases through the investigative stage, arrest, trial, sentencing and appellate review in Pennsylvania.

### **The Pennsylvania Court System (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: CRIMJ 100CRIMJ 113

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 412** (SOC 412, CRIM 412) Crime, Social Control, and the Legal System (3) Legal and extralegal control; public opinion on crime; criminal justice and correctional processes; legal sanctions; control strategies. Field trip.

**Crime, Social Control, and the Legal System (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008  
Prerequisite: CRIMJ 012CRIMJ 013 orSOC 005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 413** (CRIM 413, SOC 413) Advanced Criminological Theory (3) This course provides an in-depth look at theories of crime and examines influential empirical studies designed to these theories.

**CRIMJ (CRIM/SOC) 413 Advanced Criminological Theory (3)**

Advanced criminological theory is intended to extend and deepen students' knowledge of core ideas in criminology. The course has four main emphases: 1) learning major schools of thought in criminology, 2) learning about the uses and construction of theory, 3) learning about approaches to integrating criminological theories, and 4) exploring how criminological concerns are grounded in and interrelated with core issues in sociology. The course is offered once a year with 50 seats per offering. CRIMJ/CRIM/SOC 012 is a prerequisite. Students will be evaluated on research or analytical papers, written assignments on course readings, and/or in-class essay-style exams. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with a Deviance and Criminology specialization.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 012CRIMJ 250W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 414** (SOC 414, CRIM 414) Criminal Careers and the Organization of Crime (3) Research on and theory of criminal careers and crime organizations, emphasizing recruitment and disengagement; offender characteristics and lifestyles; policy implications.

**Criminal Careers and the Organization of Crime (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008  
Prerequisite: CRIMJ 012 orCRIMJ 013 orSOC 005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 415** (PUBPL 415) Drug Control Policy in Comparative Perspective (3) Examines the history of drug control policy in the United States; comparisons and contrasts with other countries' experiences.

**CRIMJ (PUBPL) 415 Drug Control Policy in Comparative Perspective (3)**

This course focuses on the history of drug control policy in the United States and the internationalization of drug prohibition. We also examine the experience of other countries with drug use, abuse and control, including alternative regulatory policies in Western Europe. This class is both historical and comparative in orientation: in tracing the roots of drug prohibition, and examining the experience of other countries, we seek to enrich our understanding of American style drug control and the feasibility of alternative approaches.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004  
Prerequisite: CRIMJ 200 orPL SC 001 orPL SC 014 orSOC 001



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 420** Criminal Law and Procedure (3) Common law and statutory crimes; constitutional rights of accused persons, liability of criminal justice professionals.

**Criminal Law and Procedure (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 113

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 421** (CRIM 421) Violent Crime in the United States (3) The impact of violent crime on victims, their families, and communities; the police process as it relates to violent crime.

**CRIMJ (CRIM) 421 Violent Crime (3)**

This course will examine the nature, frequency, and causes of violence, generally and of assault, robbery, rape, and homicide, specifically. Several different theoretical and research perspectives are reviewed, including biological, psychological, social, and cultural. The course also examines individual and societal responses to violence. Students are evaluated on three objective exams (25% each) and a series of short assignments (25%). CRIM/CRIMJ 421 may be used by both CLJBA and CLJBS degree candidates to satisfy a 400-level course requirement in the major. This course will be offered twice a year with 60 seats per offering.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 422** (CRIM 422) Victimization (3) Examines the history, how victimization is measured/studied in social sciences, public policy implications of victimization movement in U.S.

**CRIMJ (CRIM) 422 Victimization (3)**

Victimology has emerged as an important area of study for the social sciences and an important arena for policy development. This course will familiarize students with the historical development of the research into victimization and the importance of the victims' movement to public policy. Areas explored will include the relationship between victim and offender, the cultural images of victims and their impact on the victim and the response of the criminal justice system to them, and how research has attempted to measure victimization. Students will be evaluated on three exams and a term paper. This course will be offered once a year with 40 seats per offering. The course will be one of the supporting courses where the student must select 6 credits at the 400 level.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 250W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 423** (US) (WMNST 423, CRIM 423) Sexual and Domestic Violence (3) Legal, sociological, and psychological perspectives on sexual and domestic violence.

**CRIMJ (CRIM/WMNST) 423 Sexual and Domestic Violence (3)  
(US)**

This course investigates violence against women, specifically domestic, sexual, and relationship violence. Students will examine some of the legal, sociological, and psychological perspectives about sexual, domestic, and relationship violence as well as the social and cultural roots of violence against women. Students will also gain an understanding of the experiences of victims of domestic and sexual violence as well as the issues presented by perpetrators. Students will be evaluated based on performance on exams, and two research papers. CRIMJ/CRIM/WMNST 423 is a supporting course in both the WMNST major and minor as well as a supporting course in the CLJ major. It may also be used to satisfy a GI requirement. This course is offered fall and spring semester with an enrollment of 60 students each semester.

General Education: None  
Diversity: US  
Bachelor of Arts: None

Effective: Spring 2008  
Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 424** (CRIM 424) Drugs and Crime (3) Analysis of international narcotics trafficking in the twentieth century.

**CRIMJ (CRIM) 424 Drugs and Crime (3)**

The course examines narcotics trafficking across the world from a geopolitical and social science perspective. The course explores the history and policy of international narcotics trafficking, social science explanations of the narcotics trade, and the successes and failures of policy efforts to stop the narcotics trade. Students will be evaluated on the basis of exams, quizzes, and homework assignments. This course is one of several advanced level courses students in the CLJ major may choose from to meet 400-level requirements. This course will be offered twice a year with 60 seats per offering.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 424W** Drugs and Crime (3) Analysis of international narcotics trafficking in the twentieth century.

**Drugs and Crime (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 425** (CRIM 425) Organized Crime (3) This course examines organized crime in terms of historical antecedents, structure, related theories, and policy issues.

**CRIMJ (CRIM) 425 Organized Crime (3)**

This course will provide students with a historical and theoretical overview of organized crime. Students will gain an understanding of the structure of organized crime as well as an understanding of the businesses associated with traditional and nontraditional organized crime groups. The course will also provide students with a detailed analysis of state and federal laws and policies regarding organized crime. Students will be evaluated by two mid-term exams (25% each), an essay final exam (40%), and class participation (10%). Crime, Law, and Justice students may use this course to satisfy a 400-level course requirement in the Bachelor of Arts and Bachelor of Science majors. This course will be offered twice a year with 60 seats per offering. This course will be one of the supporting courses from which students are required to select six credits.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 426** Special Offender Types (3-6) Study of special offender types; relationships with criminal justice system (drug abuse, victimless crime, white collar crime considered different semesters).

**Special Offender Types (3-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: 3 credits in Criminal Justice or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 430** Alternatives to Incarceration (3) Control and treatment of offenders in the community, probation and parole organizations, diversion programs, innovative sentences, supervision techniques.

**CRIMJ 430 Criminal Law (3)**

This course introduces students to the system of "criminal justice" as defined and interpreted by the Supreme Court as well as lower courts. Students study the judicial process, the intricacies of opinion formation, the nature and extent of judicial power, the willingness of the courts to hear appeals, and the reality of criminal sanctioning and procedure. The adversarial process, the willingness of the courts to hear appeals, and the conflicting opinions of the court introduce students to the lack of conformity that is part of upholding Constitutional rights. Court attitudes and how the changing system is studied through stare decisis and case briefing. Particular cases and issues are critiqued such as capital punishment of the mentally ill, juveniles, and those who are mentally challenged. The tension between justice versus law is studied through cases, evaluation of court behavior, and changing attitudes towards racial inequities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CRIMJ 100 and CRIMJ 113 and CRIMJ 230 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 431 Offender and Prisoner Rights (3)** The identification of correctional problems and the setting of objectives as reflective of court rulings, legislative change, and administrative law.

### **Offender and Prisoner Rights (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CRIMJ 100 CRIMJ 113 CRIMJ 230 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 432 (CRIM 432) Crime and the American Court System (3)** This course examines the American court system including structure and the way courts process offenders with special focus on sentencing.

### **CRIMJ (CRIM) 432 Crime and the American Court System (3)**

CRIM/CRIMJ 432, Crime and The American Court system, studies the courts from the lower courts to the Supreme Court and the various actors that play important roles in the functioning of the courts. First, the course studies the jurisdictions of the various courts and their organization in various state systems as well as the federal courts as well as the organization of state and federal administrative offices that manage the courts including the training of judges and the preparation of the court budget. Subsequent to the development of the basic understanding of the court jurisdiction and organization, the class studies the roles of the key actors in the day-in and day-out operation of the courts. In the spotlight are judges, prosecutors and defense attorneys although the role of the probation officers and clerk of courts are also intertwined with the processing of defendants. Of particular importance in this component of the course is the development of what is referred to as the court community and the focal concerns and goals that the court must consider as it processes cases. An understanding of court community and focal concerns serves as crucial context for understanding the role of public policy as it attempts to shift or change the decision making of the court. One important dynamic of this course is the understanding that the court, although functioning as an institution to provide a neutral field on which accusations of criminality are to be played out, operates similarly to other organizations in that they are to be efficient (move cases with minimum overhead) and to be effective (provide justice, and protect the public). How the courts balance these competing demands and the informal processes that emerge in the processing of defendants is the key focus of the class. Finally, the course explores the attempts to reform the courts from the sentencing reforms such as determinate sentencing, mandatory minimums including "3 strikes" and sentencing guidelines. These issues highlight the political context of the courts and adaptability of the courts to attempts to change their values, and decisions. Students will be evaluated on attendance and participation, two papers, and two essay exams. This course will be offered twice a year with 60 seats per offering. This course serves as one core 400-level course in the major. Each student must take two of the five core 400-level courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CRIM 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 435 Border Security (3)** This course provides knowledge about government organizations charged with American border security, guiding laws and policies.

### **CRIMJ 435 Border Security (3)**

The Border Security course provides depth of knowledge of key border issues for students of homeland security. The course achieves this goal by focusing on border integrity strategies, the motivation and nature of criminal and other organizations which violate borders, the policies established by governments to maintain border integrity, identification of the key players in maintaining the border, and the relevant legal issues in enforcing laws on the border. This course allows the student to apply principles and concepts of homeland security to a specialized and very relevant area.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: 6th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 439** (PL SC 439) The Politics of Terrorism (3) Analysis of political terrorism as a violent alternative for peaceful change and traditional warfare in the nuclear age.

### **The Politics of Terrorism (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008  
Prerequisite: CRIMJ 100 or PL SC 014 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 441** (US) (CRIM 441) The Juvenile Justice System (3) Historical and contemporary view of the juvenile justice system. Focus on analyzing components of the system, their interactions, processing, and handling of youths.

### **CRIMJ (CRIM) 441 Delinquency and Juvenile Justice (3)**

This course examines delinquency and the juvenile justice system from a variety of viewpoints. It looks at the problems the system is expected to address, how the problems have changed through the ages, how the current juvenile justice system developed, and the programs used to prevent and control delinquency and their effectiveness. By the end of the course, students should be able to think critically about the research and issues in the field. Evaluation methods include exams, brief writing assignments and a longer paper on policy issues. Students will be evaluated through brief written assignments, a term paper, a mid-term essay, and essay final. This course will be offered twice a year with 60 seats per offering. Students in the major may select CRIM (CRIMJ) 441 as one of several required courses in either the BA or BS program. This course is one of the core courses in the curriculum from which students must choose six credits from five core courses offered. It also serves as one of the supporting courses in the curriculum from which the students must take six credits at the 400-level.

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 441W** The Juvenile Justice System (3) Historical and contemporary view of the juvenile justice system. Focus on analyzing components of the system, their interactions, processing, and handling of youths.

### **The Juvenile Justice System (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 450W** Senior Seminar (3 per semester/maximum of 6) Capstone course exploring past, current and future developments in criminal justice.

### **Senior Seminar (3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100 or CRIM 100 and sixth semester standing or permission of program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 451** (US) (CRIM 451) Race, Crime, and Justice (3) This course focuses on the significance of race, class, and

ethnicity to criminal justice processing and criminal offending.

**CRIMJ (CRIM) 451 Race, Crime, and Justice (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This class is designed to explore the relationship between the criminal justice system and racial minorities in the United States. Students will examine theoretical issues of race and justice, as well as empirical understandings of the relationship between race, crime, and the criminal justice system. Students will endeavor to understand some of the economic, political, and sociological reasons why racial minorities are over-represented in the criminal justice system. Students will also explore normative issues of justice and equity in broader social interactions that influence and are influenced by crime and the criminal process. This course may be used towards the additional courses requirements for the CLJ BS/BA and ADM J degrees. It will also satisfy the Intercultural/International competence (GI). Students will be evaluated by a midterm and final exam, a term paper and class participation. This course will be offered twice a year with 60 seats per offering.

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 453 (US) (WMNST 453, CRIM 453) Women and the Criminal Justice System (3)** This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system.

**CRIMJ (CRIM/WMNST) 453 Women and the Criminal Justice System (3)  
(US)**

The course will examine the role of women in the criminal justice system and look at the issues related to women as offenders, victims of crime, and as professionals in the system. Students will gain an understanding of the issues concerning women in the criminal justice system, examine how societal arrangements affect women as offenders, victims, and criminal justice professionals, and better understand the overlooked problems faced by women in the criminal justice system. Students will be evaluated on the basis of exams, presentations, and papers. CRIMJ/CRIM/WMNST 453 is a supporting course for both WMNST and CLJ majors, as well as the WMNST minor. This course may also be used to satisfy a GI requirement. This course will be offered twice a year with 60 seats per offering.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: CRIMJ 100 or WMNST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 460 History and Function of Criminal Justice Components (3)** Historical development of criminal justice system components (police, courts, corrections) related to formulation and function of the state.

**History and Function of Criminal Justice Components (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 462 Comparative Criminal Justice Systems (3)** A comparison of American and selected foreign justice systems to illustrate the variety of possible responses to crime.

**Comparative Criminal Justice Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: CRIMJ 100 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 465 Ethics in Criminal Justice (3)** Ethical behavior in the criminal justice system.

**Ethics in Criminal Justice (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: CRIMJ 100 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 467 (SOC 467, CRIM 467) Law and Society (3)** Law and society studies the social origins of law and legal systems; occupational careers, and decision-making of legal officials.

**CRIMJ (CRIM/SOC) 467 Law and Society (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Law and society teaches students' knowledge of key concepts and core ideas about the role of law in society. The course will cover the basics of key legal philosophies, major social science theories of law and society, research in law and society, the structure of the legal profession, and vital contemporary issues involving the role of law in society. CRIM/CRIMJ 113 and CRIM/CRIMJ 250W are prerequisites. The evaluations methods will include written assignments on course readings, and essay-style exams. Law and Society may be counted toward the credits required for the B.A. and B.S. in Crime, Law and Justice. It would fulfill one of the 400-level requirements in the "Law" component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization. This course will be offered once a year with 25-40 seats per offering.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2008  
 Prerequisite: CRIMJ 100 or CRIMJ 113 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 469 (HIST 469) Drugs and Drug Policy in the United States (3)** Examines the history and dimensions of drug use and analyzes the impact of drug policy.

**CRIMJ (HIST) 469 Drugs and Drug Policy in the United States (3)**

For nearly a century, the United States has been waging its version of a hundred years' war on drugs, spending billions of dollars and incarcerating thousands of offenders while failing to significantly reduce the use of illicit drugs. This course examines drug use in a historical context while addressing the changing nature and dimension of drug use, including the pharmacology of drugs, patterns of drug use, and sentencing policies. Because drug control is inextricably linked to social, political, and public policy, the course will provide the student with a foundation for critical thinking and rational decision making relative to the efficacy of the various drug control initiatives. Since drugs seemingly permeate every level of American society and directly or tangentially touch most Americans' lives, issues such as drug testing in the workplace, the use of drug courier profiles, legalized medical marijuana, and needle exchange programs are evaluated. Students will be expected to learn the pharmacology of various drugs, the history of drug use in the United States since the colonial era, the evolution of federal drug agencies, and acquire knowledge about contemporary drug issues. They also will be expected to develop and strengthen their critical thinking skills as they assess the consequences of implementing particular anti-drug policies and their impact on reducing the use of illicit drug use. An example of the evaluation methods would be: students will be evaluated on the basis of three exams and four "think pieces" (requiring students' critical responses to an assigned topic) scheduled throughout the semester. Class attendance also will influence the grade.

**Faculty Member Proposing Course:** John C. McWilliams

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 2008  
 Prerequisite: CRIMJ 100 or HIST 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 471 Legal Rights, Duties, Liabilities of Criminal Justice Personnel (3)** Civil law issues within a justice agency and between criminal justice agencies and members of the public.

**Legal Rights, Duties, Liabilities of Criminal Justice Personnel (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2013  
 Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 473** Criminal Procedure and Evidence in the Business Community (3) Law of evidence and proof, constitutional constraints on police procedures (arrest, search, etc.) in society and the business community.

**Criminal Procedure and Evidence in the Business Community (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 482** (CRIM 482) Seminar, Criminal Justice Agency Administration (3) Relates organizational and public policy management approaches to police, courts, and correctional institutions.

**CRIMJ (CRIM) 482 Seminar, Criminal Justice Agency Administration (3)**

In this course, you will learn about the nature of criminal justice organizations, individual and group behavior within the system, and the issues involved in reforming the system. This course will NOT teach you how to become an administrator in the criminal justice system, but hopefully will teach you about the issues and theories surrounding organizations and reform-and most importantly, teach you to think and communicate (in both written and verbal form). After taking this course, you should have a more accurate perception of criminal justice organizations and have a better understanding of the complexity surrounding the administration and management of these organizations. The evaluation methods will include a research paper, two essay midterms, and an essay final. Criminal Justice Agency Administration may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. This course will be offered three times a year with 40 seats per offering.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 489W** Victimology: Predatory Crime (3) This course uses medical, social scientific and legal research to study the complexities of predatory crime.

**CRIMJ 489W Victimology: Predatory Crime (3)**

This course builds upon CRIMJ 407, Victimology. Students are directed toward the development of forensic knowledge, crime scene analysis, comprehension of predatory injuries, films, and current serial crimes to initiate research and critical thinking. Issues such as gender, family abuse, protective services, trends in victim selection, and societal responses provide numerous opportunities for learning communities and interaction with other classes. The use of WEB based assignments and Department of Justice information encourages students to expand their research skills for writing assignments, short research papers, and legal research. The course also uses graphic slides to introduce students to the reality of physical and sexual child abuse, sexual assault, and homicide. Students are expected to review anatomy and use proper terminology when speaking about predatory behavior, victimization injuries, and psychological issues. Crime classification is introduced using the Federal Bureau of Investigation Manual and the DSM IV is used to classify aberrant behavior. Research completed by leaders in the field are assigned readings and special topics such as female serial killers, angels of death, spree killers, and terrorism provide a basis for class discussions and projects. The course also includes the "high crime low-war" classification of international terrorism and concepts of lethality of attack.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: CRIMJ 407

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 494** Research Topics (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**CRIMJ 494. Research Topics**

This common course will focus on specific research issues. Issues to be covered will be social violence, legal issues, and impact on crime control. Students will study the design and implementation of topical issues as they address specific issues. The course will add to the diversity offerings within the criminal justice program.

Facult member proposing course: M. A. DuPont-Morales

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 494H** Research Topics (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Topics (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 495** Internship in Criminal Justice (3-12) Experience with a criminal justice agency coordinated through readings and discussion.

**Internship in Criminal Justice (3-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIMJ 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1987

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1987

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 497A** Problem Solving Courts (3) This course provides students with an understanding and appreciation of the procedures, functioning and criteria that govern these new tribunals by examining the operation of drug, mental health, veterans, DUI, and reentry courts. It also analyzes whether such courts adequately address the needs of the offender, safeguard the constitutional rights of the accused, and protect the safety and security of the community.

**Problem Solving Courts (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**CRIMJ 497A** Problem Solving Courts (3) This course provides students with an understanding and appreciation of the procedures, functioning and criteria that govern these new tribunals by examining the operation of drug, mental health, veterans, DUI, and reentry courts. It also analyzes whether such courts adequately address the needs of the offender, safeguard the constitutional rights of the accused, and protect the safety and security of the community.

#### **Problem Solving Courts (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 497B** Media and Crime (3) This seminar course will include an examination of the relationship between media and crime. Specifically, the impact of the media on the criminal justice system, as well as the impact of crime on media, will be discussed. Additionally, media portrayal of special offender types, such as women and juveniles, will be covered. Various theories regarding the relationship between media and crime will also be examined.

#### **Media and Crime (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIMJ 499** (IL) Foreign Studies (6) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (6)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Criminology (CRIM)**

**CRIM 012** (GS) (CRIMJ 012, SOC 012) Criminology (3) Explanations and measurements of crime; criminal law; characteristics of criminals and victims; violent property, white-collar, organized, and sexual crimes.

#### **CRIM (CRIMJ /SOC) 012 Criminology (3) (GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Criminology is the study of the causes of criminal behavior. As such this course is an introduction to the topic with special focus on the major theories explaining criminal behavior including differential association, anomie, control theory and labeling theory. A key focus of the class is examining the most recent scientific research testing the basic theories. The students learn the various research techniques that have been used to study criminal behavior including crime statistics such as the Uniform Crime Report that serves as a monitor on crime trends. Several important areas of study that link understanding criminal behavior and its distribution across the social system are investigated including age, gender, race and ethnicity. One goal of the course is to promote a more complete understanding of crime and how it is enmeshed in human social life. The course concludes by using the knowledge base generated in the course to study the link of our understanding of criminal behavior and the emerging crime control policies of the past few decades. Finally, the course reviews the impact and effectiveness of some of these policies.

Throughout the course, the lectures as well as the readings emphasize the complexity of explaining human behavior and criminal behavior in particular. One aspect of the course is the use of a term paper on the objective and subjective availability of crime to the student. This paper emphasizes the complexity of the student's social life and the role that these factors may have on whether they have engaged in criminal behavior and their analysis of the causes of their criminal behavior. This project personalizes the various theories and helps the student understand the importance of their social environment in whether they have or will engage in crime.

Discussion and questions are encouraged in all sections. Sections of this course may include group research projects, debates, and library or internet-based research. Along with personal contact, students have the opportunity to communicate with teaching assistants and faculty members via e-mail. Writing assignments, along with in-class

examinations, are required in all sections.

This course meets a General Education requirement in the Social and Behavioral Sciences for non majors, is required for the CLJBA and CLJBS majors, and may be used in the SOC majors and minors.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 012H (GS) (SOC 012H) Criminology (3)** Explanations and measurements of crime; criminal law; characteristics of criminals and victims; violent property, white-collar, organized, and sexual crimes.

**Criminology (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 083S (CRIMJ 083S) First-Year Seminar in Criminal Justice (3)** Critical approaches to issues in criminal justice and criminology.

**CRIM (CRIMJ) 083S First-Year Seminar in Criminal Justice (3)  
(GS;FYS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Each section of this course will be limited to 20 students who will be instructed by an experienced faculty member. Each section will focus on a well-defined body of scholarship that addresses a relatively specific topic while at the same time providing an opportunity to broadly survey existing knowledge in the discipline. For example, some sections may address very broad questions that encompass the entire field, such as criminal justice policy, issues related to social justice, or explanations of crime. Other sections may focus on justice system responses to certain types of crime, such as violent crime, white collar crime, organized crime, or transnational crime. Finally, some sections may take a comparative and international approach, and consider how justice systems are administered or how patterns of crime vary in a range of countries and jurisdictions. Each section will emphasize the development of discussion writing, and analytical skills and will give students the opportunity to work individually and in small groups. Students can expect to gain a general introduction to the University as an academic community and to explore their responsibilities as members of that community. They will also become familiar with the learning tools and resources available to them, and they will be able to establish relationships with faculty and other students who share their academic interests. This course fulfills a general education or Bachelor of Arts requirement in the social/behavioral sciences.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 100 (GS) (CRIMJ 100) Introduction to Criminal Justice (3)** Overview of the criminal justice system, including legal foundations, processing and correction of offenders, extent and types of crime, victims.

**CRIM (CRIMJ) 100 Introduction to Criminal Justice (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides an overview of the criminal justice system in the United States. Topics to be covered include: the extent of crime in the United States; competing and complementary goals of the criminal justice system; sources of criminal law; the history and development of the system; the functions of police, attorneys, courts and correctional agencies; the interactions between different parts of the system; and the impact of crime on the victim. Students are evaluated on two exams (20% each), two written assignments (30%), and a final exam (30%). This course is a prescribed course in the CLJBA, CLJBS, ADM J BS and ADM J BA majors, and it is also a prerequisite for most 400-level courses in Crime, Law, and Justice.

General Education: GS  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 113 (US) (CRIMJ 113)** Introduction to Law (3) Introduction to law in society with a focus on criminal law, judicial code, laws of sentencing and corrections, criminal procedure.

**CRIM (CRIMJ) 113 Introduction to Law (3)**

Introduction to the law is designed to provide CLJ majors with an introductory level of knowledge of the criminal law, and other legal codes such as the Judicial Code, laws of corrections, probation and parole, and the rules of criminal and appellate procedure. The course will serve as a gateway course to taking more advanced criminology and criminal justice courses. CRIMJ (CRIM) 113 is one of the Prescribed Courses in the CLJ curriculum and is used as a prerequisite for many 400 level courses including CRIM 467 AND 469.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 201 (GS) (SOC 201)** Presumed Innocent? Social Science of Wrongful Conviction (3) Social science of how wrongful convictions occur; disparities in the criminal justice system; risks, factors, and policies.

**Presumed Innocent? Social Science of Wrongful Conviction (3)**

General Education: GS

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 250W (CRIMJ 250W)** Research Methods in Criminal Justice (3) Fundamental concepts of social science research including design, measurement, sampling, and interpretation of the study of crime, law, and justice.

**CRIM 250W Research Methods in Criminal Justice (3)**

The purpose of this writing-intensive course is to provide an introduction to the research process in crime, law and justice through lecture, discussions, readings, examinations, exercises, and an empirical research paper. After completion of this course, students will know about and be able to do the following: (1) Know about ethical issues in social science research and understand the role of the Human Subjects Review Board. (2) Construct a testable hypothesis based on theory and previous research. (3) Read a published research article and identify the research problem/hypotheses, how the data were gathered to test the hypotheses, and major findings from the research. (4) Describe types of probability and non-probability sampling. (5) Know the criteria for causality and the difficulties involved with determining causality. (6) Since survey methods are the most frequently used data gathering methods, students will learn about survey data gathering techniques, measurement issues and response rates. (7) Read contingency tables and understand statistical significance. (8) Understand non-survey research techniques including field research, experiments, focus groups and content analysis. Students are required to write a research paper or proposal demonstrating their competencies in the above areas. Written work is produced in drafts that receive feedback from the instructor at key junctures in the course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: CRIM 012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**CRIM 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 296A** Preceptorship in Criminology (1-6) Supervised experience as a teaching assistant under the supervision of an approved faculty member.

**CRIM 296A Preceptorship in Criminology (1-6 per semester/maximum of 6)**

The Preceptorship provides undergraduates with an opportunity to work closely with a faculty member in a regularly scheduled course as a teaching assistant. Undergraduate juniors and seniors who have done well in a particular course can deepen their understanding of the material by assisting in teaching about the subject. The Preceptorship also provides greater opportunity for interaction between faculty and students. Moreover, if graduate students also are involved in teaching, they provide role models for undergraduates.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 312** Introduction to Forensic Science in the Criminal Justice System (3) This course introduces the student to the role in the criminal justice system and the legal context of forensic evidence.

**Introduction to Forensic Science in the Criminal Justice System (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 395** Internship in Criminal Justice (1-9) Field experience focusing on the student's major interest within the area of criminal justice.

**Internship in Criminal Justice (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 250W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 406** (CRIMJ 406, SOC 406) Sociology of Deviance (3) Theory and research concerning behaviors and lifestyles viewed as significant departures from a group's normative expectations.

**CRIM (CRIMJ/SOC) 406 Sociology of Deviance (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Sociology of Deviance focuses on the theory and research in social construction of social norms, the violation of norms, and social reaction to the violation of norms. The course focuses on the role of social structure and power in the definition of deviance, on structural, cultural, and social psychological processes involved in deviant behavior, and the dynamics of social reaction to deviance. The course includes some content focusing on criminal deviance, but also emphasizes non-criminal deviance, as well as the role of social movements and social change in constructing and contesting deviance definitions. CRIMJ/SOC/CRIM 012 and CRIM/CRIMJ 250W are prerequisites. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the "Crime" component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 407** (CRIMJ 407) Victimology (3) This course will explore the legal, emotional, and social responses to the process of victimization by offenders and third parties.

**Victimology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 412** (CRIMJ 412) Crime, Social Control, and the Legal System (3) Legal and extralegal control; public opinion on crime; criminal justice and correctional processes; legal sanctions; control strategies. Field trip.

**Crime, Social Control, and the Legal System (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 012/CRIM 013 or SOC 005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 413** (SOC 413, CRIMJ 413) Advanced Criminological Theory (3) This course provides an in-depth look at theories of crime and examines influential empirical studies designed to these theories.

**CRIM (CRIMJ/SOC) 413 Advanced Criminological Theory (3)**

Advanced criminological theory is intended to extend and deepen students' knowledge of core ideas in criminology. The course has four main emphases: 1) learning major schools of thought in criminology, 2) learning about the uses and construction of theory, 3) learning about approaches to integrating criminological theories, and 4) exploring how criminological concerns are grounded in and interrelated with core issues in sociology. The course is offered once a year with 50 seats per offering. CRIMJ/CRIM/SOC 012 is a prerequisite. Students will be evaluated on research or analytical papers, written assignments on course readings, and/or in-class essay-style exams. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with a Deviance and Criminology specialization.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 012CRIM 250W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 414** (CRIMJ 414, CRIM 414) Criminal Careers and the Organization of Crime (3) Research on and theory of criminal careers and crime organizations, emphasizing recruitment and disengagement; offender characteristics and lifestyles; policy implications.

**Criminal Careers and the Organization of Crime (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: SOC 012 orSOC 013 orSOC 005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 421** (CRIMJ 421) Violent Crime (3) Examines the nature and causes of violence. Several theoretical perspectives are reviewed including biological, psychological, social, and cultural.

**CRIM (CRIMJ) 421 Violent Crime (3)**

This course will examine the nature, frequency, and causes of violence, generally and of assault, robbery, rape, and homicide, specifically. Several different theoretical and research perspectives are reviewed, including biological, psychological, social, and cultural. The course also examines individual and societal responses to violence. CRIM/CRIMJ 421 may be used by both CLJBA and CLJBS degree candidates to satisfy a 400-level course requirement in the major.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 100CRIM 250W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 422** (CRIMJ 422) Victimization (3) Examines the history, how victimization is measured/studied in social sciences, public policy implications of victimization movement in U.S.

**CRIM (CRIMJ) 422 Victimization (3)**

Victimology has emerged as an important area of study for the social sciences and an important arena for policy development. This course will familiarize students with the historical development of the research into victimization and the importance of the victims' movement to public policy. Areas explored will include the relationship between victim and offender, the cultural images of victims and their impact on the victim and the response of the criminal justice system to them, and how research has attempted to measure victimization. The course will be one of the supporting courses where the student must select 6 credits at the 400 level.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 250W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 423** (US) (CRIMJ 423, WMNST 423) Sexual and Domestic Violence (3) Legal, sociological, and psychological perspectives on sexual and domestic violence.

**CRIM (CRIMJ/WMNST) 423 Sexual and Domestic Violence (3)  
(US)**

This course investigates violence against women, specifically domestic, sexual, and relationship violence. Students will examine some of the legal, sociological, and psychological perspectives about sexual, domestic, and relationship violence as well as the social and cultural roots of violence against women. Students will also gain an understanding of the experiences of victims of domestic and sexual violence as well as the issues presented by perpetrators. Students will be evaluated based on performance on exams, and two research papers. CRIMJ/CRIM/WMNST 423 is a supporting course in both the WMNST major and minor as well as a supporting course in the CLJ major. It may also be used to satisfy a US requirement.

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: CRIMJ 100 orWMNST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 424 (CRIMJ 424) Drugs and Crime (3)** Analysis of international narcotics trafficking in the twentieth century.

**CRIM (CRIMJ) 424 Drugs and Crime (3)**

The course examines narcotics trafficking across the world from a geopolitical and social science perspective. The course explores the history and policy of international narcotics trafficking, social science explanations of the narcotics trade, and the successes and failures of policy efforts to stop the narcotics trade. Students will be evaluated on the basis of exams, quizzes, and homework assignments. This course is one of several advanced level courses students in the CLJ major may choose from to meet 400-level requirements.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: CRIM 100 orWMNST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 425 (CRIMJ 425) Organized Crime (3)** This course examines organized crime in terms of historical antecedents, structure, related theories, and policy issues.

**CRIM (CRIMJ) 425 Organized Crime (3)**

This course will provide students with a historical and theoretical overview of organized crime. Students will gain an understanding of the structure of organized crime as well as an understanding of the businesses associated with traditional and nontraditional organized crime groups. The course will also provide students with a detailed analysis of state and federal laws and policies regarding organized crime. Students will be evaluated by two mid-term exams (25% each), an essay final exam (40%), and class participation (10%). Crime, Law, and Justice students may use this course to satisfy a 400-level course requirement in the Bachelor of Arts and Bachelor of Science majors. This course will be one of the supporting courses from which students are required to select six credits.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 429 Seminar in Criminal Behavior (3-4 per semester/maximum of 7)** This course explores the study of the application of criminological theories to our understanding of various forms of criminal behavior.

**CRIM 429 Seminar in Criminal Behavior (3-4/maximum of 7)**

The course is intended to provide in the curriculum an avenue for the faculty to offer special focus courses on emerging forms of criminal behavior. For example, during the past several years the criminal justice system has had to respond to new forms of criminal behavior that have developed as we have developed new technologies. Recent use of the Internet as a means of committing crime has been the focus of federal and state legislation. Thus, societies have developed new forms or new means to old forms of criminal behavior through the use of technology. CRIM 429 will provide the faculty with the opportunity to develop special criminal behavior topic courses on offenses such as these and many other topics on our understanding and ability to explain criminal behavior. The course can satisfy 400 level requirements for the students in the CLJ major. This course will evaluate the students using a combination of written assignments and oral presentations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 430 American Correctional System (3)** Study of corrections from probation, intermediate punishment, adult and juvenile correctional institutions to parole.

**CRIM 430 American Correctional System (3)**

This course examines the correctional system from the sentencing decision to reentry or release from the correctional system. The course focuses on the choices that decision-makers face in sentencing, classification and responding to violations by offenders as well as the problems that offenders face as they confront their treatment/punishment. As part of the analysis the course explores the persistent conflicting expectations that society imposes on our correctional system and the effectiveness of the system in rehabilitating, deterring and incapacitating offenders. This course expands on the brief introduction of the topic in CRIM/CRIMJ 100 and relies on the student's understanding of social science research developed in CRIM/CRIMJ 250W to critically analyze what we know about corrections. This course provides the opportunity for students to study in depth a major component of the criminal justice system and is one of five classes students may select from to meet a major core course requirement.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 100/CRIM 250W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 432 (CRIMJ 432) Crime and the American Court System (3)** This course examines the American court system including structure and the way courts process offenders with special focus on sentencing.

**CRIM (CRIMJ) 432 Crime and the American Court System (3)**

CRIM/CRIMJ 432, Crime and The American Court system, studies the courts from the lower courts to the Supreme Court and the various actors that play important roles in the functioning of the courts. First, the course studies the jurisdictions of the various courts and their organization in various state systems as well as the federal courts as well as the organization of state and federal administrative offices that manage the courts including the training of judges and the preparation of the court budget. Subsequent to the development of the basic understanding of the court jurisdiction and organization, the class studies the roles of the key actors in the day-in and day-out operation of the courts. In the spotlight are judges, prosecutors and defense attorneys although the role of the probation officers and clerk of courts are also intertwined with the processing of defendants. Of particular importance in this component of the course is the development of what is referred to as the court community and the focal concerns and goals that the court must consider as it processes cases. An, understanding of court community and focal concerns serves as crucial context for understanding the role of public policy as it attempts to shift or change the decision making of the court. One important dynamic of this course is the understanding that the court, although functioning as an institution to provide a neutral field on which accusations of criminality are to be played out, operates similarly to other organizations in that they are to be efficient (move cases with minimum overhead) and to be effective (provide justice, and protect the public). How the courts balance these competing demands and the informal processes that emerge in the processing of defendants is the key focus of the class. Finally, the course explores the attempts to reform the courts from the sentencing reforms such as determinate sentencing, mandatory minimums including "3 strikes" and sentencing guidelines. These issues highlight the political context of the courts and adaptability of the courts to attempts to change their values, and decisions. This course serves as one core 400-level course in the major. Each student must take two of the five core 400-level courses.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 433 Sentencing (3)** This course studies sentencing from prosecutorial charging decisions through revocation of probation, and the complex goals and responsibilities at sentencing.

**CRIM 433 Sentencing (3)**

This course focuses on the key decision in our court system--sentencing. The course covers the historical development of sentencing both within the United States and internationally as a backdrop to the reform efforts of the late 20th Century. The course explores how sentencing has changed from a judge-based discretionary system to a system where numerous restrictions to judicial discretion have been imposed by state and federal legislatures. Students will be evaluated on two essay exams (midterm and final) with the midterm worth 20 and the final 30 percent of the grade. A research analysis paper will be required that will be completed in three stages. The first stage will be the setting forth of a research problem and a scheme for analyzing the data (10%). The second stage will be an oral presentation of the findings (20%). The final stage will be a written term paper on the project (20%). This course will be used by CLJ majors as one of the six credits of 400-level elective credits required in the major.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 100/CRIM 250W



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 435 Policing in America (3)** This course will focus on current, historical, theoretical, and research issues surrounding law enforcement in the United States.

**CRIM 435 Policing in America (3)**

This course is designed to provide a basic knowledge of the structure of policing in America and to explore findings from research considering police behavior. Students will examine and discuss controversial issues relating to policing in American society. Current trends in policing philosophies and strategies will be identified and their effectiveness will be debated. The relationship between police and citizens will be stressed. CRIM 435 can be used to satisfy a core 400-level course requirement in the CLJBA and CLJBS majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CRIM 100CRIM 250W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 441 (US) (CRIMJ 441) Delinquency and Juvenile Justice (3)** Course examines delinquency and the juvenile justice system including delinquency's nature, causes, and prevention and the processing of juveniles.

**CRIM (CRIMJ) 441 Delinquency and Juvenile Justice (3)**

This course examines delinquency and the juvenile justice system from a variety of viewpoints. It looks at the problems the system is expected to address, how the problems have changed through the ages, how the current juvenile justice system developed, and the programs used to prevent and control delinquency and their effectiveness. By the end of the course, students should be able to think critically about the research and issues in the field. Evaluation methods include exams, brief writing assignments and a longer paper on policy issues. Students will be evaluated through brief written assignments, a term paper, a mid-term essay, and essay final. This course will be offered twice a year with 60 seats per offering. Students in the major may select CRIM (CRIMJ) 441 as one of several required courses in either the BA or BS program. This course is one of the core courses in the curriculum from which students must choose six credits from five core courses offered. It also serves as one of the supporting courses in the curriculum from which the students must take six credits at the 400-level.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CRIM 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 451 (US) (CRIMJ 451) Race, Crime, and Justice (3)** This course focuses on the significance of race, class, and ethnicity to criminal justice processing and criminal offending.

**CRIM (CRIMJ) 451 Race, Crime, and Justice (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This class is designed to explore the relationship between the criminal justice system and racial minorities in the United States. Students will examine theoretical issues of race and justice, as well as empirical understandings of the relationship between race, crime, and the criminal justice system. Students will endeavor to understand some of the economic, political, and sociological reasons why racial minorities are over-represented in the criminal justice system. Students will also explore normative issues of justice and equity in broader social interactions that influence and are influenced by crime and the criminal process. This course may be used towards the additional courses requirements for the CLJ BS/BA and ADM J degrees. It will also satisfy the United States Cultures and International Cultures requirement.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CRIM 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 453 (US) (CRIMJ 453, WMNST 453) Women and the Criminal Justice System (3)** This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system.

**CRIM (CRIMJ/WMNST) 453 Women and the Criminal Justice System (3)**

**(US)**

The course will examine the role of women in the criminal justice system and look at the issues related to women as offenders, victims of crime, and as professionals in the system. Students will gain an understanding of the issues concerning women in the criminal justice system, examine how societal arrangements affect women as offenders, victims, and criminal justice professionals, and better understand the overlooked problems faced by women in the criminal justice system. Students will be evaluated on the basis of exams, presentations, and papers. CRIMJ/CRIM/WMNST 453 is a supporting course for both WMNST and CLJ majors, as well as the WMNST minor. This course may also be used to satisfy a US requirement.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: CRIM 100 or WMNST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 467** (CRIMJ 467, SOC 467) Law and Society (3) Law and society studies the social origins of law and legal systems; occupational careers, and decision-making of legal officials.

**CRIM (CRIMJ/SOC) 467 Law and Society (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Law and society teaches students' knowledge of key concepts and core ideas about the role of law in society. The course will cover the basics of key legal philosophies, major social science theories of law and society, research in law and society, the structure of the legal profession, and vital contemporary issues involving the role of law in society. CRIM/CRIMJ 113 and CRIM/CRIMJ 250W are prerequisites. The evaluations methods will include written assignments on course readings, and essay-style exams. Law and Society may be counted toward the credits required for the B.A. and B.S. in Crime, Law and Justice. It would fulfill one of the 400-level requirements in the "Law" component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CRIM 100/CRIMJ 113 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 469** Seminar in the Law (3-4 per semester/maximum of 7) The focus of this seminar is the law such as the laws of sentencing, appellate court decisions and their impact.

**CRIM 469 Seminar in Law (3-4 per semester/maximum of 7)**

This seminar explores topics related to the law and will vary from semester to semester depending on current events, faculty research and other areas of study related to the criminal law. Evaluation methods will vary depending on the focus of the seminar, however, student evaluations will rely on techniques such as writing and presentations to enhance student presentation skills as well as evaluate their understanding of the course material. Students may take this course twice. This course serves as one of the supporting courses from which students must select 6 credits at the 400-level. It also serves as one of the additional courses from which students must select 18 credits under the Legal Studies Option.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CRIM 113

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 480H** Research Topics in Crime, Law, and Justice (1) Students are exposed to a variety of research topics related to crime, law, and justice.

**CRIM 480H Research Topics in Crime, Law, and Justice (1)**

This one-credit seminar is intended for Scholars in the fall semester of their third year who intend to complete their Honors thesis in Crime, Law, and Justice. Students are exposed to a wide variety of research topics related to crime, law, and justice. The specific topics depend on the interests of the students and on the current research being conducted by the faculty of the Crime, Law, and Justice program. Students read and summarize research reports, engage in discussions with Crime, Law, and Justice faculty, and attend lectures by visiting scholars. At the conclusion of the seminar, students select a research topic for their honors thesis and a CLJ faculty member to supervise that thesis.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CLJ major and admission to the Schreyer Honors College

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 481H** Information Literacy in Crime, Law, and Justice (1) Students are exposed to a variety of information sources related to crime, law, and justice.

**CRIM 481H Information Literacy in Crime, Law, and Justice (1)**

This one-credit seminar is intended for Scholars in the spring semester of their third year who intend to complete their honors thesis in Crime, Law, and Justice. This course surveys the structures of information, patterns of information retrieval, and the resources and technologies used to research topics related to crime, law, and justice. Students complete a series of assignments involving information retrieval and the effective use of information technologies. This includes working with their faculty supervisor and collecting information on the topic they have selected for their honors thesis. At the conclusion of the class, students present a research proposal for their honors thesis, including a review of the relevant literature and a schedule for completing the thesis during their fourth year.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CLJ 480H

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 482** (CRIMJ 482) Seminar, Criminal Justice Agency Administration (3) Relates organizational and public policy management approaches to police, courts, and correctional institutions.

**CRIM (CRIMJ) 482 Seminar, Criminal Justice Agency Administration (3)**

In this course, you will learn about the nature of criminal justice organizations, individual and group behavior within the system, and the issues involved in reforming the system. This course will NOT teach you how to become an administrator in the criminal justice system, but hopefully will teach you about the issues and theories surrounding organizations and reform-and most importantly, teach you to think and communicate (in both written and verbal form). After taking this course, you should have a more accurate perception of criminal justice organizations and have a better understanding of the complexity surrounding the administration and management of these organizations. Criminal Justice Agency Administration may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 490** Crime Policy (3) This course focuses on criminal justice policy and the factors that influence policy development and implementation.

**CRIM 490 Crime Policy (3)**

This class will study crime and criminal justice in the context of law and the development and implementation of public policy. The course will focus on the politics of law and social control by exploring the construction of crime as a social problem, fundamental aspects of the policy development and implementation process, the legal interpretation of public policy, and the role of federal, state, and local governments in crime control. Students will be evaluated on essay exams and a term paper. This course is intended to be a capstone course for advanced undergraduates. The course will draw on the broad range of course work that students will have taken prior to taking this course to develop a course that takes what we know about crime, the law and the justice system and focus on public policy as it relates to these areas. The course may be used toward the six credits required at the 400 level under Additional Courses or as one of the courses under the Legal Studies Option.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CRIM 100CRIM 113CRIM 250W 6 credits of 400-level CRIMJ courses and 7th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CRIM 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Curriculum and Instruction (C I)

**C I 195** Early Observation Experience for Teacher Preparation (1-2 per semester/maximum of 2) Early observational work in educational settings with a variety of age/grade levels.

**Early Observation Experience for Teacher Preparation (1-2 per semester/maximum of 2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 200** Peer Tutoring (1) Prepares students to develop successful practices as a peer tutor.

**Peer Tutoring (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 210 Small Group & One-on-one Tutoring (1)** The course gives students knowledge in one-on-one peer tutoring as well as in a small group setting.

**Small Group & One-on-one Tutoring (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 250H Education Research: Issues and Approaches (3)** Introduction to frameworks and methods for education research, including classroom-based and non-classroom-based research.

**C I 250H Education Research: Issues and Approaches (3)**

This course serves as an introduction to the major issues and traditions surrounding research in education.

Educational research spans the full range of settings in which people learn and/or teach, including schools and classrooms but also non-school settings such as community, therapeutic, or workplace environments. This research is carried out within a broad range of intellectual traditions and using a diverse set of methodologies as well. Further, some educational research is carried out by practitioners as they engage in their daily work (such as teachers conducting classroom inquiry), while others study education from non-practitioner perspectives. This course will serve as an overview of major questions, frameworks, and methods that characterize educational inquiry, serving as an introduction to the broad set of frames for studying education. In addition, the course will address controversies surrounding the conduct and utility of educational research.

The course is appropriate for undergraduate students interested in engaging in independent research, honors theses, or collaboration on faculty research projects—or those simply interested in becoming more informed consumers of research on education. Students will read examples of research in different education subfields, interact with faculty from various subfields in education, and consider how their own educational questions might be approached. Students will also learn about the dissemination of education research in journals and presentations. Upon finishing the course, students will be prepared to develop a research proposal suitable for an undergraduate project such as a thesis or capstone paper.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 280 (GH) Introduction to Teaching English to English Language Learners (3)** Introductory English language teaching, and pedagogical strategies with English Language Learners.

**C I 280 Introduction to Teaching English to English Language Learners (3)**

CI 280 focuses on the development of foundational knowledge to successfully assist English language learners in U.S. school contexts. The basic premise of the course is that teachers play an important role in creating a positive classroom learning environment and bringing school success for English language learners. This course is designed to develop essential dispositions, skills, and knowledge for teacher education students to fulfill their important role.

Course objectives are to understand culture, language, learning contexts, and pedagogy. Culture focuses on a) socio-cultural characteristics of English language learners, b) how English language learners' cultural communication and learning styles affect the learning process, c) how English language learners' cultural values affect their academic achievement and language development, d) negative effect of cultural bias in instruction, materials and assessments, and e) the importance of developing cross-cultural competence in interactions with colleagues, administrators, school and community specialists, students and their families.

Language focuses on a) knowledge of language systems, structures, functions, and variation, b) the process of acquiring first and second language and literacy skills, c) the connection between oral and written language in school contexts, and d) the differences between academic and social language and the importance of developing both to succeed in U.S. schools. Learning contexts focus on understanding the characteristics of school and classroom contexts that support English language learners' successful learning. This topic extends to the discussion of laws and regulations that affect teaching of English language learners. Pedagogy focuses on understanding key principles of linguistically responsive teaching for English language learners. Students will study these four major course topics through course readings, class discussions, and cultural explorations of their own and others' cultures while engaging in individual, social, and experiential learning opportunities.

Students will demonstrate their understanding of the course content by completing a multi-genre paper, a learning portfolio, and a curriculum-based test. Multi-genre paper will provide students with an opportunity to explore their own culture and the culture of a local immigrant group through a thematic collection of various types of writings. A curriculum-based test will provide students with an opportunity to demonstrate their learning of language. Learning portfolio will provide students with an opportunity to document evidence of their own learning in various classroom activities and reflect on their learning throughout the semester. Considering that participation of classroom discussions and activities is an important source of developing content knowledge in the course, attendance will be required.

General Education: GH  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: EDPSY 010 or EDPSY 014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 295** Introductory Field Experience for Teacher Preparation (1-3 per semester/maximum of 6) Selected observation of schooling situations with small group and tutorial participation.

#### **Introductory Field Experience for Teacher Preparation (1-3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: second-semester standing Official clearances required. See:  
<http://www.ed.psu.edu/preservice/clearance.htm>

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 295A** Introductory Field Experience for Early Childhood Settings (1-3 per semester/maximum of 3) Selected observations and individual and small group tutoring in early childhood, elementary school, and education related, community settings.

#### **C I 295A Introductory Field Experience for Early Childhood Education (1-3)**

CI 295A is designed to enable students interested in early childhood education as a potential major and career to gain experience observing and assisting in a variety of school and community settings. Students will be engaged in observing as well as tutoring individual children and small groups of children in pre-kindergarten settings as well as in kindergarten through fourth grade settings. As students have not yet been exposed to methods of instructional planning and delivery, their tutoring of individuals and small groups will be carried out under the direct supervision of a professional teacher. Through their observation and participation in these educational settings, students will develop an awareness of observation as a tool for understanding and analyzing educational environments, teaching and learning. They will develop an understanding of the nature of participant observation as well as a variety of frameworks and strategies that can be used for observation as well as the skills necessary to communicate observations professionally and ethically.

Engaging in extended observations in educational settings provides students with an opportunity to enrich and deepen their understanding of a variety of educational concepts that they will encounter in prerequisite or concurrent courses including child development, English language learning and development, principles of human learning, individual differences in human ability including special needs students, cultural diversity, and contemporary issues in education and their impact on childhood educational settings.

Finally, CI 295A will provide an opportunity for students to examine childhood education as a future career. They will be introduced to notions of teaching in general as a career as well as to specialized aspects of teaching in both pre-kindergarten and elementary school settings. Students will examine their own biographies as learners and the implications of their biographies for the development of a teacher identity and the potential suitability of childhood education as a career. Students will also be engaged in examining a variety of codes for professional and ethical conduct for educators. Through examining, critiquing and synthesizing these various articulations of professionalism, students will begin the development of a personalized code of ethical, and professional conduct.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: second semester standing  
Concurrent: HD FS 229 or C I 280 or EDPSY 014 or EDTHP 115 or SPLED 400

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 295B** Introductory Field Experience in Middle Level Education (1-3 per semester/maximum of 3) Selected observations and individual and small group tutoring in early childhood, elementary school, and education related, community settings.

#### **C I 295B Introductory Field Experience for Middle Level Education (1-3)**

CI 295B is designed to enable students interested in middle level education (Grades 4 to 8) as a potential major and career to gain experience observing and assisting in a variety of school settings. Students will be engaged in observing as well as tutoring individual children and small groups of children in middle level educational settings. As students have not yet been exposed to methods of instructional planning and delivery, their tutoring of individuals and small groups will be carried out under the direct supervision of a professional teacher.

Through their observation and participation in these educational settings, students will develop an awareness of observation as a tool for understanding and analyzing educational environments, teaching and learning. They will develop an understanding of the nature of participant observation as well as a variety of frameworks and strategies that can be used for observation as well as the skills necessary to communicate observations professionally and ethically.

Engaging in extended observations in educational settings provides students with an opportunity to enrich and deepen their understanding of a variety of educational concepts that they will encounter in prerequisite or concurrent courses including child development, English language learning and development, principles of human learning, individual differences in human ability including special needs students, cultural diversity, and contemporary issues in education and their impact on middle level educational settings.

Finally, CI 295B will provide an opportunity for students to examine middle level education as a future career. They will be introduced to notions of teaching in general as a career as well as to specialized aspects of teaching in both pre-kindergarten and elementary school settings. Students will examine their own biographies as learners and the implications of their biographies for the development of a teacher identity and the potential suitability of middle level education as a career. Students will also be engaged in examining a variety of codes for professional and ethical conduct for educators. Through examining, critiquing and synthesizing these various articulations of professionalism, students will begin the development of a personalized code of ethical, and professional conduct.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: second semester standing HD FS 229 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 295C** The Bedford Rural Seminar/Introductory Field Experience for Teacher Preparation (3) C I 295C is designed to give students interested in exploring rural education and life a two-week immersion experience in a rural setting.

### **The Bedford Rural Seminar/Introductory Field Experience for Teacher Preparation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: required clearances to be able to go into the schools.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 295D** The Philadelphia Urban Seminar (3) A two-week, 3 credit, summer course that provides a unique immersion experience in an urban public school environment.

### **The Philadelphia Urban Seminar (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: second-semester standing Official clearances required. See:

<http://www.ed.psu.edu/preservice/clearance.htm>

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 400** Introduction to Research Literature (3) Introduction to research literature and methodology; stress on interpretation, sources, and research reporting.

### **Introduction to Research Literature (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1981  
Prerequisite: student teaching or teaching experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 405** (EDLDR 405) Strategies in Classroom Management (3) Managing and coping with disruptive student behavior in instructional settings so that they support the teaching/learning process.

### **C I (EDLDR) 405 Strategies in Classroom Management (3)**

This course has been designed to engage students in in-depth examination of the process of creating and sustaining a classroom learning community that fosters and enables success for all children. Emphasis is placed on understanding a variety of theoretical models of classroom management as well as observing and studying individual children to develop a better understanding of their needs. The result should be the development of a coherent set of beliefs concerning the creation of classroom learning environments that support learners and meet their individual needs.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: teaching experience or supervised practicum experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 412W** Secondary Teaching (3) Study of the teacher's responsibilities, steps in planning instruction, and various strategies for implementing and assessing teaching.

### **Secondary Teaching (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: C I 295EDPSY 014EDTHP 115

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 494H** Research Techniques in Curriculum and Instruction (1-3) Examination, application, assessment, and presentation of research modes and techniques in Curriculum and Instruction. Limited to University scholars in the College of Education.

### **Research Techniques in Curriculum and Instruction (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None



Effective: Spring 1988

Prerequisite: second-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 495A** Clinical Application of Instruction--PK--4 (3) Practicum situation for demonstration of selected instructional strategies and management skills acquired in professional training. To be offered only for Satisfactory/Unsatisfactory grading.

### **C I 495A Clinical Application of Instruction--Early Childhood Education (3)**

The emphases in C I 495A are on meeting professional expectations of teaching professionals and planning and teaching lessons. Teacher candidates are placed in classrooms in the Central Region of Pennsylvania, which is an area within a 70-mile radius of State College. A university supervisor observes candidates on a weekly basis during this field experience. In addition to the on-going field experience, teacher candidates enrolled in CI 495A meet in weekly seminars. During seminars, candidates are engaged in discussions addressing lesson planning, differentiation of instruction, classroom management techniques, and teacher professionalism.

C I 495A is a part of a block of courses in a PSU teacher education program that is unified by a basic set of principles and a field experience component.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: C I 295EDPSY 014EDTHP 115 . Official clearances required. See:

<http://www.ed.psu.edu/preservice/clearance.htm>

Concurrent: regular professional methods courses in area of certification.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 495B** Clinical Application of Instruction--Middle Level Education (3) Practicum situation for demonstration of selected instructional strategies and management skills acquired in professional training. To be offered only for Satisfactory/Unsatisfactory grading.

### **C I 495B Clinical Application of Instruction--Elementary and Kindergarten Education (3)**

C I 495B for Middle Level Education is a full-time teaching practicum. It provides an opportunity for teacher candidates to integrate concepts, theories, and ideas from their coursework. Specifically, C I 495B engages candidates in examining 1) what it means to be a professional and establish professional relationships with colleagues, students, and families, 2) how to use various tools (e.g., observation, writing, reflection, teaching, case studies, etc.) that are available to them in learning to be a teacher, 3) how to make connections across the various courses and experiences they are taking during the semester, and 4) how effectively they are developing their knowledge and skills as a beginning teacher and what sources of evidence they should use in judging their effectiveness.

Teacher candidates in C I 495B are expected to achieve desired outcomes in four domains: 1) planning and preparing for student learning, 2) teacher, 3) inquiry and analysis of teaching and learning, and 4) fulfilling professional responsibilities.

C I 495B is a part of a block of courses in a PSU teacher education program that is unified by a basic set of principles and a field experience component.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: C I 295EDPSY 014EDTHP 115 . Official clearances required. See:

<http://www.ed.psu.edu/preservice/clearance.htm>

Concurrent: MTHED 420 SCIED 458 SS ED 430W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 495C** Clinical Application of Instruction--Secondary Education (3) Practicum situation for demonstration of selected instructional strategies and management skills acquired in professional training. To be offered only for Satisfactory/Unsatisfactory grading.

### **Clinical Application of Instruction--Secondary Education (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1997

Prerequisite: C I 295EDPSY 014EDTHP 115 . Official clearances required. See:

<http://www.ed.psu.edu/preservice/clearance.htm>

Concurrent: C I 412 and special methods course(s) in area of certification

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 495D** Practicum in Student Teaching--Childhood and Early Adolescent Education (12) Full-time classroom instruction in early childhood and elementary education. Students supervised by University personnel and practicing teachers. No concurrent courses other than C I 495F permitted.

### **Practicum in Student Teaching--Childhood and Early Adolescent Education (12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: C I 495A or C I 495B ; a grade of C or higher in all specified and professional courses. Official clearances required. See: <http://www.ed.psu.edu/preservice/clearance.htm>

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 495E** Practicum in Student Teaching--Secondary Education (15) Full-time classroom instruction in secondary education. Students supervised by university personnel and practicing teachers. No concurrent courses permitted.

### **Practicum in Student Teaching--Secondary Education (15)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1997

Prerequisite: C I 495C seventh-semester standing and grade of C or higher in all specified and professional courses. Official clearances required. See: <http://www.ed.psu.edu/preservice/clearance.htm>

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 495F** Professional Development Practicum (3) Instruction concurrent with student teaching practicum. Students focus on the solution of instructional problems identified at the practicum site.

### **Professional Development Practicum (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1997

Prerequisite: Official clearances required. See: <http://www.ed.psu.edu/preservice/clearance.htm>

Concurrent: C I 495D

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 497B** CEAED Discipline Inquiry Block (12) Course serves as block until CEAED students are registered by Department for appropriate section of MTHED 420, SCIED 458, SS ED 430W and C I 495A.

**CEAED Discipline Inquiry Block (12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 497B** CEAED Discipline Inquiry Block (12) Course serves as block until CEAED students are registered by Department for appropriate section of MTHED 420, SCIED 458, SS ED 430W and C I 495A.

**CEAED Discipline Inquiry Block (12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 497C** IUG and Honors Thesis Writing Workshop (3) Workshop offering support for students writing theses in the Readings/SPLED IUG as well as Honors theses in any education major.

**IUG and Honors Thesis Writing Workshop (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 497E** Teaching Reading and Writing to English Language Learners (3) This course prepares teachers to develop literacy instruction that supports the social, emotional, cultural, linguistic, and academic development of ELLs.

**Teaching Reading and Writing to English Language Learners (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 497F** Analyses of Classroom Interaction (3) This course introduces students to foundational discourse-analytic studies in education and widely-used analytic techniques through hands-on data analysis sessions.

**Analyses of Classroom Interaction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C I 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Curriculum and Supervision (C & S)

**C & S 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C & S 470** Workshop in Selected Studies in Curriculum (1-6) Intensive work on selected current problems in curriculum.

**Workshop in Selected Studies in Curriculum (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Winter 1978  
Prerequisite: 12 credits in education and teaching experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**C & S 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Dance (DANCE)

**DANCE 100** (GA;US;IL) Dance Appreciation (3) Explore dance as a vital, communicative and performing art, reflecting social values and cultural beliefs.

**DANCE 100 Dance Appreciation (3)**  
**(GA;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

An introduction to dance as a vital, communicative and performing art reflecting social values and cultural beliefs. Through a combination of lectures, video samples, and active participation in scheduled movement classes, lecture demonstrations and live performances, this course will examine a wide range of dance across cultures and time periods.

Students will learn to identify the key components of movement: time, space, shape and effort. Once identified, these elements will become the building blocks for further analysis and understanding of the myriad forms of movement that

can be called dance.

Emphasis will be placed on the integration of dance within various cultural belief systems and the relationship between dance and cultural identity. The influence of social and political values as they relate to the development of specific dance forms will also be examined.

Students will be graded on their ability to clearly and intelligently articulate their observations and analysis through participation in threaded discussions and on-line quizzes. Students will also be graded on their level of participation in scheduled movement classes, lecture demonstrations and attendance at live performances. The mid term and final exams will assess the students ability to integrate and synthesize the experiential components of the course.

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 101** Dance and Rhythmic Fundamentals (1) Fundamental components of rhythm, dance movement, and technique.

#### **Dance and Rhythmic Fundamentals (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 170** (GHA) Conditioning for Dancers (1.5 per semester/maximum of 3) This course is designed to improve technique through strengthening, toning, improving coordination, increasing balance, and helping alignment. The course also addresses common areas of injury.

#### **Conditioning for Dancers (1.5 per semester/maximum of 3)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: and dance course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 199** (IL) Dance Foreign Study (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Dance Foreign Study (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 220** Mojah Fusion Dance (1.5 per semester/maximum of 3) Mojah introduces intermediate/advanced level dance students to a unique dance technique that blends Horton, Dunham, West African and jazz movements in one form.

#### **DANCE 220 Mojah Fusion Dance (1.5 per semester/maximum of 3)**

DANCE 282 is an introduction to the Mojah dance form. Moja is a Swahili term meaning one. Mojah fuses various forms to create a unique style of modern African dance that blends Horton, Dunham, West African and jazz movements into one form. The objectives of the course include: learning/executing Mojah terminology and technique; and learning/executing the techniques from which Mojah is derived. Mojah is a dance course and is directly related to other dance courses, theatre/arts courses and African American studies courses.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: DANCE 231DANCE 241 orDANCE 261 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 221** Introduction to African Dance and Culture (1) An introduction to African dance based in a holistic approach integrating music, movement, drama, costume, and vocalization.

**Introduction to African Dance and Culture (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 222** Beginning Hip Hop Dance (1) Beginning Hip Hop dance introduces the student to Hip Hop culture through dance, free expression with the body/freestyle and choreography.

**DANCE 222 Beginning Hip Hop Dance (1)**

Hip Hop dance is designed for students with an interest in Hip Hop dance/culture. This class introduces students to Hip Hop through movement that includes freestyle dancing, locomotive movements, and choreography. In addition, this class includes lecture sessions and discussions about Hip Hop culture and its role in society. This course seeks to introduce students to a culturally significant art form, enhance mind/body awareness, and provide practical opportunities for students to apply skills learned in class via performances. This course is directly related to dance, theatre, African American history and other arts based and humanities based courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 230** (GA) Ballet (1.5 per semester/maximum of 6) An exploration of Ballet technique.

**DANCE 230 Ballet (1.5 per semester/maximum of 6)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

DANCE 230 is an exploration of Ballet technique. The course is designed for any student with an interest in Ballet and to support the Dance Studies Minor. This class explores the many styles and genres of Ballet developed through history. Emphasis is placed on the development of a strong technique, vocabulary, and performance. Ballet, as a technique class, has at its core, increasing the strength, alignment and flexibility of each dancer.

Each semester, the dancer will be introduced to different aspects of ballet which will require an increasing awareness of ballet and its' impact on all of dance. Technique classes will be supported through viewing historical and contemporary dance footage. In every class, daily movement experiences will be introduced to build coordination, flexibility and strength, as well as the understanding of the ballet technique. These experiences will take place at the barre, in the center floor, adagios and allegros, and culminate in a combination of all these experiences in a combination to develop their potential as a performer.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 231** Beginning Ballet I (1.5) An introduction to the techniques of ballet.

**DANCE 231 Beginning Ballet I (1)**

In DANCE 231, the student will learn the basics of ballet. These include the structure of a ballet class and the required focus and behavior of the successful student, as well as the fundamental positions and vocabulary of movement characteristic of ballet. The course is designed for any beginning student of ballet and, in particular, to instruct the first-year BFA Music Theatre candidate with a foundation of technique to support their success in the prescribed sequence of dance courses in that major.

The student will be introduced to alignment exercises from the Zena Rommett floor barre technique and the Pilates technique to develop strength and flexibility in their execution of dance. The course also is designed to help the student develop greater physical self-awareness and discipline.

The student's grade is determined by their attendance, attitude, and progress. More than three absences or lateness will affect the grade. Their attitude should be positive, receptive to correction, and exhibit an eagerness to work, and their progress should reflect growth in their abilities to perform the choreography and to know the terms used. The student will be required to identify and explain the meaning of the terms used in class, as well as perform choreography with confidence and a sense of character.

This course serves as a prerequisite for DANCE 232. Together, these two semesters satisfy requirements for the BFA Music Theatre option and can also fulfill optional requirements for the Dance Minor. For the BFA Music Theatre candidates: part of the final exam for this course will be a performance juried by members of the School of Theatre Performance Faculty. Their evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance course sequence.

Required dress for this course for women is black leotard, pink or tan tights, pink ballet shoes and for men is black tights, white t-shirt, black ballet shoes, and dance belt. Belts, suspenders, leg warmers are optional. Sweat clothes are not to be worn. All hair must be secured so that it cannot fly into the face.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: admission into Musical Theatre Major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 232 Beginning Ballet II (1.5)** A continuation of Beginning Ballet I to augment technical proficiency.

### **DANCE 232 Beginning Ballet II (1)**

DANCE 232 allows the student who has successfully completed DANCE 231 to continue broadening their knowledge of fundamental movements in ballet. The barre warm-up and the center floor work is more demanding and challenges the student to learn the combinations of movement quicker. Choreography is more complex, involving more different kinds of turns, large jumps, and adding beats to the petit allegro. Adagios are longer and demand more stamina to sustain. The ability to communicate character and mood through dance is emphasized more strongly.

The student will deepen their knowledge of the Zena Rommett floor barre techniques and Pilates techniques to develop more strength and flexibility. The development of increased self-awareness and discipline is stressed.

The student's grade is determined by their attendance, attitude, and progress. Also, to supplement their understanding of the variety of ways ballet can be performed, the student is required to write two papers, expressing their reactions to two different dance concerts viewed during the semester. Classical ballet concerts are preferred, but the student is encouraged to consult the instructor concerning a performance they are interested in viewing. Dates will be designated for the completion of these papers. No late papers will be accepted.

Attendance is mandatory; more than three absences or lateness will affect the grade. The attitude should be positive, receptive to correction, and exhibit an eagerness to work, and the student's progress should reflect growth in their ability to perform the choreography and to know the terms used. The student will be required to identify and explain the meaning of the terms used in class, as well as perform choreography with confidence and a sense of character.

Students enrolling in this course should have successfully complete DANCE 231 or have received the permission of the instructor.

For the BFA Music Theatre candidate, this course serves as a prerequisite for DANCE 241, Beginning Jazz I. Part of the final exam for this course will be a performance juried by members of the School of Theatre Performance Faculty. Their evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance course sequence.

Required dress for this course for women is black leotard, pink or tan tights, pink ballet shoes and for men is black tights, white t-shirt, black ballet shoes, and dance belt. Belts, suspenders, leg warmers are optional. Sweat clothes are not to be worn. All hair must be secured so that it cannot fly into the face.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: DANCE 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 240 (GA) Jazz Dance (1.5 per semester/maximum of 6)** An exploration of jazz dance technique throughout history.

**DANCE 240 Jazz Dance (1.5 per semester/maximum of 6)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

DANCE 240 is an exploration of Jazz Dance. The course is designed for any student with an interest in Jazz Dance and to support the Dance Studies Minor. This class explores the many styles and genres of jazz dance developed through American history. Emphasis is placed on the development of a personal jazz dance style, exploration, and self-expression. Jazz dance, as a technique class, has at its core, increasing the strength, alignment and flexibility of each dancer.

Each semester the dancer will be introduced to different styles of jazz which will require a changing perspective of the body and its' movement. Movement classes will be supported through viewing a variety of the dance styles being studied. In each style, daily movement experiences will be introduced to build coordination, flexibility and strength, as well as the understanding of the particular jazz dance idiom. These experiences will take place in the center floor, across the floor accumulations, and culminate in a combination of all these experiences in a dance to develop their potential as a performer.

Connections to the social aspect of jazz dance will be consistently addressed, as all dance forms are vernacular in origin. Jazz dance, being a true American dance form, has its roots in the late 1800's and early 1900's with a pre-history in Africa and West Indies. The desire for self-expression through physical movement drove the dance form to a formal art expression on the concert stage. This connection to the vernacular has been maintained in the jazz dance idiom. The exploration in Jazz Dance emphasizes the individual expression through movement in response to music particular to the style being presented in each semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 241 Beginning Jazz I (1.5)** An introduction to the techniques of Jazz dance.

**DANCE 241 Beginning Jazz I (1)**

DANCE 241 is an introduction to basic jazz techniques. The course is designed for any beginning student with an interest in jazz dance, those who are BFA Music Theater candidates, and Dance Minors. The work will include awareness of space as related to the barre, floor, other dancers, and environment. The student will learn basic jazz dance vocabulary as well as the awareness of space to stage elements such as audience, direction, focus, and energy.

The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). Students are responsible for learning and executing all material taught in class.

This course serves as a prerequisite for DANCE 242. Together, the two semesters of jazz satisfy requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence.

The required dress for men: Jazz shoes, t-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: Jazz shoes, leotard and tights (possible character shoes).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: DANCE 232

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 242 Beginning Jazz II (1.5)** A continuation of Beginning Jazz I to augment technical proficiency.

**DANCE 242 Beginning Jazz II (1)**

DANCE 242 allows the student who has successfully completed DANCE 241 to continue to broaden their knowledge of beginning jazz dance. The course will emphasize a broader dance vocabulary and more complex dance combinations. The repetition and rehearsal techniques will be reinforced and intensified. The ability to communicate character and setting through dance is strongly emphasized.

The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences and lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). Students are responsible for learning and executing all material taught in class.

Students enrolling in this course should have successfully completed DANCE 241 or have permission of the instructor.



JAZZ 242 satisfies requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence.

The required dress for men: Jazz shoes, t-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: Jazz shoes, leotard and tights (possible character shoes).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: DANCE 241

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 250 (GA)** Tap Dance (1.5 per semester/maximum of 6) An exploration of tap dance technique throughout history.

**DANCE 250 Tap Dance (1.5 per semester/maximum of 6)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

DANCE 250 is an exploration of Tap Dance. The course is designed for any student with an interest in Tap Dance and to support the Dance Studies Minor. This class explores the many styles and genres of Tap Dance developed through American history. Emphasis is placed upon the understanding of the origins of tap, exploration, and self-expression. Tap Dance is grounded in rhythm, exploration and importance of improvisation and origins with a focus on the entertainment component.

DANCE 250 will introduce the dancer to different styles of tap, which will require a changing perspective of rhythm and expression. In each style, daily movement experiences will be introduced to build coordination, stamina and flexibility with rhythms, as well as the understanding of the particular historical aspect of Tap Dance. These experiences will take place in the center floor, across the floor accumulations, and culminate in a combination of all these experiences in a dance to develop their potential as a performer.

The origins and influences of tap are rich and deep, imbedded in the history of the country and the people. The richness of this history allows the dancer to take on a personal and individual style important to the further development of tap and dance in general. Tap Dance will emphasize this importance and assist the student in their exploration of this dance form.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 251** Beginning Tap I (1.5) An introduction to the technique of tap dance.

**DANCE 251 Beginning Tap I (1)**

DANCE 251 is an introduction to basic tap techniques. The course is designed for any beginning student with an interest in tap dance, those who are BFA Music Theater candidates, and Dance Minors. The work will include awareness of space, sound, rhythm, and tempo. The work will also introduce counting, executing rhythm, and developing confidence for a beginner level tap dancer. The student will learn basic tap vocabulary as well as the awareness of space and stage elements such as audience, direction, focus, and energy.

The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). Students are responsible for learning and executing all material taught in class.

This course serves as a prerequisite for DANCE 252. Together, the two semesters of jazz satisfy requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence.

The required dress for men: tap shoes, or hard soled shoes with taps attached. T-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: tap shoes, leotard and tights (possible character tap shoes). The clothing must allow movement, and still be able to distinguish an outline of the dancer's body.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

Prerequisite: DANCE 232

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 252** Beginning Tap II (1.5) A continuation of Beginning Tap I to augment technical proficiency.

**DANCE 252 Beginning Tap II (1)**

DANCE 252 allows the student who has successfully completed DANCE 251 to continue to broaden their knowledge of beginning tap dance. The course will emphasize a broader dance vocabulary and more complex dance combinations. The repetition and rehearsal techniques will be reinforced and intensified. The ability to communicate character and setting through dance is strongly emphasized.

The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). They are responsible for learning and executing all material taught in class.

Students enrolling in this course should have successfully completed DANCE 251 or have permission of the instructor. Tap DANCE 252 satisfies requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence.

The required dress for men: tap shoes, or hard soled shoes with taps attached. T-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: tap shoes, leotard and tights (possible character tap shoes). The clothing must allow movement, and still be able to distinguish an outline of the dancer's body.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: DANCE 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 261 (GA)** Beginning Modern Dance I (1.5 per semester/maximum of 6) Introduction to modern dance as an art form; development of dance technique and composition; teaching methods for improvisational skills.

**DANCE 261 Beginning Modern Dance I (1.5)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

DANCE 261 is an introduction to Modern Dance. The course is designed for any student with an interest in Modern Dance and Dance Minors. This class explores the use of weight, time, space, and energy in relation to a release based modern dance technique. There is emphasis placed upon the development of a personal movement vocabulary, experimentation, and self-expression. Modern dance is grounded in somatic practices with importance placed upon finding organic or efficient ways to engage the body in movement.

Students should demonstrate an opening and willing attitude in every class situation. Students are responsible for learning and executing all material taught in class.

This class serves as a prerequisite for DANCE 262. Together these two semesters serve as core technique classes for all dance minors.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 262** Beginning Modern Dance II (1.5) A continuation of Beginning Modern Dance I to augment technical proficiency and to further comprehension of choreographic methods.

**DANCE 262 Beginning Modern Dance II (1.5)**

DANCE 262 is a continuation of Beginning Modern Dance I. The course is designed for any student with an interest in Modern Dance and Dance Minors. This class explores the use of weight, time, space, and energy in relation to a release based modern dance technique. There is emphasis placed upon the development of a personal movement vocabulary, experimentation, and self-expression. Modern dance is grounded in somatic practices with importance placed upon finding organic or efficient ways to engage the body in movement.

The students grade is based upon attendance, participation, attitude, progress, keeping a dance journal, setting dance

goals, doing a mid-semester self evaluation, and attending a mid-semester "check-up" with the instructor. More than three absences (excused or unexcused) will automatically drop the final grade one letter. Students should demonstrate an opening and willing attitude in every class situation. Students are responsible for learning and executing all material taught in class.

Beginning Modern Dance I and Beginning Modern Dance II serve as core technique classes for all dance minors.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: DANCE 261

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 270 (GHA)** Introduction to Bartenieff Fundamentals (3) Physical and theoretical approach to movement: facilitates efficiency, and expression through dynamic alignment, mobility, kinesthetic awareness; reduce physical injuries.

#### **Introduction to Bartenieff Fundamentals (3)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 271 (GH)** From Africa to Hip Hop- The Evolution of African American Dance History (3) From Africa to Hip Hop- Evolution of African-American Dance History will explore the history of African related dance from its beginnings in West Africa through the contemporary expressions of Hip Hop.

#### **From Africa to Hip Hop- The Evolution of African American Dance History (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012 Ending: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 280** Dance Improvisation (1) Introduction to the concepts and techniques of dance improvisation.

#### **Dance Improvisation (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: DANCE 261

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 281** Introduction to African Dance and Culture (1) An introduction to African dance based in a holistic approach integrating music, movement, drama, costume, and vocalization.

#### **Introduction to African Dance and Culture (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999 Ending: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 282** Mojah Fusion Dance (1.5 per semester/maximum of 3) Mojah introduces intermediate/advanced level dance students to a unique dance technique that blends Horton, Dunham, West African and jazz movements in one form.

#### **DANCE 282 Mojah Fusion Dance (1.5)**

DANCE 282 is an introduction to the Mojah dance form. Moja is a Swahili term meaning one. Mojah fuses various forms to create a unique style of modern African dance that blends Horton, Dunham, West African and jazz movements into one form. The objectives of the course include: learning/executing Mojah terminology and technique; and learning/executing

the techniques from which Mojah is derived. Mojah is a dance course and is directly related to other dance courses, theatre/arts courses and African American studies courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013 Ending: Fall 2014

Prerequisite: DANCE 231DANCE 241 orDANCE 261 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 283 Beginning Hip Hop Dance (1)** Beginning Hip Hop dance introduces the student to Hip Hop culture through dance, free expression with the body/freestyle and choreography.

### **DANCE 283 Beginning Hip Hop Dance (1)**

Hip Hop dance is designed for students with an interest in Hip Hop dance/culture. This class introduces students to Hip Hop through movement that includes freestyle dancing, locomotive movements, and choreography. In addition, this class includes lecture sessions and discussions about Hip Hop culture and its role in society. This course seeks to introduce students to a culturally significant art form, enhance mind/body awareness, and provide practical opportunities for students to apply skills learned in class via performances. This course is directly related to dance, theatre, African American history and other arts based and humanities based courses. Students will be evaluated on their attendance, participation in class, willingness to learn, and the effort put forth in class.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007 Ending: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 285 Contemporary Dance Performance (1-2 per semester/maximum of 8)** Contemporary Dance Performance is designed to introduce the beginning performer to the choreographic and rehearsal process as preparation for performance.

### **DANCE 285 Contemporary Dance Performance (1-2 per semester/maximum of 8)**

This is a dance course to introduce the beginning performer to the rehearsal process, creative process and performance experience. The class will develop around the building of an original dance piece, created on and for the participating students by the instructor of record.

The students will perform this piece at the end of the semester in a formal performance situation, on a proscenium stage with full lighting and sound accompaniment. The instructor will create an original dance on students enrolled in this course which will provide the student with performance experience in a live dance concert. The student will learn original choreography, be responsible for retention of movement, experience and assist in the choreographic process, participate in discussions concerning choreography, expression, rehearsal expectations and roles. The student will keep a journal and complete written assignments which demonstrate cognitive understanding of the artistic process.

Each student will be expected to execute the choreography at a level suitable for concert performance, show an understanding of the choreographic process through written work, demonstrate growth as a dancer and artist through performance and written work and participate fully in a concert performance of the dance work created in class.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 297A** Fundamentals of Teaching (3) This course is designed to provide prospective dance teachers with opportunities to develop concepts of pedagogy based on principles of teaching. Course focuses on the development and production of dance classes designed for children K-12. Students learn how to develop a curriculum, how to write class plans, how to determine appropriate skill sets by age, the use of improvisation, and how to choreography interactive performances.

### **Fundamentals of Teaching (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: DANCE 230DANCE 261 or permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 297B** Contact Improvisation (2) Contact Improvisation explores the vast potential for movement generated by two or more people, communicating spontaneously through weight, motion and touch. Through the physical principles of touch, momentum, and weight sharing, this course explores the skills of falling, rolling, counterbalance, lifting using minimal effort, how to make ourselves light when being lifted, centering and breathing techniques, and responsiveness to our partners and surroundings. Traditional dance backgrounds is not needed. Each class is an exploration into the potential of what is possible through movement.

### **Contact Improvisation (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 297C** (AAA S 297C) Introduction to Afro-Brazilian, Afro-Caribbean and West African Dances (3) Movement of the Orixas, Afro Brazilian dance, movements of the Caribbean, and contemporary West African dances.

### **Introduction to Afro-Brazilian, Afro-Caribbean and West African Dances (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 299** (IL) Dance Foreign Study (1-12) Courses offered in foreign countries by individual or group instruction.

### **Dance Foreign Study (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 301** Movement Analysis (2) Introduce student to principles of practical and abstract movement analysis to determine individual physical limitations and potentials.

### **Movement Analysis (2)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 320** Intermediate Mojah Fusion Dance (1.5 per semester/maximum of 9) Intermediate Mojah continues instruction for intermediate level dance students and builds on the technical training of Beginning Mojah 7.

**DANCE 320 Intermediate Mojah Fusion Dance (1.5 per semester maximum of 9)**

Intermediate Mojah Fusion Dance builds upon the foundations of Beginning Mojah dance. Moja is a Swahili term meaning one. Mojah fuses various forms into one to create a unique style of modern African dance based in Horton, Dunham, West African and jazz movements.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: DANCE 220 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 331** Intermediate Ballet I (1.5 per semester/maximum of 6) A continuation of the course work established in Beginning Ballet II.

**DANCE 331 Intermediate Ballet I (1)**

Dance 331 allows the student who has had a solid introduction to the fundamental movements and style of ballet to develop more strength and flexibility in their technique. The pace of the class is faster. Choreography is more complex and taught more quickly. The student is expected to know the elements that constitute a ballet class and is ready to embrace seriously the study of the skill and artistry required to perform ballet. The student is expected to be able to execute a double pirouette and simple beats in petit allegro. Interpretation of choreography taught for exams is emphasized more strongly than in the previous courses.

The attitude should be positive, receptive to correction, and exhibit an eagerness to work, and the student's progress should reflect growth in their abilities to perform the choreography and to know the terms used. The student will be required to identify and explain the meaning of the terms used in class, as well as perform choreography with confidence and a sense of character.

Required dress for the course for women is black leotard, pink or tan tights, pink ballet shoes and for men it is black tights, white T-shirt, black ballet shoes, and dance belt. Belts, suspenders, leg warmers are optional. Sweat clothes are not to be worn. All hair must be secured so that it cannot fly into the face.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: DANCE 230 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 332** Intermediate Ballet II (1.5 per semester/maximum of 6) A continuation of the course work established in Intermediate Ballet I.

**DANCE 332 Intermediate Ballet II (1)**

Dance 332 allows the student who has a strong background in the basics of ballet technique to be challenged with more difficult movements and choreography and to develop a more mature approach to healthy alignment. The Zena Rommett floor barre and the Pilades techniques will be explored with more emphasis than in the beginning semesters of ballet study. The student is expected to know the terms used in ballet in French, their meaning, and how to execute them. The student should be able to perform choreography with a sense of character and style, as well as strong technique.

The attitude should be positive, receptive to correction, and exhibit an eagerness to work, and the student's progress should reflect growth in their abilities to perform the choreography and to know the terms used.

Required dress for the course for women is black leotard, pink or tan tights, pink ballet shoes and for men it is black tights, white T-shirt, black ballet shoes, and dance belt. Belts, suspenders, leg warmers are optional. Sweat clothes are not to be worn. All hair must be secured so that it cannot fly into the face.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: DANCE 230 or permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 341** Intermediate Jazz I (1.5) A continuation of the course work established in DANCE 242, Beginning Jazz II.

**DANCE 341 Intermediate Jazz I (1)**

Dance 341 allows the student who has successfully completed Beginning Jazz II to continue to broaden their knowledge of Intermediate Jazz Dance. The purpose of this course is to improve the beginner's knowledge of jazz dance. Technique will be stressed, but performance and interpretation will be emphasized with the following in mind: to develop character, mood and ability to improvise and choreograph Jazz Dance. A variety of choreographed dances ranging from pop, jazz, to musical theatre styles will be taught.

The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. A positive attitude and maintaining proper discipline and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). They are responsible for learning and executing all material taught.

Jazz Dance 341 satisfies the requirement for the BFA Music theatre option and fulfills one of the requirements for the Dance Minor. The BFA musical theatre student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may enroll into the next level of the performance sequence.

The required dress for men: Jazz shoes, T-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: Jazz shoes, leotard and tights (possible character shoes).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: DANCE 242

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 342** Intermediate Jazz II (1.5) A continuation of the course work established in DANCE 341, Intermediate Jazz I.

**DANCE 342 Intermediate Jazz II (1)**

Dance 342 allows the student who has successfully completed Intermediate Jazz Dance I to continue to broaden their knowledge of Jazz Dance. The purpose of this course is to continue to improve the dancer's technical aspect of Jazz Dance. Combinations will be taught at a faster pace. Techniques will be stressed, but performance and interpretation will be emphasized with the following in mind: to develop character, mood and the ability to improvise and choreograph Jazz Dance. A variety of challenging choreographed dances ranging from pop, jazz, to musical theatre styles will be taught which the student will be expected to perform.

The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. A positive attitude and maintaining proper discipline and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). They are responsible for learning and executing all materials taught.

Jazz Dance 342 satisfies the requirement for the BFA Music Theater option and fulfills one of the requirements for the Dance Minor. The BFA musical theatre student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence.

The required dress for men: Jazz shoes, T-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: Jazz shoes, leotard and tights (possible character shoes).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: DANCE 341

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 361** (GA) Intermediate Modern Dance I (1.5 per semester/maximum of 6) Development of techniques and principles of modern dance on the intermediate level.

**DANCE 361 Intermediate Modern Dance I (1.5)**

DANCE 361, Intermediate Modern Dance I, continues to build on the technical foundation from Beginning Modern I and Beginning Modern II in relation to a release-based modern dance technique. This intermediate level class centers on developing a strong technical foundation in modern dance. Along with technique, students should develop greater flexibility, strength, and alignment. The concepts of weight, time, energy, and space are central to the class. The body as a

tool of expression and communication and using dance as a language is stressed.

This class serves as a prerequisite for DANCE 362.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2013  
Prerequisite: DANCE 262

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 362 (GA)** Intermediate Modern Dance II (1.5 per semester/maximum of 6) A continuation of Modern Dance I to augment technical proficiency.

### **DANCE 362 Intermediate Modern Dance II (1.5)**

DANCE 362, Intermediate Modern Dance II, continues to build on the technical foundation from Intermediate Modern Dance I in relation to a release-based modern dance technique. This intermediate level class centers on developing a strong technical foundation in modern dance. Along with technique, students should develop greater flexibility, strength, and alignment. The concepts of weight, time, energy, and space are central to the class. The body as a tool of expression and communication and using dance as a language is stressed.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2013  
Prerequisite: DANCE 361

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 365** Contemporary Movement Lab I (3) An intermediate level modern dance technique utilizing improvisation to enhance technical and performance issues: alignment, connection, balance, transition, expression, discovery.

### **DANCE 365 Contemporary Movement Lab I (3)**

DANCE 365 is an intermediate level modern dance course utilizing improvisation as a tool for understanding technique and performance. This class is designed specifically for the Dance Studies Minor student to enhance the efficient and expressive use of the body as a vehicle for expression. The student will not only develop greater flexibility, strength, and alignment, but also will gain self-awareness and begin to develop a personal dance vocabulary.

Contemporary Movement Lab I will meet four hours a week, with an additional 1 hour studio lab for personal discovery. CML I is designed to further expose the intermediate level dancer to the style and techniques of modern dance as it uses improvisation for expression and performance. The intermediate level dancer will be developed through more thorough movement requirements, floor work, and strengthening experiences with the support of improvisation as a tool. Full articulation of body, feet and arms will be fostered through regular exercises, which will bring about stronger connections through the body to support complicated and difficult movement. Each class period will allow time to be spent in the traditional aspects of an intermediate modern dance technique class: floor warm up and connection to center of weight, center floor balance and strengthening technique exercises and combinations, traveling sequences across the floor, and final accumulative combination.

An equal amount of time will be spent in the exploration of improvisation: personal introspection, group interaction based on conceptual themes, weight sharing and beginning contact improvisational techniques, and development of a group structured performance improvisation. Improvisation will be explored regularly through individual and group work. The students will experience moving without specific directions for the body, but rather with directions for content, sensing, theme, or task oriented physicality. Observation of self and others will aid in the discovery of the freedom of moving improvisationally. Outside reading and follow up discussions will further support their experience in the studio. Discussion, journals, goal setting and writing assignments will allow for opportunities to express and share levels of comfort and personal discoveries with various experiences. This is an important aspect of the process of opening up to the act of improvisation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: any 200 level technique course or program permission

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 366** Contemporary Movement Lab II (3) An intermediate level modern dance technique utilizing composition to enhance technical and performance issues: alignment, connection, balance, transition, expression, discovery.

### **DANCE 366 Contemporary Movement Lab II (3)**

DANCE 366 is an intermediate level modern dance course utilizing the techniques, tools and theories of composition for



understanding technique and performance. This class is designed specifically for the Dance Studies Minor student to enhance the efficient and expressive use of the body as a vehicle for expression. The student will not only develop greater flexibility, strength, and alignment, but also will gain self-awareness and further develop a personal dance vocabulary. Contemporary Movement Lab II will meet four hours a week, with an additional 1-hour studio lab for personal discovery. CML II is designed to further expose the intermediate level dancer to the style and techniques of modern dance as it uses composition for expression and performance. The intermediate level dancer will be further developed through a more thorough level of movement requirements: floor work, and strengthening experiences while exploring the connections of technique to composition and performance. Full articulation of body, feet and arms will be fostered through regular exercises, which will bring about stronger connections through the body to support complicated and difficult movement. Each class period will allow time to be spent in the traditional aspects of an intermediate modern dance technique class: floor warm up and connection to center of weight, center floor balance and strengthening technique exercises and combinations, traveling sequences across the floor, and final accumulative combination. An equal amount of time will be spent in discovering the many theories and tools of composition: time, weight, space, rhythm/phrasing, theme based creative experiences, and dance as a tool for communication. Students will be expected to create a variety of studies regularly through individual and group work. Outside reading and follow up discussions will further support their experience in the studio. Discussion, journals, goal setting and writing assignments will allow for opportunities to share and express levels of comfort and personal discoveries with various experiences.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2012  
 Prerequisite: any 200 level technique class or program permission

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 370 (GN) Anatomy for Performers (3)** To provide performers with anatomical theory and concepts applicable to the disciplines of the performing arts.

#### **Anatomy for Performers (3)**

General Education: GN  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2012  
 Prerequisite: DANCE 270 or THEA 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 371 Music Theatre Dance--Style I (1.5)** A practical study of dance styles from the 1890'S to the 1990'S.

#### **DANCE 371 Music Theatre Dance Styles I (1)**

DANCE 371 allows the student who has successfully completed two semesters of ballet (DANCE 231 and 232), two semesters of jazz (DANCE 241 and 242), and two semesters of Music Theatre Studio (THEA 223 and 224) to expand their capabilities of combining their skills of dancing and acting through the use of different stylistic approaches. In this semester, the BFA Music Theatre candidate will study and perform choreography characteristic of Vaudeville, Charleston, Ragtime, Ballet, Folk/Ethnic and elements of Modern and Jazz. In particular, Agnes deMille's use of ballet and Jerome Robbins' use of Ballet/Jazz/Modern will be studied.

The goals of the course include enabling the student to feel confident in identifying, performing, and competing in the professional audition venue using these styles. Also, the student should deepen their understanding of how the use of varied dance styles contributes to the development of character and/or the furthering of plot in Music Theatre.

The student's grade is determined by their attendance, attitude, progress, performance in the final semester showing, and the completion of two projects. Attendance is mandatory--more than three absences or lateness will affect the grade. The attitude should reflect the focus and enthusiasm characteristic of a professional. Progress will be assessed through frequent performance "quizzes". The mid-term and final showings will be video-taped and examined as a class. The two projects consist of a paper and one minute of original choreography.

In the paper, the student will analyze the use of the different styles used by Agnes deMille in one viewed musical, such as OKLAHOMA or CAROUSEL. A date will be assigned for the completion of the paper. No late papers will be accepted. In their original choreography, the student, using a Balletic style and vocabulary, should exhibit their understanding of how to use dance to portray a character in a specific situation or mood. The student should consult the Instructor concerning their creative ideas. The choreography will be performed for the class by the student.

Successfully completing DANCE 371 is the prerequisite for DANCE 372. Part of the final exam for this course will be a performance juried by members of the School of Theatre Performance Faculty. Their evaluation will help to determine whether the student may be allowed to enroll into the next level of the performance course sequence.

Required dress for this course is: men - tights or dance pants, t-shirt, dance belt, ballet and jazz shoes -- women - tights, dance pants, leotards, and ballet, jazz, and character shoes, with rubbered soles. Dance sneakers are not appropriate for warm-ups and certain combinations.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006 Ending: Fall 2014  
Prerequisite: THEA 224

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 372** Music Theatre Dance--Style II (1.5) A continuation of course work established in Music Theatre Dance Style I.

#### **DANCE 372 Music Theatre Dance Styles II (1)**

DANCE 372 allows the student who has successfully completed DANCE 371 to continue broadening their understanding and expanding their performance skills of different stylistic approaches to choreography. In this course the student will study and perform choreography using stronger Jazz and Folk/Ethnic/Social influences. In particular, the works of Jerome Robbins, Ron Field, Michael Bennett, and Bob Fosse will be studied. The goals of the course include enabling the student to feel confident in identifying, performing, and competing in the professional audition venue using these styles. Also, the student should deepen their understanding of how the use of varied dance styles contributes to the development of character and/or the furthering of plot in Music Theatre.

The student's grade is determined by their attendance, attitude, progress, performance in the final semester showing and the completing of two projects. Attendance is mandatory --more than three absences or lateness will affect the grade. The attitude should reflect the focus and enthusiasm characteristic of a professional. Progress will be assessed through frequent performance "quizzes". The mid-term and final showings will be video-taped and examined as a class. The two projects consist of a paper and one minute of original choreography.

In the paper, the student will analyze the use of the different styles used by a choreographer in one viewed musical. The student may choose from the movie musicals of Jerome Robbins, Michael Kidd, or Bob Fosse. A date will be assigned for the completing of the paper. No late papers will be accepted. In their original choreography, the student should exhibit their understanding of how to use elements of a jazz style to portray a character in a specific situation or mood. The choreography will be performed for the class by the student.

Required dress for his course is: men- tights or dance pants, t-shirt, dance belt, ballet or jazz shoes -- women - tights, dance pants, leotards, and ballet, jazz and character shoes, with rubbered soles. Dance sneakers are not appropriate for warm-ups and certain combinations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006 Ending: Summer 2014  
Prerequisite: DANCE 371

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 380** Dance Programming (2) Theoretical and practical experiences in dance production and implementation of dance programs in various environments.

#### **Dance Programming (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 381** Dance Composition I (2) Introduction to the basic principles and craft of choreography.

#### **DANCE 381 Dance Composition I (2)**

This course is an introduction to the basic principles and craft of the art of choreography. The students will work with the principles and craft of choreography through practical methods to foster and enhance the creative process with relation to the solo form.

Each student will develop an understanding of the architectural strengths of the proscenium stage and how best to use these for the solo form; gain knowledge of professional working methods through the exploration and use of the choreographic tools; develop an individual vocabulary through improvisational and choreographic elements; gain a knowledge of the craft for original creative expression; and demonstrate an overall understanding of the course by choreographing an original solo work as a culminating project.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 382** Music Theatre Dance--Style I (1.5) A practical study of dance styles from the 1890'S to the 1990'S.

**DANCE 382 Music Theatre Dance --Style I (1.5)**

DANCE 371 allows the student who has successfully completed two semesters of ballet (DANCE 231 and 232), two semesters of jazz (DANCE 241 and 242), and two semesters of Music Theatre Studio (THEA 223 and 224) to expand their capabilities of combining their skills of dancing and acting through the use of different stylistic approaches. In this semester, the BFA Music Theatre candidate will study and perform choreography characteristic of Vaudeville, Charleston, Ragtime, Ballet, Folk/Ethnic and elements of Modern and Jazz. In particular, Agnes deMille's use of ballet and Jerome Robbins' use of Ballet/Jazz/Modern will be studied.

The goals of the course include enabling the student to feel confident in identifying, performing, and competing in the professional audition venue using these styles. Also, the student should deepen their understanding of how the use of varied dance styles contributes to the development of character and/or the furthering of plot in Music Theatre.

Successfully completing DANCE 371 is the prerequisite for DANCE 372.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: THEA 224

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 383** Intermediate Mojah Fusion Dance (1.5 per semester/maximum of 9) Intermediate Mojah continues instruction for intermediate level dance students and builds on the technical training of Beginning Mojah 7.

**DANCE 383 Intermediate Mojah Fusion Dance (1.5 per semester/maximum of 9)**

Intermediate Mojah Fusion Dance builds upon the foundations of Beginning Mojah dance. Moja is a Swahili term meaning one. Mojah fuses various forms into one to create a unique style of modern African dance based in Horton, Dunham, West African and jazz movements.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012 Ending: Summer 2014

Prerequisite: DANCE 282 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 384** Music Theatre Dance--Style II (1.5) A continuation of course work established in Music Theatre Dance Style I.

**DANCE 384 Music Theatre Dance --Style II (1.5)**

DANCE 372 allows the student who has successfully completed DANCE 371 to continue broadening their understanding and expanding their performance skills of different stylistic approaches to choreography. In this course the student will study and perform choreography using stronger Jazz and Folk/Ethnic/Social influences. In particular, the works of Jerome Robbins, Ron Field, Michael Bennett, and Bob Fosse will be studied. The goals of the course include enabling the student to feel confident in identifying, performing, and competing in the professional audition venue using these styles. Also, the student should deepen their understanding of how the use of varied dance styles contributes to the development of character and/or the furthering of plot in Music Theatre.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: DANCE 382

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 385** Leadership Practicum: Dance (1) Supervised experiences in teaching and assisting with the teaching of dance techniques.

**Leadership Practicum: Dance (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000  
Prerequisite: DANCE 362

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 399** (IL) Dance Foreign Study (1-12) Courses offered in foreign countries by individual or group instruction.

**Dance Foreign Study (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 410** (US;IL) Dance History (3) Survey of dance history concerning perspectives of culture, race, and gender with a focus on Nineteenth and Twentieth centuries.

**DANCE 410 Dance History (3)  
(US/IL)**

DANCE 484 (US;IL) Dance History (3) Survey of dance history concerning perspectives of culture, race, and gender with a focus on Nineteenth and Twentieth centuries.

**Dance History (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Fall 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 411** (GH) From Africa to Hip Hop- The Evolution of African American Dance History (3) From Africa to Hip Hop- Evolution of African-American Dance History will explore the history of African related dance from its beginnings in West Africa through the contemporary expressions of Hip Hop.

**DANCE 411 From Africa to Hip Hop- The Evolution of African-American Dance History (3)  
(GH)**

From Africa to Hip Hop- Evolution of African-American Dance History will explore the history of African related dance from its beginnings in West Africa through the contemporary expressions of Hip Hop.

General Education: GH  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: DANCE 261

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 422** Advanced Hip Hop Dance (1.5) Advanced Hip Hop Dance reinforces and expands concepts from Beginning Hip Hop Dance. Free expression of the body, freestyle, and choreography are emphasized.

**DANCE 422 Advanced Hip Hop Dance (1.5)**

Advanced Hip Hop Dance is designed for the serious minded dance student with an interest in Hip Hop dance/culture. This class provides an intensive study of dance, choreography and culture. As in Beginning and Intermediate Hip Hop Dance, freestyle dancing, locomotive movements, and choreography are emphasized. In addition, this class includes lecture sessions and discussions about Hip Hop culture and its role in society. By the end of this course students should be able to articulate why Hip Hop is a culturally significant art form and choreograph and perform a Hip Hop dance combination. This course also enhances mind/body awareness, and provides choreographic and performance opportunities. This course is directly related to dance, theatre, African American studies and other arts based and humanities based courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: DANCE 222

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 431 Advanced Ballet I (1.5)** An advanced ballet training course.

**DANCE 431 Advanced Ballet I (1)**

DANCE 431 allows the student who has successfully completed DANCE 232, or who has interviewed with the Instructor concerning their previous training in ballet, to develop greater proficiency in performing ballet. The barre work continues to emphasize proper alignment, supported by exercises using the Zena Rommett floor barre technique and the Pilates technique, and the floor work moves more quickly than in the beginning levels of study. The student will learn more complex steps requiring greater strength and coordination, and the class will move at a faster pace, thus enabling the student to learn choreography more quickly. The student will also develop their ability to communicate character and mood through their dancing. More advanced ballet terminology will be taught, and the student will learn the French terms, their English meanings, be able to identify the steps and perform them.

DANCE 431 can satisfy one of the two semesters of advanced dance study required by the BFA Music Theatre degree option and can satisfy requirements for the Dance Minor.

The student's grade is determined by their attendance, attitude, and progress. Attendance is mandatory. More than three absences or lateness will affect the grade. The attitude should reflect a serious focus on improving their abilities with a positive approach to applying corrections to their dancing. Their progress will be assessed through observation of their classroom work and especially the video-taped performances of their mid-term and final exam choreography. There will be a final showing at the end of the semester with an invited audience. The exams will also include an oral section, covering the terms used in class.

Required dress for class is -- for men, dance belt, black tights, white t-shirt, and black ballet shoes, and for women, pink or tan tights, leotard, and pink ballet shoes. All hair must be pulled back and secured away from the face. No sweat clothes may be worn, but leg warmers, belts, and suspenders are optional.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: DANCE 232

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 432 Advanced Ballet II (1.5)** A continuation of Advanced Ballet I to augment technical proficiency.

**DANCE 432 Advanced Ballet II (1)**

DANCE 432 allows the student who has successfully completed DANCE 431, or who has interviewed with the Instructor concerning their previous dance training, to challenge themselves further in the study of ballet. The barre work continues to emphasize proper alignment, supported by exercises using the Zena Rommett floor barre technique and the Pilates technique. The center work expands on some of the vocabulary taught in DANCE 431, requiring more confidence, strength, and stamina in different ways of turning and jumping, as well as adagio work. The student will learn more complex steps requiring greater strength and coordination, and the class will move at a faster pace, thus enabling the student to learn choreography more quickly. The student will also develop their ability to communicate character and mood through their dancing. More advanced ballet terminology will be taught, and the student will learn the French terms, their English meanings, be able to identify the steps and perform them.

DANCE 432 can satisfy one of the two semesters of advanced dance study required by the BFA Music Theatre degree option and can satisfy requirements for the Dance Minor.

The student's grade is determined by their attendance, attitude, and progress. Attendance is mandatory. More than three absences or lateness will affect the grade. The attitude should reflect a serious focus on improving their abilities with a positive approach to applying corrections on their dancing. Their progress will be assessed through observation of their

classroom work and especially the video-taped performances of their mid-term and final exam choreography. There will be a final showing at the end of the semester with an invited audience. The exams will also include an oral section, covering the terms used in class.

Required dress for class is - for men, dance belt, black tights, white t-shirt, and black ballet shoes, and for women, pink or tan tights, leotard, and pink ballet shoes. All hair must be pulled back and secured away from the face. No sweat clothes may be worn, but leg warmers, belts, and suspenders are optional.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: DANCE 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 441** Advanced Jazz I (1.5) An advanced course in the techniques of jazz dance.

#### **DANCE 441 Advanced Jazz I (1)**

DANCE 441 allows the student who has successfully completed DANCE 242 to continue their study of jazz technique and performance. The focus of the course is to improve capability through learning and performing more challenging choreography at a faster pace. Eight combinations of choreography are taught, to music of various types -- pop, jazz, and musical theatre. Performing with confidence and a sense of character will be emphasized. The student will also become familiar with the fundamentals of the Pilates technique to improve alignment, strength, and flexibility. The student will also be given opportunities to develop confidence in improvisation.

DANCE 441 enables the BFA Music Theatre candidate to satisfy one semester of advanced level dance training. For the Dance Minor and other students of dance, it provides challenges in technical execution and a greater range of jazz styles.

The student's grade will be determined by their attendance, attitude, and progress at learning quickly and performing the dance combinations, as well as the completion of two projects. Attendance is mandatory; more than three absences or lateness will affect the grade. The attitude should be focused, positive, receptive to correction, and eager. Progress will be assessed in frequent performance "quizzes". The mid-term and final exams will be video-taped and viewed by the class. The two projects consist of paper and one minute of original choreography.

The paper should consist of the student's personal analysis of jazz dancing and their abilities, based on their past and present experience. The choreography should reflect work learned in class and be performed to instrumental music. The student will perform their choreography for the class.

Required dress for DANCE 441 consists of dance belt, dance pants, t-shirt and jazz shoes for men and tights and leotard, jazz and character shoes for women. Dance sneakers are not appropriate for warm-ups and certain combinations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: DANCE 242

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 442** Advanced Jazz II (1.5) A continuation of Advanced Jazz I to augment technical proficiency.

#### **DANCE 442 Advanced Jazz II (1)**

DANCE 442 allows the student who has successfully completed DANCE 441 to continue to broaden their knowledge of advance jazz dance. The purpose of this course is to improve capability through learning and performing more challenging choreography at a faster pace. Technique will be stressed, but performance and interpretation will be emphasized with the following standard in mind: to develop character, mood, and ability to improvise and choreograph jazz dance. A variety of choreographed dances ranging from pop, jazz, to musical theaters styles will be taught. Students are responsible for learning and executing all material taught in class.

The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework).

Students enrolling in this course should have successfully completed DANCE 441 or have permission of the instructor. JAZZ 442 satisfies requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence.

The required dress for men: Jazz shoes, t-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: Jazz shoes, leotard and tights (possible character shoes).

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: DANCE 441

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 451** Advanced Tap I (1.5) An advanced course in the techniques of tap dance.

#### **DANCE 451 Advanced Tap I (1)**

DANCE 451 allows the student who has successfully completed DANCE 251 and 252, or has permission of the instructor, to continue to broaden their knowledge to tap dance. The work will include expanding the student's knowledge of tap vocabulary, rhythm, tempo and counting. The work introduces audition techniques from the dancer's perspective and expands the awareness of proper rehearsal discipline. Professional conduct and behavior is now cultivated into a useful marketing tool. Material is taught faster and with greater detail to reinforce audition techniques and equate professional challenges. Audition classes will be held at the instructor's discretion.

The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). Students are responsible for learning and executing all material taught in class.

Students enrolling in this course should have successfully completed DANCE 251, 252 or have permission of the instructor. Tap DANCE 451 satisfies requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence.

The required dress for men: tap shoes, or hard soled shoes with taps attached. T-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: tap shoes, leotard and tights (possible character tap shoes). The clothing must allow movement, and still be able to distinguish an outline of the dancer's body.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: DANCE 252

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 452** Advanced Tap II (1.5) A continuation of Advanced Tap I to augment technical proficiency.

#### **DANCE 452 Advanced Tap II (1)**

DANCE 452 allows the student who has successfully completed DANCE 451 to continue to broaden their knowledge of advanced tap dance. The course will emphasize a broader dance vocabulary and more complex dance combinations. The repetition and rehearsal techniques will be reinforced and intensified. The ability to communicate character and setting through dance is strongly emphasized. Material is taught faster and with greater detail to reinforce audition techniques and equate professional challenges.

The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or tardiness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). Students are responsible for learning and executing all material taught in class.

Students enrolling in this course should have successfully completed DANCE 451 or have permission of the instructor. Tap DANCE 452 satisfies requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence.

The required dress for men: tap shoes, or hard soled shoes with taps attached. T-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: tap shoes, leotard and tights (possible character tap shoes). The clothing must allow movement, and still be able to distinguish an outline of the dancer's body.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: DANCE 451

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 461** Advanced Modern Dance I (1.5 per semester/maximum of 9) Development of dance technique and movement

combinations on the advanced level.

### **DANCE 461 Advanced Modern Dance I (1.5)**

DANCE 461 is Advanced Modern Dance. This class continues the technique foundation from DANCE 261 & 262 of exploring the use of weight, time, space, and energy in relation to a release-based modern dance technique. DANCE 461 also works with focus, style, and performance techniques. Students should gain greater technical proficiency, flexibility, strength, and alignment. Understanding and demonstrating the different uses of weight and the concept of grounding is essential. Students should begin to develop as an individual mover (personal artistic voice) and gain greater confidence in using the body as a tool of expression and communication.

Students should demonstrate an opening and willing attitude in every class situation. Students are responsible for learning and executing all material taught in class.

This class serves as a prerequisite for DANCE 462. Together these two semesters serve as core technique classes for all dance minors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: DANCE 262 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 462 Advanced Modern Dance II (1.5 per semester/maximum of 9)** A continuation of Advanced Modern Dance I to augment technical proficiency.

### **DANCE 462 Advanced Modern Dance II (1.5)**

DANCE 462 is a continuation of Advanced Modern Dance I. This class continues the technique foundation from DANCE 261, 262, and 461 of exploring the use of weight, time, space, and energy in relation to a release based modern dance technique. DANCE 462 also works with focus, style, and performance techniques. Students should gain greater technical proficiency, flexibility, strength, and alignment. Understanding and demonstrating the different uses of weight and the concept of grounding is essential. Students should begin to develop as an individual mover (personal artistic voice) and gain greater confidence in using the body as a tool of expression and communication.

Students should demonstrate an opening and willing attitude in every class situation. Students are responsible for learning and executing all material taught in class.

DANCE 461 and 462 serve as core technique classes for all dance minors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: DANCE 461 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 466 Contemporary Movement Lab III (3 per semester/maximum of 6)** An advanced exploration of modern dance techniques supported by the choreographic process.

### **DANCE 466 Contemporary Movement Lab III (3 per semester/maximum of 6)**

DANCE 466 is an advanced level modern dance course using the choreographic process and experience as a way to enhance and further understand technique and performance. This class is designed specifically for the Dance Studies Minor student to enhance the efficient and expressive use of the body as a vehicle for expression. The student will not only develop greater flexibility, strength, and alignment, but also will gain ability for self-awareness and increase in personal dance vocabulary.

Contemporary Movement Lab III will meet four hours a week, with a minimum additional 1-hour studio lab for personal discovery. CML III is designed to further expose the advanced level dancer to the choreographic process as a means of expression of modern dance as it influences the discovery of personal style and communication. The advanced level dancer will be further developed through higher levels of movement requirements: floor work, and strengthening experiences while exploring the connections of movement as a goal for communication and performance. Each class period will allow time to be spent in the traditional aspects of an advanced modern dance technique class: floor warm up and connection to center of weight, center floor balance and strengthening technique exercises and combinations, traveling sequences across the floor, and final accumulative combination.

An equal amount of time will be spent in discovering the choreographic process utilizing the tools of composition from Dance 366 and improvisation from Dance 365 to successfully communicate personal ideas or themes through fully explored dances. Students will be expected to create a number of dances/studies throughout the semester with the goal of producing one for the concert stage. Outside reading and follow up discussions will further support their experience in the studio. Discussion, journals, goal setting and writing assignments will allow for opportunities to express levels of comfort and personal discoveries with various experiences.



General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2012  
 Prerequisite: DANCE 365DANCE 366

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 472** Introduction to Laban Movement Analysis (3) Observe and analyze movement elements by exploring concepts of Body, Effort, Shape, and Space to increase personal communication and expression.

### **DANCE 472 Introduction to Laban Movement Analysis (3)**

Laban Movement Analysis (LMA) is a method and language for describing, visualizing, interpreting and documenting all varieties of human movement. It is one type of Laban Movement Study originating from the work of Rudolf Laban. In addition many derived practices have developed with great emphasis on LMA methods. This course focuses on elements known as Laban/Bartenieff Movement Analysis, which uses a multidisciplinary approach, incorporating contributions from anatomy, kinesiology, psychology, Labanotation and many other fields. It is used as a tool by dancers, actors, musicians, athletes, physical and occupational therapists, psychotherapy, peace studies, anthropology, business consulting, leadership development, health & wellness and is one of the most widely used systems of human movement analysis today. In this course, students will study and practice the basic categories of LMA: Body (Bartenieff Fundamentals, total-body connectivity), Effort (Energetic dynamics), Shape, and Space (Space Harmony). In addition students will discover how LMA looks at the categories in terms of Phrasing and themes of opposites. The themes are: Mobility/Stability, Inner/Outer, Function/Expression, and Exertion/Recuperation.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: DANCE 261

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 480** Choreographic Projects (2) Choreographic practicum experiences for concert performances.

### **DANCE 480 Choreographic Projects (2)**

This course is a forum for choreographic practicum experiences for concert performances. This course will provide an opportunity to students to develop their artistic and creative abilities in the field of dance. The student will create a group choreographic work to be presented in concert dance. This course will cover skills for advanced group dances, the creative process, selection of music of dance, costuming for dance, lighting for dance, rehearsal techniques, performance techniques, and organizational/leadership skills.

Each student will submit a written proposal of the dance s/he intends to create, specifying the number of dancers, choreographic intent, and movement phrases as well as ideas for music, costumes, and lighting. The student will complete one choreographic dance to be performed in concert, which is presented each semester. The student must attend technical week prior to the concert, use past choreographic experiences gained from compositional study and be responsible for organizing weekly rehearsals. The student is required to hand in a self-evaluation paper reflecting on the original proposal and completed dance, and to maintain a journal throughout the semester documenting the choreographic process.

This course will be offered fall semester with an enrollment of 10 students.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2006  
 Prerequisite: DANCE 381

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 482** Introduction to Laban Movement Analysis (3) Observe and analyze movement elements by exploring concepts of Body, Effort, Shape, and Space to increase personal communication and expression.

### **Introduction to Laban Movement Analysis (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1999 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 484** (US;IL) Dance History (3) Survey of dance history concerning perspectives of culture, race, and gender with a focus on Nineteenth and Twentieth centuries.

**Dance History (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2006 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 485** Contemporary Dance Repertory (1-2 per semester/maximum of 12) An advanced dance course in the choreographic process with emphasis on original choreography in performance.

**DANCE 485 Contemporary Dance Repertory (1-2)**

This is an advanced dance course in the choreographic process with emphasis on original choreography. The instructor will create an original dance on students enrolled in this course which will provide the student with performance experience in a live dance concert. The student will learn original choreography, experience and assist in the choreographic process, participate in discussions concerning choreography, performance and style. The student will keep a journal and complete written assignments which demonstrate cognitive understanding of the artistic process.

Each student will demonstrate proper rehearsal protocol and behavior, execute the choreography at a level suitable for concert performance, show an understanding of the choreographic process through written work, demonstrate growth as a dancer and artist through performance and written work and participate fully in a concert performance of the dance work created in class.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 487** Advanced Hip Hop Dance (1.5) Advanced Hip Hop Dance reinforces and expands concepts from Beginning Hip Hop Dance. Free expression of the body, freestyle, and choreography are emphasized.

**DANCE 487 Advanced Hip Hop Dance (1.5)**

Advanced Hip Hop Dance is designed for the serious minded dance student with an interest in Hip Hop dance/culture. This class provides an intensive study of dance, choreography and culture. As in Beginning and Intermediate Hip Hop Dance, freestyle dancing, locomotive movements, and choreography are emphasized. In addition, this class includes lecture sessions and discussions about Hip Hop culture and its role in society. By the end of this course students should be able to articulate why Hip Hop is a culturally significant art form and choreograph and perform a Hip Hop dance combination. This course also enhances mind/body awareness, and provides choreographic and performance opportunities. This course is directly related to dance, theatre, African American studies and other arts based and humanities based courses. Students will be evaluated on their attendance, participation in class, willingness to learn, and the effort put forth in class.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007 Ending: Fall 2014

Prerequisite: DANCE 283

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**DANCE 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**DANCE 499** (IL) Dance Foreign Study (1-12) Courses offered in foreign countries by individual or group instruction.

**Dance Foreign Study (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Dietetic Food Systems Management (D S M)**

**D S M 195** Field Experience in Community Dietetics (3) Planning, preparation, and field experiences in community dietetic programs.

**Field Experience in Community Dietetics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: 3 credits in sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**D S M 295A** Field Experience in Foodservice Management (1-4) Supervised experience in a foodservice operation: analysis of food service systems.

**D S M 295A Field Experience in Foodservice Management (1-4)**

DSM 295A is designed to provide an opportunity for students to apply theories and knowledge learned in D S M 260 Management & Analysis of Quantity Food in a real life setting in order to develop the competencies related to managing the preparation and service of quality food in a non-commercial setting. The course objectives include: 1. gaining experience in supervising the production and service of food that meets nutrition guidelines, cost parameters, and consumer acceptance; 2. participating in facility management including equipment selection and design of work units; 3. conducting a food preference survey and evaluating results in order to assess consumer needs and wants; 4. translating nutrition guidelines into menus for a target population; 5. participating in the procurement and inventory management of food and supplies for a food service unit; 6. participating in quality improvement, including systems and customer satisfaction for dietetic service; 7. participating in organizational change and planning and goal-setting processes. To complete the DSM 295A assignments students must be working in a hospital, nursing home, retirement facility or a school foodservice operation where they complete directed assignments under the supervision of a Registered Dietitian or a qualified mentor approved by the Dietetic Food Systems Management Program. The foodservice operation serves as the learning environment where students develop skills related to the planning, operation, and evaluation of a foodservice operation in an institutional setting. The course assignments are designed to develop problem solving and critical thinking skills as well. Students will complete a minimum of 40 hours of supervised practice in the foodservice setting and complete a minimum of six written assignments per credit. Students enrolled for 2-4 credits will spend 40 hours per credit in the practice setting and complete more in-depth projects and written reports related to the course objectives. Evaluation methods: students will be required to submit a written report, using guidelines provided by the course instructor, at the completion of each module/assignment. These written reports will be evaluated by the course instructor. In addition, the student's mentor will evaluate the student's performance using an evaluation form designed by the course instructor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**D S M 295W** Professional Staff Field Experience (4) Methods of, and practice in, the client-oriented dietetic systems.

#### **Professional Staff Field Experience (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: D S M 195;NUTR 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**D S M 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Early Childhood Education (E C E)**

**E C E 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E C E 451** Instruction in Early Childhood Education Derived from Development Theories (3) Curriculum and instruction for early childhood education; program practice with pluralistic theoretical foundations for early childhood education.

#### **E C E 451 Instruction in Early Childhood Education Derived from Development Theories (3)**

As one of the introductory courses to early childhood education for undergraduate students, this class presents a foundational base of the early childhood education field, including the study of children/childhood, current practices, various roles of practitioners, environments for learning, and approaches to teaching.

This course provides an historical overview of influential thinkers and the roots of early childhood education, multidisciplinary perspectives of the development of the young child (for example, perspectives on children/childhood from anthropology, behaviorism, developmental psychology, neuroscience, postmodernism and post-structuralism, psychoanalysis, etc.), and resources for planning curriculum and instruction.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: HD FS 229 orHD FS 428 orHD FS 429

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E C E 452** Approaches to Contemporary Early Childhood Education Programs (3) Description and analysis of early childhood programs; cycles, trends, progressions in early childhood education.

#### **Approaches to Contemporary Early Childhood Education Programs (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1992  
Prerequisite: E C E 451

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E C E 453** parent Involvement in Home, Center, and Classroom Instruction (2-3) Parent involvement, programs, and methodologies that strengthen bonds between home and community for educators of children.

**parent Involvement in Home, Center, and Classroom Instruction (2-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1992  
Prerequisite: 6 credits in education

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E C E 454** (HD FS 454) Development and Administration of Child Service Programs (3) Planning, administering, and evaluating child service programs at several administrative levels using methods from relevant disciplines.

**Development and Administration of Child Service Programs (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1992  
Prerequisite: HD FS 453;C I 295 orHD FS 330

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E C E 479** The Young Child's Play as Educative Processes (3) Young child's play as educative processes and uses of materials in curricular settings are examined.

**The Young Child's Play as Educative Processes (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: E C E 451;HD FS 229 orHD FS 429 orPSYCH 415

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E C E 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1991

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E C E 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1991

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E C E 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Earth Sciences (EARTH)**

**EARTH 002 (GN)** The Earth System and Global Change (3) An interdisciplinary introduction to the processes, interactions and evolution of the earth's biosphere, geosphere and hydrosphere.

**EARTH 002 Gaia - The Earth System (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

EARTH 002 is a broad introduction to the Earth and to the forces and processes that shape the present-day global environment. The course focuses on global-scale changes, both natural and human-induced. These include: global climate change, destruction of stratospheric ozone, and tropical deforestation, species extinction, and the loss of biodiversity.

The discussion of these modern environmental issues occupies about 40% of the course. Unlike other "environmental" courses, this one sets these issues in the context of the long-term evolution and natural variability of the Earth systems. Thus, the course is structured around three major themes--the issues of global change, time scales of change, and understanding the Earth as a system.

By the end of this course, we expect students to:

1) Recognize that:

- the Earth operates as a complex system,
- there is considerable interaction between the different components of this system (e.g. atmosphere, oceans, solid Earth, and biota),
- changes in one part of the system can be expected to impact all others to a greater or lesser degree.

2) Develop an understanding of how the Earth system operates at the global scale, and the consequences this has for regional variability.

3) Understand how this system has evolved through time.

4) Understand how to use systems and graphical analyses to predict system response to perturbations.

As a result of this course, we expect students to:

1) Synthesize this information to better appreciate the complexity of modern global change issues.

2) Be in a position to make more informed judgments on the nature and seriousness of these issues.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 100 (GN)** Environment Earth (3) Natural processes and their relationship to anthropogenic influences. General principles of global cycles and the role they play in natural hazards, global warming, ozone depletion, etc.

**EARTH 100 Environmental Earth Science (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

"Environment Earth" is designed to generate a student's interest in natural processes and the effects humans have on these processes. In addition, students are encouraged to think critically about environmental problems and discover the complexity of these issues. An emphasis on the discrepancies between political rhetoric, media reporting and scientific data provides students the opportunity to evaluate conflicting arguments for themselves.

The goals of this course are (1) to develop students' understanding about our Earth and human effects on natural resources, (2) to foster the ability to critically evaluate scientific arguments, and (3) to practice expressing reasoned

opinions on complex problems. To achieve these goals, grades are based on examinations, homework assignments, written reports and oral presentations.

Exams use a traditional multiple choice format and are based on the lecture and readings. However, questions are designed to test a student's knowledge of the principles and interrelationships discussed rather than memorization of facts and terms. Homework assignments are given on approximately a weekly basis. Questions cover the most important concepts of the text and lecture and encourage consistent reading to complement lectures. These exercises have two purposes. First, the short answer nature of questions provides practice in writing logical, concise paragraphs while ensuring the student understands key concepts. Second, assurance that students are reading chapters concurrent with the lecture topics allows the instructor to interact with the class more effectively during class discussions. Two written reports are given to test a student's ability to comprehend scientific articles and explain the science and its implications for environmental policy. A wide variety of topics are suggested based mainly on newspaper and magazine articles on environmental issues, but students can select almost any topic related to the environment with prior instructor approval. Students must then research the science behind the media coverage via library and web-based resources. The class web site (<http://www.geosc.psu.edu/People/Faculty/FacultyPages/Kubicki/earlOO.html>) is designed to facilitate searches related to course topics. Papers are judged based on the clarity of writing, the quality of scientific data included, and discussion of the implications of the research. Oral presentations debating two sides of environmental issues will be conducted. Small teams (4-5 students) will be assigned one side of an issue and each member will participate in a debate against another team. These debates will develop students' speaking and team-building skills. Although each student will be responsible for a section of the debate, factual research will be carried out as a group to present the best overall case.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 100H (GN)** Environment Earth: Environment and Energy (3) Examination of climate change and energy issues.

**EARTH 100H Environment Earth: Environment and Energy (3)  
(GN)**

In this course, students will be asked to investigate the natural processes that affect the Earth's climate and their effects on Life on Earth. Once a fundamental understanding of natural processes is developed, then an examination of the anthropogenic atmospheric changes covers the increases in greenhouse gases mainly due to fossil fuel use and agriculture. After discussing the potential environmental and economic impacts of increased greenhouse gases on Man and Nature, the major energy sources will be studied for their potential to meet increasing energy needs and their possible ability to mitigate climate change.

General Education: GN

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 101 (GN;US)** Natural Disasters: Hollywood vs. Reality (3) Analysis of the causes and consequences of natural disasters; comparison of popular media portrayal of disasters with perspective from scientific research.

**EARTH 101 Natural Disasters: Hollywood vs. Reality (3)  
(GN;US)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course investigates a variety of natural hazards and disasters. We will use the popular media as a starting point for discussions and development of tools for analyzing the causes of disasters. Using excerpted segments of "disaster films" in conjunction with scientific treatments, we can identify the causes, consequences and public perceptions of natural hazards. Small group discussions and cooperative research held "real time" in the classroom will be a major component of this course. The goal is to help students develop both an understanding of natural hazards and disasters, and enhance their understanding of scientific approaches to problem solving.

During the course approximately four to five topics selected from the list of volcanoes, earthquakes, hurricanes, tornadoes, flooding, bolloid (e.g., asteroid) impacts, and tsunami (tidal waves) will be covered. For each topic, we will incorporate the following activities: (a) short edited excerpts from disaster movies (or equivalent) of approximately 10 minutes each; (b) discussions by small groups of students (approximately 10 per group) to identify scientific issues to be addressed; (c) development of scientific background and tools via faculty lectures, tutorials, and library or web-based activities; (d) cooperative learning activities by small student groups--each group working together to address one of the identified scientific issues; (e) group presentations of results of the cooperative learning activity; and (f) individual writing activities producing focused reports on specific scientific issues. A typical topic will be covered in three weeks (six class meetings) with approximately 50 percent of the time (in class) allotted to group activities and discussion; lecturing by the

faculty will involve approximately 25 percent of the time, with the remaining 25 percent of the time used for video and Web-based presentations.

Grades will be based on participation in "breakout" group discussions and cooperative activities, writing assignments (two to three pages each) associated with each topic, and an annotated "disaster diary" of natural disasters which have occurred during the course. Each writing assignment will be aimed at a client audience (e.g., municipal government, businesses, or the general public) and written to explain the exposure to natural hazards or potential for disaster faced by the client.

This course has no prerequisites and should be accessible to all students. Through cooperative activities students can benefit from the range of expertise brought to the course by their colleagues and thus address scientific issues beyond the reach of any individual.

General Education: GN

Diversity: US

Bachelor of Arts: Natural Sciences

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 103 (GN)** Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century (3) Climate predictions for the coming century are utilized to examine potential impacts on regions, sectors of society, and natural ecosystems.

**EARTH 103 Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century (3) (GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The United States is actively working on national assessment of the impacts of the climate change predicted to occur over the next century. The U.S. National Assessment has developed three major documents, an Overview written for Congress, a Foundation document giving the sources of information and their interpretation, and a series of regional (e.g. Northeast, Midwest, etc) and sector (water, health, agriculture, forests, and coastlines) reports. These reports present an exceptional opportunity to connect advances in the natural sciences to society. The course has four major objectives: (1) to gain an understanding of climate science and of the possible scenarios of how climate may change in the future. [the basis for these scenarios and their limitations will be an important element]; (2) to analyze the linkages between climate and major human and natural systems (e.g. agriculture, human health, water, coastal ecosystems, and forests), necessary to assess the potential impacts of climate change; (3) to demonstrate that the impacts of climate change, and the way in which society responds, is dependent on factors such as age, economic capability, lifestyle (e.g. urban vs. rural), generational differences, and cultural differences; and (4) to understand the different types of responses that humans may have to climate change, including adaptations to change and possible mechanisms to mitigate the factors that are forcing change to occur.

The course includes smaller enrollment computer laboratory/discussion sessions designed to (1) provide hands-on data analysis and interpretation and the exploration of climate linkages to natural and human systems; (2) promote discussion and formal debate around key issues; and (3) develop tools to assess class perceptions of vulnerabilities and appropriate responses. Several of these elements will be developed with a team or group approach. Grading will be based primarily on a student record, or portfolio, stemming from a combination of lab exercises, written material, and debate materials. Tests on lecture material will be a secondary evaluation mechanism. This course fulfills a Natural Sciences General Education requirement, as well as course requirements for the Earth major. It provides a natural partner to Earth-as-a-System (Earth 002) that focuses on Earth system concepts and the scientific evidence for a changing planet throughout Earth history and into the future.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 105 (GN;IL) (AFR 105)** Environments of Africa: Geology and Climate Change (3) Significant natural features of Africa as related to human endeavor; case studies include the Nile, climate change, and natural resources.

**EARTH (AAA S) 105 Environments of Africa: Geology and Climate History (3) (GN;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

"Environments of African: Geology and Climate History" investigates the interrelationships between geology, hydrology, land use and human development in several areas of Africa. We focus primarily on regions north of the equator, although there is a brief segment on South Africa mining. Specific topics include the Nile River (sources of the Nile, agricultural practices, effects of damming the Nile, hydropolitics), the Sahara and Sahel (salt mines, climate change, drought, water resources), and natural resources and their role in politics (gold, diamonds, oil, and gas). The theme of climate change



cuts across the entire semester. The quantitative and analytical components of the course involve working through a combination of map exercises and data manipulations (flood stage, groundwater age, rainfall and temperature records). Writing exercises are conducted both individually (essays, analysis of readings) and in collaborative teams (climate change analysis). Readings for the course come from the popular scientific literature; current refereed research journals, and transcribed oral histories of African people. Faculty lectures will comprise ~30% of the course, and student presentations ~20%, with the remainder of the time devoted to in-class collaborative exercises. There are no pre-requisites for this course. It will be offered annually with a maximum enrollment of 100 students.

The goals of the course are to (1) introduce the scientific study of Africa; (2) develop quantitative and scientific reasoning skills; (3) explore the relationship between human society and the natural world. The topics that we explore (e.g., global climate change, allocation of limited water resources) are important political issues that affect people in developed and developing countries throughout the world. It is crucial that the next generation of citizens be informed as to how scientific data is obtained, presented, and interpreted by scientists as well as politicians. Students will work individually and (more commonly) in teams to analyze real data from natural African systems, and will then report their findings to the class both orally and in writing. Examples of the data sets include 100-year records of monthly rainfall and temperature from stations throughout the continent, fossil suites from ancient lake cores in the modern Sahara, and historical writings of Nile flood levels from pre-Biblical times. Through these exercises students will gain an appreciation of the scope of geological time and change, and will be able to incorporate this new long-term perspective into identification and resolution of modern questions.

General Education: GN

Diversity: IL

Bachelor of Arts: Natural Sciences

Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 106 (GN)** The African Continent: Earthquakes, Tectonics and Geology (3) Study of earthquakes and seismic waves to learn about the geology and plate tectonics of the African continent.

**EARTH 106 Shaking Up Africa: The Geology and Tectonics of Africa (3)  
(GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Earthquakes are natural phenomena that can cause immense human suffering because of intense ground shaking, and are consequently of great societal importance. Earthquakes are also important because the seismic waves that generate the ground shaking provide scientists with important information about Plate Tectonics and geology, in particular information about the structure and composition of our planet and how the insides of the planet are deforming. In this course, earthquakes in Africa and the seismic waves they generate are used to help students to learn about the geology of Africa and how the earth beneath the African continent is being deformed by Plate Tectonics.

EARTH 106 is designed in four modules. Modules, in turn, are divided into weekly lessons. Offered in a "hybrid" format, each weekly lesson includes a single face-to-face class meeting, complemented by online reading assignments, self-check learning activities, and discussions. The online, hands-on learning activities are similar to the labs conducted in similar courses that are offered solely in face-to-face environment, including the manipulation of geographic data, map reading exercises, and rock and mineral identification activities. They are designed to help students learn skills and knowledge that they then apply to a course project. While the weekly lesson activities involve working with seismic data from East Africa, the course project requires students, working in small groups, to apply their skills and knowledge to another geographic area of the African continent. In addition to the weekly lesson activities and the course project, students are required to complete weekly quizzes that assess comprehension of the online reading assignments. Quizzes that come at the end of a module also assess the skills and knowledge addressed in the lesson learning activities for that module.

This course is a general education offering in natural sciences (GN) and is open to all students regardless of academic major.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 111 (GN;US)** Water: Science and Society (3) Investigation of water behavior and occurrence, its relevance to life, human activities, politics, and society.

**EARTH 111 Water: Science and Society (3)  
(GN;US)**

The Earth is often called "The Blue Planet", a reference to the fact that over two-thirds of its surface is covered by water. Despite its apparent abundance, water is a valuable and limited resource; less than 2.5% of the water on the planet is fresh, and only one third of that is potable. And that's not all - the small fraction of Earth's water that is useable to humans

is distributed very unevenly. As a result, conflicts over water occur from the local level, for example: pitting rancher against developer - to the global level, at which nations square off against one-another in war and use water as a mechanism for imposing sanctions. The dire situation in some regions has spurred numerous research and technological endeavors, such as water desalinization, genetic engineering of crops, and major overhauls of agricultural practice.

In this course, we will explore the relationships between water and human populations, with emphasis on water resources and quality in the Western U.S., and how these have shaped history and modern politics. We will focus first on developing the scientific underpinnings of water's unique properties, behavior, movement, occurrence, and quality. With this background, we will then discuss key issues relating to modern and historical conflicts, human impacts on the natural world, and human engineering accomplishments driven by our thirst for this valuable resource. We will discuss historical examples from the American West, specifically the development of water resources in Colorado and California. We will also explore modern and historical conflicts between stakeholders. Major themes will include political and economic conflicts over (1) water resources - for example, balancing agricultural and urban demands in the American west in the Denver and Los Angeles metropolitan areas, (2) water quality - for example, considering the impact of economically profitable human activities on water quality and transmission of disease, and (3) human impacts on natural processes, specifically connecting human activity with our cultural history of water use and exploration in the American West. Our approach is to include a substantial component of student-initiated learning. The course will include critical evaluation and discussion of assigned reading and films, a series of laboratory exercises and field trips to illustrate concepts and stimulate discussion, and a major research paper.

General Education: GN  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 150 (GN)** Dinosaur Extinctions and Other Controversies (3) Dinosaur extinctions and other major and controversial events in the history of life.

**EARTH 150 Dinosaur Extinctions and Other Controversies (3)  
(GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

One of the most dramatic developments in the Earth sciences is the suggestion that extinction of the dinosaurs was caused by a meteorite impact. Evidence for and against this controversial idea is just one of the subjects addressed by this course, dealing broadly with the history of our planet, the evolution of life upon it, and the sometimes rocky development of our understanding of Earth history. In addition to dinosaur extinction, we will discuss issues relating to catastrophic vs. gradual theories about the Earth's history, fossils and the history of life, and mass extinctions, including whether or not we're in the middle of one now. How are scientific discoveries made? What distinguishes a scientific argument from a non-scientific one? What roles do social and historical factors play in the construction and acceptance of scientific theories? Questions such as these will permeate the course. Readings will include selected texts by leading scientists, with supplements from the primary scientific literature, including current discoveries published in *Science* and *Nature*.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 202 Modeling the Earth System (3)** A quantitative introduction to the evolution of Earth's biosphere, atmosphere, and hydrosphere, with emphasis on the carbon cycle and climate.

**EARTH 202 Modeling the Earth System (3)**

EARTH 202 is a broad introduction to the Earth, and to the forces and processes that shape the present-day global environment. The course focuses on climate change on all time scales, with special emphasis on human time scales and the problem of human-induced global warming. The topic of ozone depletion is also included. Unlike most other "environmental" courses, this one sets these issues in the context of the long-term evolution and natural variability of the Earth system. Thus the course is structured around three major themes--the issues of global change, time scales of change, and understanding the Earth as a system. A modeling component is included to actively engage students in the process of exploring Earth system dynamics through computer modeling. Modeling will be incorporated throughout the class, beginning with simple models and working toward more sophisticated models such as the global carbon cycle. The modeling software to be used will be appropriate to second-year undergraduates who do not have previous experience with solving differential equations or with computer programming.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009

Prerequisite: MATH 140 or MATH 110 or MATH 083; CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 240 (GN)** Coral Reef Systems (4) The geography, geology, biology ecology and chemistry of coral reef ecosystems; threats to reef environments; and techniques for reef surveying and monitoring; with local geologic and distant modern field studies.

**EARTH 240 Coral Reef Systems (4)  
(GN)**

The course introduces students to coral reef environments, past and present. It describes the processes that control the distribution, growth, and morphology of reefs and introduces students to the complexity of the coral reef ecosystem. The course emphasizes the role that reefs play in the natural environment and examines their importance to society both globally (e.g. in terms of biodiversity and its potential benefits) and locally in terms of, for example, food supply and tourism. We then look at the natural disturbances (such as disease, storms, sea surface temperature variations) that affect the reef, as well as ways in which reefs are threatened from human impacts, with an emphasis on global climate change and the long-term outlook for reef survival.

Students will work in groups to research elements of the system, first at a global scale, and then focusing specifically on one region -- the Bahamas platform. Students will look at the history of the Bahamas platform and its relationship to the present nature and distribution of coral reefs. They will then examine these in the context of their social, cultural, and economic importance to local communities. A third component of the course will concentrate on the identification of vertebrate and invertebrate species and substrate conditions that are important indicators of reef health. There will then be a one-week field trip to a coral reef system to conduct reef surveys. The surveys follow the Reef Check protocol (a volunteer, community-based monitoring protocol designed to measure the health of coral reefs on a global scale). Reef Check is administered out of the University of California at Los Angeles.

The coral reef surveys will be conducted on scuba and the field trip and participation in the survey are required elements of the course. Students who are not scuba certified will be given the opportunity to obtain open water scuba certification as part of the course, through Penn State's Science Diving Program (The PSU Science Diving Program is a member of the American Academy of Underwater Sciences). There will be an additional charge for the scuba certification course and the field trip.

Student assessment will be through group presentations, term papers, 3 exams and their contribution to the field program. The course satisfies part of the field requirement for the University's Marine Science Minor and serves as an introduction to the Science Diving Program.

General Education: GN

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: Prerequisite or concurrent: KINES 045 or Nationally Recognized Scuba Certification

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 297A** Coastal Processes, Hazards and Society (3) This blended course will provide students with a global perspective of coastal landscapes, the processes responsible for their formation, diversity, and change over time, as well

as societal responses to current changes in the coastal zones around the world.

**Coastal Processes, Hazards and Society (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 297B** (SCIED 297B) Fundamentals of Climate Science (3) Address the meaning, variability and change of climate over time as a result of natural and man-made processes. Course is geared toward elementary ed majors but could be appropriate for EMS students interested in reform- based science education.

**Fundamentals of Climate Science (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 400** Earth Sciences Seminar (3) Interdisciplinary study of environmental problems in the earth sciences.

**Earth Sciences Seminar (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: seventh-semester standing in the Earth major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**EARTH 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EARTH 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Earth and Mineral Sciences (EM SC)**

**EM SC 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 100S** (GWS) Earth and Mineral Sciences First-Year Seminar (3) Writing, speaking, and critical thinking skills applied to topics of general interest in Environmental and Materials Science.

#### **EM SC 100S Earth and Mineral Sciences First-Year Seminar (3) (GWS;FYS)**

The EMS First-Year Seminar is designed to encourage students to begin the important process of "thinking for a living." The primary focus of the seminar is to promote critical reading and thinking skills, and to help students develop effective written and oral arguments. Students learn the importance of reading, sharing ideas and collaborating, through independent and group research, discussion and debate.

We want our students to think about some of the major issues facing the world today, the role that science and technology have played in defining and addressing these issues, the way in which present-day thinking has been shaped by the past, and the development of scientific thought. The Seminar's content focuses on communication skills, but these are addressed within the context of issues relevant to the disciplines represented in EMS. As such, the discussions range across topics such as the Earth and its resources; scientific and technical aspects of global habitability; development of the advanced materials necessary for sustaining and advancing civilization in the 21st century; and the social, economic, and political factors that shape and constrain society's view of the Earth system.

Students undertake three to five major writing projects throughout the semester, as well as several smaller one to two paragraph written assignments. Grades are determined from their performance on the written papers, oral presentations, and in-class participation.

The Seminar is a required course for all EMS first-year students at the University Park campus and, together with English 015 and either English 202 or Speech Communications 100, will satisfy the Writing and Speaking requirements of General Education.

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 101 (US;IL) Resource Wars (3)** "Resource Wars" presents an analysis of natural resources and how competition for them shapes national and international cultures and geopolitics.

**EM SC 101 Resource Wars (3)  
(US;IL)**

The faculty of the College of Earth and Mineral Sciences are uniquely qualified to teach "Resource Wars", a course that presents an analysis of natural resources and how competition for them shapes contemporary and historical culture and geopolitics. "Resource wars" will examine the extent to which the Gulf War of 1991, the explosive conflict between the United States and Islamic extremists, and present engagement in Iraq are manifestations of a foreign policy that comes from a desire for resource security. While the current Iraq war is the most recent manifestation of the clash between US and IL cultures, there are many examples of past resource wars in world history. Although the present conflict in the Middle East is about petroleum, past conflicts involve the entire spectrum of natural resources from gold and diamonds to rubber and tea to water, clean air, and living space. Class discussion will meld the technical aspects of discovery and extraction with its impact on society from a cultural and geopolitical points of view (US & IL).

Technical analysis starts with the geology of the natural resource. The extraction, harnessing, or mining of that natural resource and resource transportation come next. The use of that natural resource as a material follows. Of course, short term and long climatic instability may play roles. The human elements (US & IL) involved in the trading and development of the resource lead to both armed interstate conflicts and intrastate disputes. Cultural questions might include how the digital age impact resource control and trade, how global resource distribution impacts energy security and utilization, and how international resource competition impacts the climate. Ultimately, the class is led to an understanding about how scarcity has impacted cultures throughout human history (US & IL).

The tentative plan is that each lecture period consists of two parts starting with a moderator (the lead faculty member throughout the entire semester) who summarizes the resource under discussion in a 10-15 minute introduction. Then, appropriate EMS faculty will offer detailed accounts of their particular expertise. This format requires two 75-minute classes per week (30 per semester).

The moderator shall be responsible for grading the class including the discussion and written responses in a large classroom format (50+ students) taught in one lecture hall. Active learning shall include discussion sessions with a wireless response pad technology for in-class interaction between student and instructor.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 121 (GN) Minerals and Modern Society (3)** Production and use of mineral resources in modern society with an emphasis on the interrelationships and their effect on the Earth system.

**Minerals and Modern Society (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 150 (GN;IL) (S T S 150) Out of the Fiery Furnace (3)** A history of materials, energy and man, with emphasis on their interrelationships. For nontechnical students.

**Out of the Fiery Furnace (3)**

General Education: GN  
Diversity: IL  
Bachelor of Arts: Humanities and Natural Sciences  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 294 Research Project Courses (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project Courses (1-12)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 300** Professional e-Portfolio Development (1 per semester) Design, creation and critique of on-line portfolios for personal and professional development. This course is for second-, third-, and fourth- year EMS students.

#### **EM SC 300 Professional e-Portfolio Development (1 per semester; maximum of 4)**

The EM SC 300 course on Professional e-Portfolio Development is intended to help second-, third-, and fourth-year undergraduate students in the College of Earth and Mineral Sciences adopt proactive, strategic approaches to planning their Penn State careers and developing professional and personal goals for life after graduation. As a vehicle for reflective learning and professional development, the course will require each student to design, create, and maintain an on-line portfolio that contains evidence of his or her curricular and co-curricular activities. The course will be team-taught with faculty and staff members of Penn State's Office of Career Services, who will provide students with career assessment sessions, videotaped mock interviews, and one-on-one consultation with alumni career coaches. In addition, students will develop or improve the information design and technology skills needed to become active producers, rather than passive consumers, of Web-based information. EM SC 300 will serve as a career-oriented follow-on to EM SC 100S, the EMS First Year Seminar. The course will be offered every Spring semester for one credit. Students and instructors will meet for one two-hour session each week in a technology classroom in which all students have access to networked personal computers. Students will be allowed to take the course up to four times. Within each course section, students will be working in groups based upon the extent of their previous experience in the class. Repeat students will be expected to mentor first-time students. For example, experienced students may be asked to demonstrate advanced skills, provide technical support, and help conduct mock interviews (under the supervision of Career Services staff and interns). Student performance will be evaluated on the basis of participation, skills improvement, fulfillment of individual course goals, the ability to offer and accept constructive criticism, and collaboration (helping fellow students to achieve their goals).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 302** Orientation to Energy and Sustainability Policy (1) Orientation to goals of the Energy and Sustainability Policy program and resources available to help students succeed.

#### **EM SC 302 Orientation to Energy and Sustainability Policy (1)**

EM SC 302 provides an orientation to the goals of the Energy and Sustainability Policy (ESP) degree program, helping students to successfully prepare for the five program learning outcomes. The course is conducted as a group seminar, with topics that are designed to provide an initial understanding of program outcomes: energy industry knowledge, global perspective, analytical skills, communication skills, and sustainability ethics. Students are expected to actively participate in discussions and work hands-on with online tools in activities that will allow them to gain an understanding of what it means to successfully participate as an ESP student in different educational and course contexts. Students are evaluated

based on active class participation, written assignments, and class presentations. This course is intended to be taken during the first semester after being admitted to the ESP program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 420** (SOC 420, S T S 420) Energy and Modern Society (3) Technology and economics of energy resources, production, and consumption; environmental factors, exhaustion, new technology.

**Energy and Modern Society (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 440** Science Diving (4) Advanced scuba diving skills applied to underwater research.

**EM SC 440 Science Diving (4)**

EM SC 440 is a four credit intermediate science diving course for students already holding a basic open water scuba diving certification from an internationally recognized certification agency (e.g. PADI, NAUI, CMAS, YMCA, SSI etc.).

Scientific diving is concerned with the observation of underwater phenomena and the acquisition of scientific data. This course introduces students to advanced scuba diving skills following the standards established by the American Academy of Underwater Sciences (AAUS) -- with a significant emphasis on diver safety.

The course covers theoretical aspects of the physics of diving, dive physiology, and underwater environments. There is a strong emphasis on diver safety with theoretical and practical training in cardiopulmonary resuscitation, diving-related first aid, accident management and dive rescue. The course will cover advanced recreational diving techniques, including deep diving and enriched air (nitrox) diving. A significant component of the course will involve scuba diving accident analysis, the focus of the course textbook. The course will also include an introduction of advanced underwater sign language.

The course will include classroom sessions, pool sessions, and open water dives focusing on underwater skills development for eventual application in research settings.

Each government or university underwater research program certifies its own divers based on standards that, at a minimum, conform to those of the AAUS. Successful completion of the course will allow the student diver in training to enroll in EM SC 441, Advanced Science Diving. Successful completion of EM SC 441 will allow the student diver in training to apply for science diver certification from the Penn State Science Diving Program. Certification is also dependant on a medical examination and is at the discretion of the University Dive Safety Officer; it is not automatically offered on completion of the course. The course is usually offered once a year in the spring semester and will involve several day trips (usually at weekends) to various river, lake, and quarry locations within the state. There will be an additional fee charged to cover the costs of the open water dives and administrative charges for recreational dive certifications.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: basic open water SCUBA certification and approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 441** Advanced Science Diving (4) Advanced scuba diving skills applied to underwater data collection and research.

**EM SC 441 Advanced Science Diving (4)**

EM SC 441 is a four credit advanced science diving course for students who have completed EM SC 440 (Science Diving), an equivalent course at a recognized AAUS member institution, or have been approved by the University Dive Safety Officer based on acceptable demonstration of practical and academic dive experience. Students must have a minimum of 20 logged dives beyond their basic open water certification dives by the start of the course.

Scientific diving is concerned with the observation of underwater phenomena and the acquisition of scientific data. This course introduces students to some of the basic skills and techniques used in scientific diving, following the standards established by the American Academy of Underwater Sciences (AAUS) -- with a significant emphasis on diver safety.



The course covers theoretical aspects of science diving techniques. The course will focus on advanced techniques in underwater ecology, geology, paleontology and archaeology, leveraging expertise from PSU faculty in these disciplines. The course will include classroom sessions, pool sessions, and open water dives. The classroom and pool sessions and the open water dives will involve skills development and their application in research settings. Research will involve a variety of projects (e.g. fish surveys, lake sediment sampling for climate reconstruction, underwater mapping) – the exact nature of which will vary depending on the areas of expertise of the faculty and students involved.

Each government or university underwater research program certifies its own divers based on standards that, at a minimum, conform to those of the AAUS. Successful completion of the course will allow the student diver in training to apply for science diver certification from the Penn State Science Diving Program. Certification is also dependant on a medical examination and is at the discretion of the University Dive Safety Officer; it is not automatically offered on completion of the course. The course is usually offered once a year in the fall semester and will involve several day trips (usually at weekends) to various river, lake, and quarry locations within the northeastern United States. There will be an additional fee charged to cover the costs of the open water dives and administrative charges for recreational dive certifications.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: successful completion of EM SC 440 or waiver by University Dive Safety Officer based on acceptable demonstration of practical and academic dive experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 470W** Undergraduate Collaborative Research in Earth and Materials Sciences (1-6 per semester/maximum of 6) Interdisciplinary research seminar involving students in the process of discovery, writing, and debate on issues of broad interest to Earth and Materials Sciences.

**Undergraduate Collaborative Research in Earth and Materials Sciences (1-6 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 494** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project Courses (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 494H** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project Courses (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EM SC 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Economics (ECON)

**ECON 014 (GS)** Principles of Economics (3) Analysis of the American economy, emphasizing the nature and interrelationships of such groups as consumers, business, governments, labor, and financial institutions. Students who have passed ECON 002 or 004 or are registered in the College of Business Administration may not schedule this course.

**Principles of Economics (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 083S (GS)** First-Year Seminar in Economics (3) Experiments in microeconomic principles.

**ECON 083S First-Year Seminar in Economics (3)  
(GS;FYS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The principal objective of the course is to engage students in active learning of macroeconomic principles, by using economic experiments to exploit the natural curiosity of students about economic affairs. Through these experiments, students will have an opportunity to ponder the questions, rather than simply being given answers. By the end of the course, students should have a good grasp of basic principles of microeconomics, and they will also have learned how to carry out and prepare written reports of laboratory experiments in economics. Students will work in teams, do analyses of the data generated by the in-class experiments, and prepare written reports of these analyses in lab reports. They will also be assigned homework to be done in the same groups and designed to help them solidify the ideas that they have explored. The textbook for the course will be Bergstrom and Miller, Experiments in Economic Principles (1997), which includes 13 experiments covering the topics identified in the previous section.

The course provides an introduction to macroeconomic principles based on laboratory experiments, with students who serve to conduct the experiments and also serve as participants. As such, it constitutes an excellent introduction to a major branch of economics. The course also will be a general education and Bachelor of Arts social/behavioral sciences course.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 102 (GS)** Introductory Microeconomic Analysis and Policy (3) Methods of economic analysis and their use; price determination; theory of the firm; distribution.

**ECON 102 Introductory Microeconomic Analysis and Policy (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Economics is the study of how people satisfy their wants in the face of limited resources. One way to think about economics is that it is a consistent set of methods and tools that is valuable in analyzing certain types of problems related

to decision--making, resource allocation, and the production and distribution of goods and services. There are two main branches of economics, microeconomics, and macroeconomics. Macroeconomics is concerned with economy--wide factors such as inflation, unemployment, and overall economic growth. Microeconomics deals with the behavior of individual households and firms and how government influences that behavior; it is the subject of this course.

More specifically, ECON 102 is an introduction to microeconomic analysis and policy. The principal objective of the course is to enable students to analyze major microeconomic issues clearly and critically. Students will be introduced to the methods and tools of economic analysis, and these analytical tools will be applied to questions of current policy interest. Learning these methods and tools and applying them to interesting policy questions and issues is sometimes called "thinking like an economist." An important goal of this course is to take each student as far down the road of "thinking like an economist" as possible.

A variety of mechanisms are used to assess student performance. These evaluation methods typically include exams, quizzes, homework assignments, and group projects.

ECON 102 is an introductory course in economics and as such, serves as a prerequisite for several microeconomics--oriented 300--level courses. It is also a required course for all majors and minors in economics, and meets requirements for a General Education (GS) or Bachelor of Arts social science course.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 102H (GS)** Honors Introductory Microeconomic Analysis and Policy (3) Methods of economic analysis and their use; price determination; theory of the firm; distribution.

**ECON 102H Honors Introductory Microeconomic Analysis and Policy (3) (GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Economics is the study of how people satisfy their wants in the face of limited resources. One way to think about economics is that it is a consistent set of methods and tools that is valuable in analyzing certain types of problems related to decision-making, resource allocation, and the production and distribution of goods and services. There are two main branches of economics, microeconomics, and macroeconomics. Macroeconomics is concerned with economy-wide factors such as inflation, unemployment, and overall economic growth. Microeconomics deals with the behavior of individual households and firms and how government influences that behavior; it is the subject of this course.

More specifically, ECON 102H is an honors introduction to microeconomic analysis and policy. The principal objective of the course is to enable students to analyze major microeconomic issues clearly and critically. Students will be introduced to the methods and tools of economic analysis, and these analytical tools will be applied to questions of current policy interest. Learning these methods and tools and applying them to interesting policy questions and issues is sometimes called "thinking like an economist." An important goal of this course is to take each student as far down the road of "thinking like an economist" as possible. This honors version of the course goes into greater depth on a number of topics as compared to the non-honors version. In particular, it covers some material that is normally not included in ECON 102 but rather in ECON 302, the intermediate microeconomic theory course.

A variety of mechanisms are used to assess student performance. These evaluation methods typically include exams, quizzes, and homework assignments.

ECON 102H is an introductory course in economics and as such, serves as a prerequisite for several microeconomics-oriented 300-level courses. It is also a required course for all majors and minors in economics, and meets requirements for a General Education (GS) or Bachelor of Arts social science course.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 104 (GS)** Introductory Macroeconomic Analysis and Policy (3) National income measurement; aggregate economic models; money and income; policy problems.

**ECON 104 Introductory Macroeconomic Analysis and Policy (3) (GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Economics is the study of how people satisfy their wants in the face of limited resources. One way to think about

economics is that it is a consistent set of methods and tools that is valuable in analyzing certain types of problems related to decision-making, resource allocation, and the production and distribution of goods and services. There are two main branches of economics, microeconomics, and macroeconomics. Microeconomics deals with the behavior of individual households and firms and how that behavior is influenced by government. Macroeconomics is concerned with economy-wide factors such as inflation, unemployment, and overall economic growth; it is the subject of this course.

More specifically, ECON 104 is an introduction to macroeconomic analysis and policy. The principal objective of the course is to enable students to analyze major macroeconomic issues clearly and critically. Students will be introduced to the methods and tools of economic analysis, and these analytical tools will be applied to questions of current policy interest. Broadly, the course focuses on the determination of national income, on unemployment, inflation, and economic growth in the context of a global economy, and on how monetary and fiscal policy, in particular, influence the economy. Learning the methods and tools of economics and applying them to interesting policy questions and issues is sometimes called "thinking like an economist." An important goal of this course is to take each student as far down the road of "thinking like an economist" as possible.

A variety of mechanisms is used to assess student performance. These evaluation methods typically include exams, quizzes, homework assignments, and group projects.

ECON 104 is an introductory course in economics, and as such, serves as a prerequisite for 300-level courses in intermediate macroeconomic analysis, international economics, and money and banking. It is also a required course for all majors and minors in economics, and meets requirements for a General Education or Bachelor of Arts Social Science (GS) course.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 104H (GS)** Honors Introductory Macroeconomic Analysis and Policy (3) National income measurement; aggregate economic models; money and income; policy problems.

**ECON 104H Honors Introductory Macroeconomic Analysis and Policy (3) (GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Economics is the study of how people satisfy their wants in the face of limited resources. One way to think about economics is that it is a consistent set of methods and tools that is valuable in analyzing certain types of problems related to decision-making, resource allocation, and the production and distribution of goods and services. There are two main branches of economics, microeconomics, and macroeconomics. Microeconomics deals with the behavior of individual households and firms and how government influences that behavior. Macroeconomics, the subject of this course, is concerned with economy-wide factors such as inflation, unemployment, short-run fluctuations in economic activity, and overall economic growth.

More specifically, ECON 104H is an honors introduction to macroeconomic analysis and policy. The principal objective of the course is to enable students to analyze major macroeconomic issues clearly and critically. Students will be introduced to the methods and tools of economic analysis, particularly the use of models, and these analytical tools will be applied to questions of current policy interest. Learning these methods and tools and applying them to interesting policy questions and issues is sometimes called "thinking like an economist." An important goal of this course is to take each student as far down the road of "thinking like an economist" as possible. This honors version of the course goes into greater depth on a number of topics as compared to the non-honors version. In particular, it covers some material that is normally not included in ECON 104 but rather in ECON 304, the intermediate macroeconomic theory course.

Several different mechanisms are used to assess student performance. These evaluation methods typically include exams, homework assignments, and assessment of class participation.

ECON 104H is an introductory course in economics and as such, serves as a prerequisite for three macroeconomics-oriented 300-level courses (304, 333, 351). It is also a required course for all majors and minors in economics, and meets requirements for a General Education (GS) or Bachelor of Arts social science course.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 106** Statistical Foundations for Econometrics (3) Basic statistical concepts used in economics. Topics include probability distributions, expectations, estimation, hypothesis testing, correlation, and simple regression. Students who have completed ECON 306 may not schedule this course.

**Statistical Foundations for Econometrics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 106H** Statistical Foundations for Econometrics (3) Basic statistical concepts used in economics. Topics include probability distributions, expectations, estimation, hypothesis testing, correlation, and simple regression. Students who have completed ECON 306 may not schedule this course.

**Statistical Foundations for Econometrics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 197** Special topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 199** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 302** (GS) Intermediate Microeconomic Analysis (3) Allocation of resources and distribution of income within various market structures, with emphasis on analytical tools.

### **Intermediate Microeconomic Analysis (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011  
Prerequisite: ECON 102

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 302H** (GS) Intermediate Microeconomic Analysis (Honors) (3) Allocation of resources and distribution of income within various market structures, with emphasis on analytical tools.

### **ECON 302H Intermediate Microeconomic Analysis (Honors) (3) (GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

There are two branches within the discipline of economics: microeconomics, focused on the behavior of individual economic actors (consumers, firms, and government) and macroeconomics, focused on economic aggregates (e.g., inflation, unemployment, aggregate economic growth). There are four core courses in economics that are required of all majors and minors: introductory and intermediate courses in microeconomics and macroeconomics. This course is the upper-level core course in microeconomic analysis.

Students will learn, at a deeper level than that covered in the beginning microeconomics course (ECON 002), and with extensive use of calculus, about supply and demand, consumer theory, the theory of the firm, market structure and market power, factor markets, and extensions to consider uncertainty, missing markets, and limited information. Students will develop their analytical skills for analysis of microeconomic issues. These skills, in turn, will be required for a substantial number of 400-level microeconomics-oriented courses.

This course is a follow-on to the introductory course in microeconomic analysis, its prerequisite, going more deeply into the material covered in that introductory course in microeconomic analysis, and making extensive use of calculus. It is, in turn, a prerequisite for a large number of microeconomics-oriented courses at the 400 level. This honors version is designed to provide the opportunity for stronger students to pursue this key course at a more rigorous and in-depth level.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011  
Prerequisite: ECON 102 and MATH 110 or MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 304** (GS) Intermediate Macroeconomic Analysis (3) Analysis of forces that determine the level of aggregate economic activity.

### **Intermediate Macroeconomic Analysis (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011  
Prerequisite: ECON 104

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 304H** (GS) Intermediate Macroeconomic Analysis (Honors) (3) Analysis of forces that determine the level of aggregate economic activity.

**ECON 304H Intermediate Macroeconomic Analysis (Honors) (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

There are two branches within the discipline of economics: microeconomics, focused on the behavior of individual economic actors (consumers, firms, and government) and macroeconomics, focused on economic aggregates (e.g., inflation, unemployment, aggregate economic growth). There are four core courses in economics that are required of all majors and minors: introductory and intermediate courses in microeconomics and macroeconomics. This course is the upper-level core course in macroeconomic analysis.

Students will learn, at a deeper level than that covered in the beginning macroeconomics course (ECON 004), and with extensive use of calculus and economic models, about the measurement and structure of the national economy, long-run economic performance and the factors that influence it, business cycles and macroeconomic policy, and the environment and institutions that are pertinent to macroeconomic policy. Students will develop their analytical skills for analysis of macroeconomic issues. These skills, in turn, will be required for several 400-level macroeconomics-oriented courses.

This course is a follow-on to the introductory course in macroeconomic analysis, its prerequisite going more deeply into the material covered in that introductory course in macroeconomic analysis, and making extensive use of calculus and formal models. It is, in turn, a prerequisite for a number of macroeconomics-oriented courses at the 400 level. This honors version is designed to provide the opportunity for stronger students to pursue this key course at a more rigorous and in-depth level.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011  
Prerequisite: ECON 104 and MATH 110 or MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 306** Introduction to Econometrics (3) The implementation of statistical techniques to analyze data and address economic questions. Econometric results are produced and assessed.

**Introduction to Econometrics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: ECON 106

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 306H** Introduction to Econometrics (3) The implementation of statistical techniques to analyze data and address economic questions. Econometric results are produced and assessed.

**ECON 306H Introduction to Econometrics (3)**

In this course students learn basic quantitative methods used in applied economics, focusing on linear regression models and their applications. The course will cover topics similar to those covered in ECON 306 but with more mathematical rigor (i.e., using calculus). Following an introduction and reviews of probability and statistics, the course will focus on: (1) the statistical properties of commonly-used estimators and test statistics in regression models, (2) how to use them in practice for statistical inference, and (3) the issue of endogeneity and instrumental variables. Students will study both practical and theoretical aspects of econometrics, by which they will be able to implement the basic methods in practice and to understand the limitations of these methods.

This course is an honors version of the second quantitative course in economics that is now required of all economics majors. As noted above, students will learn both theoretical and practical aspects of econometrics, so that they will be able to carry out econometric analyses of data.

Evaluation of student performance will be based on homework assignments, midterm exams, and a final exam. Typically, the homework assignments would account for 20 percent of the overall course grade, each of two midterm exams would count for 25 percent of the grade, and the final exam would count for the remaining 30 percent of the grade.

This course has ECON 106/106H, Statistical Foundations for Econometrics, as a prerequisite, and will use calculus. Further, the course is a prerequisite for advanced course work in econometrics, such as ECON 465W, ECON 466W, and ECON 483W, as well as other 400-level courses requiring econometrics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: ECON 106 orECON 390;MATH 110 orMATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 315** (GS) Labor Economics (3) Economic analysis of employment, earnings, and the labor market; labor relations; related government policies.

### **Labor Economics (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011  
Prerequisite: ECON 102

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 323** (GS) Public Finance (3) Contemporary fiscal institutions in the United States; public expenditures; public revenues; incidence of major tax types; intergovernmental fiscal relations; public credit.

### **Public Finance (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011  
Prerequisite: ECON 102

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 333** (GS) International Economics (3) Why nations trade, barriers to trade, balance of payments adjustment and exchange rate determination, eurocurrency markets, and trade-related institutions.

### **International Economics (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011  
Prerequisite: ECON 102ECON 104 orECON 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 342** (GS) Industrial Organization (3) Industrial concentration, size, and efficiency of business firms, market structure and performance, competitive behavior, public policy and antitrust issues.

### **Industrial Organization (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011  
Prerequisite: ECON 102

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 351** Money and Banking (3) Money, credit, commercial and central banking, financial intermediaries, treasury operations, monetary theory and policy, and foreign exchange. Students who have already taken Econ. 451 may not schedule this course.

### **Money and Banking (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011



Prerequisite: ECON 102 or ECON 104

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 397** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 400M** Honors Seminar in Economics (3-12) Readings, discussion, and oral and written reports on selected topics in economics.

#### **Honors Seminar in Economics (3-12)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 1993

Prerequisite: ECON 302ECON 304 fifth-semester standing admission into Honors program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 401** History of Economic Thought (3) Survey of economic ideas from Greco-Roman times to the present.

#### **History of Economic Thought (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: ECON 302 or ECON 304

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 402** Decision Making and Strategy in Economics (3) Development and application of the tools for decision making under uncertainty and for game theoretic analysis of economic problems.

#### **Decision Making and Strategy in Economics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: ECON 302;SCM 200 orSTAT 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 403** The Economics of Arts and Entertainment (3) Supply and demand of creative goods and services; industry structures; role of information; policy issues.

**The Economics of Arts and Entertainment (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ECON 302 andECON 306

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 404W** Current Economic Issues (3) An analytical survey of significant problems of current economic policy and the application of economic analysis to important social issues.

**Current Economic Issues (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 1993

Prerequisite: ECON 302 orECON 304

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 406** The Economics of Social Conflict (3) Economic theory of the resolution of social conflicts: social choice theory, voting, noncooperative games, voluntary trade, and allocation by force.

**The Economics of Social Conflict (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ECON 402 andMATH 110 orMATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 406W** The Economics of Social Conflict (3) Economic theory of the resolution of social conflicts: social choice theory, voting, noncooperative games, voluntary trade, and allocation by force.

**ECON 406W The Economics of Social Conflict (3)**

This course is devoted to the economic theory of the resolution of social conflicts. The first two-thirds of the course will cover economic models of social choice, majority rule, and voluntary trade. The latter part of the course will focus on the emerging theory of allocation by force.

The course is an advanced writing-intensive seminar in which students will learn about economic theories of social conflict. It is one of a series of 400-level seminars in each of seven broad areas of economics, and this course constitutes a seminar in microeconomic theory. The course counts toward both the major and the minor in economics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 402 andMATH 110 orMATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 407** Political Economy (3) Applications of the tools of game theory to analyze topics in collective decision making.

**Political Economy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ECON 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**ECON 407W** Political Economy (3) Applications of the tools of game theory to analyze topics in collective decision making.

### **ECON 407W Political Economy (3)**

The course covers two main topics. First, the course will analyze elections as a mechanism to aggregate preferences of the electorate. It will be shown that elections provide a good tool to strike a compromise between all members of the electorate if the scope of disagreement in the electorate is one-dimensional. A simple model of taxation in which citizens' preferences over tax rates are "one-dimensional" in the above sense will be developed. This model will be used to predict how tax rates in democratic countries change with the income distribution. It will be shown next that no satisfaction mechanism of preference aggregation exists in a slightly more general model of taxation. This result is a special case of the famous Impossibility Theorem by Arrow.

Secondly, conditions will be given under which elections are a good mechanism to aggregate information that is spread throughout the electorate. It turns out that theories of information aggregation yield a convincing theory about abstention. A model in which the less informed voters delegate the decision to the more informed voters by simply abstaining will be discussed. The discussion of political debates and the media will be framed in terms of an information aggregation model. Finally, the potential of information aggregation theories to explain social movements will be discussed.

Game theory provides a framework to think about many issues in the social sciences. This particular course focuses on some applications of game theory to politics. The first, and very specific goal, is to use the lens of game theory to understand the workings of various political institutions. The second, more general, goal is to enable students to apply game-theoretic reasoning to a wide range of topics in the social sciences. The third is to make the research frontier in the field of political economy as accessible as possible. It is hoped that students would get a better understanding of what graduate school would be like.

This course has as its broad objective to expose students to the use of the tools of game theory to analyze collective decision making. Students will learn how to use economic theory to analyze real-world situations of collective decision making. They will develop their analytical skills as well as their skills in writing in economics.

The writing-intensive course is one of a series of 400-level writing intensive seminars that the Economics Department is offering to its advanced undergraduates in seven different area of economics. This seminar is in the area of microeconomic theory.

The course will count toward the major and the minor in economics as a 400-level course. Further, it will count toward completion of a module (specialization) in the area of theory and quantitative methods.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 408** Intellectual Property (3) A comparative and cost-benefit analysis of intellectual property that examines patents, copyrights, governmental supported research, and prizes.

### **Intellectual Property (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ECON 402 or ECON 444

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 408W** Intellectual Property (3) A comparative and cost-benefit analysis of intellectual property that examines patents, copyrights, government supported research, and prizes.

### **ECON 408W Intellectual Property (3)**

We live in a society that has a decentralized system based on the institutions of private property and trade. In such a system, things belong to people and can be transferred by their owners to other people. An exchange that moves something to someone who values it more than its present owner produces a net benefit, which may be shared between the parties to the exchange. Thus such a system tends to move everything to those who most value it, producing an efficient allocation of goods and services. The logic and limitations of this process make up the branch of economics called price theory.

The course undertakes an examination of intellectual property, a subfield of property rights.

In the context of intellectual property, there are five specific areas of note: patent races, poorly constructed incentives, standards, licenses, and an examination of costs.

There are three factors relevant to the costs of providing legal protection to some particular sort of intellectual property. One is how easy it is to define and defend property in that sort of idea. Another is the degree in which someone who creates and claims ownership in that particular sort of intellectual property reduces, by so doing, the options available to other people. The more serious these problems are, the less the gains from defining and enforcing property rights in ideas. Where they are sufficiently serious, we are better off with an intellectual commons--a legal regime in which certain classes of ideas are free for all to use than with intellectual property. These three costs must be balanced against the benefits--production of more and better intellectual property and better coordination of intellectual property once produced. The larger these benefits are likely to be, the greater the costs we are willing to bear in order to get them.

The course objectives are to apply the framework of comparative and cost-benefit analysis to the study of intellectual property. The course will examine the empirical evidence, and also consider policy issues in this area.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 409** Economics of Terrorism (3) Terrorism throughout history; economic causes, costs, sources, and consequences.

### **Economics of Terrorism (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ECON 402

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 409W** Economics of Terrorism (3) Terrorism throughout history; economic causes, costs, sources, and consequences.

### **ECON 409W Economics of Terrorism (3)**

This microeconomics seminar examines the economics of terrorism. Beginning with a survey of terrorism through history and extending to terrorism in the 21st century, economic tools are deployed to better understand the causes and sources of terror.

Terrorism imposes substantial economic costs, but there are also significant costs with policies to combat terrorism. A society is better off if the threat of terrorism can be reduced, or even eliminated, just as it is better off if the threat of crime can be reduced or eliminated. There are some economic roots of terrorism, but these have more to do with the incentives and constraints that individuals and organizations face than with any specific set of easily quantifiable factors that push people toward involvement in terrorist organizations. This suggests that policy responses to terrorism need to be multi-faceted and flexible. Security policies, for example, need to be more cost effective, in order for both to achieve results and to limit the negative consequences of devoting excessive resources to security purposes. Similarly, aid policies need to concentrate on achievable objectives, both to obtain positive results and to provide a more representative and optimistic outlook on the future. Policies need to be targeted at filling in the voids left by weak states and shifting incentive structures within societies away from the use of violence.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 402

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 410** Economics of Labor Markets (3) Economic analysis of the employment relationship from the microeconomic perspective, with emphasis on current labor-market problems and public policy issues.

### **Economics of Labor Markets (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 411** Behavioral Economics (3) Topics in behavioral economics; selected games; evolutionary models of social

behavior, herding, overconfidence.

### **Behavioral Economics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ECON 402 or ECON 444

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 411W Behavioral Economics (3)** Topics in behavioral economics; selected games; evolutionary models of social behavior; culture and social behavior; herding; overconfidence.

### **ECON 411W Behavioral Economics (3)**

Behavioral economics examines recent evidence from experiments that seems to violate the hypotheses of economic rationality in traditional microeconomic theory. The course considers, among others, the following three topics: (1) Altruism in human behavior, as demonstrated, for example, in public goods experiments where people typically contribute some positive amount, even with the individually optimal strategy being to contribute nothing. (2) The prevalence of co-operative behavior in societies, which seems essential to their functioning, but which is hard (but not impossible) to explain on the basis of the actions of purely self-interested individuals. (3) Fairness in distribution: for example, people do not try to extract everything that their partners or opponents can give even when they are in a position of power (as in being the proposer of a take-it-or-leave-it offer).

Students play some well-known games with each other to generate examples of their own behavior in multi-person interaction contexts; the results of the games are analyzed to detect regularities in the observed behavior; and the class discusses possible explanations drawn from economics, evolutionary biology and psychology as to why people (specifically the students) played the way they did in these games.

Overall, then, students will learn about various aspects of behavioral economics, including several games and evolutionary models of social behavior, and how these aspects square with conventional economic theory. Students will develop the skill of analyzing behavior from a behavioral economics perspective.

This course is a 400-level seminar, part of the Economics Department's offerings, many of them writing-intensive, for our advanced students in each of seven broad areas of economics. This writing-intensive seminar is in the area of microeconomic theory. The course will count toward both the major and the minor in economics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 402 or ECON 444

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 412 Labor Economics and Labor Markets: Theory, Evidence, and Policy (3)** Advanced topics in labor economics: theory, empirical evidence, and policy.

### **ECON 412 Labor Economics and Labor Markets: Theory, Evidence, and Policy(3)**

This course is an advanced course in labor economics. Its coverage of topics overlaps somewhat with the topics covered in ECON 315, but typically the treatment of the topics considered will be distinctly more rigorous for this 400-level course. The broad areas that will be focused on in the course include labor supply, investment in human capital, labor demand, wage determination, search and unemployment, and earnings inequality.

The objective of this course is to introduce students to topics in labor economics with a rigorous and advanced analytical approach. For each topic, the course will consider the underlying theory, pertinent empirical evidence, and implications for public policy. The instructional and educational objectives are to provide students with a strong background in labor economics. This will allow them to take advanced seminar courses in the labor field.

This course is an advanced introduction to labor economics, and as such has a prerequisite of either ECON 302 or ECON 315. In turn, this course will serve as a gateway to advanced seminar courses in labor economics at the 400 level that the Economics Department is in the midst of creating. The course will count toward both the major and the minor in economics.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2009

Prerequisite: ECON 302 or ECON 315

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 413** Economic Growth and the Challenges of World Poverty (3) Challenges imposed by poverty; growth; growth rates; microfinance; foreign aid.

**Economic Growth and the Challenges of World Poverty (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ECON 471

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 413W** Economic Growth and the Challenge of World Poverty (3) Economic prosperity in historical perspective; recent successes (East Asia, China, India); ongoing challenges (the bottom billion; sub-Saharan Africa).

**ECON 413W The Challenge of World Poverty (3)**

This course will first consider economic growth and the spread of economic prosperity in historical perspective. Then contemporary success stories, including the East Asian miracle and growth in China and India, will be studied. The last part of the course focuses on the poor worldwide, and examines poverty traps in Africa, why aid doesn't work, and why globalization hasn't helped.

Students are expected to learn about the barriers to reducing world poverty and proposals aimed at alleviating poverty. Students will also learn about the growth and diffusion of economic prosperity, with both historical and contemporary examples. Students will develop analytical skills as well as writing skills.

This course is one of a series of 400-level seminars, many of them writing-intensive, for our advanced students in each of seven broad areas of economics. This writing-intensive seminar is in the area of economic growth and development. The course will count toward both the major and the minor in economics.

Students will read four books about world poverty, write short book summaries, and write a term paper focuses on one feasible solution to alleviating poverty in Africa. In addition, there will be a midterm exam and a final exam.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 471

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 414** The Economic Way of Looking at Life (3) Economics/life according to Gary Becker: criminal behavior; economics of the family (marriage, divorce, intrahousehold resource allocation, bequests), policy issues.

**The Economic Way of Looking at Life (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ECON 412

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 415** The Economics of Global Climate Change (3) Evidence on climate change; economic models of the environment and market failure; cost-benefit analysis of policy options; carbon markets.

**The Economics of Global Climate Change (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ECON 302 and ECON 306

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 415W** The Economics of Global Climate Change (3) Evidence on climate change; economic models of the environment and market failure; cost-benefit analysis of policy options; carbon markets.

**ECON 415W The Economics of Global Climate Change (3)**

The first part of the course reviews the scientific evidence on global climate change (IPCC studies). This is followed by an analysis of market failure in the production of greenhouse gas emissions, and consideration of carbon markets as a policy response. A cost-benefit study of the control of greenhouse gases (the Stern Report) is examined, and the concluding

part of the course looks at a computer model of economic activity and the environment.

Students will learn about the scientific evidence on global climate change, and the associated economic implications, market failures, and policy options to mitigate those market failures. Students will develop skills to assess policy options in this area, and they will become conversant with applied cost-benefit analysis and a computer model of economic activity and the environment.

This course is one in a series of 400-level seminars, many of them writing-intensive, for advanced economics students in each of seven broad areas of economics. This writing-intensive seminar is in the area of applied microeconomics. The course will count toward both the major and the minor in economics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 428

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 417** The Economics of Uncertainty (3) Uncertainty and Risk as related to finance, insurance, health, labor, industrial organization, and macroeconomics.

### **The Economics of Uncertainty (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ECON 402 or ECON 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 417W** The Economics of Uncertainty (3) Uncertainty is examined in contracts, with an emphasis on limited liability. Asymmetric information and economic puzzles are also considered.

### **ECON 417W The Economics of Uncertainty (3)**

This course studies the allocation of resources under uncertainty. Decisions without perfect information require the use of probability theory and expected utility preferences. The seminal work of Arrow and Debreu is used as a starting point. Probability and utility theory are then used to interpret insurance contracts. Limited liability is introduced and the Modigliani-Miller Theorem is applied to loan guarantees, deposit insurance, and insurance claims. Finally, asymmetric information is discussed and the resulting problems of moral hazard and adverse selection are addressed.

The course objectives are to introduce students to the theoretical framework used by economists to study uncertainty and to apply that framework in order to explain various regularities observed when decisions are made without complete information, to examine the empirical evidence, and to consider policy issues in this area.

The course will count toward both the major and a minor in economics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 402 or ECON 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 418** A Comparative and Cost-Benefit Analysis of State Government Activities (3) This course examines federalism with a particular focus on the activities undertaken by the state of Pennsylvania.

### **A Comparative and Cost-Benefit Analysis of State Government Activities (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ECON 306

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 418W** A Comparative and Cost-Benefit Analysis of State Government Activities (3) This course examines federalism with a particular focus on the activities undertaken by the state of Pennsylvania.

### **ECON 418W A Comparative and Cost-Benefit Analysis of State Government Activities (3)**

This course provides a framework for a comparative and cost-benefit analysis of state government activities. Our federal system of government gives rise to large disparities among the activities undertaken by state governments. This course will focus on activities undertaken by the state of Pennsylvania. Students will pick out particular activities - e.g., state aid and loans to students in higher education, lottery revenues, incidence, state regulation of the sale of alcoholic beverages, and the operation of toll roads and produce a comprehensive project that will involve two related analyses: a comparative analysis comparing Pennsylvania to other states and a cost-benefit analysis.

The course objectives are to apply two frameworks regularly used by economists -- comparative and cost-benefit analysis -- to the study of state government activities. The course will examine the empirical evidence, and also consider policy issues in this area.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 421** Analysis of Economic Data (3) Economic analysis of data: sources, variable definitions, miscodings, missing observations, censoring and truncation, applications.

### **ECON 421 Analysis of Economic Data (3)**

There are many data sets but the information contained within them for economic analysis is often unclear without substantial investigation. The reliability of data sources, the ambiguity in variable definitions, the miscoding of variables, and missing data are topics covered in the course. In addition, truncation and censoring from the data collection methodologies are examined. Several economic data sets are examined to illustrate the concepts.

This course is an applied course in the field of econometrics and will seek to provide students with the analytical methods for understanding the economic content of data. The instructional and educational objectives are to expose students to the practical details of analyzing economic data in the context of an advanced seminar. The course objectives are to familiarize students with the deficiencies of real-world data and how to address those deficiencies.

The Economics department seeks to provide students with a series of seminar courses in each of seven broad fields in the discipline; this is a course in the field of econometrics, and has a prerequisite of ECON 490 plus either ECON 402 or ECON 451. The course will count toward both the major and minor in economics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 402 or ECON 451; ECON 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 422** Applying Monetary Theory and Monetary History (3) Monetary history is examined. Special attention is paid to commodity-based systems, private money, and government monopolies on currency.

### **Applying Monetary Theory and Monetary History (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ECON 451

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 422W** Applying Monetary Theory to Monetary History (3) Monetary history is examined. Special attention is paid to commodity-based systems, private money, and government monopolies on currency.

### **ECON 422W Applying Monetary Theory to Monetary History (3)**

This course provides a framework for the analysis of monetary history. In the past, there have been many advances in monetary theory. Some of the advances are directly inspired by the varieties of monetary systems that have existed in the past - for example, systems in which private banks issue currency (bank-notes). There is scope for reexamining existing analyses of many of those historical systems in the light of advances in monetary theory.

The course objectives are to introduce students to the theoretical framework used by economists to study monetary theory, and to apply that framework in order to explain various monetary systems that have existed in the past. We will examine the empirical evidence, and also consider policy issues in this area.



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 451

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 424** Income Distribution (3) Inequality and poverty in the United States, measurement problems, determinants of inequality, arguments for and against equality, impact of redistributive policies.

**Income Distribution (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1992  
Prerequisite: ECON 302ECON 315 orECON 323

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 425** Economics of Public Expenditures (3) Analytic and policy aspects of public expenditure decisions; applications from areas of contemporary public interest.

**Economics of Public Expenditures (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1992  
Prerequisite: ECON 302 orECON 323

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 427** Economics of Energy and Energy Security (3) Energy economics studies topics related to the supply, energy markets, and environmental impacts of energy use.

**Economics of Energy and Energy Security (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2013  
Prerequisite: ECON 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 428** Environmental Economics (3) Environmental pollution, the market economy, and optimal resource allocation; alternative control procedures; levels of environmental protection and public policy.

**Environmental Economics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1992  
Prerequisite: ECON 302 orECON 323

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 429** Public Finance and Fiscal Policy (3) Analysis of public revenue and expenditure structure primarily at the federal level; federalism; fiscal policy and public debt.

**Public Finance and Fiscal Policy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983  
Prerequisite: ECON 323;ECON 302 orECON 304

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 430** Regional Economic Analysis (3) Analysis of personal and industrial location decisions, regional economic growth, migration patterns, and regional policy; emphasis on tools and techniques.

**Regional Economic Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: ECON 102 or ECON 104

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 432** Urban Economics (3) Theories and methods for economic analysis of such urban problems as housing, segregation, government services, and transportation.

**Urban Economics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1992  
Prerequisite: ECON 302 or ECON 323

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 433** Advanced International Trade Theory and Policy (3) Causes/consequences of trade; effects of tariffs and quotas; strategic trade policy; political economy of trade restrictions and other topics.

**Advanced International Trade Theory and Policy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1992  
Prerequisite: ECON 302 or ECON 333

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 434** International Finance and Open Economy Macroeconomics (3) Trade balance movements, exchange rate determination; monetary and fiscal policies in open economies; international policy coordination; the world monetary system.

**International Finance and Open Economy Macroeconomics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1992  
Prerequisite: ECON 304 or ECON 333

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 436** Economics of Discrimination (3) Analysis of the economic characteristics of women and minorities; with examination of race and sex discrimination and related government policies.

**Economics of Discrimination (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ECON 302 or ECON 315

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 436W** (US) Economics of Discrimination (3) Analysis of the economic characteristics of women and minorities, with examination of race and sex discrimination and related government policies.

**ECON 436W Economics of Discrimination (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course constitutes an examination of the economics of discrimination. More precisely, the course will focus on economic theories of discrimination and on efforts by economists to measure the extent of labor market discrimination. An important objective of the course is thus to learn how economists conceptualize and study discrimination. This, in turn, requires that we examine how economists view and study economic differences by race, ethnicity, and gender (these are the types of discrimination that will be focused on in the course, although we will also consider other types of

discrimination). Following the existing economic literature, much of our emphasis will be on labor market discrimination, but we will also consider discrimination in education and in housing. The first substantive section of the course outline below involves examination of data on the economic characteristics of women and blacks in relation to white males, considering both the current situation and recent trends. Data on Hispanics will also be presented. This work will be done by the students, working in groups. We will look at how mainstream economists conceptualize economic differences by gender and by race/ethnicity, respectively. Then we will focus on formal models of discrimination and empirical issues in attempting to measure discrimination, and we'll also examine an alternative approach to understanding economic inequality. The concluding section of the course will examine public policy issues related to discrimination. The course will count toward either a major or a minor in economics, and will meet the writing requirement for students in economics.

General Education: None  
 Diversity: US  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2007  
 Prerequisite: ECON 302 or ECON 315

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 437** Multinationals and the Globalization of Production (3) Globalization entails many dimensions: trade, migration, FDI, offshoring, cross-border licensing of technologies.

### **Multinationals and the Globalization of Production (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: ECON 433

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 437W** Multinationals and the Globalization of Production (3) This course will focus on trade, multinationals and offshoring, and explore their implications for the U.S. and developing countries.

### **ECON 437W Multinationals and the Globalization of Production (3)**

This seminar examines the international economy and the effects of multinational activity on globalization.

Some of the key questions that will be examined include:

Is globalization really a new phenomenon?

Is it irreversible?

What are the effects on wages and inequality?

What are the effects on production and innovation?

These questions will be addressed through a careful reading of the historical timeline, an extensive analysis of capital flows, multinational enterprises and development. Students are expected to synthesize their findings into a final paper and present what they have learned to the class.

The Economics Department seeks to provide students with a series of seminar courses in each of seven broad fields in the discipline; this is a course in the field of Trade.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008  
 Prerequisite: ECON 433

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 438** Winners and Losers from Globalization (3) Globalization, US, International, Trade, Finance, Growth, Labor, Industrial Organization, Political Economics.

### **Winners and Losers from Globalization (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: ECON 306 and ECON 433

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 438W** Winners and Losers from Globalization (3) The economic effects of globalization on individuals, governments, nation- states and business.

**ECON 438W Winners and Losers from Globalization (3)**

This seminar explores the various effects of globalization on individuals in the United States and abroad. It integrates material from a variety of sub-disciplines in economics, including international trade, international finance, growth theory, labor economics, industrial organization, and political economy. Discussion of each core topic is model-based and informed by empirical evidence from the recent economic literature. The objectives of the course are to (1) deepen students' understanding of the basic forces at play as globalization takes place, and their implications for individuals' well-being; (2) sharpen students' ability to critically evaluate policy issues, both theoretically and empirically; and (3) develop students' ability to craft tightly reasoned economic reports.

This course is an applied seminar in international economics. The impact of globalization is explored from a cost-benefit perspective. Winners and losers are identified using the tools and framework of economics. The instructional and educational objectives are to provide in-depth analysis of the consequences of globalization in the context of an advanced seminar. The course objectives are to analyze the winners and losers from globalization.

This is a course in the field of international economics. The course will count toward both the major and minor in economics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 433 and ECON 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 439 Economics of Technology Diffusion (3)** Technology Diffusion: Globalization, productivity measurement, intellectual property.

**ECON 439 Economics of Technology Diffusion (3)**

This seminar examines the relationship between technology diffusion, globalization of the world economy, and intellectual property. This course has four parts. It begins with a review of international trade. This is followed by an examination of globalization of the world economy. Then both the theoretical and empirical aspects of technology diffusion across national borders are analyzed. The course concludes with consideration of international aspects of intellectual property.

This course is an applied economics seminar in international economics. The interplay between globalization and technology diffusion is examined with special attention to intellectual property. The instructional and educational objectives of the course are to expose students to the economic and policy issues surrounding diffusion of technology, in the context of an advanced seminar. The course objectives are to understand the determinants and consequences of international technology diffusion.

The Economics Department seeks to provide students with a series of seminar courses in each of seven broad fields in the discipline; this is a course in the field of international economics, and has a prerequisite of ECON 433. The course will count toward both the major and minor in economics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 433

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 442 Managerial Economics (3)** Application of economic theory to managerial decision making; risk, uncertainty; models and statistical techniques.

**Managerial Economics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 443 Economics of Law and Regulation (3)** An economic analysis of property rights, contractual arrangements, illegal activities, and regulation; competitive problems due to externalities and market failure.

**Economics of Law and Regulation (3)**

General Education: None

Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Summer 1992  
 Prerequisite: ECON 302 or ECON 342

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 444** Economics of the Corporation (3) Coordination and incentive issues within a corporation. Topics include employment contracts, performance incentives and pricing of financial assets.

### **Economics of the Corporation (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Summer 1997  
 Prerequisite: ECON 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 445** (H P A 445) Health Economics (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.

### **Health Economics (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 1994  
 Prerequisite: ECON 302ECON 315 or ECON 323

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 445W** (H P A 445W) Health Economics (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.

### **ECON (H P A) 445W Health Economics (3)**

The healthcare sector comprises a set of markets that differ in some significant ways from the textbook model. In the US, this sector performs well in some respects and questionably in others. Notably, there has been sustained improvement over time in life expectancy and other indicators of the effectiveness of health care for most people, but the resources devoted to producing this improvement have been growing considerably faster than GDP. The goal of this course is to examine several broad questions raised by these facts.

The course begins with an overview of evidence on wealth, health expenditure, and life expectancy across countries, and then examines increasing life expectancy and medical expenditures in the US and their causes. Issues in measuring the value of medical expenditures are addressed, and an overview of the industrial organization of health care is provided. A major component of the course covers the economics of health insurance, and the course also examines medical R&D and the pharmaceutical industry as well as issues in the financing of medical care for the elderly.

The course seeks to introduce students to the economic analysis of health care. It is in the area of applied microeconomics, and deals with issues relating to labor markets and public finance, in particular. This writing-intensive course will be one of several 400-level W seminars that the Economics Department is seeking to establish, with the broad objective of exposing our advanced undergraduate students to economic analysis in a seminar setting requiring significant writing by the students.

The course counts toward the major and the minor in economics, as a 400-level course. In addition, it also counts toward a "module" (area of concentration) in human resource and public economics.

Student performance in the course will be evaluated based on three papers.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: ECON 302ECON 315 or ECON 323

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 446** Economics of Industry Evolution (3) Dynamics of industry evolution; empirical evidence and theoretical modeling of firm entry, growth, and exit; entrepreneurship; investment and strategic behavior.

### **Economics of Industry Evolution (3)**

General Education: None  
 Diversity: None

Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: ECON 306 and ECON 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 446W Economics of Industry Evolution (3)** Dynamics of industry evolution; empirical evidence and theoretical modeling of firm entry, growth, and exit; entrepreneurship; investment and strategic behavior.

### **ECON 446W Economics of Industry Evolution (3)**

Industries are not static entities. They continually evolve as new products and production techniques are developed. In response to changes in demand and technology, new firms enter while existing firms grow, decline, and exit. This course studies the dynamics of industry evolution using both empirical tools and theoretical models of firm decisions to analyze the following broad questions: How does a new entrant establish a foothold in an industry? How does the entry process differ between industries built around new products versus industries for well-established products? What is the role of entrepreneurship and human capital? How do firms affect their growth and survival prospects by investing in R&D and other types of innovation? How does the life-cycle of high-tech industries differ from consumer products or capital-intensive manufacturing or services? The roles of antitrust policy and regulation in affecting firm turnover and industry evolution are also addressed.

This course will seek to provide students with both theoretical and empirical methods to analyze the economic forces underlying the evolution of industries. Students will develop analytical and writing skills in the course.

This course is one of a series of advanced, writing-intensive seminars in each of seven broad fields in economics; this is a course in the field of industrial organization. The course will count toward both the major and the minor in economics.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008  
 Prerequisite: ECON 444 and ECON 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 447 Economics of Sports (3)** Topics in sports; demand, owners, ticket resale, leagues, markets, efficiency, antitrust, discrimination, collegiate sports.

### **Economics of Sports (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: ECON 302 or ECON 306

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 447W Economics of Sports (3)** Examination of economic issues pertaining to professional and collegiate sports, including analysis of industrial organization, labor markets, and local economies.

### **ECON 447W Economics of Sports (3)**

Sports play a pervasive role in life in these United States, and this course examines a wide-ranging set of issues in considering the economics of sports. Students will learn about various aspects of sports in the United States, including the "players" (players, owners, fans), the institutional settings (sports leagues), and the effects of sports on the cities in which they are played. Students will develop the skills to analyze a wide variety of issues in sports economics. The course will touch on aspects of three distinct fields in economics: labor economics, industrial organization, and urban economics.

This course proposal is one of a series of 400-level seminars, many of them writing-intensive, for advanced students in economics in each of seven broad areas of the discipline. This writing-intensive seminar is in the area of applied microeconomics. The course will count toward both the major and the minor in economics.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2009  
 Prerequisite: ECON 302 and ECON 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 448 Economics of Auctions and Procurements (3)** Theoretical and empirical analyses of auctions and procurements; different modeling environments; econometric analysis of auction and procurement data.

### **Economics of Auctions and Procurements (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: ECON 402 orECON 444ECON 306

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 448W** Economics of Auctions and Procurements (3) Theoretical and empirical analyses of auctions and procurements; different modeling environments; econometric analysis of auction and procurement data.

### **ECON 448W Economics of Auctions and Procurements (3)**

This course provides the basic framework for theoretical and empirical analyses of auctions and procurements. The course begins with the foundations of game theory. Both complete and incomplete information models are emphasized. The main auction and procurement modeling environments are then covered. Included among these are the independent private value model, common value model, affiliated private value model, and basic forms of asymmetry. Several data sets are provided for discussion and analysis including FCC spectrum auction data, timber auction data, and road procurement data. Empirical models are proposed for the econometric analysis of the auction and procurement data.

This course seeks to provide students with the analytical methods of both the theoretical and empirical analysis of auctions and procurements. Students should develop their analytical skills pertinent to the economics of auctions and procurements, and they will also develop their skills in writing in economics.

This course is part of a series of advanced writing-intensive seminars in each of seven broad fields in economics. This is a course in the field of applied microeconomics. The course will count toward both the major and a minor in economics.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008  
 Prerequisite: ECON 402 orECON 444 andECON 490

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 449** Economics of Collusion (3) Collusion, Bidding Rings, Antitrust, Price Fixing, Incentives, Law

### **Economics of Collusion (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: ECON 302 orECON 342 andECON 306

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 449W** Economics of Collusion (3) Theoretical and empirical analysis of collusion among firms, case studies of cartel behavior, bidding behavior at auctions and procurements.

### **ECON 449W Economics of Collusion (3)**

Collusion by firms -- the explicit suppression of interfirm rivalry -- is profitable. However, it is often difficult to accomplish meaningfully. This course provides frameworks to analyze interfirm interactions, both theoretically and empirically. In addition, several case studies of cartel behavior in the U.S., Europe, and elsewhere are presented. Bidder behavior at auctions and procurements will also be examined to understand some of the underlying issues of collusion. Following an introductory section, the course examines first the law regarding collusion and then the history of collusion, focusing on notable cases in the U.S. and Europe. Economic models of collusion are then reviewed, along with the distinction between tacit and explicit collusion. The final substantive section of the course examines issues encountered in prosecuting collusion. The broad objective of the course is to use the tools of economics to analyze the interactions of firms in settings where collusion may occur. Educationally, then, the course seeks to expose students to the application of economic analysis in a context with major economic and legal implications. This is

an advanced undergraduate course in the field of Industrial Organization (IO), and hence will add to our offerings in the IO field (our beginning IO course is ECON 342). Econometrics (ECON 490) is also a prerequisite because of the empirical analyses that will be an important component of the course. The course is one that may be used to satisfy requirements for the major and the minor in economics, as a 400-level course. It may also be used to complete a module (area of specialization) in the Economics of Business and Law. And it will serve as one of the Economics Department's writing-intensive 400-level seminars. Student performance will be evaluated via two midterm exams and a substantial term paper. The exams will each count for 15% of the overall course grade, and the term paper will count for the remaining 70% of the course grade.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: ECON 302 or ECON 342 and ECON 490 or permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 450** The Business Cycle (3) Measurement and theories of the business cycle; stabilization policies; forecasting.

### **The Business Cycle (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 1992

Prerequisite: ECON 304 or ECON 351

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 451** Monetary Theory and Policy (3) Monetary and income theory; monetary and fiscal policy.

### **Monetary Theory and Policy (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Winter 1978

Prerequisite: ECON 304 or ECON 351

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 452** Economics of the Financial Crisis (3) This course studies the economics of financial crises with special emphasis on 2008.

### **Economics of the Financial Crisis (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ECON 304

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 452W** Financial Crises (3) Examination of causes and consequences of financial crises; asset pricing theory, market efficiency, speculative bubbles; policy considerations.

### **ECON 452W Financial Crises (3)**

This course focuses on the causes and consequences of financial crises. We study famous crashes from the South Sea Bubble to Long-Term Capital Management, as well as international financial crises such as the Asian Crisis of 1997-98 and the Argentine Crisis of 2001. We examine both the history of the crises and the economic factors that are the fundamental causes, in part with a view to determining if these crises were the inevitable outcome of speculative markets, or the result of regulatory error.

The instructional and educational objectives of the course are to provide students with the opportunity to explore



financial crises in a small, advanced seminar setting. The course objectives are to provide students with a theoretical framework for examining financial crises, to examine evidence on historical and more recent financial crises using that theoretical framework, and to consider policies aimed at avoiding and/or alleviating the effects of financial crises in light of the theoretical framework and the empirical evidence.

The course is part of a curriculum overhaul of 400-level courses in economics, in which advanced seminar courses are being created in seven broad areas of economics. This seminar is in the area of macroeconomics. This course may be used to meet major or minor requirements.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 451

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 454 Economics of Mergers (3)** Economic analysis of horizontal and vertical mergers; econometric issues in measurement of unilateral and coordinated effects; policy issues.

### **ECON 454 Economics of Mergers (3)**

It is not uncommon for two separate and distinct corporate entities within an industry to merge and become one firm. This course examines the economics of mergers as well as economic policy with regard to mergers. There often are both pro-competitive and anti-competitive effects of mergers. In the U.S. the Federal Trade Commission has primary responsibility for assessing the balance between effects. This course examines unilateral effects and coordinated effects as identified in the horizontal merger guidelines. Vertical mergers are analyzed as well. Econometric issues associated with the measurement of unilateral and coordinated effects are discussed. The course concludes with ex post merger reviews.

This course is an applied microeconomics seminar in the field of industrial organization and will seek to provide students with the analytical methods of both the theoretical and empirical analysis of mergers. The course will count toward both the major and minor in economics. This course is one of a series of advanced seminar courses in each of seven broad fields in the disciplines; this is a course in the field of industrial organization, with prerequisites of ECON 444 and ECON 490.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 444 and ECON 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 455 Economics of the Internet (3)** Economics of the Internet; electronic commerce and network economics; pricing issues; intellectual property.

### **Economics of the Internet (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ECON 402 or ECON 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 455W Economics of the Internet (3)** Economics of the Internet; electronic commerce and network economics; pricing issues; intellectual property.

### **ECON 455W Economics of the Internet (3)**

The Internet has become an important part of the economy in the United States and worldwide. Often we think of the information available on the Internet as a free good, much like the air we breathe. However, the Internet is an active marketplace with unique characteristics. Internet access providers sell keywords and advertising space by means of special auction and exchange mechanisms. Intellectual property is an important and evolving concept within the Internet, especially given its worldwide application.

This course is an applied microeconomics course and will seek to provide students with the analytical methods of both the theoretical and empirical analysis of the economics of the Internet. The course will count toward both the major and minor in economics. This proposal is part of a broader curriculum overhaul to 400-level economics courses. The Economics Department seeks to provide students with a series of advanced seminar courses in each of seven broad fields in the discipline; this is a course in the field of applied microeconomics.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008  
 Prerequisite: ECON 402 or ECON 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 457** Economics of Organizations (3) Consumers, Firms, Utility Maximization, Profit Function, Equilibrium, Firm Distribution.

### **Economics of Organizations (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: ECON 402 or ECON 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 457W** Economics of Organizations (3) An advanced course in the economics of organizations. The focus is on coordination, incentives, contracts, and information in corporations.

### **ECON 457W Economics of Organizations (3)**

An advanced course in the economics of organizations. The focus is on coordination, incentives, contracts, and information in corporations. The goal of the course is to analyze coordination, incentives, contracts, and information in corporations. The formal tools used in the course will be drawn from game theory, contract theory, mechanism design, and information economics.

All students are required to have taken Strategy prior to enrollment.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008  
 Prerequisite: ECON 402 or ECON 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 460** Issues in Sports Economics (3) Economic analysis of professional and collegiate sports: organization, input and output markets, the public sector, decision-making, and public policy.

### **ECON 460 Issues in Sports Economics (3)**

This course is designed to provide students the opportunity to examine and understand the sports industry. The course integrates the perspectives of various economic areas (i.e., industrial organization, managerial economics, labor economics, public economics) with those of marketing, finance, and accounting into a single approach to industry analysis. It provides students with an appreciation for the unique realities of the professional and amateur sports enterprise. Case studies and assignments are developed so students can apply theoretical and statistical concepts to real sports activities and/or policies. Students have the opportunity to complete case analyses in teams, present their results and suggestions to the class, and respond to questions and critical reviews by their peers.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013  
 Prerequisite: ECON 102 ; credit can be earned from taking ECON 447 or ECON 460 but not both

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 463 (IL)** Economic Demography (3) Microeconomics of demographic behavior; interrelationships between demographic and economic factors, in developing and industrialized economies; economic welfare and policy implications.

### **Economic Demography (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2006  
 Prerequisite: ECON 302 or ECON 304 ; or 9 credits in demography

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 463W Economic Demography (3)** Microeconomics of demographic behavior; interrelationships between demographic and economic factors, in developing and industrialized economies; economic welfare and policy implications.

### **ECON 463W Economic Demography (3)**

Economic demography is concerned with the interrelationships between economic phenomena and demographic phenomena. Fundamental demographic variables - fertility, mortality, migration, age composition - are related to economic factors, as both consequences and determinants. This course uses an economic perspective to study population phenomena and issues, with a focus on both theoretical and empirical analysis of demographic questions. Indeed, a major objective of the course is to provide you with the analytical tools from economics that are useful in analyzing issues in demography.

The instructional and educational objectives of this course are to teach students about economic demography in an advanced, writing-intensive seminar. The objective of the course is to provide a disciplinary perspective from economics on numerous issues in the multidisciplinary field of demography. This course is an advanced course that touches on topics in two different fields of economics: labor economics and growth and development. The course will count toward both the major and the minor in economics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 412 or ECON 471 or 9 credits in demography

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 465 Cross Sectional Econometrics (3)** Econometrics, simultaneous equations, discrete choice, sample selection.

### **Cross Sectional Econometrics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ECON 106 and ECON 306

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 465W Cross Sectional Econometrics (3)** Discrete choice models, censored and truncated regression models, longitudinal models, applications.

### **ECON 465W Cross Sectional Econometrics (3)**

This course extends the econometric analysis of Introduction to Econometrics (ECON 490) to consider three broad categories of models: discrete choice models, censored and truncated regression models, and longitudinal models. Approximately three-quarters of the course will consist of examination of models in these three areas and the issues that those models address. The last four weeks of the course will then focus on applications of these models.

Discrete choice models are used for the analysis of decisions by economic agents facing a fixed number of choices (whether to work or not, which are to buy, etc.). Students will learn how economists model such decision problems and how they can be analyzed empirically.

Censored and truncated regression models can arise for multiple reasons, e.g., because economic agents are generally constrained to consume a nonnegative amount of a given product, which introduces nonlinearities into the relationship of interest. Students will learn how economists model such problems and how they can be analyzed empirically.

Longitudinal models are, e.g., used to analyze durations of (un) employment spells. Students will learn how to analyze such data sets empirically.

Overall, then, students will learn advanced econometric techniques for dealing with discrete choice models, censored and truncated regression models, and longitudinal models. The skills to be developed consist in being able to apply these techniques in practical applications of data analysis.

This course is one of a series of 400-level seminars, many of them writing-intensive, for our advanced students in each of seven broad areas of economics. This writing-intensive seminar is in the area of econometrics. The course will count toward both the major and the minor in economics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 302 and ECON 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**ECON 466** Panel Data Models (3) Random and fixed effects, endogeneity, balanced and unbalanced panels, censoring of spells, differences in differences, applications.

### **Panel Data Models (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ECON 302 and ECON 306

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 466W** Panel Data Models (3) Random and fixed effects, endogeneity, balanced and unbalanced panels, censoring of spells, differences in differences, applications.

### **ECON 466W Panel Data Models (3)**

Panel data sets, consisting of repeated interviews over time of a panel of individuals (in effect, a time series of cross-sectional data on the same individuals) offer multiple opportunities for sophisticated econometric analyses, while at the same time posing some unique problems. This course will cover advanced econometric techniques for dealing with panel data. Random- and fixed-effects models are addressed initially, followed by consideration of endogeneity, balanced and unbalanced panels, censoring of spells, and differences in differences. The concluding part of the course will focus on applications.

The objective of the course is to provide students with exposure to models and techniques designed to deal with panel data (e.g., data on a set of individuals at various points in time), and to equip them with the skills to utilize those techniques in practical applications of data analysis.

In particular, students will learn to exploit the panel nature of a data set to allow for individual-specific heterogeneity (e.g., random and fixed effects). They will learn how to address endogeneity problems, which can arise for various reasons including forward-looking behavior of individuals. Because data are often not available for the same set of (e.g.) individuals at all points in time, care must be taken to deal with such unbalanced panels, especially when such data are absent because of actions of the individuals.

In addition, since this is a writing-intensive course, an additional objective is to provide students with the opportunity to develop their skills in writing in economics.

This course is one of a series of 400-level seminars, many of them writing-intensive, for advanced students in each of seven broad areas of economics. This writing-intensive seminar is in the area of econometrics. The course will count toward both the major and the minor in economics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 302 and ECON 490

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 470** (IL) International Trade and Finance (3) Economic analysis of why nations trade, barriers to trade, the international monetary system, and macroeconomic policy in an open economy.

### **International Trade and Finance (3)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102 or ECON 104

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 471** Growth and Development (3) Problems of capital formation, institutional considerations, theories of economic growth.

### **Growth and Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2011

Prerequisite: ECON 302 or ECON 304 or ECON 372

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 472** Transition to Market Economies (3) Economics of transition to a market economy; problems of former Soviet-type economies; privatization, stabilization, and institutional change.

### **ECON 472 Transition to Market Economies (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

With the demise of communism in Central and Eastern Europe, former socialist economies are in the process of transition from centrally-planned to market economies. Transition is a comprehensive change, involving all aspects of the economy, including labor markets, capital markets, and the organization of industry, especially privatization. The focus of this course is on the experience of economies in transition and the problems encountered. Special emphasis will be given to the experience of Russia and the other countries of the former Soviet Union. In addition to Central Europe and the former Soviet Union, we will also examine the experience of China.

The broad objectives of the course are to provide students with economic analyses of the wide range of issues that arise in considering economies in transition, and to assess the record on transition. The course will examine the following topics: the legacy of central planning; how to organize transition; macroeconomic stabilization in transition economies; privatization; restructuring, ownership change, and improvements in performance; and institutional development and transition. In addition, the concluding section of the course will examine the record transition.

As a 400-level course in economics, this course may be used to meet requirements for the major and for the minor in economics. It requires ECON 302 or ECON 304 (intermediate microeconomic theory and intermediate macroeconomic theory, respectively) as a prerequisite. And the course may be used toward completing a module (area of concentration) in economics in the area of International, Development, and Transition Economics.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2005

Prerequisite: ECON 302 or ECON 304

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 473** (IL) China in the Global Economy: History, Culture, and Society (3) Analysis of China's role in the global economy and the impact on U.S. as well as global business and society.

### **China in the Global Economy: History, Culture, and Society (3)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102 or ECON 104 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 475** Migration and Development (3) Human Capital Approach to Migration; Economics of Family Migration; Evidence: Micro and Macro Perspectives; Migration Policies.

### **Migration and Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ECON 471 or ECON 412; ECON 306

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 475W** Migration and Development (3) Human Capital Approach to Migration; Economics of Family Migration; Evidence: Micro and Macro Perspectives; Migration Policies.

### **ECON 475W Migration and Development (3)**

This course introduces students to migration in the developing world. What factors influence such migration, and how does migration affect economic development? The course provides a theoretical framework for examining migration (a human capital approach), and takes into consideration aspects specific to migration in the developing world, family considerations, and different types of migration. Immigration and remittances are also considered. The course examines empirical evidence on migration, and considers public policies that seek to influence migration and development.

The course objectives are to provide students with a theoretical framework for examining human mobility and economic development, to examine evidence on migration using that theoretical framework, and to consider policies aimed at influencing migration and development in light of the theoretical framework and the empirical evidence. The integration

of these three activities will develop student's skills in economic analysis and the writing aspect of the course will enhance their writing skills.

This course is one of a series of writing-intensive seminars in seven broad areas of economics. This seminar is in the area of economic development, with relevance as well to labor economics. This course may be used to meet major or minor requirements.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 471 or ECON 412; ECON 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 476** The Economics of Fertility in the Developing World (3) Demand for children, supply of children, and costs of fertility regulation; fertility transition; public policies to affect fertility.

### **The Economics of Fertility in the Developing World (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ECON 471 and ECON 306

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 476W** The Economics of Fertility in the Developing World (3) Demand for children, supply of children, and costs of fertility regulation; fertility transition; public policies to affect fertility.

### **ECON 476W The Economics of Fertility in the Developing World (3)**

Population growth provides more hands on work, and more mouths to feed. Consequently, it has important implications for numerous aspects of a nation's economic development (and vice versa). And population growth, in turn, largely reflects fertility behavior. This course will introduce students to an economic approach to fertility behavior, emphasizing the demand for children, the supply of children, and the costs of fertility regulation. This economic framework for fertility analysis will then be used to examine fertility transitions, past and present, with particular emphasis on the current and prospective status of fertility transition in the developing world. The course will also consider public policies that seek to influence fertility behavior.

Students will learn about the economic approach to fertility behavior and they will apply that approach to consideration of fertility and fertility transition in developing countries. This writing-intensive course will enhance their writing and their data analysis skills.

This course is in the broad area (field) of development economics. The course will count toward both the major and the minor in economics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 471 and ECON 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 477** Labor Markets in Developing Countries (3) Labor demand and supply in developing countries; urban and rural labor markets, modern and informal sectors; policy issues.

### **ECON 477 Labor Markets in Developing Countries (3)**

In the course of economic development, labor markets emerge and evolve. While some elements of standard labor market analysis, such as the emphasis on demand for labor and supply of labor, remain most relevant here, there are also institutional aspects that are specific to developing countries. This course will examine labor markets in rural areas and in urban areas, and the factors influencing these markets in both settings. Traditional labor market variables (labor force participation, employment and unemployment, earnings) will be examined for several case studies, and policy issues will also be considered.

The proposed course is an advanced seminar in the broad area of development economics. The course objectives are to enable students to learn about labor markets in developing countries, how they are different from as well as similar to those in industrialized countries, and the problems and policy issues that pertain to these labor markets. Students will develop their analytical skills in this area, and their writing skills in economics. This course is one of a series of advanced seminars in seven fields of economics. This course is in the broad area (field) of development economics, and has a prerequisite of ECON 471. The course will count toward both the major and the minor in economics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 471 or ECON 412

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 478 Incomplete Markets (3)** Rural land markets, fragmented credit markets, risk and insurance, human capital and labor markets, innovation and technology spillovers, coordination failures.

### **ECON 478 Incomplete Markets (3)**

An important part of the process of economic development consists of the emergence of highly developed, well-functioning markets. Developing economies, then, are often characterized by incomplete markets. This course studies such markets. With respect to the agricultural economy, incomplete markets are evident for land, credit, and insurance. Other areas covered by the course include human capital and labor markets, innovation and technology spillovers, and coordination failures.

The objective of this course is to provide students with the opportunity to learn about the incomplete markets that are often found in developing nations. Students will develop their skills in analyzing markets in developing countries, and in writing in economics.

This course is a specialized seminar in the broader area of economic development, and hence has ECON 471 as a prerequisite. It is one of a series of advanced seminars in seven major areas of economics. The course will count toward both the major and the minor in economics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 471

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 479 Economics of Matching (3)** Economic application of matching to employment, marriage, organ markets, and medical residents.

### **Economics of Matching (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ECON 402 or ECON 412 or ECON 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 479W Economics of Matching (3)** Economic application of matching to employment, marriage, organ markets, and medical residents.

### **ECON 479W Economics of Matching (3)**

There are many resource allocations that are not unilateral decisions but instead require approval from two sides of the market. Examples include employment and marriage. This course provides the theoretical constructs for the analysis of matching in market environments. Two applications of current interest - human organ allocations and medical resident employment - are given special attention.

Following a review of game theory, the course develops the theory of matching. This is followed by economic applications, in the areas of employment, marriage, human organs, and medical residents.

This course is an applied economics course with relevance to the areas of microeconomics, macroeconomics, and labor economics. The course objectives is for students to learn the analytical methods for understanding the economics of matching. Students will develop skills in applying matching models and analysis to practical situations.

The course is one of a series of 400-level writing-intensive seminars in each of seven broad fields in economics; this is a course with relevance to microeconomics, macroeconomics, and labor economics. The course will count toward both the major and minor in economics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: ECON 402 or ECON 412 or ECON 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 480** Mathematical Economics (3) Mathematical techniques employed in economic analysis; formal development of economic relationships.

**Mathematical Economics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 1992

Prerequisite: ECON 302ECON 304MATH 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 481** Business Forecasting Techniques (3) A survey of contemporary business forecasting techniques, with emphasis on smoothing, decomposition, and regression techniques.

**Business Forecasting Techniques (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: SCM 200 orSTAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 483** Economic Forecasting (3) Forecasting time series, using linear regression models and econometric software; useful forecasting models; financial and seasonal time series; trends.

**ECON 483 Economic Forecasting (3)**

This course is an applied econometrics course, and will seek to provide students with hands-on experience in forecasting. The goal of this course is to teach the students how to forecast time series, using econometric software, and what kinds of models are useful for that purpose. Topics to be covered include a review of regression analysis, with applications to forecasting; introduction to an econometric software package; introduction to time series regression analysis, with applications; the Box-Jenkins approach to time series modeling and forecasting; modeling and forecasting seasonal time series; deterministic and random trends, and how to distinguish them; and modeling and forecasting volatility of financial time series. The course will count toward both the major and the minor in economics. This course is one of a series of 400-level seminars in each of seven broad areas of economics; this is a seminar in econometrics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: ECON 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 485** Econometric Techniques (3) Applying statistical techniques to test and explain economic relationships; integration of economic theory with observed economic phenomena.

**Econometric Techniques (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104;SCM 200 orSTAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 489M** Honors Thesis (1-6) No description.

**Honors Thesis (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 1993

Prerequisite: ECON 302ECON 304 and admission into the departmental honors program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**ECON 490** Introduction to Econometrics (3) Use of simple and multiple regression models in measuring and testing economic relationships. Problems including multicollinearity, hetroskedasticity, and serial correlation.

**ECON 490 Introduction to Econometrics (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed for a wide range of students, including those interested in a variety of fields in business (e.g. finance and management studies) and economics, to those in the sciences and engineering who are interested in learning about data analysis and regression techniques. The course is also a good starting point for learning about empirical economics, and may thus be useful for those intending to pursue graduate studies in economics and business. Economics 490 is designed to reach a large audience, and the ultimate goal of the course is to show students that the "application of statistics to the study of economics" is not only fun, but also indispensable for a well rounded economics education. Put another way, the primary focus of the course is on applied or empirical economics. Learning about empirical methods in this course entails extensive computer work which focuses on the analysis of economic data using currently available software packages (some completely mouse driven), such as SAS, EASYREG, GAUSS, STATA, and EVIEWS. Computer analysis ranges from constructing and interpreting plots of economic data, to forming, fitting, and interpreting regression models. In addition to the computational component of the course, students are familiarized with numerous tools used in applied work, such as mean and variance, hypothesis testing (using statistics with t-,F-, and Chi-Squared distributions), regression model building, regression model estimation, and coefficient analysis. All of the tools learned throughout the course are used in the computational exercises. Completion of this course is useful particularly for students pursuing careers in business, economics, government, banking, insurance, finance, management, consulting, and academics, for example.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2000

Prerequisite: MATH 110ECON 390

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 1995

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ECON 499** (IL) Foreign Study--Economics (2-6) Study in selected countries of economic institutions and current economic problems.

#### **Foreign Study--Economics (2-6)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2011  
Prerequisite: ECON 102ECON 104

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Educ Leadership Prog (EDLDR)**

**EDLDR 405** (C I 405) Strategies in Classroom Management (3) Managing and coping with disruptive student behavior in instructional settings so that they support the teaching/learning process.

#### **EDLDR (C I) 405 Strategies in Classroom Management (3)**

This course has been designed to engage students in in-depth examination of the process of creating and sustaining a classroom learning community that fosters and enables success for all children. Emphasis is placed on understanding a variety of theoretical models of classroom management as well as observing and studying individual children to develop a better understanding of their needs. The result should be the development of a coherent set of beliefs concerning the creation of classroom learning environments that support learners and meet their individual needs.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: teaching experience or supervised practicum experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDLDR 409** Leadership Studies in Popular Film (3) In-depth analysis of leadership dynamics revealed in popular film. Focus on cinematic depictions of theory and practical application of leadership.

#### **EDLDR 409 Leadership Studies in Popular Film (3)**

Leadership Studies in Popular Film aims at enhancing students' understanding and application of leadership in three primary ways. First, using the films as case studies, students will critically analyze, evaluate, and discuss the moral, ethical, and administrative challenges, decisions, and behaviors portrayed in the films. Second, these challenges, decisions, and behaviors will serve to highlight and illustrate important leadership concepts and how they might be applied to authentic situations in schools and other organizational settings. Finally, the films will challenge and spark students' imagination and inspire them to consider new possibilities for practice and research.

During the course, students will view 10-12 classic popular films, each revealing a set of key leadership concepts and problems. Students are expected to rigorously participate in whole class and on-line discussions about the meanings expressed in the films. These discussions will be coupled with and enhanced by the instructor's presentation of relevant concepts of leadership and organizational theory. Students are also expected to maintain a continuing reflective log of

each film's plots and characters, the practical and theoretical problems presented, and their own reactions to and ideas about each film. Using these logs as a starting point, students will be expected to write three short (3-4 pp.) essays and one more substantial final essay (10-12 pp.). Rather than simple plot narratives, it is expected that these essays will thoughtfully analyze and synthesize actions and concepts from the films, and attempt to apply them to school or other organizational settings. Students' grades will be based on the completeness of their logs, the analytic quality of their papers, and the frequency and quality of their contribution to on-line and in-class discussions.

The course is intended for graduate, undergraduate, and certification students. Indeed, the course has benefited in the past from having students with diverse backgrounds and levels of professional experience. The course effectively complements and reinforces other EDLDR courses, such as Introduction to Educational Leadership (EDLDR 480), The Principalship (EDLDR 568), Leadership in Today's Schools (EDLDR 597), and Schools as Organizations (EDLDR 580).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: EDTHP 115 junior standing or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDLDR 476 The Teacher and the Law (3)** An introduction to education law as it affects the teacher.

### **EDLDR 476 The Teacher and The Law (3)**

This course will provide an overview of major issues in law related to teachers. The course will focus primarily on case law including U.S. Supreme Court decisions as well as relevant state and federal lower court opinions. State legislation and administrative laws will also be considered. Topics to be covered include an introduction to education law as it affects teachers, including teachers' privacy rights, school safety, special education, sexual harassment, discrimination, student assessment, slander/libel, tenure and constitutional issues as related to education. The class will be a combination of lectures and discussions on particular legal topics related directly to the training of teachers and based on the text and selected handouts. From time to time, the class will break up into small groups to work on in-class dilemmas.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: 9 credits in education or the social sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDLDR 480 Introduction to Educational Leadership (3)** Development of educational leadership. Relationships among local, state, and federal agencies. Introduction to current concepts and theories.

### **EDLDR 480 Introduction to Educational Leadership (3)**

Through lectures, readings, case study, film, and discussion, this course examines basic topics in organizational theory, school administration, and educational policy. In addition, the course presents a historical perspective, suggesting how understandings about education have varied and changed throughout American history. The primary aim of the course is to help students begin to perceive, understand, and apply the important connections between educational theory, research, and practice in a critical and thoughtful fashion.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: 3 credits in social science sociology anthropology community development business administration or political science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDLDR 485 Principal as Instructional Leader (3)** Knowledge and skills principals need to lead instructional design and implementation.

### **EDLDR 485 Principal as Instructional Leader (3)**

The purpose of this course is to investigate the new conceptions of instructional leadership in schools, especially as these apply to the principal. With new emphases in K-12 education focusing on teaching and learning concerns, the role that the principal plays in instructional leadership is more critical than ever. This course examines the different areas of emphases and roles that are central to promoting effective instructional leadership in schools. This examination will include the development of educational administrative and leadership perspectives and the process of change and reform in educational organizations. The form and function of the instructional leadership will be explored by examining major theories on the nature of school leadership and linking these to the issues of school improvement and school change. An integrated agenda of readings, lecture, class discussions, written assignments and case study work will explore and emphasize the relationship of theory to practice. The readings and activities are designed to integrate thoughtful reflective practices for problem framing and solving, provide a foundational knowledge of instructional leadership best

practices, develop an increased awareness of individual values and beliefs, and promote the development of interpersonal and group dynamics skills.

Specifically, the objectives of the course are to assist students: (1) to acquire the ability to establish clear instructional goals for a school; (2) to understand and be aware of the most effective means for promoting and supporting educational change and reform; (3) to develop a school culture and climate conducive to and focused on teaching and learning concerns; (4) to understand how to develop and communicate effectively the vision and mission of the school; (5) to investigate how best to develop teacher leadership within schools; and (6) to become familiar with best practices in professional development.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2004  
Prerequisite: EDLDR 480

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDLDR 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDLDR 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDLDR 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Education (EDUC)**

**EDUC 100S** First-Year Seminar in Education (3) Learning about a scholarly community through the development of knowledge and skills needed for successful participation in higher education.

### **First-Year Seminar in Education (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 199** (IL) Foreign Studies (1-12) Study of educational topics in a country other than the United States.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 294** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 302** Basic Preparation for Teaching (3) Philosophical, psychological issues in education; instructional objectives, lesson planning; evaluation, grading procedures; assessment, instruction of individual children. Field experience.

**Basic Preparation for Teaching (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: admission into Elementary Education Major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 303** Inclusive Practices in General Education Classrooms (3) This course is designed to examine the procedures, characteristics and strategies for working with special learners in the elementary school.

**EDUC 303 Inclusive Practices in General Education Classrooms (3)**

This course examines the foundations and strategies for educating exceptional learners and for including students with disabilities in general education classrooms /inclusive settings, grades PK-4 and 4-8. Students will gain the knowledge and skills to respond effectively to learners with varying abilities and diverse needs in inclusive classrooms. Course content will address the following: foundations for inclusive education including legal provisions, ethical principles and policies; characteristics of various disabilities; the special education process including evaluation, IEP and service delivery models; assessment of student learning in a standards aligned system including diagnostic, formative, benchmark and

summative assessment; pre-referral intervention, including universal screening and response to intervention; evidence-based instructional strategies that are effective in meeting the needs of students with disabilities in inclusive settings including universal design, accommodations, modifications and adaptations of curriculum and instruction, differentiated instruction, improving memory, attention and independent learning; and partnerships including effective communication and collaboration, teaming, co-teaching and communication with families. The course format will include discussion, collaborative group work, student presentations, simulations, classroom observations, case studies, online activities, review of research and some lectures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: seventh-semester standing in Elementary Education Major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 303** Inclusive Practices in General Education Classrooms (3) This course is designed to examine the procedures, characteristics and strategies for working with special learners in the elementary school.

### **EDUC 303 Inclusive Practices in General Education Classrooms (3)**

This course examines the foundations and strategies for educating exceptional learners and for including students with disabilities in general education classrooms /inclusive settings, grades PK-4 and 4-8. Students will gain the knowledge and skills to respond effectively to learners with varying abilities and diverse needs in inclusive classrooms. Course content will address the following: foundations for inclusive education including legal provisions, ethical principles and policies; characteristics of various disabilities; the special education process including evaluation, IEP and service delivery models; assessment of student learning in a standards aligned system including diagnostic, formative, benchmark and summative assessment; pre-referral intervention, including universal screening and response to intervention; evidence-based instructional strategies that are effective in meeting the needs of students with disabilities in inclusive settings including universal design, accommodations, modifications and adaptations of curriculum and instruction, differentiated instruction, improving memory, attention and independent learning; and partnerships including effective communication and collaboration, teaming, co-teaching and communication with families. The course format will include discussion, collaborative group work, student presentations, simulations, classroom observations, case studies, online activities, review of research and some lectures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: seventh-semester standing in Elementary Education Major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 304** Classroom Organization and Management (3) Organization, integration of the elementary school day; classroom management, control techniques; audio-visual techniques.

### **Classroom Organization and Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: sixth-semester standing in Elementary Education Major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 305** Creative Arts (3) Experiences in self-expression through a variety of visual and performing arts. Techniques for guiding school children in artistic expression.

### **EDUC 305 Creative Arts (3)**

This is an arts education course for elementary education majors. The course is designed to provide pre-service teachers with knowledge of the elements of the performing arts and the visual arts. Today's public school population is diverse, and teachers encounter heterogeneous groups of students with unique interests, distinctive strengths, special needs, and varied languages. The arts provide a beneficial bridge to assist teachers in connecting with all persons. Not only do the arts enhance the quality and depth of lesson content, each of the arts contains the possibility of reaching students of all levels and backgrounds no matter what their cognitive ability, learning style, or native language. The purpose of this course is to equip students with the necessary tools to implement meaningful and effective arts education into the regular education curriculum.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: admission into Elementary Education Major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 305** Creative Arts (3) Experiences in self-expression through a variety of visual and performing arts. Techniques for guiding school children in artistic expression.

### **EDUC 305 Creative Arts (3)**

This is an arts education course for elementary education majors. The course is designed to provide pre-service teachers with knowledge of the elements of the performing arts and the visual arts. Today's public school population is diverse, and teachers encounter heterogeneous groups of students with unique interests, distinctive strengths, special needs, and varied languages. The arts provide a beneficial bridge to assist teachers in connecting with all persons. Not only do the arts enhance the quality and depth of lesson content, each of the arts contains the possibility of reaching students of all levels and backgrounds no matter what their cognitive ability, learning style, or native language. The purpose of this course is to equip students with the necessary tools to implement meaningful and effective arts education into the regular education curriculum.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: admission into Elementary Education Major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 313** Field Observation (2) Observation techniques; classroom observation and participation.

### **Field Observation (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: admission into Secondary Teacher Certification Program. Prerequisite or concurrent: EDUC 314

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 314** Learning Theory and Instructional Procedures (3) Theories of learning in relation to instructional practices. Analysis of motivation, transfer of learning, and retention. Field practicum.

### **Learning Theory and Instructional Procedures (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: admission into Secondary Teacher Certification Program. Prerequisite or concurrent: EDUC 313

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 315W (US)** Social and Cultural Factors in Education (3) Critical examination of how different experiences linked to race, ethnicity, religion, gender, and sexual orientation influence education.

### **Social and Cultural Factors in Education (3)**

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: admission into Elementary Education Major or Secondary Teacher Certification Program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 320** Methods in Teaching Beginning Readers (3) Concepts, methods, and materials for developing beginning reading abilities, with emphasis on personalized instruction through diagnostic teaching.

### **Methods in Teaching Beginning Readers (3)**

General Education: None

Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2001  
 Prerequisite: sixth-semester standing in Elementary Education Major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 321** Methods in Teaching Intermediate and Advanced Readers (3) Concepts, methods, and materials for personalizing reading instruction with emphasis on extending personal and functional reading abilities beyond beginning reading.

### **Methods in Teaching Intermediate and Advanced Readers (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Winter 1981  
 Prerequisite: EDUC 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 322** Adolescent Literature and Developmental Reading (3) Adolescent literature materials, reading principles, and practices suitable for an English class.

### **EDUC 322 Adolescent Literature and Developmental Reading (3)**

This course is designed to prepare candidates with the objectives, content, methods and knowledge necessary to teach adolescent literature in today's secondary language arts classrooms in middle and high schools. Candidates will gain understandings of adolescent literature in contemporary sociocultural life and how it can be used to develop critical literacy perspectives, reading strategies, and communication that is developmentally appropriate for 21st century literacy. Particular emphasis will be placed on instructional methods to comprehend, interpret, evaluate, integrate prior experience, and apply a range of texts (print, non-print, digital, and multimodal) in authentic contexts; developing and struggling adolescent readers will be highlighted. Course readings include research-based, adolescent literacy publications as well as a selection of adolescent literature. Adolescent literature selections include social and cultural issues relevant to adolescent development and diverse student populations. Candidates will compose and discuss critical responses to readings, participate in and contribute to the design of literature circles to discuss adolescent literature selections, and develop research-based lesson plans consistent with Commonwealth of Pennsylvania Common Core standards (PACC) and NCTE/IRA Standards for the English Language Arts. This course adheres to professional and content area standards and practices from: National Council of Teachers of English (NCTE), the National Writing Project (NWP), International Reading Association (IRA), and National Center for Literacy Education (NCLE).

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: admission into Secondary English Certification Program or Elementary Education 4-8 Language Arts/English Option

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 322** Adolescent Literature and Developmental Reading (3) Adolescent literature materials, reading principles, and practices suitable for an English class.

### **EDUC 322 Adolescent Literature and Developmental Reading (3)**

This course is designed to prepare candidates with the objectives, content, methods and knowledge necessary to teach adolescent literature in today's secondary language arts classrooms in middle and high schools. Candidates will gain understandings of adolescent literature in contemporary sociocultural life and how it can be used to develop critical literacy perspectives, reading strategies, and communication that is developmentally appropriate for 21st century literacy. Particular emphasis will be placed on instructional methods to comprehend, interpret, evaluate, integrate prior experience, and apply a range of texts (print, non-print, digital, and multimodal) in authentic contexts; developing and struggling adolescent readers will be highlighted. Course readings include research-based, adolescent literacy publications as well as a selection of adolescent literature. Adolescent literature selections include social and cultural issues relevant to adolescent development and diverse student populations. Candidates will compose and discuss critical responses to readings, participate in and contribute to the design of literature circles to discuss adolescent literature selections, and develop research-based lesson plans consistent with Commonwealth of Pennsylvania Common Core standards (PACC) and NCTE/IRA Standards for the English Language Arts. This course adheres to professional and content area standards and practices from: National Council of Teachers of English (NCTE), the National Writing Project (NWP), International Reading Association (IRA), and National Center for Literacy Education (NCLE).

General Education: None



Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: admission into Secondary English Certification Program or Elementary Education 4-8 Language Arts/English Option

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 352** Teaching Language Arts (3) Teaching the writing process, including speaking and listening skills in relation to oral and written composition.

### **Teaching Language Arts (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: sixth-semester standing in Elementary Education Major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 353** Teaching Elementary Social Studies (3) The theory and practice of elementary social studies instruction.

### **Teaching Elementary Social Studies (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: seventh-semester standing in Elementary Education Major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 371** Teaching Music in the Elementary School (3) Music methods course for elementary education majors; students will learn elements of music, and instructional techniques.

### **Teaching Music in the Elementary School (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: seventh-semester standing in Elementary Education Major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 385** Professional Development in Teaching (3) This course addresses practical issues central to the profession of teaching and, in some cases, specific to Pennsylvania.

### **Professional Development in Teaching (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

Prerequisite: eight-semester standing approval of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 397B** Urban Teaching Collaborative Afterschool Online Tutoring (1) Future teachers provide education support and mentorship to elementary school students from Isaac Sheppard Elementary Schools in Philadelphia.

### **Urban Teaching Collaborative Afterschool Online Tutoring (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 400** Diversity and Cultural Awareness Practices in the K-12 Classroom (3) This course addresses diversity, cultural awareness and sensitivity about cultures, concepts and methods in society, communities and educational settings.

### **EDUC 400 Diversity and Cultural Awareness Practices in the K-12 Classroom (3)**

This course is an examination of diverse cultures, stereotypes, concepts and issues that impact the way individuals interact with one another in society. In relation to EDUC 315, it takes students to the next level as they experience cultural attributes from a media perspective, as well as being immersed into diverse settings throughout the course. It is designed for students to develop sensitivity and awareness of cultural influences in America and the public school systems. An emphasis is placed on sociopolitical aspects of the United States and other world cultures, sources of cross-cultural conflict, and approaches to cross-cultural conflict resolution as they relate to P-12 settings, their communities and the communities in which they teach.

Cultural awareness is concrete and/or visible in society and is necessary for promoting sensitivity and respect of cultural beliefs and values amongst teachers, administrators and students. Course participants will be required to demonstrate knowledge of with regard to developing sensitivity and awareness of cultural influences on behavior as these relate to the community, society and schooling processes. Course participants will be required to analyze methods of teaching Multicultural Education and its various camps including: Culturally Responsive Pedagogy, Critical Multiculturalism, and Anti-Racist Pedagogy.

The creative tension between dominant and subordinate voices will lead to both visual and written responses. The major goal of the course is to help students identify their diversity in American society and to develop their own creative voices, while drawing on issues of race, ethnicity, gender, geographical location, sexual identity, age, ability, social class, social status and other cultural attributes that make individuals uniquely diverse.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 401** Early Childhood Education (3) Organization, methodology, and materials for nursery school and kindergarten programs.

### **Early Childhood Education (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Winter 1981

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 402** Early Learning: Language and Concept Development (3) Examining the development of language and self-expression in young children, and the role of children's literature in facilitating development.

### **EDUC 402 Early Learning: Language and Concept Development (3)**

This course examines foundations and strategies related to encouraging language development and concept acquisition of young children infant through age five. Students will gain the knowledge and skills to design relationships, environments, activities, and responses to young children at varying stages of early language and conceptual development. Course content will address the following: foundations for approaches to early learning including young children's characteristics, multiple factors that influence child construction of language and concept development, the importance of teacher child relationships, the emerging nature of children's learning patterns, and the benefits of providing books and experiences that support present knowledge levels while challenging new learning. Students will gain knowledge to use to design supportive relationships, documentation of observation, other assessment tools, and intentional instructional strategies that encourage early development of vocabulary and content concepts. Students will design instruction that encourages child awareness of concepts of receptive language, such as phonemic awareness; concepts of self-expression, such as vocabulary, concepts of comprehension, such as read aloud recall; concepts of early writing, such as alphabet and phonics; and concepts related to reading, such as illustrations and meaning. In science, students will design instruction that encourages child awareness of the value of questioning, observing and experimenting for answers about life science, earth science and physical science issues. In mathematics, students will design instruction that encourages child awareness of numbers, operations, geometry, measurement,

patterns, and data representation. In social studies, students will design instruction that encourages child awareness of concepts related to families, communities, early economics, and local geographical characteristics. In the arts, students will design instruction that encourages child awareness of ways to express self with drawings, paintings, sculpture, drama, music and dance. In the areas of social and emotional skills, students will design instruction that encourages child sensitivity to social and emotional skills that do and do not work well in group settings. Emphasis will be placed on the need to differentiate instruction for each young learner and the need to differentiate relationship interactions with each family. The course format will include discussion, collaborative group work, student presentations, simulations, child care classroom observations, case studies, online activities, review of research and some lectures. In addition, each student will design and complete a teacher inquiry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 402 Early Learning: Language and Concept Development (3)** Examining the development of language and self-expression in young children, and the role of children's literature in facilitating development.

### **EDUC 402 Early Learning: Language and Concept Development (3)**

This course examines foundations and strategies related to encouraging language development and concept acquisition of young children infant through age five. Students will gain the knowledge and skills to design relationships, environments, activities, and responses to young children at varying stages of early language and conceptual development. Course content will address the following: foundations for approaches to early learning including young children's characteristics, multiple factors that influence child construction of language and concept development, the importance of teacher child relationships, the emerging nature of children's learning patterns, and the benefits of providing books and experiences that support present knowledge levels while challenging new learning. Students will gain knowledge to use to design supportive relationships, documentation of observation, other assessment tools, and intentional instructional strategies that encourage early development of vocabulary and content concepts. Students will design instruction that encourages child awareness of concepts of receptive language, such as phonemic awareness; concepts of self-expression, such as vocabulary, concepts of comprehension, such as read aloud recall; concepts of early writing, such as alphabet and phonics; and concepts related to reading, such as illustrations and meaning. In science, students will design instruction that encourages child awareness of the value of questioning, observing and experimenting for answers about life science, earth science and physical science issues. In mathematics, students will design instruction that encourages child awareness of numbers, operations, geometry, measurement, patterns, and data representation. In social studies, students will design instruction that encourages child awareness of concepts related to families, communities, early economics, and local geographical characteristics. In the arts, students will design instruction that encourages child awareness of ways to express self with drawings, paintings, sculpture, drama, music and dance. In the areas of social and emotional skills, students will design instruction that encourages child sensitivity to social and emotional skills that do and do not work well in group settings. Emphasis will be placed on the need to differentiate instruction for each young learner and the need to differentiate relationship interactions with each family. The course format will include discussion, collaborative group work, student presentations, simulations, child care classroom observations, case studies, online activities, review of research and some lectures. In addition, each student will design and complete a teacher inquiry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 403 Curriculum for Early Childhood (3)** Examining early childhood programs and methodology, focusing on areas of social studies, mathematics, and science.

### **Curriculum for Early Childhood (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Winter 1981

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 404 Young Children's Behavior: Observation and Evaluation (3)** Observation, recording and evaluation of student behaviors, and the use of prescription techniques for early childhood students with special needs.

**Young Children's Behavior: Observation and Evaluation (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Winter 1981

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 408** Administration of Early Childhood Education Programs (3) The role of the early childhood administrator as it relates to regulations, staffing, management, funding and curriculum.

**Administration of Early Childhood Education Programs (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Winter 1981  
 Prerequisite: EDUC 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 410** The Child and Social Institutions (3) The effects of the family on a child's development, especially in the infancy and preschool years.

**The Child and Social Institutions (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Winter 1981

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 412** Early Literacy Intervention I (3) Participants will better understand factors affecting early reading behavior through diagnostic techniques, observation techniques, and literacy intervention strategies.

**Early Literacy Intervention I (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1996  
 Prerequisite: permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 415** Teaching Secondary Social Studies (3) Study of the objectives, content, methods, and evaluation of procedures of social studies. Students design units and lesson plans.

**EDUC 415 Teaching Secondary Social Studies (3)**

This course is designed to prepare social studies candidates with the teaching methods and content knowledge required to teach the many social studies subjects at the middle and high school level. Stressing a constructivist approach, students learn to utilize various instructional strategies to meet learning goals and objectives based on the National Council for the Social Studies (NCSS) thematic strands and relevant PA Academic and Core Standards. Long and short range planning of teaching units address content, assessment, technological integration, historical connections, equity for all students, ELL, and adaptations for special needs students. Students engage in focused classroom discussions on assigned readings and analyze critical issues in teaching social studies in order to develop a coherent and relevant social studies teaching and assessment philosophy. Students are evaluated based on lesson planning competence, the knowledge of and ability to promote NCSS thematic strands and PA standards in both planning and teaching, leading discussions on relevant social studies topics and readings, implementing a preplanned lesson to the class, and the development of a complete middle level or high school level unit of study.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: EDUC 315W and admission into Teacher Education Programs

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 415 Teaching Secondary Social Studies (3)** Study of the objectives, content, methods, and evaluation of procedures of social studies. Students design units and lesson plans.

**EDUC 415 Teaching Secondary Social Studies (3)**

This course is designed to prepare social studies candidates with the teaching methods and content knowledge required to teach the many social studies subjects at the middle and high school level. Stressing a constructivist approach, students learn to utilize various instructional strategies to meet learning goals and objectives based on the National Council for the Social Studies (NCSS) thematic strands and relevant PA Academic and Core Standards. Long and short range planning of teaching units address content, assessment, technological integration, historical connections, equity for all students, ELL, and adaptations for special needs students. Students engage in focused classroom discussions on assigned readings and analyze critical issues in teaching social studies in order to develop a coherent and relevant social studies teaching and assessment philosophy. Students are evaluated based on lesson planning competence, the knowledge of and ability to promote NCSS thematic strands and PA standards in both planning and teaching, leading discussions on relevant social studies topics and readings, implementing a preplanned lesson to the class, and the development of a complete middle level or high school level unit of study.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: EDUC 315W and admission into Teacher Education Programs

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 416 Teaching Secondary English and the Humanities (3)** Study of the objectives, content, and methods of English and humanities courses.

**EDUC 416 Teaching Secondary English and the Humanities (3)**

This course is designed to prepare candidates with the objectives, content, methods and knowledge necessary to teach English in today's secondary classrooms in middle and high schools. The pedagogical approaches, dispositions, and skills appropriate for adolescent learners will be highlighted. Instructional strategies include multiple types of texts, genres, and modes to address diverse learners' needs and 21st century literacies in society and the workplace. Developmentally appropriate practices and theories will be discussed and modeled. Course content, strategies, and dispositions are consistent with literacy research, adolescent development, best practice pedagogy, and content and professional standards appropriate for English language arts candidate preparation. This course adheres to professional and content area standards and practices from: National Council of Teachers of English (NCTE), the National Writing Project (NWP), International Reading Association (IRA), and National Center for Literacy Education (NCLE). Candidates will design a range of learning experiences for their future students consistent with Commonwealth of Pennsylvania Common Core standards (PACC) and NCTE/IRA Standards for the English Language Arts. Candidates will engage with constructivist learning practices that center on collaboration, authentic learning, critical reflective practice, ongoing assessment, instructor coaching, and peer review.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: EDUC 315W and admission into Teacher Education Programs

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 416 Teaching Secondary English and the Humanities (3)** Study of the objectives, content, and methods of English and humanities courses.

**EDUC 416 Teaching Secondary English and the Humanities (3)**

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General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: EDUC 315W and admission into Teacher Education Programs

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 417 Teaching Secondary Mathematics (3)** Study of the objectives, content, methods, and evaluation procedures of mathematics.

### **EDUC 417 Teaching Secondary Mathematics (3)**

This course is designed to prepare students with the methods and knowledge necessary to teach mathematics in today's middle level and secondary classrooms. The pedagogical approaches and content needed to teach with a focus on understanding will be highlighted. Learning theories and their role in the mathematics classroom will be discussed and sample teaching strategies will be modeled. Discussions will also be based on field experiences and case study analyses. The National Council of Teachers of Mathematics standards addressed in the Principles and Standards for School Mathematics (2000), the Common Core State Standards for Mathematics (2010), the PA Core Standards in Mathematics (2013), as well as the Pennsylvania Standards Aligned System will be emphasized and demonstrated throughout the course. Long and short range planning of teaching units will address content, assessment, technological integration, historical connections, equity for all students, ELL, and adaptations for special needs students. A problem solving/constructivist approach to learning and assessment will be emphasized. Students will be engaged in cooperative learning experiences, use manipulatives and technology, and will be assessed through both formative and summative evaluations. The content and processes of mathematics emphasized throughout this course will be presented with three principal goals in mind: to inform students about current research related to teaching mathematics, to enhance students' pedagogical mathematical knowledge and skills, and to help students develop as competent mathematics teaching professionals.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: EDUC 315W and admission into Teacher Education Programs

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 417 Teaching Secondary Mathematics (3)** Study of the objectives, content, methods, and evaluation procedures of mathematics.

### **EDUC 417 Teaching Secondary Mathematics (3)**

This course is designed to prepare students with the methods and knowledge necessary to teach mathematics in today's middle level and secondary classrooms. The pedagogical approaches and content needed to teach with a focus on understanding will be highlighted. Learning theories and their role in the mathematics classroom will be discussed and sample teaching strategies will be modeled. Discussions will also be based on field experiences and case study analyses. The National Council of Teachers of Mathematics standards addressed in the Principles and Standards for School Mathematics (2000), the Common Core State Standards for Mathematics (2010), the PA Core Standards in Mathematics (2013), as well as the Pennsylvania Standards Aligned System will be emphasized and demonstrated throughout the course. Long and short range planning of teaching units will address content, assessment, technological integration, historical connections, equity for all students, ELL, and adaptations for special needs students. A problem solving/constructivist approach to learning and assessment will be emphasized. Students will be engaged in cooperative learning experiences, use manipulatives and technology, and will be assessed through both formative and summative evaluations. The content and processes of mathematics emphasized throughout this course will be presented with three principal goals in mind: to inform students about current research related to teaching mathematics, to enhance students' pedagogical mathematical knowledge and skills, and to help students develop as competent mathematics teaching professionals.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: EDUC 315W and admission into Teacher Education Programs

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 418 Positive Classroom Climate for Positive Attitudes About Learning (3)** Participants will learn strategies for creating classroom climates which encourage positive attitudes toward learning while preventing and correcting student

misbehavior.

**Positive Classroom Climate for Positive Attitudes About Learning (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 421** Children's Literature (3) Knowledge of literature appropriate for elementary school children and utilization of literature-related activities in teaching reading.

**Children's Literature (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: admission into Elementary Education Major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 422** Literature for Children and Adolescents (3) Literature for children and adolescents, approaches for using such literature in the school curriculum.

**EDUC 422 Literature for Children and Adolescents (3)**

This course, which is required for students enrolled in the Reading Specialist Program and those who wish to complete the language arts option in the Teaching and Curriculum Program, is designed to assist Pre-K through grade 12 educators who are interested in incorporating children's and/or adolescent literature into the curriculum. The course will focus on an in-depth exploration of selecting, evaluating, and using a wide range of contemporary (published in the last ten years) literature for children and young adults. This course will provide participants the opportunity to explore reader response theory and its relationship to classroom teaching practices, in particular to reading and literacy instruction. The study and application of principles and techniques of integrating literature circles, discussion strategies and literature extension projects will be addressed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 425** Literacy Assessment (3) This course emphasizes alternative literacy measures focusing on portfolio assessment and performance assessments.

**Literacy Assessment (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1997

Prerequisite: permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 432** Children's Literature in Teaching Writing (3) Introduction to introduces methods for transferring writing skills and literary devices from literature to student writing in all subject areas.

**Children's Literature in Teaching Writing (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 435** Addressing the Needs of Special Learners (1) An examination of attitudes toward, barriers experienced by, and special needs of special learners in the schools.

**Addressing the Needs of Special Learners (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: eighth-semester standing in Secondary Teacher Certification Program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 436** Inclusion Practices in Education (3) The educational, social, and political foundations for inclusion practices in public education.

**Inclusion Practices in Education (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1995  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 440** Educational Statistics and Measurements (3) Descriptive statistics, correlation, reliability, validity, scaling techniques, and introduction to item analysis.

**Educational Statistics and Measurements (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Winter 1981

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 450** Current Topics in Education (1-15) No description.

**Current Topics in Education (1-15)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 452** Teaching Writing (3) Techniques for teaching the writing process, kindergarten through grade 12, including writing in content areas; workshop format.

**Teaching Writing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 458** Behavior Management Strategies for Inclusive Classrooms (3) Provides knowledge and skills essential for designing positive learning environments in secondary classrooms with the inclusion of exceptional learners.

**EDUC 458 Behavior Management Strategies for Inclusive Classrooms (3)**

Well-organized and effectively managed classrooms provide task-focused instructional environments where students are actively engaged in learning. The inclusion of exceptional learners in the general education classroom has brought the need for a unique set of knowledge and skills to promote student task engagement and prosocial behavior. Topics to be addressed include: characteristics and specific (or unique) needs of exceptional learners and their effect on student learning; components of effective classroom organization and management; principles of applied behavior analysis and research-based behavior management strategies appropriate for use with exceptional learners in the secondary classroom. This course will be a required course for all Secondary English, Math, and Social Studies students seeking initial certification. Course delivery methods will include lectures, reflections, online discussions, projects, class presentations, library research, and other relevant media



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009  
Prerequisite: admission to teacher education

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 459** Strategies for Effective Teaching in Inclusive Classrooms (3) Course examines effective strategies for accommodating and adapting instruction for exceptional learners in secondary classrooms.

#### **EDUC 459 Strategies for Effective Teaching in Inclusive Classrooms (3)**

This course will examine strategies for teaching exceptional students in inclusive secondary classrooms. The course will focus on academic assessment; instructional planning, development and implementation; and strategies for making the curriculum more accessible, flexible and supportive for diverse learners. Topics to be addressed include the following: multidisciplinary evaluation and programming for exceptional learners; designing instruction based on assessment data; progress monitoring; technology for teaching and learning as a way to promote access to curriculum; designing appropriate and legally acceptable accommodations and/or modifications to promote access to the standards-based curriculum for students with exceptional learning needs; research-based instructional strategies to facilitate literacy development and instruction across academic content areas and collaborative structures to support exceptional learners in general education classrooms. This course will be required for all Secondary English, Math, and Social Studies Education students seeking initial certification and will be offered during the 8th semester (student teaching) to optimize performance of students during their student teaching experience. Course delivery methods will include lectures, reflections, online discussions, projects, class presentations, case studies, and other relevant forms of media.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: admission to Teacher Certification Program or Approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 460** Field Study in Ecology (4) Study and analysis of the ecology of various regions of the world. May be repeated for credit.

#### **Field Study in Ecology (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1995  
Prerequisite: EDSCI 454

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 462** Computers for Classroom Teachers (3) An introduction: microcomputers and their educational applications.

#### **Computers for Classroom Teachers (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: admission into Elementary Education Major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 463** Teaching With Modern Web Technologies (3) Relates educational theory and practice to applications of the modern Web, applying content from educational foundations, curriculum, and research.

#### **EDUC 463 Teaching With Modern Web Technologies (3)**

This course focuses on the World Wide Web as a valuable resource for P-12 education. Designed for teachers, curriculum supervisors, and building administrators, this course relates educational theory and practice to applications of the Web and Web 2.0 technologies in classrooms and schools. Class participants apply resources available through the Web to content from the fields of educational foundations, learning theories, curriculum development, educational assessment and evaluation, and educational research. The impact that the Web and technology in general has had on the educational experience of both teachers and students, including the working relationship between the two, is also a main focus. Students maintain a documentation of weekly assignments that form the basis for the final project: the development of a web-based teaching portfolio. Students also complete a mid-term project that entails the design of an online learning

activity for students that utilizes Web technologies. This activity requires the student to apply principles of learning theory to web-based resources identified and evaluated to support an identified classroom learning objective or set of objectives. The final project consists of a technology-based teaching portfolio, demonstrating application of the key concepts covered in the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 463 Teaching With Modern Web Technologies (3)** Relates educational theory and practice to applications of the modern Web, applying content from educational foundations, curriculum, and research.

### **EDUC 463 Teaching With Modern Web Technologies (3)**

This course focuses on the World Wide Web as a valuable resource for P-12 education. Designed for teachers, curriculum supervisors, and building administrators, this course relates educational theory and practice to applications of the Web and Web 2.0 technologies in classrooms and schools. Class participants apply resources available through the Web to content from the fields of educational foundations, learning theories, curriculum development, educational assessment and evaluation, and educational research. The impact that the Web and technology in general has had on the educational experience of both teachers and students, including the working relationship between the two, is also a main focus. Students maintain a documentation of weekly assignments that form the basis for the final project: the development of a web-based teaching portfolio. Students also complete a mid-term project that entails the design of an online learning activity for students that utilizes Web technologies. This activity requires the student to apply principles of learning theory to web-based resources identified and evaluated to support an identified classroom learning objective or set of objectives. The final project consists of a technology-based teaching portfolio, demonstrating application of the key concepts covered in the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 464 Technology and the Learning Process (3)** Evaluates the relationship between technology-based resources and learning theories through design, implementation, and evaluation of online instructional modules.

### **EDUC 464 Technology and the Learning Process (3)**

Designed for teachers, curriculum supervisors, and building administrators, this course examines and evaluates the relationship between technology-based resources and learning theories. Students explore learning theories in terms of how technology may or may not support implementation of those theories in the classroom. Students also examine problem-based learning approaches and how they can be combined with technology, resulting in what has been defined by Dr. Bernie Dodge as a "WebQuest" for classroom use. In the WebQuest development process, students identify a real life problem for their students to solve. They correlate that problem to their academic standards and district curriculum. They then design, implement, and evaluate instructional modules with integrated technology resources designed to lead to a solution of the identified problem, while promoting student acquisition of higher order thinking skills. Through this experience, students must plan for their students' learning tasks and activities, resource needs, performance evaluation and rubrics. As a culminating experience, students design an action research project related to the implementation of their learning module in the classroom setting.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: EDUC 462 or EDUC 463 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 465 Serving Culturally and Linguistically Diverse (CLD) Learners (3)** The course provides teachers with knowledge, understandings, and skills to engage culturally and linguistically diverse (CLD) students in mainstream classrooms.

### **EDUC 465 Serving Culturally and Linguistically Diverse (CLD) Learners (3)**

This course is designed to encourage understandings and appreciation for linguistic and cultural diversity, and to enhance

the knowledge and skills of teachers working with culturally and linguistically diverse learners, their families, and their communities. The six areas of emphasis within EDUC 465 are as follows: a) the legal, historical, and cultural implications of ESL, which explores the legal and historical bases of ESL and analyzes the differences among home and school cultures, especially as they relate to language; b) multicultural education, which focuses on helping teachers acquire knowledge, develop cultural sensitivity, and identify educational strategies that address the needs of multilingual and multicultural learners and their families; c) a brief overview of first and second language acquisition theories; d) developmentally appropriate teaching strategies for culturally and linguistically diverse learners specifically related to their speaking, listening, reading, and writing skill development; e) Pennsylvania and TESOL standards and the Pennsylvania ELL assessment systems; and f) the integration of language components across the curriculum. This course aims to provide theoretical understandings of culturally responsive teaching and pedagogical strategies for CLD learners.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 466** Foundations of Teaching English as a Second Language (3) Overview of various legal, historical, and socio-cultural implications of teaching and learning English as a Second Language.

### **EDUC 466 Foundations of Teaching English as a Second Language (3)**

EDUC 466 is the first course in a four-course sequence designed to meet the Pennsylvania Department of Education's (PDE) requirements for the ESL Program Specialist endorsement. EDUC 466 addresses the legal, historical, and socio-cultural issues related to non-native speakers of English, and the implications for ESL curriculum, instruction, and assessment within the K-12 school setting. The course is designed: (1) to encourage understanding and appreciation for language diversity and culture, and (2) to enhance the knowledge and skills of teachers working with culturally and linguistically diverse learners, their families, and their communities. The course specifically addresses two of the PDE competencies necessary for a teacher to acquire in order to be endorsed as an ESL Program Specialist: PDE Competency IV-Developing cultural awareness/sensitivity. The four areas of emphasis within EDUC 466 are:

- a) *The legal, historical, and cultural implications of English as a Second Language*, which explores the legal and historical bases of ESL and analyzes the differences among home and school cultures, especially as they relate to language;
- b) *Fundamentals of developing English language skills*, which provides an introduction to the structure of the English language, grammar, and pronunciation, including lexical, morphological, syntactical, and phonological components;
- c) *An overview of second language acquisition*, which introduces the topics of linguistic skill development, and first and second language acquisition; and
- d) *Multicultural education*, which focuses on helping teachers acquire knowledge, develop cultural sensitivity, and identify educational strategies that address the needs of multilingual and multicultural learners and their families.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 467** English Language Structure for English as a Second Language Teachers (3) An in-depth study and review of general linguistic concepts and their application to ESL pedagogy.

### **EDUC 467 English Language Structure for ESL Teachers (3)**

EDUC 467 is the second course in a four-course, 12-credit sequence designed to meet the Pennsylvania Department of Education's (PDE) requirements for an ESL Program Specialist Certificate. The 12-credit sequence which has previously been approved by PDE has been offered as "Special Topics" courses. The 12-credit sequence is consistent with other approved ESL certificate programs. EDUC 467 introduces students to general linguistic concepts and their application to ESL pedagogy and practice. The course provides an intensive study and review of major linguistic concepts and issues, including but not limited to: phonetics, phonology, morphology, syntax, semantics, pragmatics and discourse analysis, sociolinguistics and dialectology, historical linguistics and world languages, and writing systems. The course specifically addresses two of the PDE competencies necessary for a teacher to acquire to meet the minimum requirements as an ESL Program Specialist: PDE Competency I-English usage and developing linguistic awareness; and PDE Competency III-English language learners [ELLS] language and language services knowledge. The three areas of emphasis within EDUC 467 are:

- a) *Language and communication*, which explores the use of dictionaries, English use and usage, social conventions and English usage, American English variations, meaning and significance.
- b) *Grammar, pronunciation, literacy development for second language learners*, which focuses on the significance of these areas for ESL learners; and
- c) *Evaluative classroom instruments to measure student progress in grammar, pronunciation and English language structure*, which highlights the incorporation of linguistic tools in the assessment of ESL learners' language skills and

needs.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2006  
 Prerequisite: EDUC 466 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 468** Language Acquisition for English as a Second Language Teachers (3) Study of the theory, research, and processes involved in first and second language development, acquisition, and assessment.

### **EDUC 468 Language Acquisition for ESL Teachers (3)**

EDUC 468 is the third course in a four-course sequence designed to meet the Pennsylvania Department of Education's (PDE) requirements for an ESL Program Specialist Certificate. The 12-credit sequence has previously been approved by PDE. The 12-credit sequence is consistent with what other PDE-approved ESL certificate programs offer. This course builds upon EDUC 466, Foundations of Teaching English as a Second Language, and EDUC 467, English Language Structure for Teachers, with an emphasis on the processes involved in second language acquisition. EDUC 468 explores first and second language learning, socio-cultural contexts and learner variables, and the issues related to cognition and developmental psycholinguistics. The course specifically addresses two of the PDE competencies necessary for a teacher to acquire to meet the minimum requirements as an ESL Program Specialist: PDE Competency I-English usage and developing linguistic awareness; and PDE Competency III-English language learners [ELLS] language and language services knowledge. The four areas of emphasis within EDUC 468 are:

- a) *Learning a first language*, which provides an in-depth study of the process involved in the acquisition and development of first language interrelations between psycholinguistics and cognition, as well as understanding of the processes involved in the acquisition and development of language in human species.
- b) *Learning a second language*, which explores the interrelationships between psycholinguistics and cognition, and first and second language acquisition, as well as identifying issues related to developmental psycholinguistics?
- c) *Differences in how children, adolescents and adults learn language*, major contributions of leaders in the field of the psychology of language learning.
- d) *Evaluative classroom instruments to measure student progress in listening, speaking, reading and writing*, which identifies linguistic tools that can be used to assess the language skills and needs of ESL learners.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2006  
 Prerequisite: EDUC 466 and EDUC 467 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 469** Teaching Methods and Assessment of English as a Second Language (3) Integration of theory, research, and practice about ESL curriculum, instructional methods, assessment, and literacy development.

### **EDUC 469 Teaching Methods and Assessment of English as a Second Language (3)**

EDUC 469 is the fourth and final course in a four-course sequence designed to meet the Pennsylvania Department of Education's (PDE) requirements for an ESL Program Specialist Certificate. The 12-credit sequence has previously been approved by PDE. The 12-credit sequence is consistent with what other PDE-approved ESL certificate programs offer. The emphasis in EDUC 469 is to learn and integrate curricular, instructional, and assessment theories and practices into the K-12 classroom setting to promote language and literacy development. The course specifically addresses three of the PDE competencies necessary for a teacher to acquire to meet the minimum requirements as an ESL Program Specialist: PDE Competency I-English usage and developing linguistic awareness; PDE Competency II-English as a Second Language-instructional materials/development; and PDE Competency III-English language learners [ELLS] language and language services knowledge. The three areas of emphasis within EDUC 469 are:

- a. *English as a Second Language methods and collaboration with academic content areas*, which focuses on: the preparation for ESL teaching by exploring trends, major theories, methodologies, and assessment in second language learning; the study of second language teaching approaches applicable to elementary and secondary students; materials development and evaluation; and the development of a broad base of knowledge and skills that will enhance teacher effectiveness in meeting the needs of diverse learners through appropriate instructional, curricular, and behavioral strategies;
- b. *Assessment and evaluation of English Language Learners (ELLS)*, which explores: the use of multiple measures of assessment to evaluate academic achievement; the development and implementation of authentic assessment tools; and various approaches and challenges to classroom assessment; and
- c. *Literacy development*, which focuses on elementary and secondary ESL students by exploring ways in which to enhance English language learning in elementary students and to enrich content-area instruction for secondary ESL students.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: EDUC 466EDUC 467EDUC 468 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 470W** Higher-Order Thinking for Educators (3) Presentation of strategies, techniques, and principles of higher-order thinking which are grounded in relevant research and practice will be presented.

### **EDUC 470W Higher Order Thinking for Educators (3)**

This required course for elementary education majors focuses on three primary objectives. The first objective is to develop students' metacognitive, critical thinking, creative thinking, decision making, problem solving and reflection skills. A second objective is for students to become aware of ways to increase the higher order thinking of children in the elementary classroom. The third objective is to improve the students' ability to write critical thinking/reflection papers on educational problems and issues. This course serves as one of the foundation courses for the Elementary Education Program as one of the goals of the program is to develop reflective practitioners. Students are evaluated on the quality of eight writing samples, the quality and quantity of their contributions during whole class discussions, and the quality of their performance during cooperative group activities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: admission into Elementary Education Major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 471** Best Practices in Literacy (3) An application of best literacy practices to classroom instruction and assessment of reading, writing, listening, and speaking.

### **EDUC 471 Best Practices in Literacy (3)**

This course is offered to support the Masters of Education degree in Teaching and Curriculum at Penn State Harrisburg by providing an application of research in best language arts. It is a required course in the Reading Specialist Certification Program. The course acquaints students with an instructional and assessment framework that has been embraced by the educational community on a nationwide basis. Objectives for the course include the following: (1) Students will demonstrate an understanding of the theoretical underpinnings of the established best practices in literacy. (2) Students will demonstrate the ability to implement effective literacy practices. (3) Students will be able to assess and evaluate student performance according to established best practices. Evaluation methods will include: (1) attendance and participation in class discussion and exercises (10%); (2) a 5-7 page paper dealing with the use of children's books to teach reading and writing (25%); (3) a 5-7 page paper on the most current methods of assessing students' reading, writing, speaking, and listening skills (25%); and (4) the creation of an integrated Thematic Unit for instruction (40%).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: EDUC 320 or EDUC 321

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 472** Teaching Reading Through the Content Areas (3) Designed to enable teachers of content areas to improve the reading/study skills needed by their students.

### **Teaching Reading Through the Content Areas (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Winter 1981

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 475** ESL Leadership, Research and Advocacy (3) Teachers will develop their skills as instructional leaders and researchers by conducting school-based action research projects.

### **EDUC 475 ESL Leadership, Research and Advocacy (3)**

EDUC 475, the capstone course in the ESL Specialist and Leadership Certificate program (now the online SCOPE program), is a hybrid course involving online readings and discussions and field-based action research in PreK-12 educational settings with English Language Learners. ESL faculty will provide mentoring/coaching in the field. This course is designed to familiarize ESL candidates with the processes for developing, implementing, and evaluating action research projects. The ESL candidates will explore best practices in ESL pedagogy through implementation of various models of action research. The four areas of emphasis within EDUC 475 are as follows: a) the principles of ethical and methodologically

sound action research related to ELLs; b) culturally and linguistically inclusive best practices supported by ESL research; c) collaborative partnerships between school and community to advocate for ELLs and their families; and d) ESL research, evaluation, and assessment for dissemination of research findings, professional development, and continuous quality improvement within ESL programs. ESL faculty will coach and mentor ESL candidates in the field while they conduct action research. By the conclusion of this course, ESL candidates will have gathered, analyzed, and summarized their data into a research paper for potential publication, as well as developed either: a) a workshop training presentation for their school or district; or b) a draft of a conference proposal for a national, regional, or state conference.

By conducting action research projects and subsequently disseminating the results of their research through professional development presentations and potential publications, candidates are expected to become instructional leaders in the ESL field.

This course is the final capstone 3-credit ESL course for the ESL Specialist and Leadership Certificate program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: EDUC 469

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 477 Teaching Struggling Readers and Writers (3)** A comprehensive overview of learning problems and effective strategies for teaching K-12 students who have difficulties reading and writing.

### **EDUC 477 Teaching Struggling Readers and Writers (3)**

EDUC 477 is a required course in the M. Ed. in Literacy Education Program. The primary goals of the course are to increase the participants' understanding of special learning problems and to provide participants with teaching techniques for helping struggling K-12 readers and writers. Emphasis is placed on improving these students' reading, writing, listening, and speaking skills.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 478 Secondary Transition for Students with Disabilities (3)** Process and procedures for successful transition of secondary students with disabilities.

### **Secondary Transition for Students with Disabilities (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: EDUC 459

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 484 School Law for Teachers (3)** This course will focus on increasing teacher awareness of law and how it impacts on daily performance and job security.

### **School Law for Teachers (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1995  
Prerequisite: permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 490 Student Teaching (1-12)** Observation and teaching in selected elementary or secondary schools under direction of cooperating classroom teachers and University supervisors. Regular seminars. GPA 3.0 or higher. Passing scores on required Praxis I tests.

### **EDUC 490 Student Teaching (1-12)**

This course fulfills one of the certification requirements established by the Commonwealth of Pennsylvania. Students are assigned for a period of twelve weeks to teach in either an elementary or secondary school. Students have the option of selecting either the primary or intermediate level in elementary education, or the middle or high school level in secondary

education. Cooperating classroom teachers provide the day-to-day direction, evaluation and mentoring, and an assigned university supervisor makes weekly visits and observations. Students are phased into the full responsibilities of a classroom teacher, with the ultimate goal being, the assumption of all duties and responsibilities for a period of several weeks. Students plan, implement, evaluate and reflect on a variety of instructional activities throughout their experience. In addition to planning and implementing instruction, students assume responsibilities for classroom management, assessing student progress, communicating with all stakeholders, and participating in professional and co-curricular activities. Student teacher evaluations are based on clearly defined expectations and criteria. The assessment criteria are linked to Commonwealth and national standards.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2003

Prerequisite: eight semester standing approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 495** Internship (1-15) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.

#### **Internship (1-15)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 495A** Junior Field Experience (1) Second semester juniors assigned to a suburban elementary school for the purpose of actively participating in classroom activities.

#### **EDUC 495A Junior Field Experience (1)**

This course is designed to provide Elementary Education majors with an intensive field experience that acquaints the student with the "real" world of elementary education in a suburban setting. The experience will be under the direction of a certified elementary teacher in a suburban Harrisburg setting. Students will have an opportunity to actively work at the primary (K-3) and/or the intermediate (4-5) level, and will be directed to accomplish specific field tasks assigned by their course instructors. These tasks are directly related to each course in which the student is enrolled. Students are assigned a university supervisor who observes and consults with the students throughout the experience. Specific activities will vary depending on the grade level and the school district's curriculum. Students are evaluated by both the cooperating teacher and the university supervisor, and the evaluations are based on classroom observations. This course is offered each semester and is required of all students enrolled in the Elementary Education program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

Prerequisite: prior approval of proposed placement by instructor.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 495B** Senior Field Experience (1) First semester seniors assigned to an urban elementary school for the purpose of actively participating in classroom activities.

#### **EDUC 495B Senior Field Experience (1)**

This course is designed to provide Elementary Education majors with an intensive field experience that acquaints the student with the "real" world of elementary education in an urban setting. The experience will be under the direction of a certified elementary teacher in the Harrisburg or Steelton-Highspire School Districts. Students will have an opportunity to actively work at the primary (K-3) and/or the intermediate (4-6) level, and will be directed to accomplish specific field tasks assigned by their course instructors. These tasks are directly related to each course in which the student is enrolled. Students are assigned a university supervisor who observes and consults with the students throughout the experience. Specific activities will vary depending on the grade level and the school district's curriculum. Students are evaluated by both the cooperating teacher and the university supervisor, and tile evaluations are based on classroom observations. This course is offered each semester and is required of all students enrolled in the Elementary Education program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

Prerequisite: prior approval of proposed placement by instructor.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 495C** Early Childhood Field Experience (1) First semester seniors assigned to an urban elementary school for the purpose of actively participating in an early childhood classroom.

#### **EDUC 495C Early Childhood Field Experience (1)**

This course is designed to provide Early Childhood Education majors with an intensive field experience that acquaints the student with the, "real" world of early childhood education in an urban setting. The experience will be under the direction of a certified elementary teacher in an urban Harrisburg setting. Students will have an opportunity to actively work at the primary (K-3) level and will be directed to accomplish specific field tasks assigned by their course instructor. These tasks are directly related to early childhood courses in which the student was previously enrolled. Students are assigned a university supervisor who observes and consults with the students throughout the experience. Students are evaluated by both the cooperating teacher and the university supervisor. The evaluations are based on classroom observations and the completion of learning activities correlated with the required text. This course is offered each semester and is required of all students enrolled in the Early Childhood Education program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

Prerequisite: prior approval of proposed placement by instructor and completion of all four early childhood prerequisite courses.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 497A** iWRITE: Using Digital Technology to Engage Writers and Encourage Student Voices (3) This course is designed to explore the intersection between technological, pedagogical, and content knowledge.

**iWRITE: Using Digital Technology to Engage Writers and Encourage Student Voices (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 497A** iWRITE: Using Digital Technology to Engage Writers and Encourage Student Voices (3) This course is designed to explore the intersection between technological, pedagogical, and content knowledge.

**iWRITE: Using Digital Technology to Engage Writers and Encourage Student Voices (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 497B** Navigating Non-Fiction Reading and Writing in a Common Core (3) Designed to explore a variety of methods to improve and modify instructional strategies to promote maximum engagement and increase effective teaching of non-fiction reading and writing. The course will assist in the development of a knowledge base and subsequent use of research-based models of effective teaching practices and areas of: non-fiction reading, non-fiction writing, mentor texts, technology, assessment, and professional collaboration.

**Navigating Non-Fiction Reading and Writing in a Common Core (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 497C** International Field Experience: Germany (0.5-3) This course is intended to: develop student perceptions on education, provide pre-service teachers with opportunities to participate in culturally diverse classrooms, and engage in political dialogue regarding education in Germany.

**International Field Experience: Germany (0.5-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 497D** Using a Writer's Notebook to Empower Writers (3) This course will explore the endless possibilities of using a writer's notebook to strengthen and broaden both student writing and classroom instruction. Best suited for grades kindergarten-8th grade.

**Using a Writer's Notebook to Empower Writers (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDUC 499** (IL) Foreign Studies (1-12) Study of educational topics in a country other than the United States.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Education Abroad (ED AB)**

**ED AB 199** Temporary Education Abroad Registration (1-18) This course is used to temporarily register students that are studying overseas. Permanent courses will be entered after the student returns.

### **Temporary Education Abroad Registration (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Education Mathematics (EDMTH)**

**EDMTH 301** Mathematics in Elementary Education I (3) Survey of content, pedagogy, and psychology of mathematics instruction relating to numbers, operations, and algebraic thinking for pre-school through eighth grade.

### **EDMTH 301 Mathematics in Elementary Education I (3)**

The course will provide candidates the opportunity to explore and develop research-based practices needed to teach elementary mathematics in alignment with national and state content standards. This course will focus on the big ideas and learning trajectories associated with the mathematical content strands of numbers and operations and algebraic reasoning and functions across grades PK - 8. Course content will also focus on curriculum materials and considerations, planning effective lessons, pedagogical practices, and assessment of students' knowledge related to these mathematical content areas. The course will also emphasize the use of manipulatives and technology to represent the essential understandings needed to help students make sense of mathematical operations and make mathematical connections. Throughout the course, teacher candidates will engage in mathematical tasks and mathematical discussions, and observe videos of elementary mathematics classes to explore the focus, coherence, and rigor needed across PK-8 grade levels relative to the content strands of numbers and operations and algebraic reasoning and functions. They will also learn about various formative and summative assessments strategies to identify students' misconceptions and learn various intervention strategies to clarify students' understanding. The course will also emphasize instructional approaches designed to help students develop the mathematical behaviors associated with the Common Core Mathematical Practices across grade levels.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: a previous course in college mathematics and formal admission into the Teacher Certification Program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDMTH 301** Mathematics in Elementary Education I (3) Survey of content, pedagogy, and psychology of mathematics instruction relating to numbers, operations, and algebraic thinking for pre-school through eighth grade.

**EDMTH 301 Mathematics in Elementary Education I (3)**

The course will provide candidates the opportunity to explore and develop research-based practices needed to teach elementary mathematics in alignment with national and state content standards. This course will focus on the big ideas and learning trajectories associated with the mathematical content strands of numbers and operations and algebraic reasoning and functions across grades PK - 8. Course content will also focus on curriculum materials and considerations, planning effective lessons, pedagogical practices, and assessment of students' knowledge related to these mathematical content areas. The course will also emphasize the use of manipulatives and technology to represent the essential understandings needed to help students make sense of mathematical operations and make mathematical connections. Throughout the course, teacher candidates will engage in mathematical tasks and mathematical discussions, and observe videos of elementary mathematics classes to explore the focus, coherence, and rigor needed across PK-8 grade levels relative to the content strands of numbers and operations and algebraic reasoning and functions. They will also learn about various formative and summative assessments strategies to identify students' misconceptions and learn various intervention strategies to clarify students' understanding. The course will also emphasize instructional approaches designed to help students develop the mathematical behaviors associated with the Common Core Mathematical Practices across grade levels.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: a previous course in college mathematics and formal admission into the Teacher Certification Program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDMTH 302** Mathematics in Elementary Education II (3) Survey of content, pedagogy, and psychology of mathematics instruction relating to geometry, measurement, statistics, and data for pre-school through eighth grade.

**EDMTH 302 Mathematics in Elementary Education II (3)**

The course will provide candidates the opportunity to explore and develop research-based practices needed to teach elementary mathematics in alignment with national and state content standards. This course will focus on the big ideas and learning trajectories associated with the mathematical content strands of geometry, measurement, data analysis, and probability across grades PK - 8. Course content will also focus on curriculum materials and considerations, planning effective lessons, pedagogical practices, and assessment of students' knowledge related to these mathematical content areas. The course will also emphasize the use of manipulatives and technology to represent the essential understandings needed to help students make sense of mathematical operations and make mathematical connections. Throughout the course, teacher candidates will engage in mathematical tasks and mathematical discussions, and observe videos of elementary mathematics classes to explore the focus, coherence, and rigor needed across PK - 8 grade levels relative to the content strands of geometry, measurement, data analysis, and probability. They will also learn about various formative and summative assessments strategies to identify students' misconceptions and learn various intervention strategies to clarify students' understanding. The course will also emphasize instructional approaches designed to help students develop the mathematical behaviors associated with the Common Core Mathematical Practices across grade levels.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: EDMTH 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDMTH 302** Mathematics in Elementary Education II (3) Survey of content, pedagogy, and psychology of mathematics instruction relating to geometry, measurement, statistics, and data for pre-school through eighth grade.

**EDMTH 302 Mathematics in Elementary Education II (3)**

The course will provide candidates the opportunity to explore and develop research-based practices needed to teach elementary mathematics in alignment with national and state content standards. This course will focus on the big ideas and learning trajectories associated with the mathematical content strands of geometry, measurement, data analysis, and probability across grades PK - 8. Course content will also focus on curriculum materials and considerations, planning effective lessons, pedagogical practices, and assessment of students' knowledge related to these mathematical content areas. The course will also emphasize the use of manipulatives and technology to represent the essential understandings needed to help students make sense of mathematical operations and make mathematical connections. Throughout the course, teacher candidates will engage in mathematical tasks and mathematical discussions, and observe videos of elementary mathematics classes to explore the focus, coherence, and rigor needed across PK - 8 grade levels relative to the content strands of geometry, measurement, data analysis, and probability. They will also learn about various formative and summative assessments strategies to identify students' misconceptions and learn various intervention strategies to

clarify students' understanding. The course will also emphasize instructional approaches designed to help students develop the mathematical behaviors associated with the Common Core Mathematical Practices across grade levels.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: EDMTH 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDMTH 441** Geometry and Measurement Across the K-12 Curriculum (3) The course presents participants with investigations of reports, research, and recent trends related to teaching geometry and measurement.

#### **EDMTH 441 Geometry and Measurement Across the K-12 Curriculum (3)**

This course addresses the areas of Geometry and Measurement as defined by the National Council of Teachers of Mathematics (NCTM) standards and the Pennsylvania academic standards. Designed for graduate students who teach mathematics in K-12 grades or are leaders in mathematics education, the course focuses on discussions and teaching practices related to the fundamental concepts of geometric and measurement. Also, participants will become familiar with current research, reports and recent trends related to the teaching of a geometry or measurement topic.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDMTH 442** Algebra and Functions Across the K-12 Curriculum (3) The course presents participants with investigations of reports, research, and recent trends related to teaching algebra and function concepts.

#### **EDMTH 442 Algebra and Functions Across the K-12 Curriculum (3)**

This course addresses the areas of Algebra and Functions as defined by the National Council of Teachers of Mathematics (NCTM) standards and the Pennsylvania academic standards. Designed for graduate students who teach mathematics in K-12 grades or are leaders in mathematics education, the course focuses on current research and recent trends related to teaching algebra. The course will also focus on teaching algebraic concepts and algebraic reasoning from patterns, mathematical modeling, and variables of change using manipulatives, graphical representations, and technology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDMTH 443** Data Analysis and Probability Across the K-12 Curriculum (3) The course presents participants with investigations of reports, research, and recent trends to teaching data analysis and probability concepts.

#### **EDMTH 443 Data Analysis and Probability Across the K-12 Curriculum (3)**

This course covers the concepts of Data Analysis and Probability as defined by the National Council of Teachers of Mathematics (NCTM) standards and the Pennsylvania Academic Standards. Designed for K-12 teachers of mathematics or mathematics leaders, the course focuses on discussions related to the teaching of data analysis and probability through problem sets, written assignments, classroom-based projects and research. Topics will also include incorporating activities to address teaching probability and statistics to diverse populations. Also, participants will become familiar with current research and recent trends related to the teaching of a topic on data analysis and probability. Attention will be given to practices utilizing manipulatives, writing, problem solving, technology, and simulations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDMTH 444** Numbers and Operations Across the Curriculum (3) The course focuses on investigating reports, research,

and recent trends related to teaching number and operation concepts K-12. A student who has passed MATH 200 may not take EDMTH 444 for credit.

### **Numbers and Operations Across the Curriculum (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDMTH 455** Current Issues in Mathematics Education (3) An examination and analysis of contemporary trends and concerns in the teaching of mathematics.

### **Current Issues in Mathematics Education (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: EDMTH 302 or EDUC 417

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDMTH 497** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1990

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Education Science (EDSCI)**

**EDSCI 454** Modern Elementary Science Education (3) Introduction of content, methods, and materials used in modern elementary science with emphasis upon modern elementary science programs.

### **Modern Elementary Science Education (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: seventh-semester standing in Elementary Education Major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSCI 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1985

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Educational Psychology (EDPSY)**

**EDPSY 010** (GS) Individual Differences and Education (3) Relationships between learner differences and physical, cognitive, language, social, and cultural development; emphasis on ethnicity, gender, special needs; schooling implications.

**EDPSY 010 Individual Differences in Education (3)**  
**(GS)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an overview of the major theories and significant research on the development and explanation of individual differences and how those differences affect the education of school-age children. Specific topics include physical, cognitive, language, social-emotional, and cultural development in children and youth ages 3-20. By its very nature, the course will include a diversity focus, with special attention to ethnic, cultural, and gender issues as well as the needs of special populations.

Within each topic area, the course will pay special attention to theoretical and empirical work on how and why variations occur, how they are to be interpreted and measured, and the implications those variations have for society, especially for schooling. Traditional and alternative practices in schools will be examined to see which approaches best meet the needs of an increasingly diverse American society. While the course will focus on individual differences in education it will not be exclusively oriented toward future teachers. The course will also help parents (or future parents) understand the nature of development and individual differences of students as they progress through the educational system.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 014 Learning and Instruction (3)** Psychology of human learning applied toward the achievement of educational goals; evaluation of learning outcomes.

**Learning and Instruction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 014H Learning and Instruction (3)** Psychology of human learning applied toward the achievement of educational goals; evaluation of learning outcomes.

**Learning and Instruction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 101 (GQ) Analysis and Interpretation of Statistical Data in Education (3)** An introduction to quantitative methods in educational research emphasizing the interpretation of frequently encountered statistical procedures.

**Analysis and Interpretation of Statistical Data in Education (3)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 297A** Effective Study Skills (3) This course focuses on improving study skills, time management techniques, and other topics that should help students improve their academic lives.

**Effective Study Skills (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 400** Introduction to Statistics in Educational Research (3) The foundations of statistical techniques used in educational research; distributions, central tendency, variability, correlation, regression, probability, sampling, hypothesis testing.

**Introduction to Statistics in Educational Research (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 406** Applied Statistical Inference for the Behavioral Sciences (3) Common techniques (parametric) covered through two-factor analysis of variance (independent samples); hypothesis testing, confidence interval, power, robustness; MINITAB frequently used.

**Applied Statistical Inference for the Behavioral Sciences (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: EDPSY 400 or STAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 408 (SPLED 408)** Meeting Instructional Needs of English Language Learners with Special Needs (3) The course content and activities focus on instruction and assessment for English Language Learners with special needs.

**EDPSY (SPLED) 408 Meeting Instructional Needs of English Language Learners with Special Needs (3)**

The purpose of this course is to bring together two bodies of research to prepare future teachers of learners with special needs who are also English language learners to be effective teachers. The course has been developed to fulfill requirements of Pennsylvania Department of Education and in recognition of the growing number of English Language Learners (ELL) in the general population and thus in special education settings. The course presents (1) theory and research on the instructional needs of English Language Learners (ELLs) and (2) the knowledge base on effective instruction for students with special needs and assists students to integrate the two. Major topic areas include principles and issues in second language acquisition; ELL characteristics including linguistic and cultural factors that affect second language acquisition; techniques and methods of research-based instruction for English Language Learners with special needs; lesson planning and instructional modifications for ELLs with special needs; and appropriate assessment practices for ELLs with special needs. A major objective of this course is for students to be able to develop or modify instructional plans that reflect evidence based practices for adapting for the needs of ELL learners with special needs. Evaluation will be based on a combination of methods including, tests and quizzes, analyses of videos and case studies and reports of observations and interviews.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: EDPSY 010EDPSY 014 Prerequisite or concurrent:SPLED 395WSPLED 425

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 421** Learning Processes in Relation to Educational Practices (3) An introduction to the empirical study of variables and conditions that influence school learning.

### **Learning Processes in Relation to Educational Practices (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: EDPSY 014 orPSYCH 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 450** (PSYCH 404) Principles of Measurement (3) Scale transformation, norms, standardization, validation procedures, estimation of reliability.

### **Principles of Measurement (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2011  
Prerequisite: EDPSY 400 orPSYCH 200 orPSYCH 100;STAT 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 475** Introduction to Educational Research (3) Scientific method; classes of variables in educational research; the measurement of classroom behavior; survey, predictive, and experimental studies.

### **Introduction to Educational Research (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: EDPSY 400

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDPSY 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject



which may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Educational Technology (EDTEC)

**EDTEC 400** Introduction to Instructional Technology for Educators (1-3) Use of microcomputers, video, and other media in education; models use technologies including video, audio, print, computer, and telephone.

### EDTEC 400 Introduction to Instructional Technology for Educators (1-3)

This course introduces classroom teachers to the computer and its educational applications. It is an introductory level course and instruction is based on the premise that participants are novices. Participants first learn how to work in an online environment. They then work in that environment to develop the skills and perspectives needed for the effective application of microcomputers in education, which involves becoming familiar with a wide range of additional educational computing applications and issues.

Although it is important for students to develop technology skills, technology must be viewed as more than simply a new subject in the curriculum. Teaching students to use technologies well is a means to a much more important set of ends. Today's technologies offer teachers and their students a powerful means for addressing learning-related issues, and potentially redefining teaching and learning.

The potential of technology is most effectively realized when considered in combination with views about how individuals think and learn. The goal of this course, then, is not for participants to become experts in "technology," but to become more experts in using technologies to promote teaching and learning.

Upon completion of this course participants will be able to: successfully operate available computer hardware and associated peripherals including (but not limited to) keyboards, mice, and printers; demonstrate competency in using information technologies, including electronic mail, the Internet, and the World Wide Web; demonstrate competency in creating multimedia presentations and instruction; demonstrate competency in using word processing programs, basic graphics packages, and desktop publishing applications; demonstrate skills in creating spreadsheets and/or databases; integrate thoughtful applications of technology to address everyday teaching/learning problems; identify problems for which use of varied technologies offer productive alternatives for teachers, students, parents, and communities.

Students will demonstrate competence in these areas by developing three unit projects which will use technology to solve a classroom problem of their choosing. The projects address use of computers as communications tools, including the World Wide Web; information processing tools, such as spreadsheets and databases; and interactive multimedia using presentation software or Web-based materials. Each project will include a description of the problem, how the selected technology addresses the problem, a lesson plan demonstrating how the technology would be used, and an artifact which demonstrates the EDTEC 400 student's competency with the technology being used. Students will use Internet tools to share and provide peer reviews of classmates' projects.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: EDPSY 014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTEC 440** Educational Technology Integration (3) Technology integration in educational settings.

### EDTEC 440 Educational Technology Integration (3)

This course introduces educators to broad-based educational computing applications. This course introduces ideas, skills, concepts and strategies for integrating computers into classroom teaching. The focus of the course is on models for integration, but specific applications and how they can be used in the classroom will also be explored. This course is part of a graduate program of study for a Master's of Education (M.Ed.) in Instructional Systems or an M.Ed. in Educational Technology.

Within educational settings, technology is not simply an independent curriculum -- i.e., teaching about how to use technology. Rather it is a powerful means for addressing, and potentially redefining, everyday teaching and learning issues. The potential of technology is most effectively realized when considered in combination with views about how individuals think and learn best. The goal of this course, then, is not for you to become an expert in "technology," but to become more of an expert in teaching and learning. Technology can be used as a vehicle to help you to further develop this expertise.

This course is divided into five units which are based on the following areas of educational computing: (1) Technology Integration Concepts; (2) Productivity Tools; (3) Communication tools; (4) Interactive multimedia; and (5) emerging technologies.

Each of these units is designed not only to provide you with the information you need in order to understand what the technology is about and how it functions, but more importantly to stimulate serious reflection upon how you as a teacher can make use of this resource and how using this resource relates to student learning.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: EDPSY 014 and 6th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTEC 448 Using the Internet in the Classroom (3)** This course introduces students to methods and models of using the Internet effectively in their classroom.

### **EDTEC 448 Using the Internet in the Classroom (3)**

This course introduces participants to systematic instructional methods and models for using the Internet effectively in their classrooms. The Internet offers many resources to help educators plan, develop and teach lessons. When guided by a systematic instructional design model, educators can create lessons that are current, highly motivating, mentally engaging, and effective.

Participants will use the Internet to provide background information to support discussions of four issues related to Internet use in educational settings and will then use Internet discussion tools to evaluate examples and arguments related to each issue. Each participant will organize and moderate at least one discussion.

In this course, educators will determine the essential components of a lesson and then design and create web-enhanced lessons and web-based learning objects for the components. As participants search resources they will identify deep principles to develop a classification system for Web resources that can be used in their professional context.

The course is organized around four roles a teacher assumes: Internet miner, Internet policy advisor, integrator of existing Internet resources, and producer of new Internet resources. The main focus of the course is examining and reflecting on the Internet's pedagogical usefulness in the classroom.

**Course Goals -** Participants in this course will be able to: use a systematic Instructional Design (ID) model to plan educational activities that harness resources from the Internet; integrate Web resources in their classrooms; publish relevant learning objects on the Web; and identify and respond to critical issues regarding Web/Internet uses in the classroom.

**Course Objectives -** As *Internet Policy Advisor*, participants in this course will be able to: identify and respond to critical issues regarding Internet use in educational settings, including: access, the "digital divide," and special populations; copyright accuracy and validity of information, and privacy and security; moderate a discussion; participate in on-line discussions and conversations appropriately; and write an administrative policy brief.

As *Internet Integrator*: use a systematic instructional design model to integrate web-resources into educational activities that apply the First Principles of Instruction, Gagne's Nine Events of Instruction, Web-Enhanced Learning Environment Strategies, and Madeline Hunter Lesson Plan Components.

As *Effective Internet Miner*: classify, and create an organizational system for the types of resources that will be useful.

As *Producer*: create three types of web-based learning objects useful for their educational setting; publish learning objects on the Internet.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2005

Prerequisite: EDTEC 400 or demonstrated Internet awareness

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTEC 449 Using Video in the Classroom (3)** Skills and knowledge needed to direct the use of video technologies in educational settings.

### **EDTEC 449 Using Video in the Classroom (3)**

This course introduces video and multimedia production for educators based on the premise that participants are novices. The course is intended for teachers and trainers who would like to acquire fundamental theory and skills in designing and producing video and multimedia to support teaching and learning. It introduces the tools of media production (video, audio, and lighting), and develops basic skills, including production and editing techniques, storyboarding and project planning.

Participants in this course will demonstrate: a basic proficiency in the operation and handling of media production tools, including video and audio editing; an understanding of appropriate media use for classroom use; a basic knowledge of the production processes, including conceptualization, storyboarding, scripting, and project management; a basic proficiency in producing effective educational videos. Furthermore, students will facilitate learning by engaging actively in class activities and discussions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: 7th semester standing or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTEC 461** Designing Computer Networks for Education (3) Applying fundamental concepts of computer networking to design effective networks for educational purposes.

### **EDTEC 461 Designing Computer Networks for Education (3)**

In this course, participants will learn how to assess the technology needs of an educational institution, how to predict how those needs might grow in the near future, and how to design an effective, cost-efficient, upgradeable computer network to meet those needs.

Participants will: learn about the hardware and software involved in Ethernet networking, and why Ethernet is the preferred technology for today's schools; experience putting together the basic cabling components for an Ethernet network; work as a member of a team to solve case studies by designing effective school networks; and work independently to design a school network and to connect that network to a network in another school.

Participants are also required to participate in a cabling activity, during which they use the materials provided in the course packet to create a working segment of network cable (including the wall plate connection).

Another important activity involves the design of a wiring diagram for "Paterno Middle School," review of the design diagrams with a group of your classmates, followed by the submission of an individual network design complete with parts list and budget.

The course concludes with an individual project in which participants scour the Internet for that latest information on networks (wired and wireless) in order to answer some assigned research questions and to design a network that connects multiple schools and the district administrative office.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: Work experience in a K-12 school setting

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTEC 462** Coordinating Technology Use in Education (3) Skills and knowledge needed to direct the use of learning technologies in educational settings.

### **EDTEC 462 Coordinating Technology Use in Education (3)**

Technology coordinators are asked to identify, plan for, and meet technology needs, to advise and develop technology-related policy, and to help lead the district in important new directions. Technology coordinators: determine which technologies will meet learning and administrative needs; acquire and install them; educate and train district personnel in the use of these technologies; and evaluate the effectiveness of the district's use of technologies.

This course deals with the most daunting aspects of the technology coordinator's role -- the activities that require study and reflection and for which interaction with others enhances the learning experiences. Most would-be technology coordinators are drawn to this new role because of their interest in and knowledge of new and exciting learning technologies, but they lack experience in the tough issues collected as the content of this course: leadership; diversity; laws and regulations; management and administration; professional development; technology planning and budgeting.

The course involves students in on-line activities related to these topics, including reading, email conversations, chats, development of papers and projects, and peer review of papers and projects.

In addition to ongoing conversations and a series of smaller assignments, there are three major "deliverables" for this course: a position paper on leadership and diversity; a comprehensive technology plan; and an effective inservice training program on a technology-related topic.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: Work experience in a K-12 school setting

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTEC 467** Emerging Web Technologies and Learning (3) This course examines emerging Web technologies and explores their application to learning and education.

### **Emerging Web Technologies and Learning (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: EDPSY 014 sixth semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTEC 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Educational Theory and Policy (EDTHP)**

**EDTHP 115** (US) Education in American Society (3) Introduction to the development of educational institutions, with emphasis on historical, philosophical, and sociological forces, and on problems of equity.

### **Education in American Society (3)**

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 115A** (GS;US) Competing Rights: Issues in American Education (3) An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society.

### **EDTHP 115A Competing Rights: Issues in American Education (3) (GS;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course offers students a chance to practice solving skills necessary for active and responsible citizenship. Because the course requires students to engage in detailed analysis of contested issues, students will: acquire information about the history and governance of public schools; develop an understanding of ideologies underlying existing schools and proposed reforms; and, as a result, be better equipped to make informed choices as voters. Major topics include curriculum design; school accountability; education of minority populations; the conflict between students' rights and the need of a school to maintain order; and the teaching of values.

The course will require extensive reading, discussion (in-class and/or on-line), writing, and field research, to include such activities as interviewing teachers and politicians, or attending a school board meeting. Readings may include editorials, proposed legislation, court decisions, chapters from texts, essays and scholarly articles, and material from web sites of interested organizations (such as the National Education Association, the Christian Coalition, or the American Civil Liberties Union). After readings, analysis and discussion, students will prepare and defend a position on each issue, either individually or in groups, formally or informally, in speech or in writing. Students will be graded on their ability to support a particular stance with credible evidence, and on their ability to articulate the ideology underpinning a stance. Therefore, the ability to identify credibility of sources is inherent to success in the course.

In general, this course draws upon concepts and information from history, political science, economics and philosophy as well as from education. As a General Education course, it seeks to help students broaden their perspective on social issues; to offer them practice in informed decision-making; and to understand and accept the responsibilities of active citizenship. The course might be particularly useful to social science majors because it will reveal interdisciplinary connections, while it will also be useful to the wider student body as a form of civic education.

General Education: GS  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 115S** (GS;US) Competing Rights: Issues in American Education (3) An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society.

**EDTHP 115S Competing Rights: Issues in American Education (3)**  
**(GS;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course offers students a chance to practice solving skills necessary for active and responsible citizenship. Because the course requires students to engage in detailed analysis of contested issues, students will: acquire information about the history and governance of public schools; develop an understanding of ideologies underlying existing schools and proposed reforms; and, as a result, be better equipped to make informed choices as voters. Major topics include curriculum design; school accountability; education of minority populations; the conflict between students' rights and the need of a school to maintain order; and the teaching of values.

The course will require extensive reading, discussion (in-class and/or on-line), writing, and field research, to include such activities as interviewing teachers and politicians, or attending a school board meeting. Readings may include editorials, proposed legislation, court decisions, chapters from texts, essays and scholarly articles, and material from web sites of interested organizations (such as the National Education Association, the Christian Coalition, or the American Civil Liberties Union). After readings, analysis and discussion, students will prepare and defend a position on each issue, either individually or in groups, formally or informally, in speech or in writing. Students will be graded on their ability to support a particular stance with credible evidence, and on their ability to articulate the ideology underpinning a stance. Therefore, the ability to identify credibility of sources is inherent to success in the course.

In general, this course draws upon concepts and information from history, political science, economics and philosophy as well as from education. As a General Education course, it seeks to help students broaden their perspective on social issues; to offer them practice in informed decision-making; and to understand and accept the responsibilities of active citizenship. The course might be particularly useful to social science majors because it will reveal interdisciplinary connections, while it will also be useful to the wider student body as a form of civic education.

General Education: GS  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 200** (GS) Educational Reform and Public Policy (3) The course uses an interdisciplinary approach to explore the reforms that shape the nation's largest social institutional-public education.

**EDTHP 200 Educational Reform and Public Policy (3)**  
**(GS)**

This course is designed as an introduction to the major "Education and Public Policy". The course explores fundamental questions about the United States by examining the nation's largest social institution-public education. Drawing from multiple social science disciplines, the course uses these questions to explore how ideologies, institutions and social groups have interacted to shape formal schooling and how schooling reflects the conflicting, interests, and beliefs of its citizens. Several case studies of past and present reforms will be analyzed to interpret the relations of schools to historic changes in legal norms, the distribution of power and resources in public institutions, and the access of different social groups to leadership and leverage in the political process of American society. The course has no prerequisites. The lectures and readings are designed for students interested in the uses of social science disciplines for studying public policy. Discussion sections are intended to lead to informed interpretation of educational policy dilemmas.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 234H** Honors Leadership Jumpstart (3) Intensive survey of contemporary leadership theory joined with practice, team-building skills, policy formation and influence, and service leadership.

**EDTHP 234H Honors Leadership Jumpstart (3)**

This is an intensive honors course for incoming First-Year students in the Schreyer Honors College with an interest in leadership. It provides introductory skills, perspective and background to prepare for and participate in a variety of leadership roles at Penn State and in the university community. Contemporary leadership theory joined with increasingly complex practice situations will be introduced. Content matter will include personal assessments, team building skills, organizational leadership, collaborative leadership, civics and diversity, policy formation and influence, and lessons about service learning and public scholarship. Considerable reading, writing, and discussion, as well as a first-year orientation project and a semester-long team service project will be required.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: first-semester Penn State student in the Schreyer Honors College

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 297** Special Topics (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 297A** Multicultural Perspectives: Families, Communities and Education (3) This course employs an expansive definition of "multiculturalism" within the context of education by broadly exploring issues of diversity within the context of families, communities and schools. Relationships between families, communities and school cultures are examined from a sociological perspective. The course focuses on understanding cultural differences, analyzing theories of multicultural education, and giving attention to the unique educational needs of students.

### **Multicultural Perspectives: Families, Communities and Education (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 394** Professional Development in Education and Public Policy (3) This course develops professional skills and opportunities to prepare students for field placement and future employment or study.

### **EDTHP 394 Professional Development in Education and Public Policy (3)**

This course focuses on the development of personal understanding of educational policy in a wide range of governmental, private, and civic organization with interest in educational policy, broadly defined. Students are provided opportunities to discover their policy interests, develop their professional communication and research skills, and design an on-site research project to be implemented during a summer field experience. The culminating project, the Field Experience Proposal, synthesizes readings, research, professional presentation, and details of the field placement. This becomes the blueprint for the students' summer field experience in EDTHP 395.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 395** Field Experience in Education and Public Policy (3) This course structures a summer field experience, research project, and service in an off-site educational policy organization.

### **EDTHP 395 Field Experience in Education and Public Policy (3)**

This course structures a summer semester field placement for EPP majors in a non-profit, governmental, or civic organization with an educational policy component. Students gain hands-on, real-world experience implementing their Field Experience Plan (created in EDTHP 394) while serving internships in regional and national settings. Student-directed

Field Placement Plans include identification of a policy issue relevant to the placement, implementation, evaluation, and analysis and can apply to broad topics such as diversity, multiculturalism, social justice, and educational equity in rural, suburban, and urban settings. Communication, assignment submission, and instructor assessment will take place on the ANGEL Course Management System.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008  
 Prerequisite: EDTHP 394

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 401 (IL)** (CI ED 401) Introduction to Comparative Education (3) Origins, nature, scope, basic literature, and methodology of comparative education. Study of sample topics.

**EDTHP (CI ED) 401 Introduction to Comparative and International Education (3)  
 (IL)**

The course introduces undergraduate students to global issues in education and provides a survey of schooling practices used in various educational systems around the world. Students will have the chance to create an individual research project that will allow them to explore one country and one global educational issues in depth. Students are required to attend all classes, participate in the discussion sections, and take notes on the films shown. These films play an integral part in the course and provide students with views into classrooms and schools around the world. Students will also have access to international databases and be expected to make use of these databases in developing their projects. Finally, in-class discussions will focus on how comparative educational studies have been used by politicians to influence educational reform around the world.

In this course, we will survey the state of public education in the world today. Each student will focus on one nation and provide a synopsis of educational practice in that nation. We will then move on to focus on global or cross-national issues such as how competition between "core" nations like Singapore and the U.S. drives reform (GOALS 2000 or No Child Left Behind). Other issues will include power differences between north and south, education for democracy, barriers to girls and women's education in developing nations, as well as education and national identity.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: 5th semester standing or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 411 (US)** Ethnic Minorities and Schools in the United States (3) Analysis of the social and cultural factors which affect educational outcomes among minority pupils, especially Blacks, Hispanics, and Indians.

**Ethnic Minorities and Schools in the United States (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 412 (WMNST 412)** Education and the Status of Women (3) An examination of the relationship of education to the status of women in American society.

**Education and the Status of Women (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 416 (US)** (SOC 416) Sociology of Education (3) The theoretical, conceptual, and descriptive contributions of sociology to education.

**Sociology of Education (3)**

General Education: None

Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 420** Education and Public Policy (3) Focus on the development and analysis of education policy, and policy's influence on schools.

### **EDTHP 420 Education and Public Policy (3)**

This course examines the inherently political process in which educational policies are developed and implemented. It also considers how these formal policies interact with the practice of teaching and learning in U.S. schools. In this course, students will be expected to actively participate in classroom discusses and activities as we examine the development of policies and their implementation, with a focus on understanding pressing policy dilemmas in education today. Course evaluation includes quizzes, a midterm paper analyzing a policy issue, and a series of final exam essays.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: six credits in social/behavioral sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 427** Intelligence and Educational Policy (3) This course explores the concept of intelligence and its assessment from historical, psychological, educational and policy perspectives.

### **EDTHP 427 Intelligence and Education Policy (3)**

In this course, we will focus on two main content areas. First, we'll explore the concept of intelligence and its assessment from historical, psychological, educational, and policy perspectives: What does intelligence look like in different cultures and at different points in history? What forces help to shape conceptions of intelligence? Second, we will consider the ways in which conceptions of intelligence influence students' opportunities to learn. For example, how are students assigned to higher-level or remedial classes and on what bases should admission to elite educational programs be allocated? What policies govern such decisions?

The study of intelligence has been a controversial one. This course will touch on several controversies associated with the topic, including the "nature/nurture" debate and the "merit/affirmative action" debate. Readings and discussion will draw on opposing sides of these issues.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: EDTHP 115 or 6 credits in social/behavioral sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 430** History of Education in the United States (3) American educational ideas and practice critically examined in terms of their historical development and contemporary significance.

### **History of Education in the United States (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 434H** Honors Teaching Experience in Leadership Jumpstart (1) Guided instruction and practical experience for teaching assistants to the Honors Leadership Jumpstart course (EDTHP 234H).

### **EDTHP 434H Honors Teaching Experience in Leadership Jumpstart (1)**

This course trains and supports the teaching assistants (TAs) who work with the first-year students in the Leadership Jumpstart course (EDTHP 234H). The TAs help guide the first-year students through their course by assisting in the design, implementation, and evaluation of the course and the student projects, providing feedback for what worked and what did not work, and providing important perspective from when they were first-year students. The TAs are expected to be a role model, assist in the instruction of the course, assist in the functional elements of the course, be a confidant/mentor to new students, and occasionally serve as an evaluator of students' work. The TAs' grades will be based



on attendance at all class sessions and interactive assistance and leadership during the EDTHP 234H course and on the TA's reflections on the course, its effectiveness to achieve the objectives, and possible improvements.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: EDTHP 234H and permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 435** Child Labor and Education in the Global Economy (3) The legal instruments and social science theories useful for understanding and combating child labor through education policy and practice.

### **Child Labor and Education in the Global Economy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 440** (CI ED 440) Introduction to Philosophy of Education (3) Introduction to the examination of educational theory and practice from philosophical perspectives, classical and contemporary.

### **EDTHP (CI ED) 440 Introduction to Philosophy of Education (3)**

The major objective of EDTHP (CI ED) 440, Introduction to Philosophy of Education, is to broaden and deepen the students' understanding of the nature of education. Such a study involves exploring the ends as well as the means of education. It includes both an examination of some of the distinctive or defining characteristics of "educated persons" as well as the different elements of the learning experience (including curricula, pedagogies, and evaluative processes) that encourage the development of such persons. As part of developing an understanding of the educational enterprise, this course will introduce students to some of the important ideas and theories that comprise the rich tradition of educational philosophy. In the design of a course of this nature with constraints established by space, time, and the background of the student, it is necessary to confront the task of making judicious selections from the vast literary wealth accumulated over the centuries. In doing so, the decision made has been to focus primarily on the literary contributions of western philosophers of education. In the interest of making the sample varied and interesting, however, an effort has been made to include writings of some philosophers of education from different cultural contexts. The educational thoughts of A.S. Neill, John Dewey, Eliot Wigginton, Maxine Greene, Paolo Freire, Mohandas Karamchand Ganddhi, David Orr, Ivan Illich, and Wendell Berry, among others, will be explored in this class. The exposure to diverse, rich, and provocative ideas of the educators included for study here will, it is hoped, stimulate students to re-examine and further develop their own philosophy of education into a more comprehensive, coherent, and consistent one.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ENGL 015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 441** Education, Schooling, and Values (3) Studies in education and schooling as problems in value; axiological problems and positions; examination of practical applications, including moral education.

### **Education, Schooling, and Values (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 496** Individual Studies (1-18) Creative projects supervised on an individual basis and which fall outside the scope of formal courses.

### **Individual Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 497** Special Topics (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 497A** Gender Issues in Education and Family (3) This course will help students explore the relationship between gender, education, and families. Students examine issues such as gender role development and families, gay, lesbian, and transgender children and families, educational access, gender bias, sexual harassment, gender and children's literature, the impact of the media on gender role development, and strategies for teaching boys and girls in elementary classrooms.

### **Gender Issues in Education and Family (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDTHP 498** Special Topics (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Electrical Engineering (E E)**

**E E 007S** Adventures in Electrical Engineering (1) Exploration of electrical engineering through several hands-on activities that cover a broad spectrum of applications and fundamental concepts.

### **E E 007S Adventures in Electrical Engineering (1) (FYS)**

What engineering discipline should I major in? This is perhaps one of the most important decisions that students in the College of Engineering must make within their first two years of study. Unfortunately, many students often make this decision based on limited knowledge of the various engineering disciplines offered at Penn State.

Adventures in Electrical Engineering is a fifteen week expedition that answers two questions. First, what type of problems do electrical engineers solve? Second, what tools do electrical engineers use to find solutions? These questions are addressed by highlighting various areas of electrical engineering including electronic circuits, semiconductor devices and fabrication, optical communications, feedback control systems, and digital image processing. Most topics are drawn from senior technical electives so that students obtain a broad view of electrical engineering.

Adventures in Electrical Engineering is a hands-on course that requires the design, construction, and testing of several projects. Each project emphasize a different subdiscipline of electrical engineering. In addition to exploring fundamental concepts of electrical engineering, students work with instrumentation and computer software frequently used by electrical engineers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 008S** Introduction to Digital Music (1) First-year seminar that discusses digital music from an electrical engineering perspective; topics include sampling, digital filtering, compression, and music synthesis.

**E E 008S Introduction to Digital Music (1)  
(FYS)**

E E 008S is a lab-oriented first-year seminar course aimed at students interested in the field of digital music. Specifically, this course discusses how the various digital music formats (and other types of digital audio) relate to the electrical engineering sub-discipline of digital signal processing. Students will come out of this course with a more technical understanding of the digital audio formats that they listen to every day.

This course is structured to have alternating periods of lecture and lab. New concepts are first covered in the lectures and then reinforced with a variety of laboratory activities. In the laboratory experiments, students will use various computer programs and will also get exposure to standard test equipment used by electrical engineers.

Topics covered in the lectures/labs include investigating the physics of sound, sampling and quantization of music signals, generating audio special effects through the use of digital filters, compression techniques used in digital audio, and mathematically synthesizing instrument sounds. Current popular digital audio formats such as compact disc audio, WAV, MP3, and MIDI will also be investigated throughout this course.

No musical experience/talent is necessary.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 009S** First-Year Seminar in Electrical Engineering (1) First-year seminar covering a variety of Electrical Engineering topics that vary from year to year.

**E E 009S First-Year Seminar in Electrical Engineering (1)  
(FYS)**

The overall objectives of Engineering First-Year Seminars are to engage students in learning about engineering and orient them to the scholarly community in a way that will bridge to, and enhance their benefit from, later experiences in the College and the University.

Seminars adhere to the two specific goals identified below by including one or more of the three strategies following each goal:

(1) Introduce students to a specific field, or encourage their exploration of a number of fields, of study in engineering; familiarization with the engineering majors and career options and with the objectives of general education and other components of the curriculum; development of a particular topic, contemporary issue, emerging or interdisciplinary field of concentration, or professional responsibilities in engineering; plant tours or demonstrations of engineering facilities

(2) Acquaint students with tools, resources and opportunities available to them in the department(s), College and University; exposure to learning support services and career development resources

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 200 Design Tools (3)** A working knowledge of electrical engineering design tools and hardware realization of electrical engineering systems.

**E E 200 Design Tools (3)**

E E 200 provides students with a working set of design tools that are required to complete subsequent courses in the electrical engineering design curriculum. This course directly builds upon circuit analysis/design concepts in the required introductory courses in electrical circuits, digital systems and computer programming. Specific topics covered in this course include automated instrument control, hardware realization using field programmable devices, hardware realization using embedded microcontroller systems, circuit simulation and printed circuit board layout.

Student performance is evaluated using exams, homework assignments, and projects. Concepts introduced in lecture are reinforced with hands-on experience provided by laboratory projects.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: E E 210CMPEN 270 orCMPEN 271 andCMPEN 275CMPSC 201 orCMPSC 121 ; Prerequisite or concurrentE E 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 210 Circuits and Devices (4)** Introduction to electrical circuit analysis, electronic devices, amplifiers, and time-domain transient analysis.

**Circuits and Devices (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: PHYS 212 . Prerequisite or concurrent:MATH 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 210H Circuits and Devices (4)** Introduction to electrical circuit analysis, electronic devices, amplifiers, and time-domain transient analysis.

**Circuits and Devices (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: PHYS 212 . Prerequisite or concurrent:MATH 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 211 Electrical Circuits and Power Distribution (3)** D.C. and A.C. circuits, transformers, single and three-phase distribution systems, A.C. motors and generators.

**Electrical Circuits and Power Distribution (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: PHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 212 Introduction to Electronic Measuring Systems (3)** Electronic devices and characteristics, amplifiers and feedback, electronic instruments and recording systems. Designed for non-electrical engineering students.

**Introduction to Electronic Measuring Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: PHYS 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1993

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1993

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 300W** Design Process (3) Introduction to the electrical engineering design process, project teaming and management, and technical communication.

**E E 300W Design Process (3)**

E E 300W course will introduce students to the electrical engineering design process, project teaming, and project management in preparation for conducting a senior design project. In the lab, students will get practice managing a project from pre-definition to completion within constraints of customer needs, technical parameters and budgets. The principles of systems engineering will be introduced. The student-engineer will gain professional skills (in areas such as technical communication, teaming, conflict resolution and life-long learning) important for a successful career in a wide range of engineering environments. There will also be discussion of engineering ethics and the responsibilities of the engineer in the emerging global marketplace. A series of lectures by outside speakers will provide perspectives on life as an engineer.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: E E 200  
Concurrent: ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 310** Electronic Circuit Design I (4) Properties of fundamental electronic devices, analysis of DC, AC small-signal and nonlinear behavior, analog and digital circuit design applications.

#### **Electronic Circuit Design I (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E E 210 or E E 315

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 311** Electronic Circuit Design II (3) Electronic circuit design with consideration to single and multi-device subcircuits, frequency response characteristics, feedback, stability, efficiency, and IC techniques.

#### **E E 311 Electronic Circuit Design II (3)**

E E 311 is intended to provide competency in the application of basic electronic principles to design with operational amplifiers and integrated circuits. The course will include passive and active filter design, and feedback principles and non-ideal aspects of operational amplifiers (op-amps) including compensation, stability, and sensitivity needed for advanced design with op-amps, as well as some nonlinear op-amp circuits including comparators, Schmitt triggers, pulse width modulators, and waveform generators.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: E E 310; E E 350 or E E 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 312** Electrical Circuit Analysis (3) Circuit analysis techniques; mutual inductance; frequency response; FOURIER series; LAPLACE transform.

#### **Electrical Circuit Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: E E 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 313W** Electronic Circuit Design II (4) Design/analysis of electronics circuits including: single/multistage transistor amplifiers, op amp circuits, feedback amplifiers, filters, A/D and D/A converters.

#### **E E 313W Electronic Circuit Design II (4)**

The prerequisite course, E E 310 - Microelectronics 1, covers the basic operation of microelectronic devices and their use in logic circuit design. This course focuses on the design of electronic circuits for amplification, filtering, and A/D and D/A conversion. Advanced circuit design concepts, such as IC biasing, feedback, and frequency response, are covered. This course is designated as writing intensive, and students are required to produce a variety of technical documents based on laboratory work.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E E 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 314** Signals and Circuits II (3) Circuit analysis including op-amps, and ideal transformers; one/two port network

models; three-phase and industrial loads; engineering professionalism.

**Signals and Circuits II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 210;CMPSC 201 orCMPSC 121

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 315** Electrical Signals and Circuits with Lab (5) Introduction to circuits, signals, energy, circuit analysis; frequency response, Bode diagrams, two-port networks; Laplace transforms, Polyphase circuits.

**Electrical Signals and Circuits with Lab (5)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: or concurrent:MATH 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 316** Introduction to Embedded Microcontrollers (3) Introduction to microcontrollers in electronic and electromechanical systems. Hardware and software design for user/system interfaces, data acquisition, and control.

**Introduction to Embedded Microcontrollers (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 201 orCMPSC 121;CMPEN 271

Concurrent: E E 310

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 320** Introduction to Electro-Optical Engineering (3) An introduction covering several fundamental areas of modern optics, optical processes, and devices.

**Introduction to Electro-Optical Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1998

Prerequisite: E E 330

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 330** Engineering Electromagnetics (4) Static electric and magnetic fields; solutions to static field problems, Maxwell's equations; electromagnetic waves; boundary conditions; engineering applications.

**Engineering Electromagnetics (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 210 orE E 315;MATH 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 331** Electromagnetic Fields and Waves (3) Electromagnetic field theory and applications; Maxwell's equations; plane wave propagation; boundary conditions; basic antenna theory; impedance matching.

**E E 331 Electromagnetic Fields and Waves (3)**

After completing this course the student should understand, and be able to demonstrate a working knowledge of the following topics:

1)Vector Calculus

2)Coulomb's Law and applications

3)Gauss's Law and applications

4)Electric potential and electric fields

- 5)Static boundary conditions
- 6)Computation of capacitance
- 7)Laplace's equation
- 8)Current density and Ohm's Law
- 9)The Biot-Savart Law
- 10)Magnetic field characteristics
- 11)Computation of Inductance
- 12)Faraday's Law of electromagnetic induction
- 13)Maxwell's equations
- 14)Time-harmonic fields
- 15)Plane electromagnetic waves in various media
- 16)Plane waves at boundaries
- 17)Transmission lines
- 18)Smith charts
- 19)Basic antenna theory
- 20)Impedance matching.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: E E 210MATH 230

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 340** Introduction to Nanoelectronics (4) Introduction to the physics and technology of nanoelectronic devices.

#### **E E 340 Introduction to Nanoelectronics (4)**

This is a required course for junior-level electrical engineering students. The first part of the course provides an introduction to the key aspects of electronic materials, quantum mechanics, and solid state physics needed to understand nanoelectronic devices. The second part is devoted to the fundamental theory of carrier transport including ballistic transport, drift, diffusion, and recombination/generation. The third part of the course applies the fundamentals to describe the operation of several basic semiconductor devices: p-n junctions, metal-semiconductor junctions, and metal oxide semiconductor field effect transistors (MOSFETs), and provides an introduction to fabrication methods used to create these devices. This portion of the course also highlights contemporary concepts in thin film electronics, optoelectronic devices, and solar energy conversion.

The course includes several in-class demonstrations and also web-based remote device measurement laboratories. One of the in-class demonstrations uses a Breeze interface to link a field emission scanning electron microscope session to the classroom. The students can see and communicate with the microscope operator to visualize real nanoelectronic materials and devices at different levels of magnification. The remote device measurement laboratories use web-based labview software to collect device characteristics from silicon p-n junctions and MOSFETs fabricated in the senior level device technology class. The students are given microscope images of the devices and an assignment to analyze the device performance. This allows the students to compare ideal text book performance to non-ideal device response.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2012  
 Prerequisite: PHYS 214E E 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 341** Semiconductor Device Principles (3) Quantitative description of properties and behavior of materials with application to integrated circuits, photonic devices, and quantum wellf devices.

#### **Semiconductor Device Principles (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: E E 210 or Prerequisite or concurrent:E E 315

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 350** Continuous-Time Linear Systems (4) Introduction to continuous-time linear system theory: differential equation models, sinusoidal steady-state analysis, convolution, Laplace transform and Fourier analysis.

#### **Continuous-Time Linear Systems (4)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None



Effective: Spring 1999

Prerequisite: E E 210MATH 220MATH 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 351 Discrete-Time Linear Systems (3)** Introduction to discrete-time signal processing: sampling, linear time-invariant systems, discrete-time Fourier transform and discrete Fourier transform, Z transform.

### **Discrete-Time Linear Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1998

Prerequisite: E E 350

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 352 Signals and Systems: Continuous and Discrete-Time (4)** Transient response, frequency response, Bode plots, resonance, filters, Laplace transform, Fourier series and transform, discrete-time signals/ systems; sampling z-transform.

### **E E 352 Signals and Systems (4)**

E E 352 is a course designed to study the characteristics of continuous and discrete time linear systems. These include signal and power input/output relationships in both domains, impulse responses, and the differential equations that describe these systems. Convolution is an essential component of any linear systems course, therefore several classes will be devoted to this topic in order that students fully understand the concept. Fourier series is used to determine the spectral content of periodic signals thus illustrating how a signal is distributed in frequency. This is very important when determining bandwidth requirements. There will be a brief refresher on the trigonometric Fourier series then the exponential series will be studied extensively. The Fourier transform can be used to determine the spectral content of virtually any signal encountered in the undergraduate curriculum, aperiodic, or periodic. It is also valuable in determining the frequency response characteristics of linear systems. Some filter theory is included in the course along with the Laplace transform. Much of the signal processing performed today is done digitally so the remainder of the course will approach most of the aforementioned topics from the viewpoint of the discrete domain with a strong emphasis on sampling and aliasing. Finite impulse response filters will be introduced along with recursive filters using the bilinear transform method.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: MATH 250; E E 210 or E E 314 or E E 315

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 353 Signals and Systems: Continuous and Discrete-Time (3)** Fourier series and Fourier transform; discrete-time signals and systems and their Fourier analysis; sampling; z-transform.

### **E E 353 Signals and Systems: Continuous and Discrete Time (3)**

EE 353, Continuous- and Discrete-time Signals and Systems, is a core course taken by all computer engineering students that provides exposure to a variety of topics in linear systems. The material in this course is needed for further study in image processing and data communications, both of which are major areas of specialization within the computer engineering curriculum.

This course is divided into three main sections - continuous-time linear system analysis, sampling and reconstruction, and discrete-time (digital) linear system analysis. Although the material covered in the first and last sections is similar, fundamental differences between continuous- and discrete-time exist. One of the goals of this course is to make the student aware of these differences.

The first part of the course discusses continuous-time linear system analysis. It begins with basic time-domain mathematical descriptions of various signals and systems. The bulk of the analysis, however, is in frequency domain approaches such as the Fourier Series and the Fourier Transform. Applications such as modulation and multiplexing are understood much easier using frequency-domain analysis approaches.

The middle part of the course deals with the bridge between continuous- and discrete-time, namely signal sampling and reconstruction. Theoretical and practical approaches to sampling/reconstruction are covered. Finally the Nyquist sampling theorem, which is the key to all digital signals, is developed. At this point, students are ready to study discrete-time systems.

The final part of this course revisits system analysis, although now discrete-time (or digital) systems are considered. As in the continuous-time case, both time-domain and frequency-domain approaches to the analysis problem are discussed. The course ends with select topics in the z-transform, which is the digital counterpart to the Laplace transform.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: E E 210;CMPSC 201 orCMPSC 121;MATH 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 360** Communications Systems I (3) Generic communication system; signal transmission; digital communication systems; amplitude modulation; angle modulation.

### **E E 360 Communications Systems (3)**

E E 360 is a junior-level elective course in the electrical engineering curriculum that provides a detailed foundation of communications systems, expanding on the topics covered in a standard linear systems class. The first part of the course deals with analog communications. First, analog amplitude modulation (AM) is presented, covering double-sideband suppressed carrier, double-sideband large carrier, single sideband, and vestigial sideband modulation formats. Detection techniques for these modulation schemes are also covered. The phase-locked loop for coherent carrier tracking is also presented. Second, analog angle modulation is presented in the forms of frequency modulation (FM) and phase modulation (PM). Estimating the bandwidth of the angle modulated carrier is covered, as well as various generation and detection methods. After analog communications are covered, the basics of digital modulation are presented. Sampling theory and analog-to-digital conversion are covered. Particular attention is paid to the signal-to-noise ratio and the aggregate bit rate at the output of the digital modulator. The principles of Nyquist pulse shaping are presented. Particular topics include intersymbol interference, line coding, and power spectral density. A presentation of emerging digital communications technologies concludes the course. Topics may include mobile radio, high definition television, broadband services, video compression, and high-speed local area networks.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: E E 350 orE E 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 362** (CMPEN 362) Communication Networks (3) Data transmission, encoding, link control techniques; communication network architecture, design; computer communication system architecture, protocols.

### **E E (CSE) 362 Communication Networks (3)**

E E (CSE) 362 is an elective course in both the electrical and computer engineering curricula which provides an overview of the broad field of data and computer communications. First, a general model of the communication task is presented, including the layered concept by which each layer provides services for the layer above. Next, the lowest (physical) layer is studied. This involves signal design, Fourier analysis representations, bandwidth concepts, transmission impairments and communication media properties. Then the next higher (link) layer is considered which involves organizing bits into frames, data link and error control methods (including frame sequence numbering and error detection principles). Multiplexing to share a link is studied, including frequency division multiplexing, dedicated time division multiplexing, and statistical time multiplexing.

At the network layer level, there are two categories: broadcast (usually local area) and switching networks. Broadcast and local area network studies include bus, tree and star topologies, Ethernet, optical fiber bus networks, ring networks, and medium access control protocols.

Switching, and routine, concepts for networks are explained, including both circuit and packet switching, datagrams and virtual circuits. Properties of frame relay and asynchronous transfer mode (ATM) networks are described. Internetworking, frame structures, routing and protocols are studied. Also, bridge routing for local networks is described.

At the still higher transport (network end-to-end control) layer, transport protocols, including TCP/IP, are described.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2011  
 Prerequisite: CMPEN 270 orCMPEN 271  
 Concurrent: STAT 301 or STAT 318 or STAT 401 or STAT 414 or STAT 418

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 380** Introduction to Linear Control Systems (3) State variables; time-domain and frequency-domain design and analysis; design of feedback control systems; Root Locus.

### **Introduction to Linear Control Systems (3)**

General Education: None  
 Diversity: None

Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MATH 220;E E 350 orE E 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 383** Signals and Controls Laboratory (1) Design, computer simulation, and practical implementation of systems in the areas of filtering, digital signal processing, and controls.

#### **E E 383 Signals and Controls Laboratory (1)**

In this course, students will be exposed to designing, simulating and implementing practical circuits for filtering of signals, digital signal processing, and control of physical processes. The design aspect of the course will be a direct extension of the two associated lecture courses (E E 352 and E E 380). The simulations will use industry standard software tools (e.g., MATLAB, Hyperception, C/C++) while the actual implementation will be accomplished using PC based DSP hardware in addition to analog circuitry. This will be a hands-on laboratory intended to augment the material presented in E E 352 and E E 380. Students will be expected to do a large portion of pre-lab work before starting the laboratory session.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

Concurrent: E E 352 ; E E 380

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 387** Energy Conversion (3) Modeling of induction machines, synchronous machines, transformers, and transmission lines.

#### **E E 387 Energy Conversion (3)**

E E 387 is an electrical engineering technical elective course intended for students with an interest in energy conversion in electrical, electromagnetic, electromechanical, and electrochemical systems.

The course begins with a review of static and quasi-static electromagnetics. In particular, methods of determining electromagnetic forces and torques will be discussed in detail. The course will then present methods of developing models for electromagnetic, electromechanical, and electrochemical systems and discuss the use of these models in the analysis and design of devices such as inductors, transformers, actuators, transducers, and rotating machines. Furthermore, fundamental concepts related to the operation of power electronic circuits, which often interface with these types of devices, will be presented.

The course includes a lab component where students gain experience with the analysis and design of energy conversion systems. E E 350, Continuous-Time Linear Systems, is a prerequisite for this course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E E 350 orE E 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 396H** Independent Studies (1-4) Junior-level honors course involving special individual projects under the direction of an electrical engineering faculty member.

#### **Independent Studies (1-4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1993  
Prerequisite: junior standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1993

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 400** Engineering Design Concepts (3) Engineering design and modelling, engineering economy, project planning, capstone project selection, and technical communication skills.

### **E E 400 Engineering Design Concepts (3)**

This course prepares senior electrical engineering students for industrial engineering design and project management. It covers the engineering design process, project planning and evaluation, engineering ethics, and engineering economy. . In addition, students select, specify, and start their capstone design project which is completed in the follow-up course, EE BD 481. Students are expected to carry out a group design project that is on par with industrial expectations. Upon completion of this course a student should have a solid understanding of the engineering design process, a clear capstone project description, should have completed some preliminary design work, and be adequately prepared to complete the project in E E 401.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E E 313W;E E 316;E E 352;E E 380 ; seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 401** Electrical Design Projects (3) Group design projects in the areas of electronics and electrical/computer systems.

### **E E 401 Electrical Design Projects (3)**

In this course students complete their senior design project started in E E 400. Design groups meet regularly with a faculty advisor to report progress and resolve design issues. Oral and written progress reports are expected at selected times. The class culminates with a final technical defense of the project.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E E 400 ; eighth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 403M** Senior Project Design (3) Project designs of electrical engineering systems, encompassing various subdisciplines within Electrical Engineering, with an emphasis on technical communications skills.

### **Senior Project Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: E E 330;E E 350;E E 316 ; and the completion of two Electrical Engineering technical electives  
Concurrent: ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 403W Senior Project Design (3)** Project designs of electrical engineering systems, encompassing various subdisciplines within Electrical Engineering, with an emphasis on technical communications skills.

**E E 403W Senior Project Design (3)**

E E 403W is intended to give senior-year electrical engineering students a "real-world simulation" of a total design experience. This is accomplished through both lectures and a laboratory component. One period each week is devoted to general lectures concerning professional engineering topics. The subjects of these lectures vary but generally are concerned with "life as an engineer" topics that are not purely technical in nature. Topics typically include laboratory safety, quality control, reliability, entrepreneurship, job interviewing, deciding to go to graduate school, ethics, etc.

The focus of the weekly three-period lab varies according to the particular section number. In some sections, the first seven weeks of the semester are devoted to three predefined laboratory assignments. These assignments are often focused on interfacing techniques, such as interfacing between multistage analog systems or between analog and digital systems. In the second half of the course, the student teams work on a major design project chosen by each team, with approval of the instructor.

In other sections of the course, the student teams begin work on a major design project at the beginning of the semester. The projects for these "industrial strength" sections are sponsored by industrial companies through Penn State's Learning Factory.

Multidisciplinary teams are formed by students from E E, M E, I E, and/or Aerospace Engineering.

All sections of E E 403W have a small, section-by-section weekly lecture that is concerned with "life on a project" issues. Some of these lectures may be devoted to design issues directly related to the student projects, but many are still general in nature. Small lecture topics can include the following: what's going on with teaming, engineering economics, TQM/CQI, preparing effective presentations, project management, mechanical packaging, preparations for requests for quotes, preliminary and critical design reviews.

About one third of the course is devoted to technical communication issues. The students must develop good laboratory documentation techniques. They must also prepare a detailed project proposal. Engineering reports are required either upon the completion of each assigned task or, in the "industrial strength" sections periodically to the corporate sponsor. Oral presentations are required for the preliminary and critical design reviews. The students must also submit a final written report. A final oral presentation is made by each team for the student-chosen projects, while the industrial projects are presented in poster format at an end-of-semester product showcase.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 330; E E 350; E E 316 ; and the completion of two Electrical Engineering technical electives

Concurrent: ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 405 Capstone Proposal Preparation (1)** Performing the initial research needed for the capstone course, and the preparation of the written project proposal.

**E E 405 Capstone Proposal Preparation (1)**

The capstone design course will incorporate engineering standards and realistic constraints including most of the following considerations: economic; environmental; sustainability; manufacturability; ethical; health and safety; social; and political. While engineering constraints are included in the earlier courses, the senior capstone design requires integration of the appropriate engineering constraints into the capstone design course. This course will mimic the problems encountered by an engineer working in commercial, industrial, and governmental entities. This basically requires that students in the Electrical Engineering BS program select a topic prior to starting the semester of their capstone design course, do the initial research for the topic, prepare a timeline, and prepare a well written proposal that would make a suitable capstone project. The time devoted to the careful topic selection, research, timeline, and proposal preparation, makes for a much better capstone design experience.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: senior level standing; ENGL 202C; CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 406W Electrical Engineering Capstone Design (3)** Project designs of analog and digital systems, interfacing, and relevant electronic circuits, with an emphasis on technical communications skills.

**E E 406W Electrical Engineering Capstone Design (3)**

E E 406W is designed with the following goals and objectives:

- \* The students will enter the course with a well-defined capstone design proposal and a timeline for which the first task will be to write the specifications. Upon the specifications' approval, the student teams will begin designing and building the projects.
- \* Each student will maintain a laboratory notebook that documents the day-to-day activities of the project in a style that could be used for patent documentation.
- \* Team members will provide short oral and written reports every week for the first five to six weeks, and then, every two weeks until the end of the semester.
- \* The students will incorporate engineering standards and constraints, i.e., consideration of economic, environmental, sustainability, manufacturability, ethical, safety, etc., in their project and final report.
- \* A draft copy of the final report will be collected, critiqued, and returned to students with comments and suggestions for changes.
- \* A final project oral report (20 - 25 minutes) will be given by the project team during the last week of the semester.
- \* An extensive well-written report describing the project that has been designed and built, is the major outcome of the capstone design course.

This course is a required course in the Electrical Engineering BS curriculum and is intended to be taken by seniors as the capstone course for the major. As such, the course integrates materials from many of the undergraduate electrical courses in addition to related math, engineering, and science courses.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2012  
 Prerequisite: E E 405

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 410 Linear Electronic Design (3)** Linear circuit design via integrated circuit processes; A/D converters, switched capacitor filters, phase lock loops, multipliers, and voltage- controlled oscillators.

### **E E 410 Linear Electronic Design (3)**

E E 410 is a technical elective intended for electrical engineering students who wish to specialize in semiconductor circuits, especially in linear circuit design. The course emphasizes integrated circuit process-compatible circuit design techniques in recognition of the amazing synergy that has characterized the relationship between modern circuits and integrated circuit processing technology. This course is the third in a series of three courses dealing with the analysis and design of electronics circuits, following E E 310 and E E 311. E E 410 includes three lectures and a two-hour laboratory each week.

E E 410 begins with a deeper look into several key concepts previously considered in earlier course work, such as node voltage and mesh current methods for solving circuits, which are emphasized throughout the course. The small-signal method is revisited and thoroughly examined. The more advanced Ebers-Moll bipolar junction transistor model is introduced and the metal oxide semiconductor field effect transistor device model is reviewed.

The next phase of the course introduces the vertical geometries of integrated circuit devices commonly used in linear circuits. Unwanted parasitic devices that are introduced as a result of the integrated circuit processes are revealed and their effects on circuit sign techniques operation are discussed. Both the limitations and the opportunities provided by integrated circuit technology are examined, particularly in the light of de used to minimize the problems and to take advantage of the features.

The last half of the course is devoted to applications of linear circuits, especially those which students have not previously encountered. The first topics in this series are analog-to-digital and digital-to-analog conversion. Various methods of accomplishing each of these functions are examined. The inverse relationship between speed and accuracy is emphasized. These topics are followed by studies of switched capacitor filters, phase lock loops, analog multipliers, and voltage-controlled oscillators.

The emphasis of the laboratory component of the course is to successfully accomplish a student-chosen linear circuit design project. Students work in two- or three-person teams to select their project and do the design and evaluation. A three-way methodology is emphasized; mathematical analysis by hand, computer simulation, and laboratory breadboarding and measurement. At the end of the project students give an oral presentation and submit a formal engineering report.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: E E 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 413 Power Electronics (3)** Switch-mode electrical power converters. Electrical characteristics and thermal limits of semiconductor switches.

### **E E 413 Power Electronics (3)**

E E 413 is an elective course taken by undergraduate and graduate electrical engineering students. The objective of E E

413 is to introduce techniques for the analysis, design, and application of the switch-mode power converters that are used in power supplies, motor and actuator drives, and the interface between power distribution systems and emerging energy sources such as fuel cells, photovoltaics, and superconducting magnetic energy storage systems. Several laboratory experiments provide an opportunity to characterize the switching behavior of semiconductor devices, build and test various dc/dc and ac/dc converters, and consider alternatives for gate/base drive and feedback isolation circuits required to build practical converters.

This course draws upon the students' background in time-domain circuit analysis, electronic devices and circuits, Fourier analysis, and use of software such as PSPICE and MATLAB. It does not require a background in power or electric machinery, although students with such a background will be able to appreciate many of the applications more fully.

The course is divided into four major areas: rectifiers and phase-controlled converters, dc-to-dc converters, inverters, and design considerations for practical converters. The focus in each of the first three areas is to determine the relationship between the magnitude of the fundamental frequency component and/or average value of the voltages and currents at the two ports of the particular converter. Additional harmonic or ripple components are then considered and design guidelines for the switching and reactive components are derived. The fourth area encompasses the study of power device characteristics, the design of gate drive and feedback circuits, and the analysis/design of elementary controllers.

As the name implies, students interested in either electronics or power will find this course worthwhile. Electronics students will gain a new perspective on the operation and analysis of electronic circuits as well as an opportunity to discover what has powered the circuits that they have studied up until this course. Power students will see how and why power electronics are revolutionizing motor control and power distribution as well as the power quality issues associated with electronic power conversion.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: E E 310; E E 350 or E E 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 416 (CMPEN 416)** Digital Integrated Circuits (3) Analyses and design of digital integrated circuit building blocks, including logic gates, flip-flops, memory elements, analog switches, multiplexers, and converters.

#### **E E 416 Digital Integrated Circuits (3)**

E E 416 is a technical elective available to electrical and computer engineering students. It is intended for students who wish to specialize in the field of digital circuits. This course introduces the basic concepts involved in the design of digital circuits, which find practical application as logic and memory circuits in computers and other digital processing systems. The course emphasizes integrated circuit process-compatible circuit design techniques in recognition of the amazing synergy that has characterized the relationship between computer circuits and integrated circuit processing technology. This course includes three lectures and a two-hour laboratory each week. The only prerequisite is E E 310, a basic circuits course required for both electrical engineering and computer engineering students.

E E 416 begins with a review of the bipolar junction transistor (BJT) device and proceeds into the more advanced Ebers-Moll device model. This is followed by an examination of a series of BJT-based saturating and non-saturating digital circuits of ever increasing complexity illustrating the evolution of the modern bipolar logic circuit families. The next phase of the course reviews the metal oxide semiconductor field effect transistor (MOSFET) and proceeds along the same path taken for the bipolar transistor circuits. Various MOSFET logic circuit families are introduced and analyzed. Computer semiconductor memory circuits are considered next. Both BJT and MOSFET versions of both static and dynamic read-write and read-only memories are considered. The cell array, memory addressing circuits, and sense amplifier designs are all examined in detail. This is followed by the related subject of programmable logic arrays, the final topic.

The emphasis of the laboratory component of the course is to compare the performance of representatives of each class of circuits to computer simulations of the same circuits. Parameters such as input-output voltage transfer characteristics, noise margins, and propagation delays are evaluated by building and measuring laboratory models. Most of the laboratory exercises require the student to evaluate a specified circuit, but the final exercise requires the student to design a circuit to meet a predefined set of specifications, then to prove that the design meets the requirements by measuring the circuit performance. Students are required to write a formal engineering report detailing the results of each laboratory exercise.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 417 (CMPEN 417)** Digital Design Using Field Programmable Devices (3) Field programmable device architectures and technologies; rapid prototyping using top down design techniques; quick response systems.

#### **E E (CMPEN) 417 Digital Design Using Field Programmable Devices (3)**

Field Programmable Devices, such as Field Programmable Gate Arrays (FPGAs) and Complex Programmable Logic Devices (CPLDs) are widely used for rapid prototyping and quick response-time designs. The objective of this course is to introduce the student to digital design using Field Programmable ICs, and to provide an understanding of the underlying

technologies and architectures of these Integrated Circuits.

The course begins by introducing design alternatives for modern electronic systems identifying and classifying alternative system solutions, and evaluating when particular design solutions are optimal. These alternatives include microprocessors, microcontrollers, off-the-shelf digital ICs, Programmable logic ICs (FPGAs and CPLDs), and various forms of Application Specific Integrated Circuit (ASIC) designs. A homework assignment requires the student to quantitatively evaluate the cost, complexity, packaging, and time-to-market issues for a complex system design specification.

Next, the underlying Field Programmable Logic IC architectures and technologies are studied in detail. Following a broad survey of available programmable IC vendors and on-chip programming technologies (and their cost/performance trade-offs), several specific case studies are presented in the class. The first is the Xilinx XC4000xl line, because of the target boards used in the CAD laboratory component for this class. The initial lab portions of the class help the students to specify their design using various forms of design entry tools and also allows them to see how their design map on to the underlying FPGA architecture. The students also learn the underlying algorithms used by the design software they use in their Labs.

Next, the systematic top-down method for specifying complex designs using VHDL is introduced. Students are given a supporting homework assignment to develop high-level behavioral models for a simple digital system to reinforce this segment of the course. VHDL behavioral synthesis is now introduced as a preferred path to go from high-level system behavior to actual implementation on the FPGA. The strengths and weaknesses of synthesis are discussed, as are the emerging CAD tool trends. Additional VHDL-based homework assignments reinforce behavioral design and synthesis using commercial CAD tools.

The final segment of the class covers special topics that identify current trends in digital system architecture and programmable logic design. These include such topics as partially reconfigurable architectures and dynamic reconfiguration techniques, system design for testability, and field programmable analog arrays. Applications of FPGAs in special purpose computing environments such as signal processing, Java acceleration and image processing are also introduced. In the laboratory, student design project assignments explore larger and more complete system specifications of such things as controllers, CPU and memory design, and signal processing blocks. These assignments reinforce the lecture content as the students model, synthesize and implement their digital designs on the target Xilinx FPGA boards.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPEN 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 420** Electro-optics: Principles and Devices (3) Spatially linear system and transform; diffraction theory, partial coherence theory, optical image detection, storage and display, holography.

### **Electro-optics: Principles and Devices (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1997  
Prerequisite: E E 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 421** Optical Fiber Communications (3) Operational principles of optical components, including sources, fibers and detectors, and the whole systems in optical fiber communications.

### **E E 421 Optical Fiber Communications (3)**

E E 421 is an introduction course to fiber optic communications. This course is designed as an elective course for both the E E senior undergraduate students and E E graduate students. Students are expected to have a general knowledge on fiber optic communications after taking this course. The content of this course focuses on the engineering aspects of fiber optic communications. This course is offered once a year.

This course basically consists of four major parts:

The first part introduces the motivations of using fiber optic communication systems, which include the huge bandwidth, low attenuation, immune from the electromagnetic field interference, et al. (1 week)

The second part of this course deals with light propagation in the optical waveguides. Both the simple geometrical approach and wave optics approach are used to calculate the light propagation in the optical fiber. The geometrical approach (i.e., total internal reflection) provides an intuitive feeling about light propagation in the fiber while the wave optics approach (i.e., Maxwell's equations) provides more accurate solutions. In particular, it can explain important concepts such as the conditions for single mode fiber and intramodal dispersions in single mode optical fiber. With the help of popular calculation software (e.g., Matlab, Mathcad), students are required to solve waveguide equations for single shape optical fibers (such as step index fiber). (5 weeks)

The third part of this course introduces some critical components that are needed in fiber optic communication systems. This includes the optical transmitter (laser diode), optical receiver (i.e., photodetector), modulators and demodulators (such as driving current approach and optical waveguide modulators), optical coupler (how to connect more than two



fibers together), optical amplifier (including the basic principle of erbium doped fiber optic amplifiers), fiber optic gratings (a critical component for the multiple wavelengths fiber optic network systems), dispersion compensation device (such as chirped fiber optic grating based device) et al. (6 weeks)

The fourth part of this course talks about fiber optic networks. The major contents include fiber optic network architectures (such as star connect), multiplexing techniques in fiber optic networks (such as wavelength division multiplexing and time division multiplexing), connection fiber optic networks with non-fiber optic networks (such as copper wire based networks), current trends in fiber optic networks, et al. (2 weeks).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: E E 320;E E 350;E E 340 orE E 341 orE SC 314

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 422 Optical Engineering Laboratory (3)** Hands-on experience covering areas of optical transforms, electro-optics devices, signal processing, fiber optics transmission, and holography.

### **Optical Engineering Laboratory (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1993

Prerequisite: E E 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 424 Principles and Applications of Lasers (3)** Principles of lasers--generation, propagation, detection and modulation; applications in fiber optics communication, remote sensing, holography, optical switching and processing.

### **Principles and Applications of Lasers (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 330E SC 400H orPHYS 400

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 430 Principles of Electromagnetic Fields (3)** Laws of electrodynamics, boundary value problems, relativistic effects, waves in dielectrics and ferrites, diffraction and equivalence theorems.

### **Principles of Electromagnetic Fields (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 330

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 432 RF and Microwave Engineering (3)** Transmission line and waveguide characteristics and components; design of RF and microwave amplifiers, oscillators, and filters; measurement techniques; design projects.

### **RF and Microwave Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: E E 310E E 330

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 438 Antenna Engineering (3)** Radiation from small antennas, linear antenna characteristics, arrays of antennas, impedance concepts and measurements, multifrequency antennas, and aperture antennas.

### **E E 438 Antenna Engineering (3)**

E E 438 is an electrical engineering technical elective course intended for students with a specialization in electromagnetics. This course presents antenna engineering concepts including in-depth studies of various antennas and

arrays and computer modeling of antennas for analysis and design. The course has three lectures each week as well as an additional period for demonstrations and discussions of outside lab and computer projects. This course requires E E 330, the undergraduate electromagnetics course, as a prerequisite.

E E 438 begins with a review of electromagnetics which leads into an introduction of antennas. A lecture is given which shows how the evolution of a guided wave on a transmission line eventually leads into a device that can act as a wave launcher or antenna. A series of lectures are then given introducing the various classes and types of antennas. Performance parameters such as input impedance, radiation patterns, directivity, gain, polarization, and efficiency are then discussed. Examples and pictures of many antennas and their respective patterns are shown as part of these lectures.

Next, extensive lectures are given which describe definitions and antenna parameters in detail. Much time is spent on how to visualize radiation patterns and beamwidth. Derivations are carried out for directivity and gain adhering to IEEE standard definitions.

Theorems are discussed on the subject of reciprocity and how it can be related to practical measurements of patterns. Another lecture deals with the subject of antenna polarization and cross-polarization. Link analysis is discussed for communication systems and real-world examples are given for its use.

The second half of the course involves extensive study of various types of antennas including center-fed dipoles, monopoles, loops, phased arrays, broadband antennas, Yagi antennas, traveling wave antennas, frequency antennas, and aperture antennas.

Throughout the course, students are introduced to and utilize an advanced antenna computer modeling software package for carrying out assigned projects and use in homework problems. They are also assigned a group design project during the last third of the course where extensive use of the software package is required. Each group gives an oral presentation of the project and the results during the last week of class and turns in a final report.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: E E 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 439 Radiowave Propagation in Communications (3)** Radiowave propagation in mobile, terrestrial, and satellite communications; applications at microwave and lower frequencies.

### **Radiowave Propagation in Communications (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E E 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 441 Semiconductor Integrated Circuit Technology (3)** An overview of fundamentals of processes involved in silicon integrated circuit fabrication through class lectures and hands-on laboratory.

### **E E 441 Semiconductor Integrated Circuit Technology (3)**

E E 441 is an elective electrical engineering course typically taken by seniors and graduate students from various majors including electrical engineering, materials engineering, engineering science, physics, and chemistry. Its objective is to introduce students to the processes and procedures involved in the manufacture of advanced silicon integrated circuits (IC) using tools and methods of semiconductor nanotechnology. In the sequence corresponding to the order of IC fabrication steps, the lecture portion of the course covers fundamentals of the formation of single-crystal silicon wafers, epitaxial deposition of thin silicon layers, fundamentals of thin film semiconductors, dielectric and metal deposition techniques, pattern definition by photolithography and etching, dopant introduction, and finally, contact and interconnect metallization. In selected cases theoretical considerations regarding manufacturing steps discussed are supported by process simulation using dedicated software.

Besides the specific objectives listed above this course has a more general goal. Manufacturing methods and tools used to process nanochips represent the most advanced technology across a broad range of engineering domains. Experiences gained in this course advance student's knowledge and understanding of state-of-the-art manufacturing technology that is applicable in several other domains such as nanomaterials, including nanowires, nanotubes, and nanodots, MEMS fabrication, as well as in bioelectronics, molecular electronics, spintronics and others.

In addition to lectures, EE 441 has a laboratory portion that gives students an opportunity to gain hands-on experience with key processes used to manufacture advanced silicon integrated circuits. The laboratory experience helps students appreciate the intricacies of the integrated circuit fabrication procedures as well as establish connection between theoretical concepts and the outcome of the real-life manufacturing process. In the course of ten laboratory sessions students first process from scratch a simple MOS integrated circuit and then test its performance by carrying out a set of electrical tests.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014  
 Prerequisite: E E 310;E E 340 orE E 341 orE SC 314

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 442 Solid State Devices (3)** The physics of semiconductors as related to the characteristics and design of solid state electronic devices.

### **E E 442 Solid State Devices (3)**

The objective of E E 442, an electrical engineering elective course taken by seniors and graduate students, is to develop a rigorous introduction to the relevant concepts in quantum mechanics and statistical mechanics pertaining to understanding the key physical mechanisms that govern the electrical, optical and even mechanical behavior of semiconductor materials and devices.

This course explicitly deals with the physics of operation of electronic and optoelectronic devices, and expounds on the practical aspects of device design given the inherently non-ideal nature of semiconductor devices in real life.

The course typically features a couple of invited guest lectures from leading experts involved in the state-of-the-art research on semiconductor materials and devices so that seniors and first year graduate students learn about the recent advances in electronic and optoelectronic devices which reside outside the scope of the recent text books.

Nanoelectronics today is a very broad discipline that extends the traditional solid-state devices such as transistors, diodes, resistors, capacitors, photodetectors, laser diodes commonly found in electronic and optoelectronic integrated circuits to a variety of emerging technologies such as large area flexible electronics, energy conversion devices, chemical and biological sensors, microelectromechanical devices. A continuous trend of fundamental breakthroughs at the materials and device architecture level keeps this field exciting and opens up new application space hitherto unexplored. The opportunity exists for the students taking this course to get introduced at a broad level to each of these areas. This course will serve as a cornerstone of the students' electronics education should they join the 275 billion dollar global semiconductor industry or should they decide to pursue graduate education in the area of advanced materials and devices.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014  
 Prerequisite: E E 310;E E 340 orE E 341 orE SC 314

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 450 Signal and Image Processing (3)** Linear system analysis in one-dimension and two-dimensions, emphasis on filtering; multi-dimensional signal analysis; image enhancement and reconstruction; computer simulation applications.

### **Signal and Image Processing (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: E E 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 453 Fundamentals of Digital Signal Processing (3)** Design of FIR and IIR filters; DFT and its computation via FFT; applications of DFT; filter implementation; finite arithmetic effects.

### **E E 453 Fundamentals of Digital Signal Processing (3)**

The objective of E E 453, an electrical engineering elective course taken by seniors and graduate students, is to develop a rigorous, yet elementary, introduction to the fundamentals of one-dimensional discrete-time (digital) signal processing. The main topics in the course are the analysis and design of finite impulse response (FIR) and infinite impulse response (IIR) digital filters, the discrete Fourier transform (DFT) and its computation via the fast Fourier transform (FFT), and error analysis due to the constraints of finite arithmetic.

The emphasis on the analysis and design of linear time-invariant discrete-time filters rests on the background acquired in the time as well as transform domain analysis of continuous-time and discrete-time signals and systems interfaced via the Shannon sampling theory.

The students are alerted about topics outside the main thrust of the course mentioned above and these peripheral issues

(that lead to more advanced subject matter pursued in depth in subsequent signal processing courses) include interpolation, decimation, and multirate digital signal processing.

There is also a laboratory portion of E E 453 that exposes students to the use of digital signal processing workstations -- a collection of hardware and software that is used to acquire, digitize, filter, analyze, and display a variety of real-life signals. This hands-on experience helps the student appreciate and understand theoretical concepts covered in class like the sampling and reconstruction of continuous-time signals, IIR and FIR filter design, and error analysis.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 351 or E E 352 or E E 353

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 454 (CMPEN 454) Fundamentals of Computer Vision (3)** Introduction to topics such as image formation, segmentation, feature extraction, shape recovery, object recognition, and dynamic scene analysis.

### **E E 454 Fundamentals of Computer Vision (3)**

E E 454 is an introduction to computer vision. The goal of computer vision is to make computers understand and interpret visual information. Computer vision systems bring together imaging devices, computers, and sophisticated algorithms for solving problems in areas such as industrial inspection, medicine, document analysis, autonomous navigation, and remote sensing. The course involves both pedagogical written assignments and computer projects.

The beginning of the course gives an overview of computer vision and introduces low level image analysis techniques for binary images. Binary vision systems are useful when the silhouette of imaged objects convey enough information to recognize them. Examples can be found in optical character recognition, chromosome analysis and recognition of industrial parts. Moreover, many techniques developed for binary systems can be applied to gray level or color images. Next, the course covers image segmentation and contours. These topics are the foundation of most computer vision techniques. For an image to be correctly interpreted, it must be partitioned into regions that correspond to distinct objects or parts of objects. First, region based techniques such as thresholding, split and merge, region growing and texture analysis are introduced. Next, edge based techniques using gradient and Laplacian operators are discussed. Finally, contour representations and curve approximations linking edges into region boundaries are studied.

Next, depth from vision, with emphasis in stereo vision, is considered. Calculating distances to and among various points in the scene is important in many computer vision tasks such as inspection, robot manipulation, and autonomous navigation. In this part of the course the geometry of stereo systems and how to obtain depth maps from stereo image pairs is studied. Also, alternative 3D imaging sensors such as laser based range finders and radars are discussed.

Following stereo, the topic of computer vision is broaden to understand sequences of images over time. In this section techniques using information on spatial and temporal changes are used to design computer vision systems capable of coping with moving and changing objects, changing illumination and changing viewpoints. Visual motion is important primarily for two reasons. First, motion is a very important cue to understand the scene structure. Second, biological systems do use motion to infer properties of the surrounding world with very little a priori knowledge.

Finally, the topic of 3D object recognition is discussed. Object recognition entails two main issues: object identification and object localization. Identification determines the objects being imaged while localization determines their position in the world and with respect to the sensors. This topic builds upon all the different techniques discussed until this point.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MATH 230 or MATH 231; CMPSC 201 or CMPSC 121

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 455 (CMPEN 455) An Introduction to Digital Image Processing (3)** Overview of digital image processing techniques and their applications; image sampling, enhancement, restoration, and analysis; computer projects.

### **E E (CMPEN) 455 An Introduction to Digital Image Processing (3)**

E E/CMPEN 455, a technical elective available to both electrical and computer engineering seniors and graduate students, discusses many current techniques for processing and manipulating digital images. The course involves both pedagogical written assignments and computer projects.

The beginning of the course gives an overview of digital image processing systems and digital image fundamentals. During this unit, important elements of human visual perception are reviewed; these ideas help motivate many of the computer-based techniques described in subsequent units. Also, the standard model for a digital image, in addition to the concepts of sampling and quantization, are described. Finally, basic topological concepts between digital image pixel are discussed.

The next unit considers image transform analysis, with a primary focus on Fourier-based techniques. The one-dimensional Fourier transform is reviewed, and then two-dimensional Fourier transform analysis is discussed. To bridge the gap from the continuous world to the digital world, the sampling theorem is introduced. Next, the Discrete

Fourier Transform and its properties are described. Fourier-based filtering techniques, such as the ideal low-pass and Butterworth filters are then introduced. The Fast Fourier Transform is also discussed. Finally, the Discrete Cosine Transform, used later in JPEG and MPEG, is introduced.

The next unit discusses techniques for image enhancement and segmentation. These techniques include point-based techniques based on histogram analysis. They also involve linear and nonlinear mask-based methods for noise reduction and region sharpening. Further, techniques of mathematical morphology, which involve an application of set-theoretic concepts to image processing, are described. Finally, image segmentation methods, based on edge detection and thresholding, are described.

The final unit considers the concept of image compression. Techniques for image encoding and decoding are discussed. A brief model of the encoding-decoding process is described. Next, compression techniques, such as run-length encoding and Huffman coding, are described. Finally, the multimedia image-compression methodologies, JPEG and MPEG, are discussed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 350 or E E 353;CMPSC 201 orCMPSC 121

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 456** (E SC 456, EGEE 456) Introduction to Neural Networks (3) Artificial Neural Networks as a solving tool for difficult problems for which conventional methods are not applicable.

### **E (E SC/EGEE) 456 Introduction to Neural Networks (3)**

This course is in response to students needs to learn Artificial Neural Networks (ANN) as a solving tool for difficult problems for which conventional methods are not available. The objective of this course is to give students hands-on experiences in identifying the best types of ANN, plus developing and applying ANN to solve difficult problems. Students will be introduced to a variety of ANN and will use their training skills to solve their own applications. During this course the students will develop a final project, in which they will apply ANN to widely varied problems.

Examples:

I) students from E E may be interested in applying ANN to solve control problems;

II ) students from Material Sciences may be interested in applying ANN to predict the pitting corrosion of components;

III) students from Petroleum Engineering may be interested in applying ANN to characterize the life of a reservoir;

IV ) students from Agricultural Engineering may be interested in applying ANN to sort apples automatically, etc.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 201 orCMPSC 202;MATH 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 458** Digital Image Processing and Computer Vision (3) Principles of DSP and computer vision, including sensing preprocessing, segmentation, description, recognition, and interpretation.

### **E (CSE) 458 Communication Networks (3)**

E E (CSE) 458 is an elective course in both the electrical and computer engineering curricula which provides an overview of the broad field of data and computer communications. First, a general model of the communication task is presented, including the layered concept by which each layer provides services for the layer above. Next, the lowest (physical) layer is studied. This involves signal design, Fourier analysis representations, bandwidth concepts, transmission impairments and communication media properties. Then the next higher (link) layer is considered which involves organizing bits into frames, data link and error control methods (including frame sequence numbering and error detection principles). Multiplexing to share a link is studied, including frequency division multiplexing, dedicated time division multiplexing, and statistical time multiplexing.

At the network layer level, there are two categories: broadcast (usually local area) and switching networks. Broadcast and local area network studies include bus, tree and star topologies, Ethernet, optical fiber bus networks, ring networks, and medium access control protocols.

Switching, and routine, concepts for networks are explained, including both circuit and packet switching, datagrams and virtual circuits. Properties of frame relay and asynchronous transfer mode (ATM) networks are described. Internetworking, frame structures, routing and protocols are studied. Also, bridge routing for local networks is described.

At the still higher transport (network end-to-end control) layer, transport protocols, including TCP/IP, are described.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 460** Communication Systems II (3) Probability fundamentals, digital/analog modulation/demodulation, system noise analysis, SNR and BER calculations, optimal receiver design concepts, introductory information theory.

### **E E 460 Communication Systems Performance Analysis (3)**

E E 460 is an elective course in the electrical engineering curricula that provides detailed performance analysis of communications systems studied in E E 360.

First a review of axiomatic approach to probability theory is presented, including review of random variables, their statistics, central-limit theorem and correlation function. This is followed by a review of the theory of random processes including power spectral density, multiple random processes, their transmission through linear systems and band-pass random processes.

Then, behavior of analog systems in the presence of additive white Gaussian noise (AWGN) is analyzed. As a benchmark, signal-to-noise ratio is derived for a base band system. This is followed by a performance assessment of amplitude modulated and frequency modulated systems and comparison is made to the base band system performance. Concepts of optimum pre-and de-emphasis systems are explained.

Behavior of digital communication systems in AWGN is studied. This includes optimum threshold detection and general analysis of optimum binary receivers. Performance of carrier modulation systems ASK, FSK, PSK and DPSK is derived in terms of average bit error rate (BER) as a function of bit-energy-to-noise density height. M-ary communications systems are analyzed. Synchronization issues are discussed.

This is followed by the theory of optimum signal detection; geometrical representation of signals and signal spaces, Gaussian processes, optimum receiver and equivalent signal sets are illustrated by several examples. BER performance analysis of complex digital modulated systems is demonstrated, using the developed signal space concepts.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 461** Communications I (4) Element of analog and digital communication systems, AM, FM, and digital modulation techniques, receivers, transmitters, and transmission systems, noise.

### **Communications I (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 471** (AERSP 490, NUC E 490) Introduction to Plasmas (3) Plasma oscillations; collisional phenomena; transport properties; orbit theory; typical electric discharge phenomena.

### **Introduction to Plasmas (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 472** (AERSP 492) Space Astronomy and Introduction to Space Science (3) The physical nature of the objects in the solar system; the earth's atmosphere, ionosphere, radiation belts, magnetosphere, and orbital mechanics.

### **Space Astronomy and Introduction to Space Science (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 330 or PHYS 400

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**E E 474 Satellite Communications Systems (3)** Overview of satellite communications systems, principles, space platforms, orbital mechanics, up/down links and link budgets, modulation techniques.

#### **E E 474 Satellite Communications Systems (3)**

This course is designed to give seniors and graduate students an overview of the principles of satellite communications systems. Building on junior-level courses in electromagnetics and communications, it shows how complex satellite systems operate and provide services that we depend on, such as telephone, television, weather forecasting, and global positioning. Specific topics include: historical background on how satellite systems came to be, present uses of satellite systems, and future trends in satellite systems design, construction, and uses; orbital mechanics and launch systems and vehicles; earth stations; radio propagation and link analysis; signals and satellite access methods. Student performance is evaluated via exams, homework assignments, and projects. Hands-on experience in the design of satellite communications links is gained through the use of industry-standard satellite system analysis software. In their design, the student must achieve specific goals of satellite accessibility, earth coverage footprint, orbital launch and stability, and communications link budget.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 330 and E E 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 477 (METEO 477) Fundamentals of Remote Sensing Systems (3)** The review of fundamental physical properties leads into discussions of various techniques, including imaging, spectroscopy, radiometry, and active sensing.

#### **Fundamentals of Remote Sensing Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 330 or METEO 436

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 480 Linear Systems: Time Domain and Transform Analysis (3)** Signals and systems representations, classifications, and analysis using; Difference and Differential equations, Laplace transform, z-transform, Fourier series, FT, FFT, DFT.

#### **E E 480 Linear Systems: Time Domain and Transform Analysis (3)**

Linear Systems: Time Domain and Transform Analysis, is a recommended graduate level course for the Master of Engineering in Electrical Engineering at Capital College, since it is a prerequisite for most of the E E prefixed courses offered at this location. The major topics covered in this course include; Signals and Systems representations, classifications, and analysis using; Difference and Differential Equations, Laplace Transform, z-transform, Fourier series, Fourier Transform, Fast Fourier Transform (FFT), Discrete-Time Fourier Transform (DTFT) and Discrete Fourier Transform (DFT). The objective of this course is to develop intuitive and practical understanding of the essentials in signals and systems. The stress is on fundamentals of representation, and analysis of signals and their applications to systems in both discrete and continuous time and frequency domains. This course is designed to prepare the graduate students for more advanced work in broad range areas including communications, control systems, power systems, computer engineering, signal processing and image processing. The quality of students' performances and therefore their course grades are determined via their performance in a midterm exam, a comprehensive final exam, homework assignments, and a course project in accordance with the university's grading policy.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 481 Control Systems (4)** Classical/modern approaches to system analysis/design; time/frequency domain modeling, stability, response, optimization, and compensation.

#### **E E 481 Control Systems (4)**

This course is designed to provide students with strong foundation in introduction to control systems analysis and design both in the classroom and laboratory settings. This course is a required course in the Electrical Engineering BS curriculum and is intended to be taken by students who have completed their circuits, signals, and systems course requirements as well as having background in mechanics. As such, the course integrates materials from the above undergraduate courses in addition to related math, engineering, and science courses. No special facilities are required for this course other than

laboratories available to the Electrical Engineering Program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E MCH 211;PHYS 211;E E 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 482** Introduction to Digital Control Systems (3) Sampling and hold operations; A/D and D/A conversions; modeling of digital systems; response evaluation; stability; basis of digital control; examples.

### **E E 482 Introduction to Digital Control Systems (3)**

E E 482 introduces fundamental concepts that will enable the student to analyze, design, and synthesize closed-loop systems that contain a digital computer. In order to successfully complete this course the student must have a foundation in classical control (E E 380 or equivalent) and discrete-time system concepts (E E 351 or equivalent). Problem solving is emphasized. Concepts introduced in lecture are reinforced by a series of laboratory projects and weekly problem sets. Through these exercises the student will acquire competence in analytical and computer aided analysis techniques.

The course covers several topic areas including modeling of sampled-data systems, system identification using the batch least squares method, time response characteristics, stability analysis techniques, discrete-time approximation of continuous-time controllers, classical design methods based on root locus and frequency response, and modern design methods including state and observer feedback design.

Laboratory projects include system identification and control design based on the root locus, frequency response, and state-feedback methods. Each project involves the use of either a servomechanism or a fluid testbed. Laboratory projects and problem sets will develop the student's appreciation for computer aided control system analysis and design techniques. Student performance is assessed using homework, laboratory projects, hour exams, and a final exam.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E E 380;E E 351 or E E 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 483** Introduction to Automation and Robotics Systems (3) Introduction to robotics systems with emphasis on robotic motion and control, and robotic components such as actuators and sensors.

### **Introduction to Automation and Robotics Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: E E 481

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 484** Control System Design (3) Analysis and design of automatic control systems using time, frequency domain and state variable methods.

### **Control System Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E E 481

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 485** Energy Systems and Conversion (3) Overview of energy alternatives available, and study of theory of operation and models of major energy conversion devices.

### **E E 485 Energy Systems and Conversion (3)**

The course is designed to give students an overview of available energy alternatives, and to study the fundamental theory of operation and system models for major energy conversion devices. The topics covered give students the tools to assess the viability of various energy options, their applications, and their impact on the environment. Various forms of raw energy sources used in powering conventional electric generating plants such as coal, natural gas, oil, and uranium will be studied, along with worldwide distribution and reserves. The analytical tools for determining quantities of energy that



could be extracted from the wind, water falls, and solar energy sources using practical devices will be presented in the course as well as various case studies. The state of the art in energy storage technology and its impact on electrical vehicle range will be presented in the first half of the semester. The second half of the semester 's devoted to studying the theoretical fundamentals and applications of major energy conversion devices. Magnetic circuits covers the electrical circuit model and analog for studying energy transfer involving magnetic systems. The link to a direct application - power transformers is established, and then to rotating magnetic machines in general. The poly-phase AC induction motor circuit model, energy flow, and selection for various load types will be covered. Modern speed control techniques using inverters will also be covered. The principles of operation of the synchronous energy converter will be explored and its unique features. The power angle characteristics and its relationship to stability of a power system will be covered. Presentation on theory and applications of classical DC motors and generators, and the newer permanent magnet (PM) machines with their superior performance characteristics and energy density will conclude the semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 314 or E E 315; MATH 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 487 Electric Machinery and Drives (3)** Analysis of variable-speed drives comprised of AC electric machines, power converters, and control systems.

### **E E 487 Electric Machinery and Drives (3)**

This course is a technical elective intended for seniors and graduate students interested in electromechanical systems. The first part of the course (approximately two thirds) is devoted to fundamental theory in the modeling and analysis of power converters and AC electric machines. The second part is devoted to the theory and implementation of two specific control schemes: simple volts-per-hertz control applied to the induction machine and high-performance field-oriented control applied to the induction machine and to the permanent magnet machine. The course includes a significant laboratory component consisting of hands-on experience with DSP-based control of drives. Each station in the Electric Machinery and Drives Laboratory is comprised of a dynamometer, an induction machine, a permanent magnet machine, a 3-phase inverter with built-in diode rectifier, a 3-phase power supply, and a DSP-based controller. The DSP-based controller is programmed in the MATLAB/Simulink graphical environment, allowing a student to modify control algorithms easily. Separate computer software allows easy access to controller variables for modification and display. This course builds upon basic knowledge of continuous-time linear systems theory and electric machine modeling. The materials in this course has applications in hybrid/electric vehicles and other transportation systems, industrial processes and automation, and power generation/energy storage systems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: E E 387

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 488 Power Systems Analysis I (3)** Fundamentals, power transformers, transmission lines, power flow, fault calculations, power system controls.

### **Power Systems Analysis I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 387 or E E 485

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 489 Power Systems Analysis II (3)** Symmetrical components, unbalanced networks, unsymmetrical faults, unbalanced operation of rotating machines, transient transmission line modeling, system protection.

### **Power Systems Analysis II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 488

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 494 Senior Thesis (1-9)** Students must have approval of a thesis adviser before scheduling this course.

**Senior Thesis (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1993

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 494H** Senior Thesis (1-9) Students must have approval of a thesis adviser before scheduling this course.

**Senior Thesis (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1993

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1993

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 497A** Principles of Signal Integrity (3) Transmission lines and reflections, lossy lines, rise time, material properties, cross talk in transmission lines. Time and frequency domain measurements.

**Principles of Signal Integrity (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: E E 330E E 352

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 497B** Probability and Random Processes for Electrical Engineers (3) Probability elective for EE/CMPEN students with

applications in information theory, signal detection, control systems and circuit analysis.

**Probability and Random Processes for Electrical Engineers (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: E E 350 or E E 353

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 497B** Probability and Random Processes for Electrical Engineers (3) Probability elective for EE/CMPEN students with applications in information theory, signal detection, control systems and circuit analysis.

**Probability and Random Processes for Electrical Engineers (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: E E 350 or E E 353

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 497C** Application of Optics in Communications, Lighting and Power (3) Applications of optical engineering in communications (e.g. fiber optics), lighting (e.g. LEDs), and Power (e.g. solar energy). st.

**Application of Optics in Communications, Lighting and Power (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: E E 340 and E E 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 497E** Software-defined Radio (3) An overview of the principles of software-defined radio systems with laboratory component.

**Software-defined Radio (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: E E 351E E 360

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 497E** Software-defined Radio (3) An overview of the principles of software-defined radio systems with laboratory component.

**Software-defined Radio (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: E E 351E E 360

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E E 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Electrical Engineering Technology (EET)

**EET 002S** Introduction to Engineering Technology (1) Introduction to engineering technology and the use of computer methods for analyzing and solving engineering technology problems; microcomputer fundamentals, word processing, spreadsheet, and database software packages.

### **EET 002S Introduction to Engineering Technology (1)**

The primary objective of this course is to teach basic computer skills and the use of basic computer word processing and spreadsheet applications, as well as the fundamentals of formal report writing. More specifically, students learn to use Microsoft Word (word processing) and Excel (spreadsheet) for the preparation of laboratory reports and business documentation. In addition to these applications, the course should also address as many of the following topics as possible:

- \* Windows operating system
- \* Selection of a personal computer
- \* Communication through electronic mail (e-mail)
- \* Use of the World Wide Web
- \* Preparation of professional letters and reports
- \* Use of an HTML editor to create web pages and use of File Transfer Protocol
- \* Integration of drawing, image, and spreadsheet files into word processing documents
- \* Technical problem solving

The course should also provide the student with an introduction to the field of engineering technology, with a discussion of job and educational opportunities in the field. Homework and other exercises should, wherever possible, allow the student to investigate the different aspects of engineering technology, or to interact with other faculty, students, or professionals involved with engineering technology.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 100** Electric Circuits, Power, and Electronics (3) AC and DC circuits; machinery; controls; and introduction to electronic devices, circuits, and instrumentation.

### **EET 100 Electric Circuits, Power, and Electronics (3)**

Electric Circuits, Power, and Electronics is a course for non-major students who will be working with electronic equipment in industry. This course starts with basic knowledge of DC and AC components and concepts used in industrial electrical work. Topics such as circuits, electromagnetism, sources, energy conversion and electrical instruments prepare students to continue with topics in electronics. Beginning with the basics of semiconductors and moving through diodes and transistors, the student is prepared to learn the concepts of rectification and amplification. These form a foundation for the completion of the course with a look at understanding the concepts and use of analog and digital circuitry found in Programmable Logic Control (PLC) systems used in industry today.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: MATH 082 or MATH 041

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 101** Electrical Circuits I (3) Fundamental theory of resistance, current, and voltage; capacitance, inductance. Direct current and alternating current concepts through series/ parallel circuits.

### **EET 101 Electric Circuits I (3)**

Electric Circuits I has been designed to accomplish several related goals. A basic understanding of voltage, electric current and resistance is established early in the course. Then resistance becomes a focal point of the course as resistance of copper and other materials is examined. Resistance as a function of temperature is also considered. Efficiency, electric energy and electric power concepts are developed. A considerable effort is devoted to resistors in series, parallel and series parallel arrangements. Voltage sources in series and parallel are also considered. Resistive circuits with one voltage source are considered. Branch circuit analysis using Kirchhoff's Voltage Law (KVL) and Kirchhoff's Current Law (KCL) receives considerable attention. The basic nature of Capacitance and Inductance is examined in great detail. Transient analysis of resistive- capacitive circuits and resistive - inductive circuits is covered. Sinusoidal waveforms, frequency and phase relations are introduced. Complex and polar numbers are introduced, as tools for AC circuit analysis. AC circuits with resistance, capacitance and inductance are explored. Power factor and power in AC circuits also receive considerable attention. Throughout the course, computer software is utilized for circuit analysis and evaluation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: or concurrent:MATH 081

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 105 Electrical Systems (3)** Introduction to the study of electrical systems, with a focus on applications in our society.

### **EET 105 Electrical Systems (3)**

EET 105 is an introductory course in electrical systems and circuits. It is an entry level course intended to give students the big picture of the electrical technology spectrum. The course will cover the fundamentals circuit analysis such as: Kirchhoff's laws, parallel and series circuits, and superposition. The course then applies this knowledge to various commonplace electrical systems (toaster, electric toothbrush, fan, etc.). The course also gives students a broad, limited exposure to the breath of electrical systems by including components and topics such as resistors, capacitors, inductors, switches, relays, fuses, amplifiers, transformers and motors.

Topics covered include:

- Electrical Safety and House Wiring
- Electrical Science
- Electrical Generation and Utilization
- Electrical Circuits and Analysis
- Electrical Instrumentation and Measurements
- Electronics
- Electrical Systems
- Electrical Machines

The course will emphasize the basic concepts, principles, and analytical models used by engineers and technologists to design, develop and test electrical systems. The course does so from a top down, non-detailed systems perspective. Upon completion of this course, students will have a broad perspective of the electrical technology spectrum as they gain a deeper focused knowledge in subsequent courses.

Lectures will be supported by laboratory exercises in which the student learns about electrical instrumentation and performs electrical measurements on circuits and systems. Students will also be required to complete an electrical system project of their choosing. Students will be required to prepare written laboratory reports outlining the laboratory activity. Reports will be graded based both on their technical quality and their grammatical and professionalism.

Students in EET 105 will be required to use computers in both class and laboratory exercises to simulate electrical circuits and systems and also produce high quality laboratory reports.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MATH 021 or greater placement

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 109 Electrical Circuits Laboratory I (1)** Use of basic electrical instruments to measure AC and DC voltage, current, power, resistance. Introduction to report writing.

### **EET 109 Electric Circuits Laboratory I (1)**

Electric Circuits Laboratory I provides a variety of experiences building electric circuits and utilizing voltmeters, ammeters, ohmmeters and oscilloscopes to take electrical readings. Emphasis is placed on using computer spreadsheet software and computer analysis software. Throughout the course, technical writing is utilized to describe electrical experiment results. Concepts presented in EET 101 are utilized through this course.

Experiments related to resistor color code, the ohmmeter and Ohm's Law provide a elementary understanding of resistance as well as the measurement of voltage, electric current and resistance. Experiments with resistors in series, parallel and series-parallel arrangements provide experience with electric circuit construction and electric circuit analysis in a laboratory situation. Kirchhoff's Voltage Law (KVL) and Kirchhoff's Current Law (KCL) receive considerable attention.

Capacitors are studied in charging and AC circuits. The oscilloscope and signal generator are introduced and utilized in later experiments. AC resistive- capacitive circuits and resistive - inductive circuits are built and analyzed.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: or concurrent:EET 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 114 Electrical Circuits II (4)** Direct and alternating current circuit analysis including Thevenin and Norton Theorems, mesh, node analysis. Capacitance, inductance, resonance, power, polyphase circuits.

#### **EET 114 ELECTRICAL CIRCUITS II (4)**

Electrical Circuits II is the second of two circuit courses aimed at developing fundamentals of electrical circuit operation and analysis. It covers topics in graphical analysis of circuit operation; capacitive, inductive, and magnetic circuits; and sinusoidal excitation and AC reactance due to inductors and capacitors.

EET 114 is normally taken in the second semester of the freshman year concurrently with a coordinated lab course, EET 118. Completion of EET 114 provides a student with all the circuit analysis fundamentals that will be needed for later courses in electronics and AC machinery.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: EET 105MATH 026

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 118 Electrical Circuits Laboratory (1)** Use of basic electrical instruments to measure AC and DC voltage, current, power, resistance, and lab reporting.

#### **EET 118 Electrical Circuits Laboratory II (1)**

Electrical Circuits Laboratory is typically taken concurrently with EET 114. The course is a 1 credit course that meets for one 2-hour session each week. Exercises in the lab guide are coordinated with materials being covered in the EET 114 course. All lab exercises involve hands-on work with equipment, and many of the labs are supported by computer activities that help the student collect and interpret data. The computer exercises are coordinated with the lab guide materials. Students are required to submit formal, written lab reports for many of the exercises.

Material covered in the EET 118 lab include exercises in graphical circuit solutions, charging and discharging characteristics of capacitors, reactance and impedance measurements in AC circuits, and circuit resonance. The EET 118 lab is the first lab in which students get significant exposure to the oscilloscope, function generator, and other more sophisticated laboratory equipment.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: EET 105  
Concurrent: EET 114

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 205 Semiconductor Laboratory (1)** Laboratory study of semiconductor devices and circuits.

#### **EET 205 Semiconductor Laboratory (1)**

Semiconductor Laboratory is the experimental laboratory course that supports EET 210, the first linear electronics course.

The lab meets each week in a single 2-hour session during which students work with the actual devices and circuits discussed in the EET 210 lectures. Students build and test the actual circuits analyzed in class, which gives them an opportunity to understand, first-hand, the practical implications of the theory and the limitations of the analytical models covered in class. Circuits that are typically tested in EET 205 include inverting and non-inverting amplifiers, comparators, integrators and differentiators, low- and high-pass filters, and timer and oscillator circuits.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

Concurrent: EET 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 210 Fundamentals of Semiconductors (2)** Semiconductor and circuit theory including power supplies, amplifiers, power amplifiers, oscillators, and introduction to op-amps.

### **EET 210 Fundamentals of Semiconductors (2)**

Fundamentals of Semiconductors is the first of a 2 course sequence that examines the physics and operation of the four basic forms of linear amplifier circuits. It does so by examining the operation and modeling of typical circuits built from operational amplifiers, including inverting and non-inverting amplifiers, transconductance and transresistance amplifiers, voltage followers, instrument amplifiers, summing amplifiers, and other circuits capable of performing mathematical functions. The course also examines a variety of practical non-linear electronic circuits, including integrators, differentiators, log function amplifiers, filters, and oscillators. Issues of frequency response, circuit stability, negative feedback, and compensation are covered in the course. The course also touches on problems of D-to-A and A-to-D conversion and electronic communication. In all areas, issues related to device characteristics and their impact on circuit operation and device selection are covered.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: EET 114MATH 082

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 212W Op Amp and Integrated Circuit Electronics (4)** Analysis and design of amplifier, rectifier, filter, comparator, oscillator, and other practical circuits using op amps and integrated circuit devices.

### **EET 212W Op Amp and Integrated Circuit Electronics (4)**

EET 212W provides students with a basic understanding of the operation and functions of general-purpose linear and non-linear electronic circuits typically found in industrial applications. The course provides background on the basic operating characteristics of key semiconductor devices (diodes, transistors, FETs, etc.); however, the emphasis is on the operation, analysis, design, and application of circuits that use op-amp's and various linear integrated circuit devices to perform typical electronic functions. Topics covered include:

- Open- and closed-loop amplifier operation and feedback concepts
- Inverting, non-inverting, differential, and instrumentation amplifiers
- Summers, comparators, clippers, clammers, and function generator circuits
- Integrators and differential circuits
- Filter and oscillator circuits
- Rectifier and regulator circuits

The course will emphasize the concepts, principles, procedures, models, and computations used by engineers and technologists to analyze, select, specify, test, maintain, and design modern electronic systems. Particular emphasis will be given to circuits and applications prevalent in modern instrumentation and control systems. Modeling detail and the sophistication of mathematical analyses will emphasize the application of standard methods with the aid of computers.

Lectures will be supported by laboratory exercises in which students will investigate actual operating characteristics of devices and circuits explained in the classroom. Lab activities will emphasize comparisons of theoretical and actual performance. Students will also be expected to develop proficiency making electronic circuit measurements using standard laboratory instruments. Laboratory activities will also form the basis for the "W" designation assigned to this course. Students will be required to use standard analysis and reporting tools to prepare formal, written laboratory reports for a substantial portion of all laboratory activities undertaken in the class. Reports will be graded based both on their technical and grammatical quality and on their professionalism.

A complete understanding of the electronic circuits covered in this course requires the use of computers. Thus, students in EET 212W will be required to use computers in both class and laboratory exercises to model and simulate the relevant performance of circuits studied.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: EET 114ENGL 015MATH 022 orMATH 040 orMATH 082

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 213W Fundamentals of Electrical Machines Using Writing Skills (5)** AC and DC machinery principles and applications; introduction to magnetic circuits, transformers, and electrical machines including laboratory applications.

**EET 213W Fundamentals of Electrical Machines Using Writing Skills (5)**

EET 213W is devoted to the study of ac and dc electrical machines and power conversion equipment. The course teaches fundamental concepts of electromagnetic circuits as they relate to the physical forces that act on electrical conductors moving in magnetic fields, and the electrical currents and voltages induced in those conductors by that same motion. The course covers characteristics of magnetic materials and how they influence the operation of electrical machines, and investigates how these properties and principles are used to develop simple yet practical models of various electromotive and power conversion devices.

Presentation of principles and theory will be relatively rigorous; however, the level of modeling detail and the sophistication of mathematical analyses of machine operation will be limited to first order (i.e., linear) and some simple second-order (non-linear) approximations.

Students in EET 213W should gain a sound understanding of how and why ac and dc motors and generators, and single phase ac transformers work as they do. The understanding should extend to cover most types of motors, generators, and transformers commonly used in industry today. Students should also understand and be able to apply the basic mathematical and electrical models developed in the course to determine the power requirements, power capability, efficiency, operating characteristics, control requirements, and electrical demands of these machines when used in typical applications. Students will also gain a general knowledge of how motors, generators, and transformers are constructed, and understand the reasons behind the various construction techniques that are used.

EET 213W is also a "writing-intensive" course, which means one of the course objectives is to teach students to prepare formal, written documents about technical subjects. Thus, students will be required to do a significant amount of writing in the course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: EET 114EET 118ENGL 015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 214 Electric Machines and Energy Conversion (3)** Fundamental operating principles, characteristics, and analysis of electric machines, transformers, and power systems.

**EET 214 Electric Machines and Energy Conversion (3)**

The purpose of EET 214 is to introduce students to the electromechanical energy conversion components associated with power system generation, utilization, transmission, and distribution. The course teaches fundamental concepts of electromagnetic circuits as they relate to the induced voltages and physical forces acting on electrical conductors within magnetic fields. The course covers characteristics of magnetic materials and how they influence the operation of rotating electrical machines and transformers, and investigates how these properties and principles are used to develop simple yet practical models of various power conversion devices. Basic control of AC motors, such as starting, reversing, plugging, and variable speed operation using volts per hertz is discussed in the course. Following the study of the basic components of the power system (motors, generators, and transformers), the course will provide an introduction to power systems engineering. This introduction shall include any the following topics: power distribution fundamentals and protection, power flow, analysis and load flow studies of small power systems, and computer solutions for larger power system studies.

Topics covered include:

- Magnetics: energy conversion principles, motor and generator action
- Transformers: Single-phase, 3-phase, and autotransformers; per-unit representation
- Induction Machines: construction, operation, modeling, characteristics, and basic control methods
- Synchronous Machines: construction, operation, modeling, characteristics, motor and generator operation, power factor control, power delivery
- Power System Representation
- Power System Analysis

Presentation of the principles and theory will be relatively rigorous; however, the level of modeling detail and the sophistication of the mathematical analyses of machine operation will be limited to first order (i.e. linear) and some simple second-order (non-linear) approximations.

Students in EET 214 should gain a sound understanding of electrical machines and transformers and their models, and this knowledge should be extended so that the models are used in the analysis of power systems. Students should be able to apply the basic mathematical and electrical models developed in the course to determine power requirements, power capability, efficiency, operating characteristics, and electrical demands of these components when used in typical applications.



The course will require that students apply basic knowledge of electric circuit analysis, electric machines, and engineering concepts to analyze and solve technical problems, using the assistance of computer tools as necessary.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: EET 114EET 118

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 215 Electric Machines and Energy Conversion Laboratory (1)** Laboratory study of electric machine applications, transformers, and power systems.

### **EET 215 Electric Machines and Energy Conversion Laboratory (1)**

The purpose of EET 215 is to provide students with practical experience with electromechanical energy conversion components associated with power system generation, utilization, transmission, and distribution. The laboratory experiments in this course will demonstrate empirically the concepts introduced in the companion lecture course, EET 214.

Topics covered include:

- Magnetics: energy conversion principles, motor and generator action
- Transformers: single-phase, 3-phase, autotransformers; per unit representation
- Induction machines: operation, modeling, characteristics, basic controls
- Synchronous machines: motor, generator, power factor control
- Power system representation and analysis

Laboratory activities will require that students apply basic knowledge of electric circuit analysis, electric machines, and engineering concepts to analyze and solve technical problems, using the assistance of computer tools as necessary. Students will be expected to develop proficiency in instrumentation using standard lab equipment, and will be required to use standard analysis and reporting tools to prepare formal laboratory reports and oral presentations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: EET 114EET 118  
Concurrent: EET 214

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 216 Linear Electronic Circuits (3)** Theoretical study of linear electronic devices and circuits, including field effect transistors, integrated circuits, and operational amplifiers.

### **EET 216 Linear Electronic Circuits (3)**

Linear Electronic Circuits is the second course in a 2-course sequence that examines linear electronic circuits using semiconductors. It picks up where EET 210 leaves off and delves into the actual devices used to develop amplifiers and op-amp devices. This includes study of the biasing and operation of diodes, zeners, bipolar junction transistors, junction and metal-oxide field effect transistors, and thyristors. The design and operation of CE, CB, and CC transistor amplifiers and CS, CD, and CG FET amplifiers are covered in detail. Students are introduced to the fundamental theory of operation of each of the devices and circuits and are provided with practical models to analyze their operation. Questions of amplifier gains, power efficiency, and frequency response are covered for these devices and circuits just as they were for the op-amp circuits covered in EET 210. A portion of the course also examines class A, AB, and B power amplifiers and power regulation circuits.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: EET 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 220 Programmable Logic Controllers (2)** An introduction to programmable logic controllers (PLCs); topics covered include programming, troubleshooting, networking, and industrial applications.

### **EET 220 Programmable Logic Controllers (2)**

The Programmable Logic Controllers (PLCs) course will teach students fundamentals of programming, installation and use, troubleshooting, and networking of industrial grade, state-of-the-art PLCs. Programming instruction will be based on standard ladder logic concepts and will cover the use of relay logic for I/O and memory control; applications of timers, counters, and sequencers; and the effective use of program flow control instructions to manage PLC operations. Data manipulation using standard digital and arithmetic programming instructions will also be covered. Concepts in analog

data I/O and advanced programming methods will be introduced. Class room instructions will be supported by laboratory activities in which students will use PLCs to perform typical industrial control functions. Lab exercises will be designed to ensure students learn the practical aspects of installing, programming, troubleshooting, and networking PLCs in situations typical of industrial use. Upon completing this course, students should be capable of recognizing industrial control problems suitable for PLC control, conceptualizing solutions to these problems, and then, using standard programming software, develop, enter, and debug moderately complex programs to solve these problems. They should also be able to install PLC units, interface them with I/O channels and standard data networks, and troubleshoot I/O and networking problems. Student achievement in the course will be assessed using a combination of methods. Grasp of lecture materials will be determined via quizzes, major exams, and out-of-class problem assignments. Lab performance will be assessed through a combination of structured lab exercises and one or more application-focused projects. Both the lab exercises and the project activities will require students to demonstrate proficiency with actual PLC equipment and produce written and/or oral reports. The PLC course will presume students have prior knowledge of digital electronics and electromechanical relays. Therefore, a digital circuits course and an electrical machinery course are appropriate prerequisites.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPET 117

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 221 Linear Electronics Laboratory (1)** Laboratory study of transistors; study of differential and operational amplifiers. Emphasis is placed on circuit design.

### **EET 221 Linear Electronics Laboratory (1)**

Linear Electronics Laboratory is the experimental laboratory course that supports EET 216, the second electronics course. The lab meets each week in a single 2-hour session during which students work with the actual devices discussed in the EET 216 lectures and build and test the circuits analyzed in class. This gives them an opportunity to understand, first-hand, the practical implications of the theory and analytical models covered in class. Experimental topics that are covered in EET 221 include diode and rectifier circuits, BJT and FET biasing techniques, common BJT and FET amplifier designs, power supply circuits, and IC power supply regulators. Many lab exercises are supported by computer simulations using industry-standard simulation software.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: EET 205  
Concurrent: EET 216

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 275 Introduction to Programmable Logic Controls (3)** Principles of industrial control, programming, interfacing, input/output devices, and applications.

### **EET 275 Introduction to Programmable Logic Controls (3)**

Introduction to Programmable Logic Controls is a required course for sophomore-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. Programmable Logic Controllers are one of the fastest growing multi-billion dollar segments of industry. This course provides an in-depth introduction to these devices and their use in modern process industries. Starting with an overall look at the block and modular type PLC, digital inputs, digital outputs and devices such as pushbuttons, pressure switches, motors, and indicators demonstrate the elementary application and system design to which they are applied. Ladder logic programming techniques encompass gate logic, contact/coil logic, timers, counters, arithmetic functions and number comparisons. An introduction to analog input and output applications, along with study of the Proportional+Integral+Differential (PID) process function, and PLC communication networks prepare the technologist for advanced courses on these topics. The lab component of this course provides live experience with all these concepts along with industrial problem solving experience by using indicating and actuating real-time positional and process applications.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: CMPET 117CMPET 120

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 280 System Integration Project (1)** Schematic design, circuit board layout and fabrication, mechanical housing fabrication.

### **System Integration Project (1)**

General Education: None

Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014  
 Prerequisite: EET 212W ; Prerequisite or concurrent:EG T 119

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 311** Alternating Current Circuits (4) Circuit analysis including controlled sources, op amps, and ideal transformers, and calculus relationships; one/two port network models; three- phase and industrial loads.

### **EET 311 Alternating Current Circuits (4)**

E E T 311 is intended to provide competency in analysis of circuits and application of basic electrical principles including equivalent circuits and models, power and energy, and signal/energy transfer. The course will introduce ideal amplifier models, ideal op-amps and ideal transformers as circuit elements and one-port networks (Thevenin, Norton, and driving point impedance), and two-port networks (Z, Y, H, G, T, and T-l) as equivalent circuits. Since this is the first required course taken by all upper division electrical engineering technology students, ethics and professionalism will be discussed by and expected of the students. Grades will be based on four or five exams including a final exam (65%), laboratory work (20%), computer projects requiring the use of circuit simulation software, spreadsheets, and math packages (10%), and student professionalism (5%). The IEEE code of ethics and the Penn State policy on academic integrity will be applied in the instructors judgment of student professionalism. This course requires calculus through integral and differential calculus of transcendental functions. It provides the circuit analysis skills required in almost every other E E T course and is a specific prerequisite for analysis of signals and systems (E E T 312) and understanding semiconductor models and electronic circuits (E E T 330).

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: MATH 140  
 Concurrent: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 312** Electric Transients (4) Applied differential equations; in-depth study of transient electricity using Laplace, Fourier transforms, and state-space methods; Bode plots and application.

### **EET 312 Electric Transients (4)**

This course is designed to provide students with a strong foundation in transient circuit analysis in addition to introduction to signals and systems. The primary objective of the course is to reinforce continuous-time system fundamentals in order to prepare the students for more advanced work in a broad range of areas including communications, control, signal processing and image processing. The topics covered in this course include:

1. Applied differential equations.
2. Transient analysis of RC, RL, and RLC circuits, using differential equations.
3. Complex frequency.
4. Network functions.
5. Bode plots and frequency response.

6. Filter networks and resonant circuits.
7. Laplace transform pairs, and their applications in circuit analysis.
8. Fourier analysis techniques; Fourier series, transform pairs, and their applications in circuit analysis.
9. State-variable circuit analysis.

This course is a required course in the Electrical Engineering Technology BS curriculum and is intended to be taken by students who have completed their first circuits course requirements. As such, the course integrates materials from the above undergraduate course in addition to related math, engineering technology, and science courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: EET 311E E 314 orE E 315;MATH 141

Concurrent: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 315 Linear and Discrete System Analysis (3)** Introduction to the principles and operation of linear and discrete systems.

### **EET 315 Linear and Discrete System Analysis (3)**

Linear and Discrete System Analysis is a required course for junior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to introduce the students to linear system analysis, primarily using Laplace transforms. Students learn the concept of a transfer function, and are able to analyze both the transient and steady state response of a system. Students then learn about discrete time systems, including z-transforms, difference equations, and basic digital filters. Laboratory exercises reinforce concepts developed in lecture.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: CMPET 301 . Prerequisite or concurrent:MATH 250 orMATH 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 320 Industrial Electricity and Electronics (3)** Basic circuit theory applied to DC/AC circuits containing resistors, inductors, capacitors; magnetic circuits; power; control; electronic applications.

### **EET 320 Industrial Electricity and Electronics (3)**

This course is designed to offer non-electrical students the opportunity to become familiar with the theory and operation of electrical, electronic, and electromechanical devices that are widely used in practice. The course concentrates on the most important concepts, rather than in-depth treatment of any individual area. The number of units covered depends on the class background. The topics covered in this course include:

1. Introduction
2. DC Networks
3. AC Networks
4. Magnetism
5. DC & AC Machinery
6. Selected topics depending on class background (if time permits): Basic electronic devices and their applications; Integrated circuits and their applications; Power Distribution; Transducers & signal conditioning; Control Systems Electronic Instrumentation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MATH 140PHYS 150 orPHYS 250 orPHYS 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 330 Wireless Communications Systems (3)** Wireless communications technology, transceivers, modulation techniques, serial communications, and applications. Personal area networks, local area networks, RFID systems.

### **EET 330 Wireless Communications Systems (3)**

Wireless Communications Systems is a required course for junior-level students pursuing the Electrical Engineering Technology (EET) option in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The course provides a foundation in spectrum analysis, filtering, serial communications, analog modulation and demodulation, and digital modulation and demodulation. The course discusses applications utilizing infrared (IR) and radio frequency

(RF) technologies. Applications for wireless networking include the development of personal area networks (PAN) and local area networks (LAN). The course also introduces radio frequency identification (RFID) systems and applications. Laboratory exercises reinforce concepts developed in lecture.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: EET 341CMPET 301 ; prerequisite or concurrent:EET 315MATH 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 331 Electronic Design (4)** Analog/Digital and Digital/Analog Converters; advanced and nonlinear Op-Amp circuit design; noise analysis; Active Filters and Waveform Generators.

### **EET 331 Electronic Design (4)**

E E T 330 is intended to provide competency in the application of basic electronic principles to design with operational amplifiers and integrated circuits. The course will include analog-to-digital and digital-to-analog conversion techniques; introduction to the feedback principles and non-ideal aspects of operational amplifiers including noise - needed for advanced design with op-amps; some nonlinear op-amp circuits - including comparators, Schmitt triggers, pulse width modulation, and ideal rectifiers, active filter design and waveform generator design. Grades will be based on 3 or 4 exams including a final exam (65%), laboratory work, computer projects requiring the use of circuit simulation software, spreadsheets, and math packages, and homework (30%), and student professionalism (5%). The IEEE code of ethics and the Penn State policy on academic integrity will be applied in the instructor's judgment of student professionalism. This course requires calculus through integral and differential calculus of transcendental functions, advanced circuit analysis techniques (E E T 311, E ENG 354, or E ENG 352), and knowledge of frequency response analysis techniques (E E T 312). It provides the electronic circuit analysis and design skills required in the Electronics, Systems, and Technical Electives in the General Electrical Engineering Technology Option and the Applications and Technical Electives in the Computer Engineering Technology Option.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: EET 311 or E E 314 or E E 315; EET 205 and EET 210 or concurrent E E 310

Concurrent: EET 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 341 Measurements and Instrumentation (3)** Measurement concepts, transducers, electronic-aided measurement, mechanical and electrical measurements. Intended for electrical engineering technologists.

### **EET 341 Measurements and Instrumentation (3)**

Measurements and Instrumentation is a required course for junior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to understand the principles of measurement systems. The course enables students to design software for programming PC-based data acquisition (DAQ) systems, understand various sensors, design signal conditioning circuits for interfacing sensors to DAQ systems, and design various types of measurement systems. Laboratory exercises reinforce concepts developed in lecture.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CMPET 117EET 212W . Prerequisite or concurrent:MATH 141 or MATH 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 341 Measurements and Instrumentation (3)** Measurement concepts, transducers, electronic-aided measurement, mechanical and electrical measurements. Intended for electrical engineering technologists.

### **EET 341 Measurements and Instrumentation (3)**

Measurements and Instrumentation is a required course for junior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to understand the principles of measurement systems. The course enables students to design software for programming PC-based data acquisition (DAQ) systems, understand various sensors, design signal conditioning circuits for interfacing sensors to DAQ systems, and design various types of measurement systems. Laboratory exercises reinforce concepts developed in lecture.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: CMPET 117EET 212W . Prerequisite or concurrent:MATH 141 or MATH 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 402** High-Frequency Circuit Design (4) Electromagnetic theory as applied to the design of antennas, waveguides, and high-frequency components.

**High-Frequency Circuit Design (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: senior standing in Electrical Engineering Technology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 408** Communication System Design (4) Communication system principles including modulation techniques, encoding and decoding, noise, and elementary probability.

**Communication System Design (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: senior standing in Electrical Engineering Technology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 409** Power System Analysis I (4) Analysis and applications study of power utility electrical equipment such as: synchronous machines, transformers, capacitors and transmission lines.

**Power System Analysis I (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: senior standing in Electrical Engineering Technology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 410** Power System Analysis II (4) Principles of load studies, fault analysis, stability and protection of the public electrical power system.

**Power System Analysis II (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: senior standing in Electrical Engineering Technology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 413 Optoelectronics (4)** Principles and applications of optoelectronics including sources, detectors, imagers, transmitters, fiber optics, systems and integrated optics.

**Optoelectronics (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: senior standing in Electrical Engineering Technology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 414 Biomedical Instrumentation (4)** Introduction to transducers and circuits used to detect and process medical physiological data with focus on cardiovascular and respiratory systems.

**Biomedical Instrumentation (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: EET 312EET 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 416 Fluid and Thermal Design in Electrical Systems (3)** Introduction to basic electrical engineering technology concepts and applications of thermodynamics, heat transfer, and fluid power in electrical/ electronic systems.

**EET 416 Fluid and Thermal Design in Electrical Systems (3)**

Fluid and Thermal Design in Electrical Systems is a required course for senior-level students pursuing the electrical engineering technology (EET) option in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to teach principles of thermal sciences with an emphasis on electrical/electronic system applications. The course enables students to understand fundamental principles of thermodynamics, heat transfer, and fluid mechanics as they apply to thermal management of electronic systems. These principles include the first law of thermodynamics, the continuity equation, basic principles of system pressure loss and fans, the three modes of heat transfer, resistance analogy for heat flow, and the finite difference method for analyzing two-dimensional heat flow. Specialized CFD software is used to analyze temperatures in electronic systems. Laboratory exercises reinforce concepts developed in lecture.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: EET 315;MATH 211 orMATH 231MATH 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 419 Project Proposal Preparation (1)** Performing the initial research needed for the senior project course, and the preparation of the written project proposal.

**Project Proposal Preparation (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: senior standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 420W Electrical Design Project (3)** Design, construction, and testing of a project either selected by the students with approval or assigned by the instructor.

**EET 420W Electrical Design Project (3)**

This course is designed with the following goals and objectives:

1. The students will enter the course with a well-defined project proposal and a timeline for which the first task will be to

- write the specifications. Upon the specifications' approval, the student teams will begin designing and building the project.
2. Each student will maintain a laboratory notebook that documents the day-to-day activities of the project in a style that could be used for patent documentation.
  3. Team members will provide short oral and written reports every week for the first five to six weeks, and then every two weeks until the end of the semester.
  4. The students will incorporate engineering standards and constraints, i.e., consideration of economic, environmental, sustainability, manufacturability, ethical, safety, etc., in their project and final report.
  5. A draft copy of the final report will be collected, critiqued, and returned to students with comments and suggestions for changes.
  6. A final project oral report (20-25 minutes) will be given by the project team during the last week of the semester.
  7. An extensive, well-written report describing the project that has been designed and built is the major outcome of the project course.

Grades for the course will be based on:

Weight Factor

- a. Written specifications for the project
- b. General conduct in the laboratory including lab notebook
- c. Oral and written progress reports including question-and-answer sessions
- d. Final oral and written reports including question-and-answer sessions

This course is a required course in the Electrical Engineering Technology BS curriculum and is intended to be taken by seniors as the capstone course of the major. As such, the course integrates materials from many of the undergraduate electrical courses in addition to related math, engineering technology, and science courses. This course should be taken during the last semester (prior to graduation).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: EET 312EET 331EET 419ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 431** Advanced Electronic Design (4) Applications of analog and digital integrated circuits; introduction to analog and digital communication techniques.

#### **Advanced Electronic Design (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: EET 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 433** Control System Analysis and Design (4) Classical and modern control analysis and design approaches, such as Laplace and state-space, aided by analog and digital computers.

#### **Control System Analysis and Design (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: EET 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 440** Applied Feedback Controls (3) Analysis and design of analog and digital feedback control systems.

#### **EET 440 Applied Feedback Controls (3)**

Applied Feedback Controls is a required course for senior-level students pursuing the electrical engineering technology (EET) option in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to teach principles of feedback control systems. The course enables students to understand different elements of a feedback control system. System stability is determined, including phase and gain margin, through the use of Bode analysis techniques. Different control schemes are investigated, with emphasis on PID control. Laboratory exercises, including the construction of various control systems, reinforce concepts developed in lecture.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: EET 315



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 450** Manufacturing Related Topics in Electrical Systems (3) Manufacturing methods, including reliability and quality control considerations as applied to electrical and electronic systems.

#### **EET 450 Manufacturing Related Topics in Electrical Systems (3)**

Manufacturing Related Topics in Electrical Systems is a required course for senior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. This course will introduce the student to statistics, probability, reliability, quality-control theory and best practices used in the manufacturing of commercial and government products and processes. Minitab or an equivalent industrial statistical software tool will be introduced and used by the students to help simulate and solve selected homework problems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: MATH 211 ; or MATH 231 MATH 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 456** Automation and Robotics (4) Introduction to robotic systems and automation. Emphasis includes robot motion, control, and components, as well as programming PLCs.

#### **EET 456 Automation and Robotics (4)**

The objective of this course is to use a hands-on approach to introduce the basic concepts in robotics, focusing on mobile robots and illustrations of current state of the art applications. The course is offered at the senior undergraduate level with emphasis on kinematics, dynamics and control of robot arms. Course materials are tied to lab experiments in which students will work in teams to build and test mobile robots (such as LEGO-based robots).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: EET 331 CMPET 403 ; Prerequisite or concurrent: MATH 220; EET 433

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 458** Digital Signal Processing (3) Continuous and discrete time signals, Fourier series and transform, z-transform, sampling, FIR and IIR filters, FFT, DFT, and applications.

#### **EET 458 Digital Signal Processing (3)**

Digital Signal Processing is a technical elective course for senior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. This course will introduce the student to digital signal processing, DSP, using both mathematical and real signal generation. The applications of DSP are quite varied, ranging from cell phones to motor control systems. DSP signals and systems topics for discussion include but are not limited to: mathematical representation of signals, sampling and aliasing, FIR filters, z-transforms, and spectrum representation & analysis. The lab component of the course will allow students to explore DSP topics of interest using various hardware and software programming tools.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: EET 315 CMPET 355

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 461** Power Electronics (3) Fundamentals of power electronic circuits, semiconductor power devices, power conversion equipment. Circuit topologies, closed-loop control strategies, equipment design consideration.

#### **EET 461 Power Electronics (3)**

Power electronics is a technical elective for senior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The course introduces students to the different topologies used to convert electrical power via the use of solid state switching. Specifically, the course presents ac-dc, ac-ac, dc-dc and dc-ac converters. The different switching devices used (diodes, SCRs, MOSFETs, etc.) are discussed. Laboratory exercises complement the lecture material. Relevant topics such as power quality, EMI and applications of power electronics are presented.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: EET 212WEET 214EET 315

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 461 Power Electronics (3)** Fundamentals of power electronic circuits, semiconductor power devices, power conversion equipment. Circuit topologies, closed-loop control strategies, equipment design consideration.

### **EET 461 Power Electronics (3)**

Power electronics is a technical elective for senior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The course introduces students to the different topologies used to convert electrical power via the use of solid state switching. Specifically, the course presents ac-dc, ac-ac, dc-dc and dc-ac converters. The different switching devices used (diodes, SCRs, MOSFETs, etc.) are discussed. Laboratory exercises complement the lecture material. Relevant topics such as power quality, EMI and applications of power electronics are presented.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: EET 212WEET 214EET 315

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 475 Intermediate Programmable Logic Controllers (3)** Application of programmable logic controllers (PLCs) to data acquisition, automation and process control.

### **EET 475 Intermediate Programmable Logic Controllers (3)**

Programmable logic controllers (PLCs) are the workhorse of the automation and process control industry. Their rugged design and ease of programming enables PLCs to operate in almost any manufacturing environment. PLCs are employed wherever measurement equipment and computers are needed to control large electrical equipment such as motors and actuators. In this course, students apply their knowledge of basic PLC programming to see how the PLC can be used to communicate with other equipment, sense and react to external stimuli, and provide both open loop and closed loop system control.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: EET 220 or EET 275 and EET 315

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 478 Digital Communication Systems (4)** Discrete signal analysis, A/D conversion, digital modulation techniques, encoding, decoding, data communication, noise.

### **Digital Communication Systems (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: CMPET 403

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 480 Electrical and Computer Systems Senior Seminar (1)** Concepts of career development; project management; engineering design documentation; industrial design examples.

### **EET 480 Electrical and Computer Systems Senior Seminar (1)**

Electrical and Computer Systems Senior Seminar is a required course for senior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to introduce students to the practices associated with managing an industrial-based project. Student teams begin working on a capstone project. Project definition, specification development, scheduling, engineering constraints, and budgeting of both time and money are discussed. Other issues of career development are presented, such as interviewing, resume preparation, and career opportunities. Ethical issues related to the discipline are discussed. Engineering economy is

introduced.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: EET 341EET 330 orCMPET 333CMPET 355ENGL 202C . Prerequisite or concurrent:ECON 102 orECON 104

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 490W** Electrical/Computer Senior Design Project (3) Individual or group design projects in electrical and computer engineering technology.

### **EET 490W Electrical/Computer Senior Design Project (3)**

The Electrical/Computer Senior Design Project is a required course for senior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to have teams of senior students continue the senior design project they had started the prior semester in their Senior Seminar. The course focuses on project-based work where teams design, build, test and document the results of their senior design project effort. The course integrates and applies prior knowledge learned throughout the curriculum.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: EET 480 . Prerequisite or concurrent:EET 450

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experience, practica or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 496A** Polygon Analysis Using Computer Aided Design Program (1-6) Qualitative and Quantitative analysis of various two dimensional polygons to establish a metric for evaluation of symmetry.

### **Polygon Analysis Using Computer Aided Design Program (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: EG T 119 orEDSGN 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EET 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Electro-Mechanical Engineering Technology (EMET)

**EMET 222** Mechanics for Technology (4) Strength of materials and dynamics, including axial, shear, torsion, and bending stresses, beam deflection, kinematics and kinetics of rigid bodies.

### EMET 222 Mechanics for Technology (4)

Mechanics for Technology is a required course for sophomore-level students in the Electro-Mechanical Engineering Technology (EMET) baccalaureate degree program. The purpose of this course is to give students the ability to calculate engineering stresses, strains, and deflections using the applied forces and reactions obtained from static equilibrium calculations. It also teaches students how to determine the displacement, velocity, and acceleration of some particle and rigid body motions.

EMET 222 contributes to the following two EMET Program Outcomes. The specific performance measures supporting the program outcomes are listed following each outcome.

#### OUTCOME 2:

Students should be able to apply concepts of calculus, differential equations, and probability and statistics to the design and analysis of electromechanical systems.

#### OUTCOME 5:

Students should be able to apply engineering mechanics, engineering materials, machine design, and fluid mechanics to the development, operation, troubleshooting, and maintenance of electromechanical systems.

The specific course outcomes supporting the program outcome are presented below:

#### OUTCOME 2:

- Students will use the laws of beam diagrams to relate the load, shearing force, and bending moment diagrams to each other and to draw complete shear and bending moment diagrams for beams carrying a variety of loading patterns and with a variety of support conditions.
- Students will be able to apply the differential calculus relationships between displacement, velocity, and acceleration to calculate kinematic and kinetic quantities for rectilinear and curvilinear motion.

#### OUTCOME 5:

- Students will be able to calculate normal stresses, shear stresses, bearing stresses in axially loaded structural members.
- Students will be able to compute the maximum shear stress and angle of twist of members loaded in torsion.
- Students will be able to compute the stress at any point within the cross-section of a transversely loaded member and to describe the variation of stress with position in the beam.
- Students will be able to determine the required dimension of various key mechanical and structural components based upon the principles of static analysis of forces/moments and the determination of force induced tension/compression and shear stresses. The applicable material failure stresses will be used as a basis for determining the required safe dimensions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: MCH T 111

Concurrent: MATH 083 or MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 230** Computerized I/O Systems (3) Introduction to concepts of structured programming, data acquisition, computerized interfaces, and graphical user interfaces.

### EMET 230 Computerized I/O Systems (3)

EMET 230 is designed to provide the students with the knowledge of steps and issues to be addressed when deciding on computerized input-output systems. Understanding the basics property, classification and types of signals, significant figures, rounding off, etc. Steps in choosing hardware and understanding the principles used in the software design to develop friendly user interfaces.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Concurrent: EET 212W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 325 Electric Drives (3)** Study of operation, application and specification of AC/DC electrical drive motors, servos, actuators, control units and power converters.

### **EMET 325 Electric Drives (3)**

EMET 325 provides students with a basic understanding of the operation, capabilities, limitations, and selection of electrical drive devices and drive controls typically found in industrial manufacturing and production systems. The course provides background on the basic operating characteristics of variety of drive devices, both AC and DC; however, the emphasis is on the practical limitations and typical application of these devices. Particular emphasis will be given to concepts and topics important to the selection, implementation and operation of electrical drives in common industrial applications.

Lectures will be supported by classroom demonstrations of setup, connection, and operating characteristics of devices covered in lectures. These demonstrations will emphasize typical uses of the devices studied.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: EET 212W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 326 Mechanical Drives (3)** Transmission of force and motion using linkages, cams, gears, belts, and hydraulic and pneumatic drives.

### **EMET 326 Mechanical Drives (3)**

EMET 326 is designed to provide the students with the knowledge of various mechanical drives used in engineering. The course introduces the concepts displacement, velocity and acceleration analysis of linkages, cams, gears and belts. Instructor may employ purely geometric methods or combine it with vector approaches. Differential and integral calculus for some of the topics and may considering using techniques of optimizations for mechanism synthesis. Static and dynamic force analysis of linkages is studied.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: EMET 322 or EMET 222

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 330 Measurement Theory and Instrumentation (3)** Fundamentals of measuring, transmitting, and recording temperature, pressure, flow, force, displacement, and velocity; laboratory component emphasizes systems used in manufacturing.

### **EMET 330 Measurement Theory and Instrumentation (3)**

The purpose of EMET 330 is to familiarize students with the measurement and instrumentation systems typically used in automated manufacturing and automated process industries. The primary focus of the EMET degree program is the technology of automated control, and measurement and instrumentation systems are essential elements in the control of any industrial or manufacturing process. This course is designed to cover those topics in process measurement, data monitoring, signal conditioning, and data acquisition that are typical in such control systems.

The majority of industrial instrumentation systems involve measurement of position, displacement, velocity, force, flow, pressure, or temperature. EMET 330 will cover the common techniques used to make these types of measurements. Measurement systems also require signal conditioning and amplification to convert primary sensor signals into practical analogs that can be used in electronic controls. EMET 330 will also cover fundamentals of signal conditioning and amplification, including analog and digital data acquisition techniques, D-to-A and A-to-D conversion methods and equipment, and fundamentals of automated data acquisition and instrumentation-computer interfacing. Finally, accurate application of any measurement requires an understanding and proper application of basic statistical methods of data reduction. EMET 330 will include coverage of these topics as well.

EMET 330 is also a lab-based course. Thus, students in the course will be required to conduct lab exercises in which they actually use industrial-quality sensors, transmitters, signal conditioning equipment, and data acquisition systems to gain experience with how these devices actually perform.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: EMET 230 ; Prerequisite or concurrent: MATH 211 or MATH 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 350** Quality Control, Inspection, and Design (3) Fundamentals of quality including statistics, probability, and design of experiments.

**EMET 350 Quality Control, Inspection, and Design (3)**

The purpose of EMET 350 is to familiarize students with the use of statistical methods to measure, describe, and control the quality of products and processes. This will be done by teaching students the statistical and probabilistic methods that are applied to quality monitoring and quality control; the typical methods used to monitor, describe, and control quality; and the accepted methods for designing effective statistical experiments to characterize quality.

Specific topics that will be covered include:

Basic statistical concepts, measures, and tools

Basic concepts of continuous and discrete probability, probability distributions, populations, and samples

Standard sampling methods

Data presentation tools, including histograms, frequency charts, stem-leaf plots, Pareto charts, etc.

Control charting tools and methods as applied to both variables and attributes, including x-bar/R charts, x-bar/s charts, median/R charts, trend charts, charts of non-conformities or nonconforming items, etc.

Standard measures of process capability

Acceptance sampling techniques, methods, and tools

Concepts of gage control

Methods and tools for design of statistical experiments

The course will also introduce students to standard computer tools for statistical and quality control computations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 394** EMET Student Design Competition (1-3 per semester/maximum of 3) Students collaborate on research and design of appropriate solutions to real-life problems and projects.

**EMET Student Design Competition (1-3 per semester/maximum of 3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: junior-level standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 396** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 397A** Automotive Manufacturing Techniques in Germany (0.5) Research automated manufacturing techniques and document actual observations after touring several German manufacturing facilities and museums related to auto manufacturing.

**Automotive Manufacturing Techniques in Germany (0.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 401** Engineering Technology Career Development (1) Career planning, preparation, and decision making for students enrolled in an Engineering Technology baccalaureate degree program.

**EMET 401 Engineering Technology Career Development (1)**

EMET 401 Engineering Technology Career Development is intended to offer students skills relating to career planning, preparation, and decision making. Traditionally, students in technical programs are trained well in the technical skills, but are not necessarily educated with regard to job search skills or career-related topics. The intent of this course is to make students aware of the resources available to them, to educate them with regard to career planning activities, to engage students in the job search process early in their academic careers, and to enlighten students with regard to the multitude of options available to them, both upon graduation and later in their careers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: seventh semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 402** Fundamentals of Engineering Review (2) Overview of the topics covered on the Fundamentals of Engineering Exam administered by the NCEES for the purpose of earning a Professional Engineering license.

**EMET 402 Fundamentals of Engineering Review (2)**

EMET 402 Fundamentals of Engineering Review is intended to provide students with an overview of topics covered on the morning portion of the Fundamentals of Engineering Exam. Passage of the exam, administered twice per year by the National Council for Examiners for Engineering and Surveying (NCEES), is the first step toward Professional Engineering licensure. Since students have already taken courses that cover all of the subject areas, this course merely serves as a review of these topics in order to help the student prepare for the exam.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: seventh semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 403** Electromechanical Design Project Preparation (1) This course involves the planning and preliminary design activities for the capstone electro-mechanical design project.

**EMET 403 Electromechanical Design Project Preparation (1)**

EMET 403, Electromechanical Design Project Preparation, involves the planning and development of a design plan for a project to be completed in the capstone electro-mechanical project design course, EMET 440, which is required for all Electro-Mechanical Engineering Technology baccalaureate degree students. Both EMET 403 and EMET 440 require formal report writing, project documentation, and group presentations. In EMET 403, students will present design plans to a faculty panel for review and approval. In this planning and design development process, students will be required to follow a rigorous design methodology. To support the process, EMET 403 will include instruction in the use of project management software, and students will undergo the typical process of periodic design reviews and critiques as their plans evolve. Finally, EMET 403 is a team-based course. All project designs will be prepared by teams of two or more students. Generally, these same teams will be maintained through actual completion of the project in the following project design course, EMET 440. Because of this linkage of EMET 403 and EMET 440, both in design plans and team structure, it is essential that students schedule EMET 403 in the semester immediately prior to the semester in which they will register for EMET 440.

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General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: seventh semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 405 Fluid Mechanics and Heat Transfer (3)** Introduction to the principles of fluid mechanics and heat transfer with emphasis on the application to practical problems.

#### **EMET 405 Fluid Mechanics & Heat Transfer (3)**

This course is designed to provide students with knowledge in fluid statics, fluid dynamics, and heat transfer. The emphasis of the course is to introduce them to the fundamental laws and principles of these engineering sciences, and to give them experience in solving problems using these laws and principles. The instructor may employ methods of differential and integral calculus as a part of selected topics. The fluid mechanics portion of the course introduces the students to fluid statics (e.g. hydrostatic pressure on submerged surfaces) and to fluid dynamics (e.g. continuity equation, energy equation, and laminar and turbulent flow). The heat transfer portion of the course introduces the three modes heat transfer: conduction, convection and radiation. It also covers an important type of heat transfer equipment, the heat exchanger.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2013  
 Prerequisite: EMET 326 and MATH 211 or MATH 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 410 Automated Control Systems (4)** Introduction to analog feedback control theory and computer simulation and analysis using Matlab; laboratory study of feedback systems.

#### **EMET 410 Automated Control Systems (4)**

Automated Control Systems is a required course for senior-level students in the Electro-Mechanical Engineering Technology (EMET) baccalaureate degree program. The main goal of the course is to teach students the concepts of automated control by coupling theory, industrial practices, and appropriate laboratory activities. The course demonstrates that physical processes can be represented by differential equations and hence, Laplace transforms. It teaches students how to measure and modify a system's performance in a variety of ways as well as how to make use of time-domain techniques, root locus and Bode plots. Improving student communication skills is also a goal of this course.

The specific EMET program outcomes addressed by the course are:

##### **OUTCOME 1:**

- Students will readily recognize the availability of and be able to apply electrical, fluid and mechanical analogues for use in system models.
- In laboratory exercises, students will correctly design and test control systems as applied to integrated electrical and mechanical systems.

##### **OUTCOME 2:**

- Students will develop linear, constant coefficient, ordinary differential equations from electromechanical system models, and solve them using Laplace transform techniques.

##### **OUTCOME 6:**

- Students will correctly analyze and design analog control systems to meet performance requirements by using computer



tools to perform root locus, frequency domain, and time domain analysis and design.

**OUTCOME 8:**

• Students will correctly design and test analog control systems, including proportional, integral and derivative (PID) feedback control and other compensators in laboratory exercises. This includes tuning PID controllers.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: MATH 211 or MATH 250 ; Prerequisite or concurrent: EMET 330

Concurrent: EMET 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 430 Programmable Logic Controls II (3)** A second course in PLCs covering sequencing/shift instructions, program flow control, data and math instructions, PID loops, and machine communication.

**EMET 430 Programmable Logic Controls II (3)**

The objective of EMET 430 - Programmable Logic Controls (PLC) II course is to give students an in-depth understanding of the advanced control, programming, I/O, communications, and distributed processing capabilities of modern PLCs. The objective is achieved through coordinated lecture and laboratory activities. Lectures cover theoretical and operational concepts; laboratory exercises will require students to apply lecture concepts to actual control problems using real equipment.

EMET 430 is a senior-level elective in the Electro-Mechanical Engineering Technology program. It is intended for those students who want to expand their PLC knowledge beyond the basics covered in required courses in the EMET curriculum. Students must have prior knowledge of basic PLC capabilities, ladder logic programming, and general methods of interfacing PLCs with external devices. This background is typically obtained via the EE T 220 - Programmable Logic Controls (or equivalent) course.

By building on prior concepts of ladder logic and simple relay/contactors style programming, EMET 430 can focus on the applications, programming, and use of specialty I/O modules and advanced control technologies available in state-of-the-art PLCs. The following major topical areas will generally be covered:

advanced programming instructions related to program flow control, data manipulation, mathematical computations, and timing/sequencing functions;

use of specialty processor and I/O modules (viz., analog current and voltage I/O, digital I/O, thermocouple and RTD interface devices, specialized motor controls, etc.);

advanced technology that adapts PID capabilities to PLC systems permitting them to be used when circumstances require dynamic, closed-loop feedback control; and  
standard installation and safety practices for PLC installations.

Programming tasks in the course will be carried out using modern operator interface equipment and software to ensure that students understand the capabilities and limitations of those systems. The course will also examine the capabilities, flexibility, and limitations of computer-linked, distributed PLC systems, including study of the communication technologies and systems currently used by industry. Generally, a capstone student project will be used to tie all these concepts together and to give students direct, hands-on experience with actually setting up and operating a PLC-based control system.

Performance in the lecture portion of the course will typically be evaluated by a combination of major exams, short quizzes, and out-of-class problem and programming assignments. Performance in the laboratory will typically be evaluated based on a series of both formal and informal lab reports documenting programming solutions to assigned control problems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: EET 220 or EET 275

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 432 Electromechanical Devices for Biomedical Instrumentation (3)** A study of electromechanical devices, transducers, and instrumentation used in the biomedical field.

**EMET 432 Electromechanical Devices for Biomedical Instrumentation (3)**

This course concentrates on electromechanical devices and equipment (used in a hospital setting) that involve determining information about a patient's health or controlling treatment. Basic components of such equipment include transducers that convert physiological events to electrical signals, imaging devices such as charge coupled arrays, electronic control systems, and mechanical systems such as pumps. The design and use of such equipment will be demonstrated.

Upon completion of this course, the student should be able to: describe basic human physiology and systems; explain how various biomedical instrumentation functions and how biomedical measurements are made; explain how a variety of biomedical transducers work and how they are interfaced to biomedical equipment; describe various physiological signals such as ECG and EEG; perform various mechanical and electrical calculations that are used in biomedical instrumentation; complete and explain a block diagram for the design process of biomedical instrumentation; design electronic amplifier circuits used in biomedical instrumentation; explain how various regulatory agencies such as the FDA, FCC, IEC, and UL are involved in the regulation of biomedical equipment.

This course is a 400 level technical elective course in the EMET program. Students will use their knowledge in math, science, and physics to understand biomedical instrumentation devices and systems. This course will apply previous knowledge in measurement theory and instrumentation to various devices and measurements in the biomedical field. In addition, this course will look at total systems for biomedical instrumentation, including transducers, data acquisition, analysis and feedback. System design that includes both digital and analog circuits will be covered in detail.

The type of required equipment that should be demonstrated and explained should include: electrodes, sensors, cardiovascular measurement devices such as EKG equipment, respiratory therapy equipment, and ultrasound equipment. In addition, a study of the electrical, mechanical, and system schematics should be included. A hospital demonstration tour should be included for larger radiological equipment.

Students' academic achievement will be evaluated using exams, quizzes, term paper and/or research project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: EMET 330;PHYS 151 orPHYS 212 orPHYS 251 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 440** Electro-Mechanical Project Design (3) Planning, development, and implementation of electro-mechanical design project; includes formal report writing, project documentation, group presentations, project demonstrations.

### **EMET 440 Electro-Mechanical Project Design (3)**

Electro-Mechanical Project Design is to provide students with theoretical and practical experience associated with the integration of the various disciplines within the field of electromechanical engineering technology. Students working in teams will employ previously developed and approved design plans to construct, demonstrate, and document an integrated, electromechanical system. Plans for designs will come from the results of the project design preparation course, EMET 403, conducted in the immediately preceding semester. Thus students in EMET 440 are expected to have participated in the design development process that occurred in that same offering of EMET 403. Projects will be required to use a variety of electromechanical equipment, including such items as robots, machine vision systems, programmable logic controllers, personal computers, electric motors, CNC equipment, etc. Appropriate project documentation exercises, project presentations, progress reporting, budgeting and scheduling, system performance to specifications, and development of final design reports will be required elements of the course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: EMET 325;EMET 326;EMET 410EMET 403

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EMET 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Elementary Education in Multicultural Settings (ELEDM)**

**ELEDM 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ELEDM 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ELEDM 395W** Field Experience for Urban Teacher Preparation (2 per semester, maximum of 6) Structured opportunities for investigating and understanding the work of teachers within urban schools and communities.

#### **Field Experience for Urban Teacher Preparation (2 per semester, maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: C I 295EDPSY 014EDTHP 115  
Concurrent: SPLED 444 ELEDM 400 ELEDM 401A OR ELEDM 402

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ELEDM 400** Schools, Families and Communities (3) Cultural and ethnic dimensions of family-school-community communications and the resultant impact on student-teacher relations.

#### **ELEDM 400 Schools, Families and Communities (3)**

This course examines the cultural and ethnic dimensions of multicultural schools, families, and communities. It examines some of the contextual challenges of multicultural schools in several communities and their impact upon students and teachers. In response to these challenges, the course explores specific strategies for making classrooms responsive to diverse learners. Thus, the course is designed to help prospective teachers begin to formulate a comprehensive understanding of the challenges facing diverse learners and develop knowledge-based responses to those challenges that promote success for the learners. A major emphasis of the course is upon the strengths of diverse learners and the school's responsibility for building upon those strengths in order to enhance student learning. This course also

emphasizes the importance of families, schools, and communities working together to support students' development. It is expected that this course will help prospective teachers develop understandings, skills, and positive attitudes that will enable them to work successfully with diverse learners in the elementary grades.

This course requires extensive reading, in-class discussion, writing, research, and weekly field experiences. The latter provides opportunities to observe and interview teachers and work closely with small groups of students. Readings may include chapters from texts, scholarly articles, and materials from appropriate web sites. After readings, analysis and discussion, students will conduct a final research project that includes a research paper and an oral presentation. The purpose of the project is to provide a description and analysis of a multicultural community. The paper must include a detailed history of the community, a description of the community today, major changes that have taken place and their impact upon the quality of life for its residents. This project provides students an opportunity to discover first hand the nexus between schools and communities. Students must present their research in class during the last week of the semester.

Because of the interactive nature of the class, active participation is expected. As the first required major course in the Elementary Education in Multicultural Settings (ELEDM) program, it contributes to the body of knowledge and the practicum courses designed for students interested in working with multicultural learners.

This course is offered fall semester only at the Delaware Campus. Because of the weekly field experiences, the interactive nature of the class, and the need to provide students with detailed feedback on their assignments, class size should not exceed 20-25.

Student performance will be assessed by objective midterm and final examinations; projects showing extensions and applications; student participation in class; and practicum assessment (concurrent).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: C I 295EDPSY 014EDTHP 115 6 credits of social/behavioral sciences

Concurrent: EDTHP 411 ELEDM 395W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ELEDM 401A Teaching Reading in Multicultural Elementary Schools (3)** An exploration of current research, practices, strategies and materials in the development of reading skills in multicultural schools.

### **ELEDM 401A Teaching Reading in Multicultural Elementary Schools (3)**

This course provides an exploration of current research, practices, strategies and materials in the development of reading skills in multicultural elementary schools. The development of literacy skills is fundamental to learning at the elementary school level. Thus, it is critical that prospective teachers develop the knowledge, skills, and attitudes that foster the development of successful strategies for teaching reading skills.

Among the topics explored in the course are: principles of reading instruction, balanced literacy instruction, word identification strategies, directed reading activities, comprehension strategies, guided reading, language experience activities, and literature-based reading programs. Particular emphasis is given to cultural and linguistic diversity, learning differences/special needs/gifted.

A major requirement of the course is the development of lesson plans for teaching reading. Lesson plans must incorporate state literacy standards. Students are expected to implement some of their reading plans during their weekly field experiences and receive feedback from their mentor teacher as well as their university supervisor. It is the combination of intensive coursework and concurrent field experiences that enable prospective teachers to acquire some of the knowledge, skills, and attitudes needed to successfully teach diverse learners.

This course is part of a three-course literacy focused program of study: ELEDM 401A, TEACHING READING, ELEDM 401B TEACHING LANGUAGE ARTS, and ELEDM 401C CHILDREN'S LITERATURE. Each of these courses is taken during the spring semester of the junior year along with the field experience course. They contribute to the body of knowledge and the practicum courses designed for students interested in working with multicultural learners.

The objectives of ELEDM 400, 401A, 401B, 401C, 402, and 403 are consistent in that each course develops understandings, skills, and positive attitudes toward the multicultural/urban/multilingual learner. From the research literature on theoretical and pedagogical orientations, ELEDM students acquire a theoretical appreciation of a research base, unique to each of the ELEDM courses, that permits knowledge-based responses to special contextual problems. In addition, processes inherent in multicultural schooling, committees, and related institutions highlight the impacts of these orientations on multicultural learners. Finally, the courses identify the implications of these orientations for schools, families, programs, staff development, the assessment of children, and the reporting of assessment of results.

Because of the weekly field experiences, the interactive nature of the class, and the need to provide students with detailed feedback on their assignments, class size should not exceed 20-25. This course is offered during the spring semester.

Student performance will be assessed by objective midterm and final examination; projects showing extensions and applications; student participation in class; and practicum assessment (concurrent).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: ELEDM 400

Concurrent: ELEDM 395W ELEDM 401B ELEDM 401C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ELEDM 401B Teaching Language Arts in Multicultural Elementary Schools (3)** An exploration of current research, practices, strategies and materials in the development of language arts skills in multicultural schools.

### **ELEDM 401B Teaching Language Arts in Multicultural Elementary Schools (3)**

This course explores current research, practices, strategies, and materials in the development of language arts in multicultural schools. The course enables prospective teachers to apply research in literacy to the development of teaching methods in the language arts. The course emphasizes the principles, problems, materials, and techniques involved in teaching reading, writing, listening, and speaking in the elementary schools. Particular attention is given to the nature of literacy development and teaching language arts in multicultural schools.

This course requires extensive reading, discussion, writing, research, and weekly field experiences. The latter provides opportunities to observe teachers and work closely with small groups of students on a variety of language arts activities. Readings may include chapters from texts, scholarly articles, and materials from appropriate web sites. After readings, analysis and discussion, students will conduct a final research project explaining how they will teach language arts. Their paper must summarize relevant research and ideas from the course and describe how they plan to teach listening, reading, speaking, and writing. Finally, students must describe a lesson they taught at their practicum site. Students are also expected to develop a thematic unit and present it in class.

This course is part of a three-course literacy focused program of study: ELEDM 401A, TEACHING READING, ELEDM 401B TEACHING LANGUAGE ARTS, and ELEDM 401C CHILDREN'S LITERATURE. Each of these courses is taken during the spring semester of the junior year along with the field experience course. They contribute to the body of knowledge and the practicum courses designed for students interested in working with multicultural learners.

The objectives of ELEDM 400, 401A, 401B, 401C, 402, and 403 are consistent in that each course develops understandings, skills, and positive attitudes toward the multicultural/urban/multilingual learner. From the research literature on theoretical and pedagogical orientations, ELEDM students acquire a theoretical appreciation of a research base, unique to each of the ELEDM courses, that permits knowledge-based responses to special contextual problems. In addition, processes inherent in multicultural schooling, committees, and related institutions highlight the impacts of these orientations on multicultural learners. Finally, the courses identify the implications of these orientations for schools, families, programs, staff development, the assessment of children, and the reporting of assessment of results.

Because of the weekly field experiences, the interactive nature of the class, and the need to provide students with detailed feedback on their assignments, class size should not exceed 20-25. This course is offered during the spring semester.

Student performance will be assessed by objective midterm and final examination; projects showing extensions and applications; student participation in class; and practicum assessment (concurrent).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: ELEDM 400

Concurrent: ELEDM 395W ELEDM 401A ELEDM 401C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ELEDM 401C Teaching Children's Literature in Multicultural Elementary Schools (3)** Survey of children's literature with an emphasis on multicultural literature and its application in multicultural elementary classrooms.

### **ELEDM 401C Teaching Children's Literature in Multicultural Elementary Schools (3)**

This course provides a survey of children's literature with a particular emphasis upon multicultural literature and its application in elementary classrooms. This course enables prospective teachers to recognize books that appeal to children, analyze and evaluate children's literature, use literature to affirm cultural diversity, develop greater sensitivity to biases and cultural assumptions in children's books, and learn about significant authors, illustrators and trends in the field of children's literature.

Readings, class discussions, and weekly field experiences provide some of the major learning experiences of the course. In addition, students are expected to create book files consisting of five children's books from each of six genre (i.e. picture books, poetry, fantasy, contemporary realistic fiction, and non-fiction). To improve their reading skills, students are required to perform a dramatic reading and tape themselves reading a children's book.

This course is part of a three-course literacy focused program of study: ELEDM 401 A, TEACHING READING, ELEDM 401B TEACHING LANGUAGE ARTS, and ELEDM 401C CHILDREN'S LITERATURE. Each of these courses is taken during the spring semester of the junior year along with the field experience course. They contribute to the body of knowledge and the practicum courses designed for students interested in working with multicultural learners.

The objectives of ELEDM 400, 401A, 401B, 401C, 402, and 403 are consistent in that each course develops understandings, skills, and positive attitudes toward the multicultural/ urban/ multilingual learner. From the research literature on theoretical and pedagogical orientations, ELEDM students acquire a theoretical appreciation of a research

base, unique to each of the ELEDM courses, that permits knowledge-based responses to special contextual problems. In addition, processes inherent in multicultural schooling, committees, and related institutions highlight the impacts of these orientations on multicultural learners. Finally, the courses identify the implications of these orientations for schools, families, programs, staff development, the assessment of children, and the reporting of assessment of results.

Because of the weekly field experiences, the interactive nature of the class, and the need to provide students with detailed feedback on their assignments, class size should not exceed 20-25. This course is offered during the spring semester.

Student performance will be assessed by objective midterm and final examination; projects showing extensions and applications; student participation in class; and practicum assessment (concurrent).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: ELEDM 400

Concurrent: ELEDM 395W ELEDM 401A ELEDM 401B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ELEDM 402 Teaching and Assessment in Multicultural Elementary Schools (3)** Multicultural education; elementary education; pluralistic pedagogical foundations, assessment, child's play, instrumental activities, State/Federal initiatives, and parent programs.

### **ELEDM 402 Teaching and Assessment in Multicultural Elementary Schools (3)**

This course examines growth characteristics of diverse learners in elementary schools, successful pluralistic pedagogical strategies used in multicultural schools, and the use of appropriate qualitative and quantitative assessment techniques. The latter is a particularly timely topic given the current frenzy over high-stakes tests at both the State and Federal levels and their resultant impact upon student achievement especially in largely poor and minority communities. Special attention is given to the importance of using developmentally appropriate instructional and assessment strategies.

This course requires extensive reading, in-class discussion, writing, research, and weekly field experiences. The latter provides opportunities to observe and interview teachers and work closely with small groups of students. Readings may include chapters from texts, scholarly articles, and materials from appropriate web sites. After readings, analysis and discussion, students will conduct a final research project that synthesizes what they've learned over the course of the semester.

The objectives of ELEDM 400, 401A, 401B, 401C, 402, 403 are consistent in that each course develops understandings, skills, and positive attitudes toward the multilingual/multicultural learner. From the research literature on theoretical pedagogical orientations, ELEDM students acquire a theoretical appreciation of a research base, unique to each of the ELEDM courses, that permits knowledge-based responses to special contextual problems. In addition, processes inherent in multicultural schooling, committees, and related institutions highlight the impacts of these orientations on multicultural learners. Finally, the courses identify the implications of these orientations for schools, families, programs, staff development, the assessment of children, and the reporting of results.

As a required course in the ELEDM program, this course contributes to the body of knowledge and the practicum courses designed for students interested in working with multicultural learners. This course complements other major courses in ELEDM program and does not duplicate other courses.

This course is offered fall semester only. Because of the weekly field experiences, the interactive nature of the class, and the need to provide students with detailed feedback on their assignments, class size should not exceed 20-25.

Student performance will be assessed by objective midterm and final examinations; projects showing extensions and applications; student participation in class; and practicum assessment (concurrent).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: A ED 303; MUSIC 241 ELEDM 400

Concurrent: ELEDM 395W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ELEDM 403 Using Science and Mathematics Knowledge and Assessment in Urban Settings (6)** Knowledge, skills, and assessment pertaining to science and mathematics education in urban schools.

### **Using Science and Mathematics Knowledge and Assessment in Urban Settings (6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: CMPSC 101 MATH 200 ELEDM 400 and 9 credits of natural sciences

Concurrent: ELEDM 395W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ELEDM 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ELEDM 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Energy Bus & Finance (E B F)**

**E B F 200** (GS) Introduction to Energy and Earth Sciences Economics (3) Resource use decisions and their effect on local, national, and global development.

#### **Introduction to Energy and Earth Sciences Economics (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E B F 301** Global Finance for the Earth, Energy, and Materials Industries (3) The aim of this course is to introduce fundamental concepts of financial management and illustrate their global applications.

#### **Global Finance for the Earth, Energy, and Materials Industries (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E B F 304W** Global Management for the Earth, Energy, and Materials Industries (3) This class is designed to introduce students to modern management and organization strategies for resource businesses.

#### **Global Management for the Earth, Energy, and Materials Industries (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: E B F 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E B F 401** Strategic Corporate Finance for the Earth, Energy, and Materials Industries (3) Financial decisions corporations in the earth science area make and the tools and analyses used to make these decisions.

#### **Strategic Corporate Finance for the Earth, Energy, and Materials Industries (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: E B F 200EME 460 and junior or senior standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E B F 402 Energy Law and Contracts (3)** An examination of the law that applies to acquiring the property rights for exploration and drilling of energy sources.

### **E B F 402 Energy Law and Contracts (3)**

This course examines the area of energy law and contracts, which is crucial to successful drilling in natural gas and oil properties. The course begins with a description of ownership and rights in the mineral estate, and how those rights have evolved over time. Students will be instructed in the how different types of land affect legal rights, and the details of the law of capture. They will also review the Statute of Frauds and examine how it applies to land drilling contracts.

The second part of the course presents the basic tenets of real estate law, examining the seminal cases in this area. It will review the standard oil and gas lease used in the United States. Issues reviewed will include the nature of lease clauses and implied covenants, as well as farmout and joint operating agreements. It will also examine how royalty payments can be structured.

Environmental regulation is a critical component of energy exploration. To address this topic, students will be introduced to the regulatory process. They will study regulatory compliance and how to deal with government officials. They will also be instructed in corporate liability for property clean up and pollution, and in strategies for minimizing both that liability and harm to the environment. In addition, the course will review topics of environmental due diligence and the joint and several nature of environmental liability.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: B LAW 243

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E B F 472 Quantitative Analysis in Earth Sciences (3)** Quantitative analysis of decision making in atmospheric/geophysical sciences: exploratory data analysis, quantification of uncertainty, parametric/non- parametric testing, forecasting, time series analysis.

### **Quantitative Analysis in Earth Sciences (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: MATH 110 orMATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E B F 473 Risk Management in Energy Industries (3)** Analysis of strategies for mitigating business risk from market, atmospheric, geophysical uncertainties including the use of energy/mineral commodity futures/options, weather derivatives, and insurance.

### **Risk Management in Energy Industries (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: MSIS 200 orSTAT 200 orE B F 472

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E B F 483 Introduction to Electricity Markets (3)** Introduction to the electric power industry; economics of power generation, transmission and distribution; regulation of electric utilities; deregulated electricity markets.

### **Introduction to Electricity Markets (3)**

General Education: None  
Diversity: None



Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: ECON 102 or E B F 200; MATH 110 or MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E B F 484 Energy Economics (3)** Economics of energy demand, production, storage, and pricing; advanced energy policy issues including regulation, climate change, new energy technology.

### **Energy Economics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102 or E B F 200; MATH 110 or MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E B F 499 (IL) Foreign Study (1-15)** This course is designed to enable students to study in EBF study abroad programs.

### **Foreign Study (1-15)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Energy and Geo-Environmental Engineering (EGEE)**

**EGEE 012 Energy Science and Engineering Lectures (1)** Lectures and discussion by faculty and visiting scientists/engineers on energy science and engineering, job selection, patents, licensing, ethics, and other professional issues and challenges.

### **EGEE 012 Energy Science and Engineering Lectures (1)**

The objective of the course is to expose students through a lecture or seminar format to a wide range of topics on energy science and engineering. The lectures would be presented by faculty and visiting scientists. Occasionally, students may be asked to make presentations. Students would be required to write a short summary of each presentation and provide a critique of the presentation. Seminar topics will cover aspects of energy production, processing, utilization, and conservation, and the associated environmental, health and safety, and policy, economics, and management issues. Students are expected to keep up with current developments on each topic and to actively participate in the discussions. Students will be evaluated based on their class participation, and written summary and critique of each presentation. This is a required course in the energy engineering major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: fifth-semester standing in Energy Engineering major or Energy and Fuels Engineering Option in Chemical Engineering

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 101 (GN) (MATSE 101) Energy and the Environment (3)** Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

### **EGEE (MATSC) 101 Energy and the Environment (3) (GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Energy is the life-blood of any society. The information and principles learnt in this course will allow the students to make sound judgments in the area of "personal energy choices." There is increasing concern about the influence of human activities, particularly energy use, on global climate change. This has an impact on global business aspects. Students in all walks of life need to be exposed to the basic concepts to appreciate the positions of policymakers, scientists, and industry over the interrelationship between greenhouse gas emissions and global climate change. The students will acquire knowledge, which will enable them to critically evaluate any energy-related concerns of the society. This is important for any college graduate for responsible citizenship and stewardship.

The main objectives of this course are to: provide basic understanding and appreciation of energy and environmental

concepts and interconnectedness; analyze energy consumption patterns; discuss various energy resources that power the modern society; examine the energy conversion processes; explore interrelationships between energy use and industrial progress and environmental consequences; discuss future energy alternatives.

Student performance will be evaluated continuously through homework assignments, exams, group activities, class participation and a final examination. Position papers or term papers may be used in lieu of homework assignments in some sections. This course is a stand-alone General Education course. The course is currently offered in four sections every semester (Spring and Fall) with a total target enrollment of approximately 200-250 students per semester.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 101A (GN;IL) (MATSE 101A) Energy and the Environment (3)** Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

**EGEE (MATSC) 101A Energy and the Environment (3)  
(GN;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Energy is the life-blood of any society. The information and principles learnt in this course will allow the students to make sound judgments in the area of "personal energy choices." There is increasing concern about the influence of human activities, particularly energy use, on global climate change. This has an impact on global business aspects. Students in all walks of life need to be exposed to the basic concepts to appreciate the positions of policymakers, scientists, and industry over the interrelationship between greenhouse gas emissions and global climate change. The students will acquire knowledge, which will enable them to critically evaluate any energy-related concerns of the society. This is important for any college graduate for responsible citizenship and stewardship.

The main objectives of this course are to: provide basic understanding and appreciation of energy and environmental concepts and interconnectedness; analyze energy consumption patterns; discuss various energy resources that power the modern society; examine the energy conversion processes; explore interrelationships between energy use and industrial progress and environmental consequences; discuss future energy alternatives.

Student performance will be evaluated continuously through homework assignments, exams, group activities, class participation and a final examination. Position papers or term papers may be used in lieu of homework assignments in some sections. This course is a stand-alone General Education course. The course is currently offered in four sections every semester (Spring and Fall) with a total target enrollment of approximately 200-250 students per semester.

General Education: GN

Diversity: IL

Bachelor of Arts: Natural Sciences

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 101H (GN) Energy and the Environment (3)** Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

**EGEE 101H Energy and the Environment (3)  
(GN)**

Energy is the life-blood of any society. The information and principles learnt in this course will allow the students to make sound judgments in the area of "personal energy choices." There is increasing concern about the influence of human activities, particularly energy use, on global climate change. This has an impact on global business aspects. Students in all walks of life need to be exposed to the basic concepts to appreciate the positions of policymakers, scientists, and industry over the interrelationship between greenhouse gas emissions and global climate change. The students will acquire knowledge, which will enable them to critically evaluate any energy-related concerns of the society. This is important for any college graduate for responsible citizenship and stewardship.

The main objectives of this course are to: provide basic understanding and appreciation of energy and environmental concepts and interconnectedness; analyze energy consumption patterns; discuss various energy resources that power the modern society; examine the energy conversion processes; explore interrelationships between energy use and industrial progress and environmental consequences; discuss future energy alternatives.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 102 (GN)** Energy Conservation for Environmental Protection (3) Exposure to energy efficiency in day-to-day life to save money and energy, and thereby protect the environment.

**EGEE 102 Energy Conservation for Environmental Protection (3)  
(GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Energy is a vital component of modern society. Much of the general population believes that the energy sources we depend on are perpetual. While people believe that the energy use is the culprit for environmental damage, they are not aware of the methods and principles by which energy conversion devices operate. This general education course provides students with necessary knowledge and information on the main operating principles of devices/appliances that are in common use and information on which to make the right decision in selecting the most energy efficient and economical choice. These devices are day-to-day appliances such as refrigerators, washers and dryers, ovens, etc., and home heating or cooling and transportation choices. The course also provides necessary information on heating furnaces, insulation, doors and windows, lighting, and air conditioning principles. The objective of the course is to expose students to energy efficiency in day to day life in order to save money and energy and thereby protect the environment. This education is very important for all college students to turn them into environmentally-responsible individuals of this Global Village.

The course entails various simple but important group-activities/projects to reinforce the information taught through formal lectures. This is not meant to be a laboratory course or a research project. The group activities include conducting a set experiments and/or gathering and analyzing the data informally (at home) and formally presenting the observations to their peers both in writing and orally. Examples of group activities (fun) are: 1) conducting a home energy audit while walking around a house, apartment, trailer, etc. and taking notes on the cracks openings, caulking condition, insulating materials used, data on heating system, windows etc., and suggesting specific ways to conserve energy in the residence and 2) Energy usage analysis- involves analysis of home utility bills and energy consumption patterns and costs related to those for a year.

Student performance will be evaluated continuously through group activities, one mid-term exam, class participation and a final examination. Collaborative-activities are used in lieu of homework assignments. This course is a stand-alone General-Education course. The course is currently offered every Fall and Spring semesters with a total target enrollment of approximately 40 students per semester.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 102H (GN)** Energy Conservation for Environmental Protection (3) Honors level exposure to energy efficiency in day to day life to save money and energy, and thereby protect the environment.

**EGEE 102H Energy Conservation for Environmental Protection (3)  
(GN)**

Energy is a vital component of modern society. Much of the general population believes that the energy sources we depend on are perpetual. While people believe that the energy use is the culprit for environmental damage, they are not aware of the methods and principles by which energy conversion devices operate. This honors level general education course provides students with necessary knowledge and information on the main operating principles of devices/applications that are in common use and information on which to make the right decision in selecting the most energy efficient and economical choice. These devices are day-to-day appliances such as refrigerators, washers and dryers, ovens, etc., and home heating or cooling and transportation choices. The course also provides necessary information on heating furnaces, insulation, doors and windows, lighting, and air conditioning principles. The objective of the course is to expose students to energy efficiency in day to day life in order to save money and energy and thereby protect the environment. This education is very important for all college students to turn them into environmentally-responsible individuals of this Global Village. Students will be doing two energy related projects and one presentation in class. This honors course also requires two additional home activities compared to a regular course. This honors class is designed to be more discussion based.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 110 (GN)** Safety Science for the Rest of Your Life (3) Survey of applications and technologies associated with safety in our every day life with associated review of scientific principles and economic, social and political impacts.

**EGEE 110 Safety Science for the Rest of Your Life (3)  
(GN)**

Safety is an applied field with many aspects. It has engineering, science, psychology and management components. For an understanding of how humans interact with their working and living environment, one has to understand the basic sciences of physics, biology, chemistry, mathematics and psychology as well as some of the traditional engineering disciplines. This general education course is intended to provide students with a basic understanding of how these science and engineering principles are applied in a safety context to every day life, products, hobbies, finances and human interaction. The material that will be discussed, presented, assigned, tested, etc. is the fundamental science and engineering principals behind each applied safety-related activity discussed.

The history discussion will include bacteria exposure and ergonomic aspects (such as cumulative trauma, impact on the body of hot environments, long shifts, etc.) of meat packers, railroaders and miners. It will include discussion of air pollution associated with industry's early development and toxicological effects of exposure to methyl iso-cyanate associated with Union Carbide's 1984 incident in Bhopal, India. Ventilation, water influx and collapse hazards associated with the mining industry (e.g. Quecreek) are discussed. The science of finding the right drill shaft location for air and rescue at Quecreek will be discussed. Economic coverage will include the societal costs of inadequate safety measures. The hazards and control sections will cover structural and impact resistant aspects of sports equipment and the biomechanics of sports injuries. The inner workings of smoke detectors, how fires progress through a home, fire extinguishers, quenching, smothering, combustion reaction interruption mechanisms of fire suppression will also be covered. In fleet safety, applied physics concepts such as friction, acceleration, momentum and force will be presented. Electrical concepts such as static generation, grounding, current flow, etc. will be covered in a safety context (filling a gas can). Toxicology of chemical exposure, biomechanics and ergonomics of materials handling, moving, lifting, climbing, etc. will be dealt with through examples, discussions and presentations. Bacteria sanitization, disinfection, freezing, cooking, etc. and other food science concepts will be presented in a safety context. Emergency response issues from catastrophic incidents (natural or purposeful attack) will be addressed and practiced.

This course will be offered in the spring and fall semesters. Performance assessment will be through on-line quizzes, a short individual and a longer group analytical and reflective paper and a group presentation of the results of an outside deductive analysis activity.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 120 (GS;US;IL) Oil: International Evolution (3)** Survey of the commercial development of the world petroleum industry from various international, historical, business, and cultural perspectives.

**EGEE 120 Oil: International Evolution (3)  
(GS;US;IL)**

Oils is the world's most important commodity. Access to oil was decisive in the great military struggles of the 20th century. The economic and strategic value of oil has led to the evolution of a fascinating array of business, political, and strategic alliances around the world. The objective of this course is to describe this evolution and the technological, commercial, and political innovations shaping its current face. This knowledge is vital in achieving a more complete understanding of the role of oil in international affairs and economic development.

The course begins with a discussion of the development of the American and European oil industries during the 19th century and the formation of the first great industrial oil monopolies. The emergence of oil as a strategic commodity prior to and during World War I will then be discussed. The economic and technological reasons for the recurring boom-bust cycles of oil markets and the political arrangements developed to cope with their effects is the third major topic of the course. The focus then shifts back to military affairs with a discussion of the role of oil in the battles of World War II.

We then examine the social and cultural roots of the post-war dissolution of company ownership and the nationalization of oil reserves. Also in the policy arena, is a discussion of the policy response of western governments to a growing dependence upon low-cost oil from the Middle East, Africa, and South America. The analysis then focuses on the ideology and strategy behind the formation of the Organization of Petroleum Exporting Countries (OPEC) and the motivations and execution of their strategies to drive up oil prices during the 1970s and early 1980s.

The last part of the course discusses the emergence of oil as a commodity traded in open commodity market exchanges, the development of reserves in deep water and in Africa, and the relationship between oil policy and the war on international terrorism.

The course will be offered during the spring semester and will include a field trip to the Pennsylvania oil region. Evaluation and assessment of student performance will rely on grading on-line quizzes and assignments, team papers and presentations, and examinations.

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 199 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 210 (GN)** Technological Legacy of Pennsylvania Coal (3) Survey of coal technologies with a review of scientific principles and economic, social, and political impacts.

**EGEE 210 Technological Legacy of Pennsylvania Coal (3)  
(GN)**

Pennsylvania Coal, a natural resource, has touched many lives from past to present with profound influence on employment, economic growth, social and political relationships, culture, and the natural environment in the state. The heritage and legacy of Pennsylvania coal weave the story of the Industrial Revolution in the U.S., including technological, social, and environmental aspects. Coal continues to be an important natural resource for electricity generation and metallurgical coke production to manufacture iron and steel. In 2000, approximately 80 million tons of coal was mined in Pennsylvania, most of which was used to generate electricity (approximately 62% of total electricity generated in Pennsylvania). Development of new technologies addresses the challenges of preserving and protecting the environment while mining and burning large quantities of coal. Health and safety of U.S. coal miners have been improved significantly over the past century. However, the recent Quecreek Coal Mine incident in Somerset, Pennsylvania reminded that underground coal mining is still a dangerous profession. Many PSU students have personal links to the coal industry through family members who have been engaged in coal related careers over several generations. This course will provide an opportunity to study coal mining practices in Pennsylvania that their parents and previous generations experienced with a review of recent improvements in these practices.

This course will survey the development of the science and technologies (utilizing a multi-disciplinary approach) of coal formation, coal mining, coal transportation, and coal utilization. The integrated EGEE 211 course will study the social and environmental aspects of coal technologies to focus on labor-management relationships, immigration, culture, and environmental pollution. EGEE 210 and EGEE 211 will be held in the same classroom to integrate natural science and social science education.

This course will be offered during both fall and spring semesters and will include a field trip to the Pennsylvania anthracite region. There are no in-class exams. Evaluation and assessment of student performance will rely on grading minute papers, analytical and reflective essays, individual and team papers, on-line quizzes/assignments, team presentations/discussions, and on-line learning portfolios.

General Education: GN

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 211 (GS;US)** Social Legacy of Pennsylvania Coal (3) Survey of coal technologies with economic, social, and political impacts discussed with historical, cultural, and international perspectives.

**EGEE 211 Social Legacy of Pennsylvania Coal (3)  
(GS;US)**

Pennsylvania Coal, a natural resource, has touched many lives from past to present with profound influence on employment, economic growth, social and political relationships, culture, and the natural environment in the state. The heritage and legacy of Pennsylvania coal weave the story of the Industrial Revolution in the U.S., including technological, social, and environmental aspects. Coal continues to be an important natural resource for electricity generation and metallurgical coke production to manufacture iron and steel. In 2000, approximately 80 million tons of coal was mined in Pennsylvania, most of which was used to generate electricity (approximately 62% of total electricity generated in Pennsylvania). Development of new technologies addresses the challenges of preserving and protecting the environment while mining and burning large quantities of coal. Health and safety of U.S. coal miners have been improved significantly over the past century. However, the recent Quecreek Coal Mine incident in Somerset, Pennsylvania reminded that underground coal mining is still a dangerous profession. Many PSU students have personal links to the coal industry through family members who have been engaged in coal related careers over several generations. This course will provide an opportunity to study coal mining practices in Pennsylvania that their parents and previous generations experienced with a review of recent improvements in these practices.

This course will survey the development of the science and technologies (utilizing a multi-disciplinary approach) of coal formation, coal mining, coal transportation, and coal utilization. The integrated EGEE 211 GS course will study the social and environmental aspects of coal technologies to focus on labor- management relationships, immigration, culture, and

environmental pollution. EGEE 210 GN and EGEE 211 GS will be held in the same classroom to integrate natural science and social science education.

This course will be offered at the University Park campus during both the Fall and Spring semesters and will include a field trip to the Pennsylvania anthracite region. There are no in-class exams. Evaluation and assessment of student performance will rely on grading minute papers, analytical and reflective essays, individual and team papers, on-line quizzes/assignments, team presentations/discussions, and on-line learning portfolios.

General Education: GS  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 302** Principles of Energy Engineering (3) Basic engineering calculations and mathematical methodologies on material and energy balances and reaction rates during chemical transformations in energy systems.

#### **EGEE 302 Principles of Energy Engineering (3)**

This introductory energy engineering course enables students to identify and apply fundamental principles of chemistry and physics, as they pertain to energy and fuels, and mathematics to describe materials and energy flow through a process. Examples of the processes studied will include stoichiometry in combustion and other reactions and material flows with recycle streams. This course also enables students to describe the energy transformations in energy systems.

The examples of the processes we would be applying energy conservation principles to include calculation of adiabatic flame temperature during combustion of fuels. In addition, the course will present an introduction to chemical kinetics with an overview of solid, liquid and gaseous fuel transformations. This is a required introductory course to the BS in Energy Engineering degree program. It will be a prerequisite to several of the 400 level energy engineering curriculum courses. Students will be evaluated based on homework, projects, class participation, and mid term and final exams.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 112 and MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 304 Heat and Mass Transfer (3)** Introduces the fundamentals of heat and mass transfer. Conduction, convection, radiation, and diffusion mass transfer will be emphasized.

### **EGEE 304 Heat and Mass Transfer (3)**

This course will emphasize the modes of heat and mass transport in energy engineering systems. Students will know, understand, and solve heat transfer problems that involve conduction, convection, and radiation. The course will provide an integrated treatment of heat, mass and momentum transfer by convection and mass transfer by diffusion. Students will also learn and use software that will enable them to solve problems that involve exploratory, what-if, and parameter sensitivity considerations. The course will also assist students to understand the design and operation of different types of heat exchangers. This course also enables students to identify and describe the energy transformations in energy systems. The examples of the processes we would be applying energy conservation principles to include power plant, geothermal energy systems, and industrial reactors and combustors. This is an essential and required thermal science course in the BS in Energy Engineering degree program. Students will be evaluated based on homework, projects, class participation, and mid term and final exams.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: EME 301 and EGEE 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 398 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 401 Energy in a Changing World (3)** Energy is in transition, with increased international energy demand and increasing environmental pressures. Energy transitions, approaches, and outcomes are addressed.

**EGEE 401 Energy in a Changing World (3)**

The role of energy is increasingly important with increasing environmental constraints, transitioning energy policies, supply disruption, international pressure on climate change compliance and competition for energy. This course evaluates the existing energy infrastructure and energy/fuel use, both domestic and international, along with evolving technologies, implementation and challenges in meeting energy demands. The class provides a holistic view and serves all students interested in an energy or energy-related career. Students will understand the interrelationship between legislative, technology, environmental, and international factors associated with energy production, processing, distribution and utilization.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: EGEE 101 or EGEE 102 or CHEM 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 411 Energy Science and Engineering Lab (3)** A comprehensive introduction to classic and modern laboratory skills and experimentation of relevance to energy science and engineering practice.

**EGEE 411W Energy Science and Engineering Lab (3)**

This course is offered as an introduction to common techniques used in the handling and characterization of fossil fuels as well as exposure to renewable resources. Topics will concentrate on coal, crude oil, biomass, and finished fuels: diesel/gasoline/biofuels. Students will learn how the handling and characterization of resource or processed fuel applies to real-world problems and issues. We will discuss the theory and application of each technique, and aim to produce professional standards for effective communication and data interpretation in written technical reports. Weekly laboratory reports are to be prepared, meeting a professional standard with well-researched answers to questions from appropriate (industrially relevant) technical sources. The objectives of this course are: 1) to learn experimental procedures and related safety aspects relevant to energy science and engineering; 2) to prepare students for experimental studies, particularly by emphasizing the need to understand experimental uncertainties and the theory behind analytical instruments use; and 3) to produce students with effective technical report writing skills.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008 Ending: Fall 2014  
Prerequisite: F SC 401 or EGEE 302 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 411W Energy Science and Engineering Lab (3)** A comprehensive introduction to classic and modern laboratory skills and experimentation of relevance to energy science and engineering practice.

**Energy Science and Engineering Lab (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: F SC 401 or EGEE 302 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**EGEE 412** Green Engineering & Environmental Compliance (3) Material and energy flows as they relate to industrial systems, environmental concerns, pollution prevention, and the development of clean technologies.

**EGEE 412 Green Engineering & Environmental Compliance (3)**

The primary objective of EGEE 412 is to introduce students to how engineering and industrial decisions affect the environment and how clean technologies can reduce environmental impact. Students will also be exposed to global mass and energy flows from an environmental perspective that relate to both industrial and natural systems. Students will be exposed to environmental concepts, principles, and evaluation techniques within the framework of green engineering, pollution prevention, and environmental sustainability. The course is for students with a general science or engineering background.

By examining mass and energy flows on the unit operation, plant-wide, local and regional scale, students will understand the interaction of anthropogenic flows with natural cycles of materials and energy. Students will understand how environmental concerns and regulations provide the motivation and incentive behind reducing pollution during the design phase rather than as an "add-on" or "end of pipe" treatment technology. Students will evaluate plant flow sheets to identify engineering means by which to reduce plant-wide environmental impact.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: EGEE 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 420** Hydrogen and Fuel Cells (3) Course will cover the fundamental principles of electrochemical engineering, hydrogen production and storage, and the design and application of the main types of fuel cells.

**EGEE 420 Hydrogen and Fuel Cells (3)**

The primary objective of the course is to help students understand the fundamental principles of electrochemistry, the production and storage of hydrogen from biomass and fossil fuels, and the design and operation of different types of fuel cells. Students will begin with electrochemistry and electrochemical engineering systems including fuel cells. The chemical and biochemical methods used for producing hydrogen for fuel cells applications and the current technologies available for hydrogen storage will follow next. Students are expected to be able to apply their knowledge and understanding in the analysis of fuel cell systems. Students are also expected to be able to distinguish between the design, operation, and advantages and disadvantages of the different types of fuel cells available. This is an elective course for the energy engineering major. It complements the required course on electrochemical energy conversion in the energy engineering curriculum.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: EME 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 430 (M E 430)** Introduction to Combustion (3) Concepts related to laminar and turbulent premixed and nonpremixed combustion with applications to propulsion and stationary systems.

**EGEE (M E) 430 Introduction to Combustion (3)**

This course provides an introductory treatment of combustion science. The objectives of the course are to develop in the students an understanding of combustion kinetics, combustion thermochemistry, flame dynamics, flame stability, and pollutant formation. Coverage includes laminar and turbulent flames, premixed and diffusion flames, and detonations. Emphasis is placed on the role that Kinetics, heat transfer, mass transfer, and fluid dynamics have on flame structure and flame stability. The course includes some laboratory demonstrations of flat flame and diffusion flame burners, and incorporates numerical calculations of thermodynamic and kinetic combustion phenomena. The course begins with a review of transport phenomena, physical gas dynamics, and thermochemistry. Then, the concept of the laminar flame speed is introduced in the context of a one-dimensional flame and a propagating chemical wave. Issues of premixed flame structure and stability are presented along with a discussion of flammability limits. Next, laminar diffusion flames are presented via the Burke-Schumann analysis. From laminar flames, the emphasis shifts to turbulent premixed and diffusion flames, and the concepts of flame stretch and strain. Detonations are considered, with emphasis on thermodynamic analysis of the detonation and the structure of the detonation wave. Details of chemical kinetics for the hydrogen-oxygen and hydrocarbon-air reaction systems are presented, with linkage back to earlier topics such as flame stabilization and flammability limits. After kinetic phenomena, the course then considers pollutant formation focusing on soot and NO<sub>x</sub>. The fundamental aspects of combustion are applied to analysis of the combustion process and pollutant formation in international combustion engines and catalytic combustors. The course wraps up with discussion of atmospheric chemistry, the fate of pollutants, and the formation of secondary pollutants.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: M E 201 or M E 300 or EME 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 433 Physical Processes in Energy Engineering (3)** Introduces fluid flow, heat transfer, phase equilibrium and mass transport phenomena in energy separation processes.

### **EGEE 433 Physical Processes in Energy Engineering (3)**

The objective of the course is to expose students to the physical flow and separation processes that occur in energy engineering systems. Students will be exposed to gas, liquid and solid phase separation processes. The heat, mass and momentum phenomena involved will be discussed. In particular, phase equilibria and mass transfer in the behavior and performance of gas, liquid and solid fuels will be emphasized. Students will be exposed in the class to the operation and design of absorption, adsorption, fluidization, size reduction, filtration, dissolution, entrainment, and heat exchange units. Students will understand the differences between chemical processes that involve chemical reactions and transformations and physical processes that involve mainly phase changes and separation. This is an elective course for the energy engineering major. It will be offered once per year in the spring semester with an estimated enrollment of 40. Assessment of student performance will be based on homework, student projects, mid-term exams, class participation, and final exam.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: EGEE 304 or concurrent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 436 Modern Thermodynamics for Energy Systems (3)** Thermodynamics of external fields, theory of stability and fluctuations, irreversible and non-linear thermodynamics, and bifurcation theory and their applications in energy and environmental processes are discussed.

### **EGEE 436 Modern Thermodynamics for Energy Systems (3)**

This course will be an advanced thermodynamics class that will expose students to the thermodynamics of irreversible processes and the thermodynamic analysis of dynamic systems. Students will learn to analyze the thermodynamics of conductivity, diffusion, gravitation, electrochemical systems, stability, fluctuations and critical phenomena. Students are expected to be able to understand and apply their knowledge to analyze problems involving fuel cells, membrane potential in electrolysis systems for hydrogen production, and other energy and environmental processes. This is an elective course in the energy engineering major and will be offered once a year in the spring semester to about 40 students. Student performance will be evaluated based on homework, mid term exams, class participation, project, and final exams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: EME 301 EGEE 302 MATH 231 and MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 437 Design of Solar Energy Conversion Systems (3)** A review of fundamental concepts in solar energy conversion including photovoltaic (PV) and solar thermal conversion systems.

### **EGEE 437 Design of Solar Energy Conversion Systems (3)**

The course examines the principles of solar energy conversion to build a foundation for explaining the basic concepts and implementation of conversion processes. It reviews the properties and availability of solar radiation and geometric relationship of sun/collector, principles of photovoltaic conversion and properties of materials used in PV systems, designing PV systems, procedures for solar thermal engineering calculations, and thermal power plants for electricity generation. This course will complement the existing courses on fossil fuels and other renewable energy sources. Students will be engaged to actively participate in learning through team projects, semester papers, class presentations, and field trips.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: EGEE 304 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 438 Wind and Hydropower Energy Conversion (3)** Principles of sustainability and renewable energy conversion with emphasis on wind and hydrokinetic energy resources.

**EGEE 438 Wind and Hydropower Energy Conversion (3)**

This course examines the principles of sustainability and renewable energy conversion with emphasis on wind and hydrokinetic energy resources. Concentration is placed on the relationships between the renewable resources, conversion technology and economic feasibility along with consideration of the associated risks and environmental impacts. It will complement existing energy engineering courses on fossil fuel and solar energy conversion. Students will actively participate in learning through team projects, semester papers, class presentations, and field trips. This is a required course in the energy engineering major. The course will be offered every spring with an expected enrollment of 60 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: EGEE 302EME 303

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 441 Electrochemical Engineering Fundamentals (3)** Course covers fundamental principles of electrochemistry, including electrochemical thermodynamics, kinetics, catalysis, and corrosion and focuses on applications such as fuel cells, batteries, and photovoltaics. Each application covers: principles of method, criteria determining performance, present state of development, and advantages/disadvantages. Laboratory demonstration of the performance (current-voltage) measurements of an electrochemical converter is scheduled in this course.

**EGEE 441 Electrochemical Engineering Fundamentals (3)**

The course will cover the fundamental principles of electrochemistry, including electrochemical thermodynamics, kinetics, catalysis, and corrosion. Students will be exposed to the application of these principles in fuel cells, batteries, and photovoltaics. Students will be able to perform efficiency analysis in these systems. They will also be able to understand the differences between types of fuel cells and distinguish between electrochemical and chemical energy systems. For each of the above application areas students will learn the criteria used to determine their performance, their current state of development, and their advantages/disadvantages. Laboratory demonstration will help to enhance student knowledge and understanding. Student performance will be evaluated through problem sets, quizzes, midterm, project papers, class participation, and final examination. This is a required course in the energy engineering major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: EME 301 and EME 303 or CH E 220 and CH E 330 or M E 300 and M E 320 or MATSE 401 and MATSE 402

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 451 Energy Conversion Processes (3)** Emphasizes processes for conversion of fossil fuels, nuclear and biomass to other fuel forms as transportation fuels and electricity.

**EGEE 451 Energy Conversion Processes (3)**

The primary objective of this course is to expose students to the principles of chemical and nuclear reactions that underlie most major energy conversion processes, particularly with reference to the conversion of energy resources such as fossil and nuclear energy to fuels and electric power. The emphasis of the first major unit of the course is on fundamental reaction chemistry including nuclear. The second objective is to connect chemical and nuclear principles to practical energy conversion processes by an analysis of case studies used as examples of such processes as ethanol via fermentation, biodiesel via transesterification, formation of light liquids by pyrolysis, coal gasification and Fischer-Tropsch synthesis, direct coal liquefaction, fissionable and fertile isotopes chain reactions, breeding cycles and reactors, and electric power from nuclear reactions. This is a required course for the energy engineering major and will be offered in fall semester with an enrollment of about 50. Student performance will be assessed through weekly homework, mid-term tests, student projects and final exam.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: F SC 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**EGEE 455 Materials for Energy Applications (3)** Overview of key principles and technologies for materials relevant to energy applications, including membranes, catalysis, supercapacitors, adsorbents, and semi-conductors.

**EGEE 455 Materials for Energy Applications (3)**

The primary objective of this course is to introduce engineers and scientists to key principles in the design of materials relevant to energy applications. Application areas will include separations, catalysis, adsorption, semi-conductors, and photovoltaics. Students will be able to understand and apply principles in solid state chemistry/physics, material science and engineering, adsorption, surface science, and catalysis in analyzing materials for energy applications. Introductory information will be followed by case studies, state of the art review of current materials, and research needs for development. Students will be evaluated on their ability to understand and apply basic concepts in material science, solid state chemistry, and surface chemistry; report on an in depth study of one surface characterization technique; perform literature search and understand basic technical concepts in one application area. Term projects will provide an opportunity to apply concepts and skills to real world applications, and require students to report on current 'state of the art' technology and research needs. Groups of three or four students will be asked to choose from a variety of applications and then asked to present their findings. This is an elective course for energy engineering majors with particular interest in materials for energy applications.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: EGEE 302MATSE 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 456 (E E 456, E SC 456) Introduction to Neural Networks (3)** Artificial Neural Networks as a solving tool for difficult problems for which conventional methods are not applicable.

**EGEE (E E/E SC) 456 Introduction to Neural Networks (3)**

This course is in response to students' needs to learn Artificial Neural Networks (ANN) as a solving tool for difficult problems for which conventional methods are not available. The objective of this course is to give students hands-on experiences in identifying the best types of ANN, plus developing and applying ANN to solve difficult problems. Students will be introduced to a variety of ANN and will use their training skills to solve their own applications. During this course the students will develop a final project, in which they will apply ANN to widely varied problems.

Examples:

I ) students from E E may be interested in applying ANN to solve control problems

II) students from Material Sciences may be interested in applying ANN to predict the pitting corrosion of components

III ) students from Petroleum Engineering may be interested in applying ANN to characterize the life of a reservoir

IV ) students from Agricultural Engineering may be interested in applying ANN to sort apples automatically, etc.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 201 orCMPSC 202;MATH 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 464W Energy Design Project (3)** A team and capstone design project on an industrial energy-related problem.

**Energy Design Project (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: seventh-semester standing in energy engineering or chemical engineeringENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 470 Air Pollutants from Combustion Sources (3)** Generation of pollutants in combustion chambers; reduction by combustion control; pre- and post-combustion treatment of fuels and effluents.

**Air Pollutants from Combustion Sources (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: EME 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 494A** Research Project (2) Supervised research on a selected topic of energy science and engineering and preparation of written and oral presentation of the research results.

**EGEE 494A Research Project (2)**

The primary objective of the course is to expose students to supervised independent research and presentation of results. Students will embark on an independent research project under a faculty member. The research topic will depend on the student's interest and may cover topics ranging from the production, processing, and utilization of different forms of energy and the associated environmental, health and safety, and policy and economics issues. Students will be expected to undertake the literature review, design and experiments, conduct the study and perform a detailed analysis of the results. The work will be presented in a final report and presentation. Students will also be expected to explore the implications of their data and conclusions and outline further research opportunities. In particular, the societal impact of their work should be emphasized. This is a required class in the energy engineering major and will be offered each semester.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: Seventh semester standing in energy engineering

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EGEE 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Energy and Mineral Engineering (EME)

**EME 301** Thermodynamics in Energy and Mineral Engineering (3) Treatment of classical thermodynamics targeted to the needs of students in the Department of Energy and Mineral Engineering.

**Thermodynamics in Energy and Mineral Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: CHEM 112PHYS 212 andMATH 250 orMATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EME 303** Fluid Mechanics in Energy and Mineral Engineering (3) Treatment of fluid mechanics targeted to the needs of students in the Department of EME.

**Fluid Mechanics in Energy and Mineral Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009  
Prerequisite: MATH 250 orMATH 251 andPHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EME 407** Electrochemical Energy Storage (3) Electrochemical concepts in energy storage devices, cell construction and materials involved in batteries and capacitors, electrochemical testing methods and applications.

**Electrochemical Energy Storage (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: EME 301 or M E 300 or CH E 220 and EME 303 or M E 320 or CH E 330 or their equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EME 432 (GEOG 432) Energy Policy (3)** Analysis, formulation, implementation, and impacts of energy-related policies, regulations, and initiatives.

### **Energy Policy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: E B F 200 EGEE 120 PL SC 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EME 444 Global Energy Enterprise (3)** Industry perspective on the resources, technologies, engineering approaches and externalities involved in satisfying worldwide energy demand profitably and sustainably.

### **Global Energy Enterprise (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: ECON 004 or equivalent EGEE 102 EGEE 120

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EME 460 Geo-resource Evaluation and Investment Analysis (3)** The course covers engineering evaluation of geo-resources, present value and rate of return analysis, mineral property and reserve estimation, and cost estimation and engineering economy concepts applied to geo-resources including energy and minerals.

### **Geo-resource Evaluation and Investment Analysis (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: 5th semester or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EME 466 Energy and Sustainability in Society (3)** Capstone course in energy technology and policy options for reduced-carbon communities. Covering agent/stakeholder relations, sustainability, communication and public engagement.

### **Energy and Sustainability in Society (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: GEOG 030 METEO 469 EME 432

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Energy, Environmental, and Mineral Economics (ENNEC)**

**ENNEC 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENNEC 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practicums, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENNEC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENNEC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENNEC 499** (IL) Foreign Study--Mineral Industries (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Study--Mineral Industries (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Engineering (ENGR)**

**ENGR 096** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject



which may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 097S** 1st Year Seminar Engineering (1-2) This First Year Seminar is designed to introduce first year students to the academic and social culture of Penn State University. The objective of the class is to help you engage with academic, social, and personal resources available at Penn State and in the community and to facilitate your transition to college life.

### 1st Year Seminar Engineering (1-2)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: must be engineering student

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### Foreign Studies (1-12)

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 100S** Introduction to Engineering (1) A seminar providing information about different engineering majors, coping with college life, and exploring educational and career goals.

### ENGR 100S Introduction to Engineering (1) (FYS)

Engineering 100 is a First-Year Seminar designed as an introduction to the majors available to students in engineering. There are three main goals:

1. To introduce students to the areas of study that the college has to offer - this is to assist students in deciding whether engineering is for them. It also helps students decide which major within engineering is for them. This introduction is accomplished through homework exercises and guest speakers - graduates in industry, graduate students, department heads, faculty, and current undergraduates.
2. To introduce students to the university in general - what resources are available and what it means to be a student at a university instead of high school. This is accomplished through guest speakers, lectures by your professor, and homework exercises.
3. To provide students with an opportunity to interact with faculty members, academic advisers, and other students.

The class meets twice a week. All sections meet together once a week to listen to presentations from people representing each major. On the other class day, sections meet separately with their professor for presentations and activities unique to that instructor.

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Fall 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 110 (SCIED 110)** Introduction to Engineering for Educators (3) This course focuses on physics content, engineering design principles, and elementary science education pedagogy.

### **Introduction to Engineering for Educators (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 111 (IL)** Introduction to Cross-Cultural Communication for Engineers (1) Introduction to theoretical approaches and practical applications of intercultural communications for engineering students.

### **Introduction to Cross-Cultural Communication for Engineers (1)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 118 (GS;IL)** Impact of Culture on Engineering in China (3) Study of engineering in the context of cultural, historical, societal, political, and environmental considerations to understand the relationship between Chinese culture and engineering projects and policies; brief introduction to the basic engineering principles underlying the engineering projects and their design.

### **ENGR 118 Impact of Culture on Engineering in China (3) (GS;IL)**

This summer-session course is delivered in China. Chinese culture, history, society, environment, politics, population, economics, and policies are related to engineering practice, design, manufacturing, processes, engineering education, and transportation. Exposure to Chinese cultural components and how they influence engineering project implementation are presented and demonstrated through site visits and participation in relevant activities. Sites and activities in China are selected to expose students to examples that illustrate the impact of Chinese culture on engineering in an integrated manner. For example, ancient engineering projects, such as the Great Wall, Forbidden City, and Terracotta Warriors, and modern engineering projects, such as the Three Gorges Dam, Hangzhou Bay Bridge, the Shanghai Dongtang Eco-city project, may be selected. In addition to site visits and local cultural and transportation experiences, the course includes guest lectures, documentaries, readings, class discussions, and projects. This course is designed to provide basic understanding of Chinese culture and to relate it to historical and contemporary applications of technology. A program fee is charged for course costs that are not covered by tuition. Students are required to participate in all aspects of the course: scheduled site visits, presentations, lectures, readings, and cultural experiences. An interest in technical applications and not necessarily a technical background is required. However, engineering and technical principles are presented.

General Education: GS  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: ENGR 111

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 194** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 195** Engineering Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Engineering Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1985

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 195A** Engineering Internship (1 credit per semester/maximum of 4 credits) A supervised work experience in a professionally relevant position in research, industry or government.

**ENGR 195A Engineering Internship (1 per semester/maximum of 4)**

This course provides students the opportunity to apply fundamental skills and academic concepts in a professional laboratory, industry, or government agency setting within the United States. The final grade (SA/UN) will be based on the final report submitted by the student and a mid-term and final evaluation submitted by the employer. This course will be offered fall, spring, and summer semesters, and may be repeated.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 195I** (IL) Engineering International Internship (0.5- 1 per semester/maximum of 4) A supervised work experience in a professionally relevant position in research, industry, government or service sector.

**ENGR 195I Engineering International Internship (1 per semester/maximum of 4)  
(IL)**

This course provides students the opportunity to apply fundamental skills and academic concepts in a professional laboratory, industry, or government agency setting outside of the United States. The final grade (SA/UN) will be based on the final report submitted by the student and a mid-term and final evaluation submitted by the employer. This course will be offered fall, spring, and summer semesters, and may be repeated.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 196** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 201** (GH) Structures and Society (3) Historical study of structures in the contexts of cultural, artistic, societal, and technological considerations; brief introduction to the scientific principles underlying their design.

**Structures and Society (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 294** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 295** Engineering Co-Op Work Experience I (1-3) A supervised work experience where the student is employed in an engineering position in industry or government. (To be offered only for SA/UN grading.)

**Engineering Co-Op Work Experience I (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CHEM 110CMPSC 122MATH 140MATH 141 orPHYS 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 295A** Engineering Cooperative Education (1) A supervised work experience in research, industry or government relevant to a student's major.

**ENGR 295A Engineering Cooperative Education (1)**

This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major

classes in a professional laboratory, industry, or government agency setting in the United States. This course is the first of three courses that provide progressive, multiple, alternating semesters of career-related experience in the Cooperative Education Program. The final grade (SA/UN) will be based on the final report submitted by the student and a mid-term and final evaluation submitted by the employer. This course will be offered fall, spring, and summer semesters.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 295I (IL)** Engineering International Cooperative Education (1) A supervised work experience in research, industry or government relevant to a student's major.

ENGR 295I

**ENGR 295I Engineering International Cooperative Education (1)  
(IL)**

This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major classes in a professional laboratory, industry, or government agency setting outside of the United States. This course is the first of three courses that provide progressive, multiple, alternating semesters of career-related experience in the Cooperative Education Program. The final grade (SA/UN) will be based on the final report submitted by the student and a mid-term and final evaluation submitted by the employer. This course will be offered fall, spring, and summer semesters.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1993

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1985

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 297A** Engineering Leadership, Communication and Outreach (1-6) Required training course for students accepted into the Behrend College School of Engineering Ambassador's Program.

**Engineering Leadership, Communication and Outreach (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 297C** 2014 Women in Engineering Program Orientation (0.5) An orientation program for first-year women students

to provide them with resources and skills necessary for academic success in engineering.

### **2014 Women in Engineering Program Orientation (0.5)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 297G** Multicultural Engineering Program Orientation (0.5) An Orientation Program for first-year minority students to provide them with skills and resources necessary for success in engineering.

### **Multicultural Engineering Program Orientation (0.5)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 310** Entrepreneurial Leadership (3) This course develops leadership and entrepreneurial skills using collaborative, problem-based projects, with engineering and business students working in teams.

### **ENGR 310 Entrepreneurial Leadership (3)**

ENGR 310 is a problem-based learning course; learning by doing is fundamental. Faculty members serve as mentors for student team activities and projects. Teams are composed of students from colleges across Penn State, especially in engineering, business and IST. Clear expectations are set for students to take charge of their own learning. Written and oral communication skill development is a key objective; leaders and entrepreneurs must be clear, persuasive speakers and writers. From the first day of class, constructive feedback is provided after each presentation to improve quality, persuasion, and "thinking-on-your-feet" skills. Completion of a course portfolio, idea journal, and weekly class analysis reports are required.

The first half of the course focuses on leadership skill development, including understanding leadership theory, individual leadership styles, group and organizational leadership, the role of values and ethics, and life cycles of organizations.

The last half of the course focuses on entrepreneurship, including basic market research, product prototyping, strategic planning, business feasibility analysis, basic costing and financial analysis, grant proposal or business plan generation, and final project presentations as part of the College of Engineering Design Showcase.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 312 Sustainable Energy Entrepreneurship (3)** Three interrelated modules guide students through technical, global/business, and entrepreneurial aspects of sustainable energy.

**ENGR 312 Sustainable Energy Entrepreneurship (3)**

ENGR 312 examines three integrated components of the sustainable energy business: technical adaptability , financial structure , and entrepreneurial.

The technical component of the course provides an overview of the concept of energy and sustainable forms of energy, energy auditing process, as well as, the integration between supply, capacity, demand, and usage technology. Technical calculations of the power capacity of sustainable energy systems and the technical limitations, specifications, and feasibility studies of energy systems are also addressed.

The business component of the course provides an overview of the market and finance aspect of sustainable energy systems. Students will study the feasibility of sustainable energy systems from a business perspective, as well as perform quantitative cost-benefit analyses that include depreciation of sustainable energy systems and return on investment. Students will also evaluate existing energy business plans.

The entrepreneurial component focuses on the skills needed to perform a feasibility study of market opportunities related to sustainable energy, including entrepreneurial risk and sustainability ethics. Government incentives and the impact of policy issues on business decisions for sustainable energy systems will also be addressed. Students will learn how to take a global view in the assessment of market needs and they will gain in-depth knowledge of ways to obtain public and private financing for a prospective venture. A justification of sustainable energy applications, including environmental impact, will also be discussed.

The capstone project will link all three components of the course by requiring students to create their own energy business plan for a residential or commercial site of their choice. The energy business plan will focus on the best technical and economic practices in the sustainable energy marketplace.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: EGEE 102E B F 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 320 Materials Properties Measurement I (3)** Measurement and experimental procedures determination of the mechanical properties of engineered materials under deflection, compression, tension, fracture and fatigue conditions.

**ENGR 320 Materials Properties Measurement I (3)**

Materials Laboratory I introduces students to the experimental procedures in determining mechanical properties (elastic modulus, shear modulus, Poisson's ratio, and fracture toughness) of engineered materials. Students gain hands-on experience in strain gage mounting and material properties measurement using strain gages. In conjunction with mathematical modeling software, finite element analysis is used to analyze engineering components subjected to mechanical and thermal loading (static and dynamic). Experiments and lectures are designed to demonstrate the theory and practice of mechanical measurement of material. Students utilize state-of-the-art equipment for experimentation in conjunction with advanced modeling software such as ANSYS to predict and evaluate material behavior under mechanical and thermal loading.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: E MCH 213;ENGR 350E MCH 407 Prerequisiste or concurrent:E MCH 461

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 320Y (GS;US;IL) Design for Global Society (3)** An interdisciplinary study of the engineering design process and the influence of society and culture on design.

**Design for Global Society (3)**

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: ENGL 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 350** Computational Modeling Methods (3) Theoretical and hands-on experience of mathematical modeling in mechanical systems; 2D thermal stresses, beam elements, solid modeling and vibrations.

**ENGR 350 Computational Modeling Methods (3)**

Computation and Modeling Methods is intended to introduce students to strategies in mathematical modeling of physical phenomena using ANSYS. The course provides theoretical understanding and hands-on experience of the modeling techniques used in engineering practice and allows students to apply these skills to engineering computational problems. Modeling of engineering processes requires users to have a working knowledge of ANSYS and modeling techniques such as mesh construction and analysis. This course teaches the principles of mathematical modeling of various physical phenomena and allows students to learn the basic strategies of mathematical modeling and advanced mesh analysis on topics involving structural, thermal, and materials engineering.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: CHEM 112;CMPSC 201;E MCH 213;MATH 231;M E 300 orEME 301;PHYS 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 394** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 395** Engineering Co-Op Work Experience II (1-3) A supervised work experience where the student is employed in an engineering position in industry or government. (To be offered only for SA/UN grading.)

**Engineering Co-Op Work Experience II (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1987

Prerequisite: ENGR 295

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 395A** Engineering Cooperative Education (1-2 per semester) A supervised work experience in research, industry or government relevant to a student's major.

ENGR 395A

**ENGR 395A Engineering Cooperative Education (1-2)**

This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major classes in a professional laboratory, industry, or government agency setting in the United States. This course is the second of three courses that provide progressive, multiple, alternating semesters of career-related experience in the Cooperative Education Program. The final grade (SA/UN) will be based on the final report submitted by the student and a mid-term and final evaluation submitted by the employer. This course will be offered fall, spring, and summer semesters.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

Prerequisite: ENGR 295A orENGR 295I

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 395I** (IL) Engineering International Cooperative Education (1-2 per semester) A supervised work experience in research, industry or government relevant to a student's major.

ENGR 395I

**ENGR 395I Engineering International Cooperative Education (1-2)  
(IL)**



This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major classes in a professional laboratory, industry, or government agency setting outside of the United States. This course is the second of three courses that provide progressive, multiple, alternating semesters of career-related experience in the Cooperative Education Program. The final grade (SA/TJN) will be based on the -final report submitted by the student and a mid-term and final evaluation submitted by the employer. This course will be offered fall, spring, and summer semesters.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: ENGR 295A or ENGR 295I

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 396** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 397A** Advanced Engineering Communication (3) This is a required training course for those accepted into the Engineering ambassadors program.

#### **Advanced Engineering Communication (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 397B** World Class Engineering (3) The practice of engineering is being shaped worldwide by major trends such as globalization, informatization, and financialization. Organizations that depend on engineers must continually refine engineering practice to complete at a world-class level. These changes in engineering practice lead to increased expectations for engineers in ethical and cultural competencies and their abilities to collaborate, innovate, and lead. This course discusses major social, business, and technical trends that are changing the practice of engineering within multinational and domestic contexts. Because engineering collaborations increasingly cross cultural boundaries as well as national borders, the impacts of culture on engineering processes are addressed. Ethical dimensions of engineering practice are discussed at the individual, team, and organizational level through topics such as developing trust, sustainable development, and corporate social responsibility.

#### **World Class Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 405** Project Management for Professionals (3) Covers the essential concepts and skills needed to make effective contributions on projects, on time and within budget.

**ENGR (WF ED) 405 Project Management for Professionals (3)**

Professionals in the workplace carry out many different projects every day ranging from somewhat small tasks, e.g., planning events and designing courses, to big projects, e.g., launching an enterprise wide system. Project Management for Professionals is a practical "hands-on" course designed for mid-career adult students and covers the essential concepts and skills needed to make effective contributions and have an impact on the successful accomplishment of projects on time and within budget. Project management principles and techniques are presented with an emphasis on how they are applied to real world workforce development projects. Topics include the project management life cycle and process; techniques for planning, scheduling, budgeting, and controlling project performance; project manager responsibilities and skills; project team development and effectiveness; project communication; and organization structures.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: two years of work experience or fourth-semester standing or prior approval of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 407** Technology-Based Entrepreneurship (3) Technology innovation coupled with business planning and development.

**Technology-Based Entrepreneurship (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: ECON 102 or ECON 104

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 408** (US) Leadership Principles (2) An introduction to an exploration of theories and principles of leadership, supplemented by presentations given by industry and government leaders.

**Leadership Principles (2)**

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 409** (US) Leadership in Organizations (3) Development of leadership skills essential for engineers to guide

colleagues or an organization in a productive direction.

**Leadership in Organizations (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 411 Entrepreneurship Business Basics (3)** Three critical entrepreneurship skills are covered for non-business majors: business finance, intellectual property, and marketing.

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**ENGR 411 Entrepreneurial Business Basic (3)**

ENGR 411 covers three critical skill areas of non-business students: business finance, intellectual property, and marketing. These business areas are covered in three sequential 5-week modules over the semester. This course emphasizes problem-based learning (PBL), in which students engage in real-world problem-solving exercises each and every class period. With this learning approach, students develop and use skills sets in financial management, intellectual property management, and both business-to-consumer marketing (B2C) and business-to-business marketing (B2B). Each student is responsible for all course material and completing all PBL exercises covered in class, whether present or not. Student presence and preparation in every class period is expected.

To encourage active learning of ENGR 411 course material, students are divided into small discussion and working teams. Discussion teams will be responsible for : 1) developing questions for class interaction; 2) highlighting the important points of the readings/case studies; and 3) solving problems and presenting solutions to the class.

Up to three technology businesses or events of current interest will be analyzed during the semester. These case studies bring out the interdependence of finance, intellectual property, and marketing decisions in product creation. Example business case studies include Napster and the Bridgestone/Firestone litigation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002  
Prerequisite: three credits in economics or economics-related course

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 415 Technology Launch for Entrepreneurs (3)** Development of a technology-based product or service that includes creative ideation, concept evaluation, market and sales analysis, prototyping, and manufacturing with potential for commercialization.

**Technology Launch for Entrepreneurs (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: ENGR 407 and eitherMGMT 215 orENGR 310 and 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 421 Materials Properties Measurements II (4)** Materials powder characterization, compaction and densification techniques, density measurements, micro structural evaluation, thermal and electrical properties of materials.

**ENGR 421 Materials Properties Measurement II (4)**

Materials property measurement II introduces students to experimental procedures in the determination of thermal properties (heat transfer/conduction and thermal expansion) and electrical properties (resistance and dielectric measurements) of materials through demonstrations and experiments. Lectures provide a theoretical understanding of the characterization techniques and provide information for the design and interpretation of experimental results. This laboratory complements lectures in materials characterization, materials processing and materials design courses allowing students to apply theoretical knowledge to experimental processes. Students gain hands-on knowledge of testing equipment and experience in data acquisition and interpretation. Students gain experience in the processing of material (powder characterization, consolidation, and densification), the analysis of material microstructures and investigations of structure property relationships.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

Prerequisite: ENGR 320MATSE 201MATSE 400

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 425** (IST 425, MGMT 425) New Venture Creation (3) Via problem-based learning, teams define new business ventures to meet current market needs, develop business plans, and present to investors.

ENGR 425

**ENGR (MGMT/IST/ENTR) 425 Introduction to Entrepreneurship (3)**

The goal of ENGR (MGMT/IST/ENTR) 425 is to better prepare undergraduate students to be business leaders in adaptive, globally-minded, technology-savvy companies. The course is structured so students develop skills that are of high value in any workplace: they develop improved leadership skills, higher self-efficacy, creativity and the ability to deal with ambiguity. On course completion, students will have a working knowledge of traditional and non-traditional ways for identifying a new product or business opportunity, quantifying the potential, understanding the key competitive factors, researching the audience and producing a convincing executive summary for internal or external financing and launch. Students who want to augment the skills and knowledge from their major with the ability to refine a new product/service process in an interdisciplinary team will find ENGR (MGMT/IST/ENTR) 425 a valuable course.

This is a novel problem-based learning (PBL) course, where the learning is student-centered, with faculty acting primarily in the role of facilitators. Active learning happens in this course because students develop ownership in their new business venture concept and are fully responsible for the genesis of the idea. The course leverages the on-line course management system (ANGEL) to define weekly learning objectives, support electronic delivery of assignments, robust video content with entrepreneurs is provided on CD-ROM or via ANGEL, providing additional insights into entrepreneurship. The technology or business segment focus of the class is easily adapted by using different case studies and course mentors.

This will be one of two courses in the new two-course sequence for business students in entrepreneurship. This course will be accepted as a supporting course in the Engineering Entrepreneurship Minor (E-SHIP) and in the Engineering Leadership Development Minor (ELDM). ENGR (MGMT/IST/ENTR) 425 can be used as a technical elective in many of the engineering departments. It will be accepted as a Support of Option course for the Information Sciences and Technology (IST) major.

This course will be offered each Fall and Spring semester with two sections each semester. Class enrollment per section will be set at 60 total.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 orECON 014;CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 426** (IST 426, MGMT 426) Invention Commercialization (3) Working with Penn State inventions selected by the Intellectual Property Office, student teams define an optimum commercialization path each technology.

ENGR 426

**ENGR (MGMT/IST/ENTR) 426 Invention Commercialization (3)**

The goal of ENGR (MGMT/IST/ENTR) 426 is to have students understand why invention commercialization is complicated and difficult by participating in the process. For example, the inventor rarely has insights into the markets for his/her invention, is often not interested in the details of commercialization, and can be secretive. In addition, the business and financial communities often do not take the time, or have the resources, to understand new technologies and perform complex due diligence. Thus lack of due diligence often leads to rejection of innovation because existing companies often discount new technologies from outside the company as NIH - "not invented here".

Effective transfer of new invention or innovation to a commercial product requires at least three different functional communities to interface: technical, legal and business. Each uses a different language, comes from different educational and cultural backgrounds, and may have an inherent distrust of the others. These functional barriers are difficult to overcome.

This course teaches how these barriers can be broken down as student teams help bridge the perceived chasm between key players in the invention commercialization process. In these teams, students bring the skills and knowledge from their major to develop an invention commercialization recommendation for the Technology Transfer Office and the inventor. For example, business students focus on finance and market opportunity assessment; engineering and IST students focus on design refinements, prototyping support, and (if appropriate) making technology suggestions to the inventor.

Upon completing the course, the students will have a working knowledge of different university and corporate technology or invention commercialization processes, important intellectual property management tools for inventions (patents, license agreements, option agreements) source of funding to move inventions toward product development, and delivering top quality presentations which outline the recommended commercialization path. Students who enjoy open-ended projects which involve the interplay of business and invention of who wants to work on interdisciplinary teams with the newest inventions will find this course a valuable course. NOTE: Because the inventions/products are based on Penn State faculty intellectual property, students must sign the Penn State Special Intellectual Property Agreement For Students - For Use When Assigning Intellectual Property to The Pennsylvania State University. The form can

be viewed at <http://guru.psu.edu/policies/RAG13.html>

The course will be offered both Spring and Fall semesters with an enrollment of 40 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 orECON 014;CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 450 Materials Design and Applications (3)** Engineering design considerations for materials selection, organization of property trends of materials families, materials design strategies and property compatibility.

### **ENGR 450 Materials Design and Applications (3)**

ENGR 450 introduces students to the process of materials organization and selection for application needs. Students select materials for applications based on desired properties, materials compatibility, and economic factors and learn how to design materials (composites) to fulfill critical materials requirement of an engineering application. The course facilitates students with the understanding of the engineering design process to make educated decisions on the materials selection and/or design for industry application needs. Students learn to understand trends in property characteristics associated within given families of materials, i.e. metals, ceramics and polymers, and to balance engineering needs and economic considerations with the application design process.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: ENGR 350E MCH 407 orE MCH 461;ENGR 421

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 451 Social Entrepreneurship (3)** Students develop business models and implementation strategies for social ventures in diverse world regions.

### **ENGR 451 Social Entrepreneurship (3)**

Social Entrepreneurship is about pursuing direct action to address a social problem in a manner that leads to a truly sustainable solution. A similar perspective on social entrepreneurship is based on Jean-Baptiste's definition of entrepreneurs as permanent value creators. If the primary objective of value creation is positive social change, then the entrepreneur can be categorized as a social entrepreneur. Sustainability and scalability of the venture to create social change on a larger scale is essential. Metaphorically, while conventional entrepreneurs might pursue the creation of multi-million dollar enterprises, social entrepreneurs strive to create multi-million smile enterprises, while understanding that their ability to expand their social returns bears a dynamic interdependence with their economic bottom line. The mission of the venture must be strongly aligned with the measured outcomes, and this emphasis on measuring social and economic impact is crucial to the efficacy and success of social enterprises.

The theory and praxis of social entrepreneurship is constantly evolving within the complex framework of political, economic and social changes occurring at the global, national and local levels in the US and other countries. Students study the dynamics of social challenges, approaches to address them, and the conceptual framework of social innovation and social entrepreneurship from theoretical and practical perspectives. Students explore technology solutions to addressing global social problems with a systems thinking approach. Case studies of successful and failed social ventures from diverse world regions and fields like healthcare, energy, food and agriculture, education, income generation, and access to capital are employed. There is an emphasis on the opportunities and challenges to multi-sectoral collaboration to address social challenges.

Students learn how to develop appropriate business models and implementation strategies for a "sustainable" social venture. Sustainability, in this regards, refers to ventures that are technologically appropriate, environmentally benign, socially acceptable and economically sustainable. There is a specific emphasis on understanding the customers and their context and economic sustainability of the ventures. The course draws heavily from cases to understand the diverse business structures and execution strategies used by social entrepreneurs and the varied challenges faced by them. Students work in multidisciplinary cross-functional teams to develop a business/implementation model for a social venture in diverse world regions. These are real ventures that are connected to other Humanitarian Engineering and Social Entrepreneurship (HESE) course offerings.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: 5th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 455 Humanitarian Engineering and Social Entrepreneurship Reflection and Research Dissemination (3)** This post-fieldwork course focuses on reflection on ethical issues and grassroots diplomacy challenges, and workshops on research dissemination.

### **ENGR 455 Humanitarian Engineering and Social Entrepreneurship Reflection and Research Dissemination (3)**

The HESE Reflection and Research Dissemination course provides students an opportunity to reflect and build upon their experiences following the EDSGN 454 class involving travel to the partnering community to advance their HESE venture. There are three intertwined themes. One theme explores the ethical intricacies of conducting research and advancing entrepreneurial ventures in developing communities. The grassroots diplomacy theme delves into the complicated and delicate challenges of working in developing communities in a harmonious and effective manner. The research dissemination theme provides students with just-in-time information and skill-sets necessary for developing their research manuscripts into refereed publications.

**Post-travel reflection on ethical issues:** This theme explores the ethical intricacies of conducting research and advancing entrepreneurial ventures in the context of developing communities. The ethics-related discussions help students reflect on their experience and develop a mindset where they want to make better ethical decisions because they are emotionally engaged and can effectively assess the implications of their actions.

**Grassroots Diplomacy:** During their field experience, HESE students interact with diverse parties including local communities, non-governmental organizations, governmental and UN agencies, religious organizations, political groups, bureaucrats, local industry, US corporations, tourists, etc. Students observe and experience ego and community tensions and dynamics. They might get asked for grease payments or be propositioned for dowry. They might experience conflict or observe other groups, or their own group, compromise the core concept of self-determination. Workshops in the grassroots diplomacy theme delve into the complicated and delicate challenges of working in developing communities in a harmonious and effective manner to catalyze social change with their technology-based ventures.

**Research Dissemination:** HESE students are engaged in an IRB-approved research study related to their venture, for which they gather data during the summer field experience. This workshop series provides students with just-in-time information and skill-sets necessary for developing their research manuscripts. The workshops lower the barriers to the scholarly dissemination of their work. Sharing designs, business/implementation strategies, and lessons learned is extremely important for the praxis of HESE worldwide. For examples, published designs for low-cost greenhouse can help people in many world regions. A paper on the non-technical challenges to the growth of the small-scale wind power industry in Kenya served as a starting point for a windmill venture.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: EDSGN 454

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 475 Space Systems Engineering Seminar (1)** Seminar overviewing the systems engineering approach as applied to practical space systems.

### **ENGR 475 Space Systems Engineering Seminar (1)**

As a requirement for the Space Systems Engineering (SPSYS) Certificate, this course is offered to students in the Certificate and others interested in Space Systems and more broadly in systems engineering. The course exposes students to the systems engineering approach as applied to practical space systems. The goal of this course is to prepare the student to understand and implement the systems approach to designing, building, testing, and flying space systems.

The course begins with a series of lectures and discussions on the systems approach to engineering and how it applies to space systems in particular. Students then explore past, present, and future space systems and report on the use of systems principles in their design, fabrication, test, and flight operations-for both successful and unsuccessful space systems.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: 5th semester standing or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 486 Business Opportunities in Engineering (2)** Business principles, leadership and management strategies, accounting fundamentals, engineering and business ethics, creativity, and personal character as a formula for success.

**ENGR 486 Business Opportunities in Engineering (2)**

This course focuses on business principles that will help Engineering students transition from academia to the business world. Engineers can be highly successful and climb the corporate ladder or transition to entrepreneurship. Awareness of what is needed to succeed in business is the key to success. This course opens the horizon to new ideas, business opportunities, and profitability.

Fundamental aspects of accounting including budgeting, cash flow, profit-loss statements, job cost ledgers, overhead and fringe computation are examined. Creativity, critical thinking methods, and ethics as applied to engineering and business are studied in conjunction with case studies. Business plan structure and content are analyzed along with case histories of successful companies. Students will learn how to articulate a business viewpoint, create a mission or vision statement, and present a creative idea clearly and concisely using an "elevator ride" or "billboard" approach via essays, proposals, and business plan preparation and presentation. Students will learn leadership and management strategies that will be applicable immediately.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: 5th semester standing or higher. This course is not open to Business students.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 487 Business Opportunities in Engineering: The Business Plan (1)** Essential elements, development, and presentation of the Business Plan from both an engineering and business point of view.

**ENGR 487 Business Opportunities in Engineering: The Business Plan (1)**

This course focuses on business opportunities in engineering. Students will learn about the essential elements of the Business Plan and the value of, and methods for, developing and presenting a Business Plan to start a business. Topics include The Business, Marketing, Financials, Supporting Material, Writing and Presentation Tips and Practice, and Case Studies. Aspects of creativity, winning business plans, strategies, strengths, competition, litigation, insurance, marketing, distribution, sales, and funding will also be discussed. This course complements Business Opportunities in Engineering that must be taken as a prerequisite or in conjunction with this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: or concurrent:ENGR 486

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 490W Senior Design I (1)** Analysis of environmental impacts on a design, designing products for the global environment and discussion on engineering ethics and professionalism.

**ENGR 490W Senior Design I (1)**

Senior design I provides students with experience in solving engineering problems independently and/or working in groups on an open-ended design problems. Students refine skills in information gathering, analysis of market and technical considerations, critical thinking of project/design scope and effective communication of project/design objectives. This course builds on previous knowledge and applies it to a global consideration of design criteria to a specific projects provided by relevant faculty. The course is the first installment of a senior capstone program in which students start to understand the global aspects of the engineering design process with respect to individual/group projects. Students gain perspective on project selection and research expectations from faculty and gather the relevant technical knowledge required to initiate the project. Projects are appropriately scoped for undergraduate research and are faculty initiated sponsored by regionally based industry (similar to The Learning Factory Experience at UP). Faculty provides research opportunities and external industry collaborations to students for selection based on common interest.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: Prerequisite or concurrent:ENGR 350E MCH 407E MCH 461 orM E 461

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**ENGR 491W Senior Design II (3)** Capstone of research projects from conception to prototype through industry sponsored collaboration on common technical interests between faculty and student.

**ENGR 491W Senior Design II (3)**

Senior design I provides students with experience in solving engineering problems independently and/or working in groups on an open-ended design problems. Students refine skills in information gathering, analysis of market and technical considerations, critical thinking of project/design scope and effective communication of project/design objectives. This course builds on previous knowledge and applies it to a global consideration of design criteria to a specific projects provided by relevant faculty. The course is the first installment of a senior capstone program in which students start to understand the global aspects of the engineering design process with respect to individual/group projects. Students gain perspective on project selection and research expectations from faculty and gather the relevant technical knowledge required to initiate the project. Projects are appropriately scoped for undergraduate research and are faculty initiated sponsored by regionally based industry (similar to The Learning Factory Experience at UP). Faculty provides research opportunities and external industry collaborations to students for selection based on common interest.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: ENGR 490W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 493 Individual Leadership Experience (1)** Approved individual project or internship for students to practice the leadership skills developed in the Engineering Leadership Development Minor.

**Individual Leadership Experience (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: Prerequisite or concurrent:ENGR 408

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 494 Research Project Courses (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project Courses (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 494H Research Project Courses (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project Courses (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 495 Engineering Co-Op Work Experience III (1-3)** A supervised work experience where the student is employed in an engineering position in industry or government. (To be offered only for SA/Un grading.)

**Engineering Co-Op Work Experience III (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1987

Prerequisite: ENGR 395



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 495A** Engineering Cooperative Education (1-3 per semester) A supervised work experience in research, industry or government relevant to a student's major.

ENGR 495A

**ENGR 495A Engineering Cooperative Education (1-3)**

This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major classes in a professional laboratory, industry, or government agency setting in the United States. This course is the third of three courses that provide progressive, multiple, alternating semesters of career-related experience in the Cooperative Education Program. The final grade (SAFUN) will be based on the final report submitted by the student and a mid-term and final evaluation subn-titted by the employer. This course will be offered fall, spring, and summer semesters.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

Prerequisite: ENGR 395A or ENGR 395I

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 495I (IL)** Engineering International Cooperative Education (1-3 per semester) A supervised work experience in research, industry or government relevant to a student's major.

ENGR 495I

**ENGR 495I Engineering International Cooperative Education (1-3) (IL)**

This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major classes in a professional laboratory, industry, or government agency setting outside of the United States. This course is the third of three courses that provide progressive, multiple, alternating semesters of career-related experience in the Cooperative Education Program. The final grade (SA/UN) will be based on the final report submitted by the student and a mid-term and final evaluation submitted by the employer. This course will be offered fall, spring, and summer semesters.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: ENGR 395A or ENGR 395I

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1993

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 496A** International Experience-Hungary (0.5) Independent Study in Engineering Leadership Topics.

**International Experience-Hungary (0.5)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1988

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 497A** Politico-Engineering (3) This course overviews the current "politico-engineering (politically-initiated engineering)"; technologies for the society sustainability and crisis technologies for natural disaster, infectious disease, enormous accident, terrorist/criminal incident, and war/territorial invasion, including risk management in the international relationship.

### **Politico-Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: senior or graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 497C** Global Engineering Teams Seminar (1) Preparation for a career in international engineering enterprise. Prerequisite for students traveling internationally with the Engineering Leadership Development Program. Students must earn a B or better in this class to qualify for travel.

### **Global Engineering Teams Seminar (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: ENGR 408 and ENGR 493 (grade of C or better)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 497I** Seminars for Teaching Interns (0.5) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Seminars for Teaching Interns (0.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGR 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Engineering Design (EDSGN)**

**EDSGN 010** Introductory Engineering Graphics (1) Multiview projections, pictorial drawings, dimensioning, engineering standards, and working drawings.

### **Introductory Engineering Graphics (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 011S** Explorations in Design First-Year Seminar (1) Students explore topical issues in engineering design.

**Explorations in Design First-Year Seminar (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 012S** Solar Racers First-Year Seminar (1) Students explore solar energy engineering by designing, building, testing, and racing a model car powered by a photovoltaic panel.

**EDSGN 012S Solar Racers First-Year Seminar (1)**

This engineering First-Year Seminar, Solar Racers, is intended as a topical introduction to the field of solar engineering with a focus on solar electricity. Through hands-on activities, readings, and research, students explore the application of solar energy to power a model car (and by extension, solar electricity generation in general). Working in small teams, students design, build, and test a model solar-powered car. This seminar emphasizes active learning via project-oriented teamwork. Solar principles to be demonstrated include solar angles, solar resource, and conservation of energy. Students also use spreadsheets and computer models to perform parametric studies as an aid in the design process.

Classes typically begin with a review and overview of the topics for that day. Class time is spent discussing new material, recent assignments, and working in the lab. Students also serve as mentors and advisors for local middle school students who will also be building and racing similar model solar cars.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 013S** Ethics of Star Trek First-Year Seminar (1) The Star Trek television series is used as an introduction to ethics, with application to student life and engineering practice.

**EDSGN 013S Ethics of Star Trek First-Year Seminar (1)**

In this first-year seminar, *The Ethics of Star Trek*, students explore ethical issues that arise in various episodes of *Star Trek*, from *The Original Series* with Captain James T. Kirk and company, through *The Next Generation*, with Captain Jean Luc Picard. Students learn how to methodically approach tough ethical decisions in their lives, especially those in professional life. This course helps them to identify, understand, and examine their moral values, and especially to plan actions that are consistent with these values. The class explores the current thinking on the responsibilities of engineers to society, community, family, and themselves. This is a discussion and application oriented course with emphasis placed on applying key concepts to realistic problems and on developing skills such as team work, argumentation, and communication skills.

Underpinning the viewing of Star Trek episodes, the course starts with a foundation on moral and ethical theory. After discussing the ethical issues faced by the Star Trek crews, the class investigates similar situations faced by students and by engineers. Teams analyze and solve progressively more complex ethical cases in engineering and in general. The goal of the course is for students to develop their moral imagination and to understand how to make the best choices in difficult circumstances.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 015S** Transformations by Design: First-Year Seminar (1) Examination of the social and environmental transformations that follow engineering design, and of the transformations of students by higher education.

**EDSGN 015S Transformations by Design: First-Year Seminar (1)**

Engineering design is a diverse field of study with many emerging topics and applications. The goal of this first-year

seminar course is to introduce first-year students to engineering design. In turn, design is set within the essential dynamic context of technology: the transformation of the environment and society. Hence, doing design well means creating a better world and a sustainable environment. Students examine the global networks of product life cycles from extraction to disposal that is triggered by engineering design and how it affects people's lives and the environment.

Since much engineering design is integrated design that brings together the disciplines and people necessary to achieve a design solution to a given problem, this FYS provides students with a vivid glimpse of engineering careers. This is developed further by student presentations that focus on their life goals and how their expected career in a given field of engineering will help them to achieve their goals.

This course will combine lectures, discussions, teamwork, projects, and hands-on activities, with an emphasis on active learning and an examination of the transformations of technology from transducers to product life cycles.

In addition to introducing first-year students to design topics and careers in engineering, this seminar course will help incoming students develop success skills and become acclimated to University life. But higher education is also presented to the students as a transformative process that reshapes their social relationships and determines much of their future.

The course will be offered once a year in the fall semester.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 100** Introduction to Engineering Design (3) Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal, and written.

### **Introduction to Engineering Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 100H** Introduction to Engineering Design (3) Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal, and written.

### **Introduction to Engineering Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 100S** Introduction to Engineering Design (3) Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal, and written.

### **Introduction to Engineering Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 110** Spatial Analysis in Engineering Design (2) Spatial analysis techniques using advanced computer-aided drafting and design systems, with an emphasis on engineering concepts, analysis and design.

### **EDSGN 110 Spatial Analysis in Engineering Design (2)**

EDSGN 110 is a continuation of EDSGN 100, moving toward an introduction to computer-aided engineering. Emphasis is on the design of mechanical systems using two-dimensional (2D) drawings and three-dimensional (3D) solid modeling techniques commonly used in the mechanical design and structural systems.

This course covers spatial relationships using the advanced functionality of computer-aided drafting and design systems. Students will be able to: (1) create and interpret advanced 2D engineering models and drawings; (2) create and

manipulate 3D solid models; and (3) use these techniques in practical engineering design problems. Students will become proficient in the use of computers for the simulation of mechanical systems, design documentation, network storage and retrieval, and presentation technologies. The student will create and interpret advanced 2D engineering drawings which may include auxiliary views and working drawings. Using the engineering design process and solid modeling software, the student will create and manipulate 3D solid models and assemblies to aid in the design and documentation of simple mechanical systems.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2010  
 Prerequisite: EDSGN 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 130** Architectural Graphics and CAD (3) Principles of architectural drawing; spatial relations with architectural applications; introduction to computer graphics (CAD) with project.

### **Architectural Graphics and CAD (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 210** Tolerancing and Spatial Models (2) Tolerances; form and size; unilateral, bilateral, and symmetric; form control, critical fits, tolerances specifications precedence; applications in spatial models.

### **EDSGN 210 Tolerancing and Spatial Models (2)**

Professional parametric solid modeling software will be applied to produce complete, industry-typical and standard working drawings, including part detail drawings and various types of assembly drawings; to implement the appropriate tolerance design of interfacing components and to explore advanced productivity-enhancing add-in modules. Students will be introduced to the variety and relative precedence of specifications for feature tolerances, and to the basic differences between form and size tolerance. Topics covered include: unilateral, bilateral and symmetric size tolerances, form control and tolerances, calculations for critical fits, specification precedence for tolerances, e.g., stock size vs. size directly specified in the drawing field vs. title block tolerances vs. drawing notes, etc. Laboratory assignments will include: part drawing with standard three orthographic views, complete dimensions, and a section view; part drawing with complete dimensions and a broken view; part drawing with complete dimensions and a primary auxiliary view; part drawing with complete dimensions and a secondary auxiliary view; part drawing with complete dimensions and removed detail view(s); detail drawing with correct limit tolerances on features which are critical for fit and function, assembly file with separate sub-assemblies, assembly drawing (with part identification balloons and a bill-of-material) which uses sectional views to expose fine internal detail and part interrelationships, assembly drawing (with part identification balloons and a bill-of-material) which is based upon an exploded view, assembly drawing of a tooling fixture (with part identification balloons and a bill-of-material) which shows the subject work piece transparently with phantom lines, Configured part file with tabulated drawing, welding of an assembly using advanced software capabilities and production of a welding drawing with correct symbols, production of an injection mold cavity from the subject part file, exploration of the functionality of sheet metal modules, applications of top down design and layout sketches, application of motion-simulating modules and functionality. The differences between coordinate tolerancing and geometric tolerancing are included in the course. The American Society of Mechanical Engineers Y14.5M will be referenced. The following topics will be covered: Eight key GD&T terms, GD&T modifiers and symbols, Rule #1 and #2, concepts of GD&T, introduction to the flatness control, straightness control, circularity control, perpendicularity control, angularity control, parallelism control, concentricity control, symmetry control, the datum system (planar datum, introduction to datum targets, FOS datum specifications (RFS), FOS datum specifications (MMC)).

General Education: None  
 Diversity: None  
 Bachelor of Arts: None

Effective: Summer 2010  
Prerequisite: EDSGN 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 297A** Engineering Design Abroad (3) This course provides a unique opportunity for students to study engineering in cross-cultural design teams at partner institutions worldwide. The course examines engineering design from various cultural perspective through hands-on design activities, engagement with industry partners and a 2-week design project. Through the course, students will learn to identify and analyze cultural differences during customer needs assessments, formulate engineering design solutions and prototypes (3D models), and communicate design process and concepts to a cross-cultural audience. The culmination of this course is a final project where the results are presented in oral reports as well as detailed prototypes. Student evaluations will be based upon the quality of oral reports, prototypes, and team performance. Students choose the focus of their global engineering design experience by selecting the location of their studies from a list partner institutions.

#### **Engineering Design Abroad (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: EDSGN 100 or EDSGN 100H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**EDSGN 297B** Engineering Design Abroad (3) This course provides a unique opportunity for students to study engineering in cross-cultural design teams at partner institutions worldwide. The course examines engineering design from various cultural perspective through hands-on design activities, engagement with industry partners and a 2-week design project. Through the course, students will learn to identify and analyze cultural differences during customer needs assessments, formulate engineering design problems that span cultural boundaries, compare design solutions within a cultural context, design and develop efficient design solutions and prototypes (3D models), and communicate design process and concepts to a cross-cultural audience. The culmination of the course is a final project where the results are presented in oral reports as well as detailed prototypes. Student evaluations will be based upon the quality of the oral reports, prototypes, and team performance.

### **Engineering Design Abroad (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: EDSGN 100 or EDSGN 100H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 352** Fundamentals of Community Service Engineering (1) Students collaborate on community service engineering projects. Course modules cover engineering design, teamwork and topics relevant to project work.

### **EDSGN 352 Fundamentals of Community Service Engineering (1)**

EDSGN 352 is intended to assist students with improving their engineering skill through design/build activities. Students are required to design and construct an appropriate technology of their choice--a technology useful and commonly found in community settings. Examples of such appropriate technologies include projects related to water treatment and testing, wastewater treatment and testing, housing, energy, agriculture and mechanical devices.

Lectures and presentations are provided, along with associated student activities, addressing skills needed by design engineers when engaging in community-based projects. These include topics related to (among others): laboratory/shop training, project management techniques, teambuilding exercises, creation and implementation of community assessment tools, project management and leadership skills, as well as issues related to ethics and sustainability.

Students will also collaborate with EDSGN 452 students on actual, real-life projects.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 394** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique or activity required.

#### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 396** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 401** Engineering Systems Design (3) Design requirements for complex systems; trade-offs between market opportunities and technology; translation of priorities and needs into an operational concept.

#### **EDSGN 401 Engineering Systems Design (3)**

This course provides the knowledge and skills necessary to translate needs and priorities into system requirements, and develop derived requirements, which together form the starting point for engineering of complex systems. Students will develop an understanding of the larger context in which requirements for a system are developed, and learn about trade-offs between developing mission needs or market opportunities first versus assessing available technology first. Techniques for translating needs and priorities into an operational concept and then into specific functional and performance requirements will be presented. Students will assess and improve the usefulness of requirements, including such aspects as correctness, completeness, consistency, measurability, testability, and clarity of documentation. The course explores the role of techniques such as decision analysis, cost-benefit analysis, and risk assessment. Students will understand the limitations of the way that current systems engineering is practiced in terms of dealing with complexity, lifecycle uncertainty and other factors.



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: EDSGN 100CMPEN 271E MCH 212MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 410 Robotics Design and Applications (4)** Introduction to robotics, with emphasis on the design of robotics systems through multidisciplinary integration of electrical, mechanical, and software components.

#### **EDSGN 410 Robotics Design and Applications (4)**

The objective of this course is to apply the basic concepts of electrical, mechanical, and software technologies to analyze, design and test a robotics system. This course will draw from skills in prior coursework in electricity and electronics, statics and dynamics, and software design. The course includes a discussion of present applications and future directions of robotics in such areas as manufacturing, science, transportation, military, healthcare, and entertainment. Students will be introduced to mechanical systems analysis, sensors, software development, electrical systems, control algorithms, testing, prototyping, design, modeling, and simulation of robot systems. Students will work in teams to design and prototype a robot to perform a task and to satisfy a set of design requirements. Professional communication and documentation will be included in the course experience. This course is a multi-disciplinary, project-based course and will have a substantial laboratory component supporting team-based design, integration and testing of a robot system.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: CMPEN 472CMPSC 201 orCMPSC 121E E 310E MCH 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 452 Projects in Humanitarian Engineering (2)** Multidisciplinary student teams engage in integrated design of real-world humanitarian ventures.

#### **EDSGN 452 Projects in Humanitarian Engineering (2)**

EDSGN 452 is intended to promote civic responsibility and enhance the student's abilities to engage in research and design, project management, communications, professional conduct and the understanding of user needs. This is accomplished by students undertaking team-based engineering projects in community service with partner community organizations. The projects offer real-world engineering design experience, from problem formulation through performance assessment. The project offerings will include a mix of local and international offerings. Students work on multidisciplinary teams with a project supervisor (i.e., faculty or practicing engineer) and a representative from the partner community organization. Projects are selected based on academic content, potential significance to the partner community, commitment of the partner community organization, and student safety.

Students also examine the politics of technology, the relationship between engineering and communities (either domestic or international), and ethics in engineering practice. This includes the ways that engineering can be used positively and negatively in development. In the course of their work, the students will examine the ways that economic, social, cultural, political, and other contextual considerations are implicated in engineering design. Students are challenged to think critically about how engineering can be done most effectively to support community goals, and how engineering can weaken community efforts if done insensitively. These issues are explored through discussions of the relevant scholarly theory and through their manifestation in the course projects.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: 5th semester standing  
Concurrent: EDSGN 453

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 453 Design for Developing Communities (1)** A seminar series related to the context and integrated design of Humanitarian Engineering and Social Entrepreneurship ventures in developing communities.

#### **EDSGN 453 Design for Developing Communities (1)**

The Design for Developing Communities seminar course grounds students in EDSGN 452, BIOE 401, and other related courses in the basics of user-centered / context-driven design, extreme affordability, systems thinking, research ethics, privilege systems, travel and fieldwork, and related issues for technology-based social ventures in developing communities. These seminars directly help students across various classes and professional programs with their

Humanitarian Engineering and Social Entrepreneurship (HESE)-related ventures. Typically, three sections of this course are offered: one focusing on international ventures, one on local ventures and an honors section focusing on international ventures.

Designing appropriate products for customers inherently requires a thorough understanding of their needs. However, what happens when your target customers live in a developing country and have radically different needs than what you are accustomed to? Similarly, what happens when your audience lives in the United States, but in an unfamiliar environment? How do you know your product will be used by your intended customers? What pre-existing systems must your product work in harmony with?

Open to students of all majors, the seminar class prepares students working on HESE ventures to create sustainable enterprises in resource-constrained environments. Students are introduced to the contextual factors that must be taken into consideration throughout their design process. Relevant philosophies and methodologies that relate to the integrated design, business and implementation strategy development of social enterprises are introduced to the students in the seminar class. The objective is to light a fire and not fill a pail. The relevant methodologies and philosophies are then reinforced in an experiential manner in the concurrent design classes (like EDSGN 452, BIOE 401, etc.) where students work on their ventures.

Through the use of open discussion, videos, pictures, stories, and lectures, the course covers concepts such as systems-thinking, user-centered design, value creation, and effective communication. The seminar is highly interactive; students are encouraged to ask questions and provide examples of real-world situations that relate to the topics of conversation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: 5th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 454** Humanitarian Engineering and Social Entrepreneurship Field Experience (0.5) A hands-on integrated learning research and entrepreneurial engagement experience for students working on various humanitarian projects.

#### **EDSGN 454 Humanitarian Engineering and Social Entrepreneurship Field Experience (0.5)**

The Humanitarian Engineering and Social Entrepreneurship (HESE) Field Experience is a hands-on integrated learning, research and entrepreneurial engagement experience for students engaged in HESE ventures in the EDSGN 452 and allied courses (e.g. BIOE 401, ME 440W). Students travel to project site(s) for three weeks to advance their ventures by conducting field-testing of their technologies, testing their preliminary business models, and gathering data for research projects. They work closely with community members and various partnering agencies during the course. The partnering agencies range from community members to non-profits, community-based organizations, and governmental and United Nations agencies. Students work in cross- national cross-functional teams and make several presentations to community members, potential partners and investors. In the past, HESE students have worked in Kenya, Tanzania, Rwanda, India, El Salvador, Jamaica, Ecuador and other countries.

There is no set schedule for the three weeks in the partnering community. A (two-hour long) debriefing meeting is held every evening to discuss progress made by all the teams on that day and decide the action plan for the next day. Administrative issues, technological challenges, ethical or diplomatic issues are also discussed in this meeting and solutions are developed by consensus. The field experience is also a rich environment for students to explore the ethical intricacies of engaging in projects in international contexts. Students engage in debates on ethical issues related to science, technology and society in an applied setting – the people are real, the ethical dilemma is real and most importantly, a consensus is required to address the ethical issue and decide on the further course of action.

A collaborative and integrated approach of system design, business strategy, and implementation strategy development is employed. The process of operationalizing the design and the business / implementation strategies is as important as the product itself. This integrated design and implementation process encompasses conceptualization, validation, design, field-testing, implementation, and evaluation, all done in an iterative fashion. Several tools, from literature, industry (like the IDEO Human-Centered Design toolkit) and those developed by our teams (like the E-Spot Canvas) are employed during fieldwork. Student evaluation is by a reflective essay written 3-4 weeks after the completion of the trip.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: EDSGN 453

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 460W** Multidisciplinary Capstone Design Project (3 per semester/maximum of 6) Course provides multidisciplinary industry-sponsored and service-based senior design projects in conjunction with the Learning Factory.

**Multidisciplinary Capstone Design Project (3 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIO E CH E CMPEN E E I E or M E;BME 440 orE E 300W orI E 302I E 305I E 323I E 327I E 330I E 405 orM E 340

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.**EDSGN 460W** Multidisciplinary Capstone Design Project (3 per semester/maximum of 6) Course provides multidisciplinary industry-sponsored and service-based senior design projects in conjunction with the Learning Factory.**Multidisciplinary Capstone Design Project (3 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIO E CH E CMPEN E E I E or M E;BME 440 orE E 300W orI E 302I E 305I E 323I E 327I E 330I E 405 orM E 340

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.**EDSGN 479 (I E 479)** Human Centered Product Design and Innovation (3) Consumer product design for a global market, incorporating human factors principles and user desires in a multicultural perspective.**EDSGN (I E) 479 Human Centered Product Design and Innovation (3)**

This course will focus on consumer product design for a global market, incorporating human factors and ergonomics principles as well as user needs and emotional desires. The students will be led through product design process, various product design strategies, product planning, managing the development process, product evaluation, decision making tools, and market entry. Special emphasis will placed on user centered design, incorporating user characteristics, user needs and emotional desires (including Kansei engineering approaches), survey methodology, and usability testing. To emphasize the multicultural perspectives in today's global product design, interdisciplinary teams from two universities on opposites of the globe will apply these principles on actual industrial product designs for leading consumer product manufacturers.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: I E 408 orI E 419 or equivalent

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.**EDSGN 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.**EDSGN 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.**EDSGN 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 497A** Projects in Sustainability Leadership (3) This hands-on course challenges students to apply concepts of sustainability. An emphasis on residential energy and sustainability is used to prepare students to conduct home energy assessments and related activities in their community.

#### **Projects in Sustainability Leadership (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 497B** Solid Works Fundamentals (3) First level of solid works instruction.

#### **Solid Works Fundamentals (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 497B** Solid Works Fundamentals (3) First level of solid works instruction.

#### **Solid Works Fundamentals (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 497G** Current CAD Applications (3) Students will use the latest version of AutoCAD as a design tool for 2D and 3D applications in a variety of disciplines.

**Current CAD Applications (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 497G** Current CAD Applications (3) Students will use the latest version of AutoCAD as a design tool for 2D and 3D applications in a variety of disciplines.

**Current CAD Applications (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 497H** Open Source and the Design of Technology (1-3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Open Source and the Design of Technology (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 497H** Open Source and the Design of Technology (1-3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Open Source and the Design of Technology (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 497K** Engineering Design and Analysis with Advanced CAD (3) The course objectives are to understand how engineering design efforts are supported through the use of advanced computer aided design (CAD). Advanced CAD makes creating rich and complex designs possible. Advanced CAD (in this offering CATIA V5) is used as a design tool to build parts and assemblies, and to create drawings of those parts and assemblies. Students will learn basic FEA (Finite Element Analysis) capabilities to conduct structural analysis and computer simulation of designs. Students will learn how to generate models, establish meshes, apply boundary conditions, loads, and material properties to the model for structural analysis, and then generate an FEA report. Through various exercises, design projects with rapid prototyping models, and building design portfolios, students will obtain a solid foundations in the use of advanced CAD for their design and engineering analyses.

**Engineering Design and Analysis with Advanced CAD (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EDSGN 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Engineering Graphics Technology (EG T)**

**EG T 060** 3D Visualization and Spatial Development (1) Supplemental course designed to improve spatial skills through the use of interactive hands-on activities, such as clay modeling and multi-media software.

### **EG T 060 3D Visualization and Spatial Development (1)**

The ability to visualize objects and situations in one's mind, and more specifically the ability to manipulate those visualizations is an important skill for those in the engineering field. For example, EG T 120 Introduction to Graphics and Solid Modeling requires strong visualization skills to create orthographic (2D) and isometric (3D) representations of mechanical parts. Students must also be able to sketch an object 3-dimensionally from a 2D drawing and vice-versus. Strong visualization skills are also essential to successfully model 3D parts in a solid modeler, such as Pro/ENGINEER. In addition, research has shown students with poorly developed spatial skills, especially women, tend to become discouraged and drop out of engineering altogether if they are struggling in their very first "engineering" course. EG T 060 is designed to improve these spatial skills through the use of interactive hands-on activities, such as clay modeling (building a 3D object from a 2D drawing), snap cubes, and multi-media software specifically designed to improve these skills.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EG T 101** Technical Drawing Fundamentals (1) Technical skills and drafting room practices; fundamentals of theoretical graphics; orthographic projection including sectional and auxiliary views; dimensioning.

### **Technical Drawing Fundamentals (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1988

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EG T 102** Introduction to Computer Aided Drafting (1) A first course presenting an intensive study utilizing a computer assisted drafting and design system to obtain graphic solutions.

### **Introduction to Computer Aided Drafting (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1988

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EG T 114** Spatial Analysis and Computer-Aided Drafting (2) Spatial relations of applications in engineering technology with more advanced functionality of computer-aided drafting and design systems.

**EG T 114 Spatial Analysis and Computer-Aided Drafting (2)**

The EG T 114, Spatial Analysis and CAD course is a continuation of CADD (Computer Aided Drafting and Design) and an introduction to CAE (Computer Aided Engineering) with an emphasis on the state-of-the art 2-D drawing and 3-D solid modeling techniques commonly used in mechanical design and analysis of structural systems.

This course is also designed to cover spatial relations of applications in engineering technology, with more advanced functionality of computer-aided drafting and design systems.

Building on the knowledge and experience of Engineering Design from prior courses, the student will be able to: understand, create and interpret more advanced 2-D Engineering drawings; understand, create and manipulate 3-D solid models; use these two techniques in practical Engineering Design problems.

Having an understanding of computer systems, students will become proficient in the use of computers for the simulation of mechanical systems, design documentation, network storage and retrieval, and presentation technologies.

With a basic understanding of 2-D drawing software, the student will also be able to understand, create and interpret more advanced 2-D Engineering drawings, which may include auxiliary views and working drawings.

Finally, having an understanding of the Engineering Design process and a basic understanding of solid modeling software, the student will be able to understand, create and manipulate 3-D solid models and assemblies to aid in the design and documentation of simple mechanical systems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: EDSGN 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EG T 119 Introduction to CAD for Electrical and Computer Engineering (2)** Introduction to computer-aided drafting (CAD) for Electrical and Computer Engineering Technology students with a focus on three dimensional assemblies.

**EG T 119 Introduction to CAD for Electrical and Computer Engineering (2)**

This course is intended to teach Electrical and Computer Engineering Technology students to use a 3-D CAD software package to communicate their ideas so that they may transfer their ideas to others including engineers, designers, and lay people.

Students will successfully create 3-D objects such as rectangular solids, spheres, and cylinders. Those 3-D objects will then be employed to create actual samplings of electrical and electronic components (such as resistors, capacitors, transformers, etc), as well as electro-mechanical components (such as relays, motors, solenoids, etc), enclosures (chassis), and operator interfaces (knobs, buttons, displays, etc) and similar items. Students will successfully create 3-D assemblies. Students will successfully create working drawings of components and assemblies.

The designated course outcomes are as follows: visualize mechanical part(s) 2-D to 3-D and vice versa; incorporate design intent into solid models using extrusions, revolves, shells, ribs, chamfers and rounds; construct datum references (e.g. planes and axes) to facilitate solid modeling; properly execute duplicating operations to create circular and linear patterns of features and mirrored features; use mathematical relations to drive solid models; create a detail drawing of a mechanical part; create 3-D assemblies.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: MATH 081

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EG T 120 Introduction to Graphics and Solid Modeling (3)** Development of visualization skills; introduction to parametric solids modeling techniques with constrained and unconstrained geometry, and assemblies.

**Introduction to Graphics and Solid Modeling (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EG T 121 Applied Solid Modeling (3)** Creation of working drawings from solid models; dimensioning, GD&T, fastener, weld and finish symbols, layouts and bill of materials.

**Applied Solid Modeling (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: EG T 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EG T 201** Advanced Computer Aided Drafting (2) Application of the principles of engineering graphics; preparation of working drawings; details, examples, and bill of material using CAD.

**EG T 201 Advanced Computer Aided Drafting (2)**

Professional parametric solid modeling software will be applied to produce complete, industry-typical and standard working drawings, including part detail drawings and various types of assembly drawings; to implement the appropriately toleranced design of interfacing components; and to explore advanced productivity-enhancing add-in modules. Additionally, students will be introduced to the variety and relative precedence of specifications for feature tolerances and to the basic differences between form and size tolerancing. Topics that will be covered in the course include: Unilateral, bilateral and symmetric size tolerances, Form control and tolerances, Calculations for critical fits, Specification precedence for tolerances, e.g., stock size vs. size directly specified in the drawing field vs. title block tolerances vs. drawing notes, etc. The following laboratory assignments will include: Part drawing with standard three orthographic views, complete dimensions, and a Section View, Part drawing with complete dimensions and a Broken View, Part drawing with complete dimensions and a Primary Auxiliary View, Part drawing with complete dimensions and a Secondary Auxiliary View, Part drawing with complete dimensions and removed Detail View(s), Detail drawing with correct limit tolerances on features which are critical for fit and function, Assembly file with separate sub-assemblies, Assembly Drawing (with part identification balloons and a bill-of-material) which uses Sectional Views to expose fine internal detail and part interrelationships, Assembly Drawing (with part identification balloons and a bill-of-material) which is based upon an Exploded View, Assembly Drawing of a tooling fixture (with part identification balloons and a bill-of-material) which shows the subject workpiece transparently with phantom lines, Configured part file with tabulated drawing, Welding of an assembly using advanced software capabilities and production of a welding drawing with correct symbols, Production of an injection mold cavity from the subject part file, Exploration of the functionality of sheet metal modules, Applications of Top Down Design and Layout Sketches, Application of motion-simulating modules and functionality. The differences between coordinate tolerancing and geometric tolerancing are included in the course. The American Society of Mechanical Engineers Y14.5M will be referenced. The following are among the topics that will be covered: Eight key GD&T terms, GD&T modifiers and symbols, Rule #1 and #2, Concepts of GD&T, Introduction to the flatness control, straightness control, circularity control, perpendicularity control, angularity control, parallelism control, concentricity control, symmetry control, The datum system (planar datums, Introduction to datum targets, FOS datum specifications (RFS), FOS datum specifications (MMC).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: EDSGN 100EG T 114

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EG T 205** Transition From 2-D CAD to Solid Modeling (1) Supplemental course designed to introduce students (primarily transfer) to a solid modeling program.

**EG T 205 Transition From 2-D CAD to Solid Modeling (1)**

This is a one credit course in parametric solid modeling. Students will learn how to do basic geometry creation as well as how to create and use reference geometry such as points and planes. Duplicating features through the use of patterns and mirroring will be covered. More advanced geometry creation such as sweeps and blends are introduced, as well as the use of top-down as well as bottom-up modeling techniques. Assembly modeling and detailing topics are covered. Evaluation is done through both weekly homework assignments and a final, comprehensive project. This course is designed to bring students (especially transfer students who already have taken EG T 201) up to a base level of proficiency on the specific CAD package used in MET 306.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: EG T 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**EG T 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1988

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Engineering Mechanics (E MCH)

**E MCH 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 210** Statics and Strength of Materials (5) Equilibrium of particles, rigid bodies, frames, trusses, beams, columns; stress and strain analysis of rods, beams, pressure vessels.

### E MCH 210 Statics and Strength of Materials (5)

This course is a combination of E MCH 211 and E MCH 213. Students taking E MCH 210 may not take E MCH 211 or 213 for credit, or vice versa. Students will learn how forces and moments acting on rigid and deformable bodies affect reactions both inside and outside the bodies. Students will study the external reactions, and their inter-relationships; the discipline of statics (E MCH 211), as well as the associated internal forces and deformations, quantified by their corresponding stresses and strains; the discipline of strength of materials (E MCH 213). The student will be able to analyze and design simple structural components based on deflection, strength, or stability. Students will be prepared to analyze and design simple structures and take upper division courses in mechanics of materials and structural analysis and design. Students will communicate their analysis through the use of free-body diagrams and logically arranged equations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: or concurrent:MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 210H** Statics and Strength of Materials, Honors (5) Equilibrium of particles and rigid bodies, frames, trusses, beams, columns; stress and strain analysis of rods, beams, pressure vessels.

### E MCH 210H Statics and Strength of Materials, Honors (5)

This honors course is a combination of E MCH 211 and E MCH 213. Students taking E MCH 210H may not take E MCH 211 and 213 for credit, or vice versa. The same general topics are covered as in E MCH 210, but in a more advanced fashion and with more advanced applications. Students will learn how forces and moments acting on rigid and deformable bodies affect reactions both inside and outside the bodies. Students will study the external reactions, and their inter-relationships - the discipline of statics (E MCH 211), as well as the associated internal forces and deformations, quantified by their corresponding stresses and strains - the discipline of strength of materials (E MCH 213). The student will be able to analyze and design simple structural components based on deflection, strength, or stability. Students will be prepared to analyze and design simple structures and take upper division courses in mechanics of materials and structural analysis and design. Students will communicate their analysis through the use of free-body diagrams and logically arranged equations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: or concurrent:MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 211 Statics (3)** Equilibrium of coplanar force systems; analysis of frames and trusses; noncoplanar force systems; friction; centroids and moments of inertia.

**E MCH 211 Statics (3)**

Engineering Mechanics is the engineering science that relates forces and moments to the motion (displacement, velocity, acceleration) of bodies. The understanding of the concepts of force, moment, and motion is essential to design efficient engineering components ranging from a bridge to a wing strut to a robot arm to the mother board of a computer. Statics (E MCH 211) is the foundational course for both Dynamics (E MCH 212), which is the study of motion and the forces causing motion, and Strength of Materials (E MCH 213), which is the study of deformation and strength design of solids. Statics will provide students with the tools and guidance to master the use of equilibrium equations and Free Body Diagrams (FBD's) and to solve real engineering problems. Students should leave this class with the ability to logically approach a variety of static engineering problems, to translate a physical situation into an analytic model, and to use various mathematical tools to determine desired information. Course topics include: introduction and vectors, problem solving, force vectors, particle equilibrium, moments/couples, equivalent systems, distributed loads/FBDs, rigid body equilibrium, trusses, frames and machines, 3-D equilibrium, friction, centroids and center of gravity, and moments of inertia.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: or concurrent:MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 211H Statics (3)** Equilibrium of coplanar force systems; analysis of frames and trusses; noncoplanar force systems; friction; centroids and moments of inertia.

**Statics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: or concurrent:MATH 141

Concurrent: E MCH 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 212 Dynamics (3)** Motion of a particle; relative motion; kinetics of translation, rotation, and plane motion; work-energy; impulse-momentum.

**E MCH 212 Dynamics (3)**

Dynamics (E MCH 212) is the study of forces causing motion and, at least in engineering, its primary goal is the determination of loads on moving structures for the purpose of design. Dynamics will provide students with the tools and guidance to analytically model a wide variety of mechanical and structural systems. In Dynamics, this is done by drawing free-body diagrams of the relevant parts of the system and then applying the laws of Newton and Euler, laws governing material behavior, and equations describing the geometry of motion of points and bodies (kinematics) to those free-body diagrams to obtain the equations governing the motion of the system. Once a system has been modeled, Dynamics will also provide students with the tools to obtain desired information from those models by solving the equations governing the motion of the system. Topics covered in Dynamics include: kinematics of particles, application of Newton's laws to particles, energy and momentum methods for particles, kinematics of rigid bodies, application of the laws of Newton and Euler to rigid bodies, and energy and momentum methods for rigid bodies.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 211 or E MCH 210;MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 212H Dynamics (3)** Motion of a particle; relative motion; kinetics of translation, rotation, and plane motion; work-energy; impulse-momentum.

**E MCH 212H Dynamics (3)**

Dynamics (E MCH 212) is the study of forces causing motion and, at least in engineering, its primary goal is the determination of loads on moving structures for the purpose of design. Honors Dynamics (E MCH 212H) will provide students with the tools and guidance to analytically model a wide variety of mechanical and structural systems. In Dynamics, this is done by drawing free-body diagrams of the relevant parts of the system and then applying the laws of Newton and Euler, laws governing material behavior, and equations describing the geometry of motion of points and

bodies (kinematics) to those free-body diagrams to obtain the equations governing the motion of the system. Once a system has been modeled, Honors Dynamics will also provide students with the tools to obtain desired information from those models by solving the equations governing the motion of the system. Topics covered in Honors Dynamics include: kinematics of particles, application of Newton's laws to particles, energy and momentum methods for particles, kinematics of rigid bodies, application of the laws of Newton and Euler to rigid bodies, and energy and momentum methods for rigid bodies. In addition to what is done in Dynamics (E MCH 212), students in Honors Dynamics will typically do a project in which they design an experiment and use what they have learned to compare theory with experiment. They will also make use of modern mathematical software to solve the nonlinear differential equations obtained in their analysis of mechanical and structural systems to obtain further understanding of the behavior of these systems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 211E MCH 210H or E MCH 210; MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 213 Strength of Materials (3)** Axial stress and strain; torsion; stresses in beams; elastic curves and deflection of beams; combined stress; columns.

### **E MCH 213 Strength of Materials (3)**

In this elementary course on the strength of materials the response of some simple structural components is analyzed in a consistent manner using i) equilibrium equations, ii) material law equations, and iii) the geometry of deformation. The components analyzed include rods subjected to axial loading, shafts loaded in torsion, slender beams in bending, thin-walled pressure vessels, slender columns susceptible to buckling, as well as some more complex structures and loads where stress transformations are used to determine principal stresses and the maximum shear stress. The free body diagram is indispensable in each of these applications for relating the applied loads to the internal forces and moments and plotting internal force diagrams. Material behavior is restricted to be that of materials in the linear elastic range. A description of the geometry of deformation is necessary to determine internal forces and moments in statically indeterminate problems. The underlying mathematics are boundary value problems where governing differential equations are solved subject to known boundary conditions. Students will be able to:

- a) Identify kinematic modes of deformation (axial, bending, torsional, buckling and two dimensional) and associated stress states on infinitesimal elements and sketch stress distribution over cross sections
- b) Analyze determinate and indeterminate problems to determine fundamental stress states associated with kinematic modes of deformation
- c) Apply strength of materials equations (and formulas) to the solution of engineering and design problems
- d) Recognize and extract fundamental modes in combined loading and do the appropriate stress analysis
- e) Extract material properties (modulus of elasticity, yield stress, Poisson's ratio) from data and apply these in the solution of problems
- f) Calculate the geometric properties (moments of inertia, centroids, etc) of structural elements and apply these in the solution of problems.

which will enable them to solve real engineering problems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 213D Strength of Materials with Design (3)** Stress and deformation in members under axial, bending, and torsional loads, combined stress; columns. Design with a project.

### **E MCH 213D Strength of Materials with Design (3)**

Strength of Materials with Design adds depth and breadth to the traditional course material, provides an understanding of how the course topics are applied in engineering, introduces the student to information resources crucial to doing engineering and requires teamwork, research and decision-making.

The student is expected to learn: the fundamentals of strength of materials which include the ability to analyze stress and strain structural elements under axial, bending, torsional and multi-axial behavior and predict the onset of buckling in columns. These objectives are the same for E MCH 213, the traditional course. Distinguishing features of E MCH 213D, Strength of Materials with Design, are: application of fundamental analysis to design of simple structures, application of the design process, research for data in the library and on the web, team-work, organization and writing a report which consists of a design drawing, supporting data and calculations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 211ED&G 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 315** Mechanical Response of Engineering Materials (2) Mechanical response measures and design theories for engineering materials; elastic and plastic response as affected by stress, strain, time, temperature.

**E MCH 315 Mechanical Response of Engineering Materials (2)**

The main goal of E MCH 315 is to present mathematical models to describe mechanical behavior of materials and develop skills relevant to understanding the mechanical response of an engineering design using realistic materials. Engineering analysis is emphasized by introducing various material responses to external factors including static loading, cyclic loading, and elevated temperatures. The student will gain a broad base in this area that serves as a foundation for subsequent employment in systems design and testing, or further study in engineering analysis, mechanical design, materials engineering or materials selection. E MCH 315 is an extremely useful and versatile class that has many applications in all engineering disciplines. The general topics include: elastic, viscoelastic, plastic, and creep deformation; temperature effects, stress based failure criteria for ductile and brittle material behavior; creep rupture; fracture mechanics prediction of brittle failure; and failure by fatigue.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E MCH 213E MCH 210H or E MCH 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 316** Experimental Determination of Mechanical Response of Materials (1) Experimental techniques for mechanical property measurement and structural testing.

**E MCH 316 Experimental Determination of Mechanical Response of Materials (1)**

The objective of E MCH 316 is to introduce students to the relevant technology and methods used to determine the mechanical responses of engineering materials and structural components. Student teams will apply stress and strain measurement techniques; conduct tensile, torsion, creep, internal pressurization, and fatigue tests; then characterize mechanical behavior and explain the material parameters obtained. The laboratory assignments are designed to complement the lecture course E MCH 315, which must be taken as a prerequisite of concurrently.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: or concurrent: E MCH 315

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 400** Advanced Strength of Materials and Design (3) Combined stresses; energy methods; special problems in bending and torsion; plates; thin-walled structures; buckling and stability; design projects.

### Advanced Strength of Materials and Design (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E MCH 213E MCH 210H orE MCH 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 402** Applied and Experimental Stress Analysis (3) Experimental design of structural and machine components; photoelasticity, electrical resistance strain gauge techniques, Moire techniques, interferometry, holography.

### Applied and Experimental Stress Analysis (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E MCH 213E MCH 210H orE MCH 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 403** Strength Design in Materials and Structures (4) Determination, interpretation, significance, and application of mechanical properties such as plastic flow, fatigue strength, creep resistance, and dynamic properties.

### Strength Design in Materials and Structures (4)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E MCH 315E MCH 316

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 407** Computer Methods in Engineering Design (3) Computer methods in mechanical design: solid modeling, graphics, surface smoothing/interpolation and underlying numerics: simultaneous equations, quadrature, eigen problems, discrete models.

### E MCH 407 Computer Methods in Engineering Design (3)

E MCH 407 teaches computer methods and the use of modeling tools for doing mechanical design and the underlying numerical methods necessary to design, design analysis and development of design-related computer tools. The programming tool used in the course is MATLAB. E MCH 407 provides preparation for study of finite element analysis and professional practice. It is well suited to students who expect to work in design, manufacturing and/or project engineering. E MCH 407 is not a typical numerical methods course; for example, it treats solution of differential equations using finite differences only as minor application. Nonetheless the mathematics is at times rather abstract.

Course Objectives (labels for ABET criterion met are appended to each objective). Students will be able to:

- 1. Apply methods prerequisite to finite element analysis to solve well-defined problems (a, e, f, g, i, k)
- 2. Generate splines and curves for the smoothing of surfaces (a, b, e, f, g, h, i, j, k)
- 3. Write computer code to do computer graphics and object manipulation (a, c)
- 4. Do solid modeling, create rapid-prototypes, generate meshes using a commercial package (c, e, h, j, k)
- 5. Calculate eigenvalues/eigenvectors and plot mode shapes (a, e, j, k)

2. Evaluation Methods include homework, mini-project submittals, midterm and final exams.

3. Special Facilities: E MCH 407 is taught in classrooms with computers.

4. Frequency of Offering/Enrollment: E MCH 407 is offered every spring semester. Enrollment is limited to the number of computers in the classroom.

General Education: None  
Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 201CMPSC 202 orE SC 261M;E MCH 213E MCH 210H orE MCH 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 409** Advanced Mechanics (3) Continuation of E MCH 012; Euler's equations for the rotation of a rigid body, gyroscopic motion, impulsive motion, Lagrangian mechanics.

### **Advanced Mechanics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 212 orE MCH 212H;MATH 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 416H** Failure and Failure Analysis of Solids (3) Examination and analysis of the various modes of failure of solid materials.

### **Failure and Failure Analysis of Solids (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 213E MCH 210 orE MCH 210H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 440** (MATSE 440) Nondestructive Evaluation of Flaws (3) Methods and limitations of nondestructive evaluation of mechanical flaws; optical, acoustical, electromagnetic, x-ray, radiography, thermography, and dye techniques.

### **Nondestructive Evaluation of Flaws (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 213E MCH 210H orE MCH 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 446** Mechanics of Viscoelastic Materials (3) Nature of viscoelastic materials, constitutive relations, thermorheological materials, viscoelastic stress analysis, rubber elasticity, viscoelastic liquids, experimental techniques for material characterization.

### **Mechanics of Viscoelastic Materials (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 315E MCH 316

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 461** (M E 461) Finite Elements in Engineering (3) Computer modeling and fundamental analysis of solid, fluid, and heat flow problems using existing computer codes.

### **E MCH (M E) 461 Finite Elements in Engineering (3)**

This is an introductory course in the Finite Element Method. Through this course, students gain knowledge in finite element theory and problem modeling. The mathematical formulation of the method is presented and then applied to problems in elasticity and heat transfer. Projects are assigned to demonstrate the finite element method in simplified problems using hand- calculations and computer programs such as Matlab. The use of commercial FEA programs is introduced and problems of increased complexity are assigned to demonstrate their use in a computer lab. Finally, problems of realistic complexity are assigned such that students can practice solving, documenting and presenting their use of commercial FEA programs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: E MCH 213E MCH 210H orE MCH 210;CMPSC 200CMPSC 201 orCMPSC 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 470** (M E 470) Analysis and Design in Vibration Engineering (3) Application of Lagrange's equations to mechanical system modeling, multiple- degree-of-freedom systems, experimental and computer methods; some emphasis on design applications.

### **Analysis and Design in Vibration Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 212 orE MCH 212H;M E 370 orE SC 407H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 471** Engineering Composite Materials (3) Properties, manufacture, forms of composites; micromechanics; orthotropic lamina properties; laminate analysis; theories; failure analysis; thermal, environmental effects.

### **Engineering Composite Materials (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 213E MCH 210H orE MCH 210;E MCH 315E SC 414M orMATSE 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 473** (AERSP 473) Composites Processing (3) An introduction to the principles of mechanics governing manufacturing, computer-aided design, and testing of composite materials and structures.

### **Composites Processing (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1988

Prerequisite: E MCH 471

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E MCH 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Engineering Science (E SC)**

**E SC 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 097S** Respect the Environment: Designing New, Bioabsorbable Medical Implants and New Green Energy Storage Devices (1) Environment is: the surroundings or conditions in which a person, animal, or plant lives or operates. Our task as modern engineers is to make it clean, free of debris and highly effective in providing and maintaining productive advancements focused on limiting amount of 'waste left behind' in two very different fields: the human body and nature. We will be analyzing a new field of bioabsorbable, not-toxic biomedical implants and development of environmentally respectful energy storage devices. Both new bioimplants and new energy sources are expected to disappear at the end of their designed life. We will learn (in the lab!) how to evaluate bioimplants and how to build efficient batteries. The FYS will serve as a good introduction to modern engineering and its spectrum of interconnected fields and show how an engineering problem and its solution have important implications in meeting societal needs.

**Respect the Environment: Designing New, Bioabsorbable Medical Implants and New Green Energy Storage Devices (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 120S** Design for Failure--First-Year Seminar (1) This seminar, through the utilization of commonly used examples, discusses the engineering principles which are exploited by such designs.

**E SC 120S Design for Failure (1)  
(FYS)**

Although an important facet of engineering design is to minimize the possibility of failure of a system component, there are many devices which actually protect a system by their controlled "failure". Further, some components are designed to "work" through failure. In the former situation are such devices as: a shear pin in an outboard motor driveline, a fuse in an electrical circuit, a valve actuated by heat in a sprinkler system. In the latter situation, "tab tops" allow one to open a beverage can, perforations cause the paper towel to "tear" in a prescribed manner, plasticity/elasticity allows stamped parts, such as automobile hoods, to retain their new shape following stamping.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 121S** Science/Engineering Fiction and the Engineering Sciences--First-Year Seminar (1) Examines the technology predictions of authors in view of the engineering sciences on which the underlying devices of their stories are based.

**E SC 121S Science/Engineering Fiction and the Engineering Sciences (1)  
(FYS)**

From the times of Jules Verne, books, then movies and TV, have utilized engineering/science and pseudo-engineering, in envisioning devices which were not then available, but perhaps became so in later times. From Verne's nuclear driven submarine to his voyage to the moon; to Mary Shelly's electrically created monster; to Dick Tracy's wrist radio (cell phone); to the warp speed of the Jedi, there are successes and failures as to predictions of what would some day be possible. These are examined and discussed.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**E SC 122S** Weird, Wild, and Wonderful Materials and Devices--First-Year Seminar (1) First-year seminar that surveys the use of novel materials and material systems to create practical devices.

**E SC 122S Weird, Wild, and Wonderful Materials and Devices (1)**  
(FYS)

There are many materials whose response to a particular stimulus (mechanical, thermal, electrical, etc.) is of a completely different type. For example, if a piezoelectric material is mechanically "squeezed" (stimulus) the response is the creation of an electrical signal. Birefringent (photoelasticity) materials change their optical properties under mechanical displacement. Thermoluminescent "remember" their configuration under certain environmental combinations, to which they will abruptly return when these same combinations are repeated. This seminar surveys many classes of such materials and material systems and provides examples of engineers utilizing their behavior for sensors, transducers, and actuators. Examples include acoustic refrigerators, phonograph cartridges, door openers, and stress concentration locators.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 123S** Catastrophic Failures--First-Year Seminar (1) First-year seminar that explores design deficiencies through the study of case histories of a number of famous failures.

**E SC 123S Catastrophic Failures (1)**  
(FYS)

Engineered Systems sometimes fail in catastrophic ways. Bridges collapse, buildings burn, airplanes explode, ships break in two, spontaneous combustion occurs, automobiles crash, etc. Virtually all such failures occur because the designers, builders, and/or the users have overlooked some unexpected combination of inputs (they seldom fail due to simple overload). For example, a bridge designer may have overlooked (a) the potential danger of aerodynamic loading and mechanical resonance; (b) having a bridge mooring struck by a tugboat; or, (c) the possibility of an earthquake. The ship designer may not have expected a combination of very cold weather and large waves or bad materials, etc. This seminar explores design deficiencies through the study of case histories of a number of famous failures such as the explosion of the Challenger (modern era) and the sinking of the Titanic that caused catastrophic loss of life. A primary objective of reliving such failures is to alert students to the myriad factors that must be considered for a safe and effective engineering system, and to encourage them to broaden their education so that they will not repeat the mistakes of the past in their own careers.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 211** Material, Safety and Equipment Overview for Nanotechnology (3) Nanotechnology processing equipment and materials handling procedures with a focus on safety, environment, and health issues.

**E SC 211 Material, Safety, and Equipment Overview for Nanotechnology (3)**

This course overviews basic material properties as well as environment, health, and safety (EHS) issues in equipment operation and materials handling in "top down" and "bottom up" nanofabrication. The chemical and physical materials properties underlying nanotechnology are surveyed. EHS topics arising from the processing and disposal of these materials are addressed including: cleanroom operation, OSHA lab standard safety training, health issues, biosafety levels (BSL) guidelines, and environmental concerns. Specific safety issues dealing with nanofabrication equipment, materials, and processing will also be discussed including those pertinent to wet benches, thermal processing tools, vacuum systems and pumps, gas delivery systems and toxic substance handling and detection.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: CHEM 101MATH 081PHYS 150 orPHYS 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 212 Basic Nanotechnology Processes (3)** Step-by-step description of equipment and processes needed in top-down, bottom-up, and hybrid nanotechnology processing.

**E SC 212 Basic Nanotechnology Processes (3)**

This course is an overview of the broad spectrum of processing approaches involved in "top down", "bottom up", and hybrid nanofabrication. The majority of the course details a step-by-step description of the equipment, facilities processes and process flow used in today's device and structure fabrication. Students learn to appreciate processing and manufacturing concerns including safety, process control, contamination, yield, and processing interaction. The students design process flows for micro- and nano-scale systems. Students learn the similarities and differences in "top down" and "bottom up" equipment and process flows by undertaking hands-on processing. This hands-on overview exposure covers basic nanofabrication processes including deposition, etching, and pattern transfer.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011

Concurrent: E SC 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 213 Materials in Nanotechnology (3)** The processing of materials in nanotechnology as well as the unique material properties available at the nano-scale.

**E SC 213 Materials in Nanotechnology (3)**

This course is an in-depth, hands on exposure to the producing and tailoring of the materials used in nanofabrication. The course will cover chemical materials production techniques such as colloidal chemistry; atmosphere, low-pressure and plasma enhanced chemical vapor deposition; nebulization; and atomic layer deposition. It will also cover physical techniques such as sputtering, thermal and electron beam evaporation, and spin-on approaches. This course is designed to give students experience in producing a wide variety of materials tailored for their mechanical, electrical, optical, magnetic, and biological properties.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

Concurrent: E SC 211 E SC 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 213 Materials in Nanotechnology (3)** The processing of materials in nanotechnology as well as the unique material properties available at the nano-scale.

**E SC 213 Materials in Nanotechnology (3)**

This course is an in-depth, hands on exposure to the producing and tailoring of the materials used in nanofabrication. The course will cover chemical materials production techniques such as colloidal chemistry; atmosphere, low-pressure and plasma enhanced chemical vapor deposition; nebulization; and atomic layer deposition. It will also cover physical techniques such as sputtering, thermal and electron beam evaporation, and spin-on approaches. This course is designed to give students experience in producing a wide variety of materials tailored for their mechanical, electrical, optical, magnetic, and biological properties.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Concurrent: E SC 211 E SC 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 214** Patterning for Nanotechnology (3) Pattern transfer techniques from photolithography to nanoimprinting and nanomolding.

### **E SC 214 Patterning for Nanotechnology (3)**

This course is a hands-on treatment of all aspects of advanced pattern transfer and pattern transfer equipment including probe techniques; stamping and embossing; e-beam; and optical contact and stepper systems. The course is divided into five major sections. The first section is an overview of all pattern generation processes covering aspects from substrate preparation to tool operation. The second section concentrates on photolithography and examines such topics as mask template, and mold generation. Chemical makeup of resists will be discussed including polymers, solvents, sensitizers, and additives. The role of dyes and antireflective coatings will be discussed. In addition, critical dimension (CD) control and profile control of resists will be investigated. The third section will discuss the particle beam lithographic techniques such as e-beam lithography. The fourth section covers probe pattern generation and the fifth section explores imprinting lithography, nano-molding lithography, step-and-flash, stamp lithography, and self-assembled lithography.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Concurrent: E SC 211 E SC 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

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General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Concurrent: E SC 211 E SC 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 215** Nanotechnology Applications (3) Applications of nanotechnology including those in medicine, biology, electronics, energy, and materials.

### **E SC 215 Nanotechnology Applications (3)**

This course covers the applications of nano-scale devices and systems and the material chemical, physical, biological, or multiple-property requirements necessitated in these applications. Material modifications to meet these requirements will be addressed including structure control, composition control, surface property control, strain control, functionalization, and doping.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

Concurrent: E SC 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 215** Nanotechnology Applications (3) Applications of nanotechnology including those in medicine, biology, electronics, energy, and materials.

### **E SC 215 Nanotechnology Applications (3)**

This course covers the applications of nano-scale devices and systems and the material chemical, physical, biological, or multiple-property requirements necessitated in these applications. Material modifications to meet these requirements will be addressed including structure control, composition control, surface property control, strain control, functionalization, and doping.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

Concurrent: E SC 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 216** Characterization, Testing of Nanotechnology Structures and Materials (3) Measurements and techniques essential for controlling device fabrication.

### **E SC 216 Characterization, Testing of Nanotechnology Structures and Materials (3)**

This course examines a variety of techniques and measurements essential for testing and for controlling material fabrication and final device performance. Characterization includes electrical, optical, physical, and chemical approaches. The characterization experience will include hands-on use of tools such as the Atomic Force Microscope (AFM), Scanning Electron Microscope (SEM), fluorescence microscopes, and fourier transform infrared spectroscopy.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011

Concurrent: E SC 211 E SC 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 261M** Computational Methods in Engineering (3) Computational methods for solving engineering problems using C++ and MATLAB. Reports on root finding, systems of algebraic equations.

### **E SC 261M Computational Methods in Engineering (3)**

E SC 261M covers programming language fundamentals (organization strategies) and language grammar (syntax) of C++, MATLAB software libraries and packaged tools, and the following numerical methods: root searching techniques, solvers for systems of algebraic equations, curve fitting methods. E SC 261M is taught in a modern technology classroom. E SC 261M is essential for courses on advanced computational methods for engineers, finite element methods, and for all the other engineering courses which rely on computational methods and computer programs to analyze and interpret experimental data.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: or concurrent:MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1988

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 312 Engineering Applications of Wave, Particle, and Ensemble Concepts (3)** The engineering applications of the wave and ensemble pictures of the physical world.

#### **E SC 312 Engineering Applications of Wave, Particle, and Ensemble Concepts (3)**

This course covers the engineering applications of wave based and ensemble-formulated pictures of the physical world. It begins by discussing criteria for the applicability of geometrical optics and of physical optics and moves into a general discussion of wave phenomena. An introduction to the formalism of physical optics is then given along with examples of its use in engineering applications. The course then moves to discussing the criterion for the applicability of classical mechanics and of quantum mechanics. The parallelism between the geometrical optics/physical optics and classical mechanics/quantum mechanics criteria is underscored. An introduction to the formalism of quantum mechanics is then undertaken followed by a discussion of engineering applications of quantum mechanics. The impact of quantum mechanics on particle, quasi-particle, and cooperative phenomena is discussed. The course then treats the problem of determining the physical properties of ensembles of particles and quasi-particles. Statistical mechanics concepts are introduced and the effects of quantum mechanics on ensemble predictions is covered. Fermi-Dirac, Bose-Einstein, and Boltzmann statistics are developed and discussed. The connection is also made between statistical mechanics and thermodynamics. Engineering applications of statistical mechanics are presented and discussed.

The objective of this course is to give engineering students a broad technical picture of physical concepts that will affect much of the engineering advances of this century. Students will be exposed to the duality of the wave-particle picture and to that picture's critical engineering importance to the fields of optics and mechanics. They will be taught the influence of quantum mechanics on physical properties and the need for ensemble approaches for predicting the expected values of those properties for many particle systems. The impact of wave and ensemble approaches on engineering applications will be stressed and the students will be given hands-on exposure to this impact in three laboratory experiences.

Evaluation methods to be used in this course will be two in-class examinations and one final period examination.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: PHYS 214

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 313 Introduction to Principles, Fabrication Methods, and Applications of Nanotechnology (3)** Principles, fabrication methods and applications of nanoscale.

#### **E SC 313 Introduction to Principles, Fabrication Methods, and Applications of Nanotechnology (3)**

This course covets the unique opportunities provided by the nano-scale and focuses on the engineering issues of fabricating and applying structures designed to take advantage of these opportunities. The course begins with defining nanotechnology and nanofabrication. It then moves to the unique features available in nano-scale structures such as large surface-to-volume ratios, quantum size effects, unique chemical bonding opportunities, dominance of physical optics, surface control of reactions and transport, and the creation of structures on the same size scale as basic features in living cells. With this understanding of the uniqueness of the nano-scale, the course progresses into the fabrication methods used in nanotechnology and then into nanostructure applications. The various nanofabrication approaches found in top-down, bottom-up, and hybrid fabrication approaches are explained and discussed in the lecture format. The principles behind the application of structures fabricated at the nano-scale are then addressed in more depth. This section of the course includes an introduction to nano-scale electronic devices, an introduction to nano-scale sensing devices, an introduction to nano-scale optics and optical devices, an introduction to material property modification at the nano-scale, and an introduction to the biology/nano-scale interface. Specific applications of the structures made using various combinations of top-down and bottom-up fabrication techniques are overviewed in various applications including

sensors, nano-electronics, molecular electronics, photonics, nano-optics, information storage and computing, materials, nano-mechanics, and nano-biotechnology and medicine. The course concludes with an introduction to the manufacturing issues encountered when fabricating, assembling, and interfacing nano-scale structures as well as with an overview of health, environmental, and societal issues

The objective of this course is to give a broad technical picture of nanotechnology to engineering students from various engineering disciplines. In so doing, the course will develop a sound background for making informed judgments concerning the potential of nanotechnology for various technical applications and a sound background for assessing the societal and health issues as well as environmental impact of nanotechnology. The course objectives are to have students be able to consider nanotechnology solutions to technical problems, be able to fabricate these nanotechnology solutions in a manufacturable manner, be able to determine if there are any potential health or environmental issues involved in their solutions, and be able to assess the societal impact of their solutions. The course will require a college-level chemistry and physics background. Evaluation methods to be used in this course will be two in-class examinations and one final period examination.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 110CHEM 111PHYS 212PHYS 214

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 314** Engineering Applications of Materials (3) Basic concepts of material structure and their relation to mechanical, thermal, electrical, magnetic, and optical properties, with engineering applications.(E SC 314 is not intended for students in E SC major)

### **E SC 314 Engineering Applications of Materials (3)**

This course is intended primarily for Electrical Engineering and Materials Science and Engineering majors, as a core-level exposure to the electron-based properties of materials and their engineering applications. Building upon a basic foundation from early Physics courses, it offers an introduction to the behavior of electrons in crystalline as well as non-crystalline solids, and its impact on properties. A comprehensive treatment of electrons in solids is essential to understand the electronic, optical, thermal, magnetic and other properties of materials and their incorporation in functional devices. The topics are chosen to deal with all the basic facets of electrons in solids and their response to external fields and waves, and lead up to a broad range of elementary device applications. It thaws upon the results of quantum mechanics and band theory of solids that provide the broad umbrella needed for understanding the properties of materials and designing them into practical devices including the new class of nanosystems. The development of the energy band diagram is shown to offer a convenient model for understanding the properties of materials and designing device structures. The overwhelming role of semiconductors as building blocks of modern electronics is emphasized by introducing the key concepts of doping, electron transport by drift and diffusion, and electron-photon interactions. The students are shown the strong link connecting atomic bonding, physical structure and material properties in order that they understand the need for and emergence of artificially synthesized structures and new device phenomena. Along with a detailed coverage of semiconductors due to their widespread applications and their dominance in modern micro- and optoelectronics, a basic introduction to dielectric and magnetic properties is also included. Engineering applications involving sensing and transduction as well as signal amplification and energy conversion will be interspersed in the discussions of properties throughout the course. The role of defects, impurities and interfaces on electrical, optical and other properties are introduced briefly, along with corresponding applications in device structures. The devices discussed include p-n junctions, metal-semiconductor contacts, bipolar and field effect transistors, optical detectors and light emitting diodes.

The broad topical coverage will prepare students for advanced studies in a variety of fields including micro- and optoelectronics and functional microsystems. The course provides essential background for senior technical electives on semiconductor devices and processing as well as nanotechnology, and also complements courses that deal with atomic structure and mechanical properties of materials.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**E SC 400H** Electromagnetic Fields (3) Irrotational and solenoidal fields, potentials, vector and scalar field and wave equations, harmonic and wave functions in various coordinates, radiation.

### **E SC 400H Electromagnetic Fields (3)**

E SC 400H is a required senior-level course for students pursuing a bachelor's of Engineering Science. At the conclusion of this course, students will be able to:

1. Apply the basic principles of electrostatics, such as Coulomb's Law, electric field intensity, electric flux density, Gauss's Law, the concepts of divergence and gradient, and potential functions to solve basic and applied problems.
2. To compute resistance and capacitance for a variety of geometric configurations.
3. They will apply the basic principles of steady magnetic fields, such as the Biot-Savart Law, Amper6s Circuital Law, magnetic flux and flux density, Stoke's Theorem and the concept of the curl and Maxwell's equations for static electric and steady magnetic fields to solve basic and applied problems.
4. Compute self and mutual inductance for a variety of geometric configurations.
5. Understand the necessary modifications of Maxwell's equations for time varying fields including Faraday's Law and the concept of displacement current and apply these to solve basic and applied problems.
6. Understand the solutions of the reduced wave equation, for time-harmonic excitations, for plane wave propagation in both perfect and lossy dielectrics, the concepts of skip depth and wave polarization, plane wave reflection at planar boundaries, Snell's Law, Brewster's angle, and the concept of standing wave ratio and apply these to solve basic and applied problems.
7. Understand the basic principles of waves on transmission lines and apply these to solve basic and applied problems.

Topics include: Vector Analysis; Coulomb's Law and Electric Field Intensity; Electric Flux Density, Gauss's Law, and Divergence; Energy and Potential; Conductors, Dielectrics, and Capacitance; Poisson's and Laplace's Equations; the Steady Magnetic Field; Magnetic Forces, Materials, and Inductance; time-Varying Fields and Maxwell's Equations; the Uniform Plane Wave; Waves at Boundaries and in Dispersive Media. A typical course assessment includes homework assignments, mid-semester examinations and a final examination. The course is offered, in a lecture format, each spring at the University Park Campus. A typical enrollment is 25-30 students. This course is not a prerequisite for other courses.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003  
Prerequisite: E E 210MATH 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 404H** Analysis in Engineering Science (3) Unified application of coordinate transformations; Laplace's, heat, and wave equations to boundary value problems and problems of continua in engineering.

### **Analysis in Engineering Science (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: MATH 250 or MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 406H** Analysis in Engineering Science II, Honors (3) Application of complex variable theory, integral equations, and the calculus of variations to engineering problems.

### **Analysis in Engineering Science II, Honors (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: E SC 404H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 407H** Computer Methods in Engineering Science, Honors (3) Numerical solution of differential equations including fundamentals: roots of single nonlinear and simultaneous (Matrix) equations, least squares fitting and staistical goodness, interpolation, finite differences, differentiation, integration, eigensolutions.

### **E SC 407H Computer Methods in Engineering Science, Honors (3)**

The overall objective of this course is the creation of mathematical continuum models in the form of differential equations and the application of numerical methods to solve them. To reach this goral, fundamental methods dealing with numerical approximation, specifically starting with Taylor's series, are covered: differentiation, integration, and root search of single nonlinear equations. Mathematical models are transformed into discrete models using the finite

difference method, hence the solution of simultaneous algebraic equations in matrix and iterative forms is also covered. In addition, eigenvalue problems are also covered in order to characterize models, both continuous and discrete. The concept of vector-variable and vector-valued functions are used to form algorithms, cast them into computer code, in a language of student choice, usually Mathematica or MATLAB because graphical output is required in doing assignments. This course relates to programs of study in most engineering disciplines based upon the physics of solids and fluids. Evaluation methods include assessment of written reports, at least one midterm examination and either a final examination or a final report.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: CMPSC 201C or CMPSC 201F or E SC 261M

Concurrent: MATH 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 409H** Senior Research and Design Project Preparation, Honors (1) Preliminary identification and planning for the senior year research and design project.

### **E SC 409H Senior Research and Design Project Preparation, Honors (1)**

E SC 409H is the first of a three-part series of courses that constitute the Engineering Science honors capstone research and design project. Engineering Science students participate in projects in all engineering disciplines and employ design principles before, during, and after analysis, experimentation and/or simulation. The resulting designs of systems, components or processes are then tested and refined by changing material, geometric, stochastic or other parameters, as required. Students will spend the first few weeks of the course investigating various areas of research being conducted at the university. They will then interview key faculty and graduate students in several research groups and ultimately select one area to be the focus of their senior thesis research. After obtaining the agreement of a faculty member to supervise the thesis project, they will spend time familiarizing themselves with the people, equipment, materials, and software available in their selected research group as well as reading and summarizing key literature in preparation for conducting research. As an end product of this 1 credit course, students will develop a detailed set of project objectives and create a timeline for the year-long project.

Class time will be spent exposing students to a variety of different research areas. In addition, time will be given for students to support each other through facilitated discussions to share their success stories as well as difficulties encountered in the process of identifying and selecting their research topics. Students will also be given the opportunity to present the preliminary details of their intended research topic.

E SC 409H (1 credits) will be followed by E SC 410H (3 credits) where students will conduct their research, subsequently followed by E SC 411H (2 credits) where students will complete their research and prepare a written honors thesis. Through these combined 6 credits, students will integrate the scientific principles of research, design, and analysis and apply them to a particular field of engineering.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: E SC 433H E SC 414M

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 410H** Senior Research and Design Project I, Honors (3) Design and synthesis in the context of a specific design project undertaken during the senior year.

### **E SC 410H Senior Design Project, Honors (3)**

E SC 410H is the second of a three-part series of courses that constitute the Engineering Science honors capstone research and design project. Engineering Science students participate in projects in all engineering disciplines and employ design principles before, during, and after analysis, experimentation and/or simulation. The resulting designs of systems, components or processes are then tested and refined by changing material, geometric, stochastic or other parameters, as required. E SC 410H is the continuation of E SC 409H and constitutes the core effort in the honors senior research and design project for Engineering Science majors. It is followed by E SC 411H. All three courses are required of Engineering Science majors and together they comprise the capstone research and design project, which integrates the scientific principles of research, design, and analysis and applies them to a particular field of engineering. In-class lectures and discussions on a wide range of topics such as design, engineering ethics, international relations, engineering management, safety, government and public policy, environmental issues, workforce preparation and graduate school occur in tandem with the students' development of their individual topics.

General Education: None



Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: E SC 409H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 410H** Senior Research and Design Project I, Honors (3) Design and synthesis in the context of a specific design project undertaken during the senior year.

### **E SC 410H Senior Design Project, Honors (3)**

E SC 410H is the second of a three-part series of courses that constitute the Engineering Science honors capstone research and design project. Engineering Science students participate in projects in all engineering disciplines and employ design principles before, during, and after analysis, experimentation and/or simulation. The resulting designs of systems, components or processes are then tested and refined by changing material, geometric, stochastic or other parameters, as required. E SC 410H is the continuation of E SC 409H and constitutes the core effort in the honors senior research and design project for Engineering Science majors. It is followed by E SC 411H. All three courses are required of Engineering Science majors and together they comprise the capstone research and design project, which integrates the scientific principles of research, design, and analysis and applies them to a particular field of engineering. In-class lectures and discussions on a wide range of topics such as design, engineering ethics, international relations, engineering management, safety, government and public policy, environmental issues, workforce preparation and graduate school occur in tandem with the students' development of their individual topics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: E SC 409H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 411H** Senior Research and Design Project II, Honors (2) Design and synthesis in the context of a specific design project undertaken during the senior year.

### **E SC 411H Senior Research and Design Project II, Honors (3)**

E SC 411H is the third of a three-part series of courses that constitute the Engineering Science honors capstone research and design project. Engineering Science students participate in projects in all engineering disciplines and employ design principles before, during, and after analysis, experimentation and/or simulation. The resulting designs of systems, components or processes are then tested and refined by changing material, geometric, stochastic or other parameters, as required. E SC 411H is the continuation of E SC 409H and 410H. All three courses are required of Engineering Science majors and together they comprise the capstone research and design project, which integrates the scientific principles of research, design, and analysis and applies them to a particular field of engineering. In-class lectures and discussions on a wide range of topics such as design, engineering ethics, international relations, engineering management, safety, government and public policy, environmental issues, workforce preparation and graduate school occur in tandem with the students' development of their individual topics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: E SC 410H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 411H** Senior Research and Design Project II, Honors (2) Design and synthesis in the context of a specific design project undertaken during the senior year.

### **E SC 411H Senior Research and Design Project II, Honors (3)**

E SC 411H is the third of a three-part series of courses that constitute the Engineering Science honors capstone research and design project. Engineering Science students participate in projects in all engineering disciplines and employ design principles before, during, and after analysis, experimentation and/or simulation. The resulting designs of systems, components or processes are then tested and refined by changing material, geometric, stochastic or other parameters, as required. E SC 411H is the continuation of E SC 409H and 410H. All three courses are required of Engineering Science majors and together they comprise the capstone research and design project, which integrates the scientific principles of research, design, and analysis and applies them to a particular field of engineering. In-class lectures and discussions on a wide range of topics such as design, engineering ethics, international relations, engineering management, safety,

government and public policy, environmental issues, workforce preparation and graduate school occur in tandem with the students' development of their individual topics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: E SC 410H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 414M** Elements of Material Engineering (3) Structure and imperfections in engineered materials; their influence on properties, behavior, and processing. Applications of metals, ceramics, polymers, and composites.

### **E SC 414M Elements of Material Engineering (3)**

This course is a junior-level, writing-intensive engineering science course designed to introduce students to the fundamentals of materials science and engineering. In the early part of this honors course, structure property relationships in materials are explored. The student will examine how atomic structure and bonding influence engineering properties such as strength and electrical properties. Next, solidification, strengthening mechanisms, and phase diagrams for some common engineering materials are discussed to further examine structure property relationships and to provide the basis for the study of more complex materials. The second half of the course introduces properties and attributes of each of the major classes of materials (metals, ceramics, polymers, and composites) to acquaint the student with the wide array of material properties and choices available for design. Next, electrical, optical, and thermal properties of the various classes of materials are introduced. Finally, the course closes with an introduction to the topics of materials selection and design. Throughout the course, integrated writing assignments allow the student to explore the properties of a specific material or materials process in detail and gain insight the design process.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E MCH 213E MCH 210H or E MCH 210 . Prerequisite or concurrent: E SC 312 or PHYS 237

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 417 (MATSE 417)** Electrical and Magnetic Properties (3) Electrical conductivity, dielectric properties, piezoelectric and ferroelectric phenomena; magnetic properties of ceramics.

### **E SC (MATSE) 417 Electrical and Magnetic Properties (3)**

MATSE 417 is designed to provide students with a fundamental understanding of the different responses a material can have to applied electrical or magnetic fields. Important properties are introduced and correlated with knowledge of material chemistry, crystal structure, and microstructure to provide an understanding of the mechanisms responsible for controlling the observed properties, as well as the ways in which properties can be engineered. Electronic and magnetic properties encompass dielectric, ferroelectric, conductor, superconductor, and ferromagnetic materials. Material properties and structures are related to sensors, energy storage and conversion devices, biomedical devices and electronic components in telecommunications.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: MATSE 400MATSE 413  
Concurrent: MATSE 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 417 (MATSE 417)** Electrical and Magnetic Properties (3) Electrical conductivity, dielectric properties, piezoelectric and ferroelectric phenomena; magnetic properties of ceramics.

### **E SC (MATSE) 417 Electrical and Magnetic Properties (3)**

MATSE 417 is designed to provide students with a fundamental understanding of the different responses a material can have to applied electrical or magnetic fields. Important properties are introduced and correlated with knowledge of material chemistry, crystal structure, and microstructure to provide an understanding of the mechanisms responsible for controlling the observed properties, as well as the ways in which properties can be engineered. Electronic and magnetic

properties encompass dielectric, ferroelectric, conductor, superconductor, and ferromagnetic materials. Material properties and structures are related to sensors, energy storage and conversion devices, biomedical devices and electronic components in telecommunications.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: MATSE 400MATSE 413  
 Concurrent: MATSE 402

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 419** Electronic Properties and Applications of Materials (3) The course covers the electrical, optoelectronic, dielectric, and other electron-based properties of solids, semiconductors in particular, and their engineering/ device applications.

### **E SC 419 Electronic Properties and Applications of Materials (3)**

This course is designed primarily as a Foundation Elective for Engineering Science majors. It covers the electron-based properties of materials and their engineering applications. Building upon the strong foundation of wave, particle and ensemble concepts covered in the prerequisite course (E SC 312), it will offer an advanced introduction to the behavior of electrons in crystalline as well as non-crystalline solids, and its impact on properties. A comprehensive treatment of electrons in solids is essential to understand the electronic, optical, thermal, magnetic and other properties of materials and their incorporation in functional devices. The topics will address many facets of electrons in solids, their interaction with fields, cooperative phenomena and low-dimensional effects, and lead up to a broad range of elementary device applications. It will draw upon the results of quantum mechanics and band theory of solids that will provide the broad umbrella needed for understanding the properties of materials and designing them into practical devices and nanosystems. The importance of structure on material properties will be emphasized, so as to bring forth the importance of artificially synthesized structures and emergence of new phenomena. Along with a detailed coverage of semiconductors due to their widespread applications and their dominance in modern micro- and optoelectronics, dielectric, magnetic and superconducting materials will also be discussed in the course. The role of defects, impurities and interfaces on electrical, optical, dielectric and other properties will be discussed, along with corresponding applications in device structures. The broad topical coverage will prepare students for advanced studies in a variety of fields including micro- and optoelectronics, functional nanosystems and synthesized nanostructures. The course will provide a solid background for senior technical electives such as E SC 481 (Elements of Nano/Micro-electromechanical Systems Processing and Design) E SC 445 (Semiconductor Optoelectronic Devices) offered in ESM, as well as Electrical Engineering and Materials Science and Engineering Courses. It will also complement (and be independent of) E SC 414M that encompasses atomic structure and mechanical properties of materials.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2006  
 Prerequisite: E SC 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 433H** Engineering Science Research Laboratory Experience (1) Hands-on lab experience and exposure to campus-wide interdisciplinary experimental research. Experimental probability and statistics. Applications across all Engineering Science disciplines.

### **E SC 433H Engineering Science Research Laboratory Experience (1)**

This course provides an introduction to experimental research, including hands-on laboratory experience. In addition, students take part in campus-wide laboratory tours that illustrate the variety of experimental practice, as well as the strongly interdisciplinary nature of contemporary experimental research in Engineer Science. Lab tours involve laboratories in a variety of disciplines, both within the Department of Engineering Science and Mechanics, and in other departments with related interdisciplinary activities. The classroom content focuses on the fundamentals of experimental probability and statistics, including: the experimental process; probability distributions and error; statistical estimators; least squares; and confidence limits and hypothesis testing. Applications of the statistical analysis of experimental data are drawn from across all Engineering Science disciplines and illustrated in the labs and lab tours. There will be three hands-on laboratories. Each lab will include additional introductory lecture material, specific handouts, and readings A report will be required for each lab that represents a significant writing component to the class, and includes both descriptive and analytical components Assessment for the course is based on the laboratory reports, which include analytical and descriptive components, as well as exercises involving the material discussed in lectures.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007

Prerequisite: MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 445 Semiconductor Optoelectronic Devices (3)** The course will present the basic engineering science and technology involved in modern semiconductor optoelectronic devices.

### **E SC 445 Semiconductor Optoelectronic Devices (3)**

This course deals with the optoelectronic properties of semiconductors and their application in functional devices for detection, emission, amplification and conversion of optical and electrical signals. A comprehensive introduction to the various optical absorption and emission processes in semiconductors is followed by an outline of specific properties of important optoelectronic semiconductors. The physical basis of detectors operating in the visible and near-visible regions is covered with an exploration of various photon detection phenomena present in solids. The devices discussed at length include intrinsic and extrinsic photoconductive detectors, p-n and Schottky detectors, p-i-n and heterojunction devices, avalanche photodiodes and photoemissive detectors, and light emitting and laser diodes. Novel structures based on variable gap and superlattice structures are also considered. The topical coverage includes basic operating principles, design considerations and performance assessment of each of these devices. The course will enable students to apply the physics of optoelectronic devices to applications such as displays, fiber optic communications, imaging, and integrated optoelectronics.

The course is offered once every year, and complements related courses on semiconductor device offered by the departments of Engineering Science and Mechanics, and Electrical Engineering. Student assessment is from homework, exams and a writing assignment involving a device application note.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: E SC 419 or E SC 314 or E E 368

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 450 (MATSE 450) Synthesis and Processing of Electronic and Photonic Materials (3)** The materials science of applying thin film coatings, etching, and bulk crystal growth; includes materials transport, accumulation, epitaxy, and defects.

### **Synthesis and Processing of Electronic and Photonic Materials (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2005

Prerequisite: MATSE 201 or E SC 414H sixth semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 455 Electrochemical Methods Engineering and Corrosion Science (3)** The objective of the course is to give students hands-on experience in assessing environmental degradation of engineering materials.

### **E SC 455 Electrochemical Methods in Corrosion Science and Engineering (3)**

The objective of the course is to give students hands-on experience in assessing environmental degradation of engineering materials. Students will be introduced to a variety of experimental electrochemical methods and will use their training to evaluate corrosion of steel, stainless steel, and aluminum. Techniques that will be used in this laboratory-intensive course include potentiodynamic and potentiostatic polarization, galvanic corrosion measurements, localized corrosion measurements (scratch, critical pitting temperature, and metastable pitting experiments), evaluation of sensitization (double-loop electrochemical potentiokinetic reactivation), cyclic voltammetry, and electrochemical impedance spectroscopy of painted and unpainted specimens.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: MATSE 259 or E SC 414M or EGEE 441

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 456 (E E 456, EGEE 456) Introduction to Neural Networks (3)** Artificial Neural Networks as a solving tool for difficult problems for which conventional methods are not available.

### **E SC (E E/EGEE) 456 Introduction to Neural Networks (3)**

This course is in response to students' needs to learn Artificial Neural Networks (ANN) as a solving tool for difficult problems for which conventional methods are not available. The objective of this course is to give students hands-on experiences in identifying the best types of ANN, plus developing and applying ANN to solve difficult problems. Students

will be introduced to a variety of ANN and will use their training skills to solve their own applications. During this course the students will develop a final project, in which they will apply ANN to widely varied problems.

Examples:

- I ) students from E E may be interested in applying ANN to solve control problems
- II ) students from Material Sciences may be interested in applying ANN to predict the pitting corrosion of components
- III ) students from Petroleum Engineering may be interested in applying ANN to characterize the life of a reservoir
- IV ) students from Agricultural Engineering may be interested in applying ANN to sort apples automatically, etc

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 201 orCMPSC 202;MATH 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 475 (MATSE 475) Particulate Materials Processing (3)** Fundamentals of processing particulate materials including production, characterization, handling, compaction, and sintering of metal, carbide, intermetallic, and composite powders.

**Particulate Materials Processing (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 315E SC 414 orMATSE 259

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 481 Elements of Nano/Micro-electromechanical Systems Processing and Design (3)** Interdisciplinary fundamentals of nano/microelectromechanical systems (NEMS/ MEMS), including design, fabrication and machining of miniature systems. Draws from mechanics, science and materials.

**E SC 481 Elements of Nano/Micro-electromechanical Systems Processing and Design (3)**

The objective of the course is to introduce students to the theory and technology of nanofabrication. This objective is realized via the study of materials and devices for NEMS as well as nano-system's design, manufacture and packaging,. Emphasis on the interrelationships between material properties and processing, device/system structure, and the mechanical, electrical, optical, or (bio)chemical behavior of devices/systems. As taught, the course is multidisciplinary and requires adequate background in materials science, mechanics, and device physics. The course comprises lecture presentations and laboratory demonstrations. Students attending this course come from different engineering majors, physics, and materials science. The students are assessed using a combination of homework assignments, class presentations, group projects, and written quizzes and exams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 213 orE MCH 315 orE SC 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 482 Micro-Optoelectromechanical Systems (MOEMS) and Nanophotonics (3)** Principles and applications of Micro-Optoelectromechanical and Nanophotonic devices and systems.

**E SC 482 Micro-Optoelectromechanical Systems (MOEMS) and Nanophotonics (3)**

E SC 482 provides the engineering student with a unifying and multifaceted description of MOEMS and nanophotonics. Students will learn the fundamental principles behind many novel micro- and nanophotonic devices and systems and their practical applications in the fields of communication, sensor and image technology.

The course starts with an overview of the fundamental physics of semiconductors with emphases on silicon, III-V and II-V compound semiconductors due to their important applications in MOEMS and active nanooptoelectronic devices. Semiconductor nanostructures, such as epitaxial grown quantum wells and quantum dots, and chemically synthesized nanowires and colloidal nanocrystals will be introduced through discussions on their unique electronic structures carrier transport and excitonic dynamics. In addition to inorganic materials, the structures and critical characteristics of electro-optic and light emitting polymers will also be reviewed for their fast-growing applications in display technology, sensory and information processing systems.

The general principles for the design and operation of MOEMS and nanooptoelectronic devices will be discussed in the frame of geometrical optics, electromagnetic theory, and semiconductor physics. The reflection of light at dielectric interfaces will be reviewed to reveal the critical features of optical waveguide structures and to introduce the concept of surface plasma waves. In-depth descriptions will be given for the interband-and intraband- electron transition and exciton emission process in semiconductor quantum structures. Important instances of applying the "quantum

confinement" in nanostructures to tailor their optical and optoelectronic properties will be underscored during the mechanism-analysis of laser diodes, detectors and modulators. The new concept of "photonic crystals" will be introduced through the analysis of parallelism between electron transport in semiconductor lattices and light propagation in periodic dielectric media.

Following a brief survey of the state-of-the-art technologies for the fabrication of MOEMs and nanophotonic devices, the course topics will move to their application examples in the fields of communication, sensor and image technology. For each application example, analysis will be carried out on the design, fabrication, and characterization issues of the involved systems/devices. Their merit-of-performance will be linked to the application practice to illustrate how the introduction of MOEMs/nanophotonic devices advances the technology in each specific field. Important topics to be covered in this part include micromachined lightwave systems, microcavity light emitting devices, fiber based biological nanosensors, nanoparticle enhanced surface plasma resonance sensors, microspectrometers, and digital micromirror device (DMD)-based projection display engine.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: PHYS 212PHYS 214

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 483 (MATSE 483) Simulation and Design of Nanostructures (3)** Introduction to computer simulation techniques and their applications at the physical/life sciences interface.

### **E SC (MATSE) 483 Simulation and Design of Nanostructures (3)**

Students will learn the simulation techniques and the design rules of nanostructures. Basic concepts of computer modeling will be introduced using quantum and classical approaches. Fundamental physical phenomena encountered in the molecular fields of computational physics, chemistry, and biology will be studied. Applications are drawn from a broad range of fields including soft and condensed matter to build an understanding of nanostructures.

The course will assume knowledge and skill developed in the prerequisite courses of PHYS 214 and MATH 230. Students are expected to combine knowledge from other courses with information presented here to develop sophisticated interpretations and understanding of physical and chemical principles of nanostructures and their design rules.

Evaluation methods to be used in this course will be two in-class examinations and one final period examination. The course contains a computer code generation and implementation component. Students will use commercial or educational computer codes (e.g. Matlab, Mathematica, AMBER, CHARMM, VASP, etc.) which are available at our high performance computing clusters (<http://gears.aset.psu.edu/hpc/>)// Students will use the computing clusters to perform simulations which are accessible from any classroom or laboratory at Penn State.

The principal objectives of the course is to learn the fundamental physics of nanostructures and to design them with computer simulations. This approach starts from classical molecular dynamics that apply on the large scale biological and synthetic assemblies and encompasses quantum mechanics for the molecular and atomic sizes. This course will give a broad scientific picture of simulation techniques in the area of nano-science and technology.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: PHYS 214 or E SC 312MATH 230

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 484 Biologically Inspired Nanomaterials (3)** Advances in biomolecular-based Science and technology at the physical/life sciences interface.

### **E SC 484 Biologically Inspired Nanomaterials (3)**

Students will learn the concepts of molecular engineering and the advances in biomolecular-based science and technology at the physical/life sciences interface. Basic concepts of protein structure and function will be introduced. Applications from a broad range of fields, including condensed and living matter to build an understanding of device applications including biologically-inspired molecular-scale devices will be introduced.

The course will assume knowledge and skill developed in the prerequisite courses of PHYS 214 and MATH 230. Students are expected to combine knowledge from other courses with information presented here to develop sophisticated interpretations and understanding of physical and chemical principles of molecular structures and their design rules.

Evaluation methods to be used in this course will be two in-class examinations and one final period examination. The course contains a substantial writing component. Students will prepare bio-science and technology reports.

The principal objective of the course is to learn and analyze molecular engineering technologies at the bio and nano interface. This course will give a broad technological picture of emerging protein technologies in the area of biomolecular materials.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: PHYS 214MATH 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 494** Senior Thesis (1-9) Students must have approval of a thesis adviser before scheduling this course.

**Senior Thesis (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 494H** Senior Thesis (1-9) Students must have approval of a thesis adviser before scheduling this course.

**Senior Thesis (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 497A** Multidisciplinary Design (3) Multidisciplinary teams engage students from other departments to provide a broad perspective typical of real-life experiences.

**Multidisciplinary Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: M E 300 orM E 302E E 210 orE E 210HE SC 312 orPHYS 237E SC 414M orM E 340

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 497A** Multidisciplinary Design (3) Multidisciplinary teams engage students from other departments to provide a broad perspective typical of real-life experiences.

**Multidisciplinary Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: M E 300 orM E 302E E 210 orE E 210HE SC 312 orPHYS 237E SC 414M orM E 340

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E SC 497B** Business Opportunities in Engineering (2) The principal goal of this course is to inform engineering students of business opportunities in Engineering.

### **Business Opportunities in Engineering (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Engineering Technology (ET)**

**ET 002** Engineering Technology Orientation (1) Introduction to computer methods for analyzing and solving engineering technology problems; microcomputer fundamentals, word processing, spreadsheet, and database software packages.

### **ET 002 Engineering Technology Orientation (1)**

Engineering Technology Orientation is one of the first technology-related courses taken by EE T students. It is a 1 credit, 2-hour combined laboratory and lecture course designed to develop basic computer skills in engineering technology students. Students are exposed to the basic concepts and features of computer hardware and operating systems, including key topics in software operation and file management. They are then taught basic word processing, spreadsheet, and database skills and are introduced to electronic communications and information retrieval via the Internet, World-Wide-Web, and e-mail. All topics are presented in the context of how they can and will be used in coming technology classes. The course concludes with an introduction to electronics simulation software (e.g., PSpice, Electronic Workbench, etc.) that students will be obligated to use in future courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ET 200** Graphic Communications (3) The study of graphic communications relating to the design and construction industry.

### **Graphic Communications (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: 2-credit drafting course

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ET 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1997

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ET 300** Mechanics I: Statics (3) Equilibrium of coplanar force systems; analysis of frames and trusses; shear and moment



diagrams; friction; centroids and moment of inertia.

### **ET 300 Mechanics I: Statics (3)**

This course is intended to provide the students with both the theory and application of the fundamental principles of static analysis by introducing free-body diagrams as a tool for solving statics problems. Students gain knowledge of Vector Mechanics, representation of physical quantities by a vector notation. Grasp the meaning of magnitude and direction of a vector; understand the definition of a unit vector. Master the mechanics of Vector Algebra. Emphasis will be placed on equations of equilibrium for particles and rigid bodies. Students are able to understand the physical meaning of a force and moment equilibrium. Master the balance of forces and moments to ensure equilibrium for 2D and 3D structures. This will be followed by analyzing internal forces in cables and bending moments in beams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: MATH 140;PHYS 150 orPHYS 211 orPHYS 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ET 302 Mechanics II: Dynamics (3)** Kinematics of a particle; relative motion; kinematics of a mass-point; kinematics of a rigid body; work-energy; impulse-momentum.

### **Mechanics II: Dynamics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: statics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ET 321 Dynamics (3)** Motion of a particle, relative motion; kinetics of translation; rotation and plane motion; conservation of energy and momentum.

### **ET 321 Dynamics (3)**

The students will be introduced to the fundamental concepts of dynamics for particles motion along straight and curved paths. The students will learn and utilize concepts in particle kinematics and study the relationship between the forces acting on a body, the mass of the body and the motion of the body by using Newton's second law of motion, the principle of work and energy and the principle of linear momentum and impulse. This will be followed by analyzing the rotation of a rigid body about a fixed axis, and extending kinematic concepts to plane motion of rigid bodies.

The concepts of work, energy, linear momentum and angular momentum of a rigid body in plane motion will be introduced. The students will learn how to apply the principle of impulse/momentum to solve rigid-body planar kinetic problems that involve force, mass, velocity and time, and the principle of work/energy to solve problems that involve force, mass, velocity and displacement.

Dynamics course will also provide students with the tools to obtain desired information from those models by solving the equations governing the motion of the system. Topics covered in Dynamics include: kinematics of particles, application of Newton's laws to particles, energy and momentum methods for particles, kinematics of rigid bodies, application of the laws of Newton and Euler to rigid bodies, and energy and momentum methods for rigid bodies.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: ET 300E MCH 211 orMCH T 111

Concurrent: statics integral calculus

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ET 322 Strength of Materials (3)** Axial, torsional, bending, and combined stress analysis; deformation and deflection analysis of cables, shafts, and beams; column design and analysis.

### **ET 322 Strength of Materials (3)**

Strength of materials deals with the relationship among the external forces acting on a body, the resulting stresses (intensity of internal forces) and the deformation (change of size or shape). The determination of proper sizes and material of construction of mechanical components and structural members to satisfy strength and deformation requirements are important topics of strength of materials. The students will be introduced to the concept of stress – normal, shear and bearing stress, and relate strain to stress using material properties. The students will develop an understanding of design parameters such as design stresses, factors of safety for axial loads, transverse loads and torsional loads, to design components such as beams and circular shafts satisfying strength and deformation

requirements. The students will also learn to calculate moments of inertia, centroids and apply parallel axis theorem for moment of inertia. The students will be introduced to the concept of combined stresses and their analysis using graphical and analytical methods. Finally, the concept of buckling in columns will be introduced.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: ET 300E MCH 211 or MCH T 111

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ET 323** Strength of Materials Laboratory (1) Measurement of mechanical properties of materials, structural testing.

### **ET 323 Strength of Materials Laboratory (1)**

The objective of the strength of materials laboratory is to demonstrate the basic principles in the area of strength and mechanics of materials to the undergraduate students through a series of experiments. Students will be conducting experiments using Universal Testing Machines to calculate tensile strength of steel and aluminum samples and experiments to measure hardness of non-heat treated and heat treated steels. Students will also test steel samples in single shear, double shear and impact loading, followed by experiments on the torsion testing machine to calculate torsional strength of aluminum samples and the strut apparatus to analyze different modes of buckling in a slender aluminum column. The laboratory demonstrates important concepts from the strength of materials theory course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: or concurrent: ET 322E MCH 213 or MCH T 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ET 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ET 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ET 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ET 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**English (ENGL)**

**ENGL 001** (GH) Understanding Literature (3) Explores how major fiction, drama, and poetry, past and present, primarily English and American, clarify enduring human values and issues.

**ENGL 001 Understanding Literature (3)  
(GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

In ENGL 001 students will study a wide variety of genres of literature --- poetry, novel, short story, drama, perhaps even genres like the comic book --- from different time periods and cultures to gain a better understanding of how literature explores human values and issues. These readings will be organized around important issues that relate to each other, or are in tension with each other, such as "Love," "Violence," and "Recuperation," asking basic questions about how the different genres convey meaning, and how they ask significant questions about human relationships and ideals. For instance, readings including works by Toni Morrison, Shakespeare, J. M. Coetzee, August Wilson, Art Spiegelman, selections from each year's new *Best American Short Stories*, and others might raise questions about volition and responsibility in times of extreme violence (like American slavery, South African apartheid, or the Holocaust), and speak to how we can judge violent acts during violent times, or how love can flourish or languish in the face of such horrors. Throughout the course, students will use the texts to ask such questions as: of what value is a play, a novel, a poem, or a short story? Is literature worthwhile for its ability to tell a good story or for its questions that do not lend themselves to easy answers? Are we "better" for having experienced literature? The course will also take advantage of literary events occurring on campus each semester--such as poetry readings, dramatic performances, even films relating to the course --- to enrich the experience both of literature and of campus life. By addressing issues of contemporary significance, the course will not only prepare students for other literature courses, but will also help them make literature a regular part of their lives. ENGL 001 serves as a bedrock course in the mission of the humanities at Penn State. It prepares students for other academic courses that engage in the verbal and written analysis of complex written texts, and prepares them for other courses that explore human values and social and cultural elaborations of them (for instance, basic philosophy and history courses). Students should expect to complete three exams. The first two will consist of identification questions and short essays, and the third and final exam will be a combination of identification questions and a take-home essay. Moreover students will write at least two papers for the course, demonstrating their abilities at literary analysis, and grappling with the themes of the course. Classroom discussion and general class participation will also be a factor in evaluation. ENGL 001 can be used as a general elective credit toward the major. The course will be offered once or twice a year with 60 seats per offering.

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 001H** (GH) Understanding Literature (3) Explores how major fiction, drama, and poetry, past and present, primarily English and American, clarify enduring human values and issues.

**Understanding Literature (3)**

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 001W** (GH) Understanding Literature (3) Studies the various critical ways of reading, understanding, and writing about fiction, poetry, and drama.

**Understanding Literature (3)**

General Education: GH

Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 002 (GH)** The Great Traditions in English Literature (3) Major works of fiction, drama, and poetry from the Middle Ages to the twentieth century expressing enduring issues and values.

**ENGL 002 The Great Traditions in English Literature (3)**  
(GH)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Students are expected to learn fundamental skills of close textual analysis in the context of established literary texts of English and Irish fiction, drama, and poetry from the Middle Ages to the twentieth century that address large questions of ethical and social value. They are also expected to learn to talk and write clearly about the issues and ideas generated by the texts that they are directed to read. ENGL 002 will fulfill the writing component of the Active Learning Elements by requiring a minimum of three writing assignments. These assignments will be drawn from the following kinds of writing: essay, essay exam, or a semester-long reading journal. ENGL 002 will require all students to confront the major interpretive problems found in their assigned readings and to participate actively in the various forms of critical thinking required to comprehend and resolve those problems. ENGL 002 will require all students to participate in an assessment of the social behavior and other values, both communal and scholarly, relevant to the texts being read and discussed in the course. This course fulfills a General Education humanities requirement or a Bachelor of Arts humanities requirement. This course will be offered once a year with a limit of 60 seats.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 003S (GH)** The Great Traditions in American Literature (3) Major works of fiction, drama, and poetry from the colonial to the modern periods expressing enduring issues and values.

**ENGL 003S The Great Traditions in American Literature (3)**  
(GH;FYS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

English 003 will constitute a wide ranging study of American literature, including novels, poems, plays, and prose, from a variety of thematic historical and/or generic vantages. Topics under consideration will vary from class to class, but may include such rubrics as autobiographical modes of American writing, the notion of America as a nation and the myth of American opportunity, the situating of "great " American literature within context of American history, the representation of "American family" and its values, for the construction of ideas of American character. The class will routinely address works by writers such as Bradstreet, Franklin, Emerson, Hawthorne, Douglass, Thoreau, Fuller, Melville, Whitman, Dickinson, Twain, James, Cather, Frost, O'Neill, Hurston, Faulkner, Hemingway, Hughes, Wright, and Morrison. Students are expected to learn fundamental skills of close textual analysis in the context of their reading of a variety of established works of American literature from across a range of genres. They are expected to learn to write and think clearly about issues and ideas generated by the texts that they are directed to read. They are also expected to learn to write and think clearly about the issues raised by the discussion of these texts in the classroom. This course will satisfy a General Education Humanities requirement or a Bachelor of Arts Humanities requirement. This course will be offered at least once a year and will have an upper limit of 60 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 004 Basic Writing Skills (3 per semester/maximum of 6)** Intensive practice in writing sentences and paragraphs and instruction in grammar, usage, and punctuation. Designed for students with deficient preparation. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

**Basic Writing Skills (3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 005** Writing Tutorial (1) Tutorial instruction in composition and rhetoric for students currently enrolled in Engl. 4 or 15. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

**Writing Tutorial (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 006** Creative Writing Common Time (1 per semester/maximum of 8) Required one hour a week meeting time; readings, professional development, advising, community-building.

**ENGL 006 Creative Writing Common Time (1 per semester/maximum of 8)**

This course is to be required of all B.F.A. in Creative Writing majors at Penn State Erie as long as they are students in that degree program. This means that every semester they are working toward the B.F.A. in Creative Writing they must sign up for this course, and they must complete it successfully. Successful completion is based on regular attendance at the various functions, all held at the same one hour time period each week. The purpose of this course is to provide students with the necessary experience of listening to the writers of national stature brought to campus through The Smith Series, to provide them with lectures by both faculty and outside experts to help them develop professionally as writers, to allow for essential group advising for successful completion of the major, and to foster a sense of community among the student writers in the program.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 015** (GWS) Rhetoric and Composition (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.

**Rhetoric and Composition (3)**

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1991  
Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 015A** (GWS;US) Rhetoric and Composition (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.

**Rhetoric and Composition (3)**

General Education: GWS  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 015H** (GWS) Rhetoric and Composition (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.

**Rhetoric and Composition (3)**

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 015S** (GWS) Rhetoric and Composition (3) Instruction and practice in writing expository prose that shows sensitivity to audience and purpose.

**Rhetoric and Composition (3)**

General Education: GWS

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

Prerequisite: ENGL 004 or satisfactory performance on the English proficiency examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 030** (GWS) Honors Freshman Composition (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.

**Honors Freshman Composition (3)**

General Education: GWS

Diversity: None

Bachelor of Arts: None

Effective: Fall 1991

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 030H** (GWS) Honors Freshman Composition (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.

**Honors Freshman Composition (3)**

General Education: GWS

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 030S** (GWS) Honors Freshman Composition (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.

**Honors Freshman Composition (3)**

General Education: GWS

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 030T** (GWS) Honors Freshman Composition (3) Writing practice for specially qualified and screened students. Students who have passed a special writing test will qualify for this course.

**Honors Freshman Composition (3)**

General Education: GWS

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 050** (GA) Introduction to Creative Writing (3) Practice and criticism in the reading, analysis and composition of fiction, nonfiction and poetry writing.

**ENGL 050 Introduction to Creative Writing (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

If you believe that the heart of a poet beats inside you anyway-or if you simply enjoy writing to express yourself

creatively--you will be at home in this course. You will also be at home here if you are an avid reader of fiction, poetry, and nonfiction, but have never tried your hand at writing it. In English 050 you will explore the genres of nonfiction, fiction, and poetry by reading published essays, short stories, and poems and by writing personal essays, sketches, scenes, and poems. We'll discuss the relationship between the genres and also discuss what makes each a distinct art form. You'll hand in weekly writing assignments in addition to completing longer writing projects. You'll make copies of some of your creative work to distribute and discuss in class.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 050H (GA)** Introduction to Creative Writing (3) Practice and criticism in the reading, analysis and composition of fiction, nonfiction and poetry writing.

**ENGL 050H Introduction to Creative Writing (3)  
(GA)**

This course provides students with an introduction to, and extensive practice in, creative writing in the three genres of fiction, nonfiction, and poetry. The course includes instruction in principles of composition in each genre, as well as techniques of literary composition that cross and interlink those genres.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 083S (GH)** First-Year Seminar in English (3) Critical approaches to the dimensions and directions in English/American literature and rhetoric.

**First-Year Seminar in English (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 088 (GH)** Australian/New Zealand Cultural Perspectives (3) Australian and New Zealand cultural and social perspectives, with emphasis on the historical development of intellectual, aesthetic, and humanistic values.

**ENGL 088 Australian/New Zealand Cultural Perspectives (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Students are expected to learn fundamental skills of close textual analysis in the context of the study of a variety of works by authors from Australia and New Zealand. Studying a range of novels, poems, plays, and works of non-fiction, students will discuss the development of Australian and New Zealand literatures in historical context and gain understanding of the historical development of societal values in nations other than the U.S.A. The course aspires to relate geography and history to emerging social and cultural developments as the state and status of the two countries changed during the nineteenth and twentieth centuries, and to track their increasing separation from the "Mother Country" (i.e. Great Britain) as they developed a sense of themselves as different and separate from European societies. The process was neither comfortable nor easy, nor steadily progressive, but the record of it is an often fascinating story of human endeavor and struggle, very frequently against great odds and disappointments, which in turn affected the development of national character if such a thing can be said to exist.

The literatures reflect some of the attitudes and qualities that emerged as the two societies were coming into being and forging their own unique identities.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**ENGL 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 100** English Language Analysis (3) An examination of English sounds, words, and syntax using traditional, structural, and transformational grammar.

**English Language Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1984

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 103** (GH;US) The Great Traditions in American Literature (3) Major works of fiction, drama, and poetry from the colonial to the modern periods expressing enduring issues and values.

**The Great Traditions in American Literature (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 104** (GH) The Bible as Literature (3) Study of the English Bible as a literary and cultural document.

**ENGL 104 The Bible as Literature (3)**  
**(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The purpose of this course is to acquaint students with the literature of the Bible, particularly in the King James translation, the translation that has been most influential in the English-speaking world. Throughout this course, students will examine the language, thought, images, and structures of the book that has arguably proved the central text of Western literature. Students will also actively explore the ways in which the Bible has shaped the literature of English-speaking cultures. Students will read substantial portions of the Old and New Testaments, including the Book of Genesis, the Book of Job, and selections from the histories, the prophets, the Book of Psalms, the Gospel of John, the Gospel of Matthew, and the Book of Revelation. Students will learn to read the Bible critically and interpret the book as they would any other literary text. They will also learn about the historical construction of the Bible and contemplate the competing versions of existing Biblical texts. Students will be asked to complete at least three writing assignments drawn from the following kinds of writing: essay, essay exam, or semester-long reading journal. This course will prepare students for additional college-level literature courses by helping them to develop the analytical skills necessary to analyze complex written texts.

This course fulfills a General Education Humanities requirement or a Bachelor of Arts requirement. It will be offered twice a year and is capped at 35 students.



General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 105 (GH;US) (AM ST 105) American Popular Culture and Folklife (3)** Survey of popular culture, folklife, and ethnicity, synthesizing material from such areas as literature, media, entertainment, print, music, and film.

**ENGL (AM ST) 105 American Popular Culture and Folklife (3)  
(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

AM ST/ENGL 105 covers a broad scope of materials, which may range from early to contemporary American folk and popular cultures. While selected topics for reading and discussion often vary from class to class, all courses focus on a critical examination of a variety of popular and folk cultures in order to produce an enriched understanding of America and its inhabitants. To meet this goal, popular and folk cultures will be examined from a variety of perspectives, including literature, history, politics, film, race, gender, class, and geography. Course requirements frequently include: essay exams, papers, journal entries, vigorous class discussion, and course talk participation. Technology is often incorporated into the class well, this course (or AM ST 100) is a requirement for the American Studies major and minor, and offers students valuable experience in critical thinking, analysis, and writing. Non-American Studies majors and minors may use this course to fulfill a general education or Bachelor of Arts/Humanities credit. AM ST/ENGL 105 serves as a broad introduction to American popular and folk cultures as well as interpretive strategies relevant to the study of cultures and individuals. The course, as a result, provides preparation for more advanced courses in American studies, American literature, and American history.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 110** Newswriting Practicum (2 per semester, maximum of 6) Practice in writing and editing articles for the campus newspaper.

**Newswriting Practicum (2 per semester, maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 111** The Possibilities of English (2) This course familiarizes students with the range of professional possibilities offered by the English major.

**The Possibilities of English (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 112 (GH;US) Pennsylvania Literature (3)** An introduction to the literature that has been written by Pennsylvania authors from the colonial era through the present day.

**ENGL 112 Pennsylvania Literature (3)  
(GH;US)**

The purpose of this course is to introduce students to the variety of literature that has been written and published by Pennsylvania authors from the colonial era through the present day. This course explores how the literature written in Pennsylvania relates to historical developments within the Commonwealth, and to literary, cultural, and historical developments across the United States and throughout the world. Toward that end, the course provides a chronological survey of developments in the literature of Pennsylvania through readings from the work of Pennsylvania authors whose

work illuminates developments in literary history and exemplifies important aspects of Pennsylvania history and culture.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 129** (GH) Shakespeare (3) A selection of the major plays studied to determine the sources of their permanent appeal. Intended for non-majors.

**ENGL 129 Shakespeare (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ENGL 129 constitutes a broad introduction to Shakespeare's dramatic works from a variety of thematic, historical, formal, and/or generic vantages. Approaches taken to the plays will vary from class to class, but may include a chronological introduction to the development of Shakespeare's plays, a consideration of a principal Shakespearean theme or themes through a number of plays from across Shakespeare's career, a consideration of Shakespeare's protagonists through a number of plays from across Shakespeare's career, or a consideration of a number of Shakespeare's plays in historical context. Time allotted for the discussion of each play will vary, but students should expect to read, on average, a play a week. This class will prepare students for advanced courses in early modern literatures as well as other academic courses that engage in the verbal and written analysis of complex written texts. Students will be evaluated by means of essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course is a basic introduction to Shakespeare's works suited for non-majors, but may be used as English major elective credit or as credit toward the English minor. The course will be offered three times a year with 60 seats per offering. The course will be offered once a year as an honors course--ENGL 129H.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 129H** (GH) Shakespeare (3) A selection of the major plays studied to determine the sources of their permanent appeal. Intended for non-majors.

**ENGL 129H Shakespeare (3)  
(GH)**

In ENGL 129H, students will read a selection of up to ten of Shakespeare's major plays, in four different categories: history plays, comedies, tragedies, and romances. Selections may include Othello, King Lear, The Winter's Tale, The Taming of the Shrew, Much Ado about Nothing, As You Like It, Henry IV Part 1 and Part 2, and Henry V, plus a supplemental text such as The Bedford Companion to Shakespeare.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 130** (GH) Reading Popular Texts (3) Popular texts (printed, visual, and aural texts) and their social, political, and cultural significance in the contemporary world.

**ENGL 130 Reading Popular Texts (3)  
(GH)**

ELISH 130: Reading Popular Texts explores a variety of popular texts with the goal of enabling students to sharpen their ability to interpret the social, political, and cultural significance of such texts in the contemporary world. For the purposes of this course, the term "texts" is defined broadly, to include printed texts (books, periodicals, and hypertext), visual texts (film, television, visual arts and graphics), and aural texts (music, sound, and spoken word). Since these texts are primarily examples of popular culture-pervasive, self-replicating, commercialized artifacts of the contemporary scene-they are familiar to the general student outside the classroom. Too often, however, students have not seen such texts subjected to the same kind of critical reading as more elite cultural forms (e.g., canonized literature, art, and music). As a result, the general student in particular benefits from learning that cultural phenomena to which she or he is exposed on a daily

basis have layers of significance as yet unexplored or unrealized. The purpose of the course is fulfilled if such students come away from it with a sharpened awareness of the role that popular texts play in their daily lives and the means to discuss and explain their influence-in short, to read their culture more critically.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007  
Prerequisite: ENGL 015 or ENGL 030H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 132 (GH;US) (J ST 132)** Introduction to Jewish American Literature (3) A historical and thematic survey of Jewish Literature of the United States.

**ENGL (J ST) 132 Introduction to Jewish American Literature (3)  
(GH) (US)**

This course will provide an introduction to Jewish American literature through a historical survey of the tradition's key texts, figures, and themes. The course will focus on the defining aspects of the literature and on what the literature "thinks" about Jewish American culture and identity. But rather than assuming a unity to Jewish-American culture, this course will use Jewish literature to seek ways of articulating and representing both the points of cohesion and the points of divergence that characterize Jewish life in America. The United States has absorbed large numbers of Jewish immigrants hailing from many parts of the world, holding many different ideas about Jewish practice, and affiliating themselves with many different political, social, and cultural traditions. Moreover, Jews have settled and made homes in a wide variety of American communities. This course aims to explore Jewish American culture's marked diversity by offering a literary window onto the major fault-lines running through Jewish American culture: lines demarcated by gender, by political affiliation, by geography, by pre-immigration community by religious practice, by attitude toward world Jewry, by national allegiance, and by minhag (or custom), to name just a few. The class therefore provides an opportunity to consider the constitution, origin, and development of Jewish American's identity and social formations by looking at how that identity and those social formations exist and what they "do" in literature written by and about Jews in America. Materials will consist predominantly of primary texts, including prose fiction and nonfiction, poetry, drama, and film. Course methodology will emphasize the close reading of these texts. Through occasional writing exercises, formal papers, in-class projects, and essay examinations, students will respond to, integrate, compare, and analyze these materials. The course complements offerings in Jewish Studies and English, and it will satisfy the GH and US requirements. Most obviously, the course will offer students of Jewish literature, world literature, and American literature an opportunity for contextualization. It enables students in Jewish Studies to study the rich literature of American Jews, and it adds to courses covering Jewish American history, religion, and culture. The course offers students in English a valuable, sustained introduction to an important U.S. and world sub-culture.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 132U (GH;US) (J ST 132U)** Introduction to Jewish American Literature (3) A historical and thematic survey of Jewish Literature of the United States.

**Introduction to Jewish American Literature (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 133 (GH)** Modern American Literature to World War II (3) Cather, Eliot, Frost, Faulkner, Fitzgerald, Hemingway, Hurston, Wharton, Wright, and other writers representative of the years between the world wars.

**ENGL 133 Modern American Literature to World War II (3)  
(GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

English 133 will constitute a wide ranging study of modernist American literature, including novels, short stories, poems, plays, and prose, written roughly between the turn of the 19th century and the end of the Second World War. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Topics under consideration will vary from class to class, but may include a chronological introduction to the development of modernist American literature, a consideration of a principle theme or themes common to modernist American literature through a number of works from across the period, a consideration of a number of modernist works in the context of historical events central

to the period, such as the American participation in the First World War and/or the effect on American literature of the ensuing world-wide depression. Time allotted for the study of the works under consideration will vary. This class will prepare students for advanced courses in modernist literatures as well as other academic courses that engage in the verbal and written analysis of complex written texts. Students will be evaluated by means of essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as English Major elective credit or as credit towards the English Minor. Non-English majors may use this course to fulfill a general education or Bachelor of Arts/Humanities. English 133 will be offered once a year with 60 seats per offering.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 134** (GH) American Comedy (3) Studies in American comedy and satire, including such writers as Mark Twain, Faulkner, Vonnegut, Ellison, O'Connor, Welty, and Heller.

### **American Comedy (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 135** (GH;US) (AM ST 135) Alternative Voices in American Literature (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

### **Alternative Voices in American Literature (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 135S** (GH;US) Alternative Voices in American Literature (3) United States writers from diverse backgrounds offering varying responses to issues such as race, class, gender, and ethnicity.

### **Alternative Voices in American Literature (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 136** (GH) The Graphic Novel (3) The graphic novel as a literary and visual form (produced primarily in English).

### **ENGL 136 The Graphic Novel (3) (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course considers the graphic novel as a literary medium which joins text and image. The course explores the aesthetic of sequential narrative, its methods of production and consumption, and its place in contemporary culture.

#### **I. Introduction**

A basic outline of the medium, its generic range, and its reception in the United States.

#### **II. History of Comics**

An overview of the history of comics in the United States, with some discussion of Japan and Europe. The unit covers the development of comics in the United States during the twentieth century: newspaper strips, the comics boom of 1930s and 40s, the 1950s Senate hearings on the 'corrupting influence' of comics, and the abiding perception of comics as juvenile fare. This component also considers questions of marketing, reception, and gender across various genres.

**III. Formal Analysis of Comics**

Introduction to critical terminology and methods for the critique of the medium: panel layout, interplay between text and image, visual vocabulary and icons, and narrative techniques. This component will provide students with language and concepts necessary for critical analysis of graphic novels.

**IV. Graphic Novels**

This unit presents graphic novels primarily from the United States, all single volume works and nearly all the work of a single creator. The course primarily focuses on works originally written in English. The unit targets texts that have established an abiding influence in the medium (Maus) or received critical esteem (Fun Home, Jimmy Corrigan). Students will conduct close reading and analysis of specific texts using terms and concepts learned in the 'Formal Analysis of Comics' unit.

This course uses readings, images, lectures, and discussion to introduce students to the medium of graphic novels.

- Students will analyze formal techniques of the medium and understand its development as a popular form in the modern era.
- Students will encounter a range of perspectives and consider the challenges of representing history through an artistic medium.
- Students will learn to think critically about issues of identity, ethnicity, sexuality, history, and religion.

Individual instructors may vary their evaluation methods. One option might be:

Class participation: 20%

1 take-home exam: 20%

2 analytical papers: 40%

Presentation of secondary research: 10%

Book review: 10%

Students will gain a sense of the development of the medium across time, as well as an understanding of the place graphic novels hold in contemporary culture.

This course would be most effective in a technology classroom. The unit on formal analysis in particular demands projection capabilities.

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 137H (GWS) (CAS 137H) Rhetoric and Civic Life I (3)** Within a liberal arts framework and with attention to public discourse-- speaking, writing, online communication, and visual presentation--this course instructs students in the arts, practices, and principles of rhetoric.

**ENGL (CAS) 137H Rhetoric and Civic Life I (3)**

This course introduces Schreyer Honors College freshmen and Paterno Fellows Aspirants to the art of rhetoric in the context of civic issues. Students will read, discuss, and develop facility with principles of rhetoric as they apply to public speaking, writing, online communication, and visual presentation. The first part of the sequence, ENGL/CAS137H (Rhetoric and Civic Life I), will focus on understanding rhetoric in a variety of cultural contexts. Students will practice incorporating visuals in oral presentations while also learning to analyze how visual rhetoric works in the world around them. In the process of becoming "critical citizens," students will research, discuss, and analyze public controversies. The course provides explicit training in general library and digitally based research methods, as well as interview-based research. In addition to formal writing and speaking assignments, students in the course will hone their interactive rhetorical skills by using a blogging platform to explore a topic about which they are passionate, to engage course readings together, and to share work in progress.

General Education: GWS

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 138T (GWS) (CAS 138T) Rhetoric and Civic Life II (3)** This course builds rhetorical skills in oral, written, visual, and digital contexts and introduces deliberation and advocacy in civic and disciplinary spheres.

**Rhetoric and Civic Life II (3)**

General Education: GWS

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: ENGL 137H or CAS 137H

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 139** (GH;US) (AF AM 139) Black American Literature (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

**Black American Literature (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 139S** (GH;US) Black American Literature (3) Fiction, poetry, and drama, including such writers as Baldwin, Douglass, Ellison, Morrison, and Wright.

**Black American Literature (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 140** (GH) Contemporary Literature (3) Writers such as Baldwin, Beckett, Bellow, Ellison, Gordimer, Lessing, Lowell, Mailer, Naipaul, Pinter, Plath, Pynchon, Rushdie, and Walker.

**ENGL 140 Contemporary Literature (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ENGL 140 will constitute a wide-ranging study of contemporary literature written in English, including novels, short stories, poems, plays, and prose, written roughly between the end of the Second World War and the present. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Baldwin, Beckett, Bellow, Ellison, Erdrich, Delillo, Kingston, Lee, Pynchon, Gordimer, Lessing, Lowell, Mailer, Naipaul, Pinter, Plath, Rushdie, Silko, and Walker. Topics under consideration will vary from class to class, but may include a chronological introduction to the development of contemporary literature, a consideration of a principle theme or themes common to contemporary literature through a number of works from across the period, a consideration of a number of contemporary works in the context of historical events central to the period, a consideration of a number of contemporary works in the context of formal or aesthetic elements common to those works and their various effects. Time allotted for the study of the works under consideration will vary. This class will prepare students for advanced courses in post-modern and contemporary literatures as well as other academic courses that engage in the verbal and written analysis of complex written texts. Students will be evaluated by means of essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as English major elective credit or as credit towards the English minor. Non-English majors may use this course to fulfill a General Education or Bachelor of Arts/Humanities. The course will be offered once a year with 60 seats per offering.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 145** (GH;IL) Modern Irish Literature (3) Irish literature in the twentieth century and beyond; focus on the interplay of political, social, and cultural, forces on literature.

**ENGL 145 Modern Irish Literature (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ENGL 145, Modern Irish Literature, will concentrate on Irish literature, history, and politics from the early twentieth century to the present. The course will begin with the socio-political implications of the Home Rule movement and the important figures associated with the rise of the Irish Literary Renaissance. Instructors will spend much of the course focusing on canonical figures of modern Irish Literature (such as Joyce, Yeats, Synge, Beckett, Shaw, O'Casey, O'Flaherty, and Lady Gregory). The course will introduce students to the political context and themes of Irish Literary Renaissance (Irish

Literary Renaissance), including the notion of “cultural nationalism.” Instructors may draw upon contemporary literary critics, such as Declan Kiberd, Seamus Deane, and Terence Brown, by way of introduction to the ILR. The class will then move on to Post-World War II Irish Literature. In this component of the course, instructors will select literature from writers who began publishing in the Post-War era. These authors may be examined as they follow the legacy of the ILR, or as they challenge it and forge new courses for Irish literature. In other words, these authors can be writing within or against the traditions and themes of ILR artists—or, more likely, doing both things at once. This component of the course will help students see the enduring legacy of the themes and forms of the ILR, as Irish authors continually reckon with its massive political and cultural inheritance. The course fulfills IL requirements in its emphasis on postcolonial relationships between Irish identity and culture and issues of British colonial occupation and the influence of American popular culture in the later twentieth century. The interpretive framework of postcolonial studies will inform the instructor’s approach to the literature. Postcolonial studies seeks to examine the conditions and tropes of colonial and post-colonial writers and peoples. While postcolonial studies offers broad theories and concepts that can be applied to any postcolonial scene, the movement nonetheless has an interest in studying and honoring the regional particularities and the specific reaction of its writers to the postcolonial moment. This interplay of the unifying, international experience of colonialism with the particularity of individual nations and writers helps students to become sensitive to ideas of nation, unity, and difference. More so, the tropes of postcolonial literature—and Irish literature especially--focus on concepts of hybridity, the Other, contact zones, modernity vs. tradition, national identity, and personal identity, all on which seek to understand the self and others within an intercultural context. The literature of the IRL also explores the corrosive effects of British imperialism, which helps students to consider whether “might makes right” and interrogate various forms of cultural imperialism, then and now. The literature of the IRL also promotes themes of intercultural understanding, featuring examples of reconciliation and compromise between tradition and modernity, and, more importantly, between Irish, American, and British characters. Students will be evaluated through writing assignments (about 15 pages of formal writing—the instructor can decide upon the number of papers and page length for the assignments), a midterm and final exam that feature essay responses, and class participation, which may include an online discussion forum (on ANGEL) and group presentations. These assignments will help students focus on issues of identity construction, and social and political conflicts within and between cultures (Ireland in relationship to British and American culture and influence) within a post-colonial context.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 180 (GH)** Literature and the Natural World (3) Literary representations of the natural world, focusing on English language traditions.

### **Literature and the Natural World (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 181A (GH;US)** Adventure Literature: Exploring the Chesapeake Bay (4.5) Examines the interconnection of culture and nature in the Chesapeake Bay region through the literature of the region.

### **ENGL 181A Adventure Literature: Exploring the Chesapeake Bay (4.5)**

The course focuses on a specific place--the Chesapeake Bay and its watershed--that has generated a distinctive regional identity and literature from its natural and social context. The course begins consideration of the concept of watershed, both as a geographical concept and a literary metaphor, before turning to an examination of the culture(s) and nature of the largest and most important tributary of the Bay, the Susquehanna River. Students will read texts associated with the history and the development of the Susquehanna, with some emphasis on logging, rafting, mining, and hydropower development. Readings here should aim at helping students see how a regional cultural identity has evolved from the river’s geography and economics. Focus on the Bay itself, students can learn similar lessons. We begin by looking at the rich native cultures that occupied the region before the advent of Europeans and then move to initial European exploration and settlement. The class might then focus on development (agricultural, cultural, and industrial) of the Bay and Bay Region generally, through readings that might include regional histories and literary works like James Michener’s *Chesapeake: A Novel*. Significant attention should be devoted to the sub-culture of the Chesapeake waterman, a regional identity that has generated its own mythology and folklore and has been the focus for numerous writers. Texts might be chosen to show the role nostalgia plays in conceptions of the Bay or the ways in which issues of race, class, and gender are raised by examining representations of the waterman culture. What students should see is how literature and culture are transformed over time, while resonances of former place identities remain. Finally, the course will turn to the Bay as it is today and how the representation of place and regional identity in literature has changed over time.

This course was designed to include out-of-the-classroom educational experiences on the Susquehanna River and other tributaries of the Bay and on the Chesapeake Bay itself. The trips should provide students opportunities to fully understand the interconnections of nature and culture in the Bay region. They should also allow students the chance to travel in the footsteps of the writers they read in venues throughout the region. The goal is to both see how a distinctive culture

derived from the natural circumstances of the Chesapeake and to understand how that culture might continue (or not) into the future.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 181B (GH;US) Adventure Literature: Exploring Cape Cod (4.5)** Examines the interconnection of culture and nature on Cape Cod through considerations of texts in various literary genres that have contributed to development of a distinctive regional identity and culture.

#### **ENGL 181B Adventure Literature: Exploring Cape Cod (4.5)**

The purpose of this course is to teach students how natural and cultural contexts contribute to the production of meaning in literary texts. In this case, the locality that serves as the focus of study is Cape Cod, arguably the most written-about locale in the United States. The course begins with classes devoted to the Cape's natural history—its formation and the ever-present effect of wind and water—and then moves to its early human history. Readings in the first part of the course will focus on the period just before and after European settlement and readings could include selections from William Bradford's *Of Plymouth Plantation* or Mourt's Relation, both contemporaneous accounts of the Pilgrim's landing on and exploration of the Cape and appropriate chapters from Paul Schneider's history of the Cape, *The Enduring Shore*, and Nathaniel Philbrick's excellent account of the Pilgrim adventure, *Mayflower*. These readings could be enhanced with selections on the European settlement of the Cape in Robert Finch's anthology of writing about the Cape, *A Place Apart*. This introductory material will lead to the major part of the course, which will be devoted to reading and study of classic literature about the Cape, such as Thoreau's *Cape Cod*, Henry Beston's *The Outermost House*, Wyman Richardson's *The House on Nauset Marsh*, and John Hay's *The Great Beach*, as well as selections of poetry poets associated with the Cape. Each of these works, in its time, represents the writer's attempt to somehow capture and come to terms with the landscape and natural exigencies of the Cape. The focus will then turn to representations of the Cape in the work of contemporary writers, and might include work by Michael Cunningham, Annie Dillard, David Gessner, Cynthia Huntington, and Mary Oliver among others. The course ends with a brief look at Cape Cod's literary and natural future as it has been imagined over the last 140 years.

This course was designed to include an out-of-the-classroom education experience on Cape Cod. The trip to the cape should include experiences related to the cultural and natural history of the region, and it should provide students the opportunities to walk in the footsteps of William Bradford, Thoreau, Beston, and Hay, as well as opportunities to see for themselves how the natural features that have inspired the classic and contemporary writers of the Cape will continue to inspire future generations of artists.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 181C (GH;US) The Beach: Exploring the Literature of the Atlantic Shore (4.5)** Examines the interconnection of culture and nature in coastal areas of the Atlantic seaboard.

#### **ENGL 181C The Beach: Exploring the Literature of the Atlantic Shore (4.5) (GH;US)**

English 181C—"The Beach: Exploring the Literature of the Atlantic Shore"—should begin with some exploration of the dynamic forces at work on the barrier beach, with special attention to the ways in which great literature has taken what is described in the scientific literature and turned it into art. Examples for discussion could be drawn from the work of such writers as Henry Beston, Rachel Carson, and Jan DeBlieu. The general concerns of the course then move to environmental ethics, specifically as ethical questions are embodied in literature's representation of the human relationship with the other-than-human world. General ethical questions then lead to specific treatments of human and wild animal interaction by various writers. The point is to explore how writers represent the optimal sort of relationship humans can have with the wild world, and what such representation might mean to the ways we personally interact with nature.

From these opening considerations, the course turns to an examination of the way in which writers who focus on a specific region of the coast--South Atlantic barrier islands, for example-- establish a sense of the place in their writing. The course would then narrow its focus even more, moving from a consideration of a regional cultural identity to that of specific towns or narrowly defined areas within the general region. The subject of the narrower focus should then be explored in specific detail, beginning with pre-European cultures, the first explorers and settlers and then moving on to other aspects of the American culture history that make the subject area distinctive. For example, a course on the Low Country of South Carolina might start with the accounts of John Lawson, who published his journal of his own trip up the Santee River in 1701, move to accounts of the rice culture so important to the region in the nineteenth century and to the an examination of the Gullah Geechee culture established by West African slaves on Low Country plantations, and then move to writing from more recent writers, all of which help to define the area's distinctive cultural and particularly its literary identity.



This course was designed to include an out-of-the-classroom education experience. The enhancement trip should include experiences related to the cultural and natural history of the region. It should provide opportunities to walk in the footsteps of writers whose work is discussed in the classroom. There could be a course fee in addition to tuition for such enhancement experiences.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 181D (GH;US) Adventure Literature: Exploring the Literature of American Wilderness (3)** Examines the history and cultural impact of wilderness in America.

**Adventure Literature: Exploring the Literature of American Wilderness (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 182A (GH;US;IL) Literature and Empire (3)** Literature written in English from countries that were once part of European empires, e.g., India, Canada, South Africa, and others.

**ENGL 182A Literature and Empire (3)**  
**(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

English 182A will constitute a wide ranging study of literature written in English, including novels, short stories, poems, plays, and prose, from countries that were once part of the British Empire or some other European empire. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Chinua Achebe, Buchi Emecheta, Alan Paton, David Malouf, Robertson Davies, Ngugi Wa Thiongo, J. M. Coetzee, R. K. Narayan, Amitabha Ghosh, Salman Rushdie, Christina Stead, Thomas Keneally, Jill Ker Conway, V. S. Naipaul, Wilson Harris, and Michael Ondaatje. Topics under consideration will vary from class to class, but the course will often discuss matters of race and ethnicity, as well as matters of religion, gender, sexual orientation and global context, where appropriate. The principle emphasis of the works in this course will be the recognition of non-European/non-American societies and the differences between their culture and that of Europeans or Americans. The conflicts generated by clashing cultures will drive the choice of readings. By the end of the course, students will have studied works from a minimum of five different cultural perspectives. This class will also prepare students to consider social and cultural problems from a variety of cultural perspectives. Students will be evaluated by means of essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as English Major elective credit or as credit towards the English Minor and will be offered once a year, when staffing restrictions permit, with 35 seats per offering.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 182C (GH;IL) Literature and Empire (3)** Literature written in English from countries that were once part of European empires, e.g., India, Canada, South Africa, and others.

**ENGL 182C Literature and Empire (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

English 182C will constitute a wide ranging study of literature written in English, including novels, short stories, poems, plays, and prose, from countries that were once part of the British Empire or some other European empire. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Chinua Achebe, Buchi Emecheta, Alan Paton, David Malouf, Robertson Davies, Ngugi Wa Thiongo, J. M. Coetzee, R. K. Narayan, Amitabha Ghosh, Salman Rushdie, Christina Stead, Thomas Keneally, Jill Ker Conway, V. S. Naipaul, Wilson Harris, and Michael Ondaatje. Topics under consideration will vary

from class to class, but the course will often discuss matters of race and ethnicity, as well as matters of religion, gender, sexual orientation and global context, where appropriate. The principle emphasis of the works in this course will be the recognition of non-European/non-American societies and the differences between their culture and that of Europeans or Americans. The conflicts generated by clashing cultures will drive the choice of readings. By the end of the course, students will have studied works from a minimum of five different cultural perspectives. This class will also prepare students to consider social and cultural problems from a variety of cultural perspectives. Students will be evaluated by means of essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as English Major elective credit or as credit towards the English Minor and will be offered once a year, when staffing restrictions permit, with 35 seats per offering.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 184** (GH;IL) (CMLIT 184) The Short Story (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.

**ENGL 184 The Short Story (3)**  
(GH)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce students to the art of the short story and to acquaint them with some of its most talented writers. During the semester we will read short stories from various cultures and countries, ranging from stories written in the early nineteenth-century to those written within the last few years. Readings will include works from authors like Hawthorne, Melville, Tolstoy, Dostoevsky, Gogol, Bierce, Chekhov, Kafka, Chopin, Crane, Gilman, James, Cather, Joyce, Woolf, Faulkner, Hemingway, Lawrence, Orwell, O'Connor, Baldwin, Olson, Silko, Erdrich, Ondaatje, Coover, Balth, Balthelme, DeLillo, Atwood, Mukherjee, Walker, Tan, Calvino, Garcia M,irquez, and Cortizar. All readings will be in English. We will usually read one story for each class meeting and it is important that the story is read in advance of our discussion. This course is intended to help one learn how to read fiction, how to understand it, and how to talk about it. The desire to tell stories and to be told stories is one of the most basic human needs, and all cultures have been defined in part by the stories they hear and the stories they tell. We are not born, however, knowing how to read the short story or any fiction for that matter. Rather it is a skill that one acquires, and the more one does it, like playing tennis or any other activity, the better one becomes at it, for we learn what to look for. We will also explore the historical development of the short story genre, and examine how historical contexts relate to the content and style of the stories under discussion. We become familiar with how stories are put together and with the vocabulary that is used to discuss fiction--terms such as plot, narrative, character, tone, language, closure, irony, imagery, and so forth. Students will be evaluated by class participation, a group oral presentation on the historical contexts of a story, small group problem solving exercises, out of class essays, a reading response journal, and in-class exams (such as a mid-term and a final). ENGL/CMLIT 184 will complement a wide variety of offerings in the English curriculum, especially those examining fiction or prose narratives. Non majors may use this to fulfill a humanities requirement. This course may be used as English Major elective credit or as credit towards the English minor. This course may be used as English Major elective credit or as credit towards the English minor. Non-majors may use this to fulfill a humanities requirement. ENGL/CMLIT 184 is not required for the Comparative Literature major but may be selected to fulfill one of the course requirements for the major or the World Literature Minor. This course also fulfills the General Education Humanities requirement and the Bachelor of Arts Humanities requirement. It will be offered two times per year, with 60 seats per offering.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 184S** (GH;IL) The Short Story (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.

**ENGL 184S The Short Story (3)**  
(GH;FYS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce students to the art of the short story and to acquaint them with some of its most talented writers. During the semester we will read short stories from various cultures and countries, ranging from stories written in the early nineteenth-century to those written within the last few years. Readings will include works from authors like Hawthorne, Melville, Tolstoy, Dostoevsky, Gogol, Bierce, Chekhov, Kafka, Chopin, Crane, Gilman, James, Cather, Joyce, Woolf, Faulkner, Hemingway, Lawrence, Orwell, O'Connor, Baldwin, Olson, Silko, Erdrich, Ondaatje, Coover, Balth, Balthelme, DeLillo, Atwood, Mukherjee, Walker, Tan, Calvino, Garcia M,irquez, and Cortizar. All readings will be in

English. We will usually read one story for each class meeting and it is important that the story is read in advance of our discussion. This course is intended to help one learn how to read fiction, how to understand it, and how to talk about it. The desire to tell stories and to be told stories is one of the most basic human needs, and all cultures have been defined in part by the stories they hear and the stories they tell. We are not born, however, knowing how to read the short story or any fiction for that matter. Rather it is a skill that one acquires, and the more one does it, like playing tennis or any other activity, the better one becomes at it, for we learn what to look for. We will also explore the historical development of the short story genre, and examine how historical contexts relate to the content and style of the stories under discussion. We become familiar with how stories are put together and with the vocabulary that is used to discuss fiction--terms such as plot, narrative, character, tone, language, closure, irony, imagery, and so forth. Students will be evaluated by class participation, a group oral presentation on the historical contexts of a story, small group problem solving exercises, out of class essays, a reading response journal, and in-class exams (such as a mid-term and a final). ENGL/CMLIT 184 will complement a wide variety of offerings in the English curriculum, especially those examining fiction or prose narratives. Non majors may use this to fulfill a humanities requirement. This course may be used as English Major elective credit or as credit towards the English minor. This course may be used as English Major elective credit or as credit towards the English minor. Non-majors may use this to fulfill a humanities requirement. ENGL/CMLIT 184 is not required for the Comparative Literature major but may be selected to fulfill one of the course requirements for the major or the World Literature Minor. This course also fulfills the General Education Humanities requirement and the Bachelor of Arts Humanities requirement. It will be offered two times per year, with 60 seats per offering.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 184U** (GH;IL) The Short Story (3) Lectures, discussion, readings in translation, with primary emphasis on major writers of the nineteenth and twentieth centuries.

### **The Short Story (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 185** (GH;IL) (CMLIT 185) World Novel (3) Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation.

### **ENGL (CMLIT) 185 The Modern Novel in World Literature (3) (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

In this course, which is cross-listed with Comparative Literature, students will read examples of the modern novel from around the world. Focusing on novels written outside of America and England, this class will explore the development of the modern novel as a genre across a number of world cultures. As an example, moving from the beginnings of literary modernism (the late nineteenth century) through the early and mid twentieth century, the course will consider works by writers such as the following: Chinua Achebe, Italo Calvino, Albert Camus, Simone deBeauvoir, Fyodor Dostoevsky, Isak Dinesen, Marguerite Duras, Natalia Ginzburg, Herman Hesse, James Joyce, Thomas Mann, Gabriel Garcia Marquez, Kenzaburo Oe, and Marcel Proust. This course will address the ways in which the world novels under consideration constitute examples of various literary forms and styles. The class will examine the differences and distances between literary movements such as social realism and magical realism, modernism and postmodernism. The goals of this course will be to hone students' critical reading and writing skills while granting them the ability to think about the modern novel as a distinct genre in a comparative global context. Students will be asked to read a minimum of five to six novels, spending an average of two weeks studying each work. They will be asked to complete at least three writing assignments including at least two kinds of writing such as the: essay, essay exam, or semester-long reading journal. This course will prepare students for additional college-level literature courses by helping them to develop the analytical skills necessary to analyze complex written texts. This course fulfills a General Education Humanities requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 189** (GH;IL) (CMLIT 189) Modern Drama (3) Playwrights who set the world's stage for twentieth-century drama; issues that continue to shape the contemporary theatrical world.

**ENGL (CMLIT) 189 The Founders of Modern Drama (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

ENGL/CMLIT 189 will constitute a wide-ranging study of plays by authors often credited with the making of modernist drama. The class will approach these plays from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Ibsen, Strindberg, Chekhov, Shaw, Wilde, Galsworthy, O'Neill, Beckett, and Yeats. Topics under consideration will vary from class to class but may include a chronological introduction to the development of modern drama, a consideration of a principal theme or themes in modern drama through a number of plays, or a consideration of plays in the context of historical events or formal or aesthetic elements. Time allotted for the study of the works under consideration will vary. This class will prepare students for advanced courses in dramatic literature as well as other academic courses that engage in the verbal and written analysis of complex written texts. Students will be evaluated by means such as essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as an English or Comparative Literature major credit or as credit towards the English or Comparative Literature minor and will be offered once a year, with 60 seats per offering.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 191 (GH) Science Fiction (3)** Science fiction as the literature of technological innovation and social change--its development, themes, and problems.

**Science Fiction (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 192 (GH) The Literature of Fantasy (3)** Literature(s) of fantasy from early forms through a variety of contemporary traditions.

**ENGL 192 The Literature of Fantasy (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

Perhaps more than any other genre of speculative fiction, fantasy is richly varied. This course examines the development of literary traditions in fantasy literature from their earliest origins in mythology and folklore, through the historical development of classic fantasy works, into the books, movies and other fictions of the modern day. The course also explores different critical and theoretical approaches to the student of fantasy literature and related artistic traditions, as surrealism and magical realism. In addition to completing primary readings, students will engage in weekly lecture/discussions of materials. Evaluation for the course includes essay exams and a course project. English 192 satisfies the GH requirement. The course can count toward the major and toward the minor in English. Class size, frequency of offering, and evaluation methods will vary by location and instructor.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 194 (GH;US;IL) (WMNST 194) Women Writers (3)** Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers.

**ENGL (WMNST) 194 Women Writers (3)  
(GH;US;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

English 194 will constitute a wide ranging study of works by American, British, and other English-speaking women writers,

including novels, short stories, poems, plays, and prose. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Bradstreet, Wollstonecraft, C. Rosefti, M. Shelley, Austen, C. Bronte, E. Bronte, G. Eliot, D. Wordsworth, Dickinson, Wharton, Stowe, Freeman, Jewett, Fuller, H.D., Moore, Sitwell, Bishop, Brooks, Plath, Cather, Woolf, Stein, Lessing, Bowen, O'Connor, Welty, Porter, Oates, Olsen, Sarton, Gordimer, Atwood, Morrison, Kinkaid, McCarthy, and Churchill. The course seeks to make students aware of the extensive body of literature written by women through the analysis, evaluation, and appreciation of specific works by women writers. The course also seeks to help students understand the female perspectives-the varying values and interests of women--reflected in the texts at hand and to position these perspectives within wider social, historical, and political contexts. The course also seeks to make students aware of the special problems faced by both women writers and the female inhabitants of the societies they describe in their work. As a course in women's literature, ENGL/WMNST 194 concerns itself with questions of gender. In so far as some of these women writers are black or women of color, it concerns itself with questions of race and ethnicity. In as far as the course looks at women's literature in the context of men's literature, it is concerned with the inter-relationship between dominant (male) and non-dominant (female) culture in the United States as well as in Britain. In so far as the course covers lesbian writers, it is concerned with sexual orientation. Topics under consideration will vary from class to class, but may include a chronological introduction to the development of women's literature, a consideration of a principle theme or themes common to women's literature through a number of works from across a number of historical periods, a consideration of a number of women's works in the context of historical events central to their creation, a consideration of a number of women's works in the context of formal or aesthetic elements common to those works and their various effects. Time allotted for the study of the works under consideration will vary. This class will prepare students for advanced courses in women's literature as well as other academic courses that engage in the verbal and written analysis of complex written texts. Students will be evaluated by means of essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as English Major elective credit or as credit towards the English Minor and will be offered once a year with 60 seats per offering.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 194S** (GH;US;IL) Women Writers (3) Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers.

**ENGL 194S Women Writers (3)**  
(GH;US;IL;FYS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

English 194 will constitute a wide ranging study of works by American, British, and other English-speaking women writers, including novels, short stories, poems, plays, and prose. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Bradstreet, Wollstonecraft, C. Rosefti, M. Shelley, Austen, C. Bronte, E. Bronte, G. Eliot, D. Wordsworth, Dickinson, Wharton, Stowe, Freeman, Jewett, Fuller, H.D., Moore, Sitwell, Bishop, Brooks, Plath, Cather, Woolf, Stein, Lessing, Bowen, O'Connor, Welty, Porter, Oates, Olsen, Sarton, Gordimer, Atwood, Morrison, Kinkaid, McCarthy, and Churchill. The course seeks to make students aware of the extensive body of literature written by women through the analysis, evaluation, and appreciation of specific works by women writers. The course also seeks to help students understand the female perspectives-the varying values and interests of women--reflected in the texts at hand and to position these perspectives within wider social, historical, and political contexts. The course also seeks to make students aware of the special problems faced by both women writers and the female inhabitants of the societies they describe in their work. As a course in women's literature, ENGL/WMNST 194 concerns itself with questions of gender. In so far as some of these women writers are black or women of color, it concerns itself with questions of race and ethnicity. In as far as the course looks at women's literature in the context of men's literature, it is concerned with the inter-relationship between dominant (male) and non-dominant (female) culture in the United States as well as in Britain. In so far as the course covers lesbian writers, it is concerned with sexual orientation. Topics under consideration will vary from class to class, but may include a chronological introduction to the development of women's literature, a consideration of a principle theme or themes common to women's literature through a number of works from across a number of historical periods, a consideration of a number of women's works in the context of historical events central to their creation, a consideration of a number of women's works in the context of formal or aesthetic elements common to those works and their various effects. Time allotted for the study of the works under consideration will vary. This class will prepare students for advanced courses in women's literature as well as other academic courses that engage in the verbal and written analysis of complex written texts. Students will be evaluated by means of essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as English Major elective credit or as credit towards the English Minor and will be offered once a year with 60 seats per offering.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 196** (GH;US) (AM ST 196, AMSTD 196) Introduction to American Folklore (3) A basic introduction to verbal and nonverbal folklore stressing the basic procedures of collection, classification, and analysis.

**ENGL (AM ST; AMSTD) 196 Introduction to American Folklore (3)**  
**(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

English 196 is an introduction to the verbal and nonverbal folk traditions characteristic of several American subcultures, including Native Americans, Hispanic Americans, African Americans, and immigrants. It will cover important genres of folklore, including folk speech, folk narrative, beliefs and religious experiences, use of space, and material culture. Topics under consideration will include ethnicity and cultural identity, the ways in which verbal and material cultures have influenced the literary, political, and economic development of the United States. Students will learn strategies for "reading" and valuing the folklore of subcultures other than their own. This class will prepare students to be able to perform well in future courses that deal with analyzing written, oral, and nonverbal texts and being able to analyze their significance within the subculture that produced them. By the end of the course, students will be able to recognize the cultural, political, and historical implications of such traditions. Additionally, they will have received first-hand practice in compiling a fieldwork project from first-hand interviews and site observations, combined with archival research. Students will be evaluated on the basis of class discussion, oral presentation and group exercises, in-class examinations, and a fieldwork portfolio, based on the fieldnotes, research, and analysis done as part of their project. This course may be used by English majors for English Major elective credit or as credit toward the English Minor, and (as AMST 196) also by American Studies majors in the same way. Non majors may use this course to fulfill a general education or Bachelor of Arts Humanities requirement. English 196 will be offered twice a year with 60 seats per offering.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 197A** Hollywood's Golden Age (1) Through weekly mandatory screenings of classic Hollywood film, students will learn how Hollywood has helped to create the American experience.

**Hollywood's Golden Age (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 199** (IL) Foreign Study--English (3-6) Studies in English language and/or literature.

**Foreign Study--English (3-6)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 200** Introduction to Critical Reading (3) Responses to a variety of literary texts written in English that evoke different approaches.

**Introduction to Critical Reading (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 1991  
 Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 200H** Introduction to Critical Reading (3) Responses to a variety of literary texts written in English that evoke different approaches.

**ENGL 200H Introduction to Critical Reading (3)**

ENGL200H is an introduction to modern and contemporary literary and cultural theory and the historical, philosophical, and social bases of literary analysis. Readings may include works of literature (in various genres) that engage in philosophical thinking and/or present ideas and arguments about contemporary and historical societies, as well as works of literary criticism itself.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2012  
 Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 200W** Introduction to Critical Reading (3) Responses to a variety of literary texts written in English that evoke different approaches.

**ENGL 200W Introduction to Critical Reading (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

When we read a work of literature, how do we determine what it means? Why do readers and critics come up with different interpretations of the same work? How do we decide if a literary work is valuable or not? This course addresses these and other questions by introducing students to the variety of literary questions on which critics and scholars base their interpretations of literature. Each theory poses different questions about a literary text's meanings and focuses our attention on different aspects of a text's language and background. We will examine the theory and practice the application of the following schools of criticism: formalism, psychoanalytic criticism, new historicism, Marxism, and feminism. We will apply different methods to particular literary texts, and students will practice different types of approaches in in-class writing assignments as well as in four papers (4-5 pages each). At the end of the semester, each student will put together a portfolio containing careful revisions of three of those papers as well as an introductory commentary of 1-2 pages.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 2001  
 Prerequisite: 6 credits of ENGL ENLSH or LIT

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 201 (GH)** What is Literature (3) Acquaints students with theory and practice relevant to studies of narrative, lyric poetry, and drama.

**ENGL 201 What is Literature (3) (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

English 201 will familiarize students with theories and practices that are foundational for thinking about literature, and for studying narrative fiction, poetry, and drama. The course will pose such questions as "what is narrative fiction?", "what is poetry?", "what is drama?" It will introduce students to how conventions of literary genres operate, how they generate meaning, and how they require and manipulate readers' responses. English 201 will also encourage students to explore whether or not literary discourse, as instanced in the genres that have been named, can be distinguished from other written or spoken discourses. While asking such questions, the course will acquaint students with technical vocabularies used by literary scholars and literary historians, and will provide students with sample scholarly rationales for hypothesizing the singularity of literary discourse, for constructing literary history, and for understanding literature's relation to life. It will teach students close analytic practices of reading, both those that have shaped the discipline of English studies and those emerging currently. Students will be evaluated in English 201 by means of essays written in and out of class, essay exams, and class participation. The course will be required of all English majors and will be a part of their 36 credit degree requirement. The course will be offered in both Fall and Spring semesters with 25 seats per offering.

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 2006  
 Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 201H (GH)** What is Literature (3) Acquaints students with theory and practice relevant to studies of narrative, lyric poetry, and drama.

**ENGL 201H What Is Literature? (3)  
 (GH)**

English 201H will familiarize students with theories and practices that are foundational for thinking about literature and for studying narrative fiction, poetry, and drama. The course will pose such questions as "what is narrative fiction?", "what is poetry?", and "what is drama?" It will introduce students to how conventions of literary genres operate, how they generate meaning, and how they require and manipulate readers' responses. English 201H will also encourage students to explore whether or not literary discourse, as instanced in the genres that have been named, can be distinguished from other written or spoken discourses. While asking such questions, the course will acquaint students with technical vocabularies used by literary scholars and literary historians, and will provide students with sample scholarly rationales for hypothesizing the singularity of literary discourse, for constructing literary history, and for understanding literature's relation to life. It will teach students close analytic practices of reading, both those that have shaped the discipline of English studies and those emerging currently.

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 2012  
 Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 202A (GWS)** Effective Writing: Writing in the Social Sciences (3) Instruction in writing persuasive arguments about significant issues in the social sciences. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

**Effective Writing: Writing in the Social Sciences (3)**

General Education: GWS  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1996  
 Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 202B (GWS)** Effective Writing: Writing in the Humanities (3) Instruction in writing persuasive arguments about significant issues in the humanities. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

**Effective Writing: Writing in the Humanities (3)**

General Education: GWS  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1996  
 Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**ENGL 202C** (GWS) Effective Writing: Technical Writing (3) Writing for students in scientific and technical disciplines. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

**Effective Writing: Technical Writing (3)**

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 202D** (GWS) Effective Writing: Business Writing (3) Writing reports and other common forms of business communication. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

**Effective Writing: Business Writing (3)**

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 202H** (GWS) Writing in the Humanities: Adult Literacy (3) Instruction in writing persuasive arguments about significant issues in the humanities. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

**Writing in the Humanities: Adult Literacy (3)**

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 202H** (GWS) Writing in the Humanities: Adult Literacy (3) Instruction in writing persuasive arguments about significant issues in the humanities. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

**Writing in the Humanities: Adult Literacy (3)**

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: ENGL 015 or ENGL 030 ; fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 209** Journal or Magazine Practicum (1-6 per semester/maximum of 8) A practicum in the editing and publishing of a magazine or journal.

**Journal or Magazine Practicum (1-6 per semester/maximum of 8)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 210** The Process of Writing (3) Examination of the relation between fiction and nonfiction; practice in principles common to all writing.

**The Process of Writing (3)**

General Education: None  
Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 211** Introduction to Writing Studies (3) This course introduces students to the most salient issues and theories in writing studies. Students explore contemporary theories and issues about writing in order to understand writing as a skill and a complex object of study in various professional contexts.

### **Introduction to Writing Studies (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: ENGL 015 or ENGL 030 ; third semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 211W** Introduction to Writing Studies (3) This course introduces students to the most salient issues and theories in writing studies. Students explore contemporary theories and issues about writing in order to understand writing as a skill and a complex object of study in various professional contexts.

### **ENGL 211W Introduction to Writing Studies (3)**

Most students know that writing is something one does; they are less aware that writing is something one studies, and that doing so is a challenging and fascinating intellectual endeavor. In this class, students explore the multifaceted nature of writing. As the list of major topics indicates above, students study a broad range of contemporary theories and issues, from the socially-constituted self in the act of writing, to plagiarism as it is variably defined in professional settings, to the role of the writer in social change.

The course is designed for both breadth and depth. Breadth is achieved through the many topics described above. The exams are designed to encourage students to make connections from one topic to another, to see how each builds on and intertwines with others. For example, early semester study on a writer's individual agency is later complicated by issues of power determined by race, class, and gender. Writers' ethical choices are made more challenging when confronted with questions of ideology and social justice.

Depth is achieved through the written essays. Each essay requires that students examine a narrow topic in depth, building on an assigned reading with limited and manageable primary and secondary research. For example, students may study their own writing as intertextual, drawing conclusions about originality and creativity in the process.

Throughout the course, students are encouraged to apply issues and theories to real-world situations, in such realms as professional settings, politics, media, and social justice. Several speakers come to class throughout the semester to expose students to the many kinds of writing professional writers do, the expectations and standards required of professional writers, and the avenues to success as professional writers.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: ENGL 015 or ENGL 030 ; third semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 212** Introduction to Fiction Writing (3) Written exercises and short readings in the elements of fiction writing; the writing of at least one short story.

### **Introduction to Fiction Writing (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 213** Introduction to Poetry Writing (3) Written exercises in the components and techniques of poetry writing in conjunction with selected readings.

### **Introduction to Poetry Writing (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 214** Introduction to Creative Nonfiction Writing (3) Introduces lyric and narrative forms in memoir writing and the personal essay.

### **ENGL 214 Introduction to Creative Nonfiction Writing (3)**

Creative nonfiction borrows techniques from fiction and poetry while adhering to but also sometimes questioning notions of truth. It stretches the bounds of literary or narrative journalism by asking the reader to consider it as art, primarily, versus as testimony, fact, or information-delivery.

Students taking this course will explore the genre's influences in fiction, research, and poetry; critical analyses will complement this exploration, and formal experimentation will prepare students to imagine novel relationships between form and content.

Discussing traditional storytelling technique, the course introduces students to story rudiments including the inciting episode, rising and falling action, climax and denouement and the so-called swerve ending. The course also introduces students to the possibilities of the nonlinear "lyric essay" as outlined in *Seneca Review* and elsewhere, as well as to the "modular" essay; uses of blank space for communicating the unsayable; and how poetic style can circle elusive meaning. In exploring issues of nuance and implied or glanced-at meaning, the course also discusses the place of truth in nonfiction—differing constructions and conceptions of truth; reader expectations for factuality in a work of nonfiction; and the complications of unreliability when the fallibility of memory or a multiplicity of perspectives color testimony. Finally, the course examines the role of nontraditional structure in conveying a postmodern understanding of subjectivity, for instance by looking at the use of multiple voices and personae in the works of certain contemporary authors. While English 215 teaches skills for the journalist in developing feature-style journalism and narrative personal essays, English 214, alternatively, will explore and exploit the influence of fiction, poetry, and other lyric forms. Students in this course will produce writing more appropriate to a literary journal than a news magazine; their writing will concern broad, sometimes disjunctive themes, and stray away from the nut-graf, news-hook, or even an obvious narrative focus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 215** Introduction to Article Writing (3) Written exercises in, and a study of, the principles of article writing; practice in the writing of specific articles.

### **Introduction to Article Writing (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1985

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 221** British Literature to 1798 (3) Introduction to literary history and analysis; Beowulf and writers such as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, and Fielding.

### **British Literature to 1798 (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 221W** British Literature to 1798 (3) Introduction to literary history and analysis. Beowulf and writers such as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, and Fielding.

### **British Literature to 1798 (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 1992  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 222** British Literature from 1798 (3) Introduction to literary history and analysis; writers such as Austen, Wordsworth, Keats, Browning, Dickens, The Brontes, Yeats, Joyce, and Woolf.

### **British Literature from 1798 (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 1996  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 222W** British Literature from 1798 (3) Introduction to literary history and analysis. Writers such as Austen, Wordsworth, Keats, Browning, Dickens, the Brontes, Yeats, Joyce, and Woolf.

### **British Literature from 1798 (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 1992  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 225 (GA;GH) (ART H 225, WMNST 225)** Sexuality and Modern Visual Culture (3) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

### **ENGL 225 Sexuality and Modern Visual Culture (3) (GA;GH)**

The terms "feminist" and "homosexual" were invented by the Victorians and reflect profound shifts in conceptions of identity. Another invention of the nineteenth century was the idea of the literary and artistic "avant-garde," a minority contingent with politically and/or aesthetically advanced views. These ideas of minority culture were deeply enmeshed with one another, and have exerted profound influence ever since. This course explores that history with the objective of developing a more sophisticated understanding of how the history of ideas affects our sense of who we are and how we read both texts and images. The course will be relevant to students of American and English studies, art, art history, and women's and sexuality studies.

General Education: GA;GH  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 226 (GH;US;IL) (LTNST 226)** Latina and Latino Border Theories (3) English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture.

### **ENGL 226 Latina and Latino Border Theories (3) (GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on contemporary Latina/o cultural production, placing it in historical context and analyzing it through the framework of borders. We make connections between Latina/o groups, showing both similarities and differences. We examine the politics of representation, asking how artistic texts define community and individual identities that are coherent yet also embody the complexity of these identities. The texts cross and claim borders—cultural, sexual, gender, geographical, generational, spiritual, and institutional. We will ask how these art forms work to claim border spaces: How are cultural differences retained without constructing hierarchies of exclusion? What models of identity do these artists propose in response to structures of domination? We'll read novels, short stories, poems, history, and theoretical essays; we will also watch several films. Throughout the course, we will attend to particular histories and cultures of Latina/o groups; it is crucial to both maintain the specificity of each culture (Chicana/o, Puerto Rican, Cuban-American, and Dominican-American) and their connections to each other as Latinas/os in the U.S. Inquiring into these intersections leads one to ask the following: how can Latinos unite against the assault on immigrants and bilingual education without erasing

very important differences among Latina/o populations? How can Latinas unite against ongoing sexism and homophobia within their communities and the U.S. in general? How should we view the marketing category "Hispanic" and/or "Latino," and how do artists offer alternative conceptions of group identity?

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 227 (GH;US;IL) (WMNST 227) Introduction to Culture and Sexuality (3)** A course addressing the relationships between sexuality, literature, and culture.

**ENGL 227 Introduction to Sexuality Studies (3)  
(GH;US;IL)**

This course focuses primarily on queer literature, theory, and culture in the post-Stonewall (1969) decades in the United States and Britain. The course will interrogate sexual norms and their deviations, with a particular focus on the relationships between sexuality, imagination, and ethics in the making of sexual communities and in the fostering of sexual activism. We will focus on how class, race, and gender have been shaped, historically, through the production of sexuality, and the resistances offered to the formation and sedimentation of rigidly sexed bodies.

We will examine the relationships of memory, temporality, and spatial location in contemporary queer culture and theory. We will explore the relationships between sexuality and ethics, and how both shape the history of queer activism. Above all, we will study the connections between fantasy, imagination, and sexuality in shaping the literary and visual cultures of the U.S. and Britain. We will focus on the ways marginalization, shame, and criminalization are transformed, in the history, culture, and theory of queer people, into visionary acts of "world-making" that have changed contemporary understandings of bodies, identities, social formations, and literary and cultural forms.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 228 (GH;IL) Introduction to Disability Studies in the Humanities (3)** Provides a humanities-based interdisciplinary introduction to Disability Studies.

**Introduction to Disability Studies in the Humanities (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 229 Digital Studies (3)** An introduction to concepts, methods, and resources for the computer-assisted study of language and textual culture, including literature, in the English language.

**Digital Studies (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 231 American Literature to 1865 (3)** Introduction to literary history and analysis; writers such as Bradstreet, Franklin, Emerson, Hawthorne, Douglass, Thoreau, Fuller, Melville, Whitman, and Dickinson.

**American Literature to 1865 (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 231W** American Literature to 1865 (3) Introduction to literary history and analysis. Writers such as Bradstreet, Franklin, Emerson, Hawthorne, Douglass, Thoreau, Fuller, Melville, Whitman, and Dickinson.

**American Literature to 1865 (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 232** American Literature from 1865 (3) Introduction to literary history and analysis; writers such as Mark Twain, James, Cather, Frost, O'Neill, Faulkner, Hemingway, Hughes, and Morrison.

**American Literature from 1865 (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1996

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 232W** American Literature from 1865 (3) Introduction to literary history and analysis. Writers such as Mark Twain, James, Cather, Frost, O'Neill, Faulkner, Hemingway, Hughes, and Morrison.

**American Literature from 1865 (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 233 (GH;GN) (CHEM 233)** Chemistry and Literature (3) Exploration of key concepts of chemistry, the reciprocal influence of chemistry and literature through history, and the relationship of science to society, culture, and values.

**ENGL (CHEM) 233 Chemistry and Literature (3)  
(GN or GH)**

ENGL/CHEM 233 is a pedagogically innovative course that will be team taught by an instructor from the English department and one from the Chemistry department. Both instructors will be present in the classroom throughout the semester, providing joint presentations and leading discussions. Students may earn either GH or GN credit for the course, but not both. This course teaches both basic concepts of chemistry and their cultural elaboration in literature. It seeks to provide students with a nuanced understanding of how literature and science inform each other and negotiate cultural, religious, and political tensions. The course seeks to explore ways in which our modern world is defined by and dependent on a variety of sciences and technologies. The impact of scientific and technological discoveries continues to dominate discussions of who we are, where we come from, where we are going, and our place in the universe. Understanding how we, as a society, have acquired knowledge is especially important when the ideas, perspectives, and discoveries are perceived to be in conflict with our religious, cultural, or political beliefs. Understanding the origin and development of these ideas, perspectives, and discoveries is an essential component of science and scientific achievement, but too often our methods of teaching science focus almost exclusively on teaching facts and theories at the expense of the historical discovery and development of those facts and theories. This course teaches both the scientific facts and theories and the contexts of their production in order to sharpen students' abilities at critical evaluation of facts. The literary and scientific focus will vary from class to class, but may include writings by literary authors such as Edward Bulwer-Lytton, Bram Stoker, H. G. Wells, Garrett Serviss, William Butler Yeats, Arthur Machen, D. H. Lawrence, A. E. Waite, Aleister Crowley, Arthur Conan Doyle, and Camille Flammarion, and scientific texts by scientists such as William Crookes, William Ramsay, Frederick Soddy, Ernest Rutherford, Wilhelm Comad Roentgen, Henri Bequerel, J. J. Thomson, Niels Bohr, and Marie Curie. Like many literature courses, ENGL/CHEM 233 interprets history, assesses individual and social behavior, engages philosophical ideas, and expresses ethical and aesthetic values. It is especially useful at exploring cultural and social tensions involving scientific knowledge. For students in science programs, the course will explore the technical and conceptual dimensions of scientific knowledge in historical and cultural context. Political, cultural and personal motivations are integral components of the scientific method and deeply influenced the discovery of many of the fundamental chemical and physical concepts students are expected to master in their science curricula.

Students should expect to take two exams consisting of a midterm and a final, to write at least two papers for the course

demonstrating their abilities at literary analysis and grappling with the themes of the course, and to make a group presentation to the class. Classroom discussion and general class participation will also be a factor in evaluation.

The course can be used as an elective credit toward the English Major and Minor, and can help students in English, Chemistry, or any other major fulfill General Education degree requirements. It will be offered once every other year with 20 seats per offering.

General Education: GH;GN  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 235 (US) (AF AM 235) From Folk Shouts and Songs to Hip Hop Poetry (3)** The origins, forms, and function of the oral folk tradition of African Americans.

**ENGL (AF AM) 235 From Folk Shouts and Songs to Hip Hop Poetry (3)**  
**(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course contemplates connections between African oral traditions and contemporary trends in Black poetry—including hip-hop and spoken word poetry. The central objective of the course is to examine the degree to which the most contemporary forms of African American poetry continue to function as folk expression; it provides an opportunity for students to examine the oral roots of African American literature in general and contemporary hip-hop and spoken word poetry, in particular. Music, particularly the Blues and Jazz, will be a prominent feature of this class as we try to discover the peculiarities of Black poetry. Students will begin by comparing African and African American folk forms such as proverbs and epic poetry, continue with early African American poets such as Phyllis Wheatley, George Moses Horton, Frances Ellen Watkins Harper, and Paul Laurence Dunbar, and continue through the 20th century with the poetry of the Harlem Renaissance and Black Arts Movement to contemporary Hip-Hop and Spoken Word, including Def Poetry Jam recordings. Background readings will include important essays (such as James Weldon Johnson's "Preface to the Book of Negro Poetry" and Langston Hughes's "The Negro Artist and the Racial Mountain") that reveal the kinds of aesthetic issues African American artists faced in crafting their art in the face of a dominant culture that consistently questioned their capacity for artistic production. Students will listen as Margaret Walker reads her famous poem, "For My People," and they will consider the importance of the Black Arts Movement, its poets and critics to the development of contemporary hip-hop and spoken word poetry. Other course materials will include videotaped interviews and poetry readings. Readings would come from an appropriate anthology and/or a combination of other appropriate texts selected by the instructor.

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 235 (US) (AF AM 235) From Folk Shouts and Songs to Hip Hop Poetry (3)** The origins, forms, and function of the oral folk tradition of African Americans.

**ENGL (AF AM) 235 From Folk Shouts and Songs to Hip Hop Poetry (3)**  
**(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course contemplates connections between African oral traditions and contemporary trends in Black poetry—including hip-hop and spoken word poetry. The central objective of the course is to examine the degree to which the most contemporary forms of African American poetry continue to function as folk expression; it provides an opportunity for students to examine the oral roots of African American literature in general and contemporary hip-hop and spoken word poetry, in particular. Music, particularly the Blues and Jazz, will be a prominent feature of this class as we try to discover the peculiarities of Black poetry. Students will begin by comparing African and African American folk forms such as proverbs and epic poetry, continue with early African American poets such as Phyllis Wheatley, George Moses Horton, Frances Ellen Watkins Harper, and Paul Laurence Dunbar, and continue through the 20th century with the poetry of the Harlem Renaissance and Black Arts Movement to contemporary Hip-Hop and Spoken Word, including Def Poetry Jam recordings. Background readings will include important essays (such as James Weldon Johnson's "Preface to the Book of Negro Poetry" and Langston Hughes's "The Negro Artist and the Racial Mountain") that reveal the kinds of aesthetic issues African American artists faced in crafting their art in the face of a dominant culture that consistently questioned their capacity for artistic production. Students will listen as Margaret Walker reads her famous poem, "For My People," and they will consider the importance of the Black Arts Movement, its poets and critics to the development of contemporary hip-hop and spoken word poetry. Other course materials will include videotaped interviews and poetry readings. Readings

would come from an appropriate anthology and/or a combination of other appropriate texts selected by the instructor.

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 240** Exploring Literary Traditions (3 per semester, maximum of 6) The examination of specific literary traditions in English-language texts and an inquiry into the question of tradition itself. (Section subtitles may appear in the Schedule of Courses.)

#### **Exploring Literary Traditions (3 per semester, maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 245** (GH;US) (WMNST 245) Introduction to Lesbian and Gay Studies (3) An introduction to the study of homosexual identities across a wide range of disciplines and methodologies.

#### **ENGL (WMNST 245) Introduction to Lesbian and Gay Studies (3) (GH;US)**

An introduction to the study of homosexual identities across a wide range of disciplines and methodologies, this course explores the history of modern, "western" ideas about sexual identity as manifested in both writing and images. The class examines sexuality not as a "natural" or consistent phenomenon, but as a set of beliefs that have changed over time and manifest themselves differently in different cultural and historical contexts.

Starting in the late nineteenth century, scientific and medical authorities began categorizing individuals into sexual types based on their manifestations of gendered characteristics and their erotic attractions and practices. This medical typing corresponded with the development of subcultures associated with deviance from sexual

norms; these subcultures produced a rich variety of texts, images, performances, and social forms, many of which are now considered central to both vernacular and high culture.

This course explores this rich archive. It investigates constructions of sexual conformity and how sexual nonconformists positioned themselves as a shared group identity. It examines how sexual distinctions between gendered, raced, and classed bodies were historically produced and culturally contested. It considers what commonalities gay identities may – or may not – share with lesbian identities and how the increasing visibility of bisexuality, transgender, and transsexuality has altered perceptions of sexual identity. The course explores the relationship of the avant-garde to mass-mediated politics of GLBTQ subcultures and the impetus to "normalcy." Comparative study of issues of sexual mobility beyond and between the borders of the United States expands the course's critical scope beyond dominant forms of western culture.

This course does not propose definitive answers to the questions of identity it addresses. Instead it negotiates the ways sexualities have enabled individuals to articulate – and disarticulate – themselves within social bodies past and present. This course, therefore, has wide relevance for students interested in how group identities come into being and transform over time in dynamic relation to other historical forces. Exploring a wide variety of texts and images associated with the history of sexual identity as well as a variety of interpretations of that history, this course opens students to an archive with the potential to inform and enrich their understandings of many kinds of challenges to regimes of normativity today.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 250** Peer Tutoring in Writing (3) Introduction to skills and attitudes required for successful peer tutoring in writing. Provides internship experience in a writing center.

#### **Peer Tutoring in Writing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities



Effective: Spring 1987

Prerequisite: ENGL 202AENGL 202BENGL 202C orENGL 202D ; approval of department

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 261** Exploring Literary Forms (3 per semester/maximum of 6) The examination of specific genres in English-language texts and an inquiry into the question of genre itself. (Section subtitles may appear in the Schedule of Courses.)

**Exploring Literary Forms (3 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1997

Prerequisite: ENGL 015 orENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 262** (GH) Reading Fiction (3) Elements of fiction including plot, character, viewpoint, and fictional genres in British, American, and other English-language traditions.

**Reading Fiction (3)**

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2003

Prerequisite: ENGL 015 orENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 263** (GH) Reading Poetry (3) Elements of poetry including meter, rhyme, image, diction, and poetic forms in British, American, and other English-language traditions.

**Reading Poetry (3)**

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2003

Prerequisite: ENGL 015 orENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 265** (GH) Reading Nonfiction (3) Forms of nonfictional prose such as autobiography, biography, essay, letter, memoir, oration, travelogue in British, American, and other English-language traditions.

**Reading Nonfiction (3)**

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2003

Prerequisite: ENGL 015 orENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 268** (GH) Reading Drama (3) Elements of drama including plot, character, dialogue, staging, and dramatic forms in British, American, and other English-language traditions.

**Reading Drama (3)**

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2003

Prerequisite: ENGL 015 orENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 268H** (GH) Reading Drama (3) Elements of drama including plot, character, dialogue, staging, and dramatic forms in British, American, and other English-language traditions.

**Reading Drama (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 281** Television Script Writing (3) An introduction to the writing of scripts for television production.

**Television Script Writing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1992  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 294** Research Topics (1-12) Individual or small group instruction.

**Research Topics (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 297A** Walden (1) "How many a man has dated a new era in his life from the reading of a book?" Here is your chance to focus on a literary classic--just one great book for the whole class. In this one-credit class, meeting once a week for the first ten weeks of the semester, we'll read Walden, Henry Thoreau's account of his two-year stay in a cabin he built himself by the side of Walden Pond. This is a book that is widely recognized as the most important work of nature writing, the book that essentially has come to define the genre. It is a book that changes lives, like a kind of scripture. You'll find out where Thoreau lived (and what he lived for), how much it cost him to build his cabin (and to live in it), and what he has to say about the meaning and purpose of life. All this, and transcendentalism, too!

**Walden (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 297D** Londong Calling: Ordering the World - the Trip (0.5) This course will take students on an 8-day exploration of London and surrounding areas. Students will be expected to attend all scheduled visits and to act as responsible representatives of Penn State Altoona while abroad. Students will also be asked to compose short writings during the trip that respond to our site visits and to write a final evaluative paper after the trip.

**Londong Calling: Ordering the World - the Trip (0.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 300M** Honors Course in English (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

**Honors Course in English (3-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 301M** Honors Seminar in English: Literature Before 1800 (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

**Honors Seminar in English: Literature Before 1800 (3-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2005  
Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 302M** Honors Seminar in English: Literature After 1800 (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

**Honors Seminar in English: Literature After 1800 (3-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2005

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 303M** Honors Seminar in English: American Literature & Culture (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

**Honors Seminar in English: American Literature & Culture (3-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2005

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 304M** Honors Seminar in English: Creative Writing (3-12) Reading, group discussions, and oral and written reports on various specific authors and literary works.

**Honors Seminar in English: Creative Writing (3-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2005

Prerequisite: ENGL 015 or ENGL 030 ; approval of the departmental Honors Committee

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 310H** Honors Thesis in English (3) Research paper or creative project on a topic approved by the Departmental Honors Committee.

**Honors Thesis in English (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1983

Prerequisite: 9 credits of ENGL 300H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 311** The Canon and Its Critics (3) History and formation of literary canons, and challenges to canon ideology by writers and critics, through readings in English and American literature.

**The Canon and Its Critics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 312** Globality and Literature (3) Examines relationships between literature and culture, through the study of major texts in English by writers of various cultures.

**Globality and Literature (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 399** (IL) Foreign Study--English (3-6) Advanced studies in English language and/or literature.

**Foreign Study--English (3-6)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 400** Authors, Texts, Contexts (3 per semester, maximum of 6) Styles, cultural milieus, critical perspectives toward particular English- language authors and/or movements they represent, and the idea of authorship. (Section subtitles may appear in the Schedule of Courses.)

**Authors, Texts, Contexts (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 401** Studies in Genre (3 per semester, maximum of 6) English-language texts exemplifying particular genres, with attention to critical theories, historical development, rhetorical strategies, and social, cultural, and aesthetic values. (Section subtitles may appear in the Schedule of Courses.)

**Studies in Genre (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1997

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 401W** Creative Writing Theory (3) Theories of art and creativity which inform the making of literary works.

**Creative Writing Theory (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 2007  
 Prerequisite: ENGL 200;ELISH 201ELISH 209ENGL 212 orENGL 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 402 Literature and Society** (3 per semester, maximum of 6) Texts confronting social, political, technological, or other issues in the English-speaking world. (Section subtitles may appear in the Schedule of Courses.)

### **ENGL 402 Literature and Society (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

One variation will focus on Literature and Censorship by first considering general arguments for and against censorship and then by examining texts by writers who sought publication in their own country but whose books were censored or banned. The course will consider such questions as, Are there ever legitimate grounds for censorship? How do standards of censorship differ between countries? What is the relation between censorship on political and on moral grounds? What does artistic merit have to do with concern about moral or political subversion? Works from England, South Africa and the United States will be read and discussed, and where available, excerpts from trial transcripts will be read in order to examine arguments for and against publication. Readings will include works by Milton, D. H. Lawrence, Alan Paton, Nadine Gordimer, Athol Fugard, Eugene O'Neill, Henry Miller, and Alan Ginsberg.

Another variation will focus on war and gender in 20th century American literature by examining the ways male and female authors write about war. Texts will vary from battlefield experiences to repercussions of war to the symbolic implications of war. Questions will be raised about literary authority: Does one need to be combatant to write about war? If not, how does one find the authority to speak, particularly as a woman? How does race and/or ethnicity complicate one's perceptions of American participation in war? Readings will include works by Ernest Hemingway, William Faulkner, Joseph Heller, Cynthia Ozick, Leslie Marmon Silko, Norman Mailer, Bobbie Mason, Tim O'Brien, and Toni Morrison.

Another variation will focus specifically on the writings which emerged from the postwar African-American struggle for civil rights. The course will include not only fiction and poetry but also those speeches, sermons, editorials, and other forms of discourse to have emerged from the era. The emphasis will be both traditional literary concerns as well as on the various rhetorical strategies involved in each work. Ideally, the course would make visible to students the difficulties attendant upon any attempt to separate the concerns of rhetoric and persuasion too firmly from the concerns of literature. The course could conclude with a look at some of the various biographies, autobiographies, and histories written over the last twenty-five years, which attempt to shape our national memory.

Other variations include literature as a response to Newtonian science or to Darwinism or to the American Depression or to postwar technology or to new dystopias or to AIDS or, as in the sample outline, the Civil Rights movement.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 1997  
 Prerequisite: ENGL 015 orENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 403 Literature and Culture** (3 per semester, maximum of 6) Historical, theoretical, and practical issues within cultural studies in relation to English-speaking texts. (Section subtitles may appear in the Schedule of Courses.)

### **ENGL 403 Literature and Cultural Studies (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Topics covered in this course will vary from semester to semester, but a broad framework will be to introduce students to literary and other texts read in relation to cultural studies. Individual instructors may take up different historical periods, while other versions may suggest ways cultural studies draws on different theoretical discourses such as rhetoric, deconstruction, feminism, or the New Historicism for its problems. All Reading Culture courses should serve as an introduction to cultural studies, moving from theoretical to practical readings of literature and culture. In any case, a common goal would involve examining cultural studies as constituted by plural theories and ends.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 1997  
 Prerequisite: ENGL 015 orENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 404 Mapping Identity, Difference, and Place** (3 per semester, maximum of 6) Ethnicity, gender, class, race with reference to theoretical inquiry into identity, difference, and place in English-language literatures. (Section subtitles may appear in the Schedule of Courses.)

### **Mapping Identity, Difference, and Place (3 per semester, maximum of 6)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 1997  
 Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 405** Taking Shakespeare From Page to Stage (3) Students experience a Shakespeare play as a text to be explicated and as a script to be performed.

### **Taking Shakespeare From Page to Stage (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 2003  
 Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 407** History of the English Language (3) Historical and structural study of developments in English sounds, forms, inflections, syntax, derivations, and meanings.

### **History of the English Language (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 1987  
 Prerequisite: ENGL 100; ENGL 202A ENGL 202B ENGL 202C or ENGL 202D

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 409** Composition Theory and Practice for Teachers (3) An overview of the theory and practice of writing for teachers, with emphasis on the writing process.

### **ENGL 409 Composition Theory and Practice for Teachers (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

ENGL 409 is intended to help teachers improve their writing instruction by immersing them in composition theory and providing them with the opportunity to learn the writing process through personal experience. On completion of the course, participants will be able to:

- Articulate and test composition theory in written works
- Work through each phase of the writing process in assigned essays
- Develop strategies for writing effectively in various genres and styles, including journal writing
- Produce written works which demonstrate an awareness of audience
- Implement recommendations for effective revisions
- Provide responsive feedback to peers' written work
- Develop a precis for a model lesson

Evaluation: Students will be evaluated on their knowledge and understanding of instructional objectives, demonstrated in written assignments, class discussions and other projects.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 2000  
 Prerequisite: permission of the program  
 Concurrent: EDUC 452

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 412** Advanced Fiction Writing (3 per semester/maximum of 6) Advanced study of the techniques of fiction writing; regular practice in writing the short story; group discussion of student work.

### **Advanced Fiction Writing (3 per semester/maximum of 6)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 1992  
 Prerequisite: ENGL 212 and permission of the department

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 413 Advanced Poetry Writing (3 per semester/maximum of 6)** Advanced study of the techniques of poetic composition; regular practice in writing poetry; group discussion of student work.

**ENGL 413 Advanced Poetry Writing (3 per semester/maximum of 6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Students enrolled in the Advanced Poetry Workshop will have successfully completed ENGL 213, Introduction to Poetry Writing. In the advanced course, they continue their study of prosody through the close reading of published poems, including entire volumes of poetry by a single author. Students will also study articles and books that discuss various elements of craft. They can expect to prepare written reading responses and formal classroom presentations on the assigned readings. They will also draft approximately one new poem or revision each week, in addition to completing various writing exercises in or outside of class. All students will prepare for and engage in the workshop critiques; participation in these conversations is essential and subject to assessment. The writing, revision, and workshop process prepare the student to compile a portfolio of 8-10 poems, which they will submit as a final project for the course.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2013

Prerequisite: ENGL 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 414 Biographical Writing (3)** Writing of biography and autobiography, character sketches, "profiles," and literary portraits; analysis and interpretations of source materials.

**Biographical Writing (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1987

Prerequisite: ENGL 200ENGL 202BENGL 210ENGL 212 orENGL 215

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 415 Advanced Nonfiction Writing (3 per semester/maximum of 6)** Advanced study of the principles of nonfiction; substantial practice in writing and submitting magazine articles for publication.

**Advanced Nonfiction Writing (3 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1992

Prerequisite: ENGL 215 and permission of the department

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 416 Science Writing (3 per semester/maximum of 6)** Prepares scientists and writers to gather, interpret, and present scientific information to the layman with clarity and accuracy.

**Science Writing (3 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2001

Prerequisite: COMM 260WENGL 202CENGL 210ENGL 215 orENGL 421

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 417 The Editorial Process (3)** The process of editing from typescript through final proof.

**The Editorial Process (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities



Effective: Summer 2011

Prerequisite: ENGL 202AENGL 202BENGL 202CENGL 202DENGL 210ENGL 215

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 418** Advanced Technical Writing and Editing (3 per semester/maximum of 6) Preparing and editing professional papers for subject specialists and for others interested in careers as writers or editors.

**Advanced Technical Writing and Editing (3 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1987

Prerequisite: ENGL 202AENGL 202BENGL 202CENGL 202D orENGL 215

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 419** Advanced Business Writing (3) Preparing and editing reports and presentations common to business, industry, and government.

**Advanced Business Writing (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1987

Prerequisite: ENGL 202AENGL 202BENGL 202C orENGL 202D

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 420** Writing for the Web (3) Analysis and composition of informative, persuasive, and "creative" Web texts, based on rhetorical principles; no prior Web writing experience required.

**ENGL 420 Writing for the Web (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course, designed for writers and potential writers, will explore the unique opportunities and constraints of writing for the Web. As a writing course, it should appeal to students in the Humanities; however, because of the growing importance of Web texts in fields such as business and the social sciences and given the opportunity to compose/construct a variety of fictional and non-fictional "creative" and informative/persuasive Web texts, this course should be of value to students across the college.

In this course, students will survey a wide variety of Web texts--webs, electronic journals and books, learning to analyze these as to their efficacy in light of each text's rhetorical situation. As students learn to compose and construct such texts themselves, rhetorically based principles of audience awareness and persuasive appeal will be emphasized. Rather than focusing on writing html codes and java scripts, this course will build on the rhetorical principles taught in first-year writing courses, teaching students how to apply those principles to more sophisticated, multi-sensory, multi-media hyper textual writing.

The course will be taught primarily in a hands-on workshop environment-in a PC computer lab or laptop-equipped classroom. Although no prior Web writing experience is required, some experience with Web navigation and computer word processing will be helpful. Students will be evaluated on the basis of their participation/attendance in the course's workshop environment, written web analyses, and constructed web texts.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2002

Prerequisite: ENGL 015 orENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 421** Advanced Expository Writing (3) Develops skill in writing expository essays, with particular attention to style. Intended for liberal arts majors.

**Advanced Expository Writing (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1987

Prerequisite: ENGL 202AENGL 202BENGL 202C orENGL 202D

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**ENGL 422 Fiction Workshop** (3 per semester/maximum of 6) Practice and criticism in the composition of the short story and the novel.

**Fiction Workshop (3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1985  
Prerequisite: ENGL 412

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 423 Poetry Writing Workshop** (3 per semester/maximum of 6) Extensive practice in writing poetry; consideration of contemporary poetic forms; selected readings.

**Poetry Writing Workshop (3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1985  
Prerequisite: ENGL 413

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 424 (ENVST 424) Creative Writing and the Natural World** (3) Creative writing workshop focused on the environment and related issues.

**ENGL (ENVST) 424 Creative Writing and the Natural World (3)**

American literature includes a long and rich tradition of writing that focuses on the natural world. From the oral stories of indigenous people to the journals of the first European settlers, many have looked for a way to understand their own place in the world based upon their relationship to the earth and its creatures. While Puritans often discerned the pleasure or wrath of God in the environmental changes they experienced, Transcendentalists like Henry David Thoreau and Ralph Waldo Emerson sought out moments of spiritual enlightenment by immersing themselves in the natural order. More recently, such poets as Galway Kinnell, James Wright, and Robert Bly have attempted to connect with the depths of collective unconsciousness by exploring the natural world, while others, like Mary Oliver, Dan Gerber, Jim Harrison, Gary Snyder and Wendell Berry, have used transcendental thought and melded it with Christian and Buddhist insights. Still others, like Gary Paul Nabhan, Rachel Carson, and Alison Hawthorne Deming have brought science to bear upon the riches that nature, art, and scientific exploration may offer when joined in the pursuit of a deeper understanding of, and relationship with, the natural world. This course will acquaint students with the tradition of American nature writing, as well as contemporary nature writing, in the genres of nonfiction, poetry and fiction. Students will be introduced to issues of style, philosophy, and content, as they produce their own essays, poems, and stories. The course culminates in the production of a portfolio of nature writing. Much of this work will begin in class with specific assignments, which will include field work, and feedback from other students in the class. As a workshop course in creative writing, the emphasis will be upon the production of literary texts that interact with the natural world and upon the revision of those texts.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: ENGL 050 or ENVST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 425 Nonfiction Workshop** (3 per semester/maximum of 6) Extensive writing of nonfiction for publication; an introduction to the principles of writing the nonfiction book.

**Nonfiction Workshop (3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1985  
Prerequisite: ENGL 415

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 426 (US) (LTNST 426) Chicana and Chicano Cultural Production: Literature, Film, Music** (3) An in-depth study of Chicana/Chicano literature, film, and music from the inception of the Chicano Movement (1965-1975) to the present.

**ENGL 426 Chicana and Chicano Cultural Production: Literature, Film, and Music (3)**

**(US)****(BA) This course meets the Bachelor of Arts degree requirements.**

ENGL 426 will constitute an in-depth study of Chicano/a literature, film, and music from the inception of the Chicano movement (1965-1975) to the present. In addition to primary aesthetic texts, students will read historical, political, and theoretical essays designed to situate the Chicano/a cultural texts in historical and political context.

The aim of the course is to give students a better understanding of Chicano/a cultural production by situating these works of art against other U. S. artistic traditions and within wider historical and political movements. Authors and artists under consideration in this class will vary, but will likely include Luis Valdez, Tomas Rivera, Estella Portillo Trambley, Oscar Zeta Acosta, Corky Gonzales, Gloria Anzaldua, Norma Alarcon, Cherrie Moraga, Richard Rodriguez, Dagoberto Gilb, Rolando Hinojosa, Alfredo Veja, Charlie Trujillo, Diego Vasquez Jr., Joe Rodriguez, Tomas Almaguer, Jose Esteban Munoz, Manuel Ramos, Lucha Corpi, Rudolfo Anaya, Michael Nave. This class will prepare students for advanced courses in Latin/a literatures as well as other academic courses that engage in the verbal and written analysis of complex texts. Students will be evaluated by means of essays written in and out of class, essay exams, group projects, term-long journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as ENGL major elective credit or as credit towards the ENGL minor and will be offered once a year with 40 seats per offering.

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2007

Prerequisite: 3 credits in English

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 427 (J ST 427) Topics in Jewish American Literature (3 per semester/maximum of 9)** An in-depth examination of important themes, writers, and/or historical developments in Jewish Literature of the United States.

**ENGL (J ST) 427 Topics in Jewish American Literature (3)**

This course will provide sustained examination of major themes, texts, and figures in the Jewish American literary tradition. The course will focus on depth rather than breadth in its analysis of the defining aspects of the literature and on what the literature reveals about Jewish American culture and identity. The United States has absorbed large numbers of Jewish immigrants from many parts of the world, holding many different ideas about Jewish practice, and affiliating themselves with many different political, social, and cultural traditions, and moreover Jews have settled and made homes in a wide variety of American communities. Close analysis of literature will therefore provide an opportunity to consider the constitution, origin, and development of Jewish America's wider cultural, political, and social contexts. Materials will consist predominantly of primary texts, including prose fiction and nonfiction, poetry, drama, and film, and the methodology will emphasize the close reading of these texts. The course complements offerings in Jewish Studies, English, and Comparative Literature. Most obviously, the course will offer students of Jewish literature, world literature, and American literature an opportunity for contextualization. It enables students in Jewish Studies to study the rich literature of American Jews, and it adds to courses covering Jewish American history, religion, and culture. The course offers students in English and Comparative Literature a valuable, sustained introduction to an important U.S. and world sub-culture and -literature.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 427 (J ST 427) Topics in Jewish American Literature (3 per semester/maximum of 9)** An in-depth examination of important themes, writers, and/or historical developments in Jewish Literature of the United States.

**ENGL (J ST) 427 Topics in Jewish American Literature (3)**

This course will provide sustained examination of major themes, texts, and figures in the Jewish American literary tradition. The course will focus on depth rather than breadth in its analysis of the defining aspects of the literature and on what the literature reveals about Jewish American culture and identity. The United States has absorbed large numbers of Jewish immigrants from many parts of the world, holding many different ideas about Jewish practice, and affiliating themselves with many different political, social, and cultural traditions, and moreover Jews have settled and made homes in a wide variety of American communities. Close analysis of literature will therefore provide an opportunity to consider the constitution, origin, and development of Jewish America's wider cultural, political, and social contexts. Materials will consist predominantly of primary texts, including prose fiction and nonfiction, poetry, drama, and film, and the methodology will emphasize the close reading of these texts. The course complements offerings in Jewish Studies, English, and Comparative Literature. Most obviously, the course will offer students of Jewish literature, world literature, and American literature an opportunity for contextualization. It enables students in Jewish Studies to study the rich literature of American Jews, and it adds to courses covering Jewish American history, religion, and culture. The course

offers students in English and Comparative Literature a valuable, sustained introduction to an important U.S. and world sub-culture and -literature.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 428 (US) (AAS 428) Asian American Literatures (3 per semester/maximum of 6)** A seminar on the literatures and cultures of Asian America, with attention to forms of geographic, historical, and ethnic diversity.

**AAS (ENGL) 428 Asian American Literatures (3 per semester/maximum of 6) (US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course selectively examines the contemporary major works, authors, and themes of twentieth-century Asian American literature, with particular emphasis on post-1965 literary production. The course aims to give students a sense of the historical development of Asian American literary studies in addition to introducing them to some significant thematic and theoretical issues--of panethnicity and resistance; of memory, desire, and perception; of trauma and diaspora, to name a few possibilities. We will focus primarily on Asian American literatures and cultures within the contexts afforded by the histories of Asians in the United States although there will also be some attention to issues of neocolonialism, globalization, transnationalism, and militarization. Ultimately, this course proposes that the aesthetics of Asian American literature are inseparable from the politics of Asian American experiences. Issues to be discussed will include the rise of the Asian American movement in the 1960s; the emergence of diaspora; strategies for contesting canonicity and cultural authority; different versions of what it means to be an "American;" the intersections of race, class, and conflict; and the relationships between gender, sexuality, and stereotype.

The course introduces students to the diversity of Asian American literary and cultural production. It teaches them how to approach and analyze literature and other kinds of cultural formations as well as how to critically engage with texts through formal written analysis and through oral presentations.

This is an upper-level seminar course with enrollments between 15-35 students. A typical grading breakdown would look something like this:

Essay 1--20%

Attendance/Participation (which includes weekly quizzes and a group book presentation)--20%

Critical Responses--20%

Essay 2--20%

Final Exam/Project--20%

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 429 (CMLIT 429) New Media and Literature (3)** New media literary genres; critical discussion of creative works in digital media.

**ENGL (CMLIT) 429 New Media and Literature (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an introduction to new media literary genres. It includes reflection on the concept of mediation (electronic and otherwise); on genre in both print culture and electronic publishing; and on literariness itself. It introduces students to critical discussion of creative works in digital media, including hypertext and hypermedia fiction and nonfiction, code poetry and codework, cybertext and ergodic literature, net art and Web art, and software and electronic installation art. Students will learn about major debates in North American and European new media theory, understood as a distinct current of influence in twentieth century literary and cultural theory. They will acquire a critical vocabulary and an interpretive methodology for literary artifacts created and/or published in screen media. Finally, they will acquire a basic familiarity with the range of creative works in digital media and the critical debates animating their reception. Students will write both short written exercises (30 percent) and longer essays (40 percent), as well as give an in-class presentation (10 percent). 20 percent of the course grade may be determined by class participation or quizzes. This course is an advanced-level course, for students who have already acquired the prerequisite basic skills in interpretive reading and writing. It expands elective and post-1800 offerings at the 400 level for the English major and minor, and expands the topical range of the English studies curriculum, which currently includes no course dedicated to new media. Special facilities needed: ITEC classroom.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 430** The American Renaissance (3) Studies in the works and the interrelationships of writers such as Emerson, Hawthorne, Poe, Thoreau, Whitman, Melville, and Dickinson.

**The American Renaissance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 431 (US) (AM ST 475)** Black American Writers (3 per semester, maximum of 6) A particular genre or historical period in the development of Black American literature.

**ENGL 431 (AM ST 475) Black American Writers (3)  
(US)**

A study of a particular genre or historical period in the development of Black American literature. This course will allow faculty and students to focus a semester's study on a particular genre, theme, or problem in African-American literature. The flexibility of the course will allow faculty a forum in which to share current scholarship or to relate issues in African-American literature to larger school-wide themes in a classroom environment. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. The course will be offered once every two years with an expected enrollment of 25 students. The course satisfies the "area" requirement in culture for American Studies majors.

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2007  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 432** The American Novel to 1900 (3) Such writers as Hawthorne, Melville, Stowe, Mark Twain, James, Crane, Chopin, and others.

**The American Novel to 1900 (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1992  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 433** The American Novel: 1900-1945 (3) Such writers as Wharton, Dreiser, Cather, Fitzgerald, Faulkner, Hemingway, Hurston, Wright, and others.

**The American Novel: 1900-1945 (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1992  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 434 (AM ST 472)** Topics in American Literature (3 per semester) Focused study of a particular genre, theme, or problem in American literature. (May be repeated for credit.)

**ENGL 434 (AM ST 472) Topics in American Literature (3)**

This course will allow faculty and students to focus a semester's study on a particular genre, theme, or problem in

American literature. The flexibility of a topics course will allow faculty a forum in which to share current scholarship or to relate issues in American literature to larger school-wide themes in a classroom environment. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. The course will be offered once every two years with an expected enrollment of 25 students. The course satisfies the "area" requirement in culture for American Studies majors.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007  
Prerequisite: 6 credits of ENGL ENLSH or LIT

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 435** The American Short Story (3) Development of the short story as a recognized art form, with emphasis on major writers.

### **The American Short Story (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1984  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 436** American Fiction Since 1945 (3) Representative fiction by such writers as Barth, Bellow, Ellison, Heller, Mailer, Morrison, Nabokov, Oates, O'Connor, Pynchon, Updike, Walker.

### **American Fiction Since 1945 (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1992  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 437** The Poet in America (3) American poets such as Bradstreet, Taylor, Poe, Emerson, Whitman, Dickinson, Frost, Eliot, Stevens, Hughes, Brooks, Moore, Williams, Plath, Rich, Lowell.

### **The Poet in America (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1992  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 438** American Drama (3) Development from the colonial period to playwrights such as O'Neill, Wilder, Hellman, Miller, Williams, Albee, Shepard, Norman, Wilson, and others.

### **American Drama (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1992  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 439** American Nonfiction Prose (3) Major prose writers such as Franklin, Emerson, Thoreau, Fuller, Henry Adams, Mailer, Baldwin, McCarthy, Dillard, Didion, Angelou, and others.

### **American Nonfiction Prose (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 440** Studies in Shakespeare (3) Intensive study of a single genre, topic, or critical approach to selected plays.

**Studies in Shakespeare (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1991

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 441** Chaucer (3) The principal narrative poems and their background.

**Chaucer (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 442** Medieval English Literature (3) Study of major works and genres of medieval English literature, exclusive of Chaucer.

**Medieval English Literature (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1992

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 443** The English Renaissance (3) Such writers as More, Sidney, Spenser, Shakespeare, Donne, Jonson, Bacon, and Marvell.

**The English Renaissance (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 444** Shakespeare (3) Selected tragedies, comedies, and histories.

**Shakespeare (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 445** Shakespeare's Contemporaries (3) Selected plays by Shakespeare's major predecessors and contemporaries: Kyd, Marlowe, Jonson, Webster, Marston, Middleton, and others.

**Shakespeare's Contemporaries (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1984

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 446** Milton (3) Analysis of principal poems and their background.

**Milton (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1984  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 447** The Restoration and the Eighteenth Century (3) The neoclassical age (1660-1776). Such writers as Dryden, Congreve, Swift, Pope, Fielding, Goldsmith, Sheridan, Boswell, Johnson.

**The Restoration and the Eighteenth Century (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 448** The English Novel to Jane Austen (3) Novelists such as Defoe, Richardson, Fielding, Smollett, Sterne, and Austen.

**The English Novel to Jane Austen (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 450** The Romantics (3) Poets such as Blake, Wordsworth, Coleridge, Keats, Shelley, and Byron; also prose by writers such as Hazlitt, Lamb, and DeQuincey.

**The Romantics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 451** Literary Modernism in English (3) Survey of literary modernism in English and English translation in a variety of genres, including poetry, fiction, and drama.

**Literary Modernism in English (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007  
Prerequisite: ENGL 015 or ENGL 030; ENGL 200ELISH 300 or ELISH 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 452** The Victorians (3) Poets such as Tennyson, Browning, Arnold, and Hopkins; also prose by writers such as Carlyle, Mill, Ruskin, and Arnold.

**The Victorians (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995  
Prerequisite: ENGL 015 or ENGL 030



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 453** Victorian Novel (3) Novelists such as the Brontes, Thackeray, Dickens, George Eliot, Meredith, and Hardy.

### **Victorian Novel (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 454** Modern British and Irish Drama (3) From Wilde and Shaw to the present season.

### **ENGL 454 Modern British and Irish Drama (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ENGL 454 will introduce students to some of the most exciting playwrights and important trends in modern British and Irish drama from the late nineteenth century to the present. The course will examine a number of plays, exploring not only how they work formally, but also how changing cultural and historical contexts helped to shape the plays and British and Irish drama more generally. Authors under consideration will vary from class to class, but may include writers such as Oscar Wilde, George Bernard Shaw, John Synge, Lady Gregory, William Butler Yeats, Sean O'Casey, Samuel Becket, Denis Johnston, Brendan Behan, Brian Friel, Tom Murphy, Martin McDonagh, Noel Coward, John Osborne, T. S. Eliot, Robert Bolt, Harold Pinter, Caryl Churchill, and Tom Stoppard. The course will explore such topics as the role of drama in the Irish Revival, nationalism, and the revolution, the use of myth and folklore in drama, the emergence of realism, the function of Wilde and Shaw's humor in their plays, drama's response to the decline of the British empire, the modernist verse drama, post-modernism in drama, issues of stagecraft and performance, and the political function of such theaters as the Abbey Theatre or the Field Day Company. Students will write at least two papers on particular plays, and can expect to take a mid-term exam and a final exam. The course may be used as English Major elective credit or as credit towards the English minor, and will be offered once a year with 40 seats per offering.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2004  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 455** Topics in British Literature (3) Focused study of a particular genre, theme, or problem in British literature. (May be repeated for credit.)

### **ENGL 455 Topics in British Literature (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will allow faculty and students to focus a semester's study on a particular genre, theme, or problem in British literature. The flexibility of a topics course will allow faculty a forum in which to share current scholarship or to relate issues in British literature to larger School-wide themes in a classroom environment. Offering such focused studies under a British literature umbrella will allow majors to apply these offerings to their upper-level British literature requirement. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus.

This course will be offered once every two years, with an expected enrollment of 20-25 students.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2001  
Prerequisite: 6 credits of ENGL ENLSH or LIT

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 456** British Fiction, 1900-1945 (3) Major writers such as Conrad, Lawrence, Mansfield, Forster, Joyce, Woolf, Waugh, Greene, Bowen, Beckett, and others.

### **British Fiction, 1900-1945 (3)**

General Education: None

Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 1995  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 457** British Fiction Since 1945 (3) Readings in British fiction since World War II.

### **British Fiction Since 1945 (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 1995  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 458** Twentieth-Century Poetry (3) Poets writing in English such as Yeats, Pound, Eliot, Frost, Auden, Stevens, Plath, Bishop, Brooks, H.D., and others.

### **Twentieth-Century Poetry (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 1995  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 461** (US) The Vernacular Roots of African American Literature (3) The relationship between oral tradition and literary texts and the double consciousness of African American voice in "print."

### **The Vernacular Roots of African American Literature (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 462** (US) (WMNST 462) Reading Black, Reading Feminist (3) Female identity and its construction in textual representations of gender, class, color, and cultural difference in English-language literatures.

### **ENGL (WMNST) 462 Reading Black, Reading Feminist (3) (US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ENGL/WMNST 462 provides two important learning opportunities for undergraduate students. The first is to examine the construction of female identity in the textual representations of gender, class, color, and cultural differences by black American women. The second is to identify, explore, and analyze the major issues concerning the discovery and development of a black feminist literary tradition. Authors under consideration will vary from class to class, but may include writers such as Hortense Spillers, Harriet Jacobs, Harriet Wilson, E. Genovese, Hazel Carby, Francis Harper, J. Fauset, Nella Larsen, Zora Neale Hurston, Gwendolyn Brooks, Margaret Walker, Nikki Giovanni, Sonia Sanchez, Maya Angelou, Lorraine Hansberry, Adrienne Kennedy, E. Brown-Guillory, Toni Morrison, S. A. Williams, Alice Walker, Paula Marshall, and Octavia Butler. The course will focus on the complex relationship of slavery and post-slavery black experience to the literary imagination of African American women, and of issues of gender in black identity in America. Topics covered will vary, but will include issues of the legacy of slavery, the development of black feminist thought, nineteenth-century conceptions of black womanhood, women's roles in the Harlem Renaissance, representations of black womanhood by male writers, and self-representation by female writers, women "Black Power" poets, black female playwrights, neo-slave narratives, the aesthetics of contemporary black feminism, and post-modernism and the challenge to understandings of canonicity posed by black women's writing, and the like. This class will prepare students for advanced courses in African American and feminist literature, as well as other academic courses that engage in the verbal and written analysis of complex written forms. Students will be evaluated by class participation, a group oral presentation, small group problem solving exercises, three out-of-class essays (of 5-8 pages each), and an in-class final examination consisting of essays and short answers. In addition to satisfying requirements for students emphasizing in African American literature within the English major, this course will be important in the offerings of African/African American Studies, American Studies, Women's Studies, and History. The course may be used as English Major elective credit or as credit towards the English minor, and will be offered once every other year, with 40 seats per offering. The course can be used to complete the major and minor in Women's Studies Arts and Humanities area and it also satisfies the Women of Color (WOC) sub-requirement.

General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 463 (US) African American Autobiography (3)** The African American literary quest for identity and its adaptation to Euro-American culture and autobiographies.

**ENGL 463 African American Autobiography (3)  
 (US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Starting with the slave narratives which initiate the literary quest of African Americans for identity, this upper-division course will examine the trope of writing (the "talking" book) as the (w)rite of passage into the dominant Euro-American culture. The course will identify, describe, and analyze how the major elements of the "quest" found in the slave autobiographies have been adapted as textual strategies by many contemporary African American writers of autobiography, semi-autobiography, and fictional autobiography. Authors under consideration will vary from class to class, but may include writers such as Frederick Douglass, Harriet Jacobs, W. E. B. Du Bois, Ida B. Wells, Richard Wright, Zora Neale Hurston, Maya Angelou, Martin Luther King, Alex Haley, Harriet E. Wilson, James Weldon Johnson, and Ernest Gaines. Topics explored will vary from class to class, but will likely consider slave narratives, the role of autobiography in the fashioning of identity and self, gender issues, genre questions, and the historical development of the genre and its shifting preoccupation from slave times through the early twentieth-century, the pre-Civil Rights era, the Civil Rights Movement, the Black Power Movement, and the present. The course will prepare students for other courses that engage in the verbal and written analysis of complex written texts, and will also prepare students to consider the social and cultural issues involved in the role of race in American history. Students will be evaluated by means of essays written out of class, essay and short answer exams, a term-long reading journal reflecting upon issues of the student's own "autobiography," an oral class presentation, and class participation. The course may be used as English Major elective credit or as credit towards the English Minor and will be offered once a year, with 40 seats per offering.

General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 466 (US) African American Novel I (3)** Thematic, structural, and stylistic characteristics of the African American novel from residually oral forms to satiric realism.

**African American Novel I (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 467 (US) African American Novel II (3)** Thematic, stylistic, and structural characteristics of the African American novel from naturalism to modernism and postmodernism.

**African American Novel II (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 468 (US) African American Poetry (3)** African American poetry within the contexts of the black oral tradition and transformed European literary tradition.

**African American Poetry (3)**

General Education: None

Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005  
 Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 469 (US) (AF AM 469) Slavery and the Literary Imagination (3)** The impact of slavery on the petitions, poetry, slave narratives, autobiographies, and novels of African Americans.

**ENGL (AAA S) 469 Slavery and the Literary Imagination (3)  
 (US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ENGL/AAA S 469 provides an opportunity for undergraduate students to examine African American petitions, poetry, slave narratives, autobiographies, and novels as literary reconstructions of the economics, politics, ethics, and poetics of slavery. Authors under consideration will vary from class to class, but may include writers such as Paul Laurence Dunbar, Phillis Wheatley, F. Harper, James Weldon Johnson, Langston Hughes, Claude McKay, Sterling Brown, Booker T. Washington, Harriet Jacobs, W. W. Brown, Harriet Wilson, Margaret Walker, Arna Bontemps, D. Bradley, S. A. Williams, Toni Morrison, Ishmael Reed, and Charles Johnson. The course will focus on the complex relationship of slavery to the literary imagination of Americans of African descent as they increasingly discovered the limitations and possibilities of reading and writing themselves into freedom, literacy, and wholeness as human beings and American citizens. Topics covered will vary, but will include issues of the legacy of slavery in the west; the political aims and rhetorical conventions of African-American autobiography; the myths and realities of slavery; economic, political, ethical, and aesthetic issues of the representation of slavery; understandings of black consciousness and black culture on the road from slavery to freedom; the rise of African American realism as a response to the legacy of slavery; Black Feminism and issues of slavery; the role of history and memory in the construction of slavery; post-modern configurations of slavery; and the like. This class will prepare students for advanced courses in African American literature, as well as other academic courses that engage in the verbal and written analysis of complex written forms. Students will be evaluated by class participation, a group oral presentation, small group problem solving exercises, three out-of-class essays (of 5-8 pages each), and an in-class final examination consisting of essays and short answers. AAA S/ENGL 469 will satisfy one of the six 300H-400 level courses required for the major in English and the required 400 level course for the emphasis in African American literature within the major. It can also satisfy one of the six courses required for a minor in English. The course may be used as English Major elective credit or as credit towards the English minor. It will also be important in the offerings of African and African American Studies, American Studies, and American History. This course can be used to fulfill major requirements on the African and African American Studies major. It will be offered once every other year, with 40 seats per offering.

General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Fall 2012  
 Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 470 Rhetorical Theory and Practice (3)** Application of certain rhetorical principles to problems in composition. Writing exercise. Designed as preparation for the teaching of composition.

**Rhetorical Theory and Practice (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 1995  
 Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 471 Rhetorical Traditions (3 per semester, maximum of 6)** Introduces major traditions of rhetorical inquiry and their relevance for English studies. (Section subtitles may appear in the Schedule of Courses.)

**Rhetorical Traditions (3 per semester, maximum of 6)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 1997  
 Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 472 Current Theories of Writing and Reading (3 per semester, maximum of 6)** Investigates models of textual production and reception current within English studies. (Section subtitles may appear in the Schedule of Courses.)

**Current Theories of Writing and Reading (3 per semester, maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 473** Rhetorical Approaches to Discourse (3 per semester, maximum of 6) Practices the criticism of written texts from selected rhetorical perspectives. (Section subtitles may appear in the Schedule of Courses.)

**Rhetorical Approaches to Discourse (3 per semester, maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 474** Issues in Rhetoric and Composition (3 per semester, maximum of 6) Examines selected topics in the field of rhetoric and composition. (Section subtitles may appear in the Schedule of Courses.)

**Issues in Rhetoric and Composition (3 per semester, maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1997  
Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 477** Teaching Children's Literature (3) Teaching Children's Literature in light of recent literary pedagogy, the history of childhood, and critical approaches to Children's Literature.

**ENGL 477 Teaching Children's Literature (3)**

This course explores the teaching of Children's Literature. Beginning with students' own interpretations of the children's books we read, we develop critical concepts through which to understand and teach children's literature. The course presumes that books written for children have an intrinsic importance as literary and cultural artifacts and so demand serious consideration. Because this course is offered as an English course, we will concentrate on such things as the formal characteristics of the works we study, the kinds of audiences they seem to solicit, their implied authors, their ideologies, and so forth. The emphasis of the course is on teaching Children's Literature as literature; the course assumes that teaching literature is teaching reading and writing. Students are evaluated according to their participation in class discussion and three required papers—one on the teaching of a particular work of Children's Literature, one on some aspect of the history of childhood, and one that analyzes a children's book.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007  
Prerequisite: ENGL 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 479** Business or Technical Writing Practicum (1-3) Practical experience applying business or technical writing principles, working with advanced business, science, or engineering students on classroom projects.

**ENGL 479 Business or Technical Writing Practicum (1-3)**

English 493 enables students to bring their skills as writers and their knowledge of the requirements and conventions of business or technical writing to bear on a team project assigned in an advanced business, technical, or science course. The course requires students to work with the other members of the team on all aspects of the project where they are expected to contribute their skills to writing the final report that will constitute the primary means of communicating the results of the project to an appropriate audience. The major objective of the course is to provide students with opportunities to apply the writing skills they have mastered in previous or concurrent courses to projects of the kind that they would encounter in a professional writing situation. Thus, they will learn to work effectively in a team, to contribute to the overall objectives of the project, to serve as writing "consultants" to the group, and to work with others in perfecting the final written product. Their skills in organizing, editing, assessing the audience's needs, and finding the most effective ways to meet these needs will be tested in "real life" situations. Evaluation of the student's contributions

and effectiveness will be made by the instructor in charge of ELISH 493 and the cooperating instructor in the business, technical, or scientific course. Evaluation methods could include (but not be restricted to) a journal kept by the student during the course project, observations by one or both instructors of the team in operation, peer evaluations by other student members of the project, and evaluation of the final written product by one or both of the cooperating instructors.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: Prerequisite or concurrent: ENGL 418 or ENGL 419

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 480** Communication Design for Writers (3) This course explores visual design, non-verbal communication, and software packages used in professional settings to most effectively present written communications.

### **ENGL 480 Communication Design for Writers (3)**

ENGL 480 is a course designed to familiarize students with an integrated theory of the roles that visual, verbal, and non-verbal communication play in the production of professional documents using the technologies and software applications most widely used in many organizational settings. To this end, the course will focus on employing non-verbal design elements (color, photographs, graphics, page layout, typography, paper) to develop effective communications tailored to a variety of media, audiences, and purposes using software packages such as Quark XPress, Photoshop, Illustrator, InDesign, Excel. Emphasis will be placed on producing clear, insightful, polished, professional documents, both individually and as part of a team.

As part of the course, students can expect to

- a.) Understand the theories, elements, and principles of visual and non-verbal communication.
- b.) Appreciate the roles of the audience, purpose, and context in planning and composing documents.
- c.) Value the role of ethos, pathos, and logos when planning and composing documents.
- d.) Learn basic skills in a variety of software packages most widely used in the professional world.
- e.) Design and compose a variety of documents for a variety of audiences that display their writing and design skills.
- f.) Demonstrate through their documents an understanding of the theories of visual, verbal, and non-verbal communication.
- g.) Assess their own strengths and weaknesses as writers and designers.
- h.) Demonstrate the ability to reflect critically on their own and others' discourse practices.
- i.) Gain an understanding of the role and scope of other professionals and other disciplines in creating professional communications.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2005

Prerequisite: ENGL 015 or ENGL 030; ENGL 202A ENGL 202B ENGL 202C or ENGL 202D ; 7th semester standing or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 481** Literary Theory: Historical Perspectives (3) Selected topics in the history of literary criticism and theory within the English-language tradition.

### **Literary Theory: Historical Perspectives (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1994

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 482** Contemporary Literary Theory and Practice (3 per semester, maximum of 6) Contemporary literary theories and their implication for critical practice as applied to British, American, and other English-language literary works.

### **Contemporary Literary Theory and Practice (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1992

Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 482W** Contemporary Literary and Cultural Theory (3) Contemporary literary and cultural theories and their

implication for critical practice as applies to a variety of texts, e.g. literary, linguistic, visual, multimedia, and/or popular.

### **Contemporary Literary and Cultural Theory (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: ENGL 015 or ENGL 030H; ENGL 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 483** Problems in Critical Theory and Practice (3) Intensive study of one or more recent theoretical approaches as applied to British, American, and other English-language literary works.

### **Problems in Critical Theory and Practice (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1994

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 484** James Joyce (3) Analysis of principal works and their background.

### **James Joyce (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: ENGL 002; ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 485** Australian and New Zealand Literature and Culture (3) Questions of nationality, identity, gender, race, class, colonialism, and postcolonialism in these literatures.

### **Australian and New Zealand Literature and Culture (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1995

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 486 (IL)** The World Novel in English (3) Studies in the novel, written in English, by writers outside of the United States and Great Britain.

### **ENGL 486 The World Novel in English (3) (IL)**

This course examines the nature of the novel as written in English by writers outside of the United States and Great Britain. Such a study necessarily involves both an aesthetic and a political perspective, in that the tradition of the novel in these landscapes so often involves the aesthetic and political suppression of native literary forms and voices. Thus, this course looks at the novel as written both by the colonizer and by the colonized. It considers the politics of the aboriginal author writing in an adopted language, and the ways in which such an adoption bears upon related ethnic and gender matters; it also considers the sorts of artistic and political tensions that emerge in the work of writers who write in what might be called the dominant English tradition. This course also studies the work of what might be called the multi-cultural writer, or the writer perforce extracted from a native, non-English-speaking culture and placed within a larger, colonial, English-speaking culture. Matters of novelistic form, as they are related to ethnic and cultural identity, are also discussed. One intent of the course is to reveal the cultural, racial, and gender diversity that naturally adheres to these particular literary traditions.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: ENGL 002; ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 487W** Senior Seminar (3) Issues, themes, periods, critical theories, etc., that invite students to use prior English

studies, limited to seniors majoring in English.

### **Senior Seminar (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1997

Prerequisite: six credits of 400-level courses in English

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 488 (IL) (CMLIT 488) Modern Continental Drama (3)** From Ibsen to the drama of today: Strindberg, Chekhov, Hauptmann, Pirandello, Ionesco, Beckett, Genet, and others.

### **Modern Continental Drama (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 489 (WMNST 489) British Women Writers (3)** A study of selected British women writers.

### **ENGL (WMNST) 489 British Women Writers (3)**

This course provides the opportunity to study writing by British Women from a historical perspective and to explore the views these women have of themselves as artists. The course will concentrate on a careful reading of works by a variety of authors. It will address the question of the role gender plays in the selection of literary forms and the development of character, theme, symbols, and rhetorical strategies. It will also explore what particular dimensions British women writers have brought to the British literary tradition.

Students will be active learners through keeping reading journals, presenting background reports on the history of women in England, participating in small-group discussions about the texts, and writing 2 shorter essays and one longer research essay for the class. This course focuses on an area of British literature, which more traditionally structured courses tend to obscure. The course will be attractive to students from a variety of programs, including English majors, Women's Studies minors, and Interdisciplinary Humanities students. The course will be offered once every two years. Estimated class size 20.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2008

Prerequisite: 6 credits of ENGL

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 490 (US;IL) (WMNST 490) Women Writers and Their Worlds (3)** American and British literature written from the perspective of women.

### **ENGL (WMNST) 490 Women Writers and Their Worlds (3) (US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

ENGL/WMNST 490 covers particular aspects of American and British literature written from the perspective of women. The courses stress the diversity of women's authorial worlds, both through time and/or space. The readings and specific focus vary from semester to semester. ENGL/WMNST 490 seeks to make students aware of the extensive body of literature written by women, but, unlike ENGL 194, which is a survey course of women's literature, ENGL/WMNST 490 can be a more intensive course, focusing on selected themes and topics of particular concern to women as reflected in the poetry and fiction of twentieth-century American and British women writers. The class can also be taught in relationship to earlier periods, dealing, for instance, with English women novelists from 1775-1865. In such a class, readings would include fiction by Fanny Burney, Mary Wollstonecraft, Ann Radcliffe, Jane Austen, Mary Shelley, Emily Bronte, Elizabeth Gaskell, and George Eliot. The course would then place each novel in its historical, social, intellectual, and literary context, and explore the various ways in which some of England's best writers transformed their female experience of the world into fiction that extended the range and influenced the development of the novel. Regardless of the particular focus, all sections of the course pose the following questions throughout: Do women use the same myths, archetypes, and literary conventions as male writers? Or do they sometimes have to modify the myths, archetypes, and literary conventions originated by their male precursors in order to adapt them to female experience? Is there such a thing as a distinctively female imagination, with a symbolic language of its own? Is there such a thing as a chain of literary influence linking women writers to each other? What are the strategies for coping with the anxieties of authorship? What is the interaction between gender and genre? In what ways are creativity and procreativity modes of defying prevailing ideologies? Does a woman's psychological development have an effect on the plots a woman novelist conceives? How does women's literature reflect the realities of



women's lives? As a course in women's literature, ENGL/WMNST 490 concerns itself with questions of gender. In so far as some of these women writers are black or women of color, it concerns itself with questions of race and ethnicity. In as far as the course looks at women's literature in the context of men's literature, it is concerned with the inter-relationship between dominant (male) and non-dominant (female) culture in the United States as well as in Britain. In so far as the course covers lesbian writers, it is concerned with sexual orientation. Students should expect to complete a minimum of three written assignments in the course, two course papers, and an essay final exam in class. The papers each will ask students to choose a text to analyze in relationship to one of the thematic modules the course has chosen, for instance, to discuss how Virginia Woolf's *Mrs. Dalloway* analyzes the position of upper-middle class women in a particular moment in history when women had achieved the vote, but were still largely constrained by patriarchal social norms. In addition to written assignments, students will be evaluated on class discussion and general participation. The course not only prepares students for taking up literary and cultural analysis in English classes, but also in any other class that engages in the verbal and written analysis of complex written texts, and in other classes in Women's Studies or in other Penn State departments that address the social, cultural, or ethical issues of gender. The course may be used as English Major elective credit or as credit towards the English Minor; it may also be used in the Women's Studies major and minor. It will be offered once a year with 40 seats per offering.

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 491** The Capstone Course in Professional Writing (3) This culminating course for Professional Writing majors concentrates on reflective analyses, design, and presentation of documents in the development of professional portfolios.

### **ENGL 494 The Capstone Course in Professional Writing (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

English 494 is the capstone writing course for the Professional Writing degree program. Its overall purpose is to provide students with the opportunity to reflect on and integrate academic coursework, co-curricular activities, and internship experiences through the design and development of print and electronic professional portfolios. To this end, students will analyze and evaluate their own professional texts as well as the texts of their peers, focusing on rhetorical analysis, content, organization, and expression. Emphasis will be placed on producing clear, insightful, polished, professional documents for inclusion in both paper and digital portfolios.

As part of the course, students can expect to:

- a) demonstrate the ability to reflect critically on their own and others' discourse practices
- b) assess their own strengths and weaknesses as writers and evaluate their writings for inclusion in the portfolios
- c) compile both paper and electronic portfolios that integrate relevant material from academic courses, internships, and other co-curricular learning experiences
- d) demonstrate the ability to employ technology in the development of the portfolios
- e) design materials that display their writing skills and rhetorical knowledge for a professional audience
- f) develop a finished professional resume and application letter
- g) discuss and demonstrate a variety of strategies for securing a professional writing position

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 2004  
 Prerequisite: ENGL 015 or ENGL 030; ENGL 202A ENGL 202B ENGL 202C or ENGL 202D ;seventh-semester standing or higher; enrollment in Professional Writing major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 492 (AM ST 476, WMNST 491) American Women Writers (3)** A study of selected American women writers.

### **ENGL 492 (AM ST 476, WOMST 492) American Women Writers (3)**

A study of selected women writers, this course provides the opportunity to study writing by American women from an historical perspective and to explore the views these women have of themselves as artists. The course will concentrate on a careful reading of works by a variety of authors. It will raise the question of the role that gender--as well as other differences such as race, class, and ethnicity--play in the selection of literary forms and the development of character, theme, symbol, and rhetorical strategy. It will also explore the dimensions American women have brought to the American literary tradition. The course satisfies the area requirement in culture for American Studies majors and is open to all majors meeting the prerequisite requirements. The course will be offered once every two years and enrollment is 25.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 2008  
 Prerequisite: 6 credits of ENGL

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 493** (AM ST 493) The Folktale in American Literature (3) A survey of the literary uses of the folktale and legendary materials, with particular concentration on the literature of America.

**The Folktale in American Literature (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1986

Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 494** Senior Thesis in English (1-6) Senior English (ELISH) majors write a thesis arranged with in-charge person and submit it to a faculty committee for appraisal.

**ENGL 494 The Capstone Course in Professional Writing (3)**

English 494 is the capstone writing course for the Professional Writing degree program. Its overall purpose is to provide students with the opportunity to reflect on and integrate academic coursework, co-curricular activities, and internship experiences through the design and development of print and electronic professional portfolios. To this end, students will analyze and evaluate their own professional texts as well as the texts of their peers, focusing on rhetorical analysis, content, organization, and expression. Emphasis will be placed on producing clear, insightful, polished, professional documents for inclusion in both paper and digital portfolios.

As part of the course, students can expect to:

- a) demonstrate the ability to reflect critically on their own and others' discourse practices
- b) assess their own strengths and weaknesses as writers and evaluate their writings for inclusion in the portfolios
- c) compile both paper and electronic portfolios that integrate relevant material from academic courses, internships, and other co-curricular learning experiences
- d) demonstrate the ability to employ technology in the development of the portfolios
- e) design materials that display their writing skills and rhetorical knowledge for a professional audience
- f) develop a finished professional resume and application letter
- g) discuss and demonstrate a variety of strategies for securing a professional writing position

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 494H** Senior Thesis in English (1-6) Senior English (ELISH) majors write a thesis arranged with in-charge person and submit it to a faculty committee for appraisal.

**Senior Thesis in English (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 495** Internship (3-12) Supervised practicum in fields appropriate to the English major.

**Internship (3-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 496** Independent Studies (1-18) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 496H** Creative Fiction (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Creative Fiction (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 497A** Words and Images: Artists and Writers Collaborate (3) Students consider the artist's book as a form and locate it within the context of contemporary writing and visual art.

**Words and Images: Artists and Writers Collaborate (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 497B** London Calling: Ordering the World - The Trip (0.5) This course will take students on an 8-day exploration of London and surrounding areas. Students will be expected to attend all scheduled visits and to act as responsible representatives of Penn State Altoona while abroad. Students will also be asked to compose short writings during the trip that respond to our site visits and to write a final evaluative paper after the trip.

**London Calling: Ordering the World - The Trip (0.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENGL 499** (IL) Foreign Study--English (3-6) Studies abroad in English language and/or literature.

**Foreign Study--English (3-6)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## English as a Second Language (ESL)

**ESL 004** ESL Composition for American Academic Communication I (3) For undergraduate students who are beginning-intermediate level non-native speakers of English to improve their grammar and writing skills in preparation for future American academic writing assignments. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

**ESL 004 ESL/Composition for American Academic Communication I (3)**

This course is for undergraduate students who are beginning-intermediate level non-native speakers of English. The course is designed to improve their grammar and writing skills in preparation for future American academic writing assignments. Topics to be covered include the following: (a) subject-verb agreement; (b) verb tenses; (c) adjectives and adverbs; (d) independent and dependent clauses; (e) essay and paragraph organization; (f) paragraph development; editing and proof-reading. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ESL 005** Writing Tutorial (1) This course supplements ESL 015, providing focused instruction for non-native English speaking students in English composition and academic writing.

**Writing Tutorial (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013

Concurrent: ESL 015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ESL 015** (GWS) ESL Composition for American Academic Communication II (3) For undergraduate students who are intermediate/advanced level non-native speakers of English to develop strategies for reading and writing American academic discourse.

**ESL 015 ESL/Composition for American Academic Communication II (3)**

This course is for undergraduate students who are intermediate-advanced level non-native speakers of English. Students will become familiar with the various stages in the process of writing and develop strategies for reading and writing various models of American academic discourse. Overall, students will be able to use what they have learned in this course to participate successfully in academic reading and writing tasks throughout their university experiences in the United States. Students will participate in a variety of reading and writing tasks that will enable them to: (a) define the subject, purpose, audience, and appropriate organizational structure for written compositions; (b) revise and reshape their writing to improve ideas, organization, language use, vocabulary and mechanics; (c) identify and correct structural and grammatical errors within their written texts; (d) select sources, take notes, and acknowledge sources to support ideas, using the library to conduct library research; and, (e) become better writers in preparation for their college careers.

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: a grade of C or higher required in ESL 004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ESL 114G American Oral English for Academic Purposes (3)** Instruction in ESL for graduate students, focusing on the use of oral language skills in an academic setting.

**ESL 114G American Oral English for Academic Purposes (3)**

This course is designed for graduate students who are non-native speakers of English in order to develop and improve their oral communication skills for effective interaction in social, as well as academic settings in English-speaking environments. Activities will include: (a) a pre- and post-testing of oral proficiency for diagnostic and achievement purposes; (b) a series of in-class oral presentations which will be audio-taped and videotaped for self, peer, and instructor evaluation; (c) participation in group discussions, role plays, and impromptu speeches; and, (d) various oral language assignments, including listening and pronunciation activities, transcriptions of recorded speech, and the creation of an audio-taped oral dialogue journal.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ESL 115G American Oral English for ITAs I (3-9)** Initial course in American Oral English for preparation of international teaching assistants.

**ESL 115G American Oral English for ITAs I (3-9)**

This course is designed for non-native speakers of English who wish to improve their overall speaking and listening skills in English. Through various oral and aural language activities, students will increase the intelligibility of their speech by improving their pronunciation of American English. They will also develop academic speaking skills in order to engage critically and constructively in the exchange of ideas during discussions of academic content. They will improve their overall listening comprehension, as well as their discrimination of particular sounds in English. By the end of this course, students will have improved their overall speaking and listening skills, in particular their fluency, to participate successfully in academic settings.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001

Prerequisite: score below 200 on the American English Oral Communicative Proficiency Test (AEOCPT)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ESL 116G ESL Composition for Academic Disciplines (3)** For international students at the graduate level to engage in scholarly activity in their academic disciplines.

**ESL 116G ESL Composition for Academic Disciplines (3)**

This course is designed for international students at the graduate level who are preparing to engage in scholarly activity in their academic disciplines. Through reading and writing selected rhetorical models of academic discourse, students will be able to analyze and use the organizational structure of various models of academic texts. They will engage in contextualized language activities, which will enable them to match appropriate English linguistic forms to specific rhetorical purposes. Students will be expected to gather appropriate sources, organize information, and compose various models of academic essays and research papers. By the end of the course, students will be able to translate their research activities into written reports that conform to the expectations of the English-speaking academic community.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ESL 117G American Oral English for ITAs II (3-9)** Intermediate course in American Oral English for preparation of international teaching assistants.

**ESL 117G American Oral English for ITAs II (3-9)**

This course is designed for intermediate level non-native speakers of English who need to improve their communication effectiveness in order to become teaching assistants (TAs). Through various language related activities, students will increase the intelligibility of their speech by improving their pronunciation of American English. Students will also develop

oral presentation skills necessary for different types of classroom interaction. In addition, they will learn about American cultural traits as they pertain to communication in the university-level classroom. By the end of this course, students will have improved their overall communication effectiveness to participate successfully in a variety of future teaching assistant responsibilities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: score of 200-229 on the American English Oral Communicative Proficiency Test (AEOCPT) or a grade of C required in ESL 115G

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ESL 118G** American Oral English for ITAs III (3) Advanced course in American Oral English for preparation of international teaching assistants.

### **ESL 118G American Oral English for ITAs III (3)**

This course is designed to provide English language instructional support for advanced non-native speakers of English who need to improve their communication effectiveness in order to become teaching assistants. Through various language related activities, students will increase the intelligibility of their speech by improving their pronunciation of American English. To do this, they will develop an acute awareness of their own strengths and weaknesses as a communicator in real and simulated instructional contexts. They will also develop effective oral communication strategies necessary for interaction with individual students, small groups, and large classes. Students will learn about American cultural traits and underlying assumptions as they pertain to communication in the university-level classroom. By the end of this course, students will have improved their overall communication effectiveness to carry out their future teaching assistants responsibilities successfully.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: score of 230-249 on the American English Oral Communicative Proficiency Test (AEOCPT) or a grade of C required in ESL 117G

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ESL 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ESL 297A** American Oral English for Academic Purposes (3) Instruction for non-native speakers of English focusing on the use of oral language skills in an academic setting.

### **American Oral English for Academic Purposes (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ESL 297A** American Oral English for Academic Purposes (3) Instruction for non-native speakers of English focusing on the use of oral language skills in an academic setting.

### **American Oral English for Academic Purposes (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ESL 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Entomology (ENT)**

**ENT 202** (GN) The Insect Connection (3) An introduction to the diversity of insects and the ways in which they interact with humans and impact our world.

#### **The Insect Connection (3)**

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 222** (GN) Honey Bees and Humans (3) This course explores the unique biology and behavior of bees, examining our relationship with them through time and across cultures.

#### **ENT 222 Honey Bees and Humans (3) (GN)**

This course will discuss the uniqueness of honey bees -- no other insect, except perhaps the silk moth, has been harnessed so effectively to benefit humankind. Students will explore topics of biodiversity, behavioral ecology, sociobiology, insect physiology, infectious diseases, host-parasite interactions, food security, the development of agricultural practices across cultures and time, conservation and the art of communicating science to the public. Students will be provided an understanding of (1) honey bee behavior (particularly their complex and sophisticated social systems), biology, and health, (2) the important contributions honey bees and their pollination services make to maintaining natural ecosystems and increasing productivity of many of our key agricultural crops; and (3) the global history of humans' interactions with honey bees, and how people from many cultures have managed bees to provide honey, wax, and pollination services.

General Education: GN

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 297H** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 313** Introduction to Entomology (2) Introduction to basic entomology, covering insect diversity, identification, structure and function, and principles of management.

**ENT 313 Introduction to Entomology (3)**

This course is an introduction to entomology addressing issues of insect diversity, morphology and physiology, and identification of the most common groups of adult and immature insects. This course will highlight the beneficial and detrimental roles insects in human society along with responsible methods of pest management. Other topics such as insects as vectors of disease and the ecological and agricultural impact of exotic insect species introduction and climate change will be discussed.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: 3 credits of natural science

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 314** Management of Insect Pests of Ornamentals (1) Diagnosis and management of insect pests on shrubs and trees in the landscape or production nursery.

**Management of Insect Pests of Ornamentals (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: ENT 313

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 316** Field Crops Entomology (1) Laboratory-based approach to identification and management of insect pests of agronomic crops.

**Field Crops Entomology (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: ENT 313

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 317** Turfgrass Insect Pest Management (3) Introduction to entomology and management of insect pests of cool- and warm- season turfgrass.

ENT 317

**ENT 317 Turfgrass Insect Pest Management (3)**



This course will introduce students to a thorough understanding of insects and their relatives, IPM, and control strategies. The course will provide the students the opportunity to review EPA registered turfgrass insecticides and respective Material Safety Data Sheets, the effects of turfgrass insecticides on nontarget organisms, and the Food Quality Protection Act and how this legislation has altered public perception of insecticides. Students will be provided with a fundamental understanding of the ecology, ethology, life history and development of IPM plans for the key surface and subsurface pests of cool- and warm-season turfgrass. Students will be introduced to a wide array of commercial, educational and government web sites to strengthen their understanding of turfgrass entomology. Students also will be encouraged to develop a web based notebook which they can utilize upon completion of the course. Students will be invited to share their experiences with pest problems and methods they deployed to manage turfgrass insect species in the turfgrass environment.

Students will be evaluated by the use of class assignments, quizzes, two hour exams and a final exam, refereed journal reading assignment, and an IPM class project.

The course will be offered in the spring semester with expected enrollment of 50-58 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: TURF 235CHEM 101 orCHEM 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 395** Internship (10-12) Supervised field experience and study related to the student's major professional interest. Written and oral critique of activity required.

### **Internship (10-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1984

Prerequisite: prior approval of proposed assignment by department; cumulative GPA of 2.00 or higher; 6 credits of entomology; at least fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 402W** (VB SC 402W) Biology of Animal Parasites (3) An introduction to animal parasitology. Emphasizes placed on host/parasite interactions, parasites of zoonotic importance, control programs and taxonomy.

### **Biology of Animal Parasites (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: BIOL 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 410** Insect Structure and Function (3) Integrated physiology and anatomy of insects; emphasis on unique adaptations, genetic regulation of development, insects as model systems, environmental physiology.

### **Insect Structure and Function (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

Prerequisite: BIOL 110BIOL 220WBIOL 230WBIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**ENT 420** Introduction to Population Dynamics (3) Principles of population regulation, demographic analysis, modeling of dynamic processes are discussed; laboratories involve the exploration of population growth models.

**Introduction to Population Dynamics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994  
Prerequisite: BIOL 110/BIOL 220W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 424** Sensory Biology of Insects (3) This course provides students an understanding of insect sensory systems contributing to behaviors performed for survival and reproduction.

**Sensory Biology of Insects (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 425** Freshwater Entomology (3) Collection and identification of insects and other arthropods in freshwater ecosystems; field study of habitats.

**Freshwater Entomology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 430** (B M B 430, BIOL 430) Developmental Biology (3) Molecular and genetic analyses of mechanisms involved in differentiation and determination in biological systems.

**Developmental Biology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994  
Prerequisite: BIOL 222; B M B 252 or BIOL 230W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 432** Insect Biodiversity and Evolution (4) In this course students learn insect taxonomy, evolutionary history, collection and preservation techniques, morphology, fossils, and natural history.

**ENT 432 Insect Biodiversity and Evolution (4)**

In this course students learn insect taxonomy, evolutionary history, collection and preservation techniques, morphology, fossils, and natural history. Lab work focuses on adult forms, especially of insects found in Pennsylvania. Students learn how to handle specimens, use diagnostic keys, and identify insects by sight. Collecting techniques will be honed during field trips. Upon completion of this course students should be able to: (1) teach others how to collect, preserve, and transport insect specimens, (2) name and sight-identify all insect orders and several common local families, (3) label a generalized insect diagram with external anatomy terms, (4) draw a phylogenetic tree of relationships between insect orders, (5) teach others how to read a phylogenetic tree, what kinds of data are used to estimate trees, how those data are analyzed, and what it means to be monophyletic, (6) describe key innovations and life history strategies of major insect lineages, (7) solve taxonomic problems and describe how species and other taxa are named and described, i.e., understand the fundamentals of taxonomic practice, (8) name and briefly describe the latest developments in insect biodiversity research, (9) describe how hexapods inform us about biodiversity and influence our conservation decisions.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: ENT 313

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 445** Evolution of Insect Societies (3) Basic principles of Darwinian theory and their application to understanding the evolution of complex social behavior in insects are addressed.

### **ENT 445 Evolution and Insect Societies (3)**

This course addresses basic principles of Darwinian theory and their application to understanding the ultimate and proximate mechanisms underlying the evolution of complex social behavior in insects, especially bees, ants and wasps. This course will highlight the remarkable diversity of social organization across these groups. Topics will include the role of cooperative behavior, mating systems, parental care, natural history, communication, and molecular groundplans in the evolution of higher-level biological organization.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: BIOL 110 or equivalent

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 457** (AGECO 457) Principles of Integrated Pest Management (3) Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester students and graduate students.

### **Principles of Integrated Pest Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Must take two or more of the following: ENT 313 PPEM 405 PPEM 318 or HORT 238

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENT 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Entrepreneurship (ENTR)**

**ENTR 300** Principles of Entrepreneurship (3) Overview of the fundamental principles and processes of entrepreneurship including idea generation and opportunity analysis.

### **Principles of Entrepreneurship (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ACCTG 211ECON 102

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENTR 320** Entrepreneurship and New Venture Creation (3) Explores the process for starting and growing a new venture including the development of a business plan.

**Entrepreneurship and New Venture Creation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

Prerequisite: ENTR 300

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENTR 400** Financing Entrepreneurial Ventures (3) Overview of alternative forms of financing including seed capital, valuing a company, going public, partnerships, and acquisitions.

**Financing Entrepreneurial Ventures (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

Prerequisite: B A 243 orB LAW 243;ENTR 320FIN 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENTR 410** Entrepreneurial Marketing (3) Principles of Internet marketing and strategies for marketing new ventures on the Web.

**Entrepreneurial Marketing (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: ENTR 320MIS 204MKTG 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENTR 420** Leadership and Growth of New Ventures (3) Leadership of an entrepreneurial organization, including organizational effectiveness, stages of entrepreneurial growth, strategies for the future, and developing people.

**Leadership and Growth of New Ventures (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

Prerequisite: ENTR 320;MGMT 100 orMGMT 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENTR 430** Entrepreneurship and New Product Development (3) Examines the process of designing, testing and launching new products, and developing a strategy for commercialization of the technology.

**Entrepreneurship and New Product Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

Prerequisite: ENTR 300

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENTR 440** Entrepreneurship and Franchising (3) Overview of the entire franchising process with a focus on licensing and distributorship, trade marks, strategy, and growing the enterprise.

**Entrepreneurship and Franchising (3)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000  
Prerequisite: ENTR 300

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENTR 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENTR 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENTR 497A** Sheetz Fellows Program (1) This course is an introduction to the Sheetz Fellows Program. It prepares students with an entrepreneurial mindset for leadership roles by providing them with mentoring opportunities, academic challenges, and resources. Topic areas include; servant leadership, business networking, social networking, study abroad exploration, and resume development. The Sheetz Fellows experience offers "an education for leadership" in the best tradition of the Business program. It molds well-rounded students who are ready for the world and prepares students for citizenship for life-long learning.

### **Sheetz Fellows Program (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Environmental Engineering (ENVE)**

**ENVE 301W** Environmental Microbiology (3) Fundamentals of microbial ecology and environmental microbiology with an emphasis on aspects of these fields important to environmental engineers.

ENVE 301W

### **ENVE 301W Environmental Microbiology (3)**

This course provides students with the skills necessary to understand and effectively communicate environmental aspects of microorganisms. There are laboratory exercises associated with each of the related topics. Subjects include both water quality and treatment. The emphasis in the course will be on the development of the appropriate writing and speaking skills. As such, formal grading will be reserved for completed assignments only. This does not imply that students will be expected to produce these completed assignments quickly and in a single draft. For three assignments-the non-technical summary, the review paper, and the laboratory report-students will be required to submit draft copies for evaluation and suggestions for improvement. The students will then revise these assignments and submit them for either reevaluation or grading. For the remaining assignments in the course, students will have the option to submit a draft copy for evaluation before a final copy is graded. This, of course, necessitates that due dates for assignments be somewhat flexible. Within the time constraints of the semester, the opportunity to rewrite and revise an assignment will be given priority over a fixed due date. Examination and Grading: ENVE 301W will be divided between lecture and laboratory portions of the course. The lecture will count for 60% of the final grade; while the laboratory will count for 40% of the grade. Each will have a significant writing component.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: CHEM 110 and CHEM 111

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 401** Occupational Safety and Environmental Health (1) Regulations, management practices, hazard identification, exposure assessment, monitoring, employee protection, and program management for occupational safety and health.

ENVE 401

### **ENVE 401 Occupational Safety and Environmental Health (1)**

The passage of the Occupational Safety and Health Act of 1970 created the Occupational Safety and Health Administration (OSHA), a federal agency, to protect employee safety and health. In 1983 OSHA established hazard communication requirements. By May of 1988, all employees, regardless of size, were required to comply with the Right-To-Know Standards. These regulations established the need for employee training on potential occupational hazards and safe work practices. This training includes safety equipment training, management procedures to address workplace hazards, and accidental emergency response planning. Companies established safety and health managers for their facilities along with employee training. The goal of this course is to introduce students preparing for work in the environmental field to important topics, issues, and training needs for addressing environmental-occupational safety and health. Course topics include: regulations, management practices, hazard identification, exposure assessment, monitoring, employee protection, and program management.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: CHEM 301 and ENVE 301W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 411** Water Supply and Pollution Control (3) Water supply, wastewater characteristics, design of unit processes for water and wastewater treatment, sludge processing, and related new technologies.

### **ENVE 411 Water Supply and Pollution Control (3)**

Providing safe drinking water to the public and decontamination of wastewater before discharge are the two main functions of municipal water system. Properly designing and operating municipal water and wastewater systems allows safe and sustainable use of this limited resource. This course introduces students to design concepts used in water and wastewater treatment processes. Concepts will be categorized into physical, chemical, and biological processes, and presented through a series of lectures, readings, and problem solving. Subjects covered include: water and wastewater characteristics and flows; unit processes for drinking water treatments, including coagulation, flocculation, sedimentation, water softening, filtration, and disinfection; and unit processes for wastewater treatments, including preliminary headwork, primary sedimentation, secondary treatment, tertiary nutrient removal, final clarifier, and residual digestion and management. After completion of this course, students should have the basic knowledge necessary to select and design water and wastewater treatment processes.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: C E 370 or graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 411** Water Supply and Pollution Control (3) Water supply, wastewater characteristics, design of unit processes for water and wastewater treatment, sludge processing, and related new technologies.

**ENVE 411 Water Supply and Pollution Control (3)**

Providing safe drinking water to the public and decontamination of wastewater before discharge are the two main functions of municipal water system. Properly designing and operating municipal water and wastewater systems allows safe and sustainable use of this limited resource. This course introduces students to design concepts used in water and wastewater treatment processes. Concepts will be categorized into physical, chemical, and biological processes, and presented through a series of lectures, readings, and problem solving. Subjects covered include: water and wastewater characteristics and flows; unit processes for drinking water treatments, including coagulation, flocculation, sedimentation, water softening, filtration, and disinfection; and unit processes for wastewater treatments, including preliminary headwork, primary sedimentation, secondary treatment, tertiary nutrient removal, final clarifier, and residual digestion and management. After completion of this course, students should have the basic knowledge necessary to select and design water and wastewater treatment processes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: C E 370 or graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 413W** Operation and Control of Treatment Systems (3) Wastewater treatment, water treatment, solids handling, hazardous waste site control and operations, operator certification, report writing.

**ENVE 413W ENVE 413W Operation and Control of Treatment Systems (3)**

This course provides students with knowledge and experience related to water treatment, wastewater treatment, solids handling, hazardous waste management, operator certification, and safety, through a combination of lectures, lab experiments, pilot studies, and field trips. The focus of the course is on operation and control of water and wastewater treatment plants. There is also an emphasis on technical report writing.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: ENVE 411

Concurrent: ENVE 416

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 415** Hydrology (3) Watershed response to rainfall events; hydrologic systems; ground water flow.

**ENVE 415 Hydrology (3)**

Hydrology is the study of water's movement over the earth and in the atmosphere, with a particular focus in the class on the processes of precipitation, infiltration and runoff. The general public focuses on hydrology when there either is too much water (flooding) or too little water (drought). Engineers working in the hydrology arena focus on evaluating the timing and location of potential floods, designing structures and sites to minimize the impacts of the site on the hydrologic behavior of an area, and evaluating potential sources of water supply during drought times so that the public impact of a drought is minimal. This course builds on concepts learned in the hydraulic design course in terms of conveyance system design. Course topics include determination of the safe yield of a water supply, calculation of hydrographs in ungaged watersheds, the hydraulics of groundwater wells, and the design of stormwater management structures to minimize flooding. The students use currently available models from the U.S. Department of Agriculture, the U.S. EPA and the U.S. Army Corps of Engineers in their

## watershed evaluations and design of stormwater control practices.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: ENVE 417 ; andSTAT 301 orSTAT 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 416** Treatment Plant Design (3) Design of treatment facilities for water and waste water based on regulatory requirements and standards.

### **ENVE 416 Treatment Plant Design (3)**

This capstone design course will teach students how to integrate various design concepts they have learned from other environmental engineering courses, including ENVE 411 Water Supply and Pollution Control, ENVE 415 Hydrology, ENVE 417 Hydraulic Design, and ENVE 425 Hazardous Waste Management. Additional design and design related concepts will be introduced through a series of lecturer, seminars, tours, case studies, and design projects. Subjects covered include unit processes for water and wastewater treatment, hydraulic design, sludge handling and disposal, chemical storage and safety, project bidding and management, plant design and retrofitting, and engineering ethics and society impacts. After completion of this capstone design course, students should have basic knowledge in selection and design of conventional and modern environmental systems, especially water and wastewater treatment processes and application of knowledge they learned from various environmental engineering courses in solving real world engineering problems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: ENVE 411

Concurrent: ENVE 417

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 417** Hydraulic Design (3) Design of water and waste water conveyance systems and storage facilities.

### **ENVE 417 Hydraulic Design (3)**

The delivery of clean drinking water and the collection of wastewater are two of the fundamental activities of municipal or regional governments. Installing new systems or rehabilitating old ones are expensive, large-scale infrastructure projects. Therefore, it is important that these projects be designed correctly and address both current population needs and growth projections for the design life of the project, typically 25 or more years. This course builds on the concepts learned in fluid mechanics and applies them to the design of municipal water conveyance systems. Students learn to apply the appropriate pipe flow equation (Darcy-Weisbach, Hazen-Williams, or Chezy-Manning) to the design of the conveyance system, e.g., drinking water



supply, sanitary sewer collection and storm sewer collection systems. Their projects focus on the design of small conveyance systems and use currently available EPA models for water supply, sanitary sewer, and stormwater piping design. Students also learn to perform basic population projections, design water storage towers and design appurtenances such as manholes and storm sewer inlets. Culvert, weir and orifice design also are covered in the class.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: C E 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 424 Solid Waste Management (3)** Solid waste collection and disposal techniques; recycling and design optimization; including content analysis, legislation, and planning.

### **Solid Waste Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: C E 335

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 425 Hazardous Waste Management (3)** Overview of regulations, risk assessment, waste minimization and pollution prevention, treatment of hazardous waste, and remediation of contaminated sites.

### **ENVE 425 Hazardous Waste Management (3)**

This course covers concepts and techniques for managing hazardous wastes. Subjects covered include hazardous waste fundamentals (hazardous waste characteristics, regulations, fate and transport, and toxicology), current management practices (environmental audits, and pollution prevention), treatment and disposal methods (physicochemical processes, biological methods, stabilization and solidification, thermal methods, and land disposal) and site remediation (site characterization, and remedial technologies). Additional hazardous waste management related concepts will be introduced through a series of lectures, tours, case studies, and design projects. After completion of this course, students should have basic knowledge in identifying hazardous wastes, understand physical, chemical, and biological factors governing the fate of a compound in the environment, know the fundamental physical, chemical, and biological processes used to treat hazardous wastes.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: ENVE 411

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 430 Sustainable Engineering (3)** A course on engineering which uses ecological principles to minimize waste and maximally use input materials.

ENVE 430

**ENVE 430 Sustainable Engineering (3)**

This course is for upper-level and graduate students in engineering science, environmental engineering, engineering technology, or environmental pollution control. Sustainable engineering is a term that describes engineering which maximizes the use of all input materials and minimizes waste using principles of ecology. The course is designed to train engineers to use the principles of sustainable engineering in their practice. Engineers responsible for the design and operation of industrial systems have a social responsibility for not harming the environment. The topics include pollution prevention, waste minimization, process economics and resource management. Evaluation is based on both examinations and a project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

Prerequisite: Permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 460 Environmental Law (3)** This course provides a survey of Federal and State environmental laws, including statutory, common and administrative law. May not be taken for graduate credit by Dickinson School of Law students in the concurrent J.D./EPC programs.

ENVE 460

**ENVE 460 Environmental Law (3)**

This class is a survey of Federal and State environmental laws, including aspects of common (court-established) law, statutory (legislative) law, and administrative law. Students will become familiar with legal concepts and language; how to read and understand statutes, regulations and court decisions; how the administrative process works; and what clients and consultants need to know in order to operate within the administrative framework of environmental law. Evaluation includes examinations and briefs to be presented in class discussion.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

Prerequisite: senior standing graduate standing or permission of program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 470 Air Quality (3)** Overview of air quality issues with regard to the sources, measurements, effects, transport and control of potential air contaminants.

**ENVE 470 Air Quality (3)**

The protection of clean air is vital for the health of people. Air pollution has been linked to increased cases of asthma, lung cancer, and other lung diseases. This course, building on concepts covered in the Introduction to Environmental Engineering course, provides an overview of air quality issues with regard to the sources, measurements, effects, transport and control of potential air contaminants. Specifically, the students will learn the fundamental concepts of air pollution generation, modeling and control, plus the impacts of air pollution on human and environmental health and welfare. They will understand the fundamental concepts of acid rain and global climate change. They will learn/be updated on the current regulations that exist to address air quality concerns. Through homework and projects, they will examine and perform preliminary designs on common types of air pollution control equipment. They also will participate in discussions of contemporary air pollution issues (global warming, mobile and stationary air pollution source control, airshed issues in the Chesapeake Bay watershed).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: C E 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 470 Air Quality (3)** Overview of air quality issues with regard to the sources, measurements, effects, transport and control of potential air contaminants.

**ENVE 470 Air Quality (3)**

The protection of clean air is vital for the health of people. Air pollution has been linked to increased cases of asthma, lung cancer, and other lung diseases. This course, building on concepts covered in the Introduction to Environmental Engineering course, provides an overview of air quality issues with regard to the sources, measurements, effects, transport

and control of potential air contaminants. Specifically, the students will learn the fundamental concepts of air pollution generation, modeling and control, plus the impacts of air pollution on human and environmental health and welfare. They will understand the fundamental concepts of acid rain and global climate change. They will learn/be updated on the current regulations that exist to address air quality concerns. Through homework and projects, they will examine and perform preliminary designs on common types of air pollution control equipment. They also will participate in discussions of contemporary air pollution issues (global warming, mobile and stationary air pollution source control, airshed issues in the Chesapeake Bay watershed).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: C E 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVE 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Environmental Resource Management (E R M)**

**E R M 151** Careers and Issues in Environmental Resource Management (1) Career opportunities and topical issues in the

environmental sciences.

### **E R M 151 Careers and Issues in Environmental Resource Management (1)**

The course is designed to introduce students to the environmental resource management field early in their academic experience. The course is the first required E R M course for students in the major and the minor. Weekly presentations are made by E R M graduates and Penn State faculty and student interns.

Course objectives include: discuss topical issues in environmental sciences and resource management; familiarize students with career opportunities for E R M graduates; provide feedback from graduates to students on enhancing their Penn State experience; enhance critical thinking and communication skills; create an opportunity to address student questions about the E R M program.

Two types of writing assignments (PIT and PDP) are designed to enhance the learning process and to serve as a basis for awarding a course grade. The PIT (Putting It Together) is written by each student during the last 10 minutes of each class period, and requires the student to focus on one point made by the speaker and to either explain how the point contributes to the students understanding or explain why they disagree with or have questions about the point. Students are instructed to consider the audience for their PIT to be lay people and that the PIT should simulate a letter to the editor or an Op Ed piece. The PDP (Personal/Professional Development Plan) is developed by each student throughout the semester. It is designed to facilitate the establishment/refinement of career goals and objectives, and to be an action plan for their Penn State experience. Students receive feedback on their draft PDP early in the semester.

Student progress is assessed by evaluating the PITs and the PDPS. The course grade is weighted 48% PITS, 17% draft PDP, and 35% final PDP.

A conventional auditorium-style classroom that can accommodate up to 100 students is required.

The course is offered each fall semester at the University Park campus. Current and projected enrollments are 75-100 students. The course could be offered at other Penn State campuses utilizing distance learning technologies.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 210 (GN) Environmental Factors and Their Effect on Your Food Supply (3)** An exploration of how urban environmental problems influence our ability to obtain food and natural resources.

### **E R M 210 Environmental Factors and Their Effects on Your Food Supply (3) (GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Environmental Factors and Their Effect on Your Food Supply will study links between environmental issues and the agricultural systems from an urban perspective. Insects, one the most diverse groups of organisms, will be used to provide examples of human impact on ecosystem structure and function. Differences between sustainable and non-sustainable systems, along with efforts to create sustainable human systems, will be explored. This course looks at the Earth as a single ecosystem composed of interacting biological, chemical and physical systems. The social and economic dimensions of issues will be discussed. We will focus on how non-human systems interact with each other and with the human population. The course focus will be on the principles and concepts from biology, chemistry, geology and physics. Specific topics treated within the context of this interdisciplinary course include but are not limited to: human response to (insecticide use) and influence on (reduction in diversity) insects, the unique and life-giving properties of water, nutrient cycles, energy flows, species diversity, the dose-response relationship, risk assessment and perception, global climate change, and conservation of energy and matter.

We will also be learning about how the use of the scientific method in an interdisciplinary setting. Scientific situations found in everyday life will be used to explore and practice how to ask questions, gather data, and reach conclusions.

Evaluation of student performance will be based upon critical thinking exercises, class discussion, short in-class writing assignments, and examinations. The critical thinking exercises will be assessed by written material submitted by the student. The written material will include the steps undertaken in the exploration (methods), the observations made (results) and description of what was learned (conclusions). These explorations will help students learn to solve problems and think critically using information they have discovered. The explorations will require students to supplement their observations with information found on the Web and in the Library. Students will be required to participate in class discussions using CourseTalk. Contributions will be evaluated for content and quality. Short, in-class, written student feedback will be collected frequently to determine the level of understanding and attendance. Two midterm evaluations and a comprehensive final will be given. These exams will consist of higher-order thinking questions requiring the student to synthesize information to solve problems. Self-quizzes will accompany each unit to help the student determine when they understand the concepts being learned.

Environmental Factors and Their Effect on Your Food Supply is an introductory level, general education science course without prerequisites. This course is not a prerequisite for any other course. An introductory level course in sustainable environmental systems will provide a useful context for future course work.

Recitation sections will be used to increase the student's understanding of concepts discussed during lecture. Computer exercises develop specifically for this course, the textbook

CD-ROM, and data found on the Web will be used to aid students in their understanding of course concepts.

The course will be offered annually in the spring. Expected enrollment is 100 students.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 300** Basic Principles and Calculations in Environmental Analysis (3) This course will teach basic problem solving skills while using examples taken from environmental media--air, water, and soil.

#### **E R M 300 Basic Principles and Calculations in Environmental Analysis (3)**

Students will be provided a contextual link between chemical, biological and physical principles learned in their basic science courses and the advanced environmental concepts presented in later required Environmental Resource Management (E R M) courses. This course will demonstrate the dependence of environmental science on biology, chemistry and physics. Students will integrate the knowledge from each of these disciplines into an interdisciplinary framework. This course will teach Environmental Resource Management students basic problem solving skills while using examples taken from environmental media - air, water, and soil. Students will have many opportunities to examine, manipulate, and solve quantitative problems related to the environment. This is a required course for Environmental Resource Management majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: 3 credits in BIOL;CHEM 111;MATH 110 orMATH 140;PHYS 250 orPHYS 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 309** (A S M 309) Measurement & Monitoring of Hydrologic Systems (3) Introduction to measurement and monitoring equipment/techniques commonly used in analyses and design of hydrologic systems.

#### **E R M (A S M) 309 Measurement & Monitoring of Hydrologic Systems (3)**

This course will provide students the opportunity to learn and apply basic measurement techniques that serve as critical tools in professional practice in water resources. Mapping development and use serves as a critical aspect of water resources engineering and planning, and a major portion of this course will focus on the fundamentals of surveying and translation of surveyed data into useful maps and engineering drawings. Students will learn the theory that underpins basic surveying and then apply this theory in actual survey practice. Autocad serves as a primary software tool used in engineering design and water resources planning, and students will be afforded opportunities to use Autocad to present and process various watershed- and survey-based data. Geographic information system (GIS) techniques will also be

investigated as a tool to process, record, analyze, and display various spatial data commonly used in water resources planning and engineering design. Students will learn the basic techniques and processes used to transfer data between GIS and Autocad, both of which are commonly used in practice. The course will also investigate the instrumentation, techniques, and theory involved in common water resources measurements including weather conditions (which serve as the principle driving conditions in water resources), flow monitoring, basic soil properties, water movement in soils, and water quality sampling and analyses. Students will conduct hands-on exercises that will focus on the use of various instruments and techniques commonly employed to conduct such measurements. Data collected will be processed and analyzed within the context of professional practice case studies. The various aspects of the course will coalesce around the concept of the watershed being the basic unit of water resources analyses and design, and students will experience how various measurement techniques and approaches are necessary tools for practicing professionals. This course will be useful to any undergraduates seeking degrees in a major related to water resources planning, engineering, or technology.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2010  
 Prerequisite: PHYS 211 or PHYS 250/CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 402 Foundations of Sustainable Business (3)** Emphasis on understanding business strategies for enhancing sustainable operations, including issues related to the natural environment and corporate social responsibility.

### **E R M 402 Foundations of Sustainable Business (3)**

This course will provide students with an understanding of how environmental and sustainability issues are impacting business strategies and ultimately profits. We will also examine the external stakeholders, such as environmental groups, policy-makers, and "green" consumers, that impact business management. Business students will benefit by a better understanding of environmental/sustainability issues that impact their operations and strategies. Non-business students will benefit by understanding how business decisions can impact the natural environment. An emphasis will be on a thorough understanding of making a business case for sustainability. We will also discuss the triple bottom line and its use.

Some Specific Issues to Cover:

1. How are organizations shifting business models to work with sustainability trends?
2. How can we make a business case (justification) for being "green"?
3. Can firms differentiate themselves by being responsible/sustainable? Do consumers and other stakeholders care?
4. Thorough understanding of stakeholders and how they impact operations.
5. How can the "business" side of the world work with the "environmental" side?
6. Use of packaging as an example of where parts of the supply chain are working together to be more sustainable.
7. How "waste" in its many forms can be seen as a surrogate for unsustainable practices.
8. Pros and cons of metrics used to measure sustainability.
9. Impacts of business operations on the environment.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013  
 Prerequisite: AG BM 101 or ECON 102 or ECON 104

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 411 Legal Aspects of Resource Management (3)** Legal systems and lawmaking processes; property rights in land, water, and wildlife resources; jurisdictional problems in planning resource use.

### **Legal Aspects of Resource Management (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None

Effective: Summer 1996

Prerequisite: E R M 151

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 412 Resource Systems Analysis (3)** The concept of systems; techniques of analysis, including input/output, mathematical programming, and simulation; application to resource systems.

**E R M 412 Resource Systems Analysis (3)**

E R M 412 is a course in problem solving, as it relates to environmental and resource related issues. The course covers a variety of problems within an environmental context, including mass balance, steady-state, and dynamic problems. Students will gain experience in making assumptions and testing those assumptions in the application of biological, chemical, and physical principles to problem solving. The course is designed to develop experience in quantitative problem solving using spreadsheets, modeling tools, and computer-based statistical analysis.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: BIOL 220WE R M 151E R M 300 andSTAT 240;MATH 111 orMATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 413W Case Studies in Ecosystem Management (3)** Application of biological, physical, and social science principles to ecosystem management problems; introduction to environmental impact analysis and review.

**Case Studies in Ecosystem Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: BIOL 220WSOILS 101 . Prerequisite or concurrent:E R M 412

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 430 (PPEM 430) Air Pollution Impacts to Terrestrial Ecosystems (3)** Overview of the direct and indirect effects of air pollutants on terrestrial plants and ecosystems.

**E R M (PPEM) 430 Air Pollution Impacts to Terrestrial Ecosystems (3)**

Pollutant sources, transport, meteorology, and temporal and spatial trends of pollution dispersion and deposition are introduced. An overview is presented of the direct and indirect effects of air pollutants on terrestrial ecosystems with an emphasis on plant life. The effects of ozone, sulfur dioxide, nitrogen oxides, particulate matter, halogens, and combined pollutants leading to acidic atmospheric depositions are presented. Emphasis is placed on air pollutants as plant pathogens leading to symptoms and eventual long-term accumulative effects to entire ecosystems. Methods of diagnostics, factors affecting plant response, ecosystem decline and resiliency, pest interactions, assessment of loss and cost/benefit analysis leading to abatement follows. Final parts of the course include perspectives of public awareness, development of National Ambient Air Quality Standards, compliance prevention of significant deterioration, and the Clean Air Act reforms of 1990.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BIOL 220W orFOR 308

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 431 (VB SC 431) Environmental Toxicology (3)** Effects of pollutants on animal health at the chemical, physical, and cellular level.

**E R M (VB SC) 431 Environmental Toxicology (3)**

This ecotoxicology course is designed to provide a mechanistic understanding of how chemicals released into the environment affect individuals and populations. General concepts of fate and transport of chemicals in the environment, including sources and emission of pollutants, is a major focus of this course. In addition, the principals underlying the study of adverse health effects, toxicology, will be described. The experimental means used to assess toxicity and the regulation of chemical releases by governmental agencies will be included. Many of these concepts will be reinforced through the use of a case study approach where a pertinent, timely, environmental issue is incorporated into the ongoing lectures.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: BIOL 110CHEM 110CHEM 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 433** Transformation of Pollutants in Soils (3) Processes regulating fate and transport of metals, organics, nutrients, salts, pathogens, and radionuclides in soil systems.

**E R M 433 Transformation of Pollutants in Soils (3)**

The course provides the chemical and biological basis for understanding, predicting and controlling the fate of pollutants added to the soil. The material falls distinctly into two major sections: Section I discusses the fundamental concepts of soil science as they relate to the fate of pollutants in soil systems. Section II provides specific coverage of important classes of soil pollutants. The environmental impacts associated with soil enrichment of these pollutant groups are discussed. Primary emphasis is given to pollutants having adverse effects on human health via water and the food supply, namely, trace elements, trace organic contaminants, pathogens, and radionuclides. The major plant nutrients, nitrogen and phosphorus, warrant coverage because of their potential negative impacts on aquatic systems. Salts can harm soil productivity and structure and thus represent a third distinct pollutant category.

**Instructional Objectives:** The course objectives are twofold: 1) to provide the chemical and biological basis for understanding the fate of pollutants added to the soil, and 2) to provide specific coverage of the important classes of soil pollutants. The students should gain the ability to predict the behavior and fate of pollutants in soils on the basis of various tabulated chemical and biological pollutant parameters.

**Evaluation Methods:** Performance will be evaluated based on three roughly equally weight factors: homework/quizzes; midterm exam; and final exam.

**Relationship to Other Courses:** This is a conversion of E R M 426 into a three credit course.

**Relationship to Major, Option, Minor or General Education:** The restructuring of the E R M major will require students to select two of the three credit ERM 43x courses as Prescribed Courses. In addition, E R M 430 and 432 will be on the list of courses for the ecology selection, and appropriate 43x courses could be taken in the student's specialization. Thus, it is possible that a student would take all four of the 43x course and have them "count" toward meeting the requirements in their major.

**Frequency of Offering and Enrollment:** E R M 433 will be offered once each year. This course has traditionally attracted 30-50 students and the future enrollments are likely to be similar or perhaps larger. The changing to three credits may actually increase enrollments from students outside the Environmental Resource Management major, including graduate programs.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 112CHEM 111SOILS 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 435 (W F S 435)** Limnology (3) Biogeochemistry and natural history of freshwater ecosystems.

**E R M (W F S) 435 Limnology (3)**

This course will define and describe major principles (physical, chemical, biological, and ecological) that govern the structure and function of freshwater ecosystems (ponds, lakes, and rivers). Current scientific literature will be critically reviewed and discussed in relation to comparative philosophy, methodology, and case studies that cover a range of topics in limnology. The objectives of E R M (W F S) 435 are to familiarize students with the major physical properties, chemical cycles, taxonomic groups of organisms, and ecological interactions that define and describe the natural function of aquatic ecosystems. The course will use case studies to illustrate and examine pertinent issues (e.g., excessive material loading, introduction to exotic species, habitat fragmentation, and climate change) that can alter the structure and function of aquatic ecosystems. Knowledge of these basic ecosystem principles will be applied towards formulating real-life resolutions to the issues identified in class, in order to better manage aquatic resources (methods to reduce material loads, transport controls of exotic species, habitat restoration, and reduction of global gases). This course will be useful to both undergraduate and graduate students seeking degrees in Environmental Resource Management, Wildlife and Fisheries Science, Ecology, and other related subjects. At the undergraduate level, the course will serve as a 400-level selection in both the Environmental Resource Management and Wildlife and Fisheries Science degree programs. At the graduate level, the course will complement several Wildlife and Fisheries courses that form the complement of that degree program. Moreover, the course can satisfy the course requirement for ecosystems ecology in the inter-college Ecology graduate program and serve as a breadth course in Water Resources for graduate students in the Watershed Stewardship program. Grades will be based on three exams, individual participation and written papers. This course will generally be offered each year in the fall with expected enrollments of 20 to 30 students.

General Education: None



Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: BIOL 110BIOL 220WCHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 436** (W F S 436) Limnological Methods (3) Application of current methodologies to evaluate the biological, chemical, and physical characteristics of aquatic ecosystems.

**E R M (W F S) 436 Limnological Methods (3)**

Limnological Methods will instruct students to apply state of the art analytical measurements in order to gain an understanding of how and why ecosystems support specific biodiversity and biogeochemical cycles. The course will help students define key ecological elements (e.g., ecosystem metabolism, resource limitation, predator-prey relations) in both qualitative and quantitative terms, thereby making them tangible, tractable, and readily understandable. The course will use an instructional rubric to integrate conceptual, analytical, and communicative exercises in order to instruct students about how to evaluate variation in natural ecosystems.

This course provides experiential training in the scientific process (rubric), so students can learn by doing, thereby internalizing their knowledge. Course content is organized into three 5-week sections, each of which will emphasize one component of the biogeochemical cycle (physical, chemical, biological). In each section, students will carry out a focused group study designed to evaluate how a pertinent environmental perturbation can affect that component of the aquatic biogeochemical cycle. The course content in each five-week block will have students: 1) review the experimental design and hypothesis, 2) implement the experimental design in the field or laboratory, 3 and 4) process and analyze samples in the laboratory, and 5) make statistical and graphical evaluations of the experimental results relative to their hypothesis (in class) and present these findings in written form. Knowledge of these basic ecosystem principles will be applied towards formulating real-life solutions to the issues identified in class, in order to better manage aquatic ecosystems.

This course will be useful to undergraduate students seeking degrees in Environmental Resource Management and Wildlife and Fisheries Science, as well as graduate students pursuing degrees in Ecology, Forest Science, Wildlife and Fisheries Science, Watershed Stewardship, and other related subjects. At the undergraduate level, the course will serve as a 400-level elective in Environmental Resource Management degree program, Wildlife and Fisheries Science degree program, and the inter-college Marine Science option. At the graduate level, the course will complement several Forest Science and Wildlife and Fisheries courses. Moreover, the course can also satisfy the requirements for the ecosystems ecology focus in the inter-college Ecology graduate program. Grades will be based on three research papers, and a final laboratory practical.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: BIOL 110 andCHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 440** Chemistry of the Environment: Air, Water, and Soil (3) A global perspective of the chemical principles, composition and processes that operate within and between air, water, and soil environments.

**E R M 440 Chemistry of the Environment: Air, Water, and Soil (3)**

This course provides a global perspective of the chemical principles, composition and processes that operate within and between air, water and soil environments. The course is designed to develop knowledge of chemistry fundamentals as applied to the principles and concepts used in environmental chemistry. Upon completion of this course, students will have an understanding of soil, water, and air chemical principles and their applications. Specifically designed for juniors and senior undergraduates, the course will link theoretical chemistry concepts to real-world environmental problems. Students will be evaluated on examinations, homework, and class participation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: CHEM 110CHEM 111CHEM 112;CHEM 202 orCHEM 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 444** Environmental Biophysics (3) Analysis of the interaction of living organisms and their microenvironment by applying biophysical principles and engineering methods.

**E R M 444 Environmental Biophysics (3)**

This course trains students in the analysis of the interaction of living organisms and their microenvironment by applying biophysical principles and engineering methods. Students will learn to describe the physical environment surrounding the organism (wind, temperature, radiation, humidity) and to calculate biophysical responses of the organisms to these variables in terms of transfer of mass (liquid water, gases) and other processes. Practical examples and accompanying calculations are fundamental components of the course as the students learn to quantitatively explore the links between

the environment and features of living organism such as the shape and color of leaves and canopies, the distribution of the rooting system, or the thickness of an animal fur. A laboratory section complements the lectures and introduces the students to basic techniques and equipment utilized in this discipline. This course can be helpful for students in the areas of plant and animal sciences, ecology, entomology, environmental sciences, and agricultural and environmental engineering

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 110;MATH 110 orMATH 140;PHYS 250 orPHYS 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 447 Stream Restoration (3)** Stream restoration including fluvial geomorphology, stream classification, impairment, sediment transport, stable stream design, and watershed assessment.

### **E R M 447 Stream Restoration (3)**

Stream restoration will focus on understanding stream impairment by evaluating the stream channel, its floodplain, and the watershed supplying runoff to the stream. A wide variety of stream assessment tools will be introduced along with several stream classifications systems. Students will be expected to understand stream stability and evolution and how human activities and our infrastructure impact the health of a stream. Various restoration approaches designed to restore impaired stream reaches to stable channels will be introduced. Stream stability and the role of sediment transport in the context of pebble-count data will be introduced along with several sediment transport models. Stream biology, especially macro-invertebrates, the role of riparian buffers, and desirable plant populations will be introduced.

The laboratory experiences will focus on stream assessment tools and stream surveys needed for the stream restoration design process.

Students will be responsible for assessing a stream and developing a preliminary design for restoring an impaired local stream reach.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: A S M 327 orA B E 307 orC E 361

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 450 (W F S 450) Wetland Conservation (3)** Wetland types, classification, functions and values; hydrology, soils, and plants; introduction to wetland identification and delineation; wetland regulations.

### **E R M (W F S) 450 Wetland Conservation (3)**

Wetlands are unique ecosystems, differing in many ways from both terrestrial and aquatic environments. They provide recognized values and functions to society, although these values and functions remain difficult to quantify. The study of wetlands is interdisciplinary, requiring background knowledge in science, management and policy disciplines. This course will explore the variety of wetland types and functions, and emphasize the diverse hydrological, biological, chemical, and physical interactions that occur within wetlands. Because wetlands are recognized as valuable assets in the landscape, issues surrounding wetland management and regulation have taken on increased importance; we will address these issues as well. Topics will also include the restoration of degraded wetlands and wetland creation, along with the construction of wetlands for pollution abatement.

Students will become familiar with different wetland types and how they are classified, and will develop skills in understanding the interactions between wetland hydrology, hydric soils and hydrophytic vegetation. They will also develop an understanding of important national and state policies and regulations pertaining to wetlands and their protection and delineation. Classroom assessment will be based on three cumulative exams, homework assignments, and a final project.

The course will fulfill 3 credits of electives or technical selections in the Wildlife and Fisheries Science major. Other students university-wide may be interested in the course, and the intention is to develop a course that is accessible to a wide variety of traditional and non-traditional students. For proper instruction, a technology classroom with computer projection equipment will be required.

E R M 450 will be offered each fall semester. Enrollment will be limited to 60-80 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: E R M 300 orW F S 209

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 494H Honors Thesis (1-6)** Independent study directed by a faculty supervisor that culminates in the production of

an ERM honors thesis.

**Honors Thesis (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2009

Prerequisite: Junior or senior status in the Schreyer Honors College and permission of the ERM honors advisor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 495** Internship (1-12) A supervised practicum in the environmental field. To be offered only for SA/UN grading.

**Internship (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

Prerequisite: prior approval of assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 499** (IL) Foreign Studies (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**E R M 499B** (IL) New Zealand Natural Resources (1) Pre-requisite organizational course for E R M 499C New Zealand Natural Resource embedded course to Christchurch, NZ. Environmental issues in New Zealand will include topics such as climate, sustainability issues, ecotourism, land use and biodiversity issues. Additionally, the course will be infused with content related to New Zealand and international travel tools.

**New Zealand Natural Resources (1)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Environmental Scienc (ENVSC)

**ENVSC 400W** Case Studies in Environmental Analysis and Problem-Solving (3) A writing-intensive environmental science course comprising review and analysis of field, lab, policy, and management aspects; investigative methods; and projects.

### Case Studies in Environmental Analysis and Problem-Solving (3)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: BIOL 402W;CHEM 202 ; GEOSC 300/400 level;ENGL 202C ; any PL SC or ECON

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSC 494** Research in Environmental Science (1-3 per semester/maximum of 9) ENVSC 494 is an experiential course that allows undergraduates to design, complete and present a research project in environmental science.

### Research in Environmental Science (1-3 per semester/maximum of 9)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: 3 credits of 400-level coursework; Junior or senior standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSC 495** Internship in Environmental Science (1-3 per semester/maximum of 9) ENVSC 495 is an off-campus internship experience with a local, regional, or national environmental organization, government agency, or private-sector business.

### Internship in Environmental Science (1-3 per semester/maximum of 9)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: 3 credits of 400-level coursework; Junior or senior standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSC 496** Independent Studies in Environmental Science (1-3 per semester/maximum of 9) Creative projects or specialized coursework, supervised on an individual basis, that falls outside the scope of formal ENVSC coursework.

### Independent Studies in Environmental Science (1-3 per semester/maximum of 9)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: 3 credits of 400-level coursework; Junior or senior standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Environmental Studies (ENVST)

**ENVST 100** (GS) Visions of Nature (3) An interdisciplinary introduction to environmental studies, including perspectives from ethics, economics, public policy, art, literature, history, geology, biology, and ecology.

ENVST 100

### ENVST 100 Visions of Nature (3) (GS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

An interdisciplinary introduction to environmental studies, including perspectives from environmental ethics, economics, public policy, art, literature, history, geology, biology, and ecology. This course may be team-taught and include field and laboratory work. Students will be introduced to interdisciplinary study of the environment with an overview of nature's role as subject matter in a variety of academic disciplines. Students will examine the formative value of nature in our

cultural history, consider the role of nature in our current value systems and social and economic structure, and be introduced to the theory and practice of ecological science. Students should achieve a broad understanding of the value (not just economic) of living things and their habitats. The course will demonstrate how information from different fields can interconnect. It also serves as the "gateway" course for students intending to major or minor in an interdisciplinary environmental studies program, introducing the program's concerns, aims, and goals and the varied academic perspectives to be built upon in later coursework.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVST 200** Research Methods in Environmental Studies (3) Focus on interdisciplinary research methodologies from biology, social sciences, and humanities for the study of environmental issues and problems.

**ENVST 200 ENVST 200 Research Methods in Environmental Studies (3)**

Interdisciplinary approach to various research methodologies which are necessary to study environmental issues or problems. The course will be separated into a three-part series focusing on (1) research methods in the humanities, (2) research methods in public policy and the social sciences, and (3) biological/ecological research methods and will be team-taught. Students will review the methods used to address problems in environmental studies and will work to understand environmental issues. The objective of this course is to introduce students to the interdisciplinary nature of environmental studies by combining ideas and information from the natural sciences, social sciences, and humanities, and to present a general idea of how nature works and how knowledge is acquired in the various fields of study. This course will also provide students with the experience of developing the principles and concepts learned as guidelines for future studies and for decision-making concerning environmental issues. This course is a critical element in the Environmental Studies major, and also fulfills a requirement for the minor in Environmental Studies.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000  
Prerequisite: BIOL 110ENGL 015ENVST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVST 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVST 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVST 299** (IL) Foreign Studies in Environmental Studies (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies in Environmental Studies (1-12 per semester/maximum of 12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: approval of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVST 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVST 400W** Senior Seminar in Environmental Studies (3) Writing-intensive study of a specified topic in environmental studies integrating approaches and research from a variety of disciplines.

#### **ENVST 400W ENVST 400W Senior Seminar in Environmental Studies (3)**

A writing-intensive, interdisciplinary study of a specified topic in environmental studies (examples: Mountains, Water, Forest, Endangered Species), integrating approaches and research from a variety of academic disciplines, including literature, history, geography, biology, geology, microbiology, meteorology, economics, political science. Students will develop a major project in consultation with a participating faculty member. This project will include a research question, a research design, and a final project, which will be presented to the class with commentaries from other students. Focusing on a specific issue or concern in environmental studies, students will apply research methods covered in earlier coursework, to their extended project or paper. This project will require students to delve deeply into one aspect of the topic, but they will be expected to draw on information and expertise from a variety of disciplines to support their findings. This course, part of the required core for the B. A. in Environmental Studies, serves as the senior capstone course for the major, reinforcing its interdisciplinary focus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

Prerequisite: ENVST 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVST 424 (ENGL 424)** Creative Writing and the Natural World (3) Creative writing workshop focused on the environment and related issues.

#### **ENVST (ENGL) 424 Creative Writing and the Natural World (3)**

American literature includes a long and rich tradition of writing that focuses on the natural world. From the oral stories of indigenous people to the journals of the first European settlers, many have looked for a way to understand their own place in the world based upon their relationship to the earth and its creatures. While Puritans often discerned the pleasure or wrath of God in the environmental changes they experienced, Transcendentalists like Henry David Thoreau and Ralph Waldo Emerson sought out moments of spiritual enlightenment by immersing themselves in the natural order. More recently, such poets as Galway Kinnell, James Wright, and Robert Bly have attempted to connect with the depths of collective unconsciousness by exploring the natural world, while others, like Mary Oliver, Dan Gerber, Jim Harrison, Gary Snyder and Wendell Berry, have used transcendental thought and melded it with Christian and Buddhist insights. Still others, like Gary Paul Nabhan, Rachel Carson, and Alison Hawthorne Deming have brought science to bear upon the riches that nature, art, and scientific exploration may offer when joined in the pursuit of a deeper understanding of, and relationship with, the natural world. This course will acquaint students with the tradition of American nature writing, as well as contemporary nature writing, in the genres of nonfiction, poetry and fiction. Students will be introduced to issues of style, philosophy, and content, as they produce their own essays, poems, and stories. The course culminates in the production of a portfolio of nature writing. Much of this work will begin in class with specific assignments, which will include field work, and feedback from other students in the class. As a workshop course in creative writing, the emphasis will be upon the production of literary texts that interact with the natural world and upon the revision of those texts.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2011

Prerequisite: ENGL 050 or ENVST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVST 494** Research Topics in Environmental Studies (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small group basis.

#### **Research Topics in Environmental Studies (1-12 per semester/maximum of 12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: 6th semester standing and 6 credits in ENVST or related disciplines

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVST 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVST 497** Special Topics in Environmental Studies (1-9 per semester/maximum of 9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics in Environmental Studies (1-9 per semester/maximum of 9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: 6th semester standing and 6 credits in ENVST or related disciplines

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVST 499** (IL) Foreign Studies in Environmental Studies (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies in Environmental Studies (1-12 per semester/maximum of 12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: 6th semester standing approval of program and 6 credits in ENVST or related disciplines

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Environmental Systems Engineering (ENVSE)**

**ENVSE 400** Safety Engineering (3) An examination of the engineering aspects of the safety discipline and it's management in the work environment.

### **Safety Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: CHEM 110PHYS 211MATH 141PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 404W** Surface and Interfacial Phenomena in Environmental Systems (3) Principles underlying surface and interfacial phenomena with application to mineral processing and environmental systems.

### **Surface and Interfacial Phenomena in Environmental Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: or concurrent: CHEM 110MATH 141PHYS 212EME 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**ENVSE 406** Sampling and Monitoring of the Geo-Environment (3) Issues of sampling, analysis, monitoring and control techniques for effective environmental management in the extractive industries.

**Sampling and Monitoring of the Geo-Environment (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: Prerequisite or concurrent:MN PR 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 408** Contaminant Hydrology (3) Mobility of contaminants in aquifers; multiphase flow, transport, retardation and attenuation, vapor mobility, aquifer characterization, mathematical models and aquifer remediation.

**Contaminant Hydrology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: GEOSC 452

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 412** Environmental Systems Engineering Laboratory (1) A laboratory study of the principles involved in the characterization and remediation of process wastes with an emphasis on physical separations.

**Environmental Systems Engineering Laboratory (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: or concurrent:MN PR 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 420** Fire Safety Engineering (3) Overview of the history and behavior of fire, hazards and risk identification, detection and suppression systems, and emergency evacuation procedures.

**Fire Safety Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: CHEM 110MATH 141PHYS 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 427** Pollution Control in the Process Industries (3) Development of multimedia pollution control strategies for the mineral, metallurgical processing, and fossil fuel industries.

**Pollution Control in the Process Industries (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: CHEM 110CHEM 112MATH 141MN PR 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 440** Industrial Ventilation for Contaminant Control (3) Ventilation system design and analysis for control of industrial contaminants; measurements, dilution and local exhaust ventilation strategies; laboratory demonstrations included.

**Industrial Ventilation for Contaminant Control (3)**

General Education: None

Diversity: None

Bachelor of Arts: None



Effective: Spring 2012

Prerequisite: MATH 141PHYS 212CHEM 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 450** Environmental Health and Safety (3) Overview of toxicology, epidemiology, exposure assessment, industrial hygiene, environmental laws, and engineering approaches to protecting workers and the environment.

### **Environmental Health and Safety (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: CHEM 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 457** Industrial Hygiene Measurements (4) Introduction to industrial hygiene methods used in evaluating occupational exposures, and in designing and evaluating control systems; laboratory work included.

### **Industrial Hygiene Measurements (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: ENVSE 450

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 470** Systems Safety and Risk Engineering (3) Quantitative methods of systems analysis, risk analysis and tolerance, as well as accident cost and cost-benefit analysis are covered.

### **Systems Safety and Risk Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 480** Environmental Systems Engineering Process Design (3) An integrated problem-based learning experience that utilizes fundamental concepts covered in the curriculum to design a geo-environmental system.

### **Environmental Systems Engineering Process Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: ENVSE 427 minimum of seventh-semester standing in Environmental Systems Engineering

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 494H** Senior Thesis (1-6) Independent research and/or design projects under the supervision of the Environmental Systems Engineering program.

### **Senior Thesis (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: seventh-semester standing in Environmental Systems Engineering

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 495** Environmental Health and Safety Engineering Internship (2) Students work with an advisor to prepare technical memos and a final report summarizing the experiential education gained through employment in industry.

### **Environmental Health and Safety Engineering Internship (2)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: junior or senior standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ENVSE 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Finance (FIN)**

**FIN 100** Introduction to Finance (3) The nature, scope, and interdependence of the institutional and individual participants in the financial system. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 301 or FIN 301.

### **Introduction to Finance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1996  
Prerequisite: third-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 108** Personal Finance (3) Personal management of budgets, bank accounts, loans, credit buying, insurance, real estate and security buying. May not be used to satisfy Smeal College baccalaureate degree requirements.

### **Personal Finance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: third-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 108A** Personal Finance: Wealth Management (1) Personal finance with a focus on wealth management and retirement planning along with investment securities, tax strategies, personal financial needs, and long-term care.

### **FIN 108A Personal Finance: Wealth Management (1)**

Personal finance with an emphasis on wealth management and retirement planning along with investment securities, tax strategies, personal financial needs, and long-term care. The course deals with financial wealth management with an emphasis on fundamentals for retirement planning. The objective of this course is for students to gain an understanding of the financial needs of retirement and the actions over the course of one's life required to meet those needs. The course begins with an overview of basic financial planning, financial strategies and types of investment opportunities available to individuals and families by covering basic retirement and personal planning concepts. Investment securities

such as money markets, stocks, mutual funds and real estate investments are then covered in the investment securities section and include tax issues and investment plans along with Roth IRAs, ROTH 401(k)s, defined benefit plans and other qualified plans. The final part of the course covers planning strategies for retirement along with strategies while in retirement including withdrawal strategies, long-term health care, and family obligations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: third-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 199 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 299 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 301** Corporation Finance (3) Nature of finance function; risk and return concepts; working capital; dividend policies; mergers; security markets; acquisition and management of corporate capital; analysis of operations, forecasting capital requirements; raising capital; and planning profits. Available to Baccalaureate students only. Not available to students who have taken B A 301.

#### **FIN 301 Corporation Finance (3)**

Finance 301, Corporation Finance, is a 3 credit course. FIN 301 is offered, at minimum, once a year during either the fall or spring semester. FIN 301 may not be used to satisfy Smeal College baccalaureate degree requirements. A student may not receive credit toward graduation for both FIN 100 and 301, or for both B A 301 and FIN 301. FIN 301 provides a basic understanding and framework of how firms acquire, allocate, and control their financial resources. It covers the

acquisition and management of corporate capital; analysis of operations, forecasting capital requirements, raising capital, and planning profits. This is an introductory finance course focusing on basic financial principles and practices essential to managing a business. In addition, this course also covers financial markets, institutions, organizational forms and investments. FIN 301 relies heavily on accounting and economic principles with a strong emphasis on problem solving and decision making. One objective of this class is to be able to assess the past and present performance of the firm. This can be achieved through vertical and horizontal analysis of the financial statements as well as ratio analysis. Another aspect of this course is the financial planning process. This includes concepts such as pro forma statements, developing the statement of cash flows, as well as the budgeting process through the preparation of the cash budget. Another facet of this class is to understand how financing and investment decisions are made. Students will learn about the time value of money as well as fundamental techniques for valuing financial assets such as stocks and bonds. Additionally, capital budgeting techniques such as the net present value and internal rate of return are explained. Other important objectives include the management of working capital, the determination of the cost of capital, operating and financial leverage, and risk and return. The concepts and tools covered in this class allow the student to gain a fundamental understanding of how the finance function works within the business environment. Finance 301 promotes critical thinking and will enable the student to better integrate the individual functions of a business in order to make good business decisions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ENGL 015 or ENGL 030; ACCTG 211; ECON 102 or ECON 104; SCM 200 or STAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 301H** Corporation Finance (Honors) (3) Review of corporate finance concepts including financial statements, ratio analysis, financial planning, time value of money, securities valuation, and capital budgeting.

### **FIN 301H Corporation Finance (Honors) (3)**

The goal of the FIN 301H honors course is to provide insight into real world issues that are needed to effectively run a business. We will utilize the fundamental concepts learned in finance (integrated with accounting, marketing, management, logistics, operations, and business law/ethics) as a foundation for running a business in the classroom. Our "product" in this business will be a comprehensive strategic business plan for a real, live local, state, national, or international business that will serve not only as an articulation of understanding of core course concepts, but also as a supplement to the existing core package of introductory business courses. The honor students in this course will be building their strategic business plan products in electronic format in closely-knit, high performance teams.

The strategic plan product development process in this course inherently involves integration across the functional areas of business: marketing, logistics, finance, and management. There is also inclusion and integration of courses in accounting, business law, management information systems, and statistics as applicable.

Each student team will allocate product development responsibilities according to areas of expertise and interest. An appropriate balance of students from several majors will be assigned to each group. Class time will involve exchanging information within and across groups and coordinating activities between groups where necessary.

Students will periodically meet with individual and team-based corporate mentors who will provide one-on-one advice on an as-needed basis. Students will also receive specialized training in team-based processes, leadership, and technology tools (HTML, CD-ROM, teleconferencing, etc.) required to implement the products under development. Select members of the Penn State faculty and Smeal College alumni will be on hand at times to provide this specialized training and consulting expertise. Company owners and principals will provide periodic (monthly) reviews of honor students' work to assist students in the development of a first-class, professional business plan product.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: ENGL 015 or ENGL 030 or ENGL 137H or CAS 137H; ACCTG 211; ECON 102 or ECON 104; SCM 200 or STAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 302** Introductory Financial Modeling (3) This course applies spreadsheets to build financial models and solve numerically intensive problems in finance.

### **FIN 302 Introductory Financial Modeling (3)**

This course is designed to provide students with an understanding and practical application of spreadsheet skills needed in Finance. The course will introduce students to spreadsheet models and tools to solve finance problems. It will also introduce students to finance databases and data preparation for analysis. These technical skills are necessary for Finance majors to effectively apply concepts learned in advanced finance courses and be successful in their careers. The course is intended to be an introductory level so that students can apply the skills in other courses.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: ACCTG 211ECON 102MATH 110 orMATH 140 andSCM 200 orSTAT 200  
Concurrent: FIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 305** Financial Management of the Business Enterprise (3) Development of advanced practices of financial management and their application to decision making in business firm.

### **FIN 305 Financial Management of the Business Enterprise (3)**

The objective of this course is to give students an understanding, and working knowledge of the major decisions faced by corporate financial managers. In general, the course will emphasize three major areas: investment and capital budgeting, financing and capital structure, dividend policy and corporate growth. A basic understanding of financial analysis and valuation will be provided. Basic corporate securities markets will be described. Determinants of securities prices, yields, and returns will be discussed. Special emphasis is placed on the role of the capital markets in financing corporate operations and investment, in facilitating corporate reorganizations and financial restructuring, and in reflecting owners wealth and evaluating the performance of corporate management. Within the general framework, a number of special topics will be covered, including mergers and acquisitions and the market for corporate control, international financial management, derivative instruments and their applications to corporate risk management. Students taking the course should have a working knowledge of elementary statistics, and a basic understanding of accounting and financial statements.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: B A 301 orFIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 305M** Financial Management of the Business Enterprise (Honors) (3) Development of advanced practices of financial management and their application to decision making in a business firm.

### **FIN 305M Financial Management of the Business Enterprise (Honors ) (3)**

The objective of this course is to give students an understanding, and working knowledge of the major decisions faced by corporate financial managers. In general, the course will emphasize three major areas: investment and capital budgeting, financing and capital structure, dividend policy and corporate growth. A basic understanding of financial analysis and valuation will be provided. Basic corporate securities markets will be described. Determinants of securities prices, yields, and returns will be discussed. Special emphasis is placed on the role of the capital markets in financing corporate operations and investment, in facilitating corporate reorganizations and financial restructuring, and in reflecting owner's wealth and evaluating the performance of corporate management. Students taking the course should have a working knowledge of elementary statistics, and a basic understanding of accounting and financial statements.

As an Honors course, students will study the impact of corporate activities on the market value of its stock, so a common stock pricing model is needed that accounts for factors that matter to investors. FIN 305M looks at these issues through topics such as, time value of money, risk and return, and valuation of stocks and bonds. The course concludes with topics related to specific business activities, such as capital budgeting, capital markets, capital structure, and dividend policy. The level of discussion and critical analysis expected in FIN 305M compliments the expected level of performance for honors students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: B A 301 orFIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 305W** Financial Management of the Business Enterprise (3) Development of advanced practices of financial management and their application to decision making in a business firm.

### **Financial Management of the Business Enterprise (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: B A 301 orFIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**FIN 306W** Investment Valuation (3) Approaches to investment strategy, investment decisions; valuation of corporate securities, including the impact of dividend policy and capital structure.

### **Investment Valuation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: FIN 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 330** Personal Financial Planning (3) Developing financial plans including cash budgets, credit purchases, investments, and insurance.

### **Personal Financial Planning (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: third-semester standing or permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 340** Insurance Planning (3) Introduction to personal insurance including homeowner's, auto, life, disability, health, and Social Security.

### **Insurance Planning (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 395A** Nittany Lion Fund - Associate Fund Manager Practicum (3 per semester/maximum of 6) Introduction to working with the Nittany Lion Fund. Students work on projects such as investor reports and earnings reports along with assisting Nittany Lion Fund Managers with the development of stock pitches based on market insights.

### **FIN 395A Nittany Lion Fund - Associate Fund Manager Practicum (3 per semester/maximum of 6)**

While the Lead Fund Manager is accountable for all work done by a given sector, an Associate Manager often does much of the behind the scenes work. Specific assignments include: putting together the weekly reports for investors, creating reports that are sent out to the Nittany Lion Fund (NLF), and providing assistance with pitches.

In general, an Associate Manager is supposed to be well informed about the sector's current holdings and with that, an Associate should be able to provide support for the Lead Manager during a stock pitch or class discussion. Although Associate Fund Managers are the workhorses of the fund, often performing some of the more tedious tasks, the position offers the opportunity to learn from the Lead Managers as well as make an impression by delivering quality work.

While Lead Managers are responsible for and have the final say in stock pitches and sector strategies, it is highly encouraged that the Associates provide their Lead Managers with pitch ideas as well as inform them of their opinions about current market trends. Ultimately, the Associate Manager position is more detail and task oriented than the Lead Fund Manager position. However, there is always room to provide high quality insight into the market by asking thought provoking questions during pitches and staying current on market news.

Students use financial software, such as Bloomberg Professional, Reuters Station, TradeStation, and FactSet, and must have working knowledge of various forms of financial modeling. The Penn State Investment Association (PSIA), which co-exists with the Nittany Lion Fund, LLC (NLF) assists the NLF in ensuring students are appropriately trained in these skills. The PSIA is open to students of all majors and experience levels and is the starting point for students interested in participating in the NLF.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 405** Advanced Financial Management (3) An examination of the development and application of decision rules for major long-term financial and investment problems of the firm.

**Advanced Financial Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1993  
Prerequisite: FIN 305W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 406** Security Analysis and Portfolio Management (3) Advanced valuation theory; fundamentals of security analysis; portfolio construction and management.

**Security Analysis and Portfolio Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: B A 301 or FIN 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 406H** Security Analysis and Portfolio Management (Honors) (3) Advanced valuation theory; fundamentals of security analysis; portfolio construction and management.

**FIN 406H - Security Analysis and Portfolio Management (Honors)(3)**

Finance 406 is about how to invest money in stocks, bonds and derivative securities. The course focus is on creating portfolios of assets rather than on picking individual assets for investment. To create a portfolio of assets, the portfolio manager must have knowledge of the assets available for purchase, the markets the assets are traded in, and the statistical and mathematical techniques needed to assign weights to the assets within the portfolio. The manager must also be able to predict changes in the economy that justify changes in the portfolio, as well as be able to evaluate the performance of the portfolio relative to standard benchmark portfolios such as the S&P500.

The course begins with a review of the structure of the asset markets, basic pricing formulas, fundamental and technical analysis, and the tools from previous statistics, economics, and calculus classes needed. Different models relating risk and return such as the CAPM and arbitrage pricing model are covered. These models exemplify how investors are willing to trade-off the variance in returns from investments with the expected value of the investment. The students then learn how to choose the weights to assign to each asset available to maximize the expected return while minimizing risk of the portfolio using the portfolio theory of Markowitz. While the focus of this section of the class is on investing in equities, the portfolio theory learned is applicable to all types of assets. Because there are important differences between stocks and bonds, the next section of the class focuses on the unique characteristics of fixed income securities. Models explaining the different risk and return characteristics of bonds are examined. Because fixed income securities prices and returns are directly linked to changes in interest rates, theories of what determines interest rates are presented and applied to evaluating the performance of portfolios including fixed income securities. The course concludes with an overview of investment in options and futures contracts. The basic pricing models for these types of assets are reviewed as well as practical concepts of investing in derivatives such as margin accounts and creating synthetic returns using combinations of different types of options.

As an Honors course, the level of research and academic investigation is enhanced with outside journal readings in topics such as portfolio theory, anomalies and market efficiency, overpricing, and current topics in Portfolio Management as material is published. This material is incorporated into class discussions and course exams beyond what is covered in the standard version of the class.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011  
 Prerequisite: B A 301 or FIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 407** Multinational Financial Management (3) Analysis of the international aspects of managerial finance; emphasis on the impact of the international financial environment on firm operations.

#### **Multinational Financial Management (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2005  
 Prerequisite: FIN 305W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 408** Financial Markets and Institutions (3) Functional analysis of major credit institutions; sources and uses of funds; impact of government regulation.

#### **Financial Markets and Institutions (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 1994  
 Prerequisite: B A 301 or FIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 408H** Financial Markets and Institutions (Honors) (3) Introduction to bonds, equities, derivatives, and financial institutions including insurance, pension funds and mutual funds.

#### **FIN 408H - Financial Markets and Institutions (Honors) (3)**

Finance 408H is about financial institutions and markets. The markets section will include approximately 9 classes on debt markets, and another nine classes on equity markets (e.g. NYSE, NASDAQ) and derivatives (options and futures). The primary institutions covered in this course include insurance companies, mutual funds, pension funds, securities firms, and investment banks. We hope to include an analysis of personal financial planning issues as well. Reading assignments at various web sites will be made. The course will include weekly spreadsheet assignments that focus on the course concepts presented in class. These assignments ought to provide a rigorous understanding of the concepts recently presented in class and they will develop and improve the students' Excel skills. The overarching objective is for each student to develop an understanding of markets and institutions that will provide lifetime enjoyment.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None



Effective: Spring 2012

Prerequisite: B A 301 or FIN 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 409 Real Estate Finance and Investment (3)** The sources and uses of credit; instruments and methods of financing; the theory and practice of real estate investment analysis.

**FIN (R EST) 409 Real Estate Finance and Investment (3)**

Real Estate financial markets are rapidly changing, with new instruments and ideas introduced every day. Therefore, the emphasis of this class will be on preparing the students to tackle any new instrument that might be introduced to the market, understanding why and how people make money in the field, and be able to understand and utilize the innovations that have been introduced and are still being developed. The course will provide a broad coverage of real estate investment, finance, and valuation. We will study different measures of investment performance, the impact of the financing decision on real estate investment risks and return, and various real estate financing techniques. Specific topics include: legal considerations in real estate finance, present value concepts, fixed rate mortgage loans, adjustable rate and variable payment mortgages, underwriting and financing residential properties, income-producing properties and valuation fundamentals, leases, projecting cash flows, investment value, investment and risk analysis, financial leverage and financing alternatives, disposition and renovation of income properties, financing corporate real estate, real estate capital markets, the secondary mortgage market and REITS.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: B A 301 or FIN 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 410 Derivative Markets (3)** Functions, techniques, and impact of speculation conducted through forward markets; the nature of speculative transactions, pricing, and methods of trading.

**Derivative Markets (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: FIN 406

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 412 Commercial Bank Management (3)** Fundamental principles underlying management of a commercial bank; capital funds; asset and liability management; value maximization; legal and operational constraints.

**Commercial Bank Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1994

Prerequisite: FIN 305WFIN 408

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 413 Risk Management of Financial Institutions (3)** Measuring and managing risk faced by financial institutions.

**FIN 413 Risk Management of Financial Institutions (3)**

This course focuses on measurement and management of risk faced by managers of modern financial institutions. Students will be introduced to various tools and techniques used to measure and analyze risk from traditional balance sheet activities (such as credit risk, liquidity risk, insolvency risk, interest rate risk and market risk) and from off-balance sheet activities. In addition, students will learn strategies for controlling and managing the risks to achieve the best risk-return outcome. This course is designed to be an upper level, undergraduate course. Students will have opportunities to apply fundamental concepts learned in other finance classes. It is recommended for business students, especially finance majors, who wish to have careers in financial service firms or non-financial firms that use financial assets.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: B A 301 or FIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 414 Financial Trading and Applications (3)** This course focuses on financial modeling and analysis of trading strategies. Bloomberg, Reuters, spreadsheets and trading simulations are used extensively.

#### **FIN 414 Financial Trading and Applications (3)**

The focus of this course is the application of financial theory and technology to the practice of financial trading. The first half of the class examines tools for constructing and evaluating trading strategies. After a short review of probability and statistics, attention turns to the analysis of models for valuing options, credit default swaps, and other financial instruments. Emphasis is placed on the assumptions underlying these models and the application of these models in the real-world. This discussion includes approaches for estimating volatility and the use of the models when underlying assumptions do not hold. The first half of the course concludes with a discussion of value-at-risk and tools for evaluating performance. The analysis of these topics highlights commonly used measures of performance and the potential pitfalls using these measures.

The second half of the class examines trading strategies commonly used by hedge funds. Strategies discussed include merger arbitrage, relative value, momentum, index arbitrage, and other quantitative based strategies. Students also study accounting based and fundamentally based trading strategies. Application of these strategies in both the equity and fixed income markets is examined. Attention is also paid to the impact of trading on market prices and other aspects of market microstructure.

Throughout the second half of the course, students participate in a project in which they form into teams of fund managers who analyze market data with the purpose of constructing and managing a portfolio that applies various trading strategies. The fund is managed using market simulation software that allows students to execute all trades using real-time market prices and allows them to go long or short equity, commodity, fixed income, and foreign exchange instruments, as well as derivative securities. Upon completion of the project, students make a pitch to a group of potential investors (the class) in which they summarize the themes underlying their strategies, provide performance metrics for their fund, and discuss their primary trading strategies if they were to continue as fund managers.

The course pedagogy is lectures, case assignments, trading and valuation simulations, and a trading project. The class will make extensive use of Bloomberg, Reuters, trading software, basic programming languages for financial software, and other technology available. Students are evaluated based on their performance on assignments, exams, and the portfolio project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: FIN 305WFIN 406 orFIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 415 Advanced Financial Modeling (3)** Develop financial models using spreadsheets, VBA programming, and trading room applications such as Bloomberg and @Risk.

#### **FIN 415 Advanced Financial Modeling (3)**

Students will develop financial models using spreadsheets, VBA programs, and trading room applications such as Bloomberg and @Risk. Students learn Excel's financial functions, shortcuts, web queries, data analysis capabilities, and optimization techniques. Students use @Risk software to define variable distributions and correlations to run Monte Carlo simulations to evaluate stochastic processes. Students access market data through the internet and proprietary providers such as Bloomberg. Students build models to construct optimal portfolios of securities and asset classes. Students estimate asset returns using CAPM, multi-factor models, and fundamental analysis. Students estimate asset volatility using exponential weighting, GARCH, and Black-Scholes implied volatility. Students model and optimize bond portfolios using portfolio duration, convexity, leverage, and income. Students value options using Monte Carlo, Black-Scholes, and binomial option pricing models. Students learn to apply Brownian motion models to asset returns and prices. Students construct and test delta-hedging strategies for option portfolios. Students use matrix algebra and Excel matrix functions to compute portfolio return and volatility. Students write VBA functions and macros using VBA code, objects, array functions, loops, matrix operations, and data types. Achievement is measured by assignments, computer-based exams, and a final assignment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: FIN 406

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 418 Introduction to Energy Finance (3)** This course provides an introduction to the physical and financial energy markets, along with concepts important to managing risk.

#### **Introduction to Energy Finance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: FIN 301 or equivalent approved course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 419** Advanced Energy Finance (3) This course provides an investigation of energy products; energy commodity price formation; credit, counterparty, country risk assessment, and ethics.

### **Advanced Energy Finance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: FIN 418

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 420** Investment and Portfolio Analysis (3) Investment and risk, types of security investments, sources of investment information, the broker, the stock market, portfolio management.

### **Investment and Portfolio Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: FIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 427** Derivative Securities (3) Introduction to futures contracts and options, leading to a working understanding of their importance in financial management applications.

### **Derivative Securities (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: FIN 420 or approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 430** Estate Planning (3) Liquidity planning, titling and transfer of property, trusts, federal unified tax system, gifting, incapacity planning, legal documents.

### **FIN 430 Estate Planning (3)**

This course addresses estate planning issues for individuals as part of an overall personal financial plan. Personal financial planning encompasses budgeting, credit management, insurance, taxes, investments and retirement planning in addition to estate planning. The objective of this course is identifying and quantifying the goals of an individual regarding their final wishes and determining how best to meet those goals given the current applicable laws and the individual's situation. The estate administration and probate process are discussed along with common estate documents. The titling and transfer of assets as well as asset valuation are covered. Methods used to provide estate liquidity are presented. Common forms of trusts that are used in estate planning are introduced along with an overview of basic methods of transferring family owned businesses. Case studies are emphasized since estate planning is unique to each individual's situation. Some legal research is commonly incorporated into the course because estate planning is based on federal and state law. Student evaluation generally consists of examinations, individual and group assignments, quizzes, and case studies. Students desiring a career in financial services, law, or tax accounting should consider incorporating this course into their program of study.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: FIN 330 and ACCTG 310 or ACCTG 405

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 430 Estate Planning (3)** Liquidity planning, titling and transfer of property, trusts, federal unified tax system, gifting, incapacity planning, legal documents.

### **FIN 430 Estate Planning (3)**

This course addresses estate planning issues for individuals as part of an overall personal financial plan. Personal financial planning encompasses budgeting, credit management, insurance, taxes, investments and retirement planning in addition to estate planning. The objective of this course is identifying and quantifying the goals of an individual regarding their final wishes and determining how best to meet those goals given the current applicable laws and the individual's situation. The estate administration and probate process are discussed along with common estate documents. The titling and transfer of assets as well as asset valuation are covered. Methods used to provide estate liquidity are presented. Common forms of trusts that are used in estate planning are introduced along with an overview of basic methods of transferring family owned businesses. Case studies are emphasized since estate planning is unique to each individual's situation. Some legal research is commonly incorporated into the course because estate planning is based on federal and state law. Student evaluation generally consists of examinations, individual and group assignments, quizzes, and case studies. Students desiring a career in financial services, law, or tax accounting should consider incorporating this course into their program of study.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: FIN 330 and ACCTG 310 or ACCTG 405

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 450 Retirement Planning (3)** Retirement planning: qualified and non-qualified plans, characteristics, provisions, regulations administration, application approach with case studies.

### **FIN 450 Retirement Planning (3)**

This course presents retirement planning from the perspective of a financial services practitioner. Students will develop a working knowledge of both qualified and non-qualified company retirement plans including plan characteristics, provisions, applications, and qualifications. Individual retirement plans will also be covered. Exposure to the regulatory and legal basis for plans will be provided. Application case studies will be integrated throughout the course. Emphasis will be placed on designing an appropriate plan given either an individual or a company situation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 451 Intermediate Financial Management (3)** Case studies are used to develop skills in solving a variety of financial management problems.

### **FIN 451 Intermediate Financial Management (3)**

This course is designed to reinforce and extend the principles from its prerequisite, FIN 301, Corporation Finance. It is a required course for the Finance major. It will also serve as a business supporting course for students in other School of Business majors.

Students will develop skills necessary to solve a variety of complex financial problems by applying statistical and analytical techniques and utilizing electronic spreadsheets. The course will enable students to develop a firm foundation in the principles of financial management and an understanding of how concepts in financial management are used in the valuation process. The topics are consistent with the knowledge required to prepare students for the relevant portions of Level I of the Chartered Financial Analysts (CFA) Exam.

The course will address important financial management topics, including the methods of analyzing capital budgeting decisions and the unique problems they pose, long-term capital structure and dividend policy decisions, corporate financial analysis and forecasting, working capital management, and additional special topics in financial management.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: FIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 456 (IL) International Capital Markets (3)** This course develops understanding of international capital markets by striking a balance between institutional details, theoretical foundation and practical application.

**FIN 456 International Capital Markets (3)  
(IL)**

This course extends the issues of international finance into a framework for international investing. It is designed for students aspiring to be money managers and investors operating across national boundaries.

Foreign travel enables students to contrast the micro-structure of financial markets in the United States. with those in other centers that play important roles in our global financial system.

Students are also given an opportunity to learn about business, cultural, and political aspects of international investment. Besides class meetings on campus, students are assigned readings, videos, and research projects to be completed before the foreign experience component of the course. While abroad, students visit specific sites and attend specific lectures that will enable them to complete further course work upon their return to the United States. Topics include the case for international asset diversification, international asset pricing, international stock, fixed-income, and derivative markets, and the process of international investing. Other materials will be specific to the foreign business center visited during the course.

(The initial offering of this course included a visit to London where students toured the stock exchange and financial firms, attended lectures, and met with financial executives; this gave students exposure to a major international financial institution and the largest currency market in the world.) The travel portion requires additional costs to the student beyond tuition.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: FIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 460 (R M 460) Real Estate Financial Analysis (3)** Debt and equity financing, capital structure, "creative financing," risk analysis, corporate asset management.

**FIN (R M) 460 Real Estate Financial Analysis (3)**

The objective of this course is to provide in-depth coverage of real estate investment and financing decisions. The focus is on the private market, including corporate asset management. Investment analysis moves from the basics of forecasting cash flows, through advanced topics including the impact of real option value on investment and development decisions. Risk measurement is given particular attention with a focus on sensitivity and simulation analysis. There is some coverage of asset pricing models like the Capital Asset Pricing Model, which is critically analyzed with respect to its applicability in real estate markets. The impact of illiquidity, management costs, and the suspicion of non-normally distributed returns are explored, as are the implications of relative market inefficiency. The financing module begins with the basics of mortgage debt mathematics, which is then extended to include comparisons of various repayment programs. Included are interest-only, balloon, shared appreciation, growing equity, graduated payment and reverse annuity loans, as well as various creative financing of commercial properties.

The latter include participating mortgages, convertible mortgages, and mezzanine debt. Featured in the corporate asset management section is the lease/buy decision. Other topics may be addresses based on current events. It is anticipated that guest speakers will be invited where appropriate.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: FIN 305W or R M 303 or R M 330W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 461 Portfolio Management and Analysis (3)** Investment policy and process, modern portfolio theory, portfolio construction, and portfolio performance measurement and evaluation.

**FIN 461 Portfolio Management and Analysis (3)**

The course provides a mix between theories and applications of portfolio management. The content is divided into five sections: (1) implications of the efficient market hypothesis and behavior finance in portfolio management, (2) investment policy and process, (3) diversification and modern portfolio theory, (4) portfolio performance measurement and evaluation and (5) bond portfolio management.

After completing the course, students are expected to (1) demonstrate the importance of portfolio management under the

efficient market hypothesis and behavior finance, (2) write an investment policy statement, (3) create an optimal portfolio, (4) manage bond and equity portfolios, and (5) measure and evaluate portfolio performance.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2011  
 Prerequisite: FIN 420

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 470 (R M 470) Real Estate and Capital Markets (3)** Analysis of publicly-traded real estate of both the equity, (REITs) and debt (MBSs) sides. The course also provides international perspectives.

### **FIN (R M) 470 Real Estate and Capital Markets (3)**

The objectives of this course are to expose the student and explore the issues associated with the analysis of "public" ("Wall Street") real estate, including both equities (such as Real Estate Investment Trusts or REITs) and debt vehicles (such as Mortgage-Backed Securities or MBSs). In addition, the course will focus on the increasingly globalization of real estate capital markets as the real estate sector becomes integrated into the global financial system. The differences between private and public real estate analysis will also be explored, including the suitability of traditional asset pricing models for real estate analysis. Topics include the growing impact of institutional real estate forces on the real estate sector, the use of modern financial economics methods to real estate including the concept of market efficiency, modern portfolio theory applications, market measures of risk and return, the use of option-based models, and other advances. The rise of Wall Street's interest in real estate securities is an important institutional development and serves as the underlying background for the analysis of MBSs using fixed-income security techniques.

As globalization has spread, the real estate sector has moved with these changes and prospects for a global real estate market are examined and evaluated.

This course serves as a compliment to FIN 460, which emphasizes traditional financial analyses of individual real estate projects. In FIN 470, real estate securities are viewed as a natural extension towards the complete integration of real estate and capital markets. In this sense, these courses will enable traditional and modern analyses of the real estate sector for years to come.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2012  
 Prerequisite: FIN 305W or R M 303 or R M 330W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 471 International Finance (3)** Financial decision making in an international environment. Emphasis on topics relevant to small businesses and entrepreneurs.

### **FIN 471 International Finance (3)**

This course provides an understanding of the basic terminology, structure, and importance of international finance for corporations. It will also help enhance analytical and critical thinking skills. Topics of study include foreign exchange (FX), FX markets, FX instruments, FX risk, hedging of these risks, international debt and equity markets, etc.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2010  
 Prerequisite: FIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 475 Financial Decision Making (3)** Problems and cases in financial decision making for non-financial corporations and financial institutions.

### **FIN 475 Financial Decision Making (3)**

The objective of this course is to tie together the various topics in finance such as corporate finance, investments, and financial institutions & markets. Using the variety of different analytical tools and techniques that students have been exposed to, they will

- Evaluate the relationship between profitability and solvency of a firm.
- Project the need for short term and long term financing.
- Evaluate the various sources of financing and recommend the optimal.
- Budget the capital that is raised to identify the profitable projects that capital should be invested in.

- Evaluate different dividend policies to maximize value of a firm.
- Carefully examine the risk-return tradeoff that portfolio managers face.
- Study the relationship between assets and liabilities of financial institutions.
- Critically evaluate synergies that are created in mergers and acquisitions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: FIN 302FIN 420 and senior standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 481** Advanced Financial Analysis (3) Capstone course integrating financial analysis coursework. This course is based on the case study method which provides a challenging setting in which to apply business concepts.

### **FIN 481 Advanced Financial Analysis (3)**

It is a required course for the Finance major. Students are expected to develop a working knowledge of several advanced topics in financial analysis sufficient to help prepare them for the relevant portions of Level I of the Chartered Financial Analysts (CFA) Exam. They also are expected to demonstrate their ability to integrate the tools and knowledge developed in their previous coursework by completing cases. Each class is devoted to discussion of firms in various situations. Class participants are challenged to apply financial concepts and concepts from other disciplines. This course requires extensive, detailed pre-class prep for each class. Use of spreadsheets is required. The course objectives include the following:

\*Application of financial concepts and related tools.

\*Further develop decision making skills.

\*Enhance critical thinking skills.

\*Augment written and oral communication skills.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: ACCTG 426FIN 405

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 489** Seminar in Finance (3) In-depth study of new trends, concepts, and practices in financial or portfolio management.

### **FIN 489 Seminar in Finance (3)**

New financial institutions or practices are created to address the needs of financial managers and investors as a result of changes in economic conditions, government legislation and regulation, geopolitical events, or financial markets. Examples of changes during the past decade that effect financial managers are elimination of the Glass-Steagall Act that separated commercial and investment banking activities, evolution of nation-wide branch banking, development of financial derivatives markets that can be used to manage financial risk exposure, creation of the European Monetary Union and the Euro currency, and growth of private (defined contribution) pension plans. The Seminar will give students the opportunity to rigorously examine one of these current developments before they are included in textbooks and regular courses. As such, the Seminar will rely primarily on recent publications in academic and practitioner journals.

The Seminar will start by studying the problems that motivated financial innovation.

Students will consider the economic difficulties that existed, or would have existed, in the absence of the financial innovation(s) covered by the Seminar. This will be followed by comparing methods of financial management before and after the financial innovation.

In examining innovative practices in financial management, Seminar participants will study the strengths and weaknesses of the specific financial institutions that facilitate the innovations they examine, such as the organized exchanges where financial derivatives are traded.

Participants will also learn the nature of related government regulation and judge the effectiveness of this regulation. In the case of financial derivatives a federal regulatory agency oversees the operation of financial derivatives markets.

An important component of the Seminar is the study of specific practices for utilizing financial innovations. Business firms have developed sophisticated methods for using financial derivatives. These practices will be carefully assessed from the standpoint of the practitioner.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: FIN 301 or equivalent; 3 additional credits of course work in Finance

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 491** Financial Planning Capstone (3) Critical thinking and decision-making about personal financial planning topics in the context of the financial planning process.

**FIN 491 Financial Planning Capstone (3)**

This capstone course is designed to reinforce and extend the principles from each of its prerequisite courses. The CFP Board of Directors are requiring the addition of this financial plan course as a requirement to CFP Board's educational standards to enhance the knowledge, skills and abilities of individuals seeking to attain the CFP® certification to deliver professional and competent financial planning services to the public.

This course will engage the student in critical thinking and decision-making about personal financial planning topics in the context of the financial planning process. The purpose of this course is to both refine and develop the skills needed to become successful financial planners when working with individuals, families, and business owners in helping them to meet their financial needs and goals. This course will address the important financial planning topics listed in the previous section.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: FIN 330FIN 420FIN 430FIN 450

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 494** Research Projects (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 494H** Research Projects (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 495A** Nittany Lion Fund -- Lead Fund Manager Practicum (3 per semester/maximum of 6) Advanced work with the Nittany Lion Fund. Lead Fund Managers are accountable for sector and stock performance as well as reports. Students delegate work to Associate Fund Managers while focusing a great amount of attention to all aspects of stock pitches, weekly and quarterly reports, along with conducting weekly training session for new analysts.

**FIN 495A Nittany Lion Fund -- Lead Fund Manager Practicum (3 per semester/maximum of 6)**

A Lead Fund Manager is accountable for sector performance as well as sector output. This means that while the Lead Fund Manager has to be an effective delegator of work to his or her Associate(s), the manager must also have great attention to



detail when reviewing all aspects of pitches, weekly reports, and earnings reports. A Lead Fund Manager focuses more on knowing the big trends in his or her overall sector and in each subsector. The Lead is the strategist for the sector. He or she has the responsibility of choosing what stocks to pitch in class and at PSIA meetings. This means that the Leads must constantly reevaluate not only their current portfolio, but the sector as a whole, in order to find where to best allocate their respective funds. Another major responsibility that a Lead Fund Manager has is to lead a group of anywhere from 10-50 PSIA members. While there are weekly educations for the PSIA analysts, it is one of the most important responsibilities of a Lead Fund Manager to provide support for the PSIA analysts to help them with their PSIA certification assignments. In addition to helping the analysts understand their weekly assignments, the Lead Fund Managers are also responsible for holding weekly sector meetings to give sector-specific educations to a smaller group of PSIA analysts.

The goal for any Lead should be to get as many PSIA analysts as involved and interested as possible in PSIA. The interest generated should draw PSIA analysts to apply for entrance into the Nittany Lion Fund. PSIA is the feeder system for the NLF and making sure there are intelligent and motivated applicants each semester ensures that the investment group will continue to have a strong class going forward. Consequently, once the Lead Manager has developed analysts' interest in applying for the NLF, it is an unwritten responsibility of the Lead to help the applicants to become as best prepared as possible for the interviews (Associates are encouraged to help new applicants as well). In total, the role that the Lead plays is not just that of a figurehead, the Lead must be well informed of current events and trends within their sector, and they must be able to speak eloquently of their investment strategy when speaking in class, at PSIA meetings, or to investors at the yearly investment meeting.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: FIN 395A and permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 495B** Nittany Lion Fund - Executive Board Practicum (3 per semester/maximum of 6) Oversight of the Nittany Lion Fund (NLF) and its overall performance. Executive Board members and Directors are accountable for all aspects of the Nittany Lion Fund. Students interact with investors and are responsible for delivering professionally developed performance reports, weekly information updates, and annual shareholder meetings. Executive Board members assume specific duties within the NLF associated with their position, along with a shared responsibility for being a spokesperson for the fund.

#### **FIN 495B - Nittany Lion Fund - Executive Board Practicum (3 per semester/maximum of 6)**

The Executive Board practicum affords students with intense practical experience in oversight and performance of the Nittany Lion Fund (NLF). Executive Board members and Directors are accountable for all aspects of the NLF. An Associate Fund Manager is responsible for all work that is presented to his or her Lead Fund Manager and in turn, a Lead Fund Manager is responsible for all work that is submitted for the Nittany Lion Fund (NLF) to view. While those are certainly tremendous responsibilities, an Executive Board Member is ultimately responsible for any and every document that leaves the Nittany Lion Fund, most of which are delivered to investors. It is the responsibility of the Executive Board to make sure that both the weekly news, and quarterly performance releases are flawless. Additionally, although the Lead Fund Managers are responsible for their individual sector's performance, the Executive Board is held responsible for the overall performance of the Nittany Lion Fund. This means that the Executive Board must do a number of things to keep performance awareness and accountability at high levels.

Students in these executive positions are expected to ask excellent questions during stock pitches and be, in a sense, a devil's advocate for each pitch, making sure that there was proper due diligence and thought put into the strategy of the pitch. With regard to being accountable to investors, the Executive Board is responsible for conducting weekly conference calls with the NLF's investment committee as well as leading the yearly investor meeting. As for the PSIA, the Executive Board is responsible for booking locations for meetings, handling the funds for all club transactions, and developing and implementing the education for the analysts to become PSIA certified.

Education is a very large part of the Nittany Lion Fund. An Executive Board Member is expected to utilize their past experience to provide helpful influence to other members of the Nittany Lion Fund as well as the large group of PSIA members. While the members of the Executive Board all have different responsibilities, in aggregate the group is responsible for the performance of Nittany Lion Fund as a whole, as well as being individual figureheads and spokesmen for the NLF.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FIN 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Financial Services (FINSV)**

**FINSV 400** Investment Valuation for the Financial Services Professional (3) Approaches to investment strategies, investment decisions, and the valuation of corporate securities.

#### **FINSV 400 Investment Valuation for the Financial Services Professional (3)**

FINSV 400 is one of the required courses for the the Financial Service Option of the Bachelor of Science in Business (BSB) degree program. The purpose of FINSV 400 is to attain an understanding of investment analysis and portfolio management. A key focus is given to the study of the pricing of corporate securities and the relationship between investment risk and return.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002  
Prerequisite: FIN 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FINSV 411** Federal Income Taxation for the Financial Services Professional (3) Tax regulations, tax policy, tax determination, and tax planning applicable for personal/business decision making; emphasis on taxation of individuals.

#### **FINSV 411 Federal Income Taxation for the Financial Services Professional (3)**

The purpose of this course is to attain an appreciation of and a familiarity with the Federal Income Tax Code as well as develop the analytical skills to evaluate potential tax liability and tax planning on a situational basis. Furthermore, the

student should attain a working knowledge and comfort level in the use of tax software. This will be accomplished via a five module approach. The modules are:

a. Module 1 An Introduction to United States Taxes and the Basic Tax Model: An introduction to both income taxation and other types of United States taxes. The purposes of the Federal tax law are examined and the legislative, administrative, and judicial sources of Federal tax law are analyzed. Module 1 concludes with the introduction of the basic tax model for the individual taxpayer.

b. Module 2 Gross Income: Presents the income component of the basic tax model. Included in this module are the determination of what is income and the statutory exclusions that are permitted in calculating gross income.

c. Module 3 Deductions: Presents the deduction component of the basic tax model. Deductions are classified as business versus--non-business, "for" versus "from", employee versus employer, active versus passive, and reimbursed versus unreimbursed. The effect of each of these classifications is analyzed. The presentation includes deductions that are permitted, limitations and disallowances associated with deductions, and the treatment of losses.

d. Module 4 Tax Computation Methods, Payment Procedures, and Tax Credits: Presents several topics that relate to tax liability determination. The calculation of tax liability, the use of tax credits to reduce calculated tax liability, and the timing of the payment of the calculated tax liability are discussed.

e. Module 5 Property Transactions: Presents the tax treatment of sales, exchanges, and other dispositions of property. Included are the determination of the realized gain or loss, recognized gain or loss, and the classification of the recognized gain or loss as capital or ordinary. The topic of basis is evaluated both in terms of its effect on the calculation of the gain or loss and in terms of the determination of the basis of any subsequent acquisition of property.

The use of a tax software program is embedded within each module.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: ACCTG 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FINSV 420** Estate Planning for the Financial Services Professional (3) Studies the processes relating to the use, conservation, and transfer of an individual's wealth; emphasizing investments, insurance and taxation.

### **FINSV 420 Estate Planning for the Financial Services Professional (3)**

This course examines the why and how people plan for their retirement. The course examines the various aspects of estate planning: wills and trusts, estate and gift tax planning, estate administration and taxation. The course guides the student in a step-by-step process through the entire estate planning process. Critical to the process is gathering the necessary financial facts, setting realistic objectives, and planning the requisite income tax and investment strategies. Students will utilize a range of personal financial statements and planning forms to assist in the gathering, organization, and use of pertinent data.

This course has four objectives: (1) To understand the motives for why people plan for their retirement. Related to retirement planning is the disposition of the residual value of their estate in a financial and tax prudent manner. (2) To understand the process by which individuals explore the various decision options. The most frequently cited motivation for estate planning is to minimize the tax burden on beneficiaries and to maintain the integrity of the planning process. (3) Students are motivated to understand how estate planners manage their client's wealth portfolios. The increasing wealth of the baby-boomer generation and those that follow make this process more important than for earlier generations. (4) To help students prepare for the Certified Financial Planner certification exams.

FINSV 420 is an additional course in the Financial Services Option of the Bachelor of Science in Business (BSB) program. It is a relatively sophisticated course and students who select FINSV 420 will complete it only after completing courses in investments, insurance, and taxes.

Evaluation will normally take the form of examinations, a research project, and class participation. At most campuses, the course will be offered once per year.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: FINSV 400FINSV 411

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **First-Year Seminar (CAP)**

**CAP 100S** Orientation to the Undergraduate Experience (1) To facilitate transition of new students through active engagement and introduction to university and campus resources.

**CAP 100S Orientation to the Undergraduate Experience (2)**

This course, CAP 100S, which is a one-credit course, completes the Penn State Capital College's first year seminar. The overarching goal of the FYS is to provide students with an introduction to Penn State culture and resources, information literacy and collaboration skills needed for academic success, as well as an introduction to majors and careers relevant to the discipline. These core elements of the FYS will aid students in the professional/academic community both inside and outside Penn State University. The instructor will place emphasis on having students work in collaborative groups on academically themed project(s) deemed relevant to the discipline.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAP 110S** First-Year Seminar for Capital College, The School of Behavioral Sciences and Education (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.

**CAP 110S First-Year Seminar for Capital College, The School of Behavioral Sciences and Education (1)**

This course is a one-credit course, completes Penn State Capital College's first-year seminar for The School of Behavioral Sciences and Education. The overarching goal of the FYS is to provide students with an introduction to Penn State culture and resources, information literacy, and collaboration skills needed for academic success, as well as an introduction to majors and careers relevant to the discipline. These core elements of the FYS will aid students in the professional/academic community both inside and outside Penn State. The instructor will place emphasis on having students work in collaborative groups on academically themed project(s) deemed relevant to the discipline.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAP 120S** First-Year Seminar for Business (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.

**CAP 120S First-Year Seminar for Business (1)**

This course, which is a 1 credit course, completes the Penn State Capital College's first-year seminar for the School of Business Administration. The overarching goal of the FYS is to provide students with an introduction to Penn State culture and resources, information literacy and collaboration skills needed for academic success, as well as an introduction to majors and careers relevant to the discipline. These core elements of the FYS will aid students in the professional/academic community both inside and outside Penn State. The instructor will place emphasis on having student's work in collaborative groups on academically themed project(s) deemed relevant to the discipline.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAP 140S** First-Year Seminar for Humanities (1) Introduction to the discipline including: ethics, research methods, communications, career opportunities/issues and applied technology.

**First-Year Seminar for Humanities (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999  
Prerequisite: or concurrent:CAP 100S

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAP 150S** First-Year Seminar for Capital College, The School of Public Affairs (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.

**CAP 150S First-Year Seminar for Capital College (1)**

This course, which is a 1 credit course, completes the Penn State Capital College's first-year seminar for the School of Public Affairs. The overarching goal of the FYS is to provide students with an introduction to Penn State culture and

resources, information literacy and collaboration skills needed for academic success, as well as an introduction to majors and careers relevant to the discipline. These core elements of the FYS will aid students in the professional/academic community both inside and outside Penn State. The instructor will place emphasis on having students work in collaborative groups on academically themed project(s) deemed relevant to the discipline.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**CAP 160S** First-Year Seminar for Capital College, The School of Science, Engineering and Technology (1) Introduction to Penn State culture, information literacy and collaboration skills, and introduction to majors and careers relevant to the discipline.

### **CAP 160S First Year Seminar (1)**

This one-credit course, CAP 160S, is the Penn State Capital College's first year seminar for the School of Science, Engineering and Technology. The overarching goal of the FYS is to provide students with an introduction to Penn State culture and resources, information literacy and collaboration skills needed for academic success, as well as an introduction to majors and careers relevant to the discipline. These core elements of the FYS will aid students in the professional/academic community both inside and outside Penn State University. The instructor will place emphasis on having students work in collaborative groups on academically-themed project(s) deemed relevant to the discipline.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Food Science (FD SC)**

**FD SC 105** (GHA) (S T S 105) Food Facts and Fads (3) Impact on society and the individual of modern food technology, food laws, additives, etc.; historical, current, and futuristic aspects.

### **FD SC (S T S) 105 Food Facts and Fads (3) (GHA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Food Facts and Fads is an introductory food course that broadly surveys various aspects of food, agriculture, nutrition, and health. Students in this course explore the components of the food system from producer to consumer; examine issues related to modern food technology, food and nutrition policies, and changes in the food industry; and assess the impact on the food system, consumers, and on society as a whole. Students will assess their own food and nutrition behaviors, become more aware of the environment in which they make food decisions, and devise strategies for improving health through better diet and increased physical activity. Students learn through lectures, videos, guest speakers, discussions, individual and group activities, and optional field trips. This course emphasizes active learning and critical thinking. Students are expected to complete electronic quizzes, write two or more short reflective papers, and complete a project on a food topic of the student's choosing, for which information must be gathered from several sources in a variety of ways.

General Education: GHA

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 200** Introductory Food Science (3) General overview and principles; food constituents and properties; quality and safety; preservation methods; processing animal and plant products.

### **Introductory Food Science (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 201** Introductory Food Science Practicum (1) Demonstration to illustrate actual chemical reactions in food systems and visits to campus and area food processing operations.

### **Introductory Food Science Practicum (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1984  
Prerequisite: or concurrent: FD SC 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 205** Food Plant Sanitation (3) Organization and administration of food plant sanitation with emphasis on the production and maintenance of safe, wholesome food products.

### **Food Plant Sanitation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1997  
Prerequisite: FD SC 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 206** Improving Food Quality (3) Modern philosophies coupled with practical information on improving product quality, including topics on HACCP, SPC, recall procedures and customer relations.

### **Improving Food Quality (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1997  
Prerequisite: FD SC 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 207 (AN SC 207)** Animal Products Technology (2) Composition, safety, palatability, preservation, and processing of foods from animals, impact of animal production and handling practices on product properties.

### **FD SC (AN SC) 207 Animal Products Technology (2)**

This course is intended to give students knowledge and understanding of production and processing of foods derived from animals (meat, milk, and eggs). Upon completion of this course students will be able to describe and explain the physical and biochemical characteristics of muscle foods, milk, and eggs. Students will be able to describe and compare harvesting, processing, and preservation procedures used in preparation of animal products for human consumption. Students will be prepared to predict the impact of variations in animal production, handling, harvesting, and product processing on meat, milk, and egg product characteristics. This is one of a group of courses dealing with foods from animals. Related courses offered in Animal Science covers animal growth and development and evaluation of animals and meat products. Related courses in Food Science cover food microbiology, food chemistry, and meat and dairy processing technology. The content of this course is intended to emphasize the connection between animal production and the resulting food products. FD SC/AN SC 207 is intended to be of general interest to people who produce or eat animal products and thus is an integral part of the Animal Sciences major. This course will also be useful for strengthening meat industry knowledge for students in Food Science. FD SC/AN SC 207 will be offered one semester per year. Student performance will be evaluated through written exams, quizzes, and written reports.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 208** (AN SC 208) Animal Products Technology Laboratory (1) Harvesting and processing of foods from animals; hands-on and demonstration exercises; industry procedures for processing meat, milk, and egg products.

**FD SC (AN SC) 208 Animal Products Technology Laboratory (1)**

This laboratory is intended to be taken along with or following Animal Products Technology lecture. Providing students with an opportunity to experience the procedures involved in harvesting and processing foods from animals. Upon completion of this course students will be able to describe, demonstrate, and explain procedures commonly used in harvesting and processing of muscle food, milk, and egg products. Students will be able to recognize and predict the impact of incorrect procedures for harvesting and processing muscle food, milk, and egg products. The course includes hands-on exercises and demonstrations that allow students to experience the "look and feel" of industry procedures used in harvesting and processing meat, milk, and egg products for human consumption. Focus on issues related to food safety and food quality. Student performance is evaluated through weekly written reports, and a final lab exam.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: or concurrent: AN SC 207

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 280H** (GH) (PHIL 280H) Food, Values, and Health (3) The perceived relationship between food and health, emphasizing the conceptual nature of both; and how values contribute to the relationship.

**Food, Values, and Health (3)**

General Education: GH

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 400** Food Chemistry (4) Chemical properties of food constituents as influenced by processing and storage.

**FD SC 400 Food Chemistry (4)**

Students successfully completing this class will be able to describe the properties of food in terms of the underlying chemistry. They will be able to conduct simple laboratory investigations of the major reactions and report the results in an acceptable scientific format. Achievement of these goals requires both an accumulation of facts and the development of an analytical approach to food.

In the context of a degree in Food Science this course builds upon core science courses to allow students to apply chemical principles to food. By understanding the important underlying chemistry of foods, students will be able to study food processing in terms of the science as well as technology involved. While the course is primarily designed as a requirement of the Food Science major, it is also expected to be useful for non-food science students as a practical application of chemical principles. The course prerequisites are B M B 211 and B M B 212 and students are expected to be familiar with the structures of the key biomolecules (i.e., proteins, lipids, carbohydrates).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: CHEM 202 . Prerequisite or concurrent: B M B 211 B M B 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 404 Sensory Evaluation of Foods (3)** Sensory evaluation of food, methods of test analyses, panel selection and training, taste sensation theory, consumer testing methods.

### **FD SC 404 Sensory Evaluation of Foods (2)**

This course is designed to demonstrate how the senses function in the perception of tastes, flavors, and textures of foods and how sensory tests are used to measure human perceptions. Students will have the opportunity to design sensory tests and apply statistical methods when interpreting sensory test results. The overall objective of this course is to learn the theories and practical applications of sensory evaluation that will enable students to conduct valid sensory tests and use the test results in the decision making process in food product development.

Evaluation will be based on written essay exams, group reports, and written lab reports in which they will be expected to demonstrate their understanding of theoretical issues regarding sensory testing and how to use statistical procedures to effectively interpret the test results. This course is a support course for the Food Science major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: STAT 250 Junior standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 405 Food Engineering Principles (3)** Engineering principles of importance to food manufacturing, including units, dimensions, mass and energy balance, fluid flow, rheology, heat transfer, and psychrometrics.

### **FD SC 405 Food Engineering Principles (3)**

Food engineering will discuss the principles of the various unit operations used in the food processing and manufacturing industry. Topics covered will include: units, dimensions, mass and energy balance, fluid flow, rheology, heat transfer, psychrometrics. Through lectures, the student will learn the principles of fluid flow, heat transfer and mass transfer as applied to food processing and manufacturing operations. Through practicum sessions, the student will be exposed to practical applications in the above three areas. Additionally, they will learn to analyze experimental data, organize and communicate thoughts in a logical fashion through cooperative and collaborative learning strategies, and to write effective lab reports. Through practicum sessions, they will also learn numerical problem solving and to size and select equipment for fluid flow, heat transfer and drying operations within the food industry.

Student evaluation within this course will be conducted through weekly quizzes, home works, lab write-ups and three exams. This is a required course for the food science major. This course serves as a prerequisite for several 4th year required courses within the food science major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: MATH 110PHYS 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 406 Physiology of Nutrition (3)** Physiological mechanisms involved in thirst and appetite, digestion, absorption, utilization of nutrients, respiration, and body temperature regulation.

### **Physiology of Nutrition (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: B M B 211



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 407 Food Toxins (2)** Microbiological and chemical aspects of food poisoning; toxicological principles; case histories and prevention of problems.

**Food Toxins (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Winter 1978

Prerequisite: senior standing in food science or related majors

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 408 Food Microbiology (2)** Significance of microorganisms in food commodities, microbial spoilage, food-borne infections, and intoxication; methods of preservation, processing, and control.

**FD SC 408 Food Microbiology (2)**

Food Microbiology focuses on the application of microbiological principles to foods and food ingredients. Topics covered include: potential for microbial growth in a particular food or food ingredient based on the following parameters - biological structure, nutrient composition, naturally occurring inhibitors, pH, water activity, oxidation reduction potential, temperature, atmosphere conditions and humidity; choice of appropriate microbial detection methods for groups of organisms and foodborne pathogens; identification of types and the consequence of growth of pathogens and non-pathogens associated with particular commodities; evaluation of the effect of different processing conditions on the destruction, survival and growth of spoilage and pathogenic microorganisms; identification of significant factors affecting the association of pathogens with food and food ingredients, events leading to infection and/or intoxication, and prevention and control of foodborne illness; comprehension of the importance of food microbiology in everyday living. Student knowledge will be evaluated through three examinations during the semester and one final exam. This is a C-required course for the Food Science major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: MICRB 201MICRB 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 409W Laboratory in Food Microbiology (3)** Methods of isolation, detection of spoilage, pathogenic microorganisms in foods; effects of processing and preservation on survival of food microorganisms.

**FD SC 409W Laboratory in Food Microbiology (3)**

Food Microbiology Laboratory is intended to demonstrate microbiological concepts through the appropriate use of equipment and laboratory procedures. The laboratory focuses on the practical application of microbiological principles to foods and food ingredients based on the following experiences: development of proficiency in using selected microbiological techniques currently employed in regulatory, quality control and research laboratories; performance of specific microbiological analyses of foods to assess numbers and kinds of spoilage organisms or foodborne pathogens; evaluation of the effects of several processing methods on growth and survival of microorganisms. In addition, this course serves as the required Writing across the Curriculum course for the Food Science Curriculum. As such, the course emphasizes problem solving and critical thinking as manifested by written and oral skills; scientific analysis of data, including statistics where applicable; demonstration of basic scientific writing and critiquing skills; usage of primary scientific sources in the food microbiology literature. Practical laboratory skills are assessed through measurement of proficiency in plating and isolation of an unknown microorganism. Writing skills are measured through development of a team project, written lab reports and journal article, and three examinations during the semester. This is a C-required course for the Food Science major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: MICRB 202 . Prerequisite or concurrent:FD SC 408

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 410 Chemical Methods of Food Analysis (3)** Qualitative and quantitative determinations of food constituents.

**Chemical Methods of Food Analysis (3)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: B M B 212FD SC 400

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 411** Managing Food Quality (2) Principles and applications of Hazard Analysis Critical Control Points. Statistical tools for the control and improvement of food quality.

### **Managing Food Quality (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999  
Prerequisite: FD SC 408STAT 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 413** Science and Technology of Plant Foods (3) Physical and chemical behavior of plant-based raw materials and ingredients, with emphasis on parameters influencing finished product quality.

### **FD SC 413 Science and Technology of Plant Foods (3)**

This course focuses on the unique importance of foods produced from plants to human health and wellness. The influence of cultural practices, harvesting and handling methods and processing technology on quality and safety of whole, fresh and processed food products using minimal processing and fermentation to preserve food products from plant sources will be emphasized.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: FD SC 405FD SC 400FD SC 408FD SC 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 414** Science and Technology of Dairy Foods (3) Physical and chemical behavior of dairy-based raw materials and ingredients, with emphasis on parameters influencing finished product specifications.

### **FD SC 414 Science and Technology of Dairy Foods (3)**

FD SC 414 provides students with information about the composition, properties and physiochemical aspects of milk and milk products and an understanding of the changes that occur in milk during processing into a variety of dairy products. Laboratory exercises are held weekly and complement the topic being addressed in lecture. A semester-long group project is conducted during the course to help students integrate knowledge gained throughout the Food Science Curriculum. The project focuses on a "real life" product development problem and requires students to develop problem statements, design experiments, design formula and processing schemes, obtain ingredients and actually manufacture a product. Time is allotted in the laboratory schedule for some group activities; other are scheduled outside of class.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: FD SC 405FD SC 400FD SC 408FD SC 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 415** Science and Technology of Muscle Foods (3) Physical and chemical properties of muscle food commodities, with emphasis on muscle-based ingredients in formulated foods.

### **FD SC 415 Science and Technology of Muscle Foods (3)**

This course applies food science and technology to the processing, storage and handling of red meat, poultry, and seafood products. The course includes two lectures and one lab session each week. The laboratory sessions are conducted in the Meat Laboratory located on Porter Road. Student performance is evaluated based on two mid-term exams, one final exam, lab reports including short summaries and full reports and homework exercises. Course objectives are set to: 1. help students understand the nature and importance of structure, compositional and quality differences among muscle food ingredients and their impact on product manufacturing, 2. inform students of the basic steps of primary processing for live stock, poultry and seafood species and their impact on meat properties, 3. give students first-hand experience with typical manufacturing steps and processes for fresh, cured, smoked, fermented, dried or cooked meats and help them understand how variations in processing will affect finished product properties, and 4. give students practice in applying the scientific method in answering questions or solving problems that may arise during the manufacture of muscle foods

products. Course activities draw on the students' prior knowledge of food chemistry, food engineering, food microbiology and food analysis, applying concepts from those disciplines in the manufacture and evaluation of meat products. Course topics cover the range from meat science through technical and practical aspects of meat product manufacture including product quality, safety, profitability and regulatory issues. There is emphasis on meat industry practices including traditional and recent technology. Through laboratory exercises and independent group projects students gain experience in application of the scientific method for solving product development problems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: FD SC 405FD SC 400FD SC 408FD SC 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 430** Unit Operations in Food Processing (3) Thermal processing, refrigeration, freezing, dehydration, and concentration in the food industry, including effects on food quality; food packaging; waste management.

### **FD SC 430 Unit Operations in Food Processing (3)**

Unit Operations in Food Processing will discuss major unit operations used in the food processing and manufacturing industry. Topics covered will include: thermal processing, microwave heating, extrusion, food packaging and waste management. Through lectures, the student will learn the principles of selected unit operations in food manufacturing, and the effects of input and operational parameters on performance and food quality. Through practicum sessions, the student will be exposed to practical applications in the above areas. Additionally, they will learn to analyze experimental data, organize and communicate thoughts in a logical fashion through cooperative and collaborative learning strategies, and to write effective lab reports. Through practicum sessions, they will also learn numerical problem solving and to size and select equipment for food manufacturing operations.

Student evaluation within this course will be conducted through weekly quizzes, home works, lab write-ups and two exams. This is a required course for the food science major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: FD SC 405FD SC 400FD SC 408

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1992

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 497A** Research Basics: Learning How to Communicate Scientifically (1) Developed to enhance the undergraduate food science research experience. Prepares students for graduate school and provide set of skills that are applicable to any career.

**Research Basics: Learning How to Communicate Scientifically (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: sophomore junior or senior

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 497B** Research Basics: Learning How to Communicate Scientifically (1) Developed to enhance the undergraduate food science research experience. Prepares students for graduate school and provide set of skills that are applicable to any career.

**Research Basics: Learning How to Communicate Scientifically (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: sophomore junior or senior

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 497C** Topics in Dairy Products Processing (3) Special topics covering the science and technology associated with manufacturing a variety of dairy products including fluid milk, yogurt, and ice cream.

**Topics in Dairy Products Processing (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: FD SC 400FD SC 405FD SC 408FD SC 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 497H** Challenging Dogmas: How Major Discoveries in Microbiology Revolutionized Biology (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Challenging Dogmas: How Major Discoveries in Microbiology Revolutionized Biology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FD SC 499** (IL) Foreign Studies (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12 per semester/maximum of 12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Forensic Science (FRNSC)**

**FRNSC 100** (GN) Introduction to Forensic Science (3) Introduction forensic science.

**FRNSC 100 Introduction to Forensic Science (3)  
(GN)**

The course will review the application of the physical and social sciences as they apply to the forensic analysis of evidence. Students will gain an understanding of how forensic science and the law intersect to solve crimes. The course will track evidence recovered from the crime scene, as it moves to the crime laboratory where it is analyzed and into the courtroom where it is presented to a jury. The course will cover the most common types of physical evidence obtained in criminal and civil cases.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 200** (GN) Introduction to Crime Scene Investigation (3) This course offers an exploration of the science, management, and investigative techniques for the field of crime scene investigation.

**FRNSC 200 Introduction to Crime Scene Investigation (3)  
(GN)**

Students will develop the intellectual skills needed to be able to plan for and organize a crime scene investigation. Each student will understand the nature and value of each kind of physical evidence and how to recognize, collect and preserve it. They will research all the topics in this course and provide their own evidence of competency in each in the form of a professional portfolio. A student who demonstrates competency in the subject matter of this course:

- \*Employs the philosophies and practice of science;
- \*Generates hypotheses of crimes based on evidence;
- \*Can use deduction in a scientific manner;
- \*Is tenacious when recovering and developing evidence;
- \*Prescribes recovery and development cascades for: fingerprints; trace evidence; impression evidence; photographs; biological evidence
- \*Prescribes and amends crime scene search plans;
- \*Sketches crime scenes to scale;
- \*Makes competent use of limited time, human and other resources;
- \*Calculates: measurements for crime scene sketches; bullet trajectories; Angle of impact; and area of impact
- \*Provides complete, admissible reconstruction reports;
- \*Understands and accounts for chain of custody

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 210** Essential Practices of Forensic Science (3) Practices of forensic science including documentation, microscopy, communication of results, and integration of concepts from other sciences, mathematics, and statistics.

**FRNSC 210 Essential Practices of Forensic Science (3)**

In this course, students will learn the essential practices of forensic science and criminalistics. The necessity of an objective, rigorous, scientific approach in a forensic investigation will be stressed. This course will prepare students to understand the foundation of forensic science practice including the basic knowledge required to understand the nature and origin of physical evidence, preservation of the physical evidence record, forensic microscopy, and communication of results. This course uses an intensive, problem-solving style and through practical exercises, students will be introduced to:

- Documentation techniques including measurements, notes, sketches, photography, and other techniques
- Basic microscopy and forensic microscopy
- Verbal and written communication of forensic findings

The primary aims of the course are to:

- Introduce students to scientific philosophy, integrity, forensic science, criminalistics, basic practices of forensic science/criminalistics, and the role of the criminalist as they relate to a forensic investigation
- Prepare students for advanced 400-level courses in forensic science and criminalistics

General Education: None  
Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: FRNSC 100 andCHEM 110 andCHEM 111

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 210 Essential Practices of Forensic Science (3)** Practices of forensic science including documentation, microscopy, communication of results, and integration of concepts from other sciences, mathematics, and statistics.

### **FRNSC 210 Essential Practices of Forensic Science (3)**

In this course, students will learn the essential practices of forensic science and criminalistics. The necessity of an objective, rigorous, scientific approach in a forensic investigation will be stressed. This course will prepare students to understand the foundation of forensic science practice including the basic knowledge required to understand the nature and origin of physical evidence, preservation of the physical evidence record, forensic microscopy, and communication of results. This course uses an intensive, problem-solving style and through practical exercises, students will be introduced to:

- Documentation techniques including measurements, notes, sketches, photography, and other techniques
- Basic microscopy and forensic microscopy
- Verbal and written communication of forensic findings

The primary aims of the course are to:

- Introduce students to scientific philosophy, integrity, forensic science, criminalistics, basic practices of forensic science/criminalistics, and the role of the criminalist as they relate to a forensic investigation
- Prepare students for advanced 400-level courses in forensic science and criminalistics

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: FRNSC 100 andCHEM 110 andCHEM 111

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 294 Research Projects (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Projects (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 295 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 400** Courtroom Proceedings and Testimony (1) Introduction to courtroom proceedings and testimony as they related to forensic science.

**FRNSC 400 Courtroom Proceedings and Testimony (1)**

Classroom discussions will focus on the structure and procedures of the courtroom, the role of its members, admissibility issues, and how testimony is presented in court. Students will read transcripts from actual forensic cases, will discuss how the evidence was presented in court, and will have an opportunity to present data in mock proceedings.

At the end of the course, students will have a strong understanding of how courts operate regarding the introduction of forensic evidence. The course is relevant to any forensic science student who has taken FRNSC 201 and 301, and should be taken either concurrent with or before FRNSC 401. Any student in the Forensic Science major who has an interest in obtaining employment in a private forensic company or a local, state or federal law enforcement agency will benefit greatly from this course.

This is a 400-level forensics course for students in the Forensic Science major. It will also satisfy a requirement for accreditation by the Forensic Science Education Programs Accreditation Commission (FEPAC).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: FRNSC 411 and FRNSC 413

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 410** A Scientific Approach to Crime Scene Investigation (2) Principles of crime scene investigation with emphasis on scientific philosophy, concepts, and procedures.

**FRNSC 410 A Scientific Approach to Crime Scene Investigation (2)**

In this course, students will learn many of the essential principles and techniques of crime scene investigation. The necessity of a rigorous scientific approach will be stressed. This course uses an intensive, problem-solving style to teach scene management and the recognition, evaluation, enhancement, documentation, control, and collection of physical evidence. Students will be introduced to:

- Scene management principles
- Search techniques
- Techniques to recognize, enhance, document, and collect various types of physical evidence
- Communication of procedures and results
- Scene reconstruction and its role in a scientific investigation

The primary aim of the course is to immerse students in the scientific philosophy, integrity, scene investigation procedures, criminalistics, and role of the criminalist as they relate to scene investigation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: FRNSC major FRNSC 210 STAT 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 411** Criminalistics: Trace and Impression Evidence (3) Laboratory-based examination of forensic evidence; microscopy, classification and identification.

**FRNSC 411 Criminalistics: Trace and Impression Evidence (3)**

Laboratory-based examination of physical evidence typically recovered from crime scenes. Examination of physical evidence will occur according to established forensic procedures, including the location of trace evidence and performance of presumptive and confirmatory tests. Students will establish a laboratory notebook to document their findings. Since forensic testing ultimately results in testimony in a courtroom, students will prepare written reports of their findings and learn how to present their findings in a courtroom setting. The course will concentrate on microscopy (stereo, transmitted light, polarized light, and comparison), physical and chemical techniques to classify evidence, and pattern matching techniques to individualize impression evidence. The course is relevant to any student majoring in Forensic Science or who has an interest in obtaining employment in local, state, or federal law enforcement agencies and crime lab facilities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: FRNSC majorFRNSC 210STAT 250 andPHYS 251 orPHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 413** Criminalistics: Biology (3) Laboratory-based examination of forensic evidence; biological fluid identification, hair microscopy.

**FRNSC 413 Criminalistics: Biology (3)**

Laboratory-based examination of biological evidence typically recovered from crime scenes. Examination of biological evidence will occur according to established forensic procedures, including the identification of biological evidence and the performance of presumptive and confirmatory tests. Students will establish a laboratory notebook to document their findings. Since forensic testing ultimately results in testimony in a courtroom, students will prepare written reports of their findings and learn how to present their findings in a courtroom setting. The course will concentrate on the analysis of biological such as human blood, semen, saliva, urine, fecal matter and hair; including the employment of chemical, biological, and biochemical techniques to classify evidence. The course is relevant to any student majoring in Forensic Science or who has an interest in obtaining employment in local, state, or federal law enforcement agencies and crime lab facilities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: FRNSC majorFRNSC 210 andBIOL 230W orMICRO 202 orB M B 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 415W** Laboratory in Crime Scene Investigation (2) Laboratory course covering crime scene investigation with emphasis on scientific philosophy, concepts, procedures, problem solving, and hands-on activities.

**Laboratory in Crime Scene Investigation (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: FRNSC 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 421W** Forensic Molecular Biology (4) Concepts and application of serology of molecular biology techniques to analyze biological evidence collected at crime scenes.

**FRNSC 421W Forensic Molecular Biology (4)**

Classroom discussions will focus on the application of biochemistry and molecular biology techniques in forensic serology and DNA analysis. The course will start with a history of forensic biology techniques and move quickly to modern day techniques (e.g., STR analysis). Laboratory analysis will include population samples and mock evidence samples. Students will expand their knowledge of population genetics and fine tune their practical laboratory skills. Students will learn about laboratory safety, quality assurance and control, and ethics. They will evaluate results from actual forensic DNA cases, and both discuss how evidence is presented in court and have the opportunity to present their data in mock deposition proceedings. Laboratory exercises will result in the preparation of courtroom ready materials (data, documents, and demonstrations). Many of the classroom discussions will be problem solving exercises designed to emphasize specific applications of laboratory analysis.

At the end of the course, students will have a strong understanding of forensic screening techniques and STR analysis of biological evidence, and how to convey their findings in written format. In the laboratory, students will have analyzed different sample types, interpreted DNA profiles, prepared laboratory reports and case files, and presented the evidence in



mock testimony proceedings. As a result, students will have the basic skills necessary to work in a forensic biology crime laboratory.

The proposed course is relevant to any science student who has taken B M B 342, 400, and 401, and any student in the Forensic Science major who has an interest in obtaining employment in a local, state or federal law enforcement agency and/or crime laboratory facility. This is a 400-level forensics course that will be required for students in the Forensic Science major who elect to complete the biology option.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: B M B 442B M B 400B M B 401 andFRNSC 413 prerequisite or concurrentFRNSC 400

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 427W (CHEM 427W) Forensic Chemistry (4)** Analytical and instrumental methods used in the forensic sciences with special emphasis on the analysis and characterization of trace evidence.

#### **FRNSC (CHEM) 427W Forensic Chemistry (4)**

The purpose of this course is to provide students with a rigorous and comprehensive exposure to the techniques and methods used in private, state and federal crime labs in the analysis of trace evidence. The course thoroughly integrates lecture and laboratory activities to explore the history, controversies and current issues related to each topic. The laboratory component incorporates skill-building exercises with open-ended guided-inquiry laboratory exercises and a semester-long laboratory- and literature-based research project. Students work in small groups (2-3 students) to complete each assignment. Students are required to write five research papers during the semester. Four of the reports are linked to the core course topics and the fifth is associated with the semester-long research project. All reports require students to search for and read the relevant published literature.

The course is relevant to any student majoring in Forensic Sciences or who has an interest in obtaining employment in a crime lab. The course is required for accreditation through the American Association of Forensic Sciences and is recommended by the National Institute of Justice in their published recommendations for undergraduate curricula in the forensic sciences. The proposed course and the course in Forensic Anthropology/Biology comprise the core 400-level science courses required in the Forensic Sciences major.

The course is designed to be rigorous and comprehensive in scope. Grades will be based on in-class lecture examinations (20%), problem sets (10%), laboratory notebooks (15%), laboratory write-ups (30%), and a term project (written and oral presentations; 25%). The writing component for this course includes: maintaining a proper laboratory notebook; five approximately 10-page reports; and an oral poster presentation. All writing elements are reviewed and graded by the instructor and teaching assistants. Students are allowed to correct, or rewrite, and resubmit notebook entries for three separate submissions (notebooks are graded a total of eight times throughout the semester) and the written reports excluding the final project report. Students are required to submit a preliminary poster for a ) non-graded) review prior to the oral presentation. The writing component of the course accounts for 55% of the total course grade.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: CHEM 213CHEM 227 andFRNSC 411 orCHEM 431W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 475 Forensic Science Seminar (1)** Presentation and discussion of special issues in forensic science; extension and application of background knowledge to unusual topics and cases.

#### **Forensic Science Seminar (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: Prerequisite or concurrent:FRNSC 401W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 485W Coalescence of Forensic Science Concepts. (4)** Advanced concepts in criminalistics as they apply to criminal and civil investigations.

#### **Coalescence of Forensic Science Concepts. (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: FRNSC 411FRNSC 413FRNSC 415W

Concurrent: FRNSC 421W FRNSC 427W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 494** Research Projects (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Projects (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 497A** Special Topics in Crime Scene Investigation (2) This laboratory course in crime scene investigation is designed for students registered with the Penn State ADA Office. Laboratory course covering crime scene investigation with emphasis on scientific philosophy, concepts, procedures, problem solving, and hands-on activities.

#### **Special Topics in Crime Scene Investigation (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: FRNSC 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FRNSC 497B** Chromatography and Electrochemistry (3) The course topics include gas, liquid, and other forms of chromatography, mass spectroscopy, and important techniques of electrochemistry. The course material is designed to increase student understanding of both the analytical instruments used in the laboratory and the principles underlying the measurements. Evaluation of student performance is based on the level to which a student understands how an instrument operates and how particular components determine overall performance and specifications; limitations to measurements as a function instrument design; criteria by which one selects an appropriate instrument to obtain the desired measurements; and criteria by which one selects appropriate components to build an instrument for specific uses.

#### **Chromatography and Electrochemistry (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: CHEM 227

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Forest Technology (FORT)

**FORT 100S** Introduction to Forestry (1) A general introduction to forest ecology, history, management, and practices.

### Introduction to Forestry (1)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 105** Forest Mensuration (3) Measurement of forests and forest products.

### FORT 105 Forest Mensuration (3)

FORT 105 is a first-year, three-credit course required for the completion of the associate degree in Forest Technology. The course covers the techniques, procedures, and equipment used to measure tree and forest parameters, including various forest products. The course also covers statistical concepts and sampling and includes the use of current computer software. The course includes lectures, and students improve their skills in weekly field lab exercises.

The course objectives are for students to learn the principles and techniques used in forest mensuration, the use of tools and technology used in forest mensuration, the use of statistics as related to forest mensuration, to prepare and write comprehensive, professional reports, and to learn to work well as a member of a crew under field conditions by always performing accurate and safe work and by following directions and assignments of the instructor.

Course grades will be based on lecture exams, a cumulative final, quizzes, assignments, lab reports, and attendance and participation in class.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 110** Forest Inventories (3) Application of forest mensuration, mapping, GIS, sampling, and statistical analysis to the inventory of forest resources.

### FORT 110 Forest Inventories (3)

FORT 110 is a 3-credit, field-lab-oriented course that is a continuation of FORT 105 (Forest Mensuration) and builds upon other forestry, math, and English courses. Students will apply the principles of tree measurements to the inventory of forest resources. The major inventory systems will be covered as well as sampling techniques and statistical analysis of data.

The management and stewardship of forest resources depends upon the collection, analysis, and conveyance of quantitative and qualitative data that describe forest resources. The data is used to make informed, science-based management decisions concerning the growth, health, and/or volume of forest resources. The basis of the course is learning how to plan, conduct, coordinate, and summarize forest inventories.

The course objectives are for students to develop an understanding of sampling techniques and statistical analysis in the inventory of forest resources, learn how to use forest inventory systems currently used in natural resource management, conduct inventories that are cost-efficient and that meet predetermined sampling standards, learn to accurately and efficiently process and compute inventory data by hand and computer, learn to prepare and write comprehensive, professional cruise, and inventory reports for supervisors and/or clients, and learn to work well as a member of an inventory crew under field conditions. Conducting accurate and safe work, following directions, and the assignments of supervisors and instructors is imperative.

Course grades will be based on lecture exams, a cumulative final, quizzes, lab reports, assignments, and class attendance and participation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FORT 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 120** Forestry Computer Applications (2) Computer hardware and software applications specific to forestry.

**FORT 120 Forestry Computer Applications (2)**

FORT 120 is a first-semester, two-credit course that is designed to familiarize students in the Forest Technology program with basic computer applications as well as those specific to forestry. Instruction in the use of the Internet, e-mail, word processing, spreadsheet, and database management software is provided. Students are able to demonstrate proficiency in computer operating skills at the end of the semester, including the use of forestry hardware such as data recorders and software applications.

Course objectives are to help students develop skills in using various computer software packages in forest resource management.

Grading is based on tests, quizzes, and class projects.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: three credits of mathematics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 130** Forest Mapping Systems (2) Mapping forest properties, using traditional mechanical drawing techniques, geographical positioning systems, geographic information systems, and spatial analysis of resources.

**FORT 130 Forest Mapping Systems (2)**

FORT 130 is offered as a 2-credit, first-semester course at Mont Alto. Students will become familiar with a variety of maps commonly used in forestry, including topographic maps, vegetation classification maps, and boundary surveys. Hand compasses will be used for basic field navigation and with maps. Global Positioning System (GPS) technology will be used to record and process locational data for use in forest management. Geographic Information Systems (GIS) will be used to organize and analyze various types of geographically-related data.

The course objectives are for students to develop skills in reading and interpreting topographic and other forest maps, to learn to use a compass for navigation, to measure distances with pacing, to use GPS in forest mapping, and to use GIS.

Grades will be based on class and laboratory assignments and problems, quizzes, and exams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 140** Forest Surveying (3) Plane surveying including hand compass and survey equipment, map reading, deed and title research, land descriptions and property line location.

**FORT 140 Forest Surveying (3)**

FORT 140 is a three-credit, field-lab-oriented course that reinforces the skills gained in FORT 130 (Forest Mapping Systems) and MATH 081 (Technical Mathematics). Students will apply the principles of mapping and mathematics to land surveying techniques used by forest technicians and foresters.

The course objectives are for students to learn to measure horizontal and vertical angles and distances in the field, perform boundary, topographic, and road surveys, use USGS topographic maps, and become proficient with deed and boundary research.

Course grades will be based on exams, quizzes, lab reports, assignment,s and class attendance and participation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: or concurrent:FORT 130MATH 081

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 150** Dendrology (3) Taxonomy, identification, ranges, and uses of important U.S. timber species and lesser vegetation of a regional nature.

**FORT 150 Dendrology (3)**

FORT 150 is a first-semester, 3-credit course for students in the Forest Technology program as well as interested

students in other academic programs. It is a field course that is focused on taxonomy, nomenclature, ecology, and silvics of common forest plant species. Students are exposed to native and introduced to plant species in south central Pennsylvania. Scientific names, common names, geographic ranges, and economic importance are taught. Students learn to identify plants by key characteristics: arrangement, bark, buds, flowers, fruits, general form, and leaves. Basic plant biology as well as ecological relationships are covered. Information learned in this course serves as the foundation for future courses, including FORT 110 (Forest Inventories) and FORT 160 (Silvicultural Practices).

Course objectives are for students to gain an understanding of the rules of scientific nomenclature, to know the meanings of scientific terms used in dendrology, to identify 100-plus different woody plant species, to know ranges and site requirements for major species, and to know and be able to spell correctly the common and scientific names (family, genus, and species) of plants.

Grading and course structure will be based on daily field quizzes, a mid-term examination, and field and written final examinations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 160 Silvicultural Practices (3)** Principles and techniques of forest establishment, culture, and regeneration systems.

### **FORT 160 Silvicultural Practices (3)**

FORT 160 is a second- semester, three-credit course in the Forest Technology program. It builds upon the knowledge of silvics introduced in FORT 150 (Dendrology). It combines the tools of FORT 105 (Forest Mensuration) with basic ecology and enables students to understand the processes and management alternatives in the forest ecosystem. This is a lecture class supplemented with weekly field laboratory sessions. The lab sessions allow students to experience silvicultural practices through design and implementation.

The course objectives are for students to develop an understanding of silvics of North American forests, to understand silvicultural relationships, and to be able to write and administer silvicultural prescriptions.

Course grading will be based on lecture exams, a cumulative final, lab reports, assignments, and attendance and participation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FORT 150

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 170 Forest Harvesting and Operations (3)** Forest harvesting and intermediate operations: forest worker safety, hand and power tools, harvest planning, and best management practices.

### **FORT 170 Forest Harvesting and Operations (3)**

FORT 170 is a three-credit, applied field-oriented course in the Forest Technology curriculum. The course is offered in the four-week summer intersession following completion of the second semester. Students will be introduced to woods safety and the identification of hazards; the safety and use of hand and power tools used in forest harvesting and intermediate operations; and logging equipment safety, maintenance, and operation. Axes, crosscut saws, chain saws, heavy logging equipment including logging skidder, bulldozer, and woods tractor will be used.

Students will work in crews to complete a forest harvest or thinning operation from beginning to end including: forest inventory and stand analysis; the use of best management practices; the development of an erosion and sedimentation plan; harvest planning and layout; forest stand marking; and the harvest of the marked forest stand.

Daily performance is evaluated based upon safety, effort, and motivation, skill improvement, cooperation, and attendance. Course grades will be based on quizzes, assignments, and daily performance.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FORT 110 FORT 160 American Red Cross Standard First Aid and CPR

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 175 Forest Products Industry Tour (1)** Field tour of local and regional forest products industries.

### **FORT 175 Forest Products Industry Tour (1)**

FORT 175 is a 1-credit, field-based course in the Forest Technology curriculum. The course is offered in the 4-week summer intersession following completion of the second semester. It provides students with the opportunity to visit and tour forest products industries. Tours of sawmills, pulp and paper facilities, plywood factories, and other manufacturing industries are incorporated into a 3-to 4-day field trip in the Mid-Atlantic region. This course provides a basic understanding of forest products industries for FORT 250 (Forest Management Practices).

The course objectives are for students to develop an understanding of general industrial and manufacturing sectors of forestry and to learn and apply basic concepts of business, economics, and management in relation to forest products.

Course grades will be determined by the level of participation at each forest products industry visited and by the quality of trip reports.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FORT 110/FORT 160

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 200** Wood Identification and Properties (1) Anatomy of wood and bark; cell wall formation and composition; and identification of wood by gross and microscopic qualities.

### **FORT 200 Wood Identification and Properties (1)**

FORT 200 is a third-semester, one-credit course at Mont Alto. It will introduce students to the basic concepts of the anatomical properties of wood and bark cells. Students taking this class will learn: basic information on tree form and structure; basic information on cell wall chemical composition, formation, and structure. A significant part of the course will be learning to identify and differentiate selected hardwood and softwood species from gross and microscopic characteristics.

The course objectives are for students to gain an understanding of wood formation and structure and to be able to identify assigned wood samples from gross and/or microscopic characteristics.

Grades will be determined from weekly quizzes in wood identification and exams on lecture material.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 210** Arboriculture (3) Selection, planting, care, and maintenance of woody ornamental plants and shade trees grown in urban, sub-urban, and rural landscapes.

### **FORT 210 Arboriculture (3)**

FORT 210 is a third-semester, three-credit forestry elective in the Forest Technology curriculum. The course is recommended for students who have a basic knowledge of tree/plant identification and forestry but with the instructor's permission is open to third-semester-standing students interested in arboriculture. A significant portion of the course includes labs where tree-climbing skills are taught using climbing saddles, ropes, and applicable hardware.

Course objectives include an understanding of the importance of the urban-community forest, the importance of trees and woody plants, how they grow and how to care for them. Students will gain the basic knowledge and experience needed for employment in the field of urban forestry and arboriculture.

Course grades will be based on assignments, lecture exams, a final examination, lab performance, and reports and quizzes.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: second-year standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 220** Forest Ecosystem Protection (4) Principles and concepts involved in managing the forest ecosystem in regard to fires, insects, and diseases.

### **FORT 220 Forest Ecosystem Protection (4)**

FORT 220 is a third-semester, four-credit course that builds upon information learned in FORT 150 (Dendrology) and FORT 160 (Silvicultural Practices). This course will provide students with tools to identify and understand the effects of insects, disease, and fire on individual trees, forests, and ecosystems. They will learn signs and symptoms of insects and disease, integrated pest management principles, tactics of fire suppression, and will complete the PA-130 wildland fire training course. Emphasis is placed on recognition, prevention, and control of insects and pathogens. A case-study approach is used for the major pest problems of the northeastern United States.

Course objectives include development of assessment and diagnostic skills for major plant pests, recognition of signs and symptoms of abiotic and biotic disease, knowledge of integrated pest management, basic fire behavior and control techniques, and development of verbal and written communication skills.

Course grading will be based on scheduled lecture exams and quizzes, a final comprehensive examination, lab reports, and participation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 230 Aerial Photo Interpretation (2)** Aerial photo interpretation techniques applied to land management inventories, mapping, road location, and procurement.

### **FORT 230 Aerial Photo Interpretation (2)**

FORT 230 is a third-semester, two-credit course that explores the applications of aerial photography in forest and natural resource management. Both black-and-white and infrared photographs at diverse scales will be used. Photographic measurements of distance, area, and elevation will be studied. The use of aerial photos in ecological classification, forest vegetation mapping, and forest inventory will also be covered. Lab exercises will include forestry operations such as logging road layout, timber harvest mapping, and property boundary mapping. Linkages with global positioning system (GPS) and geographic information systems (GIS) will be stressed.

The course objectives are for students to develop skills in interpreting and using aerial photos for forest resource management.

Grading will be based on tests, quizzes, lab exercises, and student participation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FORT 130

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 240 Forest Soils and Hydrology (3)** The study of forest soils and hydrology, especially as they are affected by forest management activities.

### **FORT 240 Forest Soils and Hydrology (3)**

FORT 240 is a fourth-semester, three-credit course in the Forest Technology program. The course includes the study of soils and forest hydrology, especially as they are affected by forest management activities. Land reclamation activities in the reclamation and re-vegetation of disturbed sites found in the coal mining areas of Pennsylvania are also considered. This course uses outdoor and indoor labs to reinforce material discussed in lectures.

Course objectives are for students to develop an understanding of the physical, chemical, and organic properties of soils, of forest hydrology, and the impacts of forest management activities of the reclamation process and activities, and of the importance of soil and water resources and their conservation.

Course grades will be based on scheduled quizzes, lab reports, assignments, lecture exams, a cumulative final, and attendance and participation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: second-year standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 250 Forest Management Practices (3)** Practical techniques for implementing management plans for forest stands under various ownerships and management regimes.

### **FORT 250 Forest Management Practices (3)**

FORT 250 is a capstone course in the forest technology program taught in the fourth semester. It will give students the opportunity to use the various skills they have learned in other courses to develop management plans for forests managed with varying objectives. Concepts of valuation, timber procurement, and discounted cash flow will be covered. Regulatory, management certification, public sector, and private sector management issues will also be explored. The skills will be applied as students work on a semester-long management plan of a selected forest tract.

The objective of the course is for students to develop skills in creating and executing forest management and timber harvesting plans in forest stands.

Course grades will be based on quizzes, homework, laboratory exercises, management plans, and exams.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FORT 110FORT 160

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FORT 260** GIS for Natural Resources Management (3) Geographic Information Systems technology including mapping and GIS data management procedures w/ emphasis on natural resource management applications.

### **FORT 260 GIS for Natural Resources Management (3)**

In this course, students will acquire the basics of spatial data analysis using geographic information systems technology. The course will cover acquiring data, manipulating databases, and displaying the results to solve spatial analysis problems. Problems will come largely from natural resources sciences and forest management. GIS is rapidly becoming a standard technology in many disciplines that use data having a spatial component. Students with knowledge and experience in GIS may improve their job prospects significantly.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FORT 120FORT 130

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Forestry (FOR)**

**FOR 200** The Profession of Forestry (1) Introduction to the profession of forestry and related career opportunities.

### **The Profession of Forestry (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

Concurrent: FOR 203

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 201** (GN) Global Change and Ecosystems (3) This course will provide students with an understanding of the climate system, ecosystems, and feedbacks between the two.

### **FOR 201 Global Change and Ecosystems (3) (GN)**

Ecosystems across the planet are facing unprecedented pressures and changes as society seeks to support continued population growth and increasing standards of living. Understanding how ecosystems in Earth's biosphere interact with the climate system and how feedbacks alter the services that ecosystems provide is necessary to meet society's demands. Global Change and Ecosystems is designed to provide students with a general understanding of the climate system, ecosystems, and feedbacks between the two. The goal of this course is to develop critical thinking skills related to understanding the many relationships between society and natural systems. In this course students are encouraged to think critically about these relationships and the information used to develop assessments.

This course broadly covers: 1) global change factors, including climate change, land-use change, and pollution, 2) life on land, where we will explore the diversity of Earth's ecosystems, 3) global change impacts, where we will identify how global change factors are impacting our ecosystems, and 4) ecosystem services, where we will examine the coupling of human and natural systems.



Students will complete this class with the ability to: 1) interpret scientific figures, 2) critically evaluate information about global change and ecosystems, 3) define what constitutes an ecosystem and the controlling factors, 4) describe Earth's biomes and major ecosystems, and 5) describe the impacts of global change factors on ecosystems.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: 3 credits of science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 203 Field Dendrology (3)** Field identification of native and introduced trees and shrubs by leaf, fruit, twig, and bark.

### **FOR 203 Field Dendrology (3)**

This course establishes the basic skills of woody plant and tree species identification necessary for students of forestry, ecology, and natural history. This course should be taken prior to most courses in forestry; students should be concurrently enrolled in careers in forest resources and anatomical properties of wood. The objectives of the course are for students to 1) recognize many of the common woody plant species encountered in Pennsylvania (and the region) and the taxonomic traits used in their identification, 2) employ the diagnostic skills useful for woody plant identification, including the use of dichotomous keys, and 3) identify resources for identification and continued study of woody plants in Pennsylvania and the region. Herbaceous invasive species will also be addressed. This course introduces the use of dichotomous keys for tree identification and silvics, and is almost entirely field-based. Evaluation methods include oral pop-quizzes and a written final exam.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

Concurrent: FOR 200W or W P 200W and W P 203

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 204 Dendrology (2)** Taxonomic and silvical characteristics, ranges, genetic relationships, and uses of important forest tree species.

### **Dendrology (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FOR 203

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 228 Chainsaw Safety, Maintenance, and Operation in Forest Management (1)** Safety, maintenance, skills, and techniques for effective chainsaw operation in forest management.

### **FOR 228 Chainsaw Safety, Maintenance, and Operation in Forest Management (1)**

This course covers the detailed use of the modern chainsaw. The course begins with safety and personal protective equipment (PPE), Occupational Safety and Health Agency (OSHA) regulations, saw selection, and an introduction into safe saw handling skills and techniques.

The course then transitions to saw maintenance and proper care of the chainsaw, and then to a hazard recognition, mitigation, and avoidance component that addresses both the work site and the resource being harvested and processed.

Once these objectives have been understood, the remaining two-thirds of the course focus on the practice of chainsaw handling skills and techniques that are necessary for safe operation. This course has an extensive hands-on, experiential learning component in actual tree-felling and processing in the forest, including on-site discussion of harvesting as a forest management tool.

The course concludes with training in proper log manufacturing, including scaling and grading of the harvested resource. Efficient recovery of the timber resource that minimizes damage on the residual stand is emphasized.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

Prerequisite: FOR 203 and W P 203

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 242** Elements of Project Supervision in Forestry (3) Supervisory techniques developed through an understanding of the behavioral sciences applied to field forestry personnel management.

### **Elements of Project Supervision in Forestry (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 255** GPS and GIS Applications for Natural Resources Professionals (3) Using Global Positioning Systems (GPS) and Geographic Information Systems (GIS) for mapping and analysis of natural resources data.

### **FOR 255 GPS and GIS Applications for Natural Resources Professionals (3)**

FOR 255, GPS and GIS Applications for Natural Resources Professionals, teaches students to apply Global Positioning Systems (GPS) and Geographical Information Systems (GIS) in the management of natural resources. Students learn how GPS works and how to use GPS to find locations in the field and to capture spatial data and transfer it to a GIS system. Students learn how GIS data are structured and how to find, use and edit existing GIS databases and to create new ones. They learn to use various software applications to work with and analyze GIS databases, including both spatial and non-spatial data, to address a variety of natural resources management questions and issues. Finally, they learn to present spatial information in a map that effectively communicates information relevant to a variety of natural resources situations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: MATH 022 and MATH 026 ; or MATH 040 ; or MATH 041 ; or MATH 110 ; or MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 266** Forest Resources Measurements (4) Measurement systems used in forest and wildlife management and urban forestry.

### **Forest Resources Measurements (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: FOR 203; FOR 255; MATH 022 and MATH 026 MATH 040 or MATH 041 or MATH 110 or MATH 140; STAT 200 STAT 240 or STAT 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 295** Forest Technology Internship (1-4) Supervised field experience related to the student's major.

### **Forest Technology Internship (1-4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: approval of proposed assignment by instructor prior to registration

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 296A** Certification Activity (0.5) Activity related to various wildland fire certifications.

**Certification Activity (0.5)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 303** Herbaceous Forest Plant Identification and Ecology (3) Survey of common herbaceous plant taxa occurring within forested habitats in Pennsylvania and eastern North America. Botanical characteristics, ecological interrelations, commercial importance, and field specimen collection methods are covered.

**Herbaceous Forest Plant Identification and Ecology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: 3 credits in plant or biological sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 308** Forest Ecology (3) Effects of environment, spacing, and age on trees; forest influences; origin and development of forest communities.

**FOR 308 Forest Ecology (3)**

This class will provide the basic concepts of forest ecology and silvics. The class will emphasize (a) community concepts such as sampling, succession, productivity, disturbance, and animal factors, (b) ecosystem concepts such as nutrient and energy cycles and plant-soil relationships, and (c) environmental factors such as light, temperature, moisture, and pollution, and their effects on individual tree species and community structure and function. Other special topics of interest (allelopathy, seed behavior, tropical forests, etc.) will be included as time permits. The class will also include a field component that allows students to observe the effects of various conditions or treatments on forest community structure and growth, and to practice field methods commonly used to measure site factors and environmental processes in forest communities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: or concurrent:FOR 203

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 320 Forest Fire Management (2)** Principles and concepts involved in managing the forest ecosystem in regard to fire.

**FOR 320 Forest Fire Management (2)**

This course will cover the principles and concepts involved in managing forest ecosystems in regard to fire. It will enable students to think analytically and operationally about fire in forested landscapes, taking into account a complex of physical/biological factors, management objectives, and public interest. Wildland fire processes, fuels, and behavior, fire weather, fire ecology, the sociology of fire, fire presuppression, fire containment/suppression, post-fire rehabilitation, prescribed fire, and fire management planning will be covered. Evaluation will be based on exams, individual assignments, and group assignments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FOR 308

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 350 Forest Ecosystem Monitoring and Data Analysis (3)** Quantitative approaches for characterization, monitoring, and comparison of forest ecosystems.

**FOR 350 Forest Ecosystem Monitoring and Data Analysis (3)**

The overall goal of this course is to provide students with opportunities to develop a quantitative approach to the management and conservation of forest ecosystems. The course comprises three sections, each of a different length. The first section reviews descriptive statistics and basic concepts needed to understand sampling design in the context of forest ecosystem monitoring and data analysis. The second section addresses concepts and steps for designing a monitoring plan, and sampling designs for forest ecosystem monitoring. Sampling designs discussed include (but are not limited to): simple and stratified random sampling, double sampling, and cluster sampling. The third section covers data analysis and modeling tools. Students are expected to know two-sample inference, correlation analysis, analysis of variance and linear regression. The focus of this third section is on the application of these to forest ecosystem issues. The course also covers concepts of statistical model development, selection, and evaluation. Students will develop an understanding of strengths and limitations of using statistical models for forest ecosystem management and conservation. Finally, a broad overview of spatial statistical analysis will be offered. The objective is for the students to know about available tools and be able to look for more information. Major emphasis is placed on case studies and real-world data.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: STAT 200STAT 240STAT 250 or equivalent with a C or higher grade

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 400 Senior Forest Practicum (2)** Application of forest management concepts and principles. Students will collect, analyze, and interpret forest management data and present project solutions.

**Senior Forest Practicum (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: FOR 203FOR 255FOR 266FOR 308FOR 421ECON 102SOILS 101 andSTAT 200STAT 240 orSTAT 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 401 Urban Forest Management (3)** Uses and values of urban vegetation, open space, and wildlife; planning, financing, support, management, and administration of urban forestry programs.

**Urban Forest Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: three credits in business management or economics and six credits in biology forestry or plant materials

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**FOR 403** Invasive Forest Plants: Identification, Ecology, and Management (3) Survey of common nonnative ("exotic") herbs, forbs, shrubs, trees, and vines that invade forested habitats in Pennsylvania and the region. Field identification, life history traits, ecosystem-related challenges and problems, and management options and considerations are reviewed.

**Invasive Forest Plants: Identification, Ecology, and Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: 6 credits in plant or biological sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 409** Tree Physiology (2) Fundamentals of the relationship of the basic physiological functions of forest trees to form.

**Tree Physiology (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 410** Elements of Forest Ecosystem Management (3) Fundamentals of forest ecosystem management for goods and services.

**Elements of Forest Ecosystem Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: 3 credits in both ecology and biology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 416** Forest Recreation (3) The management and administration of multiple-use forest lands and wilderness for forest recreational experiences, with emphasis on public forests.

**Forest Recreation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: 3 credits in social or behavioral sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 418 (US;IL)** Agroforestry: Science, Design, and Practice (3) Agroforestry integrates trees in agricultural landscapes, and/or agriculture products into forested areas for multiple benefits.

**FOR 418 Agroforestry: Science, Design, and Practice (3)  
(US;IL)**

Agroforestry is the intentional design of land use systems that combine tree crops with plants and/or animals in a manner that seeks to promote ecological and economic benefits within the landscape. Two possible arrangements for such systems are (1) the integration of trees within non-forested settings; and/or (2) the introduction of high value 'crop' species into existing forestlands. The objective of the course is to foster a practical working knowledge of agroforestry as it is experienced both in Pennsylvania and throughout the world, so that students from a variety of backgrounds can integrate agroforestry practices and thinking into their own disciplines, interests, and lives. Although agroforestry is an ancient land use approach, it is new in many places, and improvements and adaptations to traditional practices are needed to meet local circumstances. This course will provide a framework for critical assessment and implementation within this context.

One of the fundamental aspects of agroforestry is that it is a land use system that operates at a landscape or ecosystem scale. For agroforestry to succeed, many factors, including ones external to the agroforestry practice itself must be considered. Therefore the course is interdisciplinary in nature and topics in ecology, economics, sociology, and policy that are related to agroforestry practices will be discussed. In evaluating the students, the primary emphasis is on class discussion. Students will be expected to review and discuss papers and contribute to the ongoing dialogue and debate about agroforestry as a sustainable land use. Students will be required to carry out critical reviews of agroforestry papers and publications as well as design and develop an agroforestry project pertinent to their individual field of interest and

expertise. The course will be offered every Spring semester.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 421 Silviculture (3)** The application of the principles of forest ecology to control of establishment, composition, and growth of forest stands.

### **Silviculture (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: FOR 308FOR 266

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 430 (W F S 430) Conservation Biology (3)** The application of biological principles to issues in the conservation of biodiversity.

### **Conservation Biology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 220W orFOR 308

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 439 Timber Sale Administration (2)** Practical aspects of the logistical, environmental, managerial, and regulatory oversight of active and retired timber sales.

### **FOR 439 Timber Sale Administration (2)**

This course provides hands-on experience with all of the activities associated with overseeing a timber sale, including the legal aspects of arranging a sale, marking timber and calculating volume, road and sale layout, best management practices, inspections, harvesting equipment, working with contractors and loggers, and liability issues. It should be taken after completing coursework in mensuration. The objectives of the course are to 1) obtain and translate a property deed onto the ground and create a professional map of the timber sale area; 2) design a timber sale, including cutting boundaries, skid trails, haul roads, and landings such that site impact is minimized, harvesting efficiency and safety is maximized and productivity is maintained; 3) collect sufficient information for a professional timbersale prospectus, including which harvesting systems would be best suited to the situation; 4) complete an erosion and sedimentation plan, a stream crossing permit, and local harvesting ordinance requirements; 5) develop a timber sale contract and a landowner-consultant contract to protect all parties and address all possible legal scenarios; 6) work with, inspect, supervise and provide meaningful feedback to harvesting, road building and landscape contractors; 7) retire a timber sale area to prevent erosion, create habitat variety and/or recreational opportunities, and maintain aesthetic qualities. Evaluation methods include written exams, written and field projects, and participation. This course is offered every fall and class size is restricted.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: FOR 203 andFOR 266 ; and prerequisite or concurrentFOR 421

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 440 Forest and Conservation Economics (3)** The role and application of economics and finance to forest resource conservation and management.

### **FOR 440 Forest and Conservation Economics (3)**

Students will learn economic and financial concepts and tools used in managing forests and natural resources. Specifically, they will: a) use financial tools including cost-benefit analysis to analyze forest investments, b) recognize forest-related business operations and management issues, c) apply economic principles to forest and natural resource management decisions including environmental and nonmarket valuation methods, and d) discuss current issues in forest management and economics such as climate change, bioenergy and tropical deforestation. Students will carry out a case

study of a forest-related business.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: ECON 102 or ECON 104

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 450W Human Dimensions of Natural Resources (3)** Addresses human needs and desires, from individuals to nations, for social, ecological, and economic benefits derived from natural resource decisions.

**Human Dimensions of Natural Resources (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: 6 credits of social and behavioral sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 455 Remote Sensing and Spatial Data Handling (3)** Remote sensing systems, with emphasis on application to forest ecosystem analysis. Includes introduction to computer systems for spatial data handling.

**FOR 455. Remote Sensing and spatial Data Handling (3)**

FOR 455 imparts a basic understanding of remote sensing and related spatial data technologies such as geographic information systems (GIS) and digital elevations models (DEM) in a natural resources context. Lectures cover the nature of electromagnetic radiation, electronic remote sensing systems, airphoto systems, photogrammetry, and GIS fundamentals. Laboratory work includes stereo viewing, basic photogrammetry, introductory photointerpretation, airphoto mission planning, digital image analysis, topographic analysis and landforms, GIS mapping, and some basic GIS analysis. Emphasis is on learning by doing, with one lecture and two 2-hour labs each week.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: MATH 110 3 credits in computer science 6 credits in ecological and/or geological sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 466W Forest Management and Planning (3)** Rationale, process, and tools for forest management decision-making and planning. Developing and communicating forest plans for forested properties.

**FOR 466W Forest Management and Planning (3)**

Students learn the rationale, processes, and tools for forest management decision-making and planning. They learn to identify and obtain information needed for management decision-making and planning. They learn to develop management alternatives and to use appropriate data and tools to evaluate those alternatives. Students learn to apply financial analysis to evaluate the financial viability of stand-level forest management activities. Students develop and write forest management plans for small ( 250 acres) and large (> 250 acres) forested properties. Students identify how alternative forest management objectives are balanced in developing management plans. Students evaluate and critique public agency forest management plans.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: FOR 255 FOR 421 and FOR 440

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 470 Watershed Management (3)** Management of wild land watersheds for control of the amount and timing of water yield, water quality, erosion, and sedimentation.

**FOR 470 Watershed Management (3)**

In FOR 470-Watershed Management students are expected to learn the fundamentals of watershed hydrology and how management of natural resources, especially forest resources, can be adapted to protect and enhance the natural flow,

quantity and quality of water resources.

Emphasis is placed on acquisition of available hydrologic and climatic data over the internet, solving basic hydrologic problems using the proper units, writing short essays summarizing assigned papers or lectures, and in-class tests on managing impacts of timber harvesting, road construction, application of forest chemicals, and other land uses activities. The course is primarily, but not exclusively, intended as a course for upper-level undergraduate and graduate students in forest resources and wildlife and fisheries majors or other majors such as ERM with related natural resources backgrounds and interests.

The course is a Prescribed Course for Forest Resources undergraduates in the Forest Management and Watershed Management options and is a Water Science breadth course for students in the Graduate Option in Watershed Stewardship. A companion one-credit course FOR 471 -Watershed Management Laboratory - may be taken concurrently with or following FOR 470. This course is offered each Spring Semester and generally has an enrollment of about 80-90 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: 3 credits in Soils

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 471 Watershed Management Laboratory (1)** Introduction to hydrologic and climatic measurements and computations useful in watershed management.

### **Watershed Management Laboratory (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: or concurrent:FOR 470

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 475 Principles of Forest Soils Management (3)** Effect of current forest management practices on the properties and productive capacity of forest soils.

### **Principles of Forest Soils Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FOR 308 3 credits in soils

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 480 Policy and Administration (3)** Forest resources policy objectives; criteria and goals of society; policy implementation by ownership classes; planning, administration, and evaluation of programs.

### **Policy and Administration (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: 3 credits of social or behavioral science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 488Y (IL) Global Forest Conservation (3)** Ecological, economic, technological, and political aspects of forested ecosystems in a global context, emphasizing tropical and developing countries.

### **FOR 488Y Global Forest Conservation (3)**

Forested ecosystems cover one third of world's land area, and about two billion people depend on forest products for their livelihood. Students in this course will learn about trends in global forest cover, human demands on forests in different parts of the world, and how national and international institutions and policies regulate forest use. Topics covered include tropical deforestation, biodiversity, climate change, poverty, forest production and trade. Students come away from the course with an understanding of the diversity of forestry practices around the globe.

General Education: None  
Diversity: IL



Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: 3 credits in natural sciences and 3 credits in social and behavioral sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 494** Forestry Research (3) Introduction to the theory, principles, and practices of forestry research; supervised research experience.

**Forestry Research (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: FOR 350STAT 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 494H** Forestry Research (3) Introduction to the theory, principles, and practices of forestry research; supervised research experience.

**Forestry Research (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: FOR 350STAT 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 495** Forestry Internship (1-6) Supervised field experience related to the student's major.

**Forestry Internship (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: approval of proposed assignment by instructor prior to registration.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FOR 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Fractional Transfer Credits (GMISC)

**GMISC 001** FRACTIONAL TRANSFER CREDITS (1-99) FRACTIONAL TRANSFER CREDITS FOR ADMISSION'S USE ONLY.

### FRACTIONAL TRANSFER CREDITS (1-99)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## French (FR)

**FR 001** Elementary French I (4) Grammar, with reading and writing of simple French; oral and aural work stressed. Students who have received high school credit for two or more years of French may not schedule this course for credit, without the permission of the department.

### Elementary French I (4)

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 1985

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 002** Elementary French II (4) Grammar and reading continued; oral and aural phases progressively increased. Students who have received high school credit for four years of French may not schedule this course for credit, without the permission of the department.

### Elementary French II (4)

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 1985  
Prerequisite: FR 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 003** Intermediate French (4) Grammar, reading, composition, oral and aural exercises.

### Intermediate French (4)

General Education: None  
Diversity: None  
Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language  
Effective: Fall 1985  
Prerequisite: FR 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 051** Elementary Intensive French I for Graduate Students (3) Intensive introduction to French: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

### FR 051 Elementary Intensive French I for Graduate Students (3)

This is the first in a series of three courses designed to give students an intensive introduction to French. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the French vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008  
 Prerequisite: graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 052** Elementary Intensive French II for Graduate Students (3) Intensive introduction to French: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

### **FR 052 Elementary Intensive French II for Graduate Students (3)**

This is the second in a series of three courses designed to give students an intensive introduction to French. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the French vocabulary. Lessons are taught in an authentic cultural context.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008  
 Prerequisite: FR 051 or equivalent and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 053** Intermediate Intensive French for Graduate Students (3) Continued intensive study of French at the intermediate level: reading, writing, speaking, listening, cultural contexts.

### **FR 053 Intermediate Intensive French for Graduate Students (3)**

This is the third in a series of three courses designed to give students an intermediate intensive knowledge of French. Continued intensive study of French at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2008  
 Prerequisite: FR 052 or equivalent and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 083S** (GH;IL) First-Year Seminar in French (3) Critical approaches to the dimensions and directions in French/Francophone literatures and cultures.

### **FR 083S First-Year Seminar in French (3) (GH;FYS;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Through the reading of texts, discussions (in-class, study groups, listservs), debates, and collaborative research projects, students are introduced [a] to French/Francophone literatures and/or cultures; [b] to the humanities and to the nature of research and scholarship; [c] to cross-cultural issues (international); and [d] to scholarly conduct and responsibilities. Students develop international competence by cultivating curiosity about and empathy for other cultures; by recognizing that social variables, such as age, gender, social class, religion, ethnicity, race, sexual orientation, and place of residence, affect the way people view the world, behave, and communicate; and by developing the ability to locate, organize, and evaluate information about the culture(s) from a variety of sources (print, electronic, people, personal observations). The points of departure for the development of all of these competencies are literary and cultural texts from France and French-speaking regions/countries of the world. All texts are in translation, and knowledge of the French language is not required. Students will be evaluated through written essays, quizzes, class discussions, and a collaborative group project. This course will prepare the students for other courses in the humanities by giving them the opportunity to gain insights into the study of the humanities through literary and cultural texts. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them including the opportunity to develop relationships with faculty and other students who share their academic interests. The Department of French plans to offer three (twenty student limit per seminar) first-year seminars per academic year. The course fulfills the first-year seminar requirement as well as one of the humanities requirements in general education or a Bachelor of Arts humanities requirement. This course does not require any special facility or equipment to be taught effectively.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 111** Elementary French (6) Acquisition of basic skills in the active use of French: listening, speaking, reading, and writing.

**Elementary French (6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 112** Intermediate French (6) Reinforcement of basic skills previously acquired in the active use of French in FR 111.

**Intermediate French (6)**

General Education: None

Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 121G** Fundamentals of Reading French (3) Instruction in fundamental skills required for reading expository French prose, primarily for research purposes. (This course may not be used to satisfy any baccalaureate degree requirements. No graduate credit is given for this course.)

**Fundamentals of Reading French (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2001

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 122G** Practice in Reading French (3) Development and reinforcement of basic reading skills, with emphasis on the individual student's area of research. (This course may not be used to satisfy any baccalaureate degree requirements. No graduate credit is given for this course.)

**Practice in Reading French (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1984

Prerequisite: FR 121G

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 137 (GH;IL)** Paris: Anatomy of a City (3) Survey of the cultural, artistic, literary, and social life of the city of Paris from Gallo-Roman times to the present.

**FR 137 Paris: Anatomy of a City (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

FR 137, taught in English, is an introductory survey of the cultural, artistic, literary, and social life of the city of Paris. We will explore painting, sculpture, architecture, music, dance, theatre, literature, as well as the history and geography of this great city through the ages. Beginning with Gallo-Roman Paris and ending with the Paris of today, the course will explore the continuities as well as the changes in more than 2000 years of Parisian history. Students will read representative texts from every period and be exposed to the artistic movements through slides, films, and virtual tours. There will be extensive use of technology (CDs, DVDs, internet). In discussion sections, students will get a chance to discuss readings and fine-tune their analytical skills.

In addition to the three examinations (short answer and essay), there will be short writing assignments and group research projects. This course will complement the Departments of Art History, Architecture, Comparative Literature, Geography, Music History, History. It will require a room equipped for technology and will be offered every semester.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 138 (GH)** French Culture Through Film (3) Introduction to French culture through film by French and francophone directors examining gender, ethnicity, and global issues. Taught in English.

**FR 138 French Culture Through Film (3)  
 (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course, taught entirely in English with no assumption of prior knowledge of French, will entail the study and analysis of a number of recent and not-so-recent French films that present, in one way or another, problems or themes characteristic of French history and society. We will not, however, be concerned primarily with watching these films as "illustrations" of various aspects of French culture; on the contrary, we will study them as films. We will be concerned with the filmic devices used, and with the intellectual and ideological orientations of the people who made them. For this reason we will discuss techniques used in the presentation of various events shown in the films, which may or may not involve war, the Occupation, city life, growing up, gender relations, the lives of immigrants, etc. From our study of these films, we will inevitably learn quite a bit about French society and its values, particularly in the period from the Occupation (World War II) to the present.

French 138 will satisfy a General Education humanities requirement for students in all majors except French. Students will be evaluated with quizzes (given after the screening of each film ... before class discussion about film) for 20% of final grade; group presentations/participation for 30% and essays (five short papers) for 50%. This course will be offered once a year with a limit of 75.

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 139 (GH;IL)** France and the French-speaking World (3) An introduction to the culture of France and its impact on the world.

**FR 139 France and the French Speaking World (3)  
 (GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

By studying the artistic, social and intellectual components of the French cultural ethos, the undergraduate student will develop an appreciation of a major Western European humanistic tradition and its impact and adaptation on several continents. The notion of a national culture, which has become an international phenomenon integrates a broad spectrum of subject areas in the arts, humanities, and social sciences. The elements to be articulated embrace: socioeconomic, linguistic, and demographic profiles, social stereotypes (internal, external, and colonial), social structures (family, gender, childhood/old age), and selected "high" and "popular" cultural themes (cuisine, architecture, dress, painting, social philosophy). Using today's metropolitan French culture as a point of departure, and its historical legacy, the course will explore the consequences of French cultural hegemony in various French-speaking areas (Belgium, Switzerland, North and West Africa, North America, Maghreb-Middle East, Orient). In brief, the course introduces Penn State students to the dynamics of cultural pluralism, a crucial acquisition in today's "global village."

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 141 (IL)** Cultural Tradition in French Cuisine (3) A study of French culture in English, emphasizing the French gastronomical traditions in literature and civilization.

**Cultural Tradition in French Cuisine (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 142 (GH)** French and Francophone Literatures in Translation (3) An introduction to the literature of France and French-speaking countries.

**FR 142 French and Francophone Literatures in Translation (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Taught entirely in English with no assumption of prior knowledge of French, this literary course is a broad introduction to French/francophone literature and French intellectual history through a selection of some of France's and Francophone's best-known authors and world famous masterpieces from the Middle Ages to the present. The course promotes a critical reflection on French and francophone literature in its three genres; it aims at a tentative definition of what is literature; it develops critical methods to approach/enjoy a text; it provides theoretical tools to read effectively a linguistic/semiotic text, to write about it, and to enjoy it. This course may be complemented with FR 139 and/or FR 137. Evaluation will be based on active class participation (20%); one book report (20%); two exams (30%); some quizzes (10%); and a final paper (20%). The course will satisfy a General Education humanities requirement for students in all majors except French. While not required for students specializing in French, it is viewed as foundational by the Department, initiating students to basic and broad-based literary concepts and critical approaches which will enhance performance in more advanced courses in literature and/or civilization for French Minors and Majors. This course will be offered once a year with 18 seats per offering.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 199 (IL)** Foreign Study--French (1-12) Intensive postintermediate grammar review, with emphasis on oral skills and vocabulary building.

**Foreign Study--French (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 2005  
Prerequisite: FR 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 201 (IL)** Oral Communication and Reading Comprehension (3) Emphasis on oral skills and reading for total comprehension.

**FR 201 Oral Communication and Reading Comprehension (4)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to improve French language skills, with an emphasis on speaking and reading. It aims to hone students' ability to understand a wide array of native speakers and to expand their active vocabulary; to foster discussion and debate in a range of formats; to enhance the ability to analyze films and literary texts; and to increase awareness of historical and contemporary cultural issues. It also provides opportunities for reviewing selected grammatical points and for practicing writing short interpretive and imaginative exercises. Students draw on written texts, videos, the Web, and other media to explore cultural and literary aspects of France and the Francophone world from a variety of perspectives. Evaluation methods include individual oral and written exams (30%); formal debates (20%); quizzes and homework

assignments (10%); class attendance and participation (20%); and a final oral presentation (20%).

General Education: None

Diversity: IL

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2007

Prerequisite: FR 003 or FR 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 201U** (IL) Oral Communication and Reading Comprehension (3) Emphasis on oral skills and reading for total comprehension.

### **Oral Communication and Reading Comprehension (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: FR 003 or FR 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 201U** (IL) Oral Communication and Reading Comprehension (3) Emphasis on oral skills and reading for total comprehension.

### **Oral Communication and Reading Comprehension (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: FR 003 or FR 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 202** (IL) Grammar and Composition (3) Grammar review and writing of short essays.

### **Grammar and Composition (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Spring 2006

Prerequisite: FR 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 270** (WMNST 270) Race and Gender in Literature Translated from French (3) A critical presentation, taught in English, of changing ideas and values on race and gender in French and Francophone literatures.

### **Race and Gender in Literature Translated from French (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an

individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1982

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1982

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 299** (IL) Foreign Study--French (3-12) Writing practice at postintermediate level. Cultural readings about French civilization.

### **Foreign Study--French (3-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Summer 2005  
Prerequisite: FR 199

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 316** French Linguistics (3) Survey of the theory and methods of linguistics as they apply to the major subfields.

### **FR 316 French Linguistics (3)**

The goal of this course is to provide the undergraduate student with a solid overview of the theory and methods used by linguists seeking to develop a formal account of French grammar. Specifically, the student will become acquainted with the basic assumptions of the field (e.g. the prescriptive/descriptive distinction, the notion of competence versus performance, various methods of data collection, and the notion of Universal Grammar). In addition, a selection of the major subfields of linguistics will be surveyed (these include: phonetics, phonology, syntax, semantics, and morphology with the focus being on the linguistic rules found in the French language).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: FR 201FR 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 331** (IL) French Culture and Civilization I (3) French history and culture from the Middle Ages until the French Revolution.

### **FR 331 French Culture and Civilization I (3) (IL)**

This course, which fulfills the Humanities requirement within the Bachelor of Arts degree, will present a survey of French culture and civilization from the Middle Ages up to the French Revolution. The course aims to familiarize students with the major events and themes in French history of this period; prominent artistic and other cultural developments; and French social and daily life. Students will gain a rich appreciation of this time period through frequent exposure to web sites, films, music and other audio-visual materials. Taught in French, the course also aims to help students develop further facility in written and spoken French through a combination of readings, writing assignments, class lectures, conversation and in-class activities. The course is designed as a complement to the French literature survey sequence. In addition, it serves as an important basis for 400-level language, literature and culture courses. The course will be offered every semester or every other semester.

General Education: None



Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2006  
Prerequisite: FR 201FR 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 332 (IL) French Culture and Civilization II (3)** French history and culture from the French Revolution through the Third Republic.

**FR 332 French Culture and Civilization II (3)  
(IL)**

This course, which fulfills the Humanities requirement within the Bachelor of Arts degree, will present a survey of French culture and civilization from the French Revolution to the collapse of the Third Republic with the onset of World War II. The course aims to familiarize students with the major events and themes in French history of this period; prominent artistic and other cultural developments; and French social and daily life. Students will gain a rich appreciation of this period through frequent exposure to web sites, films, music and other audio-visual materials. Taught in French, the course also aims to help students develop further facility in written and spoken French through a combination of readings, writing assignments, class lectures, conversation and in-class activities. The course is designed as a complement to the French literature survey sequence. In addition, it serves as an important basis for 400-level language, literature and culture courses. The course will be offered every semester or every other semester.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2006  
Prerequisite: FR 201FR 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 351 (IL) Introduction to French Literature I (3)** Introduction to close textual reading and analysis of selected works of French literature from the middle ages to 1789.

**Introduction to French Literature I (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 2013  
Prerequisite: FR 201FR 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 352 (IL) Introduction to French Literature II (3)** Introduction to close textual reading and analysis of selected works of French Literature from 1789 to the present.

**Introduction to French Literature II (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 2013  
Prerequisite: FR 201FR 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 397 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 399 (IL)** Foreign Study--French (3-12) Advanced training in the French language skills.

**Foreign Study--French (3-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005  
Prerequisite: FR 201FR 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 401 (IL)** Advanced Oral Communication (3) Emphasis on speaking and listening comprehension through discussion of current issues, using journalistic materials.

**Advanced Oral Communication (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Spring 2006  
Prerequisite: FR 201FR 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 402Y (IL)** Advanced Grammar and Writing (3) Advanced study of the structure of the French language. Intensive essay writing.

**Advanced Grammar and Writing (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2006  
Prerequisite: FR 201FR 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 407 (IL)** Business Writing in French (3) Common forms of business communication; writing of reports and abstracts.

**FR 407 Business Writing in French (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The objectives of this course are to: practice the basic ideas and vocabulary of business French; to acquire core knowledge about the social and economic organization of France; to improve spoken and written expression in this arena; to draft business letters; to read and understand newspaper articles dealing with economic and business problems; to understand audio and visual messages in French; and to use Francophone resources on the Web. One of several departmental offerings in the area of French Civilization, FR 407 is required for the French Business option and can also be used to fulfill a 400-level requirement for the French-Engineering and Applied French options, as well as for the French minor. The course also fulfills an "IL" requirement by developing an understanding of French economic and business cultures, values, and traditions within the context of both the European Union and global markets. Evaluation methods include several exams; a debate; a mock interview; research on and the analysis of a French or Francophone company; homework; and class participation. The course is offered once a year, usually in the fall semester.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2007  
Prerequisite: FR 331 orFR 332

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 408 (IL)** French-American Business Translation (3) Translation from French to English of actual documents from the business world; theoretical consideration and systematic vocabulary building.

**French-American Business Translation (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: FR 407

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 409 (IL)** Commercial and Technical Translation (3) Translation from English to French of commercial and technical materials; vocabulary building; writing of abstracts and summaries.

**Commercial and Technical Translation (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: FR 402Y

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 410 (IL)** French Press (3) Extensive readings of selected french daily and weekly newspapers and magazines, along with newscast viewings.

**FR 410 French Press (3)  
(IL)**

This course, which is taught in French, is designed to introduce students to the history and current state of French press and media (including newspapers, magazines, radio and television) while introducing them to French society and culture through media coverage of current and recent events. The course is also designed to help students perfect reading, writing and oral communication in French. The course starts with a brief history of the press in France, including the creation of dailies such as Le Journal de Paris and the impact of some well-known journalists or writers upon events such as the Dreyfus Affair. It will then focus more specifically upon the origins of high-circulation, contemporary newspapers and magazines. Quickly moving to the post-WWII period, students will be introduced to radio and television in France and, as they become more familiar with French and Francophone press and media, will be given several opportunities to study current or recent events of the French and Francophone world, in fields such as sports, politics, culture and economics. Library holdings and internet sites will allow the class to regularly read daily newspapers such as Le Monde and Le Figaro and view newscasts on channels such as TF1 and FR2. Once they are familiar with the available resources, students will share research with fellow classmates through oral presentations, for example in the form of simulated newscasts. Students will also develop with the guidance of the instructor an independent, final paper which will explore some aspect of the French press and media. One of several departmental offerings in the area of French Civilization, FR 410 course can be used to fulfill a 400-level requirement for the French Business, French-Engineering, Applied French, and French Language and Culture options, as well as for the French minor. By covering the way in which the range of social identities and the cultural beliefs and values of French-speaking peoples are reflected in various media, and by assisting students in finding and assessing information about current events in the Francophone world, the course can also fulfill an "IL" requirement. Evaluation methods include a series of short quizzes to cover historical and factual data; a short midterm paper based on primary (newspaper-based) research; a longer final paper based on primary and secondary research; other written work of a short-response nature; a group oral presentation summing up the previous week's news and events; and participation, including presence. The course is offered once a year, usually in the spring semester.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
 Effective: Spring 2007  
 Prerequisite: FR 331 or FR 332

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 417 (IL)** French Phonology (3) A formal study of the sound pattern of French.

**FR 417 French Phonology (3)  
(IL)**

The goal of this course is to present an introduction to the linguistic analysis of the sound pattern of French as it is actually spoken by real speakers. by the end of the semester, the student should be able to:

- transcribe French phonetically;
- understand the articulatory characteristics of French and how these differ from English;
- describe the relationship between French spelling and phonology
- examine what gives us accent in French;
- discern patterns of pronunciation in different varieties of the language;
- analyze real speakers' pronunciation on your own;
- create your own teaching/learning unit about some aspect of French phonology

Evaluative Methods: Student performance in this course is generally based on a series of assignments, quizzes, transcriptions, a research project and presentation, an evaluation of other students' presentations, and preparation/participation.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2007  
 Prerequisite: FR 201FR 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 418 (IL) French Syntax (3)** A formal theory of word order and related issues in French grammar.

**FR 418 French Syntax (3)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The aim of this course is to provide the upper level undergraduate student with the background needed to understand modern generative syntactic theory, as well as to eventually enable him or her to do creative and informed research in this area. Roughly three-quarters of the semester will be devoted to an in-depth overview of the historical development of generative syntax, focusing particularly on modern Chomskyan theory - the so-called Minimalist Program. The remainder will build upon and round out this knowledge of syntax by exploring in depth a number of topics that any syntactician must be familiar with in order to do informed research in the field. This section of the course will involve lectures based on close readings of articles and book chapters exploring such topics as the syntax of negation, raising verbs, auxiliary verbs, adverbs, middle constructions, and/or verb movement. (Only a subset of these topics will be discussed, selected on the basis of student interest.)

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: FR 201 and FR 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 419 French Semantics (3)** The study of meaning in human language with a special focus on how it is encoded in French.

**FR 419 French Semantics (3)**

The aim of this course is to provide upper level undergraduate students in French with a relatively informal introduction to the field of semantics as it applies to the French language. Semantics is the subfield of theoretical linguistics that seeks to make explicit the rules native speakers use to interpret stable aspects of the meaning of natural language sentences. The course will begin by comparing and contrasting semantic and pragmatic aspects of meaning – an important undertaking since only the former are assumed to be subject to invariable rules of grammar. The conclusions reached in this portion of the course will then be extended to account for a very special type of language – humor – in a particular context, France. That is, it will be shown that a more complete understanding of this linguistic behavior entails recognition of the relative contributions of pragmatics and semantics. We will then turn to a survey of the classic model-theoretic approach to lexical and compositional aspects of semantic meaning, with important (sociolinguistic) refinements to the standard approach to lexical semantics being discussed in detail. With a survey of the fundamentals of the field in place, we will then undertake an investigation of specific topics in semantics, looking first at the status of thematic roles in semantic theory (focusing on work by David Dowty). Here we will examine the important implications his work holds for the initial mapping of arguments into sentence structure, not only for primary transitive verbs, but also unaccusative and psych-verbs. We will then examine current analyses of causation in French, certain aspectual distinctions, and semantic, pragmatic, and syntactic approaches to negative and positive polarity items, n-words, and minimizers.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011  
 Prerequisite: FR 316

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 422 (IL) Old French Literature (3)** Medieval masterpieces in original and modern French versions.

**FR 422 Old French Literature (3)**  
**(IL)**

This course investigates one or several themes through the reading and discussion of selected French texts from the twelfth through the fifteenth centuries. Readings are in Modern French translation, with one or two classes devoted to a brief introduction to Old French and to manuscript culture. Themes of the course may include Gender and Genre, chivalry and courtly love, court and castle, Arthurian legend, comedy and humor, medieval French literature and film, or others.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Fall 2006  
 Prerequisite: FR 351 or FR 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 426Y (IL) French Literature of the Renaissance (3)** Survey of key texts from sixteenth century France, with attention to historical and philosophical currents of French social thought.

### **French Literature of the Renaissance (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Fall 2006  
 Prerequisite: FR 351 or FR 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 430 (IL) Contemporary France (3)** Study of contemporary French society, politics, and culture from 1870 to the present.

### **Contemporary France (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 436Y (IL) Readings in Seventeenth-Century French Literature (3)** Baroque and classicism: reappraisal of major and lesser-known 17th-century texts and theories.

### **FR 436Y Readings in Seventeenth-Century French Literature (3) (IL)**

Following selected theoretical approaches, the course analyzes various texts from major and lesser-known authors in the three literary genres of the French baroque era. The course examines the (de)formation of "French classicism" by taking into account the strong impact of the theories of literary baroque and concentrates on issues like theatricality and illusion, epistemology and religion, "préciosité," literary circles and academies, and power of theater and theater of power.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Fall 2006  
 Prerequisite: FR 351 or FR 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 440 (IL) Teaching of Romance Languages (3)** Theories of second language acquisition. Current classroom practices in the teaching of Romance languages.

### **Teaching of Romance Languages (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: 15 credits beyond the elementary level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 445Y (IL) Self and Society in Eighteenth-Century France (3)** The changing relationship of the individual to society in pre-Revolutionary France will be explored in texts by major writers.

### **Self and Society in Eighteenth-Century France (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: FR 351 . Prerequisite or concurrent:FR 352

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 452Y (IL) Nineteenth-Century French Literature (3)** Selected readings in romanticism, realism, and symbolism, including Balzac, Stendhal, Sand, Baudelaire, and others, with emphasis on cultural issues.

**FR 452Y Nineteenth-Century French Literature (3)  
 (IL)**

This course offers an overview of Nineteenth-Century French literature. It includes reading material representative of the major literary movements of the period (romanticism, realism, symbolism). It also gives students a chance to examine a great variety of literary genres (novels, plays, short stories, poems, children's narratives among others). In addition to developing close textual reading skills, emphasis is placed throughout the semester on the larger relationship between literary production, aesthetics and Nineteenth-Century history (political systems, education, social transformations, industries and technologies, etc.). Anthologies and complete texts will be used.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Fall 2006  
 Prerequisite: FR 351 orFR 352

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 453Y (IL) La Belle Epoque: Politics, Society, and Culture in France, 1880-1914 (3)** Interdisciplinary perspectives on the politics, society, and culture of France, 1880-1914.

**FR 453Y LaBelle Epoque: Politics, Society, and Culture in France, 1880-1914 (3)  
 (IL)**

The goal of this course is to present and analyze the period of extraordinary changes in all domains known as the "Belle Epoque." The starting point for an examination of these changes is Guy de Maupassant's novel, *Bel-Ami* (1885), which describes the social and professional ascension of an egotistical Parisian parvenu, Georges Duroy. The reading of this novel will allow us at the same time to study in detail one of the novel's protagonists: Paris. Through our discussions and through consideration of a wide range of primary and secondary texts, we will examine the complex rapport between literature (as well as art) and society at the end of the nineteenth century, and we will attempt to answer questions such as: how did the changing Parisian landscape inspire the authors, artists et musicians of this era? How did the new Parisian space encourage the development of new "places of pleasure" cafes, cabarets, cafes-concerts, theaters, racetracks, restaurants, etc.? How did innovations in architecture and the decorative arts, which flourished under the name of Art Nouveau, reflect both social developments and the transforming profile of Paris? What was, in fact, the new social and artistic geography of the capital?

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2013  
 Prerequisite: FR 351 orFR 352

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 458 (IL) African Literature of French Expression (3)** Genesis of Franco-African literature in the 1930s; phases of the negritude movement; colonial and national literature.

**FR 458 African Literature of French Expression (3)  
 (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

African literature in French is one of the most vigorous of the many new literatures in French that are emerging throughout the vast francophone world. Writers from a variety of countries, from Senegal to Djibouti, from Algeria to Congo, are producing works in French, that reflect their own very distinct cultural experiences. They must often modify both the French language and traditional Western genres such as the novel to convey African ways of speaking and narrating. In this course, students will read novels, poems and an epic that has been translated into French from an African language. The subjects range from autobiographical accounts of growing up in an African town and going off to Europe to study during the colonial era to sharp criticism of both the French colonial regime and the subsequent national

governments that took over after independence, an event that occurred in 1960 in most francophone African countries. For the new wave of women writers that has emerged on the literary scene in the last two decades, more personal themes such as love, family, personal freedom, and the task of balancing traditional customs with the needs of contemporary life in large cities have marked their works. Students who take this course will discover the diversity of African literature written in French, the traits that distinguish this literature from metropolitan French literature, the links between the oral tradition and the written tradition, and the changing role of women in society today. Students will be evaluated on written essays, submission of questions in advance of classroom discussion of each work, presentation of a talk in class on some aspect of the works read, a midterm and final exam. French 458 satisfies the literature course requirements in the French major and the 400-level course requirement in the French minor. It can also satisfy the diversity requirement for General Education. FR 458 will be offered once a year with 18 seats per offering.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 460 (IL) Contemporary French Literature (3)** Major authors and movements in French novel, drama, and poetry from Proust to the present.

### **FR 460 Contemporary French Literature (3)**

This course is designed for advanced undergraduate work and it is taught in French. To function well in this course, students need to have passed an intermediate introductory course to French literature. The primary goal of FR 460 is to facilitate students acquisition of a coherent view of major contemporary literary movements, from modernism in poetry and drama, through surrealism, both lay and Christian humanistic fiction, and existentialism, to the absurd theatre, the nouveau roman, and post-modernism, écriture féminine, anti-colonial and post-colonial literatures. Major authors are presented thru one of their works, taking into account the cultural, historical context in which they were developed. Instruction also comprises an initiation to basic theoretical notions on genres, literary techniques, and critical reading methodology. Contents will vary according to instructors choices but balance between periods, movements and genres is implied. Multi-media resources abound for the purpose of illustration and interdisciplinary considerations but the primary thrust is cultural/ literary enrichment, and the development of students reading and analytical skills in French.

Web resources, excerpts, and shorter whole texts will be incorporated to the reading materials and will supplement the required books. Students are expected to read between ten and thirty pages according to the level of difficulty of the materials. No manual or anthology has been established a satisfactory choices for this course even though such tools exist, they generally do not treat the last third of the period properly. So FR 460 instructors have relied on a variety of primary texts to achieve as comprehensive yet coherent a survey of this overflowing century as possible. Occasionally a thematic approach has been attempted to introduce more cohesiveness in the selected readings but this must be combined with traditional, diacritical approaches so as to facilitate the students ability to see linkages between literature and history as well as other arts, as they pursue their French and other Liberal Arts majors.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2006

Prerequisite: FR 351 or FR 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 470 (IL) Race and Gender Issues in Literatures in French (3)** A critical presentation, taught in French, of changing ideas and values on race and gender in French and Francophone literatures.

### **FR 470 Race and Gender Issues in Literature in French (3) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

In addition to presenting subject matter that fosters an appreciation of literatures written in French while exploring racial and gender-related aspects of French and Francophone cultures, this course aims at developing a sophisticated, analytical outlook on peoples of different races and cultures and on women as authors, subjects, and literary "constructions" evolving over time. It provides a sense of the historical development of these questions and the interconnectedness of literature with society, and culture. One example of the issues and selections is the vindication of women -including Middle Eastern and Biblical figures- in Christine de Pisan's City of the ladies, in the early 15th c.; it is shown to have links with the 1970 modernistic and satirical text by Monique Wittig, Les Guilbres. Other examples can be the famed surrealist negritude poetry of Aim Csaire of Martinique, or a classic saga of European Jews by Andr Schwarz-Bart, or the humorous narrative of an African boy in contemporary Paris by Calixthe Beyala. Evaluation is based on a balance of in-class and take home exams and a final paper. Participation is expected, including electronic communication with the instructor. Attendance and participation are assigned a significant proportion of the grade (20%) as is feasible and desirable in small classes with fifteen students or less. The class is led in French, the language of most materials presented, and it is designed primarily for French majors and minors. The literature is supported and illustrated with video excerpts and films available outside

class. Internet research is encouraged and expected. It is offered every three or four years, alternating with FR 471 (Francophone Women in Literature and Culture), or special topics courses and period-bound, advanced literature courses in French.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005  
Prerequisite: FR 351 or FR 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 475 Women's History in Post-Revolutionary France** (3-6 per semester/maximum of 6) Women's history and creativity in post-revolutionary France.

**Women's History in Post-Revolutionary France (3-6 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FR 332 or FR 352

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 487 (IL) Topics in French Film History and Theory I: 1895-1945 (3)** Provide background needed to understand the broad outlines of French film history and theory in their first fifty years (1895-1945).

**FR 487 Topics in French Film History and Theory I: 1895-1945 (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The aim of this course is to provide the upper level undergraduate student with the background needed to understand French film in the period up to the end of World War II. This will greatly aid the student in understanding French literature and culture of the period as well. Topics will include the invention of cinema and the early days of French film; adventure serials and commercial films; avant-garde and surrealist film of the 1920s and 30s; and finally, the period often considered the "golden age" of French film, the 1930s and 40s, and the so-called "poetic realism" movement. Films will be supplemented with readings in criticism by writers and filmmakers of the period, as well as by the scholarship of critics and theorists writing today. The course would allow upper-level undergraduate students to partially fulfill the 400-level course requirement for French majors and minors. This course may also be used to fulfill a requirement in the newly proposed Film Studies minor. A student's performance in this course will normally be evaluated through an in-class expose, two in-class essay tests, and a short research paper. The class will be offered once a year with 50 seats per offering.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: FR 351 and FR 352 or COMM 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 488 (IL) Topics in French Film History and Theory II: 1945-2002 (3)** Provide background needed to understand the broad outlines of French film history and theory in their second half-century (1945-2002).

**FR 488 Topics in French Film History and Theory II: 1945-2002 (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The aim of this course is to provide the upper level undergraduate student with the background needed to understand French film in the period from the end of World War II to the present. This will greatly aid the student in understanding French literature and culture of the period as well. Topics will include the French commercial film of the early postwar period; the ground breaking film criticism of the 1950s, and the films it spawned (the early "New Wave"); the later, more experimental films done in the later 1960s and 1970s by other critic-directors; and, finally, films made in more recent years specifically concerned with the historical memory of social trauma-the Occupation and Holocaust-and the possibility of the cultivation and preservation of this memory in and through the film medium. The analysis will include readings by critics (many of the filmmakers) writing at the time the films were made, as well as more recent scholarship and criticism. The course would allow upper-level undergraduate students to partially fulfill the 400-level course requirement for French majors and minors. It will be offered every other year. This course may also be used to fulfill a requirement in the newly proposed Film Studies minor. A student's performance in this course will normally be evaluated through an in-class expose, two in-class essay tests that will determine the student's analytical skills; and a short research paper. This course will be offered once a year with 50 seats per offering.



General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: FR 351 and FR 352 or COMM 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1998  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**FR 499** (IL) Foreign Study--French (3-12) Advanced studies in French language and literature.

**Foreign Study--French (3-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005  
Prerequisite: FR 201FR 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Fuel Science (F SC)**

**F SC 401** Introduction to Fuel Technology (3) An introduction to the scientific and engineering principles of fuel technology. For non-fuel science majors; fuel science majors will not receive credit.

**Introduction to Fuel Technology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 112PHYS 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**F SC 431** The Chemistry of Fuels (3) Nature and properties of fossil and other fuels, including aerospace, in relation to use; preparation of fuels; by-products; fuel analysis.

**F SC 431 The Chemistry of Fuels (3)**

The course deals with the formation, composition and properties of the principal naturally occurring fossil hydrocarbons (coal, petroleum, natural gas), and their refining, upgrading, and conversion chemistry. The objectives of this course are to equip students with a fundamental knowledge of the chemistry for the fossil hydrocarbon resources and their energy use for transportation and stationary fuels as well as their use as chemical feedstocks. It also helps to prepare students for the challenges, opportunities, and changes in the world of energy and resource-related enterprises. The primary emphasis is on petroleum, natural gas, coal, and liquid transportation fuels. This is a required course for the Energy Engineering Major.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CHEM 210;EGEE 302 or equivalent

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**F SC 432** (CH E 432) Petroleum Processing (3) A study of physical and chemical processes to convert crude oil into desired products with an outlook from present to future.

**Petroleum Processing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**F SC 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**F SC 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**F SC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**F SC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Gaming (GAME)

**GAME 140** (GS) Gaming and Interactive Media (3) Introduction to business and social aspects of interactive media, videogame and simulation industries.

**GAME 140 (COMM 190) Gaming and Interactive Media (3)**

The course is an introduction to the digital interactive media industries for students who may consider seeking employment in that sector, which includes video games and simulations, products for education, training, medicine, business, government/military, and virtual environments for a range of applications. Students will learn about industry structures, basic economics, business models, work flow, types of enterprises, job descriptions, and opportunities. It examines both the national and global markets. It provides students with a factually and theoretically informed appreciation of these industries.

The course will build on the students' personal and social experiences of these media, but it is not a course about playing or designing games or mastering individual applications. No special knowledge or experience in playing video games, using "serious games," or experiencing virtual worlds is required. It will provide students with the foundation to make a well-informed choice about careers in this sector and respond to their natural curiosity about this pervasive part of their lives.

The course is divided into five segments. The first provides general context: history, scale and scope of the field, information on industry structure, business models and operations, and types of skills required. The second focuses on the video game industry, including social, regulatory and ethical issues. Video games are now a major media industry, having surpassed in U.S. revenue both the movie and recorded music industries. The third section looks at "serious games." A "serious game" is a game designed for a primary purpose other than pure entertainment, such as education, scientific exploration, health care, emergency management, city planning, military, engineering, religion, etc. The fourth segment looks at simulations and virtual worlds and their multiple models and uses (entertainment, learning, business, research, etc.), and the development of related online communities. The final section will examine the interrelationship of these industries with the other entertainment industries in terms of planning, marketing, finance, production, etc. It will conclude with a look ahead at new technologies, markets, business models, advancements in artificial intelligence and the convergence of virtual and material worlds.

The course will employ presentations, class discussions, outside readings, demonstrations, videos, class exercises, online explorations, guest experts (in person and via technology), and experiences in virtual worlds.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GAME 160 (GH;US;IL) (CMLIT 191) Introduction to Video Game Culture (3)** A comparative, international look at the nature and history of video games as cultural artifacts, from Pong to online role-playing.

**GAME 160 (CMLIT 191) Introduction to Video Game Culture (3)**

This course is a comparative introduction to the nature and history of video games as cultural artifacts, from Pong to online role-playing. It introduces students to academic discussion on and creative work in new digital forms including hypertexts, video games, cell phone novels, machinima, and more. Students will survey major debates over the meaning and value of video games, and study some of the major theoretical terms and perspectives developed to elaborate the cultural and sociological value of video games.

The course extends students' skills in literary interpretation to a variety of new objects, and makes them aware of the role medium plays in aesthetic development and production. Students will leave with a far sharper understanding of how the interpretive tools used in the humanities can be extended to include new media, and with a sense of the historical role video games have played and will continue to play in global cultural production.

Because the course is historically focused, it will spend significant time looking at the differential development of video games in three major regions: the United States, Europe, and East Asia (especially Japan).

Assignments may include short-answer and essay exams, postings to class discussion forums on ANGEL, and group presentations

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GAME 220 (GA) Introduction to Game Design (3)** Design of games as aesthetic objects and cultural artifacts that people find meaningful and entertaining.

**Introduction to Game Design (3)**

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GAME 250 (GQ) (CMPSC 208) Technical Game Development (3)** Introduction to the tools and techniques required to implement games in a virtual environment.

**GAME 250 (CMPSC 208) Technical Game Development (3)**

First, students learn about game and player elements by creating characters and objects and the means of user interactivity. Both orthographic and perspective views are introduced to assist in character design. Objects and characters are created using fundamental geometric primitives like scale, rotation, translation and extrusion. The set operations, union, intersection, and subtraction, are applied to create compound objects. Bezier and NURB curves are introduced to create objects with irregular contours. Students also learn to design graphical user interfaces (GUIs) and handle mouse and keyboard events to support user interactions.

Second, students are introduced to methods of storytelling and guide them to build narratives for games. Methods of proximity and collision detection in the environment are studied for both static and dynamic objects. Dynamic objects are programmed to move and behave in a deterministically, random, or probabilistically under a variety of lighting methods including ambient, directional, point and diffuse lights are introduced. A number of particle systems are developed with different considerations of randomness, vector direction and velocity. The concept of linear interpolation is illustrated and applied to texture mapping to improve the look and feel of objects.

Third, students are introduced to functions, propositional logic, loops, and randomness to model game behavior. Students will learn to combine a series of primitive actions into a function for control and reuse. Propositional logic will guide students to define conditions and develop game rules. Loops are introduced to simplify the implementation of repeated game behavior. Randomness enables the simulation of many life-like object movements. Students will learn and practice how to write concurrent, event drive and sequential processing algorithms for game objects.

Fourth, students are introduced to the game development process of pre-production, production and post-condition phases and have them apply it to their own project. The topic of maintenance will be introduced with an emphasis on refactoring techniques, critical to improving the quality of game and providing flexibility for future updates.

This course has a significant applied element. Game engine tools are used to develop prototypes of games and playtest them. Lab assignments are given throughout the semester and a final project requires students to demonstrate mastery of all aspects of the course.

General Education: GQ  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: MATH 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GAME 420 Advanced Game Design (3)** Develop the habits of successful game designers - playing games thoughtfully, and documenting those thoughts.

### **GAME 420 Advanced Game Design (3)**

Topics covered in this class will include independent game development, marketing, scheduling, and analysis of contemporary games for design choices in something called a "post-mortem." This is done with the intent of training students in the habits of successful game designers – namely, playing games thoughtfully, and then documenting those thoughts. The successful student will have a clear and thoughtful record of at least 15 games he or she has played and analyzed with a critical eye by the end of the semester. These should be peppered with thoughtful critique on the games industry, and musings on trends in game design. This will of course become clear as the course progresses.

The culmination of this course will result in the creation of a professional, competent game designer's portfolio and blog that can be used in search for a job, to represent oneself as an independent game developer, and to showcase the talents and skills developed over this course and its prerequisite.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: GAME 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GAME 434 (PSYCH 434) Psychology of Gaming (3)** Upper level course examining the core psychological principles as they apply to the topic of games.

### **GAME (PSYCH) 434 Psychology of Gaming (3)**

This course looks at how the field of psychology can be applied to understand and improve the world of games. This requires the application of theories and research based in experimental, cognitive and several other disciplines within psychology, including but not limited to cognitive, social, motivation & emotion, and experimental psychology. By applying different theories within these disciplines we can start to understand how humans interact with games and in turn how games have evolved as a result. This course addresses an active research area in psychology, of broad interest to students in Psychology and other disciplines. The course will fulfill a 400-level requirement for students in the PSYCH majors and minors as well as those in the GAME minor. Students typically will be evaluated by exams, research project, in-class activities, homework, and article discussions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: 3 credits of psychology or 3 credits of a gaming course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GAME 450 Advanced Game Programming (3)** Autonomously generating object behavior and content in games.

**GAME 450 Advanced Game Programming (3)**

The course is developed in two parts, creating programs to automatically generate object behavior and world content.

Students are first introduced to the mathematical basis of vectors and transforms. This is necessary to create engaging characters that properly display behaviors and interact with the player and the world. These behaviors can range from orientating towards the player or pursuing/fleeing from some object in the game. In the presence of obstacles these behaviors require path finding algorithms like A\* in order to navigate through the world. Students then learn how to create challenges that adapt their difficulty level based on the user's proficiency and skill in the game.

In order to reduce costs and meet the demand to get a product to market, the gaming industry is looking for ways to automate the content generation. Instead of hiring a room-full of artists to generate the layout of a city, a computer can be programmed to dynamically generate this content at run-time, saving not only the work-load of the artists, but also the storage space necessary for the representation of the city. An optimization method like genetic algorithms is presented so that dynamically generated content like the layout of building and streets in a city can be produced at run-time. From the beginning of video games mazes and labyrinths have been a common theme and one of the first examples of run-time generated content. Students are introduced to a variety of maze generation methods using a variety of methods. Fractal geometry is introduced to provide a powerful tool to recursively generate natural looking content like plants and terrain. The mathematical basis of chaotic systems provides the theoretical background necessary to understand the limits of these methods as well as how to apply them to create new content.

In addition to the technical content, students are required to demonstrate effective communication skills in these disciplines. Students are required to read and report out on a research paper of historical note or in an emerging field in content generation. Finally, a final project in the course will demonstrate the application of two or more of the concepts covered in the class.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: GAME 250CMPSC 122 andMATH 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GAME 480 Game Development Project (3)** A team of students manages the production of a game from concept to implementation.

**GAME 480 Game Development Project (3)**

In this course students take the entire semester to creating a game that will be published. Students are assembled into teams and will be expected to create a game from conception to publication in a very short period of time. What will result from the completion of this course is a demonstration of the knowledge accumulated in previous GAME courses and in important components of your portfolio to enable you to obtain a job in the industry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: 3 credits of 400 level GAME classes

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Geography (GEOG)**

**GEOG 010 (GN) Physical Geography: An Introduction (3)** Survey and synthesis of processes creating geographical patterns of natural resources, with application of basic environmental processes in resource management.

GEOG 010

**GEOG 010 Introduction to Physical Geography (3)**  
(GN)

**(BA) This course meets the Bachelor of Arts degree requirements.**

*Introduction to Physical Geography* systematically examines the spatial patterns and interrelationships among physical elements at the earth's surface. Particular emphasis is given to developing an integrative view of how atmospheric, hydrologic, geomorphic, and biotic processes control the patterns of climate, water, landforms, soils, and biota across a local-to-global continuum. Those physical elements that influence and/or are influenced by people are the primary focus of study.

Physical geography does not simply discuss the atmosphere, hydrosphere, lithosphere, and biosphere in isolation; instead, it concentrates on understanding the *integration* of these realms of the natural world. For example, the study of weathering processes demonstrates how the physical and chemical breakdown of Earth's surface material depends on the interaction of air, water, and biota with rock.

The focus of physical geography is unlike the component disciplines from which it draws. On the one hand, meteorology focuses on the atmosphere above our heads. Hydrology focuses on water in isolation from people. Geology and soil science focus on the Earth beneath our feet. Biology and ecology focus on the plants, animals, and ecosystems in isolation from people. On the other hand, physical geography concentrates on the surface of the Earth where the atmosphere, hydrosphere, lithosphere, and biosphere intersect. *Introduction to Physical Geography* is concerned with the human habitat-the life layer in which humans interact with their natural world.

Like all geography, five recurring themes permeate *Introduction to Physical Geography*: location, place, regions, movement, and human-environment relationships. Physical geographers not only are interested in where natural phenomena are located on Earth's surface, but also they want to know the answers to such questions as:

1. What is special about the physical processes that take place in a location?
2. How does the physical geography of a place relate to other places in the region?
3. How does energy and mass flow into and out of a region?
4. How do biophysical processes change as we move up and down spatial scales?
5. How do people influence natural processes? How do these processes influence people?

Other disciplines typically do not cover these spatial and nature-society themes systematically.

Physical geographers have developed and adopted many tools to address these themes. Maps are obvious choices, but geographers also use a wide array of photographic and imaging technologies to study the distribution of Earth processes and the processes themselves. They use geographic information systems and computer models to manipulate, display, and analyze spatial data. *Introduction to Physical Geography* acquaints students with many of these tools.

When the above points are taken together, physical geography emerges as a unique field of science. *Introduction to Physical Geography* provides a learning experience that students can get in no other discipline-one that takes an integrated view that makes the nature environment relevant.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 010S (GN)** Physical Geography: An Introduction (3) Survey and synthesis of processes creating geographical patterns of natural resources, with application of basic environmental processes in resource management.

### **Physical Geography: An Introduction (3)**

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 020 (GS;US;IL)** Human Geography: An Introduction (3) Spatial perspective on human societies in a modernizing world; regional examples; use of space and environmental resources; elements of geographic planning.

GEOG 020

### **GEOG 020 Human Geography: An Introduction (3) (GS;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Introduction to Human Geography introduces students to the breadth of contemporary human geography. It explores both the range of topics that geographers study, and some of the concepts and methods they use to study them. Major topics include the spatial organization of human activities; ways in which social processes and structures can be understood through a geographic lens; and geographic perspectives on human-environment interactions. These general topics are explored largely through close examinations of case studies. Any student interested in how the world functions economically, politically, socially and culturally as it enters the new millennium should enroll in Introduction to Human Geography. For this reason, this course satisfies the General Education and the Intercultural course components of the Penn State student curriculum. Students' final grades are based on attendance, participation, four exams, and their contribution to a group research project.

General Education: GS

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 030 (GS;IL)** Geographic Perspectives on Sustainability and Human-Environment Systems (3) Introduction to theory, methods, history and contemporary issues in global and regional relationships between human activity and the physical environment.

**GEOG 030 Geographic Perspectives on Sustainability and Human-Environment Systems (3)**  
**(GS;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

One of the major themes in the discipline of geography is the study of the relationships between humans and the natural environment. GEOG 030 introduces students to the multiple ways in which people and the environment are interconnected. From a dynamic systems perspective, we refer to this interconnectedness as "coupled social-ecological systems." The course uses a geographic perspective to understand how differently these linkages are shaped in various ecological and cultural settings around the globe. The course follows an interdisciplinary approach, exploring from multiple angles major environmental and societal challenges such as climate change, genetically-modified food, over-consumption, disease, and environmental service provision in the industrialized North and the Global South. It promotes critical thinking regarding key concepts such as carrying capacity, ecological footprints, feedback, stability domains, and resilience. Students are encouraged to examine their role and responsibilities for the sustainability of the social-ecological systems we inhabit and to take action in their own lives to contribute to a more equitable and sustainable environment. The course will provide students with the opportunity to read, learn, and debate about the ways in which humans value, use, affect, and are affected by small-scale and large-scale human-environment interactions. It will provide them with skills for critically analyzing and evaluating the ways in which humans have transformed the environment in different parts of the world. They will also learn how to assess what future pathways are sustainable and ethically sound. One key goal of the course will be to help students increase their sensitivity to the global and international context of human interactions with nature. A recitation section is crucial because it allows students to explore controversial issues such as biotechnology, nature as a commodity, and global warming, and to develop critical positions on such issues.

General Education: GS

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 040 (GS;IL)** World Regional Geography (3) Introduction to the world as an interdependent community built from unique and independent regions and nations.

**GEOG 040 World Regional Geography (3)**  
**(GS;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

World Regional Geography examines a world that is undergoing political, economic and social transformations at many different spatial scales. Utilizing geographic concepts including scale, place, region, and location, this course examines international linkages, such as global capital, which help forge a world community.

However, the course also examines local situations that contradict our understanding of a global community and examines a variety of "voices" struggling to be heard in the world: those embracing the global economy and an international culture and those rejecting a homogenizing global capital and culture because they see their resources being exploited. Concepts such as North and South, developed and developing, globalizing capital and homogenizing world culture, take on new meaning when they are explored at a regional level.

Any student interested in how the world functions economically, politically, socially and culturally should enroll in World Regional Geography. For this reason, this course satisfies the General Education and the Intercultural course components of the Penn State student curriculum.

General Education: GS

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.



**Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 110** (GN) *Climates of the World* (3) Introduction to climatology, including principal processes of the global climatic system and their variation over space and time.

GEOG 110

**GEOG 110 *Climates of the World* (3:3:0) (GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

*Climates of the World* examines the spatial patterns and physical processes associated with climate and its interannual variations and longer-term changes. Particular emphasis is placed on the integrative role of the different Climate System components (atmosphere, biosphere, hydrosphere, lithosphere, cryosphere), and on the increasing impact of human activities- both inadvertent and intentional- on climate from local through regional to possibly global scales.

Climatology involves more than an understanding of basic principles of meteorology, although these are important. Similarly, climatology is more than the separate study of the other Climate System components represented in, for example, oceanography, glaciology, hydrology, and ecology. It is, instead, a fully integrative discipline that is focused on the climate at and very close to the Earth's surface. Students are introduced to the importance of *energy* and *mass flows* among the different Climate System components, the physical and chemical *feedbacks* involved in climate stability, the relationships between *spatial and temporal scales* in climate, and the physical processes associated with interannual *climate variations*. The last includes concepts such as *cloud-radiative forcing*, *sea-air and ice-air interactions* (e.g., in El Nio Southern Oscillation and other *teleconnections*), and the South Asian Monsoon as an example of a dynamical climate phenomenon affecting millions of people.

Like all geography, five recurring themes permeate *Climates of the World*: location, place, regions, movement, and human-environment relationships. Climatologists not only are interested in where different climates are located on Earth's surface, but also they want to know the answers to such questions as:

What is special about the physical climate processes that take place in a location?  
 How do the climate processes of a place relate to those of other places in the region?  
 How does energy and mass flow into and out of a region?  
 How do biophysical processes change as we move up and down spatial scales?  
 How do people influence climate processes? How do these processes influence people?

Other disciplines typically do not cover these spatial and nature-society themes systematically.

Climatologists have developed and adopted many tools to address these themes. Maps are obvious choices, but geographers also use a wide array of photographic and imaging technologies to study the distribution and changes in climate-forcing factors, such as land use/land cover, clouds and cloud systems, outgoing longwave radiation, and sea surface temperatures. They use geographic information systems and computer-based methods to manipulate, display, and analyze spatial data. *Climates of the World* acquaints students with many of these tools.

When the above points are taken together, climatology emerges as a field of science best suited to study by geographers. *Climates of the World* provides a learning experience that students can get in no other discipline--one that takes an integrated view that makes the "mystery" of climate and what makes it vary and change spatially and temporally, much more understandable.

General Education: GN  
 Diversity: None  
 Bachelor of Arts: Natural Sciences  
 Effective: Fall 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**GEOG 111 (GN) Biogeography and Global Ecology (3)** Distribution of plants and animals on global, regional, and local scales; their causes and significance.

GEOG 111

**GEOG 111 Biogeography and Global Ecology (3)  
(GN)**

Biogeography and Global Ecology is the science that seeks to identify and understand the past and present spatial distributions of plants, animals, and biodiversity on earth. Particular emphasis is given to developing an integrative framework to explaining how physical and biotic processes have and will continue to contribute to geographic variation in life on earth. The influence of people, and future climates, as agents of change are an important focus of study.

For the uninitiated, biogeography and global ecology may appear to be an amalgamation of topics taken from geology, biology, climatology, oceanography, and other bio-physical sciences. Biogeography and Global Ecology certainly covers parts of these topical areas, but biogeography as a science is unique.

Biogeography and Global Ecology does not simply discuss environmental and biological processes or factors that control species distribution and abundance patterns. The field, instead, concentrates on integrating theory and data from evolution, ecology, population biology, and the Earth sciences to explain geographic patterns in species and species assemblages. As such, it is a branch of both geography and biology. Drawing sharp boundaries between biogeography and other disciplines is counter productive because biogeography has its own theoretical and empirical approaches that readily incorporate conceptual and factual advances in allied sciences.

As in all geography, five recurrent themes are reflected in the content of biogeography: and global ecology place, region, scale, movement, and human-environment relationships. Biogeographers are not only interested in where species are, but also they want to know the answer to such questions as:

- What role does geographic variation in climate, topography, and interactions with other organisms including people play in limiting a species distribution?
- How have historical events such as continental drift, and ice ages shaped a species distribution?
- Why are plants and animals in isolated places such as Madagascar so distinctive?
- Why are there so many more species in the tropics than at temperate or arctic latitudes?
- How has fragmentation of regions and landscapes by human activity affected species diversity?
- How will the distribution and abundance of key species change under an altered climate?

Biogeography and global ecology is a unique and synthetic field of science. This course provides a unique learning experience that students can get in no other discipline-one that takes an integrated view and makes the natural environment relevant.

General Education: GN

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 115 (GN) Landforms of the World (3)** Distribution of the world's landform features and mineral resources; their characteristics, causes, and significance. Practicum includes correlated field trips and laboratory studies.

GEOG 115

**GEOG 115 Landforms of the World (3:3:0)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The subject of Geography 115 GN is landforms, the shape of the earth's surface. Throughout the course, three questions are asked.

The first question is descriptive: what is the surface of the earth like? What is it made of? What does it look like? And where do certain kinds of landforms occur geographically? The answers to these questions are complicated, but not as complicated as one might think. In fact, certain types of landforms tend to occur again and again, and they are found in predictable places. Mountains, for example, are not just high places, but their arrangement and internal geography are interesting and surprisingly orderly. By the same token, plains are not just dull flat places on the earth's surface. They vary greatly, and those variations are extremely interesting.

The second question deals with origins. It is the basic question which all sciences ask: Why? Why are the landforms of the earth shaped the way they are? Why are they made of certain kinds of rock materials? Why do they differ from place to place? In short, we want to know how landforms are made, and the forces that made them. Again, the answers to these questions are less complicated than one might guess, because certain causes tend to repeat themselves, and when they do, similar landforms result.

The third question deals with the effects of landforms in human terms. How have people adapted themselves to various kinds of landforms? How have landforms helped or hindered people in their daily lives, both now and in the past? The answers, of course, are not surprising: landforms make a huge difference in the way we live. And the answers are especially interesting when we look at them in some detail, with examples from all parts of the world.

Thus, Geography 115 GN is designed to examine:

- Geomorphic processes at work,
- The effect of these processes as they work on certain geologic structures,
- How the combinations produce certain kinds of landforms, again and again,
- How human beings have been affected by these elementary facts-of-life, with examples from all over the world, but especially the United States, and adjacent parts of Canada.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 120** (GS;US;IL) Urban Geography: A Global Perspective (3) Introduction to the geography of the world's cities and urban system.

GEOG 120

**GEOG 120 Urban Geography: A Global Perspective (3)**  
(GS;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines urban settlements and analyzes the processes of urbanization from a global perspective. The goal is to provide students with basic information, concepts and analytical tools to understand contemporary processes of urbanization and urban change. Urban places are of fundamental importance: for the distribution of population; for the organization of economic production, distribution and exchange; in the structuring of social reproduction and cultural life; and in the allocation and exercise of power. Geography provides a particularly useful perspective on and insight into the urban condition, helping to understand the internal structure of urban areas and the complex inter-relations between cities around the globe. An over-riding theme in the course is examining the relationship between global and local factors in these processes. Critical areas of inquiry include the economy of cities, politics, social interaction, urban social movements, land-use, and urban structure. A significant portion of the course focuses on urbanization in the Third World.

General Education: GS

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 122** (GH;US) The American Scene (3) Historical perspectives on the social and cultural forces associated with the production of distinctive American landscapes.

**GEOG 122 The American Scene (3)**

(GH;US)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The American Scene offers a broad introduction to the historical geography of the United States through analysis of distinctive elements of regional landscapes. Archival evidence and contemporary photography are utilized to assist in an understanding of "landscape," "place" and "region", each important frames for geographical inquiry. It offers a humanistic perspective on the transformation of the United States from a land first occupied by Indian groups, then colonists from specific European realms, some supported by indentured or enslaved labor, as well as later immigrants in the national period, that pursue agricultural economies in an array of rural and urban settlement systems. Landscapes of modernity, associated with manufacturing, urban growth and new transportation systems, are also considered, as well as landscapes now emerging in the post-industrial era. At the conclusion of the course, students should have a deeper understanding of some of the issues involved in the analysis of place at a variety of spatial scales, and a better sense of the historical layering in the landscapes that they encounter each day and on their travels. The course is organized regionally and temporally. Case studies are drawn from a dozen regions, each emphasizing a different historical moment in the transformation of landscape since the end of the last Ice Age. Some examples draw on material at the scale of a single house or farm and others at the level of a multi-state industrial corporation such as US Steel in the early twentieth century. Any student interested in how the distinctive landscapes of the United States evolved to this point should enroll in The American Scene. It draws on scholarship in historical and cultural geography, as well as architectural history and art history.

General Education: GH

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**GEOG 123 (GS;IL)** Geography of Developing World (3) Patterns of poverty in poor countries; conventional and non-conventional explanations; focus on solutions; case studies of specific regions.

**Geography of Developing World (3)**

General Education: GS

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 124 (GS;IL)** Elements of Cultural Geography (3) Locational analysis of changes in non-Western cultures. Problems of plural societies, economic development, population growth, and settlement.

**GEOG 124 Elements of Cultural Geography (3)  
(GS;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Elements of Cultural Geography, provides an overview of the impact of cultural processes at multiple scales, from the global to the local. Class time will include lectures and discussions in relation to how social identities, such as race and class, just to name a few, impact and are impacted by geographic concepts such as landscape, place and space. The course aims to survey and explore a range of perspectives on the nature of human integration with the environment and the manifestation of human culture on the landscape. The course will engage philosophical and metaphysical questions in addition to those of landscapes and place. The ultimate objective is for participants to develop a deep and multidimensional understanding of how social identities and the environment are inter-related. This course is a selection for majors; it has no prerequisites and is not a prerequisite for any other course. It provides a foundation for understanding human-environment interactions at a global scale, including the regional interactions involved.

General Education: GS

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 126 (GS;US;IL)** Economic Geography (3) The geographic location and organization of economic activities and outcomes at global, national, regional, and local scales.

**GEOG 126 - Economic Geography (3)  
(GS;US;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course is an introductory course on economic geography and serves as background for any course on international economics, economic development, international political economy, and international business management. It will provide a balanced view of contemporary globalization processes across the world through a geographical lens, focusing on a wide range of topics including the history of globalization, spatial structures of firms and business, international trade, and state interventions based on detailed case studies. The course consists of lectures, in class discussions, films, student presentations and exams.

General Education: GS

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 128 (GS;IL)** Geography of International Affairs (3) Contemporary international affairs in their geographical setting; geographic elements in the development of national power, political groupings, and international disputes.

GEOG 128

**GEOG 128 Geography of International Affairs (3)  
(GS;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

*Geography of International Affairs* uses the organizing principle of geographic scale to examine the spatial patterns of and interrelationships among political processes and institutions. Particular emphasis is given to developing an integrative view of how global, national, local and individual scale processes interact to produce patterns of peace and conflict. The course analyzes how the actions of individuals, states and other political actors are influenced by their dynamic geographical contexts.

The political geography approach does not simply discuss the war, peace, nationalism, terrorism, and religious organizations in isolation; instead, it concentrates on understanding the *integration* of these processes, and how their integration mediates political decisions and outcomes. For example, the study of terrorism demonstrates how the decision to commit terrorism is made in a multi-scalar context of competing states and/or nation-state building. In addition, the spaces of terrorist networks are contrasted with spaces of nation-states to show the geographical complexities involved in effective counter-terrorism.

The focus of political geography is unlike the disciplines of political science, international affairs and sociology from which it draws. On the one hand, political science focuses on the processes within separate nation-states. International affairs focuses on the interaction between nation-states, seen as unified actors. Sociology focuses on social organizations and institutions, but usually within the confines of a particular nation-state. On the other hand, political geography concentrates on the interaction of domestic politics, international relations, and trans-national social interactions. Seeing each is mutually constitutive of the other. *Geography of International Affairs* is concerned with the geopolitical context, broadly defined - the manner in which spaces and places are combinations of the political and the social, the domestic and the international, the global and the local - and how it partially determines the form and outcomes of politics.

Like all geography, five recurring themes permeate *Geography of International Affairs*: space, place, scale, context, and human-territorial relationships. Political geographers not only are interested in where political phenomena are located on Earth's surface, but also they want to know the answers to such questions as:

What is special about the political processes that occur in a particular place?

How does the political geography of a place relate to other places in the world?

How do spaces of power, such as states, operate?

How do political processes change and interact as we move up and down spatial scales?

How and why do people use territory in political conflicts, such as ethno-nationalist or religious wars and disputes?

Other disciplines typically do not cover these spatial and human-territorial themes systematically.

As part of the broader discipline, political geographers have developed and adopted many tools to address these themes. Maps are obvious choices, but geographers also use a wide array of statistical and qualitative techniques to study the distribution of political processes and the processes themselves. They use geographic information systems and computer models to manipulate, display, and analyze spatial data. *Geography of International Affairs* acquaints students with many of these tools.

When the above points are taken together, political geography emerges as a unique field of social science. *Geography of International Affairs* provides a learning experience that students can get in no other discipline - one that takes an integrated view that makes contemporary international affairs relevant and understandable.

General Education: GS

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 130 (GS) Environment, Power, and Justice (3)** This course explores contemporary themes in human-environment relations through the lens of political ecology.

### **GEOG 130 Environment, Power, and Justice (3) (GS)**

Relationships between human societies and their physical environments are a defining concern of geography. This course will give students an in-depth knowledge of contemporary human-environment studies in geography through an introduction to the field of political ecology. Political ecology is an interdisciplinary approach that combines environmental justice, cultural ecology, and other related approaches in order to undertake an integrated, holistic assessment of the relationships between social and ecological change, with a particular focus on issues of power and justice in the areas of environmental change and management. In particular, it analyzes the relationships between social and ecological marginalization and change; the social issues surrounding conservation of protected natural areas and species; the underlying causes of environmental conflicts; issues of justice and distribution as they relate to the production and consumption of environmental goods and services; and the role of environmental considerations in the formation of individual and group identities, including environmental social movements.

Students in this course will gain familiarity with a wide range of theories and methods in central to contemporary human-environment geography, and increase their knowledge of the world in general, and of environmental policy challenges in particular, by learning how those theories and methods have been put to use in the analysis of case studies from many different countries and continents. Students will be evaluated based on the understanding of the course material they display in a midterm and final examination, and on their contribution towards a group research project.

General Education: GS

Diversity: None

Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 160 (GS)** Mapping Our Changing World (3) Fundamental concepts of GIS, cartography, remote sensing, and GPS in the context of environmental and social problems.

**GEOG 160 Mapping Our Changing World (3)  
(GS)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Mapping involves producing and using geographic data. Geographic data specify the locations and characteristics of people, the objects people create, and the various phenomena of the natural environment with which people interact. Geographic data are produced by several methods, including land surveying, aerial photography and photogrammetry, satellite remote sensing and positioning systems, and social surveys such as those conducted by the U.S. Census Bureau. Geographic information systems (GIS) and related technologies are used to turn data into maps, tables, and other kinds of information people need to make informed decisions. In a rapidly changing world, detailed, up-to-date geographic data are indispensable for governance, for commerce, and for research intended to improve our understanding of social and environmental systems. GEOG 160 helps students begin to develop the knowledge, skills, and dispositions that constitute geographic information literacy - the ability to "recognize when information is needed and ... to locate, evaluate, and use effectively the needed information" (ALA 1989). Geographic information science (GIScience) is a research enterprise concerned with the design, development, and use of geographic information technologies to help institutions and individuals not only respond to, but ideally to predict, environmental and social change. GEOG 160 is an introduction to GIScience that provides students with the technical and contextual knowledge they need to become knowledgeable consumers of geographic data and information produced by government agencies, industry, and popular media. The course is intended to be of value not only to future specialists in the geographic information enterprise, but also to every student who is concerned with social and environmental research and policy-making. Like other information technologies, GIS is evolving rapidly. People who work with GIS understand that learning is a way of life, not just a prelude to a career. With this in mind, GEOG 160 aims not only to help students learn about geography and GIS, but also to develop the disposition to become effective lifelong learners.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 161** Applied Geographic Information Systems (1) An introduction to GIS (Geographic Information Systems) with emphasis on applications and analysis.

GEOG 161

**GEOG 161 Applied Geographic Information Systems (1)**

GEOG 161 is a one-credit two-hour laboratory course to be taken concurrently with GEOG 160, Mapping Our Changing World. GEOG 160 and GEOG 161 will be offered concurrently as a required course pair for the proposed Environmental Studies Option within the B.S. Science major (SCNBD) at Behrend College. The courses can also be choices in the "Supporting Courses and Related Areas" list for the B.S. Science major's General, General Pre-certification, and Earth & Space Science Pre-certification options. The purpose of the course is to familiarize students with GIS and provide them with the ability to use GIS software commonly used by industry, academia, and government agencies. GEOG 161 will provide students with training and experience in computer-based practical applications of concepts and theory learned in GEOG 160. They will analyze and solve "real-world" problems using hands-on, problem-solving, and inquiry-based approaches to learning. Students will work individually and in small teams in a GIS software-equipped computer laboratory. Students will be evaluated based on the quality of laboratory reports/assignments and on a larger research project with a presentation conducted during the final five weeks of the semester. GEOG161 will be offered at least once per year. Enrollment is expected to be 8-20 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: or concurrent GEOG 160

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 198** Special Topics (1-9 per semester/maximum of 18) Formal courses given infrequently to explore, at a foundational level, a comparatively narrow subject which may be topical or of special interest and incorporating experiential learning.

**Special Topics (1-9 per semester/maximum of 18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: prior approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 293H** Honors Experiences in International Service Learning (1-3) Classroom instruction with supervised student activity on an honors international community service project.

GEOG 293H

**GEOG 293H Honors Experiences in International Service Learning (1-3)**

GEOG 293H provides students with activities that integrate academic study with community service in an international context. The aim of service learning is to enrich traditional classroom-based education by getting students into a community, thereby engendering civic responsibility and simultaneously strengthening communities. GEOG 293H has five objectives: (1) to develop understanding of a set of issues in community development; (2) to learn and apply skills associated with those issues; (3) to develop and apply communication skills by speaking, writing, and/or desktop publishing; (4) to gain international experience at the community level; and (5) to reflect on personal and career interests in international development, science, the environment, public policy, or related areas. Thus, students will read, write, and talk about a set of issues of importance to a foreign community and engage in a project in that community.

The specific service-learning projects will change each semester, although some projects will be ongoing and offered multiple times. Students can take GEOG 293H in more than one semester, to a maximum of four offerings.

Depending on the topic of the international service-learning project, GEOG 293H can complement courses in most colleges and their majors. The course is available to all Geography majors as elective credits; it is also available to all Geography Minors for credit toward the minor.

Students will be evaluated on three of the five course objectives: (1) understanding of the issues, (2) learning and application of skills, and (3) application of communication skills. Although exact procedures for determining grades will vary with instructor and service-learning project, the basis for grades will include a combination of written work, oral presentations, in-class participation, and outside-class participation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: sophomore standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1988

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: prior approval of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 301** Thinking Geographically (3) Learning to think geographically.

GEOG 3

**GEOG 301 Thinking Geographically (3)**



The course explores the process of thinking geographically. As a discipline that draws on elements of four intellectual traditions - the physical sciences, the social sciences, the information sciences, and the humanities - geography offers an extensive palette of approaches to the study of the interactions among people, places, and environments. In addition to those traditions, geography also draws on key themes: setting events and activities into multiple spatial and temporal contexts; setting events and activities into multiple spatial scales from the local to the global; seeing complex, multi-way interactions between human and physical systems; recognizing the interconnectedness between places. In terms of methods, the fundamental building block is the idea of geospatial location and the associated spatially- or geo-referenced data. Data, both quantitative and qualitative in character, is increasingly available in terms of amounts and quality. Students must come to appreciate and be able to use this powerful way of thinking about the world. GEOG 301 assumes a beginning understanding of geography, in terms of basic content knowledge, and builds an understanding of how to think geographically, how to ask geographic questions, how to find geographic answers, how to assess the quality of those answers, and how to present and communicate those answers convincingly and compelling in multiple formats. Students will learn how to think geographically and to appreciate the power, applicability, and limitations of the geographic approach. Each year the course is organized around a significant contemporary problem as a commonly shared case study. Students will work in small groups to analyze the case study, presenting their own portfolio of work for 60% of the course grade and collaborating with group colleagues for a collective presentation for 40% of the grade. Work will be submitted in stages through ANGEL. GEOG 301 is required of all geography majors and will be offered Fall and Spring of each academic year with an annual enrollment of approximately 120 students. Preference will be given first to declared Geography majors, then to Geography minors, before places are offered to students from other programs. Geography 301 is a bridge between the knowledge that comes from the broad-based introductory geography courses and the detailed understanding that comes from the focused, advanced-level geography courses. It enables students to learn about and to practice geographical thinking in real-world contexts.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: GEOG 010GEOG 020GEOG 030 Prerequisite or concurrent:GEOG 160

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 310W** Introduction to Global Climatic Systems (3) Introduction to global atmospheric circulation, including tropical, midlatitude and polar subsystems; ocean, land, cryospheric and urban climatic systems and interactions.

GEOG 310W

### **GEOG 310W Introduction to Global Climatic Systems (3)**

Geography 310W is an advanced undergraduate course in Climatology that emphasizes study of the patterns of interannual climate variability (*climate fluctuations*) and the physical processes responsible for those variations (*climate dynamics*). Interannual climate variations include regional- to large-scale anomalies of temperature, precipitation, cloud cover, etc., that become manifest as drought, floods, heat and cold waves, etc. The physical processes associated with climate fluctuations include the following: interactions among the climate-system components (atmosphere, biosphere, cryosphere, hydrosphere); external forcing (e.g., solar variations, volcanic activity); and long-distance interactions involving the coupled atmospheric-ocean circulations, or *teleconnections* (El Nio Southern Oscillation (ENSO), the North Atlantic Oscillation (NAO), the Arctic Oscillation (AO), and the Pacific-North America (PNA) pattern). Climatic teleconnections manifest shifts in the atmospheric pressure "centers of action", storm tracks, jet stream positions, etc. In addition to the study of these climate patterns and processes, the course examines the role of human activities in climate, particularly "global warming", desertification, deforestation and afforestation, urbanization, irrigation for agriculture, and aviation impacts. In this regard, a key issue that is addressed is the potential role of human activities on the frequency and intensity of teleconnections, such as ENSO, and of severe storms (thunderstorms, tornadoes) and hurricanes; possibly the result of modifications to the oceanic Thermo-Haline Circulation. Students write a term paper, as well as critiques of a number of published articles relating to the above topics in climate dynamics. There is a mid-term (essay) exam but no final exam.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: GEOG 010 orMETEO 003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 311** Landscape Ecology (3) This course examines the ways in which spatial patterns and spatial processes operate in an ecological context.

GEOG 311

### **GEOG 311 Landscape Ecology (3)**

Landscape ecology is an interdisciplinary field that incorporates the tools and theoretical frameworks of geography, ecology and earth sciences. The focus of landscape ecology is on the controls, interactions and outcomes of spatial patterns and spatial processes on ecological dynamics at large spatial scales. Ecological systems are patterned in space by a wide range of interacting physical, biological and human processes. Spatial arrangement and spatial dynamics influence a broad array of ecological processes, such as the flows of energy and nutrients, dispersal and persistence of aquatic and terrestrial organisms, and the spread and impact of natural disturbances. In this course, students will explore the

methods, theories, approaches and practical applications of landscape ecology as a framework for understanding landscape dynamics and interactions and how to apply this information for landscape management. Particular emphasis is placed on how humans have modified landscapes and how species, ecological communities, and ecosystems have responded to these changes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: GEOG 111BIOL 110FOR 308 or W F S 209 or by permission

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 313** Introduction to Field Geography (3) Introduction to the methods and techniques for collecting spatial and environmental data for physical geography and ecological studies.

GEOG 313

### **GEOG 313 Introduction to Field Geography (3)**

This course explores a variety of methods used to acquire primary data from field locations. Aspects of physical, chemical, biological, and cultural factors are examined. Fieldwork is often an important component of research and it involves collecting and analyzing data, handling logistical concerns, developing sampling strategies and techniques, and addressing quality assurance and archiving issues. The course objectives are: to explore methods used to collect, analyze, and interpret field data; to expose students to techniques for sampling physical (geomorphologic, topographic, hydrologic), chemical (water and soil), and biological (flora and fauna) factors; and to explore ways to use field data to interpret geographical and ecological questions and hypotheses. Evaluation involves preparation of written laboratory reports, assignments, and tests. The course is offered every Fall semester with enrollment limited to the number of students supported in a laboratory section.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: GEOG 160

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 323** GIS and Social Theory (3) Critical understanding of how to use GIS and tools of regional analysis in the context of postmodern social theory.

GEOG 323

### **GEOG 323 GIS and Social Theory (3)**

GIS and Social Theory is an introductory-level, laboratory-intensive undergraduate course designed primarily for geography majors to provide a critical understanding of how to use GIS and other tools of regional analysis in the context of postmodern social theory. Fundamentals of GIS are taught alongside social theory to make students aware of both the value and pitfalls of using GIS tools.

GIS and computer mapping are examined through three perspectives: Cartesian spatial analysis, relational analysis, and postmodern discourse theory. Cartesian spatial analysis is explained by using conventional tools of GIS such as map overlay and buffering, focusing on geographic locations of objects, that is, on "where" things are. Relational analysis looks at connections among variables and considers "how" geographical objects are connected regardless of "where" they may be located. The focus here is on choice of variables that are included in the attributes tables of GIS. Postmodern discourse theory argues that categories such as race, class, ethnicity, poverty, community, and neighborhoods are not objectively given entities that are simply mappable, but that they are discursively constructed. We explore the implications of that argument to the mapping exercises in GIS.

Since social categories are "constructed" by discourses about them, discourse is a vital part of what GIS produces through its mapping exercises. Discourse theory also argues that social problems arise in a complex nexus of relations that do not show obvious "root causes" that are easily isolated. In fact social problems are constituted from things that take place simultaneously at a large number of sites diffused throughout the larger society. To address social problems using discourse theory we require methodologies that can simultaneously analyze large quantities of data. So GIS is an ideal tool for looking at social problems using discourse theory. Thus GIS and discourse theory provide useful complements to each other in the analysis of social problems. These arguments are developed at length, by example, through a series of lab and homework exercises. Evaluations and grades are based on exercises, exams, and a final project.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: GEOG 160

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 333 Human Dimensions of Natural Hazards (3)** An introduction to natural hazards, integrating physical and social science perspectives.

**GEOG 333 Human Dimensions of Natural Hazards (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Natural hazards – such as earthquakes, tsunamis, volcanoes, and floods – are not simply forces of nature. Their impacts depend on the interaction between the hazardous events and the characteristics of people, their communities, and the human systems in which they operate. The physical dimensions of natural hazards require knowledge of physical science, and the human dimensions of natural hazards call for knowledge of social science. Nevertheless, understanding natural hazards means not only that students know the physical and social sciences, but also that they know how nature and society work together to increase or decrease potential harm posed by these phenomena.

This course introduces students to the topic by surveying the range of natural hazards and by applying important social science perspectives, such as risk, vulnerability, and the true costs of hazards, to each of the hazards. Because the study of natural hazards is interdisciplinary, readings, lectures, and discussions address crucial aspects of both natural and social sciences.

GEOG 333 has two goals: (1) to develop understanding of a set of issues related to the human dimensions of natural hazards; (2) to develop and apply communication skills by discussing, writing about, and presenting on natural hazards. The specific content of the course will change with the instructor, but the focus on interactions between the natural and human worlds and on skill-development in writing and speaking will be constant.

Students will be evaluated on both the course goals: (1) understanding of the human dimensions of natural hazards; (2) application of communication skills. Although exact procedures for determining grades will vary with instructor, the basis for grades will always include a combination of written exams based on lectures and readings, oral presentations and papers, and in-class discussion and participation.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2011

Prerequisite: junior or senior standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 361 Cartography--Maps and Map Construction (3)** The art and science of creating small-scale maps as a medium for communication and research.

GEOG 361

**GEOG 361 Cartography - Maps and Map Construction (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Mapping is crucial to exploring and understanding distributions of geographic phenomena. It is also an important phase of many database-intensive analyses because a map is often the best way to visualize results and show them to others. Emphases in this course will be on designing and producing both thematic and reference maps that use symbols and visual hierarchies which allow the content of the maps to be readily understood. In addition to principles of graphic design, students learn about map projections, generalization, and data classification, with the objective of becoming proficient mapmakers. Hands-on computer work for lab sections will involve working with varied digital data sources using GIS software. Maps are often built from existing data created by government mapping agencies, stored as geographic information systems (GIS) databases, and based on remotely-sensing imagery. The prerequisite for GEOG 361 is the 100-level mapping course covering basic principles of these technologies and data sources. The course is typically offered once a year. Evaluation is based on written exams and mapping projects that students produce to map location information and represent social and environmental data.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: GEOG 160

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 362 Image Analysis (3)** Introduction to the basic principles of remote sensing, and the analysis of aerial and satellite data.

GEOG 362

**GEOG 362 Image Analysis (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Geography 362 is a course designed to introduce students to the field of remote sensing. Modern remote sensing is a

multi-disciplinary and many-faceted subject encompassing knowledge from a broad array of areas. Remote sensing has steadily grown in importance since the early 1970s and continues to expand as sensing technology improves, as imagery becomes cheaper, as coverage becomes more widespread and as good software for processing the data become readily available. This course is not meant to be an exhaustive treatment of remote sensing. Rather, it is designed to provide an overview of the field.

The field of remote sensing is vast and includes several inter-related themes. Remote Sensing as a science primarily involves the extraction of information contained within energy. The engineering component of remote sensing involves the design and construction of instruments and systems capable of capturing and recording energy from a target. Remote Sensing as a vital tool is expressed in myriad applications, from land cover change analysis to weather forecasting.

This course will be administered in two parts;

- The first seven weeks of the semester will focus on three broad topics (Fundamental Principles of Radiative Transfer and Energy-Matter, Remote Sensing Systems, and Applications). This part of the course will expect student to grasp the major laws describing the energy-matter interactions. Recitations will be devoted to reviewing homework problems designed to solidify understanding of radiation concepts central to the construction of remote sensing imagery.
- The remainder of the semester will be devoted to image analysis with an emphasis on digital remote sensing, i.e. analyzing data in digital form using computer software. This aspect of the course will have a practical focus on using imagery to analyze land cover and to construct land cover maps, with the expectation that students will be able to become proficient in the handling and processing of remote sensing imagery. Consequently, laboratory work will play a major role in this component of the course.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: GEOG 160

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 363** Geographic Information Systems (3) Principles and use of geographic information; emphasis is on data acquisition and techniques for computer-aided analysis.

### **GEOG 463 Geospatial Information Management (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Geospatial Information Management examines models and algorithmic techniques that are used to organize, store and manipulate map and other forms of geographical data in digital form. Emphasis is placed on database management systems and database design and implementation using Relational Database Systems technology. Students will develop both conceptual understanding and practical experience with Relational Databases and Relational Database Software as applied to geographic data.

The course is structured into a series of lectures, supplemented by in-class, hands-on laboratory exercises and term project work sessions. A database package will be introduced at the beginning of the course and will be used in lectures for explaining concepts as well as for the hands-on exercises.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: GEOG 160

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 364** Spatial Analysis (3) Geographic measurement, scaling, and classification; analysis of spatial pattern and structure; geographic covariation and autocorrelation.

GEOG 364

### **GEOG 364 Spatial Analysis I (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Geography 364 is an introduction to spatial analysis that focuses on statistical methods for geographers. You will have an opportunity in this course to:

- learn how to *use* statistics in your own work
- learn how to *consume* statistics in everyday life

The statistical methods you will learn to use are simple descriptive statistics that we use to summarize complex data, as well as the associated charts, diagrams and maps. From there, we will move on to look at chance and probability theory, and simple inferential statistics.

Throughout the course, we will be concerned with "everyday statistics", primarily as it relates to geography. Contemporary

media are saturated with statistics, from reports of climatic change, through latest presidential election polls, to batting averages and yards-gained statistics in sports. A lot of the presentation of these statistics is lazy or inaccurate, and often misleading (whether, deliberately or not), and a major theme of this course will be to look at the issues involved.

During most lectures we will spend some time working with sample problems, and to discuss practical applications. These activities are meant to build a deeper understanding of the subject matter but it also relies heavily on your active participation. You will often have work to prepare before lectures or other types of lecture homework. Labs will give you experience with statistics functions in Excel before moving onto SPSS as well as other statistical software, and also with mapping statistical data using GIS software.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2008

Prerequisite: STAT 200 and 6 credits in social science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 397A** Energy Futures (3) Explores changing geography of energy production/distribution/use to understand dynamics among policy, technology, and regional geography in energy transitions.

### **Energy Futures (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: GEOG 030 or EGEE 101 or EGEE 102 or E B F 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: prior approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 411** Forest Geography (3) This course studies processes that control spatial and temporal change in forests.

### **Forest Geography (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

Prerequisite: GEOG 010GEOG 111 ; orBIOL 220W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 411W Forest Geography (3)** This course studies processes that control spatial and temporal change in forests.

**Forest Geography (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

Prerequisite: GEOG 010GEOG 111 ; orBIOL 220W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 412W Climatic Change and Variability (3)** Theories and observations of past, present, and future climatic change and variability; introduction to techniques used in climatic change research.

GEOG 412W

**GEOG 412W Climatic Change and Variability (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Geography 412W introduces students to the physical dimensions of climate change and variation. Climate change topics include radiative forcing, greenhouse gases, scenarios, equilibrium models, and time-dependent models. Important climate variation topics are teleconnections and the El Niño-Southern Oscillation phenomenon. Geography 412W would appeal to students with interests in Earth and atmospheric sciences, as well as environmental protection.

As a writing-intensive course, Geography 412W aims to help students improve their ability to communicate scientific information. The course devotes considerable class time to the mechanics of reading, writing, speaking, and especially report production. Students not only write, but also learn to edit and critique writing.

Because most professional research on climate change and variation involves collaborative science teams, Geography 412W focus on collaboration and participation. Students form teams, conduct research, and compile formal collaborative reports on climate change and variation. Students document their individual contributions by producing portfolios.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: GEOG 110 orMETEO 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 414 Principles and Applications in Landscape Ecology (1-3)** Introduction to the ways in which spatial patterns and processes operate in an ecological context.

**GEOG 414 Principles and Applications in Landscape Ecology (1-3)**

Landscape ecology is a rapidly evolving discipline that is poised to address contemporary challenges in sustainability science, land management, and conservation. The focus of landscape ecology is on the controls, interactions and outcomes of spatial patterns and processes on ecological dynamics at multiple spatial scales. Landscape ecology explores how energy and nutrients flow across spatially variable patches, how dispersal and migration of aquatic and terrestrial organisms are affected by spatial networks, and how disturbances propagate across complex terrain. Grounded in related fields of ecology, geography, and spatial analysis, landscape ecology provides additional theoretical tools and approaches to guide applied conservation decision-making in a dynamically changing world.

The objective of this course is for students to apply the methods, theories, approaches and practical applications of landscape ecology to inform landscape decision-making. Particular emphasis is placed on how humans modify landscapes and how species, ecological communities, and ecosystems have responded to these changes. These objectives will be met through lecture and discussion of prominent landscape ecology topics (scale, pattern quantification, agents of pattern formation, green infrastructure, and conservation biology), computer laboratory exercises, written papers, and group presentations.

By the end of the course students will be able to (1) articulate in written and oral form the concepts of scale and pattern, (2) use landscape pattern metrics, spatial statistics, and models to characterize ecological pattern on landscapes, and explain how ecological patterns develop, and (3) apply knowledge of spatial pattern-process interactions to issues of sustainability, conservation, and landscape management.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BIOL 110 orBIOL 220 orGEOG 111 orGEOG 314 orFOR 308 orW F S 209 orLARCH 241 or by permission

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 417 Satellite Climatology (3)** A discussion of the application of satellite data to current and planned large-scale climate experiments.

GEOG 417

**GEOG 417 Satellite Climatology (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Geography 417 presents the *theory* and *practice* of satellite remote sensing as applied to the study of climate. Remote sensing refers to the acquisition of information about a target or phenomenon from a distance; climate is the low-frequency signal of weather that involves interactions among Earth's environmental systems (atmosphere, biosphere, cryosphere, hydrosphere). Combining these two disciplines into Satellite Climatology is logical because the fundamental basis of both remote sensing and climate is radiation transfer through Earth's atmosphere. The course emphasizes understanding the different techniques used to determine, from space-borne platforms, the atmospheric, oceanic and land surface conditions important to climate and its variations, and the interpretation of these remotely sensed data in the context of "climate dynamics" and "synoptic climatology." Specific topics include the following: *Satellite systems (platforms, sensors, orbits, data processing); Remote sensing clouds and cloud systems, Retrieval of atmospheric temperature, moisture, and precipitation, the Earth-atmosphere radiation and energy budgets, and Land-surface conditions and their modification by humans*. In addition, examples of the different satellite-based climatologies, and their advantages and limitations with respect to conventional observations ("ground truth"), are presented.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: GEOG 362

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 420Y (US;IL) Comparative Urbanism (3)** This course investigates selected urban issues through the lens of comparative urbanism.

**GEOG 420Y Comparative Urbanism (3)  
(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

As an upper level urban geography seminar, this course investigates selected urban issues through the lens of comparative urbanism and requires active class participation. Examination of readings from the growing literature on comparative urbanism will introduce students not only to possible ways to design an effective comparative study but also to the varying goals of such work. Other readings, drawn from a wide variety of sources, will target particular issues facing urban areas that may vary from year to year, such as economic restructuring, uneven urban redevelopment, transportation planning, historic preservation, arts districts, the social construction of race and ethnicity, aging in place, and urban poverty. Students in turn will be required to design and carry out a comparative research project focusing on a particular urban issue, highlighting both the similarities and the differences between their selected case study cities and placing them in local, regional, and global contexts. This course is reading and writing intensive and satisfies United States Cultures and International Cultures requirements, as well as the Bachelor of Arts Social and Behavioral Sciences Field.

General Education: None

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2011

Prerequisite: GEOG 120GEOG 160

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 423Y (US) Historical Geography of North America (3)** Exploration, settlement, and changing patterns of human occupancy from the seventeenth century to the 1930s.

**GEOG 432Y Historical Geography of North America (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is an upper-division, writing-intensive course that presents an overview of current scholarship on the evolving historical geography of the continent. It does this through a set of lectures given by the instructor, through directed readings that will be the basis of class discussion, and centrally through research essays that offer students the opportunity to research, write and argue historical geographies. Research in historical geography is a process of engagement with partial evidence and with secondary material to open windows on aspects of past lives, past economies,

and past places.

Since an introductory level overview of the historical geographies of the continent is presented in GEOG 122: The American Scene, this class does not offer a comprehensive survey of regions and periods. Rather, it focuses on three themes— staples and the colonial era, local transformations in agricultural and industrial communities in the nineteenth and early twentieth century, and the packaging of memory—as a way to expose students to primary evidence and current debates.

In the unit on the colonial era, the focus is on a variety of records that illuminate the development of economies based on staples such as fish, fur, tobacco, rice and iron, drawing on evidence from the Lords of Trade and Plantations in London, and from correspondence between merchants and planters, as well as scholarship on the material culture of houses, farms and settlements.

For the unit on local change, workshops illustrate how to tease out information from the manuscript census, county atlases and corporate histories; students then pursue similar material for a locale of their own choice and submit drafts of an evolving research essay. A short presentation to the class encourages the effective distillation of visual and data evidence to communicate research findings.

On the packaging of memory, the class critically examines how historic sites are presented, and how interpretations have changed in response to shifting academic and popular concerns.

Lectures are interspersed with discussions of readings, workshop demonstrations, and by student presentations. Eleven distinct writing exercises are used as the basis of allocating the overall grade.

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2011

Prerequisite: GEOG 122 3 additional credits in geography or 6 credits American history

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 424 (US;IL) Geography of the Global Economy (3)** Focus on industrial location theory, factors in industrial location, studies of selected industries and problems of industrial development.

GEOG 424

### **GEOG 424 Geography of the Global Economy (3)**

This class will conduct *research on firms and industries engaged in the global economy*. Students learn to conduct industry and firms analyses in the context of international regulation. Students learn about the competitive conditions, governmental context, and technological challenges facing selected industries.

General Education: None

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2011

Prerequisite: ECON 102ECON 104GEOG 126

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 425 (US) Geography of Race, Class, and Poverty in America (3)** This class examines the spatial interactions of race, class and poverty in the United States.

### **GEOG 425 Geography of Race, Class, and Poverty in America (3) (US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The terms "race," "class," and "poverty" are often discussed in the same breath in academic scholarship. Research portrays the interwoven relationships between economic status, economic security, and ethnic heritage. Despite this powerful and abundant literature, few scholars examine the spatial interactions among race, class, and poverty. The class introduces students to a range of literatures on the meaning of race, class, and poverty in the contemporary United States. We will situate these terms in their local spatial context and investigate how location influences perceptions of the meaning of race, class, and poverty. We will blend historical, contemporary, theoretical and empirical scholarship as we investigate the meaning, understanding and manifestation of race, class and poverty in the U.S. Beginning with history, we will move through the 20th century examining how economic and political cycles have influenced social understanding of these terms. There will be a particular focus on deconstructing the measurement and meaning of the terms and their use in public policy discussions based on perceptual understandings of the terms "race," "class," and "poverty." We will examine powerful historical and contemporary media images of race, class, and poverty as seen through the lens of place and identity.

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science



Effective: Fall 2011

Prerequisite: GEOG 126;ECON 102 orECON 104

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 426Y (US;IL) (WMNST 426Y) Gender Geographies (3)** Description and explanation of the links between gender relations and spatial structures.

**GEOG (WMNST) 426Y Gender and Geography (3)  
(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Until the 1970s women remained invisible in the analyses of social space: human geography was indeed just that--(hu)man. Recently, feminist geography began to challenge the implicit masculinity of the subject of geography; this course will examine the evolution of the feminist challenge. The course addresses gendered geographies across multiple scales, such as the body, home, public space, community, nation and globe. Students explore each of these through readings and will produce a series of essays throughout the semester. As a point of entry to discussion of place, space and gender, this course explores the diverse ways in which feminists have seen space as central both to masculine power and to feminist resistance. In particular we will explore arguments from interdisciplinary paradigms, stemming from cultural, post colonial, subaltern, sexuality, gender studies and critical race theory, all of which have influenced current debates across the field of geography.

General Education: None

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2013

Prerequisite: GEOG 020 orGEOG 126 orGEOG 120 orWMNST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 427 (US;IL) Urban Historical Geography (3)** Study of the development and transformation of the historical urban built environment.

**GEOG 427 Urban Historical Geography (3)  
(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Close up, cities can be seen as sets of buildings - some that are lived in, some that are places of work, and others that are places of cultural celebration. The streetscapes created by these sets of buildings can be decoded as a palimpsest of the past. Likewise, the patterns and names of streets, lanes and alleys between buildings contribute to morphological databases of property parcels and land uses that help in the analysis of the historical transformations of urban form. Seen at a more distant scale, cities are also nodes - centers for surrounding regional trading systems, and partners with other places in national and global trading systems - that have evolved over a set of decades or even centuries.

This course offers an investigation of such multiple frames on the urban past. Examples will be drawn from the Americas, but many will be from Europe, Africa and Asia. Imperialism and its associated colonial mercantile practices meant that variants of urbanism were mapped on to other parts of the world where they often created hybrid forms of cities over time. In the industrial era, new relations between cities and the countryside emerged, as new forms of production developed and as resources were harnessed from a more global hinterland. Radically different types of cities have emerged in the past two centuries.

Geography 427 will survey the global urban past and explore ways of decoding urban morphological complexity through historical cartographic record and extant landscape evidence. The ultimate objective is for students to develop an appreciation for the complexity of urban life and landscapes in times past and to understand some of the ways in which American urban forms adapt or draw distinction from urban forms elsewhere.

At the same time, the course aims to enhance student oral and written communication skills. To enhance their oral communication skills, each student will be expected to make two presentations on their research and to participate in class workshops. To enhance their written communication skills, students are required to write two papers that include instructor feedback on interim drafts, to craft three article summaries, and to write short log responses to most lectures.

General Education: None

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: 6 credits in geography humanities or social sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 428 (US) Political Geography (3)** Geographical foundations of political phenomena; significant geographic factors in growth and development of states, boundary problems, population distribution, colonies, and internal and international regional problems.

**Political Geography (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2007  
 Prerequisite: 6 credits in history or 6 credits in political science

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 428Y (US;IL) Political Geography (3)** Geographical foundations of political phenomena; significant geographic factors in growth and development of states, boundary problems, population distribution, colonies, and internal and international regional problems.

**Political Geography (3)**

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2012  
 Prerequisite: 3 credits human geography (GEOG 020 or 120 or 122 or 123 or 124 or 126 or 128)

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 429 (US;IL) Geographic Perspectives on Global Urbanization (3)** This course reflects critically on a number of issues related to global urbanization, including the culture and political economy of urban space.

**GEOG 429 Geographic Perspectives on Global Urbanization (3) (US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

One of the major themes in the discipline of geography is the study of the relationships between humans and the natural environment. GEOG 030 introduces students to the multiple ways in which people and the environment are interconnected. From a dynamic systems perspective, we refer to this interconnectedness as "coupled social-ecological systems." The course uses a geographic perspective to understand how differently these linkages are shaped in various ecological and cultural settings around the globe. The course follows an interdisciplinary approach, exploring from multiple angles major environmental and societal challenges such as climate change, genetically-modified food, over-consumption, disease, and environmental service provision in the industrialized North and the Global South. It promotes critical thinking regarding key concepts such as carrying capacity, ecological footprints, feedback, stability domains, and resilience. Students are encouraged to examine their role and responsibilities for the sustainability of the social-ecological systems we inhabit and to take action in their own lives to contribute to a more equitable and sustainable environment. The course will provide students with the opportunity to read, learn, and debate about the ways in which humans value, use, affect, and are affected by small-scale and large-scale human-environment interactions. It will provide them with skills for critically analyzing and evaluating the ways in which humans have transformed the environment in different parts of the world. They will also learn how to assess what future pathways are sustainable and ethically sound. One key goal of the course will be to help students increase their sensitivity to the global and international context of human interactions with nature. A recitation section is crucial because it allows students to explore controversial issues such as biotechnology, nature as a commodity, and global warming, and to develop critical positions on such issues.

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2012  
 Prerequisite: GEOG 020GEOG 126 orGEOG 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 430 Human Use of Environment (3)** The human use of resources and ecosystems and social causes and consequences of environmental degradation in different parts of the world; development of environmental policy and management strategies.

GEOG 430

**GEOG 430 Human Use of Environment (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Geography 430 examines the human use of resources and ecosystems, the multiple causes and consequences of environmental degradation, and adaptive institutional and policy arrangements as prerequisites for resilient and sustainable management and development in different parts of the world. The major objective of this course is to help geographers, earth scientists, and other professionals to develop an awareness and appreciation of the multiple perspectives that can be brought to studies of human use of the environment and of the ways in which resource-management decisions are made in human society. This is a capstone course that encourages students to place

their individual major and technical skills within the context of multiple approaches to environmental decision making and management in complex and dynamic social-ecological systems. GEOG 430 is designed as a collective/social learning experience. This implies that the professor and students share responsibility for the learning process and take advantage of collective skills, insights, experiences, and efforts of each other. As in system dynamics, this requires both commitment and flexibility and the willingness to explore foreign territory. As part of this philosophy, learning consists not only of information flow from professor to student, but also from student to student and student to professor. The course follows a case study approach to explore real life lessons of adaptive management around the globe. To make this process work, attendance and active participation are imperative. The course is run more like a seminar than a lecture course and integrates lectures, in-class discussions, presentations, and interactive activities. Student performance is evaluated based on active participation in all of the above, individual short assignments, group projects, in-class quizzes and exams, and one major writing assignment, varying by faculty teaching. This course is offered every semester.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2008

Prerequisite: GEOG 010 or GEOG 020 or GEOG 030 or GEOG 040 or GEOG 130 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 431** Geography of Water Resources (3) Perspectives on water as a resource and hazard for human society; water resource issues in environmental and regional planning.

### **GEOG 431 Geography of Water Resources (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Geography 431 is designed to help geographers, earth scientists, planners, other environmental professionals as well as non-science majors to develop an awareness and appreciation of the multiple perspectives that can be brought to studies of water as a resource and hazard, and of the ways in which resource-management decisions made in human society are strongly related to the availability, quantity, and quality of water. The course traces the hydrologic cycle as a cascading system, addressing factors contributing to flow of water through the system, models of each process, and how processes affect (and are affected by) other land use change and related resource decisions. The course then turns to issues of water resource management, including issues surrounding irrigation; dams and dam removal; provision of safe potable water; water quality including human and wildlife effects; the water economy including bottled water, privatization, and water as a free good; water law; institutions for water management at the global, national, regional and local scale; and issues of water for national security and international peace.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: 6 credits in geography or natural sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 432 (EME 432)** Energy Policy (3) Analysis, formulation, implementation, and impacts of energy-related policies, regulations, and initiatives.

### **GEOG (EME) 432 Energy Policy (3)**

As concerns for a secure, stable, and clean energy future grow, so does the need for individuals who can develop, assess, and implement effective energy policies and practices. GEOG 432 / EME 432 provides students with an in-depth exploration of energy policy development, implementation, and assessment at multiple governmental and corporate scales. The course utilizes contemporary real-world problems and actions to provide students context for the drivers, frameworks, and assumptions of energy policy.

The course is structured to provide students with the expertise necessary to identify energy policy needs, craft policy alternatives, and evaluate energy policy. Emphasis on tailoring energy policy to meet not just economic goals but also environmental and social goals creates a global perspective from which students learn to approach energy policy challenges. Students will undertake a course-long project in which they must research and write an energy policy at a scale and on a topic of their choosing. They will utilize activities from each lesson in the course to refine their topic, research policy options, and develop an energy policy. Because the demand for highly analytical individuals is so great among energy professionals, students will also anonymously critique another student's policy. This Capstone Project of the course will hone the analytical and communication skills necessary to complete this degree program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: E B F 200EGEE 120PL SC 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 434** Politics of the Environment (3) This course explores politics related to the use, transformation, valuation, and representation of the environment.

GEOG 434

**GEOG 434 Politics of the Environment (3)**

Scholarship in geography and related disciplines has demonstrated that nature in general and specific environments in particular are unavoidably political. Environmental management can thus never be a purely scientific or technological challenge; it requires critical analysis of cultural, political, and economic contexts, factors, and effects. For instance, effective environmental management requires consideration of how culture shapes how we perceive and value our environments, who wins and who loses in any particular approach to environmental management, and what the relative advantages and disadvantages of competing institutional approaches to environmental management are.

This course examines the development of environmental governance, with a primary focus on the United States. It explores both how various groups within society conceive of and value the environment, and multiple approaches to environmental governance and protection. It reviews the history of environmental movements and regulation, and contemporary issues and debates in environmental governance, with particular attention to the effects of institutional forms and social movements. In particular, it examines competing arguments for and against governance approaches centered on state action, market mechanisms, and prominent roles for NGOs and social movements.

Students will be evaluated based on: 1) their participation in class discussions, based on critical engagement with material from course readings and lectures; 2) their performance on a midterm and a final examination; 3) an individual research project on a topic relevant to the course, to be designed and carried out under the supervision of the course instructor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: 6 credits in social sciences or humanities

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 435H** (IL) Global Change and Sustainability - Bulgaria (3) Sustainability in the context of climate change, global socioeconomic change and regional transformation in Bulgaria; embedded foreign fieldwork (honors).

**GEOG 435H Global Change and Sustainability - Bulgaria (3)  
(IL)**

This course focuses on sustainable development and global change - vital issues for humanity - with specific attention to the challenges in Bulgaria of the transition from a centrally planned state to an open market economy with an emerging civil society. It is highly integrative in themes and case studies, including seminar work on-campus and field work in Bulgaria. Acquiring knowledge, understanding foreign environment, and developing new values embracing sustainable development are ultimate objectives of the course. Topics include rethinking established ways of production and consumption; policy and decision making affecting sustainability; finding new ways of greening economics, social accounting and planning; constraining consumerism; sustainable transportation, energy, engineering, architecture and construction; agriculture, forestry and water resources in a changing global climate; and the role of media, communication and NGOs. The course focuses on Bulgaria with the multiple challenges of the transition, globalization, global climate change, and important local land use and energy changes, including a critical assessment of sustainable aspects of former socialist states (e.g. compact cities, public transportation) in contrast to contemporary trajectories (e.g. urban sprawl, private automobile use). Within the general student-involved-learning framework of the course, students develop individual or team foci based on their academic major and personal interests, developing a proposal for in-country activity and post-field-session synthesis of a sustainability issue and the Bulgarian case. Special attention is given to meeting the goals of Schreyer Honors College: to demonstrate academic excellence with integrity, students will be held to a high standard of scholarly curiosity and performance, including developing skills and attitudes necessary for responsible and ethical interaction with local officials, scholars and host families. For building a global perspective, students will be challenged with seeing global and regional change from a non-North-Atlantic perspective reflecting the wider post-socialist world. For creating opportunities for leadership and civic engagement, students will be expected to show in their individual proposals and final projects aspects of their own learning and intellectual curiosity that will be shared with the people who assist them in Bulgaria. The course has honors expectations in the level of participation and collaborative learning, the formal project proposal, field work activities for achieving the proposal goals, and in the final symposium presentation and paper. The course contributes to a new generation capable of making vital decisions for a sustainable future in the face of climate change as well as social and economic transitions.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: sophomore standing or above; departmental permission required

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 436** Ecology, Economy, and Society (3) Analyses of major themes in ecology and economic development, poverty-alleviation, and sustainability.

GEOG 436

**GEOG 436 Ecology, Economy, and Society (3)**

For many years, it was believed that there was a direct tradeoff between economic growth and a clean environment. Sustainable development has been proposed as a framework within which these two objectives can be pursued in harmony and actually can reinforce one another. This course focuses on sustainability issues at the broader (macroeconomic) level, as opposed to the operation of individual businesses (microeconomic, or industrial ecology) level.

The course will have two main emphases: 1) to evaluate the major conceptual ideas surrounding natural resource management and sustainable development, including equity, poverty, fairness, power, knowledge, and community empowerment; 2) to use empirical case studies to examine the practical, material and policy relevance of these concepts. The first part of the semester will be used to untangle and clarify the ideological and theoretical bases (biases) of broad human-environment discourses as they pertain to community empowerment and resource development. The final part of the semester will be used to analyze case studies in order to assess the relevance of existing theoretical framework for resource empowerment and community development in industrialized countries and the Third World, especially Africa.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: upper-division standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 438W Human Dimensions of Global Warming (3)** Human dimensions of climate change: human causes, human consequences, and policy implications of global warming.

**GEOG 438W - Human Dimensions of Global Warming (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Geography 438W, the Human Dimensions of Global Warming, covers both the human causes and consequences of what many people view as the most significant problem facing society. Humans cause climate change primarily by emitting heat-trapping greenhouse gases through everyday activities associated with industrialized society (such as energy production and consumption, transportation, and manufacturing) and land transformation (such as agriculture and deforestation). People experience the consequences of climate change directly through reduced resources (such as food, fiber, forests, and fisheries) or increased natural hazards (such as droughts, floods, and intense storms). They also experience the consequences indirectly through such mechanisms as higher prices for food or larger insurance premiums. GEOG 438W does not address the physical science of climate change; instead, it concentrates on social science issues surrounding the topic.

GEOG 438W has two goals: (1) to develop understanding of a set of issues related to the human dimensions of climate change; (2) to develop and apply communication skills by discussing and writing about the topic. The specific content of the course will change with the instructor, but the focus on the human causes and consequences of climate change and on skill-development in writing will be constant.

Students will be evaluated on both the course goals: (1) understanding of the human dimensions of climate change; (2) application of communication skills. Although exact procedures for determining grades will vary with instructor, the basis for grades will always include a combination of written exams based on lectures and readings, regular written assignments with instructor feedback, and in-class discussion and participation.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2012

Prerequisite: EARTH 002GEOG 010 orMETEO 003;GEOG 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 439 Property and the Global Environment (3)** This course reviews theoretical and empirical relationships between multiple legal, economic, and cultural approaches to property, and environmental quality and conflicts.

GEOG 439

**GEOG 439 Property and the Global Environment (3)**

Property relations are among the most powerful and pervasive institutions in human societies. Fundamental rules governing and legitimating who can do what, and where, they shape and reveal interactions between human societies and physical environments, a concern at the heart of geography. Our own property relations are often all but invisible to us precisely because they are so deeply woven into our perceptions, consciousness, social structures, and everyday experiences of the world. It is thus easy to overlook the fact that we live within highly specific and contingent property arrangements and that changing circumstances are prompting important changes in contemporary property relations.

This course explores these issues with a particular focus on their implications for environmental politics and regulation. We will address questions such as: Is the privatization and commodification of nature a recipe for ecological disaster, or

the most effective means of preservation? Can we own the weather? What were the historical-geographical circumstances surrounding the development of major modern property forms, and are those forms adequate to the environmental problems we now confront? Are there property relationships outside of the law? How do property relations and conflicts change in response to changing human control over nature, and how can different kinds of property arrangements lead to, or help to solve, environmental and social problems? Readings will review debates over common property; the benefits and dangers of privatization of environmental goods; distinctions between formal and informal property rights; the development of zoning and other regulation of private property; and contemporary debates over intellectual property rights in nature, and relationships among trade, property rights, and environmental quality.

The course will be of interest to students interested in environmental policy, land use planning and management, law, the areas of nature-society relations and historical geography, and environmental history. Students will gain a sophisticated understanding of the central underpinnings of much property and environmental regulation, and familiarity with many cutting-edge debates in these domains, both domestically and internationally. Evaluation methods will include examinations and an independent research paper and presentation by each student. The course will be offered every other year, with enrollment capped at 30 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: 6 credits in geography humanities or social sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 440** Topics in Regional Geography (3) Analysis of historical, contemporary and future environmental and societal issues in a specified world region from a geographical perspective.

GEOG 440

### **GEOG 440 Topics in Regional Geography (3)**

Geographers bring a uniquely holistic perspective to the study of places. This course provides an opportunity for geography faculty with regional expertise to share with students a learning experience that addresses major issues and challenges in a world region. Although the course will vary from instructor to instructor and offering to offering, the courses have common elements that help students to analyze and understand regions as academic constructs, as geopolitical reality, and places in which people interact with others and the environment to sustain livelihoods. The basic objectives underlying all offerings of this course are to learn how to accumulate and assess regional, geographic information and to synthesize such information in a coherent and meaningful understanding of the region in an holistic and comprehensive manner. Regional geography can be key for students in area studies programs, in international business, in regionally oriented environmental and social sciences, in the humanities, in international law and international affairs. Although each instructor will use her or his own course design and evaluation methods, common to all offerings will be activities that develop and assess student abilities to undertake regional analysis. For example, one instructor may require students to prepare briefing notes on a regional issue as might be given to an international agency; another may use the mechanism of a semester-end symposium with powerpoint presentations of student's investigations. Students should contact the faculty member offering a GEOG 440 in a specific instance for details about the course foci, activities and evaluation methods. It is anticipated GEOG 440 will be offered annually with varying regions covered from year to year.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: 3 credits in physical geography 3 credits in human geography

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 444** African Resources and Development (3) Ecological and cultural factors in the geography of Africa; natural resources and development.

### **African Resources and Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2001

Prerequisite: GEOG 010GEOG 020GEOG 030 orGEOG 124

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 461W** Dynamic Cartographic Representation (3) Theory and practice of mapping and geo-representation in a dynamic media context. Applications in science, policy, travel, and education.

GEOG 461W

### **GEOG 461W Dynamic Cartographic Representation (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Most maps produced today are electronic, dynamic, and often ephemeral -- with millions of maps generated on the web each day. At the same time, computer graphics technologies developed to enable scientific visualization generally, are being adapted and extended for applications with geographic information. The goal of this course is to provide students with both the conceptual understanding and practical experience needed to design effective dynamic representations and assess their effectiveness.

During the term we will explore the potential and implications of recent advances in cartography, exploratory data analysis, and information visualization as they relate to the theory and practice of geographic visualization (geovisualization). A key focus of the course is on "dynamic" representations of geographically referenced information. Dynamic representations are those that change as a result of user actions or data updates. Topics include: animated and interactive maps, exploratory multivariate spatial data analysis, geovisualization to support knowledge construction, interactive web maps, navigation aids for real and virtual worlds, map-enabled decision-support, collaborative geovisualization, dynamic maps to enable learning, semiotic principles for design of dynamic maps and related geovisualization tools, and perceptual/cognitive issues in dynamic geo-representation (including methods for studying the success of visual displays and interaction devices).

As a writing intensive course, particular attention will be given to writing for geographic information science (GIScience). This writing will include laboratory project reports, reviews of published literature, and a term project.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2010

Prerequisite: GEOG 361 or GEOG 362 or GEOG 363

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 463** Geospatial Information Management (3) This course examines geospatial data representations and algorithmic techniques that apply to spatially-organized data in digital form.

**Geospatial Information Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2011

Prerequisite: GEOG 363

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 464** Advanced Spatial Analysis (3) Skills and knowledge for applying quantitative methods to analyze information with spatial distributions.

GEOG 464

**GEOG 464 Analysis and GIS (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

Geography 464 is a course in methods for analyzing spatial data--methods that can and should be used when the geographic arrangement of a set of measured observations is thought to be of significance in explaining the values of those measurements. The methods of spatial analysis looked at in this course can be distinguished from conventional statistical analysis techniques, and also from many of the analysis functions programmed into many GIS packages. In fact several spatial analysis methods considered in this course the result of attempts to alter and extend conventional statistical techniques to take account of locational similarity and distance measurements (which is why Geography 364 or an equivalent primer in introductory statistical methods is a prerequisite). This means that the techniques that will be introduced in the course are often quite complex mathematically or statistically. Having said this, the overall goal of the course is to provide sufficient conceptual understanding and practical experience so that students become competent in selecting and applying methods appropriate to a variety of frequently-encountered analytical situations.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2012

Prerequisite: GEOG 364

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 467** Applied Cartographic Design (3) Project-based map production problems with emphasis on map design and advanced mapping tools in geographic information systems.

**GEOG 467 Applied Cartographic Design (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

The course objective is to immerse the student in applied problems of map production and geographic representation. Topics include advanced software methods for labeling and data editing; advanced symbolization and production of extended map series; conversion between software environments; and representation for multiple media, scales and purposes. The challenge of working with clients for mapping is often included in a project. Evaluation is based primarily on meeting draft deadlines, map project quality, written reports on project decisions, and an exam. The 300-level cartography course is a prerequisite for GEOG 467, and an introductory GIS course also provides useful background skills, though it is not a prerequisite.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2011

Prerequisite: GEOG 361

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 468** Geographic Information Systems Design and Evaluation (3) Design and evaluation of Geographic Information Systems and other forms of integrated spatial data systems.

GEOG 468

**GEOG 468 Geographic Information Systems Design and Evaluation (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course teaches GIS design, project management and communication skills and an appreciation of the ethical, legal and social issues surrounding maps, GIS and geographical data. It also introduces some of the newer information-technology aspects of handling geographic information, such as location-based services and sensor webs, that affect how GIS data are accessed and used. The bulk of practical component of the course is taken up with a large group project (four to six persons per group). The project gives students the opportunity to engage in an exercise that spans the entire range of GIS design and implementation: from problem inception to solution testing.

Outcomes revolve around the experienced gained by conducting a GIS project from inception to solution, including specification, design, implementation and evaluation, and specifically:

1. Practical experience with technical writing relating to GIS systems lifecycle, including interviewing, fact finding, description of the contents of the various project deliverables and their importance.
2. An appreciation of legal and ethical issues surrounding GIS, maps and geographic including copyright, responsibility and liability and computing law.
3. An understanding of newer technological innovations that will impact the access and use of geographic information, including: data sharing (interoperability), digital libraries and information portals, web services and grid computing.
4. A portfolio of practical systems development work, that documents all stages in the lifecycle of a GIS project.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: GEOG 363

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 469** Energy Industry Applications of GIS (3) Roles of geographic information systems in energy siting decisions focusing on electric energy transmission networks.

**GEOG 469 Energy Industry Applications of GIS (3)**

Over 2 million miles of oil and gas pipeline and nearly 200,000 miles of electric transmission grid currently traverse the U.S. Geographic information systems (GIS) are used to help maintain these far-flung and extremely expensive energy infrastructures. GIS is also used to help determine optimal routes for pipelines and transmission lines as energy demand and production increase, and as the grid is extended to connect to new energy sources and consumers. GEOG 469 provides students with an in-depth exploration of the complexities of siting decisions. The course introduces a variety of siting challenges that confront the energy industry and its customers and neighbors, but focuses on the siting of electrical transmission lines. The course also provides hands-on experience with a common decision support technology, and considers how the technology may be used to facilitate public participation in siting decisions.

Students will undertake a term-length project in which they must propose, research, develop and implement a siting recommendation for an electrical transmission line. They will utilize activities from each lesson to develop primary and alternative routes. Using GIS, students will develop overlays, weights and rankings to determine the most suitable location for a proposed transmission line. Students' final product will be maps showing proposed routes based on the siting criteria and rankings developed to minimize the impacts associated with the various siting criteria used. To help students develop the critical thinking skills needed in the energy industry, students will learn to critique their peers' analyses systematically from the perspective of local stakeholders who are most affected by siting decisions.

GEOG 469 is designed to help students achieve two of the programmatic educational objectives established for the Energy and Sustainability Policy degree. It fosters energy industry knowledge by illuminating the difficulties intrinsic to facilities



siting decisions. And it nurtures analytical skills by familiarizing students with GIS methodology, and by teaching them how to critique GIS analyses systematically.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2010  
 Prerequisite: GEOG 030EGEE 102EME 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 475H (LER 475H) Labor in the Global Economy: U.S. and South African Perspectives (3)** This course focuses on how the nature of work is changing in the global economy, and the implications for economic opportunity and inequality in both.

GEOG 475H

**GEOG (LER) 475H Labor in the Global Economy: U.S. and South African Perspectives (3)**

This seminar focuses on how the nature of work is changing in the "new economy", and the implications for economic opportunity and inequality in both the United States and South Africa. Sections of the course examine: theoretical approaches to understanding contemporary process of labor restructuring, including globalization, rise of an information economy, and growth in service sector employment; case studies of restructuring processes in different industrial sectors in both the U.S. and South Africa; and innovative labor organizing initiatives at a local, regional and global scale. This course aims to develop a framework for understanding the nature of contemporary processes of economic restructuring and its impact on the world of work. Drawing on research in both a South African and U.S. context, key case studies in the changing nature of work will be examined. This will provide a deeper understanding of how broad macro-level changes in the nature of contemporary capitalism are mediated by a variety of technological, political, and socio-economic factors in particular industries and geographic contexts. Finally, an in-depth look at workers' responses to these changes at different scales (local, regional, global) will help deepen our understanding of the contested nature of workplace restructuring while exploring promising strategies for improving working conditions. This is a reading-intensive course dealing with the theoretical literature on rapid economic restructuring and how this is shaping work and employment. It is run in collaboration with the Sociology of Work Program at the University of Witwatersrand in Johannesburg, South Africa, with video-conference discussions linking the two courses.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: a minimum of 12 GEOG or LER credits before taking the course (or permission of the program).

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 480 Exploring Imagery and Elevation Data in GIS Applications (3)** Using imagery and terrain data in typical application scenarios faced by the geospatial professional.

**Exploring Imagery and Elevation Data in GIS Applications (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: GEOG 482 or equivalent professional experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 482 The Nature of Geographic Information (2)** Orientation to the properties of geographic data and the practice of distance learning.

GEOG 482

**GEOG 482 The Nature of Geographic Information (2)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course serves as an orientation to the study of geographic information systems in the Master of Geographic Information Systems degree program. It is also the first in a series of four courses that leads to Penn State's Certificate of Achievement in Geographic Information Systems. The course consists of readings, quizzes, projects, and discussions about fundamental properties of geographic data, how such data are produced, and how they are used. The course provides a comprehensive overview of geographic information technologies, including the global positioning system, land surveys, aerial surveys and photogrammetry, topographic mapping, social surveys such as the U.S. Census, and satellite remote sensing. It also ensures that helps students develop the skills required to become successful online learners. The course culminates in a final project in which students independently research, critically evaluate and report on the characteristics and availability of a particular data product, service, or mapping technology. The course is ten weeks in length and requires a minimum of 8-12 hours of student activity each week. It is offered quarterly (starting in January, April, July, and October).

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2004  
Prerequisite: admission to the Master of GIS program or Certificate Program in GIS

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 483** Problem-Solving with GIS (3) How geographic information systems facilitate data analysis and communication to address common geographic problems.

GEOG 483

**GEOG 483 Problem-Solving with GIS (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GEOG 483 is a required course in the Master of Geographic Information Systems degree program. It is also the second in a series of four courses that leads to Penn State's Certificate of Achievement in Geographic Information Systems. The course consists of projects, associated readings, quizzes, and discussions about concepts, operations and tools in geographic information systems. Students confront realistic problem scenarios including such operations as geoprocessing, attribute and spatial joins, map projections, address geocoding and buffering. Students who successfully complete the course are able to access, display, manipulate, edit, and analyze geographic data. They are able to perform common GIS tasks using industry-standard tools and operations. The course is ten weeks in length and requires a minimum of 8-12 hours of student activity each week. It is offered quarterly (starting in January, April, July and October).

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2004  
Prerequisite: GEOG 482

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 484** GIS Database Development (3) Database design, creation, maintenance, and data integration using desktop GIS software.

GEOG 484

**GEOG 484 GIS Database Development (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GEOG 484 is a required course in the Master of Geographic Information Systems degree program. It is also the second in a series of four courses that leads to Penn State's Certificate of Achievement in Geographic Information Systems. The course consists of projects, associated readings, quizzes, and discussions about designing, constructing, and maintaining GIS databases. Students who successfully complete the course are able to specify and perform the tasks involved in creating a digital geographic database, including geo-registering scanned base maps, digitizing vector features, entering attribute data, and compiling metadata. The course is ten weeks in length and requires a minimum of 8-12 hours of student activity each week. It is offered quarterly (starting in January, April, July, and October).

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2004  
Prerequisite: GEOG 483

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 485** GIS Programming and Customization (3) Customizing GIS software to extend its built-in functionality and to automate repetitive tasks.

GEOG 485

**GEOG 485 GIS Programming and Customization (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GEOG 485 is an elective course in the Master of Geographic Information Systems degree program. It is also one of the optional capstone courses that lead to Penn State's Certificate of Achievement in Geographic Information Systems. The course consists of readings, quizzes, projects, and discussions about constructing tools that solve geographic problems not easily solved using out-of-the-box GIS software. Students learn to use the Visual Basic for Applications (VBA) programming environment to add functionality to *ArcGIS 8.x*. No previous programming experience is assumed. The course covers programming basics like object-orientation, COM, object model diagrams, loops, if-then constructs, and modular code design, as well as GIS-focused topics such as working with maps, layers, tables, and performing queries. Students who successfully complete the course are able to automate repetitive tasks, customize the *ArcGIS* interface, and

share their customizations with others. The course is ten weeks in length and requires a minimum of 8-12 hours of student activity each week. It is offered quarterly (starting in January, April, July, and October).

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

Prerequisite: GEOG 363 or GEOG 484; CMPSC 101 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 486** Cartography and Visualization (3) Theory and practice of cartographic design emphasizing effective visual thinking and visual communication with geographic information systems.

GEOG 486

**GEOG 486 Cartography and Visualization (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GEOG 486 is an elective course in the Master of Geographic Information Systems degree program. It is also one of the optional capstone courses that lead to Penn State's Certificate of Achievement in Geographic Information Systems. The course consists of five projects and a capstone assignment. Each project includes readings, quizzes, and discussions about concepts and tools in cartography and visualization. Throughout the course, students complete "mile marker" assignments that are designed to help them progress toward the capstone assignment. Through the course projects, students confront realistic problem scenarios that incorporate such skills and concepts as creating symbolization schemes, coordinate systems and map projections, creating isoline and other terrain representations, interpolation, classification schemes, multivariate representation and representation of data uncertainty. Those who successfully complete the course are able to design and produce effective reference and thematic maps using GIS software, can create and analyze workflows, and can interpret and critique maps and related information graphics verbally. The course is ten weeks in length and requires a minimum of 8-12 hours of student activity each week. It is offered quarterly (starting in January, April, July, and October).

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2004

Prerequisite: GEOG 484

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 487** Environmental Applications of GIS (3) Real-world applications of GIS and spatial analysis to investigate a variety of current environmental issues.

**GEOG 487 Environmental Applications of GIS (3)**

GEOG 487 is an elective course in the Post baccalaureate Certificate Program in GIS and the Master of Geographic Information Systems (MGIS) degree program, both of which are offered exclusively through Penn State's World Campus. GEOG 487 consists of projects, associated readings, quizzes, and discussions related to environmental applications of GIS. Students are exposed to a variety of concepts, tools, data sources and formats, and environmental issues they are likely to encounter in a career involving GIS and environmental management. Like other courses in the GIS Certificate and MGIS programs GEOG 487 is offered in compressed 10-week terms that require a minimum of 8-12 hours of student activity each week. It is offered quarterly (starting in January, April, July, and October). GEOG 487 does not count toward the requirements of the resident B.A., B.S., M.S. or Ph.D. degrees in Geography, except by explicit permission of the student's graduate advisor and the Department of Geography's graduate officer.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2010

Prerequisite: GEOG 484

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 488** Acquiring and Integrating Geospatial Data (3) Advanced technical, legal, ethical and institutional problems related to data acquisition for geospatial information systems.

GEOG 488

**GEOG 488 Acquiring and Integrating Geospatial Data (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GEOG 488 is an elective in the Master of Geographic Information Systems degree program. The course is organized around six projects and a final project that spans three weeks. Each project includes associated readings, quizzes, and

discussions about acquiring and integrating GIS data. The course adopts a developmental learning approach that prepares students to successfully complete projects given progressively less detailed and more realistic project guidelines. Students confront realistic problem scenarios that incorporate such skills and concepts as definition of data needs, metadata content standards, legal and ethical issues related to data use, data formats and types, interoperability, field collection methods and contributing data for public use. Those who successfully complete the course are able to spec out a GIS project, identify appropriate and cost-effective data sources, create data dictionaries, assess and ensure data quality, determine appropriate data formats given an intended data use, transform data from one format to another and understand GIS software functionality related to data conversion. The course is ten weeks in length and requires a minimum of 8/12 hours of student activity each week. It is offered quarterly (starting in January, April, July, and October).

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2004

Prerequisite: GEOG 484

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 489** GIS Application Development (3) Advanced topics in GIS customization, including the Systems Development Life Cycle, packaging and deployment, and consuming Web services.

GEOG 489

### **GEOG 489 GIS Application Development (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GEOG 489 is an elective course in the Master of Geographic Information Systems degree program. The course consists of readings, quizzes, projects, and discussions about advanced GIS programming concepts and techniques. It builds on the material covered in GEOG 485: GIS Programming and Customization. Students will work with ESRI's ArcObjects component library to customize ArcGIS software products using Visual Studio.NET as their development platform.

Students who successfully complete the course are able to use the Systems Development Life Cycle methodology to build custom GIS solutions. They are able to package and deploy their customizations through dynamic link libraries (DLLs) and register them with ArcGIS, a more robust deployment solution than those covered in GEOG 485. Students are also able to explain the fundamental differences between COM and .NET software development. Lastly, they are able to consume web services and integrate them into custom Web applications. The course is ten weeks in length and requires approximately 100 hours of student activity. It is offered quarterly (starting in January, April, July, and October).

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2004

Prerequisite: GEOG 485

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 493** Service Learning (3-12) Classroom instruction with supervised student activity on a group community service project.

GEOG 493

### **GEOG 493 Service Learning (3-12)**

GEOG 493, Service Learning, provides students with activities that integrate community service with academic study. The aim of service learning is to enrich traditional classroom-based education by getting students into a community, thereby engendering civic responsibility and simultaneously strengthening communities. GEOG 493 has five objectives: (1) to develop understanding of a set of issues; (2) to learn and apply skills associated with those issues; (3) to learn to interpret science issues for dissemination to the public; (4) to develop and apply communication skills by speaking, writing, and/or desktop publishing; and (5) to reflect on personal and career interests in science, the environment, public policy, or related areas. Thus, students will read, write, and talk about a set of issues of importance to a community and engage in a project in that community.

The specific service-learning projects will change each semester, although some projects will be ongoing. In addition, more than one GEOG 493 project will be available to students in most semesters and will have alphabetical designations (e.g., 493A or 493B). Students can take GEOG in more than one semester, to a maximum of 12 credits.

Depending on the topic of the service-learning project, GEOG 493 can complement courses in most colleges and their majors. The course is available to all Geography majors as elective credits; it is also available to all Geography Minors for credit toward the minor. It counts for credit as an Advanced Physical/Environmental Geography course in the Physical/Environmental Geography Option, and counts for credit as an Advanced Geography course in the General Geography Option.

Students will be evaluated on four of the five course objectives: (1) understanding of the issues, (2) learning and application of skills, (3) interpretation of issues for public dissemination, and (4) application of communication skills. Although exact procedures for determining grades will vary with the instructor and service-learning project, the basis for grades will include a combination of written work, oral presentations, in-class participation, and outside-class

participation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: sophomore standing; 6 credits of social or environmental science

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 494** Research Project in Geography (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project in Geography (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: prior approval of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 494H** Research Project in Geography (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project in Geography (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: prior approval of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 495** Internship (1-13) Supervised off-campus, non-group instruction including individual field experience, practicums, or internships. Written and oral critique of activity required.

**Internship (1-13)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1981

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 495B** Geography Teaching Internship (1-10) Supervised undergraduate teaching experience in which students serve as peer tutors, laboratory assistants, or course material developers.

GEOG 495b

**GEOG 495B Geography Teaching Internship (1-10)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Teaching Internship provides undergraduate students with formal, supervised teaching experience. Instructors recruit students who excel in a particular course to serve as teaching interns (TIs) in subsequent offerings of the same course. TIs may assist their peers as tutors or as laboratory assistants. They may be assigned to assist faculty members by developing and evaluating new course activities and materials. Although TIs may not evaluate their peers' class work, they can play important roles in the formative course assessment by providing feedback in regular meetings with instructors. In the process of developing the knowledge, skills and dispositions needed to be effective in helping fellow students learn, TIs gain experience that prepares them for leadership roles in their professional careers. TIs also gain respect for the effort and imagination involved in designing and conducting college classes.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 495C** Internship Supervision and Mentoring (1) Candidates for the Master of GIS degree sponsor a GIS-related internship for students in Penn State's resident undergraduate program.

GEOG 495c

**GEOG 495C Internship Supervision and Mentoring (1)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GEOG 495C enables MGIS students who participate at a distance through the University's World Campus to earn credit through contributions to the Department's resident programs. Qualified MGIS students will be encouraged to earn one credit (up to a maximum of three) for every semester that they supervise a resident Penn State Geography student in GIS-related internship conducted in the MGIS student's place of work. Qualifications will be judged by MGIS students' academic advisors. Advisors will help MGIS students recruit qualified internship candidates. Advisors will also evaluate the quality of supervision on the basis of the documentation provided by both the MGIS student and the student intern he or she supervised. MGIS students unable to provide internships may still contribute by serving as mentors to students enrolled in the resident course EM SC 300: Professional e-Portfolio Development, through the University's LionLink program.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 495G** Giscience Internship (1-10) Supervised research experience within the Department of Geography's GeoVISTA Center, Gould Center, or an appropriate external agency.

GEOG 495G

**GEOG 495G Giscience Internship (1-10)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Prospective interns apply directly to faculty members in charge of the Department of Geography's Geo VISTA Center or Gould Center for Geography Education and Outreach, or to persons in charge of appropriate public or private agency external to the University. Students accepted into the internship program are assigned to research or application projects that involve the development, evaluation and/or use of geographic information technologies under the supervision of an experienced faculty member or professional. Per Faculty Senate rules, interns are expected to devote 40 hours of effort for each credit earned.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: GEOG 160

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 497B** Location Intelligence for Business (3) Understanding location technology and geospatial analysis to support an efficient and effective pathway to better business decisions.

**Location Intelligence for Business (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 497C** GIS for Transportation Principles, Data, and Applications (3) This course examines the use of GIS principles, data, and applications that have been developed for the field of transportation.

**GIS for Transportation Principles, Data, and Applications (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: GEOG 483

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 497D** Lidar Technology and Applications (3) Understanding lidar systems' design, operation, data processing techniques, and product generation to address typical application scenarios faced by the geospatial professional.

**Lidar Technology and Applications (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 497D** Lidar Technology and Applications (3) Understanding lidar systems' design, operation, data processing techniques, and product generation to address typical application scenarios faced by the geospatial professional.

**Lidar Technology and Applications (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOG 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: prior approval of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

## Geosciences (GEOSC)

**GEOSC 001** Physical Geology (3) Earth processes and their effects on the materials, structure, and morphology of the earth's crust. Practicum includes field work, study of rocks, minerals, dynamic models, and topographic maps. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

### Physical Geology (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 002** (GN) Historical Geology (3) History of the earth and its life; fundamentals of evolution, correlation, and paleogeography; practicum includes field trips, study of geologic maps, geologic problems, and fossils, with emphasis on Appalachian geology. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

### Historical Geology (3)

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 010** (GN) Geology of the National Parks (3) Introduction to geology, geological change, and environmental hazards, as seen in the National Parks.

GEOSC 010

### GEOSC 010 Geology of the National Parks (3) (GN)

**(BA) This course meets the Bachelor of Arts degree requirements.**

"Geology of the National Parks" uses the unsurpassed features of national parks to address the key questions of geology and the environment. Each topic is introduced with a virtual field trip to a specially chosen national park (involving pictures of the park, a brief history, other highlights of the park, with supplemental materials and links provided on-line). Key questions about the park (Why has Death Valley been getting wider? Why is much of Mt. St. Helens spread across neighboring states?) then motivate discussion of the topic (here, the spreading or squeezing associated with drifting continents), with special attention to implications for humans (for example, predicting earthquakes and volcanic eruptions associated with these features). A suite of exercises provides the opportunity for analytical experience during walking field trips of local geology, quantitative analysis of geological data, written evaluation of library-based information on national parks, and collaborative on-line assessment of geological hazards. Readings are primarily drawn from an on-line text prepared especially for the course, with links to appropriate national-park sites, but readings also include additional technical literature. There are no prerequisites for the course. It is offered twice yearly at University Park, with enrollment fixed by available classroom space (recently, 300 in the spring and 400 in the fall). The goals of the course are to help students learn how certain common-sense ideas allow science to be such a successful human endeavor, that the Earth efficiently but slowly recycles almost everything, that the Earth's environment has been nearly balanced for very long times, that human-induced changes are among the fastest Earth has ever experienced, and that the National Parks are critical but challenged living laboratories, museums, and repositories of biodiversity. In doing so, the students will see the applications to real-world problems of related fields including physics, chemistry, biology, and mathematics, and will develop a greater appreciation of these other subjects. Students will be challenged to reason from data to generalizations, and from these generalizations back to cases, through in-class discussion, exercises (approximately 1/4 to 1/3 of the total grade), and examinations (primarily objective). Owing to the large enrollment, in-class time will be devoted to virtual field trips, discussion and lecture, but with much effort to encourage participation from the students. Activities out of class will focus on exercises and on the extensive web resources developed in collaboration with the e-Education Institute of the College of Earth and Mineral Sciences.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**GEOSC 020** (GN) Planet Earth (3) Nontechnical presentation of earth processes, materials, and landscape. Practicum includes field trips, study of maps, rocks, and dynamic models, introduction to geologic experimentation. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

**Planet Earth (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 020L** (GN) Planet Earth (3) Nontechnical presentation of earth processes, materials, and landscape. Practicum includes field trips, study of maps, rocks, and dynamic models, introduction to geologic experimentation. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

**Planet Earth (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 1988

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 021** (GN) Earth and Life: Origin and Evolution (3) Introduction to the origin and evolution of life on Earth from the perspective of geologic time and the fossil record.

GEOSC 021

**GEOSC 021 Earth and Life: Origin and Evolution (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

When and how did the solar system form? When and how did life on Earth originate? How has Earth's environment changed over geologic time? What caused the extinction of the dinosaurs 65 million years ago? Does life occur elsewhere in the universe? These questions are the cornerstones for this course, which traces the history of interaction between Earth's environment and the evolution of the life over 4.5 billion years since the origin of the solar system. The fossil record serves as the primary source of data to study the evolution of life, especially dinosaurs and other extinct vertebrate groups. The causes and consequences of mass extinctions millions of years ago provide a context for understanding the modern biodiversity crisis. This course has four main objectives: (1) to provide a broad overview of chemical, biological, and geological processes responsible for the origin and evolution of the Earth and life; (2) to enable comprehension of geologic time and the history of Earth and life; (3) to understand the nature of evidence and hypothesis testing in an historical science; (4) to develop critical-thinking and expository writing skills. This course introduces and integrates basic knowledge in earth and life sciences. Material is presented in a way that emphasizes observation, synthesis of information, and hypothesis testing. This is a general education course in the natural sciences (GN) and is intended for non-science majors.

Students will be evaluated based on their performance on two midterm exams (50%), a final exam (25%), and homework assignments and quizzes (25%). We will offer the course every year in both the fall and spring semesters.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 030** (GN) Volcanoes (3) Basic concepts in Volcanology and Geosciences are explored through a series of virtual field trips to historic eruptions.

**GEOSC 030 Volcanoes (3)  
(GN)**

Since the dawning of history, humankind has been faced with the destructive power of volcanoes. Volcanic eruptions can wipe out entire populations, destroy food supplies, and alter the Earth's climate for years at a time. At the same time, volcanoes provide fertile soil for growing crops and natural geothermal energy. This course uses virtual field trips to one pre-historic and five historic volcanic eruptions to introduce basic concepts in geosciences and volcanology. Each visits a different type of volcano with unique characteristics and impacts – a shield volcano, a cinder cone, a fissure, a stratovolcano, a lava dome, and a supervolcano. We will examine the tectonic driving forces behind these volcanoes as

well as their hazards and environmental impacts. Students will use real data from active volcanic fields, as well as original data collected during home experiments, to calculate physical properties of magmas and to interpret the potential impacts of various volcanic hazards. Sidebars will delve into the less obvious interactions between humans and volcanoes from the perspective of mythology, art, and history. Observations and ideas will be logged in virtual field notebooks.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 040 (GN)** The Sea Around Us (3) Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography.

GEOSC 040

**GEOSC 040 The Sea Around Us (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Sea Around Us introduces students to the basic workings of the ocean and is offered both Fall and Spring terms at the University Park campus. The course covers the origin of the ocean's rock-walled boundaries, the evolution of its coastlines, the motion of currents, waves and tides and their destructive power, the source and composition of seawater, and the role of the ocean in local and global climate. The majority of the Earth's surface is covered by water and thus it seems likely that the human race will become increasingly dependent on oceanic resources in the future. This course seeks to illuminate how the ocean will respond to increased anthropogenic pressure. Students are shown how such issues can be addressed through detailed understanding of the complex interplay between the physical, chemical and biological properties of the ocean. Lectures focus on fundamental principles of natural sciences as related to the ocean using extensive graphics, video clips and demonstrations. Students break up into small groups for a weekly laboratory practicum featuring team-based experiments, discussion, and simple problem sets aimed at solidifying key concepts and topics.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 040L (GN)** The Sea Around Us (2) Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography.

**GEOSC 040L The Sea Around Us (2)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Sea Around Us Lecture introduces students to the basic workings of the ocean and is offered both Fall and Spring terms at the University Park campus. The course covers the origin of ocean basins, the evolution of their coastlines, the motion of currents, waves and tides and their destructive power, the source and composition of seawater, marine life and the marine food chain, and the role of the ocean in local and global climate. The majority of Earth's surface is covered by water and thus it seems likely that the human race will become increasingly dependent on oceanic resources in the future. This course seeks to illuminate how the ocean will respond to increased anthropogenic pressure. Students are shown how such issues can be addressed through detailed understanding of the complex interplay between the physical, chemical and biological properties of the ocean.

Lectures focus on fundamental principles of natural sciences as related to the ocean using extensive graphics, video clips and demonstrations. Geosc040L can be taken concurrently or independently from Geosc040P

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 040P (GN)** The Sea Around Us (1) Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography.

**GEOSC 040P The Sea Around Us (1)  
(GN)****(BA) This course meets the Bachelor of Arts degree requirements.**

The Sea Around Us Lab introduces students to the basic workings of the ocean and is offered both Fall and Spring terms at the University Park campus. The course covers the origin of ocean basins, the evolution of their coastlines, the motion of currents, waves and tides and their destructive power, the source and composition of seawater, marine life and the marine food chain, and the role of the ocean in local and global climate. The majority of Earth's surface is covered by water and thus it seems likely that the human race will become increasingly dependent on oceanic resources in the future. This course seeks to illuminate how the ocean will respond to increased anthropogenic pressure. Students are shown how such issues can be addressed through detailed understanding of the complex interplay between the physical, chemical and biological properties of the ocean. Lectures focus on fundamental principles of natural sciences as related to the ocean using extensive graphics, video clips and demonstrations. Students work in small groups for the laboratory exercises featuring team-based experiments, discussion, and simple problem sets designed to solidify key concepts and topics for oceans. Geosc040P can be taken concurrently or independently from Geosc040L

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 071 Physical Geology for Engineers (3)** Principles of physical geology, with emphasis on the engineering point of view; practicum includes field work, study of rocks, minerals, dynamic models, and topographic maps. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

**Physical Geology for Engineers (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 097 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 109H (GN) Earthquakes and Society (3)** Introduction to earthquakes and seismology, and their relationship to society, including monitoring for nuclear weapons and seismic hazards.

GEOSC 109H

**GEOSC 109H Earthquakes, Nuclear Explosions, and Society (3)  
(GN)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course is a general education science course that will provide students with an introduction to earthquakes and nuclear explosions and the science and policy issues linking them. Nuclear explosions, like earthquakes, are seismic events that generate elastic waves that propagate through the earth. As in the case of earthquakes, detection of seismic waves from a nuclear explosion provides the principal means of determining its size and location. In this course, students will learn about earthquakes and nuclear explosions, how these seismic events are monitored, and the role earthquake science (seismology) plays in international treaties designed to limit proliferation of nuclear weapons.

The format for this course will be problem-oriented, with students taking an active role in learning. Student groups will actively research web-based and standard resources to learn about the history of nuclear test ban treaties, the effects of nuclear weapons, earthquakes, basic concepts of seismic wave propagation, hands-on recording of seismic waves, earth structure, plate tectonics, and discriminating between nuclear explosions and earthquakes. Students will engage in activities that will require them to learn the material themselves and be able to teach what they have learned to others in the class through in-class presentations. Part of the course will involve the hands-on operation of a seismic observatory and collection of seismic data from earthquakes and local quarry blasts. Scenarios for evasive testing of nuclear

explosions will be examined at the end of the course with emphasis on technical issues and international political ramifications. Students will obtain a background in the history of arms limitation treaties, basic physics, basic geosciences, and have experiences in seismic data collection.

The general format of the course is based on a weekly cycle of student groups performing discovery-based learning with two days of class discussion and/or activities based on that learning. Group investigations will involve cooperative organization and research by small (3-4 students) groups of the class. Specific guidelines and instructions will be given to each group in the form of lists of source materials, source material on the class Web site, links to information Web sites, and interactive Web forms for creating classroom and hard copy reports. Students will be required to engage in the full complement of activities described above. In addition, each student will be required to write a summary of each activity. A grade will be assigned for the group presentation and summaries, and the final course grade will be determined based on the average grade of the individual activities. This course will be offered once a year.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 110H (GN)** The Science of Gemstones (3) An exploration of the geological uses of gems and of the physical and chemical properties underlying their brilliance and color.

GEOSC 110H

**GEOSC 110H The Science of Gemstones (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

From Biblical times to the present, gems and precious metals have served as the standard by which empires have measured their worth. Through the ingenious marketing of an international cartel, diamonds have become identified with the oldest and most sacred of human contracts. To what can we attribute the unique allure of pretty minerals? Although we will consider the history and folklore associated with gemstones, this course will focus on the value of gems to scientists. We will see what crystals tell us about the chemical symmetries that govern the atomic architecture of matter, and we will explore the physical attributes that give rise to the brilliance, color, and durability of gems. Finally, we will learn how geologists have used gems to reveal the history and inner structure of the earth.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2002  
Prerequisite: high school chemistry and trigonometry

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 111 (GN)** Forensic Geoscience (3) Covers fundamental geoscience concepts such as stratigraphy, mineral and soil identification, seismology, and geochemistry within the context of forensic investigation.

**GEOSC 111 Forensic Geoscience (3)  
(GN)**

In this course, we will look at the fundamental principles of geoscience and how they can be applied in the context of criminal or liability investigation. Students will learn how to use a stratigraphic column to determine a sequence of events, either in the geologic record or as physical evidence, for example the layers of mud on the bottom of a car suspected of involvement in criminal activity. We will discuss the many types of physical evidence, focusing in particular on those that involve earth materials (soils, sand, mineral dust) or that can be analyzed using techniques commonly applied to geologic problems (for example, analyzing shards of glass from a hit and run accident using a scanning electron microscope). Basic mineralogy, sedimentology, and petrology will be introduced in the context of trace evidence. Common techniques used by both geoscientists and crime scene investigators, including fluorescence, microscopy, ground-penetrating radar, magnetometry, and seismology will be covered, including hands-on demonstrations when possible. We will learn how isotope geochemistry is used to date natural materials, and how it can be used to determine the geographic origin of rocks, minerals, or sediments. Students will learn how and when it is possible to make a statistically meaningful comparison of naturally variable samples present only in trace amounts. The proper handling of earth materials as trace evidence will be explained. Students will be expected to use the knowledge they have acquired to come up with original solutions to both real and invented crime cases. Finally, students will use the material they have learned in class to write an original mystery story in which geological evidence plays a key role in solving a crime.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 201** Earth Materials (4) Elements of crystallography and crystal chemistry; origin, occurrence, and identification of sedimentary, igneous, and metamorphic rocks and their minerals. This course has one or more required field trips for which a fee is charged to the student.

#### **Earth Materials (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 110 third-semester standing. Prerequisite or concurrent: GEOSC 001 or GEOSC 020

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 202** Chemical Processes in Geology (4) An in-depth examination of the application of chemical principles to geological processes.

#### **Chemical Processes in Geology (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: GEOSC 001 MATH 140 third-semester standing. Prerequisite or concurrent: CHEM 113

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 203** Physical Processes in Geology (4) An in-depth examination of various physical processes that operate within and at the surface of the earth.

#### **GEOSC 203 Physical Processes in Geology (4)**

Geoscience 203 applies basic principles from physics and mathematics to explore and understand the Earth and the processes that operate within the Earth and at the Earth's surface. The course includes the study of Earth's gravity and magnetic fields, focusing on how they reveal the internal structures and dynamics related to plate tectonics. The basic physics and mathematics of plate motions are also explored in some detail. We will also examine the elastic properties and behaviors of rocks, which form the basis for understanding seismic waves, rock fracture, and fault slip. The next major topic of the class is the flow of heat through the solid Earth system, involving the study of conduction, convection, and advection. The study of heat will provide the basis for understanding the application of simple differential equations with boundary conditions to geological processes; this will also introduce the mathematics of diffusion, which will permeate much of the course. This study of diffusion will enable us to move from steady state conditions to non-steady state conditions that typify most geological settings. We will examine the fluid dynamics relevant to the flow of the mantle and less viscous fluids at the surface such as lava flows and glaciers. The fluid dynamics will also lead us into an exploration of the basic physics of ocean circulation, stream flow, and erosion on land.

Throughout the course, students will learn how to use calculus and very simple computer programming in MATLAB to provide a quantitative framework for understanding the physical processes that shape the Earth. The class involves a weekly lab that involves several field trips to make measurements using a variety of geophysical instruments to solve problems related to gravity, stream flow, and heat flow. Other lab activities involve studies of rock friction and fracture, ocean currents, glacial flow, seismology, and plate motions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: GEOSC 001 or permission of program. Prerequisite or concurrent: PHYS 211 MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 204** Geobiology (4) An introduction to how biological processes and materials are used to solve geological problems.

**GEOSC 204 GEOSC 204 Geobiology (4)**

What caused the mass extinction 250 million years ago that nearly eliminated life in the oceans? How is the fossil record used to understand geological and evolutionary processes? What role do microbes play in cycling chemical elements today and over geologic time? Can we predict the response of modern ecosystems to future climate change? These questions form the basis for this course in geobiology, which considers how biological processes and materials are used to solve geological problems. This course has four main objectives: (1) to provide a broad overview of the role biological processes and materials play in understanding earth today and in the geological past; (2) to learn about the fossil record and how to extract information from it; (3) to learn field and computational skills used by geobiologists; (4) to develop critical-thinking and expository writing skills. Students will be evaluated based on their performance on essay exams (60%), laboratory exercises (20%), writing assignments (10%), and group discussions (10%). This course is designed to complement GEOSC 202 Physical Processes and GEOSC 203 Chemical Processes. GEOSC 204 will become part of our core curriculum in geosciences. Students taking the B. A. degree in geosciences will be required to take one of the following three courses: GEOSC 202 Physical Processes, GEOSC 203 Chemical Processes, GEOSC 204 Geobiology. In the future, we may require this course as part of the core curriculum for the B. S. degree. We will offer the course every year in the spring semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: BIOL 110;GEOSC 001 orGEOSC 020

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 228** Dinosaurs (3) Dinosaurs and other large Mesozoic reptiles; their morphology, stratigraphic and paleoenvironmental distribution, preservation, collecting, classification, lifestyles, origins, evolution, and extinction.

**Dinosaurs (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 297A** The Geology of Marcellus Shale (3) This class is a field based introduction to the geological processes that result in the formation of oil and gas accumulations with an emphasis on the Marcellus Shale.

**The Geology of Marcellus Shale (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 297D** Introductory Field Geology in Italy (3) This program will consist of two courses that aim to develop basic field geology skills while assembling a broad range of observations that will lead to an integrated understanding the origin and evolution of the Northern Apennines mountains.

#### **Introductory Field Geology in Italy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: GEOSC 001GEOSC 020GEOSC 010GEOSC 040EARTH 101 orEARTH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 303** Introduction to Environmental Geology (3) Origin of earth and earth materials; natural resources, geologic barriers and hazards, and relationships to human use of the environment. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

#### **Introduction to Environmental Geology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 310** Earth History (4) The principles of stratigraphy and paleontology and their use, in combination with plate tectonics, in reconstructing the earth's history. This course has one or more required field trips for which a fee is charged to the student.

#### **Earth History (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: GEOSC 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 320** Geology of Climate Change (3) Geologic evidence for climate change and mechanisms of change, especially from the Ice Age through the near future.

#### **GEOSC 320 Geology of Climate Change (3)**

The appropriate human response to global climate change is among the hot-button issues of the modern world. Geologic records provide a critical perspective on climate change, with implications for our behavior. Ice cores, ocean sediments, tree rings, and others reveal that agriculture and industry have arisen during a few thousand years of anomalously stable climate. Natural changes half as large as the entire difference between ice-age and modern conditions have occurred repeatedly in mere years, affecting hemispheric or broader regions. Such climate jumps have been linked to changes in greenhouse gases, but not driven by them. The students in Geology of Climate Change will learn how records of recent climate changes are recovered, read, and dated, how the climate system works and has worked, and the causes of ice-age cycles and faster climate jumps. The students will demonstrate their mastery of this knowledge by assessing its implications for global warming and natural climate changes in the future. Geology of Climate Change will involve lecture/discussion, readings, and individual or small-group projects, with students graded on midterm and final exams, and presentations or papers. The course will serve as an upper-level elective for students in major and minor programs in Geosciences and Earth Science. Enrollment will be limited to 30, with one offering per year.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 340** Geomorphology (3) Physical and chemical processes operating at the earth's surface and their resulting landforms. This course has one or more required field trips for which a fee is charged to the student.

#### **Geomorphology (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2002  
 Prerequisite: GEOSC 001 ; fifth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 397D** The Tectonic Evolution of Italy (3) This program will consist of two courses that aim to develop basic field geology skills while assembling a broad range of observations that will lead to an integrated understanding of the origin and evolution of the Northern Apennines mountains.

### **The Tectonic Evolution of Italy (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2014 Ending: Summer 2014  
 Prerequisite: GEOSC 297D

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 402Y** (IL) Natural Disasters (3) Case studies of the causes and consequences of natural disasters; analysis of disaster impact in different economic, cultural, and social conditions.

GEOSC 402Y

### **GEOSC 402Y Natural Disasters (3) (IL)**

Is anywhere safe from natural disasters? Can we hide, or should we learn to live with the hazards around us? This course will explore the causes, effects, and societal response to disasters. By learning from previous disasters, we can develop strategies to avert the disasters or at a minimum mitigate their affects. We will look at a variety of natural hazards and related disasters including flooding, volcanoes, landslides, earthquakes, hurricanes, and tsunamis. By the use of case studies of recent occurrences of natural disasters, we will determine how damaging disasters can be, and what we can do to minimize their impact on society. This course will provide an in-depth, hands-on study of natural hazards, their geography, and their impact on societies worldwide. We will focus on both the physical processes (e.g. underlying geology or geophysics) of selected natural hazards and the human systems that have developed to minimize the impact of natural disasters.

The course will place emphasis on active learning exercises to investigate processes and responses to natural hazards. We will meet for two periods each week which will include both lecture and group research activities (approximately 30% of time is in lectures, 70% time is in group research activities). Grading will be based on reports for each topic, a disaster diary, and a term report. The term report is an independent project which focuses on a selected city facing significant natural hazards. Cities will be selected from both the developed and developing world to allow comparisons of the impacts of natural disasters under different socio-economic and cultural conditions.

The course is offered once each year with a target enrollment of 25-30 students.

Prerequisites for the course are at least 6 credits in science courses (including GN courses).

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2005  
 Prerequisite: fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 405** (SOILS 405) Hydopedology (3) Soil and water interactions across scales, integrated studies of landscape-soil-water relationships, fundamental processes of water flow and chemical transport.

GEOSC 405



**GEOSC (SOILS) 405 Hydropedology (3)**

Hydropedology is the study of the fluxes, storages, pathways, residence times, and spatio-temporal organization of water in the root and deep vadose zones, and their relations to climate, ecosystem, land use, and contaminant fate. The aim is to characterize integrated physical, chemical, and biological processes of soil-water interactions across scales (including chemicals and energy transported by water flow). This course embraces interdisciplinary and multiscale studies of interactive pedological and hydrological processes in the earth's surface and subsurface environments. The course will address the fundamental issues and practical applications of hydropedology (as a sister discipline of hydrogeology). This course emphasizes *in situ* soils that have distinct characteristics of pedogenic features, structures, layers, and soil-landscape relationships in the real world. Students will gain an in-depth understanding of soil and water interactions across scales from point observations to watershed phenomena, and will gain skills in predicting flow pathways and water fluxes in the landscape. This course promotes active learning, critical thinking, and hands-on skills. Course format will consist of two lectures and one laboratory/field exercise each week. The course will utilize a network of local watersheds with different land uses for demonstrations and class projects. Grading will be based on weekly lab/field exercise (20%), class research project (40%), homework (10%), one midterm exams (15%), and one final exam (15%). Since hydropedology is linked to a wide array of environmental, ecological, geological, agricultural, and natural resource issues of societal importance, SOILS (GEOSC) 405 will support interdisciplinary training of students in Soil Science as well as in other disciplines of the College of Agricultural Sciences, especially Agricultural and Biological Engineering, Agronomy, and Forest Resources. Students in the College of Earth and Mineral Sciences, College of Engineering, Eberly College of Science, and the Intercollege Graduate Degree Program in Ecology also will find this course useful when undertaking research on the vadose zone, the hydrologic cycle, and the earth system. The course will be offered every fall semester with an anticipated enrollment of 20 students per class.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: SOILS 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 409W Geomicrobiology (3)** Investigation of modern and ancient microbial interactions with soils, sediments, the atmosphere, minerals, rocks, nutrients, and pollutants.

**Geomicrobiology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: CHEM 112;GEOSC 001GEOSC 020GEOSC 040EARTH 002BIOL 110 orMICRB 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 410 Marine Biogeochemistry (3)** Exploration of the ways in which life influences and is influenced by chemical, physical, and geological processes in the ocean.

**GEOSC 410 GEOSC 410 Marine Biogeochemistry (3)**

This course covers the basics of the chemistry of the ocean, its circulation, the types of organisms that live in the ocean, and the ways in which organisms influence and are influenced by their physicochemical environment. The format includes lectures, hands-on laboratory exercises, and a field trip to an aquatic environment during which students undertake group research projects. The course is offered in alternate years, in the spring. It satisfies one of the course requirements of the Marine Science minor for undergraduates, and the Data Gathering requirement of students in the Geosciences graduate program. Grades are based on class participation, midterm and final examinations, and an oral and/or written report of the research project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: CHEM 112;EARTH 002 orGEOSC 001GEOSC 020GEOSC 040

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 412 Water Resources Geochemistry (3)** Aqueous geochemistry of silica, alumina, carbonate minerals, and selected metals; organic species in water; isotope geochemistry applied to water.

**Water Resources Geochemistry (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 110CHEM 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 413W** Techniques in Environmental Geochemistry (3) This course teaches techniques needed for the collection, chemical analysis, and data analysis of environmental geochemical measurements. This course has one or more required field trips for which a fee is charged to the student.

### **Techniques in Environmental Geochemistry (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: one of the following: C E 475CHEM 402GEOSC 202GEOSC 412SOILS 419

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 415** Geochemistry (3) Element abundance and genesis, application of chemical principles to earth materials, element fractionation in geologic processes.

### **Geochemistry (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: CHEM 112GEOSC 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 416** Stable and Radioactive Isotopes in Geosciences: Introduction (3) Discussions on theories for natural isotopic and element variations and their applications to the solution of geologic and cosmologic problems.

### **Stable and Radioactive Isotopes in Geosciences: Introduction (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 110CHEM 112CHEM 111CHEM 113;GEOSC 001 orGEOSC 020

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 418 (SOILS 419)** Soil Environmental Chemistry (3) Introduction to chemical constituents and processes occurring in soils. Topics include mineral weathering, soil solution chemistry and adsorption of solutes.

GEOSC 418

### **GEOSC 418 (SOILS 419) Soil Environmental Chemistry (3)**

Upon completion of the course, the students will be able to identify the soil components and properties responsible for the chemical reactivity of soils and will know the fundamental chemical processes that occur in soils. The students will also be able to link theoretical concepts to real life environmental problems. The students will be evaluated on examinations, homework, and class participation. GEOSC 418 (SOILS 419) is offered every Spring semester. Class limit: 25 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 112SOILS 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 419** The Organic Geochemistry of Natural Waters and Sediments (3) Composition, sources, and fates of particulate and dissolved organic matter in natural environments; biogeochemical processes; organic geochemistry of anthropogenic contaminants.

### **The Organic Geochemistry of Natural Waters and Sediments (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 110CHEM 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 420 (BIOL 420) Paleobotany (3)** Classification, morphology, phylogeny, and stratigraphic occurrence of fossil plants; practicum includes field trips and study of paleobotanical techniques and specimens.

GEOSC 420

**GEOSC (BIOL) 420 Paleobotany (3)**

Land plants provide the oxygen, food, and forest structure that make our lives on land possible. They are sensitive indicators of global change in the past as well as today. This course will examine the history of green plants on the dynamic Earth from their beginnings in the Proterozoic oceans to today, with emphasis on central topics such as the colonization of land, the histories and relationships of major plant groups, the evolution of seeds and flowers, the evolution of plant-animal interactions, extinction and diversification, paleoclimates, and the origins of modern biomes such as rainforests and grasslands.

This course is strongly recommended to graduate students and advanced undergraduates with interests in paleobiology and/or plant biology. Specimen observation and field trips will be important course components. Exams, assignments, and class participation will be the primary bases of evaluation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: any 3-credit introductory course in historical geology or plant biology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 422 Vertebrate Paleontology (3)** Course covers scientific thinking and skills in scientific writing, the history of vertebrates, and modern evolutionary theory applied to vertebrates.

**Vertebrate Paleontology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: GEOSC 001 and BIOL 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 424 Paleontology and Fossils (3)** Concepts and procedures using fossils to solve problems in systematics, evolution, biostratigraphy, correlation, sedimentation, paleoecology, and global change.

**Paleontology and Fossils (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: GEOSC 001 or GEOSC 020

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 428 Micropaleontology (4)** Biology and ecology of microfaunas and microfloras (e.g., foraminifera, coccolithophores, radiolaria, diatoms, dinoflagellates) and applications in biostratigraphy and paleoenvironmental reconstruction.

GEOSC 428

**GEOSC 428 Micropaleontology (4)**

Micropaleontology is the study of the fossilized remains of microscopic plants and animals, most of which are single-celled and belong to the Protista. Although nearly invisible, the organisms at the base of the food chain make up most of the biomass in oceans and lakes. Only a few kinds of microplankton and microbenthos groups have shells that readily fossilize, but these can be so abundant that in places they form mountains of pure fossil remains. The abyssal floor of the ocean is made up of layers of microfossil-rich "ooze" that slowly accumulates from microscopic shells settling to the seafloor. Changes in the abundance and types of microfossils in these layers provide a detailed record of the geological past, in response to climate change and biological evolution. In addition, each time a new species of micro-organism evolves, it quickly spreads throughout the oceans, forming a worldwide time marker in the fossil record. Such marker horizons allow geological events in different parts of the world to be related in a global earth history.

The course has four main objectives: (1) to provide a broad overview of the biology and ecology of living microplankton and microbenthos with a focus on foraminifera and radiolaria (predatory, non-vegetative protists), coccolithophores and diatoms (vegetative, photosynthesizing protists), and dinoflagellates (both predatory and photosynthesizing); (2) to learn about the evolutionary record of these groups; (3) to understand their applications in biostratigraphy and paleoenvironmental reconstruction; and (4) identification of microfossil groups in the light microscope and scanning

electron microscope. Group projects will be a key element of laboratory sessions. Assessment will be based on mid-term and final exams, a term paper, and a laboratory exercises.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004  
Prerequisite: GEOSC 204

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 434** Volcanology (3) Phenomena and products of volcanic eruptions; physical characteristics of lava and pyroclastic material.

### **Volcanology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: GEOSC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 439** Principles of Stratigraphy (3) An introduction to the description and genesis of sedimentary rock bodies, the determination of their stratal geometries, and their correlation. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

### **Principles of Stratigraphy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: GEOSC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 440** Marine Geology (3) Chemical and physical processes affecting the topography and sediments of the sea floor.

### **Marine Geology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 444** Matlab Applications for Geoscience (2) An introduction to Matlab: m-file development, descriptive statistics, bootstrapping, Fourier transforms, regression, interpolation, least-squares, differentiation, integration, differential equations, signal analysis, graphics.

### **GEOSC 444 Matlab Application for Geoscience (2)**

The goal of this class is that students become familiar with Matlab so that they can conduct scientific research without needing to manipulate spreadsheets or other non-mathematically based software. The course is geared towards, beginning graduate and advanced undergraduate students with little or no previous Matlab experience, and examples are focused on applications in the science and engineering with a focus on the geosciences, including problems from groundwater hydrology, tectonics, geochemistry, rock physics, and climate change. Some basic concepts about vectors and matrices will be helpful, but are not required.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009  
Prerequisite: MATH 110 or MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 450** Risk Analysis in the Earth Sciences (3) An introduction to concepts and methods of quantitative risk analysis with focus on water, climate, and energy related risks.

**GEOSC 450 Risk Analysis in the Earth Sciences (3)**

Geosc 450 is an introduction to concepts and methods of quantitative risk analysis in the Earth system. Key concepts include probability, impacts, risk, uncertainty, statistical estimation, and decision-making under uncertainty. Important methods to be covered are sensitivity studies, probabilistic prediction, and uncertainty analysis. Examples of risks to be analyzed include: drought, flooding, nuclear waste storage, and anthropogenic climate change. Students will also use simple risk analysis software (provided by the instructor and accessible without prior programming experience) to actively apply these concepts to example problems. The course is designed for advanced undergraduate students with a prior exposure to basic statistics and calculus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: MATH 140 or MATH 110 Introductory Earth Science or Geoscience class Introductory Statistics class (e.g. STATS 200 or STATS 301 or ENNEC 473) or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 451 Natural Resources: Origins, Economics and Environmental Impact (3)** Geologic, economic and environmental issues related to exploitation of non-renewable natural resources (metals, minerals, rocks, and fossil fuels).

GEOSC 451

**GEOSC 451 Natural Resources: Origins, Economics and Environmental Impact (3)**

All the materials needed for health and prosperity in our complex society come from the earth, such as water, iron and other metals to make steel, silica to make glass, limestone to make concrete, potash and phosphate to make fertilizers, and oil, natural gas, coal and uranium to generate heat and electricity. Most of these natural resources are non-renewable, and easily recoverable quantities are limited. The main purpose of this course is to increase understanding and appreciation of geological, economical and environmental aspects of exploitation of mineral and energy resources. Approximately two-thirds of the lectures/discussions will focus on geological, geochemical and biological processes that have governed the concentration and dispersion of economically important elements and natural materials on Earth, including water, heavy metals (aluminum, iron, copper, zinc, lead, etc.), precious metals (gold, silver, platinum, etc.), industrial minerals and rocks (clays, limestone, gypsum, salts, etc.), nuclear-energy sources (uranium and thorium) and fossil fuels (petroleum, natural gas and coal). The remaining one-third of the lectures/discussions will focus on: (i) exploration methods to discover new mineral (and fossil fuel) deposits; (ii) economic aspect of mineral commodities (usages, production statistics, economic of mining and concentration); and (iii) environmental issues related to mining, nuclear waste disposal, and constructions. There will be two half-day field trips to study the nature of sulfide mineralization and acid-water pollution.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: GEOSC 001 or GEOSC 020

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 452 Hydrogeology (3)** Hydrologic cycle: occurrence, movement, quality, and quantity of groundwater; solute transport; quantitative hydrogeologic methods; role of water in geologic processes. This course has one or more required field trips for which a fee may be charged to the student.

GEOSC 452

**GEOSC 452 Hydrogeology (3)**

GEOSC 452 is the study of the relation between geological and hydrological processes in the earth's surface and subsurface environments. The course will address the fundamental issues and practical applications of natural flow systems, emphasizing the occurrence, movement, quality, and quantity of groundwater and its relations to contaminate fate and transport. The primary objective is to provide students with the fundamental knowledge and tools that are necessary to understand the hydrologic cycle. Students will gain an in-depth understanding of fluid flow across scales from point observations to watershed phenomena, and will gain skills in using mathematics to describe water fluxes. The course format consists of two lectures each week, and includes two field trips. Grading is based on weekly homework assignments, exams, and participation on the field trips. Because hydrogeology is linked to a wide array of environmental, ecological, engineering, and natural resource issues of societal importance, GEOSC 452 will support interdisciplinary training of students in the natural sciences and engineering. Students will find this course useful when undertaking research about fluids in geologic processes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CHEM 112; GEOSC 001; GEOSC 020 or GEOSC 071; MATH 140 or MATH 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 454** Geology of Oil and Gas (3) Properties, origin, migration, and occurrence of oil and gas. This course has one or more required field trips for which a fee is charged to the student.

**Geology of Oil and Gas (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: GEOSC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 461** Geology of North America (3) Evolution of structural-stratigraphic framework of continent; interpretation of relevant data obtained from field, experimental, and geophysical observation.

**Geology of North America (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: GEOSC 001GEOSC 020 orGEOSC 071

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 465** Structural Geology (4) Effects and mechanics of deformation of the earth's crust; practicum includes field trips and studies of maps and structural problems. This course has one or more field trips for which a fee is charged to the student.

**Structural Geology (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: or concurrent:GEOSC 203GEOSC 310

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 470W** Introduction to Field Geology (3) Field interpretation of geologic features; principles and techniques of geologic mapping; interpretation of geologic maps and diagrams. This course has one or more required field trips for which a fee is charged to the student.

**Introduction to Field Geology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: GEOSC 001 ; fifth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 472A** Field Geology I (Introduction to Field Methods (3) Introduction to geologic field methods and the 3-D characterization of earth structure and the reconstruction of geologic histories. This course includes travel outside the University for which an additional charge will be made to cover transportation, food, and lodging.

**Field Geology I (Introduction to Field Methods (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: GEOSC 310

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 472B** Field Geology II (Advanced Field Methods) (3) Advanced application of geologic field methods to the 3-D characterization of earth structure and the reconstruction of geologic histories. This course includes travel outside the University for which an additional charge will be made to cover transportation, food, and lodging.

**Field Geology II (Advanced Field Methods) (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: GEOSC 310GEOSC 465 . Prerequisite or concurrent:GEOSC 472A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 474 (BIOL 474) Astrobiology (3)** In depth treatment of principles/concepts of biochemical evolution, the origin/evolution of life; evaluation of distribution of life in the universe.

#### **GEOSC 474 GEOSC (BIOL) 474 Astrobiology (3)**

Astrobiology is the study of life in the universe. Astrobiology has become a major focus of scientific research in the United States and a topic often discussed in popular science literature. The recent interest in astrobiology has resulted in the formation of an Astrobiology Institute at Penn State University. This advanced undergraduate course in astrobiology will cover many topics in the field including, biochemical evolution, the origin and evolution of life on Earth, microbial diversity, protein evolution, and the distribution of life in the universe. This course is intended to provide students of the natural sciences with the opportunity to prepare for a research career in the rapidly expanding field of astrobiology. The course will also present astrobiology as a cross-disciplinary framework that ties together the diverse courses the students have already taken. The students will learn new concepts while having, to draw on their previous knowledge of chemistry, biology, and the geosciences. In summary, this course has the following objectives: (1) to develop the student's literacy in astrobiology so that they can critically evaluate claims that they encounter well after the course has ended; (2) to present a scientific question that requires the sum of the student's previous education to solve; (3) to provide a deep background to some of the astrobiological concepts that are often only briefly mentioned in other classes or in the media; (4) to develop research and communication skills required for a young scientist through a class term paper and short oral presentation; and (5) to prepare the students for graduate research in astrobiology by giving them a broad background of the field and by demonstrating many of the outstanding problems yet to be solved.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: BIOL 110CHEM 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 479 Advanced Stratigraphy (3)** Modern topics of sequence stratigraphy are addressed, with a heavy emphasis on field and laboratory data analysis and interpretation.

#### **Advanced Stratigraphy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

Prerequisite: GEOSC 439

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 483 Environmental Geophysics (3)** This course presents the principles and applications of the variety of techniques geophysicists use to address environmental problems.

#### **Environmental Geophysics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: PHYS 211PHYS 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 487 Analysis of Time Series (3)** Nonstatistical approach to data analysis; spectral and correlation analysis; filter theory; signal-to-noise improvement applied to geoscience data.

#### **Analysis of Time Series (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: MATH 140 andMATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**GEOSC 488** An Introduction to Seismology (4) An overview of the observations, methods, and frameworks used in seismogram analysis for earthquake and earth-structure investigations (includes laboratory).

GEOSC 488

**GEOSC 488 An Introduction to Seismology (4)**

This course is an overview of the observations, methods, and frameworks used in seismogram-based investigation of earthquake and earth-structure. The main goals of the course are to prepare students of seismology for further study of earthquakes and earth structure using seismograms; to provide an overview of earthquake seismology for nonseismologists, to introduce undergraduate geophysics students to quantitative geoscience. Topics covered include stress and strain, faulting and tectonics, seismic body and surface wave propagation including ray methods, dispersion, and attenuation. Students perform fundamental seismological analyses using a computer-based, experiential laboratory exercises exploring the signals contained in research-quality data from recent earthquakes recorded on the international global seismic network.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: MATH 140MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 489** Dynamics of the Earth (4) Constitution and dynamics of the solid earth; mechanics and consequences of Plate Tectonic processes.

**Dynamics of the Earth (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: GEOSC 203GEOSC 310PHYS 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 494M** Senior Thesis (1-4) Supervised student activities on research projects identified on an individual or small group basis.

**Senior Thesis (1-4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 494W** Senior Thesis (1-4) Supervised student activities on research projects identified on an individual or small group basis.

**Senior Thesis (1-4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**GEOSC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 497A** Geologic Maps in ARCGIS (1) This course provides an introduction to Geographic Information Systems (GIS) and their use in making geologic maps.

**Geologic Maps in ARCGIS (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 497A** Geologic Maps in ARCGIS (1) This course provides an introduction to Geographic Information Systems (GIS) and their use in making geologic maps.

**Geologic Maps in ARCGIS (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 497B** Introduction to Remote-Sensing (3) Comprehensive introduction to theory and methods in remote-sensing, covering optical, thermal and radar methods and their application in geosciences.

**Introduction to Remote-Sensing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: MATH 140PHYS 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GEOSC 499 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **German (GER)**

**GER 001** Elementary German I (4) Introduction to listening, speaking, reading, and writing with emphasis on the first two skills; cultural aspects through readings and videos. Students who have received high school credit for two or more years of German may not schedule this course for credit, without the permission of the department.

### **GER 001 Elementary German I (4)**

German 001: Elementary German I is designed to help students develop skills in the interpretation, expression, and negotiation of spoken and written German. In addition to German language skills, students in the course will develop a greater understanding of German-speaking culture.

The course requires active student involvement and participation. Attendance is mandatory. The course meets three times a week in a traditional classroom and once a week in a computer classroom where students will be guided by the instructor in working with German-language materials available on the internet.

Student evaluation is based on active participation in class, homework, quizzes, oral and mid-term examinations, oral and written final examinations and culture projects.

Placement in German 001 is based on Penn State's foreign language placement policy (link to: [http://bulletins.psu.edu/bulletins/bluebook/general\\_information.cfm?section=Placement2](http://bulletins.psu.edu/bulletins/bluebook/general_information.cfm?section=Placement2)). Students who have received high school credit for two or more years of German may not schedule this course for credit, without permission of the department.

German 001 is offered every semester. Enrollment is capped at 24 students per section.

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 002** Elementary German II (4) Continuation of GER 001; further introduction of basic structures, culture, and development of four basic skills stressing aural-oral aspects. Students who have received high school credit for four or more years of German may not schedule this course for credit, without the permission of the department.

### **GER 002 Elementary German II (4)**

German 002: Elementary German II is a continuation of German 001 and is designed to help students develop skills in the interpretation, expression, and negotiation of spoken and written German. In addition to German language skills, students in the course will develop a greater understanding of German-speaking culture.

The course requires active student involvement and participation. Attendance is mandatory. The course meets three times a week in a traditional classroom and once a week in a computer classroom where students will be guided by the instructor in working with German-language materials available on the internet.

Student evaluation is based on class participation, homework, quizzes, oral and mid-term examinations, oral and written final examinations and culture projects.

Students who have received high school credit for four or more years of German may not schedule this course for credit, without permission of the department.

German 002 is offered every semester. Enrollment is capped at 24 students per section.

General Education: None

Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 2012  
Prerequisite: GER 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 003** Intermediate German (4) Continued four-skill development with increased emphasis on reading, writing, and grammatical accuracy; culturally-oriented reading selections and videos. Students may receive credit for only one of the following: GER 003 or GER 008.

#### **Intermediate German (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language  
Effective: Summer 1994  
Prerequisite: GER 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 008** Business German (4) Introduction to Business German. Students may receive credit for only one of the following: GER 003 or GER 008.

#### **GER 008 Business German (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

In this course students will learn about German businesses and their culture. At the same time, students will continue to review and learn additional grammar points. They will have more writing experience by completing five different writing assignments. All four language skills (listening, speaking, reading and writing) will be further developed in this course.

Students will be evaluated according to class participation, successful completion of in-class presentation, internet exercises, homework assignments, essays, and examinations. This course complements other offerings for German in the business track. It completes the introduction level of German and prepares the student to go on to German 208W, German 308W, and German 408. This course also can be counted towards the BS in German.

This course will be offered once a year during the Fall Semester. In this type of intensive course, enrollment has to be limited to 23 students.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 2000  
Prerequisite: GER 001GER 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 011** Intensive Basic German (6) Listening, speaking, reading, writing, basic structures and vocabulary of German. Taught on an accelerated basis. Students may receive credit for only one of the following: GER 001, 011, or 015.

#### **Intensive Basic German (6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 012** Intensive Intermediate German (6) Continued skill development of structures and vocabulary; listening, speaking, reading, writing. Taught on an accelerated basis. Students may receive credit for only one of the following: GER 002, 003, 012, or 016.

#### **Intensive Intermediate German (6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language  
Effective: Fall 1983  
Prerequisite: GER 011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 051 Elementary Intensive German for Graduate Students I (3)** Intensive introduction to German: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**GER 051 Elementary Intensive German for Graduate Students (3)**

This is the first in a series of three courses designed to give students an intensive introduction to German. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the German vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 052 Elementary Intensive German for Graduate Students II (3)** Intensive introduction to German: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**GER 052 Elementary Intensive German for Graduate Students II (3)**

This is the second in a series of three courses designed to give students an intensive introduction to German. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the German vocabulary. Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: GER 051 or equivalent and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 053 Intermediate Intensive German for Graduate Students (3)** Continued intensive study of German at the intermediate level: reading, writing, speaking, listening, cultural contexts.

**GER 053 Intermediate Intensive German for Graduate Students (3)**

This is the third in a series of three courses designed to give students an intermediate intensive knowledge of German. Continued intensive study of German at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: GER 052 or equivalent and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 083S (GH;US;IL) First-Year Seminar in German (3)** Germany's cultural past and present.

**GER 083S First-Year Seminar in German (3)**  
(GH;FYS;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to give the student an introductory overview of certain important aspects of German culture and its development during the past 1500 years. The topics selected will give the student an introduction to major periods and representative thinkers that have helped shape the destiny of German-speaking countries and much of Europe as well. As Goethe noted, our views of the past are a mirror in which we dimly see our own reflection. Serious examination of the issues raised in this course also result in learning something about one's self and the world in which s/he live today.

This course can be used to fulfill the General Education or Bachelor of Arts Humanities requirement, the Intercultural/International Competence requirement, and the first-year seminar requirement. A series of short papers will enable students to develop the skills of information gathering and written expression. The course grade will be based on oral participation and on the grade for the papers, which will be evaluated both for content and writing. This course will help to prepare students for a variety of additional courses in the fields of literature and German-speaking area studies. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests. The course will be offered once per year to an audience of 20 students.

General Education: GH  
 Diversity: US;IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 099 (IL) Foreign Study--German (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Study--German (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 100 (GH;IL) German Culture and Civilization (3)** Culture and civilization of the German people from the Germanic migrations to the Nazi period. Conducted in English.

**GER 100 German Culture and Civilization (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

In German 100, students examine the ethical basis for decision-making of representative thinkers and periods in German history. The course begins by looking at the warrior ethos that pervades early Germanic literature, proceeds to examine successive changes in ethics brought on by Christianization, the Reformation, and the Enlightenment. The course ends by looking at the ethics of power advocated by Nietzsche and the racist ideology of Nazism. The course will also examine changes in aesthetic values, as represented by the art of Durer and the Expressionists, the literature of the Storm-and-Stress movement and Kafka, the music and theater of Wagnerian opera and the film of the Expressionists and Leni Riefenstahl. Finally, the nettlesome issue of German national identity will be addressed through the perspective of historical developments since the time of Charlemagne.

German 100 is linked closely to German 200. German 100 concentrates on German culture and civilization up to the Nazi period. German 200 concentrates on German culture and civilization since the Nazi period. German/Russian 143 addresses aspects of Nazism in greater depth than does German 100.

The course meets three times per week, including fifty-minute lectures on Monday and Friday and a discussion section on Wednesday. The total enrollment is limited to approximately 180 students and the discussion sections have no more than 27 students each. When taught in the summer, the total enrollment for the class is less than fifty. Assessment is based on three examinations with an essay component, one short paper, and participation in classroom discussions, and attendance.

German 100 may not be applied toward the requirements of a German major or a German minor. It may be used for the General Education humanities requirement, for the General Education Intercultural/International competence requirement, or for a B.A. humanities requirement.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 143 (GH;IL) (RUS 143) The Culture of Stalinism and Nazism (3)** The culture of Stalinist Russia and Nazi Germany in comparative perspective.

**GER (RUS) 143 The Culture of Stalinism and Nazism (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The regimes of Stalin and Hitler have decisively shaped the 20th-century historical experience not only in Russia and Germany, but in much of Europe and the world at large. At the same time, there is no consensus about how to classify these systems, whether the term "totalitarian" is appropriate to describe them, and whether Stalinist Russia and Nazi Germany are essentially similar or essentially different historical phenomena.

Espousing a comparative perspective, this course will explore the culture produced by both Stalinist Russia and Nazi Germany. The main focus will be on works of literature, but it will also take into account the visual arts, architecture, music, film, and popular culture. The classics of Stalinist socialist realism and Nazi propaganda, such as Nikolai

Ostrovskii's *How the Steel Was Tempered* or Leni Riefenstahl's *Triumph of the Will* will be analyzed both as political statements and works of art. The course will also include a reading of authors who attempted to create artistic representations of life in Stalinist and Nazi societies, such as Yevgeny Zamyatin, Alexander Solzhenitsyn, Bertolt Brecht, or George Orwell.

The course will be team-taught by faculty of the Department of Germanic and Slavic Languages and Literatures. Additional faculty from the Departments of Spanish and Italian and Comparative Literature (Japanese) may be invited to lecture about the totalitarian culture in their respective societies, and members from the Department of History may be invited to lecture about the historical context of Stalinism and Nazism. A knowledge of Russian or German is not required, as class lectures and discussions, as well as all reading assignments, will be in English.

At the end of the course, students will have a summary knowledge of the cultural history of Stalinist Russia and Nazi Germany and of the aesthetic and philosophical issues raised by these cultures. Requirements for the course will include a research paper. The course grade will be based on the average score on the mid-term and final exam (using definitions and essay questions) and the grade for the paper, which will be evaluated both for content and style.

This course will fulfill the General Education and International/Intercultural requirements. It complements courses on the politics and history of totalitarian regimes offered by the departments of Political Science and History, and it will provide a background for students wishing to study Holocaust literature or Soviet Literature. The course will be taught every two years.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 157 (GH;US) Pennsylvania Germans: The Culture of the Sectarians (3)** Survey of the religious background, beliefs, social life, customs, education, and culture of the Pennsylvania German sectarians, especially the Amish. Conducted in English.

**GER 157 Pennsylvania Germans: The Culture of the Sectarians (3)**  
**(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Through lectures, discussions, and films, students will be introduced to the culture, history, religion, language, education, occupations, folklore, music, and literature of the Pennsylvania Germans. Since 1683, people coming from the German-speaking territories of Central Europe settled Pennsylvania to a large degree. Many of these immigrants soon blended into American society but others who had been persecuted in Europe for their convictions and religious beliefs refused to be Americanized and retained their style of life in the New World. The best-known are the Amish who arrived in colonial times and still cling to their traditional language, beliefs and values, their economic basis, and even their clothing after living nearly three centuries in now industrialized America. They live in small, stable, and viable communities an austere life dictated by established beliefs and customs totally opposed to the American dream of progress and innovation, individual happiness and material success. By studying their history and culture and that of other groups, such as the Mennonites, Hutterites, and Moravians, students are offered a unique opportunity to learn more about other truly diverse cultures and are enabled to arrive at a better understanding of their own cultural concepts and values.

In this course, students may either make a 30-minute presentation or write a 10-page paper on a topic pertaining to the curriculum of the course. Given the number of students, only a small number (approximately six) will have the opportunity to make a presentation. Teaching assistants help grade the papers. In addition, students take two one-hour examinations and a final examination.

The course is related to GER 100 and GER 200 by examining the culture of German-speaking peoples. GER 157 differs from those courses, however, by focusing on a German-speaking minority culture found in Pennsylvania and elsewhere in North America.

German 157 may not be applied toward the requirements of a German major or a German minor. It may be used for the General Education humanities requirement, for the General Education Intercultural/International Competence requirement, or for a B.A. humanities requirement.

The course is offered approximately once a year with an enrollment of 150-180 students.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 175 (GH;IL) Germanic Heroic and Medieval Literature in English Translation (3)** Germanic heroic and medieval courtly literature from 800 to 1350 focusing on the prevailing cultural, social, and legal conditions.

**Germanic Heroic and Medieval Literature in English Translation (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 189** (GH;IL) German Film (3) A survey of German film from its beginnings to the present, with emphasis on historical, political, and cultural contexts.

**German Film (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 189U** (GH;IL) German Film (3) A survey of German film from its beginnings to the present, with emphasis on historical, political, and cultural contexts.

**German Film (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 190** (GH;IL) Twentieth-Century German Literature in English Translation (3) Works of such writers as Boll, Brecht, Durrenmatt, Frisch, Grass, Hesse, Kafka, Mann, Rilke, Weiss, and Wolf.

**Twentieth-Century German Literature in English Translation (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 195** (GH;IL) Modern German Drama and Theatre in English Translation (3) Plays and their stage realization by writers such as Brecht, Durrenmatt, Handke, Hauptmann, Kaiser, Schnitzler, Wedekind, and Weiss.

**Modern German Drama and Theatre in English Translation (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 199** (IL) Foreign Study--German (3-6) Intermediate training in German language skills.

**Foreign Study--German (3-6)**

General Education: None

Diversity: IL

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Summer 2005

Prerequisite: GER 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 200** (GH;IL) Contemporary German Culture (3) Germany since WWI, its politics, economics, society, arts, and educational system in the international context; conducted in English.

**Contemporary German Culture (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 201** (IL) Conversation and Composition (4) Continuation of GER 003; emphasis on reading, writing, and conversational skills; course utilizes short literary selections, a concise novel, videos.

**GER 201 Conversation and Composition (4)**

**IL**

Offered in the fall and spring semesters of each academic year, this fourth-semester German language course satisfies International Cultures (IL) requirement and is a required course for the German B.A. degree. For the German B.S. degree and the German minor, students must take either German 201 or German 208. German 201 is designed to help students further develop the four basic language skills (listening, speaking, reading and writing) they have attained in previous language courses with particular emphasis on the advancement of their speaking and writing proficiency in German. Through a task-based approach the course aims to assist students in learning to write and speak German with level-appropriate fluency and accuracy. This course will also provide students with ample opportunity to increase their reading command of German through an authentic literary work and short stories by prominent German-speaking authors. The course language is German and class sessions will consist of communicative activities and practices. The learning of the German language will occur through completion of tasks in which students use the level-specific grammatical structures in different formats and circumstances (e.g. writing and oral projects) while receiving little or no direct lecture on German grammar. The delivery and practice of factual information on grammatical structures are integral to the course and thus instructors will highlight them to the extent to help students achieve the course objectives. The class meets twice in a regular classroom and twice in a computer-lab throughout the semester where students will be exposed to computer-mediated language instruction and work on various computer-based projects. Film viewing and discussions will be incorporated into the course, as deemed necessary by the instructors. Attendance and preparation are mandatory and homework is assigned on a regular basis. The evaluation and grading of students' course performance is based on active class participation, successful completion of a rhetorical portfolio, an orally presented cultural project, four brief interviews, and a semester-end aural-oral test.

General Education: None

Diversity: IL

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Fall 2006

Prerequisite: GER 003 or GER 008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 208Y** (IL) Business German (4) Intermediate Business German.

**GER 208Y Business German (4)**

**(IL)**

In this course students will learn more about German businesses and their culture. At the same time, students will continue to review and learn additional grammar points. They will have more writing experience by completing five different writing assignments. All four language skills (listening, speaking, reading and writing) will be further developed in this course.

Students will be evaluated according to class participation, successful completion of in-class presentation, Internet exercises, homework assignments, essays, and examinations. This course complements other offerings for German in the business track. It completes the intermediate level of German and prepares the student to go on to German 308W and German 408. This course also can be counted towards the BS in German.

This course will be offered once a year during the Spring Semester. In this type of intensive course, enrollment has to be limited to 22 students.



General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2006  
Prerequisite: GER 003 or GER 008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 245 (GH)** The Vikings (3) Focus on the history of the Vikings from 800 to 1400 as conveyed to us in mythology, literature, and archaeology. Conducted in English.

**The Vikings (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1985

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 299 (IL)** Foreign Study--German (3-6) Advanced training in German language skills.

**Foreign Study--German (3-6)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 301 (IL)** Intermediate Speaking and Listening (3) Intensive practice in spoken German through readings, discussions and video.

**GER 301 Intermediate Conversation and Composition (3)  
(IL)**

German 301 is a continuation of the composition and conversation emphases of both GER 201 and 208. Fundamental to the course is a thorough grammar review of both basic and advanced grammatical situations. Much of this review is done outside of class. In class, students devote their time primarily to oral work. GER 301 requires students to use German in various ways: group work, individual presentations, discussion of texts, structured partner drills, etc

Student evaluations are based on participation, homework, quizzes, a class room presentation, and essays.

GER 301 is required for all German majors and the German minor and will be offered every semester.

General Education: None

Diversity: IL

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2012

Prerequisite: GER 201 or GER 208

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 302W** Intermediate Composition and Grammar (3) Continuation of oral and written practice in German with extensive work in composition.

**GER 302W Intermediate Conversation and Composition II (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

German 302 is a continuation of the language and composition emphases of both GER 201 and 208. Fundamental to the course is a thorough grammar review of both basic and advanced grammatical situations, with the goal of improving students' grammatical and stylistic precision in written German discourse. GER 302 requires students to use German in various ways: group work, individual presentations, discussion of texts, structured partner drills, etc.

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Spring 2012

Prerequisite: GER 201 or GER 208

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 308Y (IL)** German Business Communication (3) Development of German commerce and industry; extensive practice in the major forms of business communications such as business correspondence.

**GER 308Y German Business Communication (3)  
(IL)**

This course provides an introduction to German business and economics. Students will read and respond to a variety of texts about German economic practices and the German business world, as well as texts that introduce and describe more general economic principles. Emphasis is also placed on expanding students' vocabulary and further developing their writing skills in German, especially with regards to economic and business terminology, and writing genres common in business contexts. As this is not intended to be a grammar review course, students are expected to have previously completed or be concurrently enrolled in GER 301 or its equivalent. This course complements other offerings in the German business track and prepares students for the final course in the Business German sequence. This course can also be counted towards either the German minor or the German major. It is offered once a year during the fall semester.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 310 (IL)** Introduction to the Study of German Literature (3) History, methods, and the terminology of literary interpretation and analysis in German.

**Introduction to the Study of German Literature (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 344 (IL) Intermediate German Culture (3)** An overview of German culture from the Middle Ages to the present. Conducted in German.

**GER 344 Intermediate German Culture (3)  
(IL)**

This course will be a comprehensive overview of major events and figures in German history that have influenced the development of German culture. This will be a foundational course that will enable students to better situate advanced courses in German literature and culture in the broader context of a cultural tradition that stretches from the Germanic migrations to the present. The course will be taught in German at the intermediate level and will be required of all German majors and minors. It will be a prerequisite for culture courses taught in German at the 400-level. Students will be evaluated on the basis of written tests, an oral presentation and essay on a major cultural figure or event, homework, and class participation. The course will be offered every semester. The enrollment for each section will be capped at approximately 22.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Spring 2012

Prerequisite: GER 301 or GER 302W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 399 (IL) Foreign Study--German (3-12)** Advanced studies in German language and/or literature.

**Foreign Study--German (3-12)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

Prerequisite: GER 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 401Y (IL) Advanced Composition (3)** Intensive practice in writing different text types in German.

**GER 401Y Advanced Composition (3)  
(IL)**

GER 401Y is the writing across the curriculum component of the German language sequence. After thorough discussion of various text types, students will read and practice writing in different genres. GER 401Y concentrates on building other language skills as well. We will do so by reading and discussing short German texts from a variety of sources and watching film and television. In addition, we will review aspects of German grammar that present difficulties to many English speakers. Evaluation will be based on five writing assignments, a writing portfolio, quizzes, and class participation.

The course will be offered twice a year with an enrollment of up to twenty students.

GER 401Y is required for all German B.A. and B.S. major options as well as for the German minor.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: GER 301 and GER 302W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 408 (IL)** Advanced German Business Communications (3) Study of German business organization, forms of business communications, business terminology; writing of reports and abstracts.

**Advanced German Business Communications (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: GER 308

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 411** The Teaching of German (3) Theory, methods, techniques, materials, bibliography; use of inter-active media; contributions of linguistics or psychology to language learning.

**The Teaching of German (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994  
Prerequisite: or concurrent:GER 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 412 (IL)** Contrastive Analysis of Modern German and English (3) Structural comparison of the German and English grammatical systems: morphology, syntax, phonology.

**Contrastive Analysis of Modern German and English (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: or concurrent:GER 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 420 (IL)** Genre (3-9) Special studies in a particular literary genre in German literature, such as lyrical poetry, drama, or narrative prose.

**Genre (3-9)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: GER 310GER 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 430 (IL)** History of the German Language (3) Development of German from its earliest stages, including historical and cultural aspects.

**GER 430 History of the German Language (3)  
(IL)**

This course provides an overview of the history of the German language from its origins to the present. Historical changes and dialectal variation in phonology (sound system), morphology (word structure), syntax (sentence structure), lexicon (vocabulary), and semantics (word meaning) will be examined. Particular emphasis is placed on the impact of cultural and historical changes on the development of German, including its standardization. Students will be evaluated on the basis of homework, classroom participation, tests, and an in-class presentation with a written abstract. No prior knowledge of linguistics is required. The class is conducted in German.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2007  
Prerequisite: or concurrent:GER 401Y

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 431 (IL)** History of German Literature and Culture I (3) Significant works of German literature before the mid-eighteenth century considered in their cultural context.

**History of German Literature and Culture I (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: GER 310 . Prerequisite or concurrent:GER 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 432 (IL)** History of German Literature and Culture II (3) Significant works of German literature from the mid-eighteenth century to the present considered in their cultural context.

**History of German Literature and Culture II (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: GER 310 . Prerequisite or concurrent:GER 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 440 (IL)** Seminar in German Culture (3-6) Seminar devoted to a special topic in the field of German culture and civilization.

**Seminar in German Culture (3-6)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: or concurrent:GER 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 472 (IL)** Romanticism (3) A study of both early and late romanticism, including such writers as Novalis, the Schlegels, E.T.A. Hoffmann, and Heine.

**Romanticism (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: or concurrent:GER 431 orGER 432

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 489** Introduction to German Film History and Theory in Context (3) Introduces films in German since the 1960s and addresses issues relevant to German and European cultures and politics.

**GER 489 Introduction to German Film History and Theory in Context (3)**

This course focuses on German cinema's development since the 1960s. The course situates the "Young" and then "New German Cinema" within contemporaneous European and U.S. film cultures. Thus the course will address the difference between the European cinematic culture of *"auteurs"* versus the school of "genres" in the U.S.

The preceding traditions of Italian Neo-realism and of the French *nouvelle vague* are also engaged alongside a few Hungarian, Czech and/or Polish films. The students will have the opportunity to consider how these other national cinematic productions impacted the German filmmakers who were involved in the creation of a national German cinema that would critically engage Hollywood on the one hand, and distance itself from the Nazi past on the other.

The course will be structured around questions about the grounds for a national cinema and its cultural and critical relevance both at the time these films were produced and today. Yet, the national question will not be the only focus of this class, in the course of which students will be able to discuss the historical, political and ethical questions raised by the directors selected. In addition, students in this course will learn about the specificity of cinematic language and will be exposed to some film theory. In conclusion, the course provides upper level undergraduate students with a basic knowledge of the most important New German films, with a confrontation with issues specifically relevant to a study of German culture, and with some familiarity with film theory.

The evaluation methods for this course will be based on 1) participation [attendance; reports/worksheets, after each film and in class discussion]: 30%; 2) presentation 20%; 3) take-home mid term essay 20%; and 4) final paper 30%. The course is part of the German Program, in particular of the German Studies curriculum. It teaches students of German culture about German and European contemporary cinema, while situating the cinema within broader historical-political debates concerning Europe. It functions as an excellent complementary course to our GER LIT classes at the 400 level and offers an

additional choice to pursue cultural studies to those who are more reticent about reading texts. Enrollment: 25. The course will be offered every other year.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: GER 310 or COMM 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 495** Internship (3-9) Supervised off-campus, non-group instruction including individual field experiences, practicums, or internships. Written and oral critique of activity required.

**Internship (3-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1981  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GER 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1985

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**GER 499 (IL) Foreign Study--German (3-12)** Advanced studies in German language, literature, and culture.

**Foreign Study--German (3-12)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

Prerequisite: any 300-level course in German

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Graphic Design (GD)

**GD 001S** First-Year Seminar in Graphic Design (1) An orientation to the historical, social, and professional context of design and an exposure to a variety of ethical, philosophical, and topical ideas from the world of design.

**First-Year Seminar in Graphic Design (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: admission to the AADES program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 100 (GA)** Introduction to Graphic Design (3) A beginning level graphic design course. Instruction touches on the practice, theories, history and processes of the graphic design industry.

GD 100

**GD 100 Introduction to Graphic Design (3)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

GD 100 (GA) INTRODUCTION TO GRAPHIC DESIGN (3) is a beginning level graphic design course. Instruction touches on the practice, history, theories, and analysis of the design industry. This course places emphasis on problem solving and observing design, while developing intuition and creativity. Projects focus on the process of defining the parameters of a design problem, observing examples within the design industry, and critically evaluating examples of effective and ineffective design.

The course will help students to:

1. Understand the graphic design industry and the responsibilities of the profession.
2. Develop an appreciation for the practice of design.
3. Begin to develop the ability to define and solve problems.
4. Increase their knowledge of the history of graphic design and typography.
5. Refine their conceptual skills.
6. Learn and understand the vernacular of the industry.

Students will be quizzed on terminology and important facts provided in the readings.

Grading:

1. Grades will be calculated by quizzes, which will be given throughout the semester. Quizzes will be based on topics and material provided online. 60% of the final course grade will be based on quizzes.
2. Participation in online discussion forums is required. Students will be expected to post comments and responses to an online forum. 20% of the final grade will be based on participation within these forums.
3. Students will be expected to research various examples of design in commercial and non-commercial applications, upload examples, comment on designs, and engage in discussions of effective and ineffective use. Emphasis will be placed on writing skills as part of the evaluation 20% of the final grade will be based on project assignments in design evaluation.

General Education: GA

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 101** Thinking Creatively: Defining Problems, Solving Problems, and Generating Ideas in Graphic Design (2) An

introduction to the theory and practice of defining problems, developing solutions, and generating ideas in design.

GD 101

**GD 101 Thinking Creatively: Defining Problems, Solving Problems, and Generating Ideas (2)**

This course is designed to help students learn to think creatively, define problems, and solve those problems by generating good ideas. The first part of the course, Learning to Think Creatively, will cover basic principles and concepts used in thinking creatively. In the second part of the course, Defining Problems, students will learn how to effectively define problems by establishing and refining goals and objectives based on research. The third part of the course, Solving Problems and Generating Ideas, will engage students in practical project-based learning by creating solutions to design problems through teamwork, brainstorming, and a design sequence that fosters new ideas and tests them through prototyping and analysis.

Students will learn to approach problems in design by developing skills in creative thinking, applying those skills in defining problems, and working in creative teams to solve problems through the generation of new ideas that can be practically applied.

Grading is based on participation (20%), bi-weekly journal reviews (20%), and final projects (60%).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Concurrent: GD 001S

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 102** Introductory Design Studio (3) A studio course in defining problems, solving problems, and generating ideas.

GD 102

**GD 102 Introductory Design Studio (3)**

This course is designed to build upon the experience of GD 101 Thinking Creatively: Defining Problems, Solving Problems, and Generating Ideas by engaging students in a studio environment where they must arrive at solutions to two design problems, each requiring approximately seven weeks work. Students will define problems and arrive at creative solutions to those problems by generating ideas based on an applied method involving teamwork, brainstorming, and a design sequence that fosters new ideas and tests them through prototyping and analysis.

This course is designed for students in the AADES pre-graphic design program, although it emphasizes concepts and methodologies applicable to all design fields. Students will learn to approach problems in design by developing skills in creative thinking, applying those skills in defining problems, and working in creative teams to solve problems through the generation of new ideas that can be practically applied.

Grading is based on participation (20%), studio project one (40%), and studio project two (40%).

GD 102 is only available to students enrolled in AADES or by permission of instructor and carries the prerequisite of GD 001S and GD 101.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: GD 001S and GD 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 200** Graphic Design Studio I (3) A beginning graphic design studio course. Instruction focuses on the practical and analytical process of creating graphic designs and their critical evaluation.

GD 200

**GD 200 Graphic Design Studio I (3)**

This course is a beginning graphic design studio course. Instruction focuses on the practical and analytical process of creating graphic designs and their critical evaluation. Emphasis is on problem solving and technical training while, at the same time, nurturing intuition and creativity.

The course will help students to:

1. Develop skills and techniques applicable to graphic design.
2. Become familiar with appropriate computer hardware and software.
3. Develop the ability to define and solve problems.
4. Develop an understanding of graphic design as a profession.
5. Refine their conceptual skills.
6. Develop the work habits and attitudes of design professionals.

Grading:



1. Work will be evaluated on the relevance and originality of the design idea, the suitability of the design approach in serving the client's needs, the effectiveness of the design in reaching its intended audience, and all pertinent functional parameters.
2. Professional attitude and the development of professional work habits will be evaluated. Students are expected to think for themselves, budget their time, meet deadlines, and adhere to production schedules.
3. Attendance is required. In the case of illness or an emergency, students are required to contact the professor just as they would contact an employer. Three unexcused absences will result in the final semester grade being lowered one full letter grade.
4. Neatness, craft and attention to detail will be considered in the final grade.
5. Visual, verbal and written communication skills will also be part of the evaluation.

GD 200 carries the prerequisite of GD 102.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: GD 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 201** Typography (3) A consideration of the word in relation to visual organization and its application to communication.

GD 201

### **GD 201 Typography (3)**

GD 201 is intended to provide the students with practical, formal, and communicative typographic skills. Instruction focuses on the understanding the practical and analytical application of typography in graphic design and its critical evaluation. Emphasis is on developing strong typographic skills in students. Instruction focuses on problem solving and technical training while, at the same time, nurturing intuition and creativity.

The course will help students to:

1. Develop a well-rounded understanding of typography and its relationship to graphic design.
2. Develop skills and techniques applicable to typography.
3. Become familiar with appropriate hardware and software.
4. Continue to refine their conceptual skills.
5. Foster an appreciation of good typography.
6. Develop the work habits and attitudes of design professionals.

Grading:

1. Work will be evaluated on the relevance of the typography to the design idea, the suitability of the design approach and choice of typography, the effectiveness of the design, and all pertinent functional parameters.
2. Professional attitude and the development of professional work habits will be evaluated. Students are expected to think for themselves, budget their time, meet deadlines, and adhere to production schedules.
3. Attendance is required. In the case of illness or an emergency, students are required to contact the professor just as they would contact an employer. Three unexcused absences will result in the final semester grade being lowered one full letter grade.
4. Neatness, craft and attention to detail will be considered in the final grade.
5. Participation in critiques and quality of the presentation of critical evaluations will part of the evaluation.
6. Visual, verbal and written communication skills will be a part of the evaluation.

The prerequisite for GD 201 is GD 200.

GD 201 will be offered spring semester.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Arts  
 Effective: Fall 2006  
 Prerequisite: GD 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 202W** The History of Graphic Design (3) A survey of graphic design, especially emphasizing influential movements, innovative designers and technological advances relevant to contemporary visual communication.

### **GD 202W The History of Graphic Design (3)**

The History of Graphic Design course provides an overview of design as a vehicle of visual communication. The primary focus of the coursework is on images and styles of image-making as well as on language as a visual, typographic form. The application of images and typography is the basis of design, and its history ranges from Sumerian clay tablets to 21st century digital tablets. Special emphasis is given to periods of innovation and inspiration, including the late Roman period, the Renaissance, the Industrial Era, the rise of Modernism in Europe and America, and the digital revolution. Graphic design is a discipline which embraces its production and delivery technology; therefore, attention is also focused on the evolution of that technology--from the letterpress and metal typography, through the camera and photomechanical

reproduction era, to current computer and digital production processes.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: GD 001SGD 100GD 101  
Concurrent: GD 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 296** Independent Study (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Study (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 300 Design Photography (4)** An investigation of graphic photography processes and how print technology affects the final appearance of a photograph.

GD 300

**GD 300 Design Photography (4)**

GD 300 is an intermediate design and photography course that explores the visual and conceptual relationship between typography and photography as it relates to the communication of information. This course is designed to help students:

1. Use photographic images and typography as they relate to visual communication.
2. Become proficient in the organization and graphic interpretation of information.
3. Learn the role and responsibility of the designer as a communicator.
4. Explore the relationship between the subject matter, designer, client, and design audience.
5. Experiment in graphic design problem solving.
6. Develop the work habits and attitudes of professional designers.

Grading:

1. Work will be evaluated based on the relevance and originality of the idea and the appropriateness of the design approach to the idea, the intended audience, and all pertinent functional parameters.
2. Professional attitude and the development of professional work habits will be evaluated. Students are expected to think for themselves, budget their time, meet deadlines, and adhere to production schedules.
3. Attendance is required. In the case of illness or an emergency, students are required to contact the professor just as they would contact an employer. Three unexcused absences will result in the final semester grade being lowered one full letter grade.
4. Neatness, craft and attention to detail will be considered in the final grade
5. There will be a review at the end of the semester, which will include all work from the class. Each piece will be evaluated for quality and presentation.
6. Visual, verbal and written communication skills will be a part of the evaluation.

GD 201 and successful portfolio review are prerequisites to GD 300

GD 300 will be offered fall semesters.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: GD 201 and successful portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 301 Graphic Design Technology I (4)** Theoretical and practical aspects of computer application to graphic design.

GD 301

**GD 301 Graphic Design Technology I (4)**

GD 301 is an advanced graphic design studio class that provides graphic design students with an in-depth study of the intricate relationship between the professional graphic designer and digital technology. Students will be introduced to complex software applications that will assist them throughout the design process. From research and ideation to the creation of comprehensive studies and final designs, students will be given the tools that are critical to the completion of a variety of graphic design projects. Instruction will be supported by lectures presenting the most current trends in digital design, assigned readings, and presentations by professionals in the design/printing fields.

The course will help students to:

1. Gain proficiency in appropriate hardware and software programs.
2. Become familiar with the digital prepress process.
3. Develop an understanding of the graphic designer as a digital communicator.
4. Refine their digital craft.
5. Develop the work habits and attitudes of professional designers.

Grading:

75% of the student's grade will be based on work assignments and 25% on quizzes about assigned readings. Criteria for grading include attendance, comprehension of information presented, quality of research for assignments, technical proficiency, and participation in discussions and critiques.

GD 201 and successful portfolio review are prerequisites to GD 301.

GD 301 will be offered fall semesters.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: GD 201 and successful portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 302** Applied Communication (4) Definition and concentrated involvement in problem/audience analysis, with emphasis on understanding symbol and image in evoking audience response.

GD 302

**GD 302 Applied Communication (4)**

GD 302 involves the definition and concentrated involvement in problem/audience analysis, with emphasis on understanding symbol and image in evoking audience response.

This course is intended to prepare students for professional expectations in the graphic design field. Both individual and group design projects will be assigned with clearly defined parameters and budgetary constraints. Design assignments will be more complex than in previous classes and students will be expected to work faster, handle more complicated information, work in teams, and take greater responsibility in decision-making and creative choices.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: GD 300GD 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 303** Graphic Design Technology II (4) Advanced application of digital technology as a medium of graphic design.

GD 303

**GD 303 Graphic Design Technology II (4)**

GD 303 explores digital technology as a medium for graphic design. Topics include design expressed over time -- both linear, as in motion graphics, and nonlinear, as in Web design. The objectives for this course are to give graphic design students experience in the complexities of digital visual communication and to provide students with the opportunity to work with software packages that facilitate digital communication. Students will receive instruction regarding the graphic designer's role in complex, collaborative digital communications.

The course will help students to:

1. Gain proficiency in using software programs such as Macromedia Flash and Dreamweaver, Apple iMovie and Final Cut Pro, and Adobe GoLive.
2. Gain proficiency with various hardware devices.
3. Familiarize themselves with advanced digital design processes.
4. Stay abreast of emerging technological applications in contemporary Graphic Design.
5. Develop an understanding of the graphic designer as a digital communicator.
6. Develop refined digital craft.
7. Develop the work habits and attitudes of professional designers.

Grading: 75% of the student's grade will be based on work assignments and 25% on quizzes based on assigned readings. Grading criteria include attendance, comprehension of information presented, quality of research for assignments, technical proficiency, and participation in discussions and critiques.

GD 300 and 301 are the prerequisites to GD 303

GD 303 will be offered spring semesters.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: GD 300GD 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 304** Practical Communications (3) Practical design experience for students through design/publicity problems from the University and community non-profit organizations.

GD 304

**GD 304 Practical Communications (3)**

GD 304 is an advanced course that is intended to offer practical design experiences to graphic design students through assignments for various University and not-for-profit community clients. The course explores the essential relationship of the verbal and visual aspects of design to the communication of a message to a specific audience. Each student will meet with clients to develop strategies and advance individual projects from initial client contact to finished work. Students will conduct research, present rough ideas to the client, prepare presentations, and carry the work to production resulting in a finished piece.

When necessary, members of the class will work with writers, photographers, and printers as they would in an actual professional setting.

The course is intended to:

1. Prepare the students for the real working environment they will confront in the professional arena after graduation. The course seeks to simulate as close as possible, the atmosphere of a professional design office.
2. Offer the university and community a source of affordable inventive solutions to their design, publicity, and advertising problems.
3. Thoroughly examine the design process and learn to define the problem clearly, and logically work toward an appropriate solution.
4. Help students to develop the work habits and attitudes of professional designers.
5. Practice and polish presentation and interview skills.
6. Practice positive behavior and conflict avoidance/resolution in the workplace.
7. Foster an appreciation for the appropriate integration of typography into design.
8. Develop the ability to work as a member of a team.
9. Gain a deeper understanding of graphic design aesthetically, critically, and technically.

Grading:

1. Work will be evaluated based on the relevance and originality of the idea and the appropriateness of the design approach to the idea, the intended audience, and all pertinent functional parameters.
2. Professional attitude and the development of professional work habits will be evaluated. Students are expected to think for themselves, budget their time, meet deadlines, and adhere to production schedules.
3. Attendance is required. In the case of illness or an emergency, students are required to contact the professor just as they would contact an employer. Three unexcused absences will result in the final semester grade being lowered one full letter grade.
4. Neatness, craft and attention to detail will be considered in the final grade.
5. There will be a review at the end of the semester, which will include all work from the class. Each piece will be evaluated for quality and presentation.
6. Visual, verbal and written communication skills will be a part of the evaluation.

GD 300 and 301 or concurrent with GD 300 and 301 are prerequisites to GD 304.

GD 304 will be offered fall and/or spring semesters.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: Prerequisite or concurrent GD 300 GD 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 310 Studio Apprenticeship** (3 per semester/maximum of 6) Direct involvement in the creative process of the artist-teacher in the studio environment.

GD 310

### **GD 310 Studio Apprenticeship (3 per semester/maximum of 6)**

GD 310 is an advanced course that will offer pragmatic design experiences to graphic design students through direct involvement in the creative process of the designer-teacher in the studio environment.

The course is intended to:

1. Prepare the students for the real working environment they will confront in the professional arena after graduation. The course seeks to simulate as close as possible, the atmosphere of a professional design office.
2. Thoroughly examine the design process and learn to clearly define each problem, and logically work toward an appropriate solution.
3. Help students develop the work habits and attitudes of professional designers.
4. Practice positive behavior, and conflict avoidance/resolution in the workplace.
5. Develop the ability to work as a member of a team.
6. Gain a deeper understanding of graphic design aesthetically, critically, and technically.

Grading:

1. Professional attitude and the development of professional work habits will be evaluated. Students are expected to think for themselves, budget their time, meet deadlines, and adhere to production schedules.
2. Attendance is required. In the case of illness or an emergency, students are required to contact the professor just as they would contact an employer. Three unexcused absences will result in the final semester grade being lowered one full letter grade.
3. There will be a review at the end of the semester, which will include all work from the class.
4. Visual and verbal communication skills will be a part of the evaluation.

The prerequisite for GD 310 is junior or senior standing in Graphic Design and the prior approval of the proposed project by instructor.

GD 310 will be offered fall and spring semesters.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: Junior or senior standing in Graphic Design. Prior approval of proposed assignment by instructor.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 400** Time and Sequence (4) Development of visual sequence as replies to graphic design problems.

GD 400

#### **GD 400 Time and Sequence (4)**

GD 400 is an in-depth course that explores the essential relation of the verbal and visual elements of design to sequential media, including both traditional and digital media such as film, video, and Power Point. The intrinsic qualities of each medium will be investigated in relation to how each affects the communication of a message to a specific audience.

The course will help students to:

1. Develop an appreciation for time and sequence and how they relate to graphic design problems.
2. Foster an appreciation for the appropriate integration of typography into sequential design.
3. Develop the ability to work as a member of a team in solving sequential design problems.
4. Stay abreast of emerging technological applications in contemporary graphic design.
5. Gain a deeper understanding of time and sequence aesthetically, critically, and technically.
6. Explore the potential of expressing ideas in sequence with still images, film and video.
7. Experiment with new methods of image making that are unique to the technologies involved.
8. Gain practical experience that has direct professional application.
9. Develop the work habits and attitudes of professional designers.

Grading:

1. Work will be evaluated based on the relevance and originality of the idea and the appropriateness of the design approach to the idea, the intended audience, and all pertinent functional parameters.
2. Professional attitude and the development of professional work habits will be evaluated. Students are expected to think for themselves, budget their time, meet deadlines, and adhere to production schedules.
3. Attendance is required. In the case of illness or an emergency, students are required to contact the professor just as they would contact an employer. Three unexcused absences will result in the final semester grade being lowered one full letter grade.
4. Neatness, craft and attention to detail will be considered in the final grade.
5. There will be a review at the end of the semester, which will include all work from the class. Each piece will be evaluated for quality and presentation.
6. Visual, verbal and written communication skills will be a part of the evaluation

GD 400 will be offered fall semester.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: GD 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 401** Package Design (3) Orientation to packaging designs as it relates to the consumer, client, and to societal and environmental concerns.

GD 401

**GD 401 Package Design (3)**

GD 401 Orientation to packaging design as it relates to the consumer, client, and to social and environmental concerns.

**Objectives:**

This course will explore the following: creative problem solving through package design, historical and contemporary solutions in package design; the role of the package designer in relation to the consumer, client, printer, photographer, and environment; conceptualization and problem solving techniques. It is designed to encourage student responsibility and professionalism.

**Class Format:**

Classes will consist of the following: the assignment and discussion of projects, individual and group conferences; classroom critiques of work in progress /completed projects, computer lab work sessions, and professional photography studio sessions.

GD 302 is the prerequisite for GD 401.

GD 401 (3) will be offered fall and spring semesters.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: GD 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 402 Senior Problems (4)** Development of visual replies to graphic design problems.

GD 402

**GD 402 Senior Problems (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an in-depth course that explores the essential relation of the verbal and visual elements of design to advanced graphic design problems. The class is divided into two parts: 1) Each student submits a written proposal for a hypothetical magazine. In the proposal he or she describes the publication's subject, content and editorial point-of-view, along with the intended audience, must be described in the proposal. Additionally, the functional parameters surrounding editorial design and a discussion of similar publications in the marketplace should be touched upon in the paper. The proposal drives the design of the publication. Each student is required to develop an appropriate title for their magazine, design a masthead, two covers, a table of contents, and a minimum of three articles. The minimum length for each article is two spreads (four pages). All sections of the magazine will be bound together with one of the covers for final presentation. Additionally, each student must apply his or her masthead design to letterhead, envelope and business card. 2) Each student prepares for graduation and the beginning of his or her career by putting together their final portfolios, resumes, letters and job search strategies.

The course will help students to:

1. Perform as editorial designers.
2. Prepare for the real working environment they will confront in the professional arena after graduation.
3. Thoroughly examine the design process and learn to clearly define the problem, in order to work logically towards an appropriate solution.
4. Develop the work habits and attitudes of professional designers.
5. Polish visual, verbal and written presentation skills.
6. Practice positive behavior, and conflict avoidance/resolution in the workplace.
7. Prepare designers for realistic working environment expectations.
8. Foster an appreciation of good typography.

**Grading:**

1. Work will be evaluated based on the relevance and originality of the idea and the appropriateness of the design approach to the idea, the intended audience, and all pertinent functional parameters.
2. Professional attitude and the development of professional work habits will be evaluated. Students are expected to think for themselves, budget their time, meet deadlines, and adhere to production schedules.
3. Attendance is required. In the case of illness or an emergency, students are required to contact the professor just as they would contact an employer. Three unexcused absences will result in the final semester grade being lowered one full letter grade.
4. Neatness, craft and attention to detail will be considered in the final grade.
5. There will be a review at the end of the semester, which will include all work from the class. Each piece will be evaluated for quality and presentation.
6. Visual, verbal and written communication skills will be a part of the evaluation.

GD 400 and 401 are prerequisites to GD 402.

GD 402 will be offered spring semesters.

General Education: None

Diversity: None

Bachelor of Arts: Arts  
 Effective: Fall 2006  
 Prerequisite: GD 400GD 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 403W** Graphic Design Seminar (3) A seminar on subjects which relate to the field of graphic design.

GD 403W

**GD 403W Graphic Design Seminar (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is an advanced course covering the history and contemporary theory and criticism of graphic design. Topics include: the invention of writing and alphabets, medieval manuscripts books, the origin of printing and typography, Renaissance graphic design, the Arts and Crafts movement, Victorian and Art Nouveau graphics, modernist influences on graphic design, visual identity and conceptual images, postmodern design, the computer graphics revolution, new media design, ethics and professional practice, and contemporary issues relating to design theory and criticism.

The course is intended to:

1. Provide a firm understanding of the history of graphic design.
2. Develop the capacity to discuss the articulate current issues in graphic design.
3. Promote writing and speaking abilities through class assignments.
4. Help students to develop the work habits and attitudes of professional designers.

Grading:

1. Class projects as well as class participation will be evaluated.
2. Written assignments, including short synopses of readings and additional essays, and the quality of writing will be a part of the grade evaluation.
3. Professional attitude and the development of professional work habits will be evaluated. Students are expected to think for themselves, budget their time, meet deadlines, and adhere to production schedules.
4. Attendance is required. In the case of illnesses or an emergency, students are required to contact the professor just as they would contact an employer. Three unexcused absences will result in the final semester grade being lowered one full letter grade.
5. Visual and verbal as well as written communication skills will be a part of the evaluation.

GD 320 is the prerequisite to GD 403W.

GD 403W will be offered spring semester.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Arts  
 Effective: Fall 2007  
 Prerequisite: GD 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 404** Book Design (3) Writing, designing, illustrating and production (printing) of a book.

GD 404

**GD 404 Book Design (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is an advanced course that explores the relationship of the written and visual elements in the design of a book. Each student (or student team) will select a topic, create the text and give visual form to an original book, which will have a minimum length of 16 pages. The intrinsic qualities of the book medium such as typography, sequence, imagery, paper, dye-cuts, fold-outs, pop-ups, and binding will be investigated in relation to how each affects the overall communication of the book's meaning to a specific audience.

The course is intended to:

1. Foster an appreciation for good typography.
2. Allow students to investigate the sequential relationships between the visual and verbal aspects of a book and their synergistic interaction in the communication of the books meaning to a particular audience.
3. Introduce the appropriate use of illustrations in book design.
4. Help students develop the work habits and attitudes of professional designers.
5. Help students to examine the design process to learn to define the problem and work logically towards an appropriate solution.
6. Develop the ability to work as a member of a team.
7. Gain a deeper understanding of graphic design aesthetically, critically, and technically.

Grading:

1. Each of the two copies of the book that are submitted at the end of the semester should be identical, with flawless execution and craft.
2. The book will be evaluated on the originality of the idea and the appropriateness of the design approach to the idea, the intended audience and all pertinent functional parameters.



3. Professional attitude and the development of professional work habits will be evaluated. Students are expected to think for themselves, budget their time, meet deadlines, and adhere to production schedules.
4. Visual, verbal and written communication skills will be evaluated.

GD 404 will be offered fall or spring semesters.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2006  
Prerequisite: GD 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 496** Independent Study (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Study (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 496H** Independent Study - Honors (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Study - Honors (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GD 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Greek (GREEK)**

**GREEK 001** Elementary Classical and New Testament Greek (4) Pronunciation, forms, syntax, and translation.

**Elementary Classical and New Testament Greek (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 002** Elementary Classical and New Testament Greek (4) Further instruction in syntax and sentence structure.

**Elementary Classical and New Testament Greek (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 1983  
Prerequisite: GREEK 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 003** Intermediate Classical and New Testament Greek (4) Selections from representative authors.

**Intermediate Classical and New Testament Greek (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language  
Effective: Fall 1983  
Prerequisite: GREEK 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 099** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL

Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 101** Introductory Ancient Greek (4) Fundamentals of classical Greek grammar, syntax, and vocabulary.

**GREEK 101 Introductory Ancient Greek (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The aim of GREEK 101 is to introduce students to the fundamentals of ancient Greek as quickly and thoroughly as possible. The Attic dialect is the basis of Classical Greek grammar, because this is the language of the tragedies of Aeschylus, Sophocles, and Euripides; the comedies of Aristophanes; the histories of Thucydides and Xenophon; the orations of Demosthenes; and the works of Plato. This course focuses primarily on the morphology and syntax of ancient Greek. Drills on each grammar presentation, as well as translation of sentences both from English to Greek and from Greek to English, and of brief passages from ancient authors are the basis of the student's homework throughout the semester. By the end of the semester, students will be prepared to read short passages of Greek authors. The course will focus on reading and writing rather than speaking, although students will be expected to read Greek aloud regularly in order to master correct pronunciation. GREEK 101 will prepare students to continue with GREEK 102 and then 400-level Greek courses.

The course goals, in addition to providing students with a firm grounding in Greek grammar and morphology, include giving students an improved understanding of English grammar and of English vocabulary and word origins. Moreover, while the primary focus will be on mastering forms and syntax, students will also be introduced to the basic aspects of classical Greek culture so that they are able to place the selections they read within a wider cultural context. Students may select to use GREEK 101 to fulfill either a 3-credit requirement for a course in Greek or Roman language, literature, and civilization, or archaeology or the requirement for 9 credits in courses related to Classics and Ancient Mediterranean Studies within the Common Requirements for the Major. Students desiring to fulfill the B.A. requirement for 12th-credit level foreign language in Greek may do so by successfully completing a 400-level course in Greek. Students' work in the course will be evaluated on a combination of written work, including frequent tests and quizzes; homework completion; and course attendance and participation. GREEK 101 will be offered once per year with 24 seats per offering.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 102** Intermediate Ancient Greek (4) Intermediate study of classical Greek grammar, syntax, and vocabulary.

**GREEK 102 Intermediate Ancient Greek (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GREEK 102 continues from GREEK 101, which is prerequisite for enrollment. After a brief review of key grammar and morphology from the first semester, the course will complete the process of providing students with a sufficient grasp of Greek vocabulary, morphology and syntax to enable them to read unadapted passages from ancient Greek authors (with the aid of a lexicon) by the end of the course. Class sessions will focus on grammar drills, sentences, and similar exercises as homework to supplement class work. As the semester progresses, students will read more and more from Greek authors themselves rather than either Greek composed by the textbook authors or adapted ancient Greek passages, so that when students enter more advanced classes, they will find the transition to reading Greek as smooth as possible.

In tandem with the increasing emphasis on Greek written by ancient Greeks, the course will continue to focus on the cultural milieu of ancient Athens in particular as a background for the texts that the students read. Basics of Greek history, archaeology, and philosophy will be introduced as relevant to the texts that the students read. Students will be evaluated on a combination of written work, including frequent tests and quizzes; homework completion; and course attendance and participation. GREEK 102 will prepare students to continue with courses in Greek at the 400-level. Students may select to use GREEK 102 to fulfill either a 3-credit requirement for a course in Greek or Roman language, literature, civilization, or archaeology or the requirements for 9 credits in courses related to Classics and Ancient Mediterranean Studies within the Common Requirements for the Major. Students desiring to fulfill the B.A. requirements for 12th-credit level foreign language in Greek may do so by successfully completing a 400-level course in Greek. This course will be offered once a year with 24 seats per offering.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Fall 2001  
Prerequisite: GREEK 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 199** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 399** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 401** Introductory Reading in Greek Literature (3-6) Analysis of selected passages of ancient Greek literature; attention will be paid to grammatical as well as literary details.

**GREEK 401 Introductory Reading in Greek Literature (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GREEK 401 is an ancient Greek literature course in which students will read selections from various genres. Students also will read in English additional selections of the authors they are studying. The overall goal of the course is to increase the ease and fluency of advanced-level students with ancient Greek. Although students will be expected to enter the class with a comfortable level of reading skill as acquired in GREEK 003 or 102 or their equivalent, the course will include grammar and building vocabulary. By the end of the course, it is expected that students will be able to read Greek fluently, and be able to analyze grammatical structures.

Students' work in the course will be evaluated based on class participation, several in-class quizzes and tests, and a final examination. GREEK 401 is one of a series of advanced Greek poetry and prose courses that allow students to gain skill and knowledge about a range of ancient Greek literature. GREEK 401 may be used to fulfill several requirements for the CAMS major including the requirement of courses in Greek or Roman language, literature, or archaeology and a 400-level course in a related area. The course is particularly designed for students who select the Language Option of the major, which requires four courses at the 400-level in Greek or Latin. The course will be offered every other year with 20 seats per offering.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 2011  
Prerequisite: GREEK 102

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 420** Greek Prose Authors (3-6) Readings in representative authors.

**Greek Prose Authors (3-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 425** Greek Historians (3-6) Translation and study of one or more of the ancient Greek historians.

**GREEK 425 Greek Historians (3-6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GREEK 425 is a reading course in ancient Greek focusing on one or more of the major ancient Greek historians (usually Herodotus, Thucydides, or Xenophon, or Polybius). The course is designed to advance the student's fluency in reading Greek prose, while at the same time enriching their understanding of Greek civilization and history by a thematic choice of historical readings. The course may concentrate on one author or may address a thematic issue with readings from a variety of Greek historians. For example, readings may be selected from Herodotus' accounts of ancient Egypt. Or readings may focus on a comparative study of Thucydides' and Polybius' reasons for writing history. The major portion of class time will be devoted to translating prepared passages. These passages will also be the basis for discussing grammatical forms, as well as stylistic issues in prose writing. The class will also include discussions of historical themes relevant to the readings. Students' work in the course will be evaluated based on class participation, three in-class tests, a final examination, and a term research paper or oral presentation.

GREEK 425 is one of a series of advanced Greek poetry and prose courses that allows students to gain skill and knowledge about a range of ancient Greek literature. This course requires a mastery of basic Greek grammar and vocabulary acquired in GREEK 003, 102, or their equivalent. GREEK 425 may be used to fulfill several requirements for the CAMS major including the requirement of courses in Greek and Roman language, literature, and archaeology, and a 400-level course in a related area. The course is particularly designed for students who select the Language Option of the major, which requires four courses at the 400-level in Greek or Latin.

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Summer 2011

Prerequisite: GREEK 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 430** Greek Poetry (3-6) Translation and analysis of selected readings in Greek poetry.

**GREEK 430 Greek Poetry (3-6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GREEK 430 is an advanced Greek literature course in which students will read 1200-1500 verses of a non-dramatic genre of ancient Greek poetry (in different years the course is offered, this might be epic, lyric, bucolic, or didactic poetry). Students also will read in English the entire output of the author they are studying. The overall goals of the course are as follows: (1) to increase the ease and fluency of advanced-level students with ancient Greek in general and poetic idiom in particular; and (2) to expose students to a limited amount of scholarly literature and give practice in understanding and evaluating a scholarly argument in relation to a primary text with which they are familiar. Students will be expected to enter the class with a comfortable level of reading skill (as acquired in GREEK 003, 102 or their equivalent); the course will not cover grammar, nor will all the assigned readings in Greek be translated in class. Emphasis is on reading a generous amount of poetry in the original Greek and on literary interpretation.

The approach in the classroom will change as the term progresses. Initially, classes will be more lecture-driven in order to explain the background and characteristics of the poetry being read. Translation assignments early in the semester will be relatively short (30-50 verses per class). As students gain in ease and familiarity with the Greek they are reading, assignments will become longer (with a goal of approximately 100 verses per class by the end of the term) and students will assume an increasing proportion of the responsibility for conducting individual class sessions, culminating in student presentations at the end of the semester. GREEK 430 is one of a series of advanced Greek poetry and prose courses that allows students to gain skill and knowledge about a range of ancient Greek literature. GREEK 430 may be used to fulfill several requirements for the Classics and Ancient Mediterranean Studies major including the requirement of courses in Greek or Roman language, literature, or archaeology and a 400-level course in a related area. The course is particularly designed for students who select the Language Option of the major, which requires four courses at the 400-level in Greek or Latin. Students will be evaluated through class participation, quizzes, tests, an oral presentation, and a final exam. The course will be offered once every other year and will offer 20 seats per offering.

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Summer 2011

Prerequisite: GREEK 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 440** Greek Drama (3-6) Translation and study of a selected play.

**GREEK 440 Greek Drama (3-6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

GREEK 440 is an advanced Greek drama course in which students will read 1200-1500 verses of an ancient Greek drama. Students also will read in English additional plays by the author they are studying. The overall goals of the course are as follows: (1) to increase the ease and fluency of advanced-level students with ancient Greek in general and dramatic idiom in particular; and (2) to expose students to a limited amount of scholarly literature and give practice in understanding and evaluating a scholarly argument in relation to a primary text with which they are familiar. Students will be expected to enter the class with a comfortable level of reading skill. The course will not cover grammar, nor will all the assigned readings in Greek be translated in class. Emphasis is on reading an entire play in the original Greek and on literary interpretation.

The approach in the classroom will change as the term progresses. Initially, classes will be more lecture-driven in order to explain the background and characteristics of the poetry being read. Translation assignments early in the semester will be relatively short (30-50 verses per class). As students gain in ease and familiarity with the Greek they are reading, assignments will become longer (with a goal of approximately 75-80 verses per class by the end of the term) and students will assume an increasing proportion of the responsibility for conducting individual class sessions. Students will be evaluated through class participation, quizzes, tests, and a final examination.

GREEK 440 is one of a series of advanced Greek poetry and prose courses that allow students to gain skill and knowledge about a range of ancient Greek literature. This course requires a mastery of basic Greek grammar and vocabulary acquired in GREEK 003, 102, or their equivalent. GREEK 440 may be used to fulfill several requirements for the Classics and Ancient Mediterranean Studies major including the requirement of courses in Greek or Roman language, literature, or archaeology and a 400-level course in a related area. The course is particularly designed for students who select the Language Option of the major, which requires four courses at the 400-level in Greek or Latin. GREEK 440 will be offered once every other year with 20 seats per offering.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2011  
Prerequisite: GREEK 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**GREEK 499 (IL)** Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Health (HLTH)**

**HLTH 306** Physical Education, Health, and Safety in Elementary Schools (2) A study of appropriate activities for elementary-age children. Student participation in physical activities is required.

### **HLTH 306 Physical Education, Health and Safety in the Elementary Schools (3)**

This course is designed to prepare elementary classroom teachers to provide age appropriate instruction related to issues of health and safety encountered in the school, home, and community. Understanding and demonstrating a knowledge of foundations, lesson planning, instructional strategies, and assessment is a key component of the program. In addition, the pre-service teachers are prepared to organize and implement physical education activities that may be carried out in the classroom, playground and/or appropriate indoor facilities. The physical education aspects of the program are generally provided as ancillary activities to the program provided under the guidance and direction of a certified Health and Physical Education instructor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2004  
Prerequisite: eighth-semester standing in Elementary Education Program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Health Care Management (H C M)**

**H C M 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1990  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H C M 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H C M 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Health Education (HL ED)

**HL ED 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HL ED 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HL ED 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1993

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Health Education (HLHED)

**HLHED 406** Human Sexuality (3) Examination of physiology, diseases, attitudes, morality, and controversial topics related to human sexuality.

**Human Sexuality (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: 7th semester standing or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HLHED 415** Planning and Developing Health Education Programs (3) Premises and strategies for planning, implementing, and evaluating wellness programs in corporate, hospital, and community agency settings.

**Planning and Developing Health Education Programs (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1997  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HLHED 420** Development of Stress Management Programs for Health Education (3) Planning, development, and implementing strategies for stress management programs for health education professionals in school, community, and corporate settings.

**Development of Stress Management Programs for Health Education (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1997  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HLHED 443** Alcohol and Drug Education (3) Principles of integration and coordination of alcohol and drug education programs for health education and other social service professions.

**Alcohol and Drug Education (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1997  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HLHED 456** Advanced Techniques in School and Community Health Education (3) Public health, mental health, nutrition, dental school health, physical education, accident prevention, health teaching; projects, consultation, visitation, discussions, and resources.

**Advanced Techniques in School and Community Health Education (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1997  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HLHED 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1997

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Health Policy and Administration (H P A)**

**H P A 057** (GHA) Consumer Choices in Health Care (3) Introduction to consumers' role in health-care decisions, including health benefits, physician and hospital choice, and end-of-life choices.

**H P A 057 Consumer Choices in Health Care (3)  
(GHA)**

H P A 057 is designed to provide students with an understanding of the consumer's role in health care decisions. The growth in health care information resources, the expansion of for-profit medical care, the consumer revolution, and increasing cost pressure mean consumers must be aware of the critical issues involved in health care decisions. Consumer knowledge and decision-making affect the cost and quality of health care received. The main goal of this course is to educate students to become knowledgeable health care consumers. H P A 057 (GHA) can be used as a General Education course for all Penn State students. It focuses on all 4 aspects of General Education in Health and Physical Activity and several of the overall General Education criteria. It helps students learn how to gather information about health and health care and synthesize and analyze that information to make good choices that will enable them to achieve and maintain good health, including making healthful lifestyle choices. H P A 057 emphasizes that students must develop consumer skills, attitudes, and habits that will enable them to make the choices expected of consumers in today's health care system. Active learning is a critical component of H P A 057, as students must actively gather information and use it to make decisions. H P A 057 also addresses the issue of intercultural competence, by addressing different cultural views of health and information on how culture influences interactions between patients and others in health care settings. It requires students to write and speak about the choices they make through assignments that demonstrate their understanding of the information resources and the reasoning underlying their choices. Finally, several in-class and out-of-class assignments employ collaborative learning and teamwork as students gather and synthesize information. Students in Health Policy Administration may use H P A 057 for a supporting course in their major. It is also a required course in the Minor in Health Policy and Administration. H P A 057 does require a technology classroom to enable demonstration of consumer health information on the web and students will need some independent laboratory access to complete assignments. H P A 057 will be offered 2-3 times per year at University Park and on several other Penn State campuses with an expected enrollment of 50-200 students per semester.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 101** Introduction to Health Services Organization (3) Examination of the social, political, historic, and scientific factors in the development and organization of health services.

**Introduction to Health Services Organization (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 297A** Accounting and Health Services Organizations (3) The purpose of this course is to aid the student in developing a basic understanding of accounting through an introduction to the disciplines of financial and managerial accounting. Specifically, the process of accounting for an entity's transactions will be examined, and the role of

accounting information in the decisions of users (internal and external to the entity) will be discussed. The course will be approached in such a way as to focus on the accomplishments of additional goals beyond mere knowledge acquisition. Our goal is to cover the material in such a way as to contribute to higher-level cognitive skills such as comprehension, application, analysis, synthesis and evaluation.

**Accounting and Health Services Organizations (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 297A** Accounting and Health Services Organizations (3) The purpose of this course is to aid the student in developing a basic understanding of accounting through an introduction to the disciplines of financial and managerial accounting. Specifically, the process of accounting for an entity's transactions will be examined, and the role of accounting information in the decisions of users (internal and external to the entity) will be discussed. The course will be approached in such a way as to focus on the accomplishments of additional goals beyond mere knowledge acquisition. Our goal is to cover the material in such a way as to contribute to higher-level cognitive skills such as comprehension, application, analysis, synthesis and evaluation.

**Accounting and Health Services Organizations (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 297B** Communication in Health Policy and Administration (3) This course will provide students with practical, contemporary, and industry- related practice in communication within the health care field. Through a variety of short, weekly writing projects and lecture- and readings-based lessons, students will take away from the next 15 weeks a strong understanding of the technical writing skills needed in today's health care and an improved mastery of the English language and its uses. Overall, the successful completion of this course will help students develop effective skills to communication internally and externally among various health care settings.

**Communication in Health Policy and Administration (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 301W** Health Services Policy Issues (3) Analysis of major issues in health services delivery in hospitals, medical practice, public health, mental health, and health professional education.

**H P A 301W Health Services Policy Issues (3)**

H P A 301W is a survey course of health services policy issues that emphasizes the skills needed to analyze and communicate knowledge about health services policy. The chief goals of the course are to broaden student understanding of selected current policy issues in health care, to deepen student knowledge of the development of health policy issues, and to develop student skills in the areas of information literacy, communication, and teamwork. Students are evaluated on the basis of an individual policy issue brief, a team policy issue brief, and quizzes.

The course content includes an overview of the key areas in health policy issues: how and why issues emerge; how to trace the historical development of a policy issue; how to analyze the behavior of stakeholders like hospitals, physicians, nurses, insurers, health maintenance organizations, employers, consumers, and others; how to monitor a health policy issue's development. These areas are explored in two ways--by class discussions of current issues in health policy and by writing assignments that focus on writing policy issue briefs. Several modules on information literacy, communication, and teamwork skills that are critical for work in health policy are integrated with the writing assignments.

H P A 301W is a required course in the Health Policy Administration major and serves as one of the Writing Across the Curriculum courses Health Policy Administration students can take. It is also an optional course for the Minor in Health Policy and Administration. H P A 101, PL SC 001, and ECON 002 are prerequisites for H P A 301W, providing foundation knowledge in health care and social sciences. In addition, all H P A 400-level courses with a health policy focus require H P A 301 or H P A 301W as a prerequisite.

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: ECON 102H P A 101PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 310** Health Care and Medical Needs (3) Health care from an individual, family, and community standpoint illustrated with specific diseases and health problems.

### **Health Care and Medical Needs (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998  
Prerequisite: BB H 101BI SC 004 orBIOL 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 332** Health Systems Management (3) Introduction to and analysis of managerial roles and practices in health service organizations.

### **Health Systems Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1987  
Prerequisite: H P A 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 390** Professional Development in Health Policy and Administration (3) Development of personal understanding and professional skills to prepare students for future employment or study in health policy and administration.

### **H P A 390 Professional Development in Health Policy and Administration (3)**

The objectives of H P A 390 are to help students understand themselves and the opportunities available in the health care field and professional skills in preparation for their required internship and future profession. In H P A 390 students learn to assess their talents and abilities and how those talents can be best applied in one of the many career settings in health care. They research different types of organizations and opportunities in the health care field. They learn the basic professional skills that are required in the health care world. Students are evaluated on the basis of a personal self-study exercise, completion of a required planning for several professional development exercises, and a team project on a health care organization.

Health Policy Administration students take H P A 390 after they have completed the initial overview of the health care system in H P A 101 and while they are taking their core courses in the major, H P A 301, H P A 310, and H P A 332. The course is a prerequisite for H P A 395, the student's professional internship, providing the professional development background that students need to have a high-quality internship experience that furthers their education. H P A 390 is a required course in the curriculum. No students from other departments may take the course without H P A permission.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000  
Prerequisite: H P A 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 395** Field Experience in Health Policy and Administration (1-13) Professional field experience providing opportunities to apply skills and knowledge in health care setting.

### **Field Experience in Health Policy and Administration (1-13)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: H P A 301WH P A 310H P A 332H P A 390

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 396** Professional Transition to Careers in Health Policy and Administration (1) Professional skills development preparing students for their first work experience in Health Policy and Administration.

### **Professional Transition to Careers in Health Policy and Administration (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: H P A 395

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 401** (IL) Comparative Health Systems (3) Comparative analysis of health services in selected developed and developing countries.

### **Comparative Health Systems (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 410** Principles of Public Health Administration (3) The rationale for, and the patterns of, public health service at all levels of government in the United States.

### **Principles of Public Health Administration (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 420** Principles of Managed Care (3) Survey of managed health care, including history, typology, current issues, management challenges, and impacts on patients, providers, and special populations.

### **Principles of Managed Care (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 430** Health Care Leadership (3) This course provides an opportunity to students to learn about the challenges of leadership in health care.

### **H P A 430 Health Care Leadership (3)**

Leadership has been identified as one of the core competencies needed to improve the U.S. health care system and one of the challenges to solving the problems of cost, quality and access. This course provides an opportunity for students to learn about the challenges of leadership in health care. Through experience, reflective reading and writing, and discussion, students will explore their own leadership capabilities.

The course content covers three main areas. First, after reviewing academic research and the history of leadership development in health care, the course examines current models of leadership competency used for leadership development in both university programs and health care organizations. The knowledge, skills, and attitudes contained in these competency models and needed to become a leader in health care are each reviewed in detail. Second, current challenges for health care leaders are presented and discussed, emphasizing how different dimensions of leadership come into application in trying to meet these challenges and solve the problems they create. Third, through exercises and assignments, students explore their strengths and weaknesses in these leadership competencies, gaining additional understanding of the competencies through this application.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: H P A 101 ; and H P A 301W or H P A 332 ; and 5th semester or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**H P A 433** Administration of Hospital and Health Service Systems (3) Analysis of administrative structures and interorganizational arrangements among hospitals and other health care organizations.

**Administration of Hospital and Health Service Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1998

Prerequisite: H P A 332

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 440** (US;IL) (BB H 440) Principles of Epidemiology (3) Theory of epidemiology and significant case studies. Potential application to health care.

**H P A (BB H) 440 Principles of Epidemiology (3)  
(US;IL)**

This course is designed to provide students with a basic understanding of the principles of Epidemiology and to familiarize students with the methods and applications of epidemiology to understanding the bases for heterogeneity of disease and health among populations.

The goals of the course are: 1) recognize and use basic principles, concepts, terminology, and techniques in Epidemiology as applied to the study of infectious disease, chronic diseases, and other health-related problems; 2) examine and understand measures of risk and burden of illness on populations defined in terms of age, race, gender, class, time, and other relevant socio-cultural and demographic factors; 3) be able to interpret and critique epidemiological research reports on the identification of risk factors and casual factors for diseases in populations; 4) assess the health status and burden of diseases and health problems of populations at multiple levels of analysis for the purpose of planning health promotion activities and health care services; 5) have a basic understanding of the epidemiology tools for disease screening and other methods for primary and secondary prevention of disease and health problems; 6) examine the validity and applicability of various health interventions used to improve health status and the barriers for successful interventions; and 7) have a basic understanding of the epidemiology of the major causes of morbidity and mortality in the U.S. and for other selected regions and nations of the world.

This is a required course in the Biobehavioral Health major and an elective course in the Health Policy and Administration major. The course is also appropriate for students intending to advance to post-baccalaureate graduate and professional programs in medicine, public health, health policy and planning, and other health-related careers.

Students will be evaluated based on their performance on a combination of written assignments, a term paper or project, and exams.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: BB H 101 orBIOL 110 orH P A 310;STAT 200 orSTAT 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 440U** (US;IL) Principles of Epidemiology (3) Theory of epidemiology and significant case studies. Potential application to health care.

**Principles of Epidemiology (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: BB H 101 orBIOL 110 orH P A 310;STAT 200 orSTAT 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 442** Long-Term Care Management (3) Management and policy issues for institutional, community, and home settings for chronic care services.

**Long-Term Care Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1998

Prerequisite: H P A 332

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**H P A 445** (ECON 445) Health Economics (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.

**Health Economics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 1994

Prerequisite: ECON 302ECON 315 orECON 323

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 445W** (ECON 445W) Health Economics (3) Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.

**H P A (ECON) 445W Health Economics (3)**

The healthcare sector comprises a set of markets that differ in some significant ways from the textbook model. In the US, this sector performs well in some respects and questionably in others. Notably, there has been sustained improvement over time in life expectancy and other indicators of the effectiveness of health care for most people, but the resources devoted to producing this improvement have been growing considerably faster than GDP. The goal of this course is to examine several broad questions raised by these facts.

The course begins with an overview of evidence on wealth, health expenditure, and life expectancy across countries, and then examines increasing life expectancy and medical expenditures in the US and their causes. Issues in measuring the value of medical expenditures are addressed, and an overview of the industrial organization of health care is provided. A major component of the course covers the economics of health insurance, and the course also examines medical R&D and the pharmaceutical industry as well as issues in the financing of medical care for the elderly.

The course seeks to introduce students to the economic analysis of health care. It is in the area of applied microeconomics, and deals with issues relating to labor markets and public finance, in particular. This writing-intensive course will be one of several 400-level W seminars that the Economics Department is seeking to establish, with the broad objective of exposing our advanced undergraduate students to economic analysis in a seminar setting requiring significant writing by the students.

The course counts toward the major and the minor in economics, as a 400-level course. In addition, it also counts toward a "module" (area of concentration) in human resource and public economics.

Student performance in the course will be evaluated based on three papers. The course will be offered once each year, with an enrollment of 25 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: ECON 302ECON 315 orECON 323

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 447** Financing Health Care (3) Analysis of financial flows, third party payment programs, and reimbursement practices in the health services sector.

**Financing Health Care (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: FIN 100;H P A 332

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 450** Healthcare Policies and Politics (3) Survey of health care's political contexts: formulation, implementation, and modification stages of policy process; politics of private interests (associations) at national and state levels.

**Healthcare Policies and Politics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: H P A 101PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**H P A 455 Strategic Planning and Marketing for Health Services (3)** Introduction to principles and methods of strategic planning and marketing.

### **Strategic Planning and Marketing for Health Services (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998  
Prerequisite: H P A 332

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 460 Human Resource Management in Health Care Organizations (3)** Foundations of human resource management applied to health care organizations, including hospitals, long-term care facilities, and community health organizations.

### **Human Resource Management in Health Care Organizations (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998  
Prerequisite: H P A 332

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 470 Health Care Information Management (3)** This course introduces information systems terminology, data structures, software applications, and their management functions in health services organizations.

### **H P A 470 Health Care Information Management (3)**

This course introduces the student to information systems terminology, structures, specific applications, and their relationships to management functions in health services organizations. Health providers and health systems are continuing to make multi-million dollar investments in information systems in order to meet new market and regulatory requirements. All health services managers will play a role in the analysis, design, acquisition, installation, operation and ultimate success of information systems necessary to meet organizational goals and objectives. This course exposes students to the IS/IT applications used to support management functions. Further, applications and management issues unique to industry segments (e.g., long-term care, home care, hospital administration, physician practice management) will also be explored.

The goal of the course is to ensure that students are schooled in the terminology, conceptual models, applications and opportunities and limitations of information systems in health services to the point that they can ask appropriate questions, recognize and state significant issues, and participate in the discussion and analysis of information systems development and application.

The course is one of several elective courses in the Health Policy Administration major that students can complete and is also a required part of the Information Sciences and Technology/Health Policy Administration Minor providing students with an understanding of the basic structures of information systems in health administration; the relationship of these systems to managerial functions such as communications, coordination, control strategic and process planning and decision making, and the important policy and ethical issues associated with privacy, confidentiality, and security in information systems. Since the course represents the capstone of the Information Sciences and Technology/Health Policy Administration minor, it is important for students to have the pre-requisites for the course (H P A 332, IST 210, and IST 220), including an understanding of major issues in the health care system, health care management and information systems.

Student's attainment of educational objectives will be assessed through a variety of evaluation methods. Understanding and appropriate application of terminology, management issues, and ethical/privacy concerns will be assessed through examination. Concept integration will be assessed through case-study analysis and project papers. Data presentation and training communication issues will be assessed through individual application projects and presentations.

A technology classroom with access to the World Wide Web and Penn State servers is required for effective instruction. We will use these facilities to demonstrate software applications, provide technical support for guestspeaker presentations, and facilitate student presentations. The course will be offered once per academic year with an expected enrollment of 20-40 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000  
Prerequisite: H P A 332IST 210IST 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 490 Physician Practice Management (3)** Development of skills needed to effectively manage physician practices.

**H P A 490 Physician Practice Management (3)**

This course is designed to provide undergraduate and graduate level students the basic knowledge necessary to effectively manage a physician practice in today's health care environment.

With the ever changing delivery of health care services in the U.S., it is critical for young professionals entering the field to understand the importance of working with physicians.

It is also critical, that students understand the differences that exist between managing physician practices as compared to other health care environments. That includes; physicians as employees, physician practice revenue cycle management, outpatient vs inpatient services, and other factors that are unique to managing doctors of all specialties.

The course will also discuss the role of mid-level providers such as physician's assistants, nurse practitioners, nurse midwives, and nurse anesthetists play in the delivery of health care services.

Students will also gain a better understanding of how to effectively communicate with physicians and use their knowledge to become partners with the administration of complex issues such as access, quality, and cost containment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: H P A 332

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 494H Senior Honors Thesis (1-6)** Independent study related to student's interests directed by a faculty supervisor and culminating in the production of a thesis.

**Senior Honors Thesis (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: approval of honors thesis advisor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 497A Human Diversity and Health Administration (3)** Health care providers in contemporary society are faced with the important challenge of designing, implementing, and delivering health care to populations with diverse backgrounds. Meeting the health care needs of diverse individuals requires sensitivity and respect for individual differences. This course is designed to prepare students to be knowledgeable of people's differences based on race, ethnicity, culture, religion, age, sex, sexual orientation, social and economic status, disability and how these impact health care. In addition to learning about diverse populations and competent attitudes and behaviors for the provision of health services, each student will have an opportunity to reflect, assess, and determine their own potential sources of bias and preconceived attitudes so they may be more effective in serving health needs of all people.

**Human Diversity and Health Administration (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H P A 497A** Human Diversity and Health Administration (3) Health care providers in contemporary society are faced with the important challenge of designing, implementing, and delivering health care to populations with diverse backgrounds. Meeting the health care needs of diverse individuals requires sensitivity and respect for individual differences. This course is designed to prepare students to be knowledgeable of people's differences based on race, ethnicity, culture, religion, age, sex, sexual orientation, social and economic status, disability and how these impact health care. In addition to learning about diverse populations and competent attitudes and behaviors for the provision of health services, each student will have an opportunity to reflect, assess, and determine their own potential sources of bias and preconceived attitudes so they may be more effective in serving health needs of all people.

### **Human Diversity and Health Administration (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Health and Human Development (H&HD)**

**H&HD 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&HD 297S** Jumpstart (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Jumpstart (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&HD 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&HD 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&HD 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&HD 497A** Women's Leadership Initiative (2) Women's Leadership Initiative.

**Women's Leadership Initiative (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&HD 497H** Special Topics--Honors (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics--Honors (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&HD 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&HD 499H** (IL) Foreign Studies-Honors (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies-Honors (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Hebrew (HEBR)**

**HEBR 001** Basic Modern Hebrew I (4) An introduction to modern Hebrew in its written and spoken forms; oral and aural work stressed.

**Basic Modern Hebrew I (4)**

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Summer 1990

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 002** Basic Modern Hebrew II (4) Continued study of grammar; emphasis on improving oral-aural facility, with increased attention to reading and writing.

**Basic Modern Hebrew II (4)**

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Summer 1990

Prerequisite: HEBR 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 003** Intermediate Modern Hebrew (4) Grammar, reading, composition, and oral and aural exercises.

**Intermediate Modern Hebrew (4)**

General Education: None

Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Summer 1977

Prerequisite: HEBR 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 010** (GH;IL) (J ST 010) Jewish Civilization (3) Life of the Jewish people from Biblical times, emphasizing cultural, religious, and institutional developments.

**HEBR (J ST) 010 Jewish Civilization (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Jewish tradition goes back thousands of years, and Jews have resided in many different lands. They have become an integral part of many different cultures, yet have often retained (or been forced to retain) a certain degree of separateness or difference. In this course we will trace continuity and change in Jewish traditions from ancient to modern times, and across different regions. Taking into account inter-cultural contact and historical events -- ranging in place from the Middle East to Muslim Spain to Asia, Africa, Europe, and the Americas, and in time from the ancient world to the medieval era, the Holocaust, and contemporary Israel and the U.S. -- we will explore developments in Jewish history, literature, and culture. The course considers topics such as the attitudes other groups have had toward Jews (and vice-versa), the question of whether Jewish identity is a race, a religion, or an ethnicity, the dilemmas Jews face today, and the ways that Jews in many diverse settings have balanced change and continuity. We will explore the factors that shape Jewish experience in different times and places, the diversities within and among Jewish lifestyles, and the ways in which events and interactions with other peoples have influenced the development of Jewish civilization. Finally, we will consider the dilemmas Jews face today in terms of the preservation of their identity and traditions. The course includes class discussion. Students are evaluated on the basis of essay exams, essay assignments, quizzes, in-class discussion and commentaries, group projects, journals, a final comprehensive exam/essay, web-based activities, and on-line discussion. such means as quizzes, essay examinations, and group projects.

General Education: GH

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 097** Special Topics (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 099 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 151 (CAMS 151, J ST 151)** Introductory Biblical Hebrew (3) Fundamentals of Biblical Hebrew grammar, syntax, and vocabulary.

**HEBR (CAMS/J ST) 151 Introductory Biblical Hebrew (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The aim of CAMS/J ST/HEBR 151 is to introduce students to the fundamentals of Biblical Hebrew as quickly and thoroughly as possible. Biblical Hebrew is the language in which the Old Testament was written, between the period of approximately 1200-200 B.C.E. This focuses primarily on the morphology and syntax of Biblical Hebrew. Drills on each point of grammar, as well as translation of sentences from Hebrew to English and English to Hebrew, and brief passages taken from the Bible are the basis of the student's homework throughout the semester. By the end of the semester, the students will be prepared to read short, unmodified passages of the Bible. The course will focus primarily on reading and writing, though students will read aloud in class regularly in order to ensure correct pronunciation and understanding. CAMS/J ST/HEBR 151 will prepare students to continue with CAMS/J ST/HEBR 152 and then 400-level courses.

The course goals, in addition to providing the students with a firm grounding in Hebrew grammar and vocabulary, include giving the students a basic understanding of the history of the Biblical text. The primary focus will be on mastering paradigms and syntax, but the students will also be introduced to the Biblical texts themselves, which together form such an important piece of literature.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 152 (CAMS 152, J ST 152)** Intermediate Biblical Hebrew (3) Intermediate study of Biblical Hebrew grammar, syntax, and vocabulary.

**HEBR (CAMS/J ST) 152 Intermediate Biblical Hebrew (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

CAMS/J ST/HEBR 152 continues from CAMS/J ST/HEBR 151, which is a prerequisite for enrollment. After a brief review of key grammar and morphology from the first semester, the course will complete the process of providing students with a sufficient grasp of Hebrew vocabulary, morphology, and syntax to enable them to read unadapted passages from Biblical Hebrew texts (with the aid of a lexicon) by the end of the course. Class sessions will focus on grammar drills, sentences, and similar exercises as homework to supplement class work. As the semester progresses, students will read more and more from actual Hebrew texts, rather than composed sentences by the textbook author, so that when the students enter more advanced classes, they will find the transition to reading Hebrew as smooth as possible.

In tandem with the increasing emphasis on Hebrew written by ancient Hebrews, the course will continue to focus on the linguistic and cultural background for the texts that the students read. Students will be evaluated on a combination of written work, including frequent quizzes, tests, homework completion, and course attendance and participation. CAMS/J ST/HEBR 152 will prepare students to continue with courses at the 400-level.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2005  
Prerequisite: HEBR 151

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 197** Special Topics (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 199** (IL) Foreign Study--Basic Hebrew (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Study--Basic Hebrew (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practicums, or internships.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1986  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 297** Special Topics (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 397** Special Topics (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 399 (IL) Foreign Study--Intermediate Hebrew (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Study--Intermediate Hebrew (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 401** Advanced Hebrew--Conversation Emphasis (3 per semester, maximum of 6) Development of oral proficiency through discussions focusing on issues in contemporary Jewish culture.

**Advanced Hebrew--Conversation Emphasis (3 per semester, maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 402** Advanced Hebrew--Reading Emphasis (3 per semester, maximum of 6) Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Jewish culture.

**Advanced Hebrew--Reading Emphasis (3 per semester, maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language



Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 451** Advanced Biblical Hebrew (3) Translation and analysis of selected readings in Biblical Hebrew texts; attention will be paid to grammatical as well as literary details.

### **HEBR 451 Advanced Biblical Hebrew (3)**

HEBR 451 is a Biblical Hebrew literature course in which students will read selections of various genres and dates from different sections of the Hebrew Bible. The overall goal of this course is to increase the ease and fluency of advanced-level students with Biblical Hebrew. Although students will be expected to enter the class with a comfortable level of reading skill as acquired in HEBR 152 or its equivalent, the course will include grammar and building vocabulary. By the end of the course, it is expected that the students will be able to read a Biblical Hebrew text comfortably and be able to analyze grammatical structures. Students' work in the course will be evaluated on class participation (20%), several in class quizzes (20%), and a mid-term (30%) and final exam (30%). HEBR 451 is part of a series of advanced Hebrew classes that will allow students to gain skill and knowledge about a range of Biblical Hebrew texts. HEBR 451 may be used to fulfill a requirement for the Hebrew minor, as well as for the CAMS major language requirement. The course will be offered every other year, with 20 seats per offering.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: HEBR 152 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 452** Readings in Biblical Hebrew (3) Translation and analysis of selected readings in Biblical Hebrew texts; attention will be paid to grammatical as well as literary details.

### **HEBR 452 Readings in Biblical Hebrew (3)**

HEBR 452 is a Biblical Hebrew literature course which students will read selections of various genres and dates from different sections of the Hebrew Bible. The overall goal of this course is to increase the ease and fluency of with which advanced students are able to read all types of Biblical texts. Although students will be expected to enter the class with a comfortable level of reading skill as acquired in HEBR 451 or its equivalent, the course will continue to emphasize grammar and building vocabulary. By the end of the course, it is expected that the students will be able to read any Biblical Hebrew text comfortably and be able to analyze grammatical structures. Students' work in the course will be evaluated on class participation (20%), short in class quizzes (20%), and a mid-term (30%) and final exam (30%). HEBR 452 is part of a series of advanced Hebrew classes that will allow students to gain skill and knowledge about a range of Biblical Hebrew texts. HEBR 451 may be used to fulfill a requirement for the Hebrew minor, as well as for the CAMS major language requirement. The course will be offered every other year, with 20 seats per offering.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: HEBR 451 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 496** Independent Studies (1-18) Creative projects including research and design which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1982

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HEBR 499** (IL) Foreign Study--Advanced Hebrew (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Study--Advanced Hebrew (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Higher Education (HI ED)

**HI ED 302** The Role of the Resident Assistant: Theory and Practice (3) An analysis of the various roles of the resident assistant, including interpersonal facilitator, disciplinarian, program developer, and activities facilitator.

**The Role of the Resident Assistant: Theory and Practice (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HI ED 490** Exploration of Careers in Higher Education (3) Foundation of graduate study in the field of higher education.

**HI ED 490 Master's Professional Seminar (3)**

This course is an introduction to higher education as a field, and as an orientation to graduate study. Early sessions will provide a brief review of the history of higher education, an introduction to the Carnegie Classification scheme of colleges and universities, and an overview of the structure of public and private higher education. Students will participate in an orientation to the services of the library including internet sources and tools needed to develop research skills. Technical writing skills will be developed through direct instruction, practice writing assignments, and peer review workshops in service of completing a literature review on a topic of the student's choosing. Students will explore a variety of career options through guest lectures and individual projects in areas of potential interest. A final career exploration portfolio will demonstrate what the student has learned regarding career areas. Professional, interpersonal, and ethical skills will be developed through role playing and interviews with actual higher education practitioners. Written work will include an annotated bibliography, a literature review, and integrative analysis essays. In addition, students will explore various options appropriate for a capstone project for their master's degree: internships, academic papers, portfolios, etc. Readings will reflect current topics and issues.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HI ED 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HI ED 497A Professional Graduate Seminar in Higher Education (3)** This course is designed as an introduction to graduate study, to professional careers, and to professionalism in higher education. Students should leave this course with a plan for successfully completing their M.Ed. program of study and a road map for career success in higher education.

**Professional Graduate Seminar in Higher Education (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HI ED 498 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Hindi (HINDI)**

**HINDI 001 Level One Hindi A (4)** This is an introductory course in Hindi that presents the Devanagari script, elementary grammar and sentence structure.

**Level One Hindi A (4)**

General Education: None

Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HINDI 002** Level One Hindi B (4) This intermediate level course seeks to impart functional literacy in oral and written expression in Hindi to students.

**Level One Hindi B (4)**

General Education: None

Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Summer 2010

Prerequisite: HINDI 001 or equivalent competency

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HINDI 003** Level Two Hindi A (4) This is an intermediate level course in Hindi that seeks to improve student's skills in oral and written expression.

**Level Two Hindi A (4)**

General Education: None

Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Summer 2010

Prerequisite: HINDI 002 or equivalent competency

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## History (HIST)

**HIST 001** (GH;IL) The Western Heritage I (3) A survey of the Western heritage from the ancient Mediterranean world to the dawn of modern Europe.

**The Western Heritage I (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 001T** (GH;IL) The Western Heritage I (3) A survey of the Western heritage from the ancient Mediterranean world to the dawn of modern Europe.

**The Western Heritage I (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 002** (GH;IL) The Western Heritage II (3) A survey of the Western heritage from the dawn of modern Europe in the seventeenth century to the present.

**HIST 002 The Western Heritage II (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

History 002 is an introduction to the history of Europe from the reformation to the present. The course focuses on four broad shifts in European history: the emergence of the powerful states of the ancient regime from the century of religious violence following the reformations; the critique of and attack on major assumptions of ancient regimes before, during,

and after the French revolution; the social and economic transformation of Europe in the eighteenth and nineteenth centuries; and the formation of mass societies during the nineteenth and twentieth centuries. Although individual versions of the course may vary in emphasis, these changes are recognized as vital to Europe's significance in the modern world. A major teaching goal of the course is the use of historical evidence, in the form of documents, to build interpretations of the past. A book of documents and an additional course packet supply this evidence and serve as the focus of the weekly discussion classes. There are weekly reading quizzes to ensure preparation and to provide questions for the start of discussion. A textbook and lectures supply the overviews and broad themes of the course. The course requirements typically consist of exams, quizzes, and class attendance. (Note that these are the typical, general requirements. Individual instructors may make adjustments that will maintain the intellectual integrity and pedagogic intent of the course.) The course is a basic introduction to modern European history. It is therefore, related to all upper division courses on this subject. It also introduces students to basic cultural and social movements essential to courses in art history and music and to courses in the social sciences. History002 is required for history majors and for others fulfills a humanities requirement in the university's general education/bachelor of arts requirements. HIST 002 is offered twice a year with 50 to 250 seats per offering.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 003 (GH;US)** The American Nation: Historical Perspectives (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.

**HIST 003 The American Nation: Historical Perspectives (3)**  
**(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course covers American history from discovery to the present, focusing on racial, ethnic, and religious differences as well as shared traditions and ideals. Major economic, religious, political, and social issues and events from first contact to the present day are addressed, although individual versions of the course may vary in emphasis. Topics, which vary with instructor, view the American past through such lenses as democracy, the world of work, and daily life. A major teaching goal of the course is the use of historical evidence, in the form of documents, images, and other materials, to formulate interpretations of the past. Lectures and readings from textbooks, books, chapters, and academic articles provide the essential material of the course and are supplemented by electronic media. The course requirements typically consist of exams, quizzes, and class attendance and participation; they may include short papers as well. (Note that these are the typical, general requirements. Individual instructors may make adjustments that will maintain the intellectual integrity and pedagogic intent of the course.) The course provides an overview of American history and is therefore related to all upper division courses on this subject. It also introduces students to basic cultural and social movements essential to courses in American studies, art history and music and to courses in the social sciences.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 003 (GH;US)** The American Nation: Historical Perspectives (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.

**HIST 003 The American Nation: Historical Perspectives (3)**  
**(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course covers American history from discovery to the present, focusing on racial, ethnic, and religious differences as well as shared traditions and ideals. Major economic, religious, political, and social issues and events from first contact to the present day are addressed, although individual versions of the course may vary in emphasis. Topics, which vary with instructor, view the American past through such lenses as democracy, the world of work, and daily life. A major teaching goal of the course is the use of historical evidence, in the form of documents, images, and other materials, to formulate interpretations of the past. Lectures and readings from textbooks, books, chapters, and academic articles provide the essential material of the course and are supplemented by electronic media. The course requirements typically consist of exams, quizzes, and class attendance and participation; they may include short papers as well. (Note that these are the typical, general requirements. Individual instructors may make adjustments that will maintain the intellectual integrity and pedagogic intent of the course.) The course provides an overview of American history and is therefore related to all upper division courses on this subject. It also introduces students to basic cultural and social movements essential to courses in American studies, art history and music and to courses in the social sciences.

General Education: GH  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 003U** (GH;US) The American Nation: Historical Perspectives (3) American history from discovery to the present, focusing on both racial, ethnic, and religious differences and shared traditions and ideals.

**The American Nation: Historical Perspectives (3)**

General Education: GH  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 005** (GH;IL) (CAMS 005) Ancient Mediterranean Civilizations (3) Survey of the history and cultures of ancient Mediterranean civilizations in Mesopotamia, Egypt, Syro-Levant, Anatolia, Greece, and Rome.

**HIST (CAMS) 005 Ancient Mediterranean Civilizations (3)**  
**(GH;IL)**

This course provides an introduction to the history and cultural traditions of the ancient civilizations of the Mediterranean. From the origins of cities and the invention of writing, it surveys the intellectual, artistic, and political traditions that laid the foundations for the later civilizations of Europe and western Asia. Students will acquire a basic historical framework for the ancient Mediterranean from the third millennium BCE through the end of antiquity in the first millennium CE. Within this framework cross-cultural relationships of time and ideas will be established among religious texts, epic literatures, and political and legal traditions. In the part of the world where the division between Asia and the East and Europe and the West was born, the course will examine the development of regional and ethnic identities along with the historical development of concepts of the universal nature of humanity. This course is designed to serve as the foundation course for all majors in the department of Classics and Ancient Mediterranean Studies (CAMS).

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 010** (GH;IL) World History I (3) Human origins; early civilizations; major political and intellectual developments on all continents; cultural interrelationships to 1500.

**HIST 010 Non-Western Civilization (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

History 010 is an introductory survey of ancient history from the emergence of Homo Sapiens to the onset of European exploration (approximately 1500), examining the evolution of the world's various peoples and cultures. The course will focus on the historical processes that led to human diversity, as expressed in varying patterns and systems of government, economics, arts, ideas, belief systems, and social organizations. The course will also treat the growth of agriculture and pastoral nomadism and explore global interactions and linkages, engendered by human migrations, the spread of commerce and disease, wars, and conquests up to 1500. Although the mode of delivery may vary, depending on the semester or session in which a specific section of the course is offered, its campus location, and the instructor's major research specialization, the course will be taught thematically and conceptually. It will include individuals who have played a significant role in influencing the beliefs and institutions of a particular culture, or humanity in general, such as Moses, Confucius, Gautama (the Buddha), Plato, Alexander, Jesus, Muhammad, St. Francis of Assisi, al-Ghazali, Murasaki Shikibu, and Moctezuma. Students will learn about the interrelationships between dominant and nondominant cultures, such as the concepts of Roman imperialism, the tributary relationship between China and its neighbors, the Islamic concept of conquering lands without forcing conversion, the effects of the Mongol conquests, and the beginnings of Portuguese exploration and colonization. The course will make students more aware of the cultural achievements of the ancient Egyptians, Hebrews, Greeks, Romans, Persians, Indians, Chinese, Arabs, Turks, Mayans, and Japanese. Discussion sections (for high-enrollment classes) and essay examinations will promote student facility in written and oral self-expression, analysis, synthesis, comparison and contrast, and cultural empathy. History 010 instructors will, at their discretion, provide opportunities for gathering information from libraries, computerized indexes, and websites. Students will come to understand themselves and their own culture, as well as the background to many other societies and cultures in today's world, through intellectual confrontation with the peoples and cultures of antiquity. Instructors will address

issues related to civility, the individual's role within the larger community, and academic honesty.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 011** (GH;IL) World History II (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.

**HIST 011 World History II (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

History 011 is an introductory survey of modern history from approximately 1500 to the present, viewing the world and its various peoples and cultures as a whole. This course will focus on the historical processes that have led to modernization, such as exploration, contacts among peoples and cultures, voluntary and forced migrations, the growth of technology and science, industrialization, urbanization, and other trends that have shaped the world since 1500. It will help students to develop facility in speaking and writing about continuity, change, causation, similarities and differences among cultures, universal and particular values, and conceptualization of modernity, through weekly discussion sections, essay examinations, short writing assignments, and selected readings. Its content is intrinsically international and intercultural, addressing overarching themes of ethnicity, race, religion, gender, and especially global perspectives. Approximately one-half of its content

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 011U** (GH;IL) World History II (3) Social, economic, and political evolution of societies and cultures from 1500 to the present.

**World History II (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 012** (GH;US) History of Pennsylvania (3) Chronological and topical survey, emphasizing immigration of diverse ethnic groups and religious, political, economic, and social developments, including industrialization and urbanization.

**History of Pennsylvania (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 020** (GH;US) American Civilization to 1877 (3) An historical survey of the American experience from its colonial beginnings through the Civil War and Reconstruction.

**HIST 020 American Civilization to 1877 (3)**  
**(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

HIST 020 is designed to introduce students to the main events and themes of American history before 1877. This course is not intended to simply acquaint the student with facts, but to teach them how to analyze those facts so that they can understand why historical events in America unfolded as they did. A larger goal of the course is to teach them how to think "historically" and to perceive the relevance of the past to the present. It is impossible to understand either yourself or your society if you cannot identify the role, which your individual and collective past plays in the construction of your

actions and thoughts today. The course provides the student with a basic background in American History prior to 1877. HIST 021 chronologically follows this course by providing the student with a background in American History from 1877 to the present. HIST 020 is a prerequisite for upper-division courses in American History, and is a required course for the History major. The course grade will be determined by an in-class midterm exam, an in-class final exam (each containing essay and short-answer sections), a five-page paper based on the analysis of a primary source, and participation in discussion sections. This course will be offered twice per year with 150 seats per offering.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 020Y** (GH;US) American Civilization to 1877 (3) An historical survey of the American experience from its colonial beginnings through the Civil War and Reconstruction.

### **American Civilization to 1877 (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 021** (GH;US) American Civilization Since 1877 (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

### **HIST 021 American Civilization Since 1877 (3)** **(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

History 021 is designed as the second half of a two-term survey of American history, covering the period from 1877 to the present. (History 20 covers the period from 1607 to 1877.) The course uses a lecture format; larger versions have weekly discussion sections as well, led by graduate assistants. In terms of historical knowledge, History 021 seeks to introduce students to salient events, developments, and themes of American history since 1877. Chief among the topics covered are Reconstruction, Westward expansion and the decline of the Native American, the industrial revolution, urbanization, immigration, Gilded Age culture and politics, the labor movement, the New South, Populism, imperialism, Progressivism, segregation and African-American response, the women's movement, World War I, politics and culture in the 'Twenties, the Great Depression and New Deal, World War II, post-war prosperity, the Cold War, the Civil Rights movement, the Vietnam War, the disillusionment of the 'Seventies', the Reagan revolution, and America in the post-Cold War era. The social and ideological diversity of the American experience is a prominent theme of History 021. A survey textbook selected by the instructor is used, in conjunction with lectures, to provide a comprehensive overview. The textbook is supplemented by a blend of specialized historical works and primary readings. Students are evaluated on the basis of their performance on papers, exams, quizzes, and class participation and attendance. While History 021 instructors vary in the content and mix of work they assign (and the relative weight they give papers, exams, quizzes, and participation in the course grade), all versions share certain underlying objectives: to expose students to essential events and trends in American history; to develop their capacity to identify and analyze key themes and issues from the past; to give them some experience in the critical assessment of primary sources; and, to sharpen their skills in marshaling data and concepts from readings and lectures, and discussing them cogently both in section meetings and in writing. Increasingly, instructors are integrating multi-media components into their lectures. History 21 is the second half of a two-course survey of American history. History 020 is the first half; the year 1877 marks the dividing point between these two courses. Like History 020, History 021 provides a foundation (and is in fact a prerequisite) for many of the more advanced courses in American history. History 021 is a requirement for the major. Non-majors may use this course to satisfy a general education humanities selection. This course is offered three times a year with 140 seats per offering.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 021U** (GH;US) American Civilization Since 1877 (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

### **American Civilization Since 1877 (3)**

General Education: GH



Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 021U** (GH;US) American Civilization Since 1877 (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

**American Civilization Since 1877 (3)**

General Education: GH

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 021Y** (GH;US) American Civilization Since 1877 (3) An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present.

**American Civilization Since 1877 (3)**

General Education: GH

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 066** (GH;IL) Survey of British History (3) The British Isles and their peoples since the ancient period, emphasizing political, cultural, and intellectual developments and imperial rise and fall.

**HIST 066 Survey of British History (3)**  
**(GH;IL)**

The Survey of British History is composed of five units of study that chronicle the creation and development of Great Britain. The course's chronological design should help students trace the trajectory of Britain's improbable rise to and fall from dominant imperial power. This design is also adopted so as to lead students to identify recurring trends and notable anomalies in how Britain developed. Prioritizing students' ability to identify and evaluate the impact of historical events, this course examines the interconnections between Britain's economic, political, cultural, and religious histories, showing how changes in the economy, for example, allowed for the rise of new art forms or how changes in religious ideals influenced the population's vision of their leaders. Britain's impact on other nations is a corollary emphasis of this course, one justified by the knowledge that recognizing the past's ongoing legacy makes the study of history vital.

Each unit of study will be accompanied by the analysis of multiple "objects" of British history, such as the Domesday Book, the Magna Carta, and the Rosetta Stone. Leading students in discussions of the creation and reception of these objects will supplement class lectures. Such discussions should press students to apply their readings and understandings of class lectures, leading them to ask, for instance, how the Roman Baths showcased the Roman's economic and military strength as well as reflected their plans for British lands and peoples.

Grades in History 066 will be determined four quizzes and three writing assignments. The quizzes will consist of identification and short essay questions based on the readings and lectures, thus testing students' understanding of the material presented. The first two writing assignments will ask students to outline two assigned books concerning British history; books that have been used in the past include one concerning the development of London and another exploring the impact of Darwin's ideas on the British nation. These assignments will introduce students to two different types of historical monographs as well as develop their skills in identifying main points and prioritizing evidence. The final writing assignment will ask students to research another "object" of British history and explain how it reflects significant events in British history and/or British ideals. Giving students the opportunity to deal with a type of "primary document," this paper assignment is designed to introduce students to a type of historical research, to test students' ability to synthesize information, and to develop their ability to construct an argument about the significance of an object based on their knowledge and understanding of major developments within British history.

General Education: GH

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 083S** (GH) First-Year Seminar in History (3) Critical approaches to the dimensions and directions in History.

**HIST 083S First-Year Seminar in History (3)**  
(GH;FYS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Through readings, discussions, lectures, and research projects, students are expected to master the subject material of the course as well as to acquire basic skills useful to the study of the liberal arts. Students will learn to read books and original documents, discuss them, formulate effective arguments, and write essays and papers. Historical analysis of this type will provide students with techniques for appreciating and judging arguments and presentations in many fields of learning, from scholarly to popular. The topics chosen for these seminars will acquaint students with major figures and developments in important historical areas. By reading and understanding historical documents, students will learn to consider the cultural assumptions of different groups and societies and to appreciate their own values and assumptions by contrast with these. Although the course will focus on a specific topic, the instructor will help the student to see the wider implications of the issues and controversies discussed. Whenever possible, the international and intercultural aspects of the topic will be considered. The course will challenge students to express themselves and to gather information through discussion and writing of papers. It will always challenge students to think about social behavior, the nature of the community, and the value of scholarly endeavor as these relate to the particular topic of the seminar. The course fulfills the first-year seminar requirement as well as one of the humanities requirements in general education or a Bachelor of Arts humanities requirement. The course will be offered twice a year in sections of 20 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 100** (GH;IL) (CAMS 100) Ancient Greece (3) Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization.

**HIST (CAMS) 100 Ancient Greece (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course presents a survey of ancient Greek history and culture beginning with the Bronze Age palace-states of Crete and Mycenae, examines the emergence of Greek city-states, notably Athens and Sparta, traces their transformation through conflicts among themselves and with the Persian empire, and describes their eventual eclipse by the kingdom of Macedon. Since this course treats the beginnings of historical writing among the Greeks, students learn to evaluate diverse historical texts and their relationship to legend, myth, and poetry. The nature of historical thought itself is emphasized throughout the course. Also emphasized is the debate between the egalitarian justice of democracy, the sober wisdom of oligarchy, and the overwhelming power of monarchy, as experienced by the Greeks down to the end of the fourth century B.C.E. Evaluation methods include: evaluation by four short objective quizzes, by four short (1-2 page) thematic essays, by participation in four scheduled discussion sections, and by mid-term and final examinations consisting of short answer identifications and an essay, or students may write a term paper in lieu of the final examination. The course will be offered once a year with an enrollment of 90.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 101** (GH;IL) (CAMS 101) The Roman Republic and Empire (3) History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire.

**HIST (CAMS) 101 The Roman Republic and Empire (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course fulfills 3 credits of the General Education-Humanities (GH) requirement and is an introduction to the ancient Roman empire: how that empire came into being, how it evolved, how it came to govern much of the Mediterranean and European world, and how that empire declined. Particular stress is placed, through readings and discussion, on the sources of our knowledge of the past and on the social and legal structures employed by a past society to govern an ethnically- and religiously-diverse population. This course complements other courses on the ancient Mediterranean world (such as HIST/CAMS 100) and is a prerequisite to more advanced (400-level) courses in ancient Mediterranean history. An example of evaluation includes: three brief quizzes, a take-home mid-term permitting library and Internet use, and a final examination; all examinations require student synthesis and expression of what has been learned through written essays of varying length. Emphases in the course are on student engagement through class discussion of the topics presented in the texts and lectures. This course is offered once a year with 60 seats per offering for HIST and 30 seats per offering for CAMS and requires no special background save for an interest in the topic.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 102 (GH;IL) (CAMS 102, J ST 102, RL ST 102) Canaan and Israel in Antiquity (3)** Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

**HIST (CAMS/J ST/RL ST) 102 Canaan and Israel in Antiquity (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

From the domestication of animals and the dawn of agriculture to the development and socialization of monotheism, the world of the first civilizations led to that of the Bible and ancient Israel. This course, involving a critical view of Biblical texts in light of other ancient sources, archaeology and historical methods, explains the nature and the evolution of society, religion and thought in the Biblical era. Learn how civilization arose, and how the state appropriated religion and applied it for its purposes. How the science of administration developed and deployed ideological tools to further its own ideas of the West developed. This course is deeply subversive, particularly of religious and academic shibboleths. The only authority in this class is that of the most persuasive reader, and doctrines, whether religious or political, will have to be checked at the door.

An example of evaluation may be: weekly participation in discussion; mid-term and final essay examinations involving a critical evaluation of ancient text's claims in combination with archaeological evidence; a research essay, where the class or section size is lower than 30; an ability to read critically, bringing different classes of evidence to bear on issues arising from the texts, and construct coherent and compelling arguments to a particular thesis. The course provides a Near Eastern counterpart to HIST 100, 402 and a Near Eastern aspect to the Jewish Studies major. It complements RL ST 110, by offering historical exploration of the culture under study in that course. Related courses include ANTH 012, HEBR, 010, ENGL 104, RL ST 004, and RL ST 111. The course helps round out the majors in History and Jewish Studies, particularly in ancient history. It also extends the program in Religious Studies (history of religions), and it contributes to the ancient stream of the prospective program in Jewish Studies and History. The class will be offered once every other year with an enrollment limit of 15-20.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 103 (GH;IL) The History of Madness, Mental Illness, and Psychiatry (3)** This course will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness.

**HIST 103 The History of Madness, Mental Illness, and Psychiatry (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will be an introduction to the modern history of "madness" in the Western world. In particular, we will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness; the changing experiences of those afflicted; the development of those professions designed to look after those deemed mad, insane, and mentally ill; and the social and cultural assumptions behind treatments, policies, and public opinions. Our sources will include clinical case studies, memoirs of those living with mental illness, histories of psychiatric practice, and films. An example of the evaluation methods would be 3-4 written, in class exams, a 10-12 page research paper on a subject of choice, and class participation. The chief objectives of the course will be to confront head-on some of our most persistent assumptions about mental health and those with mental illnesses, evaluate how mental illness was understood and treated over the centuries, and become acquainted with the ways in which human biology, culture, society, and politics have reciprocally shaped one another in history.

The course can be effectively linked to several courses offered within the Department of History, including HIST 122 and 123 (History of Science I and II) and HIST 422 (European Thought Since 1870). In addition, it will fulfill requirements for both history majors and minors. The substance of the course emphasizes competence in the interpretive and critical understanding of the values, ideas, and experiences associated with mental disability over history and across cultures also means that it meets requirements for both General Education in the Humanities as well as Intercultural/International Competence. It is hoped that students across the human, social, and natural sciences will enroll in the course.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 103U (GH;IL)** The History of Madness, Mental Illness, and Psychiatry (3) This course will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness.

**The History of Madness, Mental Illness, and Psychiatry (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 104 (GH) (CAMS 104)** Ancient Egypt (3) The history and archaeology of ancient Egypt from the dawn of history to the Greco-Roman period.

**Ancient Egypt (3)**

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 105 (GH;IL)** The Byzantine Empire (3) Development of Byzantine civilization from the decline of the Roman Empire to the fall of Constantinople.

**The Byzantine Empire (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 107 (GH;IL) (MEDVL 107)** Medieval Europe (3) Rise and development of the civilization of medieval Europe from the decline of Rome to 1500.

**HIST (MEDVL) 107 Medieval Europe (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

HIST/MEDVL 107 is an introductory course on the history of Europe from the late classical period to the beginning of the sixteenth century. There are three main areas of concentration in this course. First, the development of political, judicial and diplomatic institutions, from the collapse of central Roman authority through the rise of local chiefdoms to the centralized kingdom as ancestor of the modern state. The second theme is the role of Christianity in all its forms--orthodox, heretical, and popular--and its contribution to a distinctly medieval society. The third main theme is the development of society following changes in economic activity, cultural interest and the extended family.

Several forms of learning are used in this course. A textbook gives the student a broad overview of the period and gives a chronological structure to the material. This material provides a background to the instructor's lectures, which not only give factual information, but integrate the various trends, individuals and events. The assigned readings illustrate specific events or individuals; the discussion groups allow the student to explore these texts in a collaborative environment with the instructor and their fellow students. The research paper gives the student the opportunity to investigate a specific topic of interest, while training them in scholarly writing and analysis. Finally, the tests, all essay questions, let students demonstrate their comprehension of the material through problem solving.

The essay exams and discussion groups allow the student actively to address specific problems from the material; the research paper enables the student to gather information from traditional (library archives) and non-traditional (electronic) sources, then to present a conclusion in a comprehensive and coherent argument;

The class discussion promotes collaborate and cooperative learning, as the students expand on, and/or argue against, positions taken on the material by their instructor and fellow students. Internationalism and interculturalism is the essence of this course. The research paper, essays and discussion allow for scholarly development through the investigation of communities in an important era of history.

General Education: GH

Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 108 (GH;IL)** The Crusades: Holy War in the Middle Ages (3) The social and political history of medieval religious warfare in Europe and in the Middle East.

**HIST 108 The Crusades: Holy War in the Middle East (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

History 108 is an introductory survey of the so-called holy wars of the High Middle Ages. These wars were fought in theatres from the Baltic to the eastern shores of the Mediterranean, from the Hispanic peninsula to southern France. While the primary emphasis will be given to the expeditions to the Holy Land, two other crusading movements will be studied: the crusades in the Baltic, led by the Teutonic Knights, and the crusades in southern France, against the heretics known as the Albigensians. These conflicts cannot be studied in isolation, and a major topic is the response of Islamic society and non-conformists elements within medieval Europe. How the various elements in the crusading period co-existed, changed or disappeared provides still more material for the student to contemplate.

Students will be evaluated on three essay examinations, regularly scheduled discussions of the assigned readings, the instructor's assessment of the student's ability to read critically, write clearly and knowledgeably, and class participation. History 108 is part of a series of introductory courses to medieval history. It will be accepted but not required for the History Major and Minor. It will be offered once each year with 90 seats per offering.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 110 (GH;IL)** Nature and History (3) A broad introduction to the history of human relationships with nature throughout the world.

**HIST 110 Nature and History (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The human relationship with the natural environment-the world of plants, animals, and microbes, of air, water, and land-is an important historical subject. History 110 provides a broad, thematic description and analysis of major global trends and shifts, with an emphasis on contemporary issues and problem solving. The most important goal of the course is to provide students with the historical context necessary to construct a thoughtful appreciation of the environmental dilemmas of our time.

History 110 encourages students to break down the barriers that often divide the humanities and the sciences. This course utilizes environmental science to demonstrate and explain specific human tendencies. Finally, this course-as is any in world history-is structured to at least diminish students' American-centered view of both the past and environmental concerns. Particularly in relation to contemporary environmental issues, we hope History 110 will make clear that many environmental problems are local in neither their construction nor impact.

Ecology has contributed a great deal to historical understanding in terms of specific examples or case studies; however, it has also begun to reconstruct the overall structure of the history that we teach. History 110 seeks to exploit this new paradigm by following a topical organization that is structured around human modes of interaction with the environment. In Unit 1 the course borrows its structure from geography and the natural sciences. Students will be able to consider a wide range of human activity as well as to better comprehend similarities in ideas, ethics and concepts from around the world and throughout history. In Unit 2 the course steps out of chronological limitations to embrace two topics that span human history. By studying such topics, of course, students may see change over time contextualized by a shared concern or resource. Unit 3 is designed to reinforce the global nature of the course and the concerns that we study within it. We will highlight interdependence by including issues that link students' local environment with distant others.

The lectures and discussions will focus on several critical points, including: How has the non-human world shaped the course of human history? What were the environmental impacts of historic changes in the ways humans produced and consumed resources? What ideas shaped the ways different groups of people defined and used specific resources? What role have science and technology played in changing popular attitudes about the human place in the world?

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 111 (GH;US) (NUTR 111) American Food System: History, Technology, and Culture (3)** A cultural analysis of the evolution of U.S. agricultural production and food consumption patterns, the food industry and food marketing.

**American Food System: History, Technology, and Culture (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 113 (IL) Baseball in Comparative History (3)** Comparative survey of baseball history from its beginnings to the present.

**HIST 113 Baseball in Comparative History (3)  
(IL)**

This course, which fulfills the International Cultures (IL) requirement, provides an introduction to comparative social history. It uses the broad cultural and geographic diffusion of baseball over time to examine the diverse and changing social, economic, and political meanings of this activity in different cultural settings, emphasizing the ways in which a common activity may acquire unique meanings in different cultures. Although North America, Cuba, and Japan demand attention as the most striking examples of baseball's pervasive impact, the course will consider baseball as a global phenomenon, exploring the minimal impact or failure of baseball promotions in many European and African societies, for example. As an introduction, the course will confine itself to English language texts, but it will use a wide range of primary sources, including newspapers and journals, memoirs, correspondence, promotional materials, and photographs to introduce students to basic concepts of historical method and problems of evidence. Students will be encouraged to consider baseball's impact in particular historical contexts as a cultural process, from the manner of its introduction through its adoption to the emergence of distinctive proprietary, even nationalist attitudes and styles of play. Among the many topics required of a survey, the course will return periodically to the question of American influence and US imperial aspirations. But the evidence of baseball games in other countries as sites of resistance or hostility to US power and as expressions of a potent nationalist politics raises questions about baseball's value for many conventional historical models of "empire" as a form of political or economic subordination. Students' assignments will require a combination of reading, writing, and research skills, and the course will introduce through lecture and discussion the variety of materials available at Penn State for the study of this subject.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 115 (GH;US) (J ST 115, RL ST 115) American Jewish History and Culture (3)** Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.

**HIST (J ST/RL ST) 115 American Jewish History and Culture (3)  
(GH;US)**

Throughout American history, Jewish presence on American soil has compelled Americans to re-think the meaning of religious and ethnic diversity. As one of the earliest non-Christian immigrant populations, American Jews struggled to explain how they could nonetheless fit into American cultural, political and social life. At the same time, many Jews have been concerned with their own survival as a distinctive group, unwilling to cede those practices, behaviors or traits that designate them as a people apart from other Americans. This course is about how these two seemingly contradictory goals—to integrate into America and to remain distinctive from other Americans—shaped the history and experience of Jews in the United States and influenced the way Americans think about diversity and pluralism.

The student of American-Jewish history must be attuned to the multiple ways that Jewishness has been defined: as a race, a religion, a nationality, and an ethnicity. In this course, far from choosing just one of these designations, we will explore Jewish life from many different angles. Topics to be considered include religious reform, immigrant experience, political activism, popular culture, and struggles over community authority. Readings focus on a number of primary texts, including memoirs, novels, films and philosophical essays. Secondary books and articles will also help deepen students' understanding of trends in American-Jewish history and awaken them to diverse interpretations of history. Students will be encouraged to engage actively and critically with the texts by writing short reading responses, longer essays, and participating in classroom discussion and presentations, all of which will serve as the basis for their evaluation.

This course complements offerings in Religious Studies, Jewish Studies and History. It provides a foundation for an already existing upper-level seminar in American Judaism (listed in Jewish Studies and Religious Studies). In addition, the course strengthens the History department's offerings in American history, serving as a basis for students interested in immigration, ethnicity and religious history. Students who are interested in modern Jewish history will also find this

course a worthwhile addition to their program of study, since, unlike other courses, it deals primarily with the story of Jewish life in the United States.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 116 (GS;US;IL) (WMNST 116) Family and Sex Roles in Modern History (3)** Historical perspectives on the Western family since 1500: gender roles, marriage, sexuality, child rearing, and old age; emphasis on United States.

**Family and Sex Roles in Modern History (3)**

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 117 (GH;US;IL) (WMNST 117) Women in Modern History (3)** Modernization and women: changing images and roles since mid-eighteenth century in the family, workshop, politics, society; cross-cultural comparisons.

**HIST (WMNST) 117 Women in Modern History (3)  
(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

History/Women's Studies 117 is an introductory survey of women in the United States and possibly elsewhere, from the seventeenth to the late twentieth century. The course examines women's history from several different perspectives. First, it introduces students to the methods, sources, and questions of the past thirty years of women's history-writing, and asks students how studying women transforms our understanding of history more generally. Second, it offers a survey of the narrative of modern women's history, stressing women's interactions with the larger processes of economic and political change, their relationship to changing ideologies of gender and feminism, and their complex identities not only as women but as members of a particular race, class, ethnic, and religious group. Throughout, students will ask when gender, and when some other aspect of women's lives and identities, is most salient in identifying the restrictions and opportunities they faced. Third, students will assume the perspective of historians themselves, as they examine primary sources and attempt to make analytic and historical judgments about what they say and why they matter to the larger narrative. Through significant essay-writing assignments, students will develop analytical and writing skills in learning to think historically about women. Questions about race, class, ethnicity, and sexual orientation, as well as gender, are intrinsic to this course. Students will be evaluated based on their class participation, papers, and final exam. This course is cross-listed in History and Women's Studies and fulfills requirements for both programs' majors and minors. History/Women's Studies 117 will be accepted, but not required, for the History Major, the Women's Studies Major, and the Women's Studies Minor. This course will be offered once a year with up to 70 seats per offering.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 118 (US;IL) (J ST 118) Modern Jewish History: 1492 to Present (3)** Jewish social and political history from 1492 to the present.

**Modern Jewish History: 1492 to Present (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 119 (GH;IL) Gender and History (3)** Survey of the development of gender roles in Western societies from the prehistoric era to the early modern period.

**Gender and History (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities and Social and Behavioral Sciences  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 120 (GS;IL)** Europe Since 1848 (3) Political, social, and ideological developments; origin and impact of two World Wars; totalitarianism and democracy; changing role in the world.

**Europe Since 1848 (3)**

General Education: GS  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 121 (GH;IL) (J ST 121)** History of the Holocaust 1933-1945 (3) Historical analysis of holocaust themes.

**HIST (J ST) 121 History of the Holocaust 1933-1945 (3)**  
**(GH;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The course will analyze the Holocaust using historical, literary, and philosophical approaches. Various species of evidence will be used and evaluated, including film and literary materials. Emphasis will be placed on discussion, student research projects, problems of ethnicity, race and religion in analyzing the origins of a persecuting mentality and the scapegoating and brutalization of victims, primarily Jews, but also including Gypsies and other groups. The Holocaust is also discussed in the context of global genocidal phenomena. The peculiar structures and dynamics of Jewish ethnic life in Eastern Europe are also treated prominently. Comparative analysis of the relationships between dominant and non-dominant cultures is a major concern of the course. An example of evaluation may include requiring students to complete one major paper on a specific theme covered in the course with a draft of four pages due at the end of six weeks. Students will be required to complete one major paper on a specific theme covered in the course. The course will contribute both to studies in 20th century European and German history, as well as to Jewish Studies. It will form a prominent feature linked to Modern Jewish History HIST/J ST 118 and the History of Anti-Semitism (HIST 302W). The course may be used to count for 3 credits toward the 18 credits required for the History minor and 22 credits required for the Jewish Studies minor. The course will be offered once per year with an enrollment of 20 for HIST and 20 for J ST.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 122 (GH)** History of Science I (3) A history of science and culture from pre-history until the Scientific Revolution.

**HIST 122 History of Science I (3)**

HIST 122 examines scientific endeavor from pre-history until the Scientific Revolution. Topics include ancient Babylonian and Egyptian conceptions of the universe and its relationship to human society, early Greek methods of understanding their world, and the development of science in the Western world and in other cultures. The course examines a range of theoretical and applied disciplines, including medicine and engineering. Along with key discoveries, the course emphasizes the role of cultural, political, and social forces in determining what human societies have valued as truth and knowledge and the standards and methods by which humans have offered proof of scientific knowledge.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 122 (GH)** History of Science I (3) A history of science and culture from pre-history until the Scientific Revolution.



**HIST 122 History of Science I (3)**

HIST 122 examines scientific endeavor from pre-history until the Scientific Revolution. Topics include ancient Babylonian and Egyptian conceptions of the universe and its relationship to human society, early Greek methods of understanding their world, and the development of science in the Western world and in other cultures. The course examines a range of theoretical and applied disciplines, including medicine and engineering. Along with key discoveries, the course emphasizes the role of cultural, political, and social forces in determining what human societies have valued as truth and knowledge and the standards and methods by which humans have offered proof of scientific knowledge.

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 123 (GH) History of Science II (3)** A history of science and culture from the scientific revolution to the present.

**HIST 123 History of Science II (3)**

HIST 123 examines the intellectual, social, and cultural history of science from the Scientific Revolution to the present. The course covers a range of theoretical and applied disciplines, including engineering and medicine. In addition to major discoveries and new ideas, methods, and tools, the course examines the effect of social conditions on science as well as the impact science has had on society. Scientific developments in the Western world, broadly defined, constitute the organizing framework of the course, but the course also examines science in non-Western cultures.

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 123 (GH) History of Science II (3)** A history of science and culture from the scientific revolution to the present.

**HIST 123 History of Science II (3)**

HIST 123 examines the intellectual, social, and cultural history of science from the Scientific Revolution to the present. The course covers a range of theoretical and applied disciplines, including engineering and medicine. In addition to major discoveries and new ideas, methods, and tools, the course examines the effect of social conditions on science as well as the impact science has had on society. Scientific developments in the Western world, broadly defined, constitute the organizing framework of the course, but the course also examines science in non-Western cultures.

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 124 (GH;US;IL) (S T S 124) History of Western Medicine (3)** This course explores the history of health, illness, and medicine in western society.

**HIST (S T S) 124 History of Western Medicine (3)  
(GH;US;IL)**

Relying on both primary and secondary sources, the course examines developments in medical thinking and practice, the changing status of medical practitioners, and the experience of patients in order to understand the links between medicine and its social, cultural, intellectual, and political contexts.

This course will also augment offerings in bioethics and medical humanities by providing the historical context of ethical issues and social policies concerning medicine. It will be attractive to students pursuing a health professional career and will provide a historical context to the issues raised in courses such as HD FS 301 "Values and Ethics in Health and Human

Development Professions, " BIOL 461 "Contemporary Issues in Science and Medicine," PHIL/S T S 432 "Medical and Health Care Ethics," and ANTH 470H "Our Place in Nature." The course will be one of the Humanities Electives for the Bioethics/Medical Humanities Minor as well as the proposed Disability Studies minor.

Within the Department of History, the course is part of the undergraduate offerings in the history of science and , thus, is directly linked to HIST/S T S 122, HIST/S T S 123, and HIST 103. The course would also support the Science, Technology, and Society Program's undergraduate minor, augmenting courses in science and health and medicine, such as S T S 101, S T S 105, S T S 200, and S T S 432.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 127 (US) (LTNST 127)** Introduction to U.S. Latina/o History (3) This course introduces students to the history of U.S. Latina/os, including Puerto Ricans, Dominicans, Chicanos, Cubans, and Central Americans.

**HIST (LTNST) 127 Introduction to U.S. Latina/o History (3)  
(US)**

This course introduces students to the history of U.S. Latina/os, drawing on the multiple experiences of Puerto Ricans, Dominicans, Chicanos/Mexicanos, Cubans, and Central Americans. Course content features the divergent development of U.S. Latina/o cultural and political identities rooted in the Caribbean, Mexico, Central American, and the United States. Students will understand the formation of racial and class hierarchies within U.S. Latina/o communities; the processes of (international) migration; gendered hierarchies and responses to sexism; and the complexities of U.S. Latina/o identity. Lectures are supplemented with discussion days in which students respond to readings under the guidance of a graduate teaching assistant. Grading stresses proficiency in analytical, historical writing.

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 130 (GH;US)** Introduction to the Civil War Era, 1848 through 1877 (3) Survey of causes and consequences of American Civil War, end of Mexican War in 1848 through end of Reconstruction, 1877.

**HIST 130 Introduction to the Civil War Era, 1848 through 1877 (3)  
(GH; US)**

**BA - This course meets the Bachelor of Arts degree requirements.**

HIST 130 is a general survey of the American Civil War Era that satisfies the Gen Ed GH requirement. Course content features the cause of the war, the conflict itself, and the consequences for the meaning of freedom in the United States. Chronologically, the course spans from 1848 through 1877, or from the Mexican War through Reconstruction. Students will become familiar with American slavery; northern and southern social, cultural, political, and economic composition; the military progress of the war; problems on the home front; the struggle for emancipation; and the creation of a new nation based on free labor. Lectures are supplemented with discussion days in which students react to readings. Grading stresses the use of analytical and writing skills, as well as the ability to think historically and analyze documents critically.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 134 (GH;IL)** Introduction to the British Isles, 1400-1800 (3) Survey of the history and cultures of the British Isles from 1400 to 1800.

**HIST 134 Introduction to the British Isles, 1400-1800 (3)  
(GH;IL)**

This history course, which fulfills the Humanities requirement in General Education (GH) or the International Cultures (IL) requirement, provides an introduction to the history of the British Isles from the fifteenth to the early nineteenth centuries, focusing on the diversity of English, Welsh, Scots, and Irish cultures and customs, their influence on early forms of nationalism in the British Isles, and their importance in the formation of the modern British nation-state. Using a wide

range of primary sources, including the work of prominent British writers, the course introduces basic concepts of historical method, while exploring the process whereby an English empire came to govern these four major "peoples" of the British Isles. Students will be encouraged to consider the dynamism of this process, involving complex interrelationships rather than the simple supremacy of one ethnic group over another. The relationships between English and Scots protestants, the importance of translating the Book of Common Prayer from English to Welsh, the influence of Irish-born families of English descent on the governance of early modern Ireland, were all key elements in the emergence of an empire under the authority of an English dynastic state whose practical control over the territories it claimed to govern often remained quite limited.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 141 (GH;IL) Medieval and Modern Russia (3)** Introductory survey, including political, social, economic, and cultural development of Kievan, Muscovite, and Imperial Russia.

**Medieval and Modern Russia (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 142 (GS;IL) History of Communism (3)** Marxism; Leninism and evolution of the Soviet Union; formation and development of the Communist bloc; impact of Chinese Communism.

**HIST 142 History of Communism (3)**  
**(GS;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Communism is one of the most powerful ideologies to have ascended in the modern period of history. Fashioned from Marxist philosophy, communism was embraced in the twentieth century to over one billion people from the former USSR, to China, to South Asia, to Africa, to Latin America, and by some here in the U.S. Unquestionably, the institutionalization of communist regimes has left an indelible mark on world history. This course will explore the writings of Marx and his advocates, notably Engels and Lenin, and strive to understand why the first communist regime emerged in the unlikelyst of places: Russia. Using the Soviet Union as a case study, we will examine how Marxist principles were either applied or transformed in the construction of the first communist society. By examining the history of the Soviet Union, including its spectacular and rapid demise, we will come to a greater understanding of communist principles and of the dynamics of capitalism as well. As a counter-example, we will also focus on the Chinese experience of Communism and contrast the divergent paths to reform that have been implemented there. The goal of the class is twofold: to become familiar with the principles of communism by examining their application primarily in the USSR, Eastern Europe and China, and to come to a greater understanding of the dynamics of a capitalist system. The course grade will be determined by the student's performance on in-class essay exams, a research paper, the comprehensive final exam (essays and short answer), participation in class discussions, and regular attendance. This course serves as a prerequisite to History 430 and History of the Soviet Union, and provides valuable background for such related courses as PL SC 413 and 452 and RUS 100. HIST 142 satisfies three credits of any history for History majors. It is also a prerequisite for several upper level history courses dealing with twentieth century Eastern European or Eurasian history. For all other students, this course fulfills a Social and Behavioral requirement in general education. HIST 142 will be offered once each year with 75 seats per offering.

General Education: GS  
Diversity: IL  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 143 (GH;IL) History of Fascism and Nazism (3)** The study of right-wing totalitarianism in the twentieth century, with special emphasis on Fascist Italy and Nazi Germany.

**HIST 143 History of Fascism and Nazism (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

History 143 is an introductory survey of fascism and Nazism. The course concerns itself with understanding the social

context of fascism, its governing assumptions, ideals, and values, how it worked in practice, and its consequences and historical implications. The course centers on the analysis of secondary and primary sources, and textual, video, and audio materials are all used. Lectures tie the various materials together, while weekly discussion sessions provide an opportunity for students to engage the materials directly. Students are evaluated on the basis of exams (which include an essay component), papers, and class attendance and participation. The course contributes not only to the study of the history of authoritarianism, antisemitism, and the history of the holocaust, but also contemporary and modern European history and, of course, German, Italian, and Spanish history. History 143 will be accepted, but not required, for the History Major as well as the History Minor. It may function as a service course for the Departments of Political Science and Sociology. It is recommended that it also serve as a general education course in the Humanities. This course is offered once a year with enrollment of up to 150 per offering with small discussion sections once a week.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 143U** (GH;IL) History of Fascism and Nazism (3) The study of right-wing totalitarianism in the twentieth century, with special emphasis on Fascist Italy and Nazi Germany.

### **History of Fascism and Nazism (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 144** (GH;US;IL) The World at War: 1939-1945 (3) In-depth study of the origins and conduct of World War II. Political and economic aspects as well as military.

### **HIST 144 The World At War: 1939-1945 (3)** **(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course offers a wide-ranging description and analysis of the second world war, combining military history with political, social and cultural approaches. One major goal is to describe how large-scale war serves as a revolutionary social and cultural force in its own right, massively accelerating social change. In the case of the second world war, the course will describe how the conflict did much to create what we think of as the modern world, not only in political terms (the roots of the cold war, the collapse of European imperialism) but also in radically changing attitudes towards such basic matters as gender relations and generational conflict. Also vital were the new scientific advances of the war years, in nuclear energy, radar, aviation, and perhaps most critical of all, the computer. Particularly important to the educational justification for the course is the stress on the construction of historical memory, a theme with implications far beyond the specific instance of World War II. The course will assess and challenge many of the myths surrounding the war, and to show how subsequent accounts of the conflict were shaped by political and cultural needs. For example, the course will stress the critical importance of the Eastern Front throughout the phenomenon understated in the West because of the patriotic Anglo-American emphasis on D-Day. It will also explore the "Resistance Myth", and suggest the moral compromises necessary to survive in occupied societies of Europe and Asia. Throughout, the course will stress the impacts of war on the home front and civilian society. The course will be offered once every two years, with fifty seats on each occasion. Typically, students will be evaluated on essay exams, written book reviews, and research papers, and are expected to participate fully in class discussions of assigned readings. History 144 is an important complement to several existing courses within the History department, including 120, Europe Since 1848; 121, The History of the Holocaust; 142, History of Communism; 143, Fascism and Nazism; and 160, American Naval History. It also provides an excellent foundation for 400-level courses including 420, Recent European History; 447, Recent American History, and 454, American Military History. History 144 satisfies general credit requirements for the history major or minor. Majors and non-majors would both be able to use the course to satisfy their general education humanities selection.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 151** (GS;US) (S T S 151) Technology and Society in American History (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.

### **Technology and Society in American History (3)**

General Education: GS  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 152** (GH;US;IL) (AF AM 152) African American History (3) African roots; colonial and revolutionary experiences; slavery and abolitionism; civil war and reconstruction; accommodation and protest; the new militancy.

**HIST 152 African American History (3)**  
**(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

History 152 introduces students to African American history -a segment of American history still excluded from many traditional American history texts except for an occasional appendix reference. The course begins with the African origins of Black Americans and concludes with an overview of the last half of the twentieth century. Lecture, readings and film explore individual achievements, the black community, efforts in self and group expression, and economic issues. History 152 satisfies three credits for History majors and General Education. For all other students this course fulfills a Humanities and US/IL requirements.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 153** (GH;US) The Indian in North America (3) A survey of the American Indian from prehistory to the present.

**The Indian in North America (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 153Y** (GH;US) The Indian in North America (3) A survey of the American Indian from prehistory to the present.

**The Indian in North America (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 154** (GH;US) History of Welfare and Poverty in the United States (3) History of care of the impoverished (emphasis on gender, race, nationality, age of poor, and welfare givers), 18th century to present.

**History of Welfare and Poverty in the United States (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 155** (GH;US) American Business History (3) Major developments in the history of business and industry from the colonial period to the present.

**HIST 155 American Business History (3)**  
**(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

History 155 surveys the development of business and industry within the United States, from the colonial period to the present. It treats the conduct of business as an integral element of American society and culture. Topics to be discussed will include the colonial commitment to commerce and early debates over what kind of commercialism the new national government should encourage; the effects of new technologies like the cotton gin, canals, and railroads in the 1800s and electrical products, cars, and computers in the 1900s; the emergence of modern large-scale industrial production and changes it brought about in business management, in society, and in politics; the changing fortunes and corporate citizenship; changing ideas about what kind of relationships should exist among governments, citizens, and businesses; the importance of world events for American businesses; and the emergence and importance of mass-market consumer products since the First World War.

Materials we will use to cover this comparatively complex set of interrelationships will include textbook, supplementary studies of individuals or particular businesses, and current media coverage of the business world. The course is fast-paced and relies on students self-discipline and analytical skills. Student performance will be evaluated on two essay exams, a class presentation, group discussions, and in-class quizzes, and evaluation will be based on the instructors assessment of the students performance in reading and writing critically and knowledgeably on particular subjects, marshaling evidence in support of coherent arguments, and participating in class discussions and presentations.

History 155 may complement, but does not compete with, courses offered by other departments or programs. It will be useful for students intending to major in business programs, in Labor and Industrial Relations, and/or to participate in the business world, by deepening their historical knowledge of that world, and will complement the Business/Liberal Arts minor. It will complement History 020 and 021 as well as more advance courses in American history. History 155 will be accepted, but is not required, for the history major and minor. It may be used to fulfill either General Education or Bachelor of Arts requirements in the Humanities for those not majoring in History. HIST 155 will be offered once a year with 45 seats per offering.

General Education: GH  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 156 (US) History of the American Worker (3)** A study of the American worker from the preindustrial era to the present.

**History of the American Worker (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 158 (US;IL) History of American Immigration (3)** The waves of migration to America and an analysis of the resulting minority groups, their reception, assimilation, and persisting identity.

**History of American Immigration (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 159 (GH;US) (CRIMJ 159) History of the FBI (3)** Survey of the FBI's history with special emphasis on civil rights and liberties and bureaucratic development.

**HIST (CRIMJ) 159 History of the FBI (3)  
(GH;US)**

The History of the FBI introduces students to the 100-plus years history of the Federal Bureau of Investigation. With such a long history, studying the FBI engages students with each of the various historical time periods from the late 19th century to the present, including Reconstruction, the Gilded Age, Progressive Era, First World War, the New Era, the Great Depression, the Second World War, the Cold War, post-Cold War, Age of Terrorism, and contemporary history. Students will understand the evolution of Federal law enforcement, bureaucracy, the increasing power of the Executive branch, the targeting of various minority groups, civil rights and civil liberties issues, and the growth of a national security role for the federal government over time. In its long history the FBI has intersected with a wide variety of groups and issues, and this reality will further expose students to the histories of African Americans, gays and lesbians, women's groups, Latinos,

Native Americans, war protestors, students, various political dissenters, immigrants, targeting of morality, obscenity, and labor organizing.

Because the FBI is responsive to both the political and policy interests of presidents and the influences of American society, students will come to appreciate the influences that politics has on bureaucracy and law enforcement, as well as the different social, political, economic, and cultural influences that each historical time period have exerted on the FBI to help shape its priorities and structure.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 160 (US)** American Naval History (3) Introduction to the role of the United States Navy in the defense, diplomacy, commerce, and scientific development of the nation.

### **American Naval History (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 161 (US)** The Battle of Gettysburg in American Historical Memory (3) Examines factors shaping understanding of the Civil War's decisive battle and its meanings as a national symbol.

### **The Battle of Gettysburg in American Historical Memory (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 165 (IL)** (ARAB 165, RL ST 165) Introduction to Islamic Civilization (3) Islamic history, culture, and religious life c.600-1500 C.E.

### **Introduction to Islamic Civilization (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 166 (GH;US)** (WMNST 166) History of Sexuality (3) Discusses the ideas, practices, and identities surrounding sexuality over several centuries in a variety of contexts, focusing primarily on the US.

### **HIST (WMNST) 166 History of Sexuality (3) (GH;US)**

This is a 100-level course on the history of sexuality, spanning several centuries and a wide range of contexts. The study of sexuality offers a particularly good lens for developing students' analytical ability to think historically about something that is often considered both "natural" and exclusively "modern." Topics will include the role of religion, medicine, law, and politics in controlling and shaping sexuality; change and controversy over birth control, abortion, and gender roles; the connections between prescriptive literature and lived experience; the origins and meanings and racial violence in the context of ideas about sexuality; the role of marriage in defining sex, race, and respectability; and the experiences and conflicts that have shaped the emergence of modern lesbian and gay identities. By closely and critically examining one aspect of human thought and experience, the course will teach students to evaluate large questions about sources, methods, and analysis that historians face, including: How do we recover stories of "private life" from societies and eras different from our own? How does our own understanding of what sexuality complicate our historical exploration? What are the connections between gender identity and sexual practices? What can we learn about gender and sexuality, repression and resistance, deviance and acceptance, identity and community from studying the lesbian and gay past? How has racism been employed to justify particular reproductive and sexual practices, as well as to limit claims to sexual

respectability? To what extent is the study of sexuality inherently a study of gender, sex roles, and feminism?

While focused primarily on the United States, the course will offer students opportunities to examine these questions in other contexts, including India, the Middle East, and Latin America. It will be especially attentive throughout to the varieties of sexual practices and identities across different races, classes, ethnicities, and religious groups.

General Education: GH

Diversity: US

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: one introductory level course in History or Women's Studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 172 (IL)** Survey of Japanese Civilization (3) Survey of social, institutional, cultural, and religious developments from ancient times to the present.

**HIST 172 Survey of Japanese Civilization (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is a survey of Japanese history. Because it is impossible to study all aspects of Japanese history in 15 weeks, the course, while broad, will not be comprehensive. Approximately 50% of the course will be devoted to pre-modern Japan and Buddhism, 25% to early modern Japan, and 25% to modern Japan. The modern segment of the course will focus on the late 19th and early 20th centuries and on the difficult concept of nations and national identity. We will examine the creation of Japan as a nation from the perspective of a series of topics, all of which are linked by the theme of "making Japanese." (The meaning of this theme should become apparent to you as you work through the second half of the course, though it may not make sense at the beginning.) The course assumes no prior background in Japanese or East Asian history. It is aimed at students who have grown up in the United States, but it can be useful and interesting for students of all backgrounds. Although there are no formal prerequisites for the course, true college-level skills in reading, writing, computer literacy, and thinking are assumed of all students. Success in the course also requires a discipline for work and reasonably effective study habits. The course is fast paced and students should expect to spend 1-2 hours of quality study outside of class for each class hour. It is particularly important to begin preparing the essay well in advance, ideally starting the first week of the course. There are three factors that tend to make History 172 more demanding than other introductory courses in history. First, the names of Japanese people, places, and things are, of course, in Japanese. This fact puts an added burden on the memories of the majority of students, since most will be unfamiliar with Japanese. Remembering the key names, therefore, will require additional effort. Second, many aspects of Japanese culture and political organization will be largely or entirely unfamiliar to most students from the United States (and elsewhere), and will therefore require more effort to comprehend. This second factor, i.e., the "foreignness," may also make the course more interesting for some students. Third is a high expectation of mastery. In other words, to do well in this course, you will need to understand its key points and concepts thoroughly. It is not possible to succeed simply by memorizing a list of items and spitting them back on exams. Students will be evaluated on three essay exams, participation in class discussions of assigned readings, and a major book review paper. History 172 is an excellent foundation for History 480 (Medieval Japan) or History 481 (Modern Japan), and is one of the courses that satisfy the prerequisite requirements for 480 and 481. It is also an excellent foundation for the further study of East Asia or for students interested in comparative history. In addition to satisfying GI requirements, History 172 satisfies general credit requirements for the history major and minor, including the "non-western" component of the major. The course also may be used to fulfill requirements for the East Asian Studies major, the Asian Area Studies minor, and the major and minor in Japanese. This course will be offered once a year with 50 seats per offering.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 173 (GH;IL)** Vietnam in War and Peace (3) Rise of nationalism and communism; origins of conflict; United States involvement; impact on postwar regional and international politics; contemporary Vietnam.

**HIST 173 Vietnam in War and Peace (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The small Southeast Asian nation of Vietnam remained an obscure and exotic land, relatively unknown to the rest of the world until the mid-twentieth century when it became the scene of a military and political struggle with important global implications. History 173 examines two interrelated topics: 1) the long history and unique culture of Vietnam and its peoples, extending from prehistory to the present; and 2) Vietnam's constant struggle over several millennia to secure its independence in the face of continual military, political, social, and economic pressure from outsiders, especially the Chinese, the French, and the Americans. The course includes special focus on the physical geography of Vietnam; the anthropological origins of its people; the evolution of its unique culture, folklore, and legends; its long-term struggle



against Chinese military and cultural aggression; its role as a colony in the French global empire; the rise of nationalism and communism in Vietnam; the origins of global conflict in Vietnam in the post-World War II and Cold War world; the conduct of military, political, diplomatic, and economic affairs of France, the United States, North and South Vietnam, and other nations during the wars of 1945-1975; the response of civilian populations and governments to that military conflict; and post-1975 Vietnam. Evaluation methods include map-based examinations to familiarize students with the geography of the region and to underscore how geography and history intersect. Examinations include both essay and objective questions that require students to integrate information from lecture and from readings drawn from both primary and secondary sources that examine Vietnam's struggles from different viewpoints. Also required is a research/writing project that explores some specific dimension of the American or Vietnamese homefront experience during 1965-1973, the peak years of the U.S. military effort. This course deepens knowledge about Asian cultures introduced in History 010 and 011 (World History). It supports both the interdisciplinary East Asian studies major and Asian Area Studies minor. This course is accepted for the Military Studies minor. History 173 satisfies both General Education and Bachelor of Arts degree requirements for Humanities.

General Education: GH

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 174 (GH;IL)** The History of Traditional East Asia (3) Comparative cultural, institutional, and social history of traditional China and Japan to their contact with the industrialized West.

### **The History of Traditional East Asia (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 175 (GH;IL)** The History of Modern East Asia (3) Comparative survey of the internal developments and external relations of China and Japan since their contact with the industrialized West.

### **The History of Modern East Asia (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 176 (GH;IL)** Survey of Indian History (3) Survey of cultural, institutional, and political history from ancient times to the present.

### **HIST 176 Survey of Indian History (3) (GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course surveys the history and civilization of India or South Asia from the earliest times to the modern period. The goal of the course is to enable students to form a comprehensive conception of the various facets of Indian or, South Asian civilization in a historical context. This course is an excellent foundation for the history of modern India and also complements a variety of existing courses on the history of the non-western world. In addition to satisfying the GE requirement, HIST 175 satisfies the general credit requirements for the history major or minor, including the "non-western" component of the major. Non-majors may use this course to satisfy a general education humanities selection. Typically, students will be evaluated on in-class quizzes, written exams, participation in class discussions of assigned readings and critical reviews of books. This course is offered once every year and has an enrollment of 50 students.

General Education: GH

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 177** (GH;IL) (ASIA 177) The Rise of Modern Southeast Asia (3) Study of Southeast Asia from the rise of early empires to the present.

**The Rise of Modern Southeast Asia (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 178** (GH;IL) Latin-American History to 1820 (3) Conquest of the New World, development of colonial institutions, impact on native cultures, and origins of independence movements.

**HIST 178 Latin-American History to 1820 (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The "Colonial Latin America" class is a survey of three centuries, from the initial encounter on New World soil of Iberian, African, and native cultures and races, to the birth of independent culturally- and racially-mixed nations. Our emphasis is on the patterns of conquest and cultural encounter, the processes of colonial rule, the nature of interaction between social groups, and on the cultural impact of the colonial experience upon all colonial Latin America's peoples. We study the institutions, cultures, attitudes, and fortunes of Spaniards and Portuguese; African slaves and free blacks; Nahuas and Aztecs, Mayas, and Incas. We discover the roles played in colonial society by a wide variety of peoples, from an African slave on a Brazilian sugar plantation to a Spanish high society woman in Lima to the black and native workers in an Ecuadorian tannery to an Aztec nobleman in Mexico City. The people who lived in colonial Latin America are given a chance to speak for themselves as much as possible; most of the assigned books feature contemporary documents translated from Spanish, Portuguese, and various native languages. Students are evaluated on two sets of essay exams and write a paper, as well as participation in classroom discussion. History 178 is offered most years with 90 seats per offering and is a prequel (but not a prerequisite) to History 179, the "Modern Latin America" class often taught the semester following; both classes are required for the Latin American Studies major, as well as meeting various History major requirements.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 179** (GH;IL) Latin-American History Since 1820 (3) Origin, political growth, international relations, and economic status of the Latin-American republics, with emphasis upon present-day conditions.

**HIST 179 Latin-American History since 1820 (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on Latin America (with limited coverage of the Caribbean) from the early 1800's through the present. For the colonial period (c.1500-c.1820), it is easy to see why Latin America has a "common history," as most of it was ruled by two quite similar countries, Spain and Portugal. But after the colonial system collapsed, giving rise to over a dozen independent countries by the 1830s, the issue becomes more complicated. What do these dependence upon markets in developed countries for their economic prosperity? How can we explain the continuing similarities between these countries, without losing sight of their diversity? The approach of this course is broadly chronological, but for each period we will focus on one or more countries that illustrate (however imperfectly) the trends of the period. The goal of the course is not to provide an encyclopedic knowledge of Latin America, but rather to provide a framework for understanding how current issues are rooted in past historical processes, and to offer a better sense of how key historical themes are "lived" by ordinary people in Latin American society. A related goal of the course is to acquaint students with the historiography of Latin American: the different approaches that historians have used to understand the region. Students will be evaluated on two sets of essay exams and a paper, as well as participating in classroom discussion. HIST 178 and 179 are both requirements for the Latin American Studies Major and Minor, as well as satisfying general credit requirements for the History Major.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 180 (GH;IL) (CAMS 180) Ancient Warfare (3)** Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire.

**HIST (CAMS) 180 Ancient Warfare (3)  
(GH;IL)**

Warfare has occupied a central place in the civilizations of the Mediterranean from the earliest times. The prehistoric origins of warfare is a hotly debated topic and constitutes the starting point for this course. Most scholars are agreed that military culture grew in step with sociopolitical development over the course of the third millennium BCE. In the following centuries, the Egyptians, and later the Assyrians and Persians, took great strides in developing sophisticated tactical systems, using infantry, chariotry, and cavalry. These matters occupy a little over the first third of the course. Across the Aegean Sea, Bronze Age (Mycenaean) Greece was ruled by elites occupying massively walled citadels, their leaders buried surrounded by their weapons. But how did these warriors fight? Do the epic poems of Homer memorialize Bronze Age combat? In the Archaic Period (700-500 BCE) infantry warfare in Greece was transformed by the appearance of the heavily-armored infantryman (the hoplite), deployed in a tight formation (the phalanx). The processes involved in the appearance of this kind of warfare, its nature, and its affects on Greek society and culture will be the focus of our attention for the second third of the course. On the periphery of the Mediterranean basin stood a variety of warrior cultures (the Scythians, Celts, or Germans). Numerous warrior-dominated polities vied with each other in Archaic Italy, but one of them, sitting on a ford on the river Tiber, ultimately rose to be the greatest military power produced by the ancient Mediterranean world – Rome. The Roman legions first won and then ensured the security of a Mediterranean-wide empire that stood for 700 years and evolved ultimately into world's first standing army of professional volunteers. The Roman military system holds our attention for the final third of the course. The course defines "warfare" broadly to include both tactical and strategic, as well as cultural and ideological, matters. Even this canvas is too vast to be surveyed in all its richness, so the major themes explored are: (i) what is war, where does it come from, and how did it change as civilization spread?; (ii) in what ways did warfare develop in the periods under study, in terms of strategy, tactics, and weapons technology?; (iii) how do different warfare practices reflect essential facets of the various cultures under consideration?

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 181 (GH;IL) Introduction to the Middle East (3)** Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.

**HIST 181 Introduction to the Middle East (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course presents a survey of the history of the Middle East from the rise of Islam to the current day. The objectives are to help students develop the vocabulary and historical background to discuss and evaluate contemporary events and debates, stimulate interest in the varied historical experiences and diverse societies and cultures of the region, and provide a foundation for deeper investigation. Students may elect to take one or more of the 400-level sequence on Middle Eastern history, or other specialized courses, upon completion of the course. The first half of the course focuses on the foundations of Islamic government and civilization, the first Islamic empires, and the Ottoman empire. The second half of the course traces the modern history of the Middle East and examines how it has been profoundly shaped by European imperialism and American political, economic, and strategic interests. Students will be evaluated on regular quizzes and essay exams and participate in class discussions of assigned readings and current events. History 181 satisfies general credit requirements for the history major or minor, including the "non-western" component of the major. The course may also be used to fulfill requirements for the Middle East Studies minor. Non-majors may use this course to satisfy a general education humanities selection. HIST 181 will be offered once a year with 50-60 seats per offering.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 181U (GH;IL) Introduction to the Middle East (3)** Origins of Islamic civilization; expansion of Islam; the Ottoman Empire; the Middle East since 1918.

**Introduction to the Middle East (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 182 (GH;IL) (ASIA 182) Asian Trade: Economy, Industrialization and Capitalism in Asia (3)** An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present.

**HIST (ASIA) 182 Asian Trade: Economy, Industrialization and Capitalism in Asia (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Asian economies have experienced spectacular growth in the second half of the 20th century. But this growth is part of a longer story of Asian commerce and trade and its relationship to and integration with (and, in some cases, isolation from) global patterns of exchange. Moreover, these exchanges are best understood alongside the politics, society, and culture--sometimes local, sometimes regional--that shaped trade and business in entrepôts, capitals, and hinterlands throughout Asia. This course begins with a historical exploration of the economic development and social change and ends by asking what lies in store for one of the world's fastest growing economic regions. By offering a historical frame for Asian economic experience, students will gain insight into the strengths and weaknesses of prevailing theories that tend to overstate centralized control, market mechanisms, and cultural determination.

Asian economies and markets are quite diverse, consisting of emerging and mature markets, making it difficult to view them through a single lens. As a result this course seeks to introduce students to a variety of conceptual frameworks in these countries. Examinations of the major economic players China, India, and Japan form the backbone of the course, but the precise geographic emphasis will vary with instructor, and may also include discussions of Japan, Korea, Vietnam, Singapore, Indonesia, Taiwan, and other Asian states. Themes of the course will vary depending on instructor, but may include industrialization, sustainability and the environment, gender and labor, protest and political reform, and consumerism and advertising, among others. The course will also offer a general introduction to economic theories that underpin the concepts of globalization, capitalism, and socialism as they are understood in an Asian context.

This course is intended as an introduction to Asia for those with particular interests in Business, Economics, Global Studies, Labor, and/or Government. Through weekly readings, films and class discussion students will be introduced to the development of Asian economies in the global context.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 183 (GH;IL) (ASIA 183) Gender, Family, and Society in East Asia (3)** Investigates the history of gender, family, love, and sex in East Asia.

**HIST (ASIA) 183 Gender, Family, and Society in East Asia (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Confucian philosophy that guided family life in many East Asian societies articulated specific relationships between men and women and particular roles for each family member at each stage of life. But these gender ideals were never static. Instead they were constantly challenged and changed—by the “willow catkin” women poets of eighteenth century China, the modan gaaru (modern girls) who advocated for “love marriages” in 1920s Japan, and the “iron women” of Communist China who “held up half the sky,” among many others.

This course tracks these changes in East Asian gender roles, relationships, and family life from 1600 to the present, placing private life at the center of the history of China, Japan, and Korea. The course will begin with an examination of how ideals of gender and family life were prescribed through, for example, classic texts, architecture, public morality campaigns, and law codes, as well as examining how these ideals and norms were described (and contested, satirized, and subverted) in fiction, film, and legal cases. The course will then examine the realities of gender and private life in imperial East Asia, considering topics such as marriage customs, women's economic roles, the cult of female chastity, family planning and medical practices, prostitution and brothels, footbinding, geisha, ideals of masculinity, alternative families and male-male sexuality, male bonding and brotherhoods, and women writers.

The last part of the course considers the remarkable shifts in gender and private life in East Asia beginning in the nineteenth century and continuing to the present. Topics will include changing work patterns in an increasingly industrialized economy, urbanization and remade family life, women's education, changing expectations for courtship, marriage and sex, expanded opportunities in public life for women and men, divorce, militarization, war and gender, eugenics and race, homosexuality, gender and revolution, and the state's role in regulating sex. The post-war period brought even more changes, and the course will highlight these through case studies of, for instance, women in the workplace, China's so-called “one child” policy, and “gender-bending” in popular culture.

By the end of the course, students should have a firm understanding of changes to private life in East Asia over the past

several centuries, and be able to assess the social and political factors that shape cultural phenomena. Students will develop their abilities to read primary sources closely and to read secondary studies efficiently, in addition to learning to reflect and integrate multiple kinds of sources in writing essays.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 184 (GH;IL) (ASIA 184) Society and Culture in the Pacific War (3)** Examines the role of society and culture in the Pacific War's causes, contexts, realities, and aftermath.

**HIST (ASIA) 184 Society and Culture in the Pacific War (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This class examines the culture and society of modern Asia in the periods immediately before, during and after the Pacific War. While for Americans the Pacific War took place from 1941 to 1945, many people across Asia experienced the war's beginnings in the late nineteenth century and its repercussions reverberated into the 1960s and even beyond. This course looks at social and historical trends across Asia during this time period in order to better understand the causes of the war and the affect it had on people throughout Asia.

The first section of the course begins with Japan's rise in the 1890s, situating that rise in the reforms of the Meiji state that increased urbanization, industrialization, opportunities for women, and interaction with other nations. As the course moves chronologically toward war, students will examine the fall of the Qing dynasty and establishment of the Republic of China, the experiences of people living under Japanese colonial rule in Korea and Taiwan, and the repercussions for the Great (European) War in Asia.

The second section of the course looks at the period from the initial Japanese moves into China in 1931 through the end of World War II. It should be stressed that this section of the course will not focus on military maneuvers or battles. Instead, the class will consider the way political and military events affected the day-to-day lives of people throughout Asia. Topics will include the mobilization of Japanese citizens for "Total War," the colonization of Manchuria, the "Rape of Nanking," wartime atrocities (including the treatment of "comfort women"), the use of ideas of eugenics, race, and hygiene as justification for Japanese empire, Japanese efforts at empire building in Southeast Asia, the entrance of the U.S. into the Pacific War, and the firebombings and atomic bomb attacks on Japan.

The third section of the course considers the war's aftermath in Asia. Topics will include the reconstruction of Japan, the tensions around American military presence in Japan, the trials of war criminals, the Chinese Civil War, and the partition of Korea. Students will be encouraged to look critically at cultural evidence from post-war Japan, such as anime, manga, monster movies (like Godzilla), music, and literature in order to understand the post-war mindset. Finally, students will consider how the post-war reconstruction efforts across Asia laid the groundwork for present-day Asia as well as examining the contentious debates over how the war's victims and events are remembered and memorialized.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 185 (GH;IL) (ASIA 185) Asian Pop: The History of Popular Culture in Asia (3)** A history of popular culture from the early modern period to the present.

**HIST (ASIA) 185 Asian Pop: The History of Popular Culture in Asia (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Asian popular culture encompasses a broad array of cultural practices and forms that shed light on the politics and society of Asia from the early modern period to the present day. This course examines "low" or non-elite culture, investigating subjects like martial arts, Chinese opera, beggar guilds, popular and folk religion, weddings, teahouses and many others (particular themes will vary depending on instructor) that allow us insight into the day-to-day lives of historical people across Asia. Along the way, we will consider how popular culture intersects with and influences politics, economy, and society.

A significant emphasis will be placed on the scope of cultural influence: some of the topics under consideration were decidedly local affairs, while others moved across political and regional boundaries, sometimes with far-reaching consequences. This focus on dissemination and influence grounds the course. For instance, students will begin their

investigation of Asian popular culture by tracing the pre-modern roots of Asian cultural exchange when empires ruled not by political or military might, but what one scholar termed the 'theater state' or, put more simply, cultural persuasion. In contrast, however, common people often subverted state orthodoxy and state policies, in ways ranging from the stories told about local gods to access to martial arts training to marriage practices. Out of this contestation over the meanings and presentations of popular culture symbols and forms, students will be introduced to the various and diverse 'vehicles' for popular culture, from the early modern period up to the present day.

Themes and topics will vary depending on the instructor, but may include cities and urban culture, villages and rural culture, theater, film, mass literature, youth culture, "ethnicity" as culture, music, dance, opera, wartime culture and propaganda, advertising, sexuality, gender and its representations, martial arts and militarism, popular religion, weddings and marriage practices, and so on.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 188 (GH;IL) (ASIA 188) Tibet: People, Places and Space (3)** This course examines the historical, cultural, and ethnic dimensions of Tibet from the seventh century to the present.

**HIST (ASIA) 188 Tibet: People, Places and Spaces (3)  
(GH;IL)**

Few places generate as much curiosity, interest, or controversy, in the Western mind as Tibet. This course examines Tibet from a variety of perspectives from Tibet's political unification under a single ruler in the seventh century up to Tibet's incorporation into the People's Republic of China in the latter half of the twentieth century.

Adopting a Tibet-centered focus, this course probes three core dimensions of Tibet namely its people, its religion and its strong sense of place to allow for a more nuanced and comprehensive understanding of Tibet to emerge. It will also include an introductory unit that orients the students to Tibetan language, religion and basic terminology so that even those with no prior exposure to Tibet or Asia will be able to engage the material that follows.

Given Tibet's unique placement at the confluence of West, South, Central and East Asia, to understand Tibet one must understand the traditions of its neighbors. As a result the course will place particular attention to the unique blended cultural, religious and political structures that emerged. Similarly, external perspectives of Tibet have often warped or created elaborate interpretive lens through which Tibet is understood as a 'land of mystery.' Through an examination of Tibet's key religious and political institutions such as the Dalai Lama, Panchen Lama, and myriad saints a better understanding of the processes by which leadership is understood, construed and even manipulated is highlighted. Similarly, unvarnished consideration of Tibetan's religious and social institutions such as monasteries, traders and local political institutions help offer a fuller picture of Tibetan life.

This course should be useful for those with an interest in Asian history generally as well as students with background in non-history disciplines such as anthropology, religion, or political science. No background or specialized knowledge about Tibet is expected though a willingness to read primary documents on a variety of religious, ethnic and political themes will be quite useful. In this course students can expect to gain an appreciation for how religion, history and politics contribute to contemporary portrayals of Tibet, Tibetans and their society. Classes will generally consist of lectures, films and discussion.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 189 (GH;IL) (ASIA 189) Illicit Asia: An Alternative Introduction to Asia (3)** A historical introduction to unlawful, illegitimate and forbidden ideas, goods people and places in modern Asia.

**HIST (ASIA) 189 Illicit Asia: An Alternative Introduction to Asia (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines patterns of illicit ideas, goods, peoples and places of modern Asia. Traditional introductions to Asia emphasize a history of the powerful, of the center, of the victors. This course seeks to invert the customary narrative by telling the tale of Asia's early modern and modern past from the perspective of those working against the interest of the elite, popular and mainstream.

At the same time, traditional introductions to Asia often risk perpetuating stereotypes of a mysterious, sinister Orient. In fact, dominant discourses both cross-culturally (such as Orientalism) and within a given society (such as elite nationalism) have tended to criminalize or pathologize all kinds of countercultures, alternate economies, non-normative sexual practices, and so forth. But attitudes to orthodoxy and legality may depend on one's relationship to the dominant system, and the dominant narrative. This class seeks to reveal those phenomena in a different light, according to their own contextual logic. Often omitted or ignored, understanding why illegal activity occurs, how it occurs and who the relevant actors are can offer an extremely potent introduction to the roles traditional boundaries of political, cultural and societal activity played in the shaping of Modern Asia.

Specific content and regional focus will vary according to individual instructor, but the course will be divided into four general sections that focus on forbidden ideas, goods, places and peoples. Topics may unpack heterodox beliefs like secret societies or anarchist movements; trace the production and distribution of illegal goods like opium or counterfeit items; map out notorious places like the Golden Triangle or the internal workings of human traffickers; or examine the practices and scope of criminal elements like pirates or brigands. The objectives of the course are not only to learn about the illicit activities across modern Asia, but are also organized to encourage us to rethink the way we understand standard interpretations of the past and the factors that go into those perceptions. Students will also consider the changing justifications for and definitions of what is legal, normal and orthodox.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 191 (GH;IL) (AFR 191) Early African History (3)** Explores important economic and cultural transformations in the making of early African empires from 1 MBC to 1750.

**HIST (AAA S) 191 Early African History (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course is an introduction to the history of Africa south of the Sahara from the origins of humankind to roughly 1750. Since it is not possible to undertake a systematic survey of the period -- the continent is too vast and our data too sparse -- we will focus on a number of common themes in the cultural and historical development of African societies. We will start with an introduction to African cultures and the problems in studying them, move on to examine the evidence for the early origins of humans on the African continent, the agricultural revolution, and ancient African kingdoms, empires and civilizations (including Egypt). We will then explore three interrelated themes in the history of Africa from the 16th-18th centuries: trade, state formation, and the spread of Islam. Finally, we will turn to an examination of the slave trade and its impact on Africa and the Americas. This is also a course in historical reconstruction and analysis. There are few documentary sources for this period and much of the data we have is fragmentary. The resulting history consists largely of long-term social changes rather than detailed narrative. We must thus learn to reconstruct history from what evidence is available, using general principles of African social, economic, and political organization that we will develop in class. Typically, students will be evaluated on the basis of a map quiz, short papers, exams that have both an identification and essay component, and participation in class discussions and debates. AAA S/HIST 191 provides an excellent foundation for both AAA S/HIST 192 (Modern African History) and History 479 (imperialism and Nationalism in Africa). In addition to satisfying the GI requirement, AAA S/HIST 192 satisfies general credit requirements for the history major or minor, including the "non-western" component of the major. Non-majors may use this course to satisfy a general education humanities selection. The course also may be used to fulfill requirements for the African and African-American Studies major and the African Studies minor.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 192 (GH;IL) (AFR 192) Modern African History (3)** Impact of the slave trade, expansion of Islam, colonial conquest, social and cultural transformations, resistance, nationalism, and independence.

**HIST (AAA S) 192 Modern African History (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the colonial period in Africa from roughly 1750 to the present. Given the vast geographical breadth of the African continent, its diverse peoples and cultures, and the divergent trajectories of colonial rule, this course cannot provide a comprehensive overview of the modern era in Africa. Rather, it considers some of the most significant transformations in modern African history, including the impact of the Atlantic slave trade and the transition to 'legitimate

commerce'; the causes and consequences of European imperial conquest from the 1870's; the dynamics of the colonial encounter; the struggles of African peoples for independence in the 1950's and 1960's; and the enduring impact of the colonial experience on contemporary African social, political, and economic realities. The course is designed to familiarize students with the major events and chronology of modern sub-Saharan African history, and to provide an overview of the key themes and theoretical debates which animate contemporary African historiography. Emphasis throughout the course will be on the understanding and application of historical arguments and theories to available information. The course is intended to help students develop analytical skills vital to the discipline of history, which include the ability to collect and analyze evidence and to construct arguments in both oral and written presentations. To this end, students will have the opportunity to practice both identifying and building arguments by writing several focused short papers that deal with the material covered in a week of class lectures and readings. In these papers, as well as in the two essay exams, students will be asked to generate thesis-driven responses to particular historical problems encountered in the course material. The short papers are intended to promote active engagement with the course material and will be used as the basis for in-class discussions and debates. Typically, students are evaluated on a map quiz, several short papers, participating in class discussions of assigned readings, and exams which have both an identification and essay component. The course content of AAA S/HIST 192 is designed to chronologically follow that of AAA S/HIST 191 (Early African History), and provides an excellent foundation for History 479 (Imperialism and Nationalism in Africa), for which it is a prerequisite. In addition to satisfying the GI requirement, AAA S/HIST 192 satisfies general credit requirements for the history major or minor, including the "non-western" component of the major. Non-majors may use this course to satisfy a general education humanities selection. The course also may be used to fulfill requirements for the African and African-American Studies major and the African Studies minor. This course is offered once a year with 50 seats per offering.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 197A (J ST 197A)** East European Jewish History (3) This course examines the history of Jewish life in Eastern European beginning with its Medieval origins and up through the Holocaust. Topics to be covered include religious, political, social, and cultural transformations, in the context of the general political changes in this area.

#### **East European Jewish History (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 197A (J ST 197A)** East European Jewish History (3) This course examines the history of Jewish life in Eastern European beginning with its Medieval origins and up through the Holocaust. Topics to be covered include religious, political, social, and cultural transformations, in the context of the general political changes in this area.

#### **East European Jewish History (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 197B** London Calling: Ordering the World - the Trip (0.5) This course will take students on an 8-day exploration of London and surrounding areas. Students will be expected to attend all scheduled visits and to act as responsible representatives of Penn State Altoona while abroad. Students will also be asked to compose short writings during the trip that respond to our site visits and to write a final evaluative paper after the trip.



**London Calling: Ordering the World - the Trip (0.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 197H** (ANTH 197H, RL ST 197H) Religion and Society in Russia (1) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Religion and Society in Russia (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 199** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 200** (US) American Local History (3 per semester/maximum of 6) Topics in American local history relating local to national developments and studying the historical method by using primary source material.

**American Local History (3 per semester/maximum of 6)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 020 or HIST 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 205** (GH;US) (J ST 205) American Antisemitism (3) The Phenomenon of antisemitism in American history from Peter Stuyvesant to the present.

**HIST (J ST/RL ST) 205 American Antisemitism (3)  
(GH;US)**

This course explores the phenomenon of antisemitism in American history from the time of Peter Stuyvesant to the present. The significance and role of American antisemitic movements and authors, as well as its role in American society and culture, are examined and compared to those in European history over the same periods. At the same time, the impact of antisemitism on the lives and mentalities of American Jews is discussed. The course focuses on readings taken from original sources and recent historical treatments. The readings include material on colonial texts, Grant's notorious Order, nativists and anti-immigration texts, Gilded Age antisemitism, the Immigration Acts of the 1920's, Henry Ford's antisemitic campaign, Southern antisemitism and the Leo Frank case, the quota system at American universities, employment discrimination, the "Gentlemen's Agreement" system, Black antisemitism, and the New Antisemitism.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 210** (GH;US) (AF AM 210) Freedom's First Generation: African American Life and Work, 1865 to World War II (3) The course will explore the context and events that shaped African American life over the period 1896-1932.

**HIST (AF AM) 210 Freedom's First Generation: African American Life and Work, 1865 to World War II (3)**  
**(GH;US)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the emergence of the Atlantic World Black Diaspora from the 15th through the 19th centuries with the United States as its central focus. We begin with a brief discussion of African societies at the beginning of the Transatlantic Slave trade, discussing the various ethnicities, cultures, societies, and states. We then discuss the emergence of the TST and its consequences for the forging of the modern world and its centrality to the rise of modern capitalism. The forced migration of over 10 million people of African descent resulted in a massive dispersal of various cultures, ideas, religious systems, foods, crops, and ideologies--all of which formed the Black Diaspora. We look at the centrality of these various cultures and ideas to the successful rise of the American colonies, including the skills that Africans brought to the emerging staple crop economies, the knowledge of plants, foods, crops, and healing practices. We look at both the evolution of American slave societies in the North and the South, as well as the rise of Free Black communities. We use documents and readings to understand the multiple contributions of African Americans to science, literature, and music. Of major importance is the formation of slave communities, kinship networks, the rise of an African American religion, and various forms of resistance to slavery that included running away, daily forms of resistance, and actual slave revolts. We also discuss the rise of a special form of "slave politics" that shapes evolving notions of freedom. In addition to discussions of southern and northern slave society, we also look at the role of free blacks in the antebellum reform movements, especially the abolitionist movement. The course concludes with the coming of the Civil War and a discussion of the multiple ways that African Americans played a role in accelerating the road to war and in facilitating their own emancipation.

General Education: GH

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 three credits of American history or permission of the instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.**HIST 210 (GH;US) (AF AM 210) Freedom's First Generation: African American Life and Work, 1865 to World War II (3)** The course will explore the context and events that shaped African American life over the period 1896-1932.**HIST (AF AM) 210 Freedom's First Generation: African American Life and Work, 1865 to World War II (3)**  
**(GH;US)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the emergence of the Atlantic World Black Diaspora from the 15th through the 19th centuries with the United States as its central focus. We begin with a brief discussion of African societies at the beginning of the Transatlantic Slave trade, discussing the various ethnicities, cultures, societies, and states. We then discuss the emergence of the TST and its consequences for the forging of the modern world and its centrality to the rise of modern capitalism. The forced migration of over 10 million people of African descent resulted in a massive dispersal of various cultures, ideas, religious systems, foods, crops, and ideologies--all of which formed the Black Diaspora. We look at the centrality of these various cultures and ideas to the successful rise of the American colonies, including the skills that Africans brought to the emerging staple crop economies, the knowledge of plants, foods, crops, and healing practices. We look at both the evolution of American slave societies in the North and the South, as well as the rise of Free Black communities. We use documents and readings to understand the multiple contributions of African Americans to science, literature, and music. Of major importance is the formation of slave communities, kinship networks, the rise of an African American religion, and various forms of resistance to slavery that included running away, daily forms of resistance, and actual slave revolts. We also discuss the rise of a special form of "slave politics" that shapes evolving notions of freedom. In addition to discussions of southern and northern slave society, we also look at the role of free blacks in the antebellum reform movements, especially the abolitionist movement. The course concludes with the coming of the Civil War and a discussion of the multiple ways that African Americans played a role in accelerating the road to war and in facilitating their own emancipation.

General Education: GH

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 three credits of American history or permission of the instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.**HIST 211 (GH;US;IL) (AF AM 211) Slavery and Freedom in the Black Atlantic (3)** The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.

**HIST (AF AM) 211 Slavery and Freedom in the Black Atlantic (3)**  
**(GH;US;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the emergence of the Atlantic World Black Diaspora from the 15th through the 19th centuries with the United States as its central focus. We begin with a brief discussion of African societies at the beginning of the Transatlantic Slave trade, discussing the various ethnicities, cultures, societies, and states. We then discuss the emergence of the TST and its consequences for the forging of the modern world and its centrality to the rise of modern capitalism. The forced migration of over 10 million people of African descent resulted in a massive dispersal of various cultures, ideas, religious systems, foods, crops, and ideologies--all of which formed the Black Diaspora. We look at the centrality of these various cultures and ideas to the successful rise of the American colonies, including the skills that Africans brought to the emerging staple crop economies, the knowledge of plants, foods, crops, and healing practices. We look at both the evolution of American slave societies in the North and the South, as well as the rise of Free Black communities. We use documents and readings to understand the multiple contributions of African Americans to science, literature, and music. Of major importance is the formation of slave communities, kinship networks, the rise of an African American religion, and various forms of resistance to slavery that included running away, daily forms of resistance, and actual slave revolts. We also discuss the rise of a special form of "slave politics" that shapes evolving notions of freedom. In addition to discussions of southern and northern slave society, we also look at the role of free blacks in the antebellum reform movements, especially the abolitionist movement. The course concludes with the coming of the Civil War and a discussion of the multiple ways that African Americans played a role in accelerating the road to war and in facilitating their own emancipation.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.**HIST 211 (GH;US;IL) (AF AM 211) Slavery and Freedom in the Black Atlantic (3)** The course will explore the history and role of African and African-descent people in Africa, the Americas, and Europe.**HIST (AF AM) 211 Slavery and Freedom in the Black Atlantic (3)**  
**(GH;US;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the emergence of the Atlantic World Black Diaspora from the 15th through the 19th centuries with the United States as its central focus. We begin with a brief discussion of African societies at the beginning of the Transatlantic Slave trade, discussing the various ethnicities, cultures, societies, and states. We then discuss the emergence of the TST and its consequences for the forging of the modern world and its centrality to the rise of modern capitalism. The forced migration of over 10 million people of African descent resulted in a massive dispersal of various cultures, ideas, religious systems, foods, crops, and ideologies--all of which formed the Black Diaspora. We look at the centrality of these various cultures and ideas to the successful rise of the American colonies, including the skills that Africans brought to the emerging staple crop economies, the knowledge of plants, foods, crops, and healing practices. We look at both the evolution of American slave societies in the North and the South, as well as the rise of Free Black communities. We use documents and readings to understand the multiple contributions of African Americans to science, literature, and music. Of major importance is the formation of slave communities, kinship networks, the rise of an African American religion, and various forms of resistance to slavery that included running away, daily forms of resistance, and actual slave revolts. We also discuss the rise of a special form of "slave politics" that shapes evolving notions of freedom. In addition to discussions of southern and northern slave society, we also look at the role of free blacks in the antebellum reform movements, especially the abolitionist movement. The course concludes with the coming of the Civil War and a discussion of the multiple ways that African Americans played a role in accelerating the road to war and in facilitating their own emancipation.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2015 Future: Spring 2015

Prerequisite: AF AM 100 or HIST 003 or HIST 020 or HIST 021 or HIST 152

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.**HIST 220 (GH;IL) (J ST 220) The Jewish and Other Diasporas (3)** Introduction to and survey of the Jewish and other Diasporas around the world.

**HIST (J ST) 220 The Jewish and Other Diasporas (3)**  
**(GH;IL)**

The long dominant view that the Jewish experience since antiquity defines Diaspora as a concept has been challenged in recent years. The meaning of the term Diaspora and related terms, especially (ethnic and/or national) identity and (ethnic and/or national) community, is a matter of much debate across disciplines. The longevity and diversity of distinct Jewish communities around the globe make the Jewish case a particularly interesting subject for study. In a wide geographical, chronological and disciplinary comparative sweep, the course will explore the diverse nature of ethno-national and ethno-religious diasporas (and sub-diasporas), their position vis-à-vis their place of origin ("homeland") and their new surrounding culture and society. More specifically, the course will analyze how Diaspora communities in Europe, Asia, and the Atlantic world reconstituted their identities as they expanded into new environments and encountered other cultures, from antiquity to the present. Emphasis will be placed on exploration of the intersection of politics and culture in respect to race, nationality, ethnicity, gender and class. A key question guiding the discussions will relate to the usefulness and limitations of the Diaspora concept, especially in regard to the discourse about globalization where the term is often used.

The course will begin with an extensive discussion of theoretical texts about the Diaspora phenomenon. This is followed by case studies of several larger Diasporas, ranging from the Jewish, the Greek to the Chinese Diaspora. Several case studies, notably the Muslim Diaspora, the concept of a victim Diaspora, or alternative Diasporas highlight the limitations of the Diaspora concept.

The course introduces students to interdisciplinary approaches, placing some emphasis on the use of theoretical texts written by historians, sociologists, political scientists, and anthropologists. The course includes a one-day field trip to the Lower Eastside in New York (visit of the Museum of Chinese in America, walking tour of the Lower Eastside to explore the history of a key American immigrant neighborhood).

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 235 (US;IL) (J ST 235, RL ST 235) The Church and the Jews (3)** Examination of the relationship between Western church and the Jews from the First Century to Enlightenment.

**HIST 235 The Church and the Jews (3)**  
**(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine a key aspect of western history - the complex relationship between the Western (Roman Catholic) Church and the Jews, from the first century to the present. We will analyze ideas and policies regarding Jews as expressed in different realms, from theology and canon law to church art and popular preaching. We will also examine how changing conditions led to striking changes in church attitudes and policy, and how church policy was often at odds with popular sentiments about Jews.

The course will be designed to enable students to grasp the fluidity of attitudes over time, and the interplay of economic, social, political, and theological factors; to grasp of essential elements of a key area of conflict in western culture; and to develop their skills in the close reading of primary texts.

Students will be evaluated on the basis of three quizzes and a final exam.

The course would offer a chance for students to develop perspectives previously gained in a number of courses, particularly HIST 001 and 002 (The Western Heritage), RL ST 001 (Introduction to World Religions), RL ST 101 (Comparative Religion), HIST 107 (Medieval Europe), HIST 407 (Early Medieval Society), and J ST 010 (Jewish Civilization). It would complement such courses as HIST 108 (The Crusades), HIST 408 (Church and State in the High Middle Ages), HIST 412 (Intellectual History of the Middle Ages), HIST 414 (Renaissance and Reformation), J ST 111 (Early Judaism), J ST 110 (Hebrew Bible), RL ST 120 (New Testament), and RL ST 124 (Early and Medieval Christianity).

The course will count for 3 credits toward a) the 22 credits required for the minor in Jewish Studies, b) the 33 credits required for the major in Jewish Studies, c) the 30 credits required for the major in Religious Studies, and d) the 36 credits required for the History major.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 250 (GH;IL) (AF AM 250) Introduction to the Modern Caribbean (3)** A survey course which explores the historical evolution and emergence of the modern Caribbean.

**HIST (AAA S) 250 Introduction to the Modern Caribbean (3)**  
**(GH;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course will explore the evolution of the Caribbean region from the eve of the arrival of Columbus to the 20th century. It will explore the emergence, migration, and evolution of Amerindian societies in the Caribbean islands prior to the arrival of Columbus. It will then explore the European-Amerindian interactions that lead to the disappearance of these indigenous peoples from the region and the consolidation of European colonial empires. The course will then explore the various forms of coercive labor systems that emerged in the region including indentureship, enslavement, transportation of European prisoners and other social outcasts, African slavery, and the establishment of the plantation system that defined the region until the 20th century using both free and unfree labor to maintain its dominance in these island societies until the late 20th century. The course will also cover the issue of slave resistance, the Haitian revolution, the formation of maroon communities, and the role of abolitionist politics as a factor in bringing an end to slavery. It will also look at the re-emergence of indentureship of Asians as a response to the crisis of labor and the growth of peasant agriculture in the 19th century Caribbean. The course will also explore the emergence of nationalist sentiment in the region, especially the way in which the decay of Spanish colonial authority and the rise of American imperial ambitions helped to set the stage for the nationalist awakening that defined the course of the 20th century in the region. This is the course that will complement and expand upon issues raised in AAA S/HIST 211 - The Emergence and Evolution of the Black Diaspora in the Atlantic World. It will also serve as an introduction to the 400-level course on the Caribbean in the 20th century that will be proposed simultaneously. The course will be required for students interested in pursuing the African Diaspora minor. It may be used to fulfill general education and diversity requirements. It can also be used as a course to meet non-Western history requirements in the History major. Evaluation will be based upon a book review, a mid-term, a research paper, and class discussion/participation.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 294 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 297B History Goes Outside (3)** Learn how historical thinking moves from scholars to the public -- examine museums, films, historic districts and some other professional pathways.

### **History Goes Outside (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 300B** American Historiography (3) Readings, group discussions, and oral and written reports on great historians, philosophy of history, and conflicting interpretations in American history.

### **American Historiography (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983  
Prerequisite: third-semester standing 6 credits in history with a grade of A or B an all-University average of B

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 300C** Independent Study (3) Readings and oral and written reports in areas to be arranged with the chairman of the Honors Committee.

### **Independent Study (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2012  
Prerequisite: HIST 300B

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 300D** Honors Thesis (3) Research paper in an area arranged with the chairman of the Honors Committee.

### **Honors Thesis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2012  
Prerequisite: HIST 300BHIST 300C

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 300H** Honors Course in History (3-12) No description available.

### **Honors Course in History (3-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 301W** Scope and Methods of History (3) A course designed to introduce students to the analysis, methods, and practices of historical writing and research.

**Scope and Methods of History (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: 3 credits in history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 302M** American Indian History (3) Thematic or topical investigation; emphasis on historical criticism and analysis.

**American Indian History (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: 4th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 302W** Undergraduate Seminar (3) Thematic or topical investigation; emphasis on historical criticism and analysis.

**HIST 302W Undergraduate Seminar (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The principal aim of the course is to assist in training History Majors in writing, analysis, and criticism by pursuing the study of one historical topic in detail. The precise contents of the course may vary in accordance with the teaching and research interests of the instructors. The course is not a conventional lecture course. It is, instead, designed in the seminar format with emphasis on discussion, sequential writing assignments, and further developing the core skills of the historian. Several features reflect its writing intensive designation. The course requires a series of writing exercises (with on-going instructor feedback), attention to relevant methods of research, all leading to the production of a final seminar paper. The final paper should effectively advance a reasoned argument derived from multiple sources (a portion of which must be primary sources when the historical topic permits).

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2014  
Prerequisite: 4th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 320** Contemporary World History and Issues (3) Aspects of global history in 20th and 21st centuries and study of selected trends and controversies.

**Contemporary World History and Issues (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 320W** Contemporary World History and Issues (3) Aspects of global history in 20th and 21st centuries and study of selected trends and controversies.

**Contemporary World History and Issues (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 399 (IL) Foreign Study--History (1-12)** Study in selected foreign countries of various periods and topics in history.

**Foreign Study--History (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 400 Research in Ancient Sources (3)** Guided research in the literature of ancient Mediterranean civilizations.

**Research in Ancient Sources (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: HIST 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 401 (IL) (J ST 401) Ancient Technologies and Socio-cultural History in the Ancient Levant (3)** Social and intellectual development in the Ancient Levant as they affected and were affected by technological development.

**Ancient Technologies and Socio-cultural History in the Ancient Levant (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: RL ST 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 402 (IL) The Rise of the Greek Polis (3)** Development of the Greek city-state from Homeric times to the fifth century B.C.; special references to Athenian society.

**The Rise of the Greek Polis (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 403 (IL) Alexander the Great and the Hellenistic World (3)** The career of Alexander, his impact on his own time, and the Hellenistic legacy.

**Alexander the Great and the Hellenistic World (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 405Y (IL) The Roman Empire (3)** The political and social history of the Roman empire; economic institutions and religious groups which influenced Roman administration.



**The Roman Empire (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: HIST 001/HIST 101 or 3 credits in classical studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 406W** Research in Medieval Sources (3) Guided research in the literature of medieval Europe.

**Research in Medieval Sources (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: HIST 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 407** (IL) Early Medieval Society (3) Rise of European nations and evolution of their social and political institutions from the time of Constantine to the Crusades.

**Early Medieval Society (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: HIST 107

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 408** (IL) Church and State in the High Middle Ages (3) European political, institutional, and social history in light of church- state tensions from the Crusades to the Renaissance.

**Church and State in the High Middle Ages (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: HIST 107

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 409Y** (IL) (J ST 409Y, RL ST 407Y) European Anti-Semitism from Antiquity to the Present (3) Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.

**HIST (J ST) 409Y (RL ST 407Y) European Anti-Semitism from Antiquity to the Present (3) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course analyzes major episodes in the history of anti-Semitism and tries to clarify the motives and dynamics involved. It seeks to understand what these episodes have in common and what is unique in each case--is there a single universal, eternal antisemitism? Or are there rather "anti-Semitismisms", each belonging to a unique historical context? Is there a single continuous line of development in anti-Semitism? What is the relationship of a particular anti-Semitism to the national culture in which it originates?

We will be reading the major original texts of anti-Semitism from Roman and ancient writers, through early Christian texts and medieval Christian Blood Libels against the Jews, documents of the Spanish expulsion, Lutheran tracts, Voltaire's essays, German philosophical texts from Kant to Marx, Wagner's racial essays, the Protocols of Zion, and documents of Nazi anti-Semitism by Hitler and Streicher.

The major part of the grade will depend on a short research paper which will be presented in various drafts, so that the final version represents the culmination of discussion and constructive criticism and advice. This course is a parallel course to J ST/HIST 416 (Zionist History) and J ST/HIST 118 (Modern Jewish History). This course will count toward the Religious Studies, Jewish Studies, and History majors and minors in the 400-level category.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 410 (US;IL) (J ST 410, RL ST 410) Jews in the Medieval World (3)** Trends in medieval Jewish society under Islam and Western Christendom.

**HIST 410 Jews in the Medieval World (3)**  
**(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Jews lived in widely scattered communities under Christian and Islamic rule in the medieval period. This course will examine how Jews adapted the traditions they developed in Palestine and Babylonia in the early centuries C.E. to the new conditions they encountered in Europe and the Mediterranean region from the ninth to the fifteenth centuries. It will focus on the general problem of how traditional societies survive in rapidly changing circumstances, particularly when their members are a minority population. The course will aim at developing students' skills in comparative analysis as they compare the adaptive strategies of Jews in different cultural spheres (the Franco-German region versus Spain, for example). They will also be asked to compare the different polemical stances Jews adopted vis-a-vis Christianity, on the one hand, and Islam, on the other. They will be encouraged to understand the ways in which Jews internalized certain aspects of the majority culture and rejected others. It is hoped that they will come to see how deeply Jewish history was intertwined with medieval Christian and Islamic history, despite inter-religious hostilities and the frequent need for Jews to defend against majority aggression.

Students will be evaluated on the basis of two mid-term exams (the first after the survey of the Muslim world, the second after the examination of the Franco-German region) and a comprehensive final exam.

The course will be linked to most of the courses taught in the field of Jewish Studies, especially J ST 111 (Early Judaism), J ST 114 (Modern Judaism), and J ST 118 (Modern Jewish History from 1492). It will also be linked to offerings in Religious Studies: RL ST 001 (Introduction to World Religions), RL ST 101 (Comparative Religion), RL ST 107 (Introduction to Islam), RL ST 124 (Early and Medieval Christianity), and RL ST 165 (Introduction to Islamic Civilization). Further, it would complement HIST 001 and 002 (The Western Heritage), HIST 107 (Medieval Europe), HIST 108 (The Crusades), HIST 407 (Early Medieval Society), HIST 408 (Church and State in the High Middle Ages), HIST 412 (Intellectual History of the Middle Ages), and HIST 471W (Classical Islamic Civilization, 600-1258).

The course will count for 3 credits toward: a) the 22 credits required for the minor in Jewish Studies, b) the 33 credits required for the major in Jewish Studies, c) the 30 credits required for the major in Religious Studies, and d) the 36 credits required for the History major. It will be offered once a year with an enrollment of approximately 60 students.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 411 (IL) (MEDVL 411) Medieval Britain (3)** Political, cultural, and economic history of Britain from circa 400 to 1485 with an emphasis on the kingdom of England.

**Medieval Britain (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: 6 credits in European history or medieval studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 412 (IL) Intellectual History of the Middle Ages (3)** Intensive study of selected topics, such as philosophy, mysticism, heresy, the church, literary and artistic expression, and science.

**Intellectual History of the Middle Ages (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 107

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 413 (IL) (MEDVL 413) Medieval Celtic Studies (3)** Celtic civilization from antiquity to the end of the middle ages.

**Medieval Celtic Studies (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: 3 credits in medieval studies or in language literature or European history of the medieval period

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 414 (IL) Renaissance and Reformation (3)** The transformation of consciousness from medieval to modern times, with special emphasis on Renaissance Italy and Reformation Germany.

**Renaissance and Reformation (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: HIST 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 415 (US;IL) Race, Gender, and Politics in the United States and South Africa (3)** This thematic course will compare key issues, figures, and events in the historical development of the United States and South Africa.

**Race, Gender, and Politics in the United States and South Africa (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2013

Prerequisite: AF AM 100AF AM 102AFR 110AFR 192 or HIST 152

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 416 (J ST 416) Zionist History 1890-1948 (3)** History of Zionist thought and politics to the foundation of Esrael 1948.

**Zionist History 1890-1948 (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1997

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 417 (IL) The Age of Absolutism (3)** Seventeenth- and eighteenth-century royal absolutism in France, Prussia, and Austria; concurrent economic, social, and scientific developments; the Enlightenment.

**The Age of Absolutism (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: HIST 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 418 (IL) The French Revolution and the Napoleonic Era (3)** Development of revolutionary France and the First French Empire and their impact on Europe from 1789 to the Vienna settlement.

**The French Revolution and the Napoleonic Era (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: HIST 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 418W (IL) The French Revolution and the Napoleonic Era (3)** Developments of revolutionary France and the First

French Empire and their impact on Europe from 1789 to the Vienna settlement.

### **The French Revolution and the Napoleonic Era (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2008  
 Prerequisite: HIST 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 419 (US;IL)** The History of Feminist Thought (3) A critical analysis of European and United States feminist thought from the renaissance to the present.

### **The History of Feminist Thought (3)**

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2013  
 Prerequisite: HIST 116HIST 117WMNST 100 orWMNST 106

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 420 (IL)** Recent European History (3) Impact of two World Wars in twentieth century; social conflict and economic catastrophe; political radicalism; post-1945 recovery and cooperation.

### **Recent European History (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: 3 credits in European history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 421 (IL) (WMNST 421)** The History of European Women (3) European women's lives from the Middle Ages to the present.

### **The History of European Women (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2013  
 Prerequisite: HIST 116HIST 117WMNST 100 orWMNST 106

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 424H (J ST 424H, RL ST 424H)** Monotheism and the Birth of the West (3) The birth of monotheism and its relation to social organization, the idea of individuality, and science.

### **HIST (J ST/RL ST) 424H (PHIL 434H) Monotheism and the Birth of the West (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Learn about the formation of Western culture while learning to analyze the texts and other evidence about its formation from a critical rather than naive viewpoint. The idea of monotheism probably arose very early, and was even briefly implemented as a state cultic policy in Egypt in the 14th century BCE. Why then did it take another seven centuries to become widespread--appearing in ancient Judah, Babylon and Ionia almost simultaneously? To answer this question, the course focuses on several developments through the medium of primary texts and archaeology: the shift from a state hinterland based in extensive agriculture and household processing to one organized for intensive agriculture and industrial processing the rise of recognizably modern science; the promotion of individuation and an international elite culture in the context of Assyrian and Babylonian imperial ambitions; the development of the historical and archaeological arts in the context of archaizing in order to re-invent local traditions; and the socialization of monotheism and of democracy. Students will be evaluated on their discussion of the textual evidence as well as on reports in class and a final paper. This is the sole honors course treating the birth of the West. It expands on knowledge acquired in courses listed as prerequisites and in ANTH/CAMS 012; CAMS 044; ANTH/CAMS 133; CAMS/PHIL 200; HIST 100; HIST/J ST 102; and PHIL 200 and enriches the student experience in CAMS 400, CAMS 440, CAMS 480; HIST 402; J ST 411; PHIL 437; PHIL 453, and PHIL 461. This course counts toward the major in Jewish Studies, History, and Religious Studies and toward the minor in Jewish Studies and Religious Studies.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2012

Prerequisite: CAMS 004CAMS 110CAMS 120 or HIST 102

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 427 (IL)** Germany Since 1860 (3) Bismarckian power-state; rise to economic dominance; welfare and warfare under Weimar republic and Hitler; post-1945 reconstruction and democracy.

**Germany Since 1860 (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: 3 credits in European history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 428 (IL)** (S T S 428) The Darwinian Revolution (3) The origins and implications of evolutionary theory.

**The Darwinian Revolution (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: an introductory science course and a history course

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 429** Europe in the Age of Nationalism, 1789-1914 (3) Emphasizing the role of nationalism in European cultural, diplomatic and imperial developments; concurrent economic and social changes.

**Europe in the Age of Nationalism, 1789-1914 (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: HIST 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 430 (IL)** Eastern Europe in Modern Times (3) Influence of geography, economic conditions, and nationalism upon the Eastern European and Balkan peoples; Pan-Slavism, conflicting interests of the great powers.

**Eastern Europe in Modern Times (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: HIST 001 or HIST 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 431 (US;IL)** (AF AM 431) Black Liberation and American Foreign Policy (3) This course deals with American foreign policy and Black liberation in Africa since 1945.

**HIST 431 Black Liberation and American Foreign Policy (3)  
(US;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Black Liberation and American Foreign Policy in Africa since 1945 presents an interdisciplinary approach to the study of American foreign policy in Africa. Course readings will consist of both secondary and primary sources to explore the evolution of American policy toward the continent over the last half-century, and the meaning of the American engagement with Africa for American politics and society.

The course will also examine the reasons that Africa has served as a focus of concern among African Americans both prior to, and, over the period 1945 to the present. Of particular concern will be the ways in which American policy has reflected pressures from African Americans as a constituency in foreign policy.

The focus of the course will be student-centered written research and discussion. Students will be required to select

topics from the course outline for presentation in class with the instructor serving as the moderator of discussion and guide to relevant research materials. Students will be encouraged to use both primary and secondary sources for their research. Students will be expected to prepare two individual written presentations which will serve as the basis for class discussion (30% of the grade), a book review (10% of the grade), and a research paper of 15 pages (40% of the grade) on a topic drawn from the areas identified in the course outline. The final 20% of the grade will be awarded for participation in class discussion.

General Education: None

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Fall 2012

Prerequisite: 3 credits in African history; 3 credits in African political science; or 3 credits in American political science

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 432 (IL) (AF AM 432) Between Nation and Empire: The Caribbean in the 20th Century (3)** An exploration of the political evolution of the Caribbean Region over the course of the 20th Century.

**HIST (AAA S) 432 Between Nation and Empire: The Caribbean in the 20th Century (3) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will explore the political evolution of the Caribbean Region over the course of the 20th century. Its focus will be the ways in which imperial rule and the search for national identity have been the parameters that have shaped Caribbean political history over that period. Students will explore, in written assignments and class presentations, the ways in which the region which has historically been a theatre of confrontation among the major powers in the international system continued to serve that role over the course of the 20th century. The costs that have been borne by the people of the region from these conflicts have been enormous and crippling for several societies, especially Haiti, Cuba, Jamaica, and the Dominican Republic. Among those costs have also been the continued dependence of these societies upon human migration, limited economic strategies of transformation, increasing levels of poverty, and the emergence of a wide variety of political systems that reflect different historical experiences, demographic diversity, varying levels of political autonomy, and a remarkable level of cultural similarities. Evaluation will be based upon two class presentations; one research paper and class participation. The course will be required for students pursuing the African Diaspora minor and for those seeking to broaden their diversity requirements. It can be used to meet non-Western history requirements in the History major.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2012

Prerequisite: HIST 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 433 (IL) Imperial Russia, 1700-1917 (3)** Enlightened absolutism, mercantilism, westernization; economic progress, liberal reforms, and revolutionary movement; major intellectual and cultural trends; Russia as great power.

**Imperial Russia, 1700-1917 (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: HIST 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 434 (IL) History of the Soviet Union (3)** Revolution; social, political, economic, and cultural continuity and change in the U.S.S.R. since 1917.

**History of the Soviet Union (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: HIST 141 or HIST 142

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 435 Topics in European History (3 per semester/maximum of 9)** Study of a particular period or country in European history, its significance and relation to other areas and the present. (May be repeated for credit.)

**Topics in European History (3 per semester/maximum of 9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: HIST 001 or HIST 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 436 (IL)** Great Britain Under the Tudors and Stuarts, 1485-1688 (3) Religious, political, and constitutional developments in the British Isles.

**Great Britain Under the Tudors and Stuarts, 1485-1688 (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 001 or HIST 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 437 (IL)** Great Britain 1688-1867 (3) Social, economic, and political history of Great Britain from late Stuart times until the mid-Victorian era.

**Great Britain 1688-1867 (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 001 or HIST 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 438 (IL)** Great Britain 1867-Present (3) Social, economic, and political history of Great Britain from the mid-Victorian era to the present.

**Great Britain 1867-Present (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 001 or HIST 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 440 (US)** Colonial America to 1753 (3) Background, establishment, and growth of the American colonies, including economic, political, social, religious, and intellectual developments.

**Colonial America to 1753 (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 020 3 additional credits in history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 441 (US)** Revolutionary America, 1753-1783 (3) Forces in Great Britain and America causing withdrawal of thirteen colonies from the British Empire and the Revolutionary War.

**Revolutionary America, 1753-1783 (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 020 3 additional credits in history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 442 (US)** The Early American Republic, 1783-1850 (3) Confederation and Constitution; the Federalist and Jeffersonian periods; "the Era of Good Feelings"; "the Age of Jackson."

**The Early American Republic, 1783-1850 (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: 3 credits in American history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 444 (US)** The United States in Civil War and Reconstruction--1850-1877 (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

**The United States in Civil War and Reconstruction--1850-1877 (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 130

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 444U (US)** The United States in Civil War and Reconstruction--1850-1877 (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

**The United States in Civil War and Reconstruction--1850-1877 (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: HIST 130

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 444U (US)** The United States in Civil War and Reconstruction--1850-1877 (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

**The United States in Civil War and Reconstruction--1850-1877 (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: HIST 130

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 444W (US)** The United States in Civil War and Reconstruction--1850-1877 (3) Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of reconstruction.

**The United States in Civil War and Reconstruction--1850-1877 (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2008  
Prerequisite: HIST 130 or HIST 020

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 445 (US)** The Emergence of Modern America (3) Economic, social, political history of the United States, 1877-1919, emphasizing growth of industrialism and development as a modern nation.

**The Emergence of Modern America (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 021 3 additional credits in history economics or political science



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 446 (US) America Between the Wars (3)** The Roaring Twenties, the Great Crash, Depression, and New Deal; war debts, reparations, isolationism, and World War II.

**America Between the Wars (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 447 (US) (AM ST 447) Recent American History (3)** Contemporary economic, social, and political aspects of the United States and its role as a world power since 1945.

**HIST 447 (AM ST) Recent American History (3)**

This course covers the history of the United States from the end of World War II to the present. Topics include but are not limited to the Marshall Plan, the Cold War, the Korean War, the rise of television, atomic power, the Eisenhower presidency, the Civil Rights and Women's Movements, the Vietnam War and protests, the space race, Watergate, the Reagan presidency, the two Iraq Wars, the Dot-com revolution, 9-11 and the War on Terror, and the Obama presidency. While addressing major historical movements, the course will also explore the culture of the period –art, literature, music, sports, television, religion, and film. Even though the course covers a relatively short span of years, students will see that American society has undergone dramatic changes in this period as the result of social movements, immigration, wars, political scandal, and technological innovation. The course will close by speculating on the current direction of the United States in light of the serious challenges the nation faces.

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2014  
Prerequisite: HIST 021 3 additional credits in history economics or political science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 448 (US) America in the 1960s (3)** Social, political, and cultural themes in the United States in the 1960s.

**America in the 1960s (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 449 (US) Constitutional History of the United States to 1877 (3)** Colonial background; framing and adoption of the constitution; development of the court under Marshall and Taney; sectionalism, Civil War, Reconstruction.

**Constitutional History of the United States to 1877 (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 020 or HIST 021 3 additional credits in history or political science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 450 (US) Constitutional History of the United States Since 1877 (3)** Constitutional developments from laissez-faire to the welfare state; imperialism, war, internationalism; the contemporary court, civil liberties, and civil rights.

**Constitutional History of the United States Since 1877 (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: HIST 020 or HIST 021 3 additional credits in history or political science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 451 (US)** The Consumer Revolution (3) The origins and impact of American consumer society since 1870.

**HIST 451 The Consumer Revolution (3)  
(US)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This lecture course shows how the United States became a nation of consumers from 1870 to the present. It is designed both for the business and communications student as well as the liberal arts major. The origins of department stores, name-brand goods, fast-food chains, modern advertising, and mass entertainment show us how American business and culture was transformed by the consumer revolution. We will explore how the automobile became the leading consumer good of the 20th century and analyze its impact on how Americans shopped. The rise of advertising and its linkage to home-based mass entertainment through the radio and TV will interest us. We will also consider how events like the Great Depression, World War II, the counter-cultural movement of the 1960s, the energy crisis of the 1970s, and the economic deregulation of the 1980s and 90s shaped consumer attitudes and advertising. "The Consumer Revolution" also briefly explains how American consumer culture has been globalized (with companies like Coca Cola, Disney, and Ford).

The course also explores how new consumer goods shaped the experience of childhood, youth, family and home life, and retirement. In particular, we will consider how youth-oriented goods in fashion, foods, and entertainment created a unique youth consumer culture. Also important are the intellectual debates about the meaning and value of consumer society: Is mass consumption the real meaning of American democracy or is it a perversion of it? Are consumer needs unlimited and where does the desire for goods come from? Because consumer society seemed to threaten so many traditional values, we will also analyze movements for restricting consumption. We will consider the origins and impact of Prohibition, dieting and health food crazes, and movements to restrict advertising and sale of goods like cigarettes.

In addition to lectures and visual presentations in class, students will read chapters from major studies of the above topics, some of which will be discussed in class. Grades will be based on performance in discussion and essay exams.

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: three credits in history marketing or advertising

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 452 (US;IL)** History of U.S. Foreign Relations (3) History of U.S. foreign relations since 1789; emphasis on twentieth century.

**History of U.S. Foreign Relations (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 453** American Environmental History (3) The history of the ways Americans have used and thought about the environment since 1500.

**American Environmental History (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Social and Behavioral Sciences

Effective: Summer 2012

Prerequisite: GEOG 030 ; and HIST 020 HIST 021 ; or 6 credits in the humanities or social sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 454 (US)** American Military History (3) Development of U.S. military policy, 1776 to the present, emphasizing the conduct of our wars, interrelationship of civil and military authority.

**American Military History (3)**

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: HIST 020 or HIST 021

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 456Y (US)** The Social History of American Vernacular Building, 1607-1980 (3) Social, historical, and cultural context of American building including settlements, housing, workplaces, stores, recreational facilities; changes over time.

**The Social History of American Vernacular Building, 1607-1980 (3)**

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: 3 credits in American history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 457 (US;IL)** (S T S 457, WMNST 457) The History of Women in Science (3) Critical analysis of the roles women, gender, and minorities have played in natural sciences.

**The History of Women in Science (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2013

Prerequisite: HIST 116HIST 117WMNST 100WMNST 106 orWMNST 157

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 458Y (US)** (LER 458Y) History of Work in America (3) A study of selected problems in the history of work in the United States, especially since 1877.

**History of Work in America (3)**

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: HIST 021HIST 156 orLER 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 459Y (US)** Social and Cultural History of the United States Since 1783 (3) Role of immigration, social reform movements, religion, education, science, literature, and the arts in American history.

**Social and Cultural History of the United States Since 1783 (3)**

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 460 (US;IL)** United States Foreign Intelligence (3) Aims, methods, and organization of U.S. foreign intelligence from the American Revolution to the Cold War and beyond.

**United States Foreign Intelligence (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 461 (US;IL)** The Emergence of the American City: 1100-1880 (3) The growth of American cities from their urban origins in Europe and the Native-American Southwest to 1880.

**The Emergence of the American City: 1100-1880 (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 462 (US;IL)** The Twentieth Century City (3) Political, economic, social, and cultural transformations in American cities from 1880 to 2000.

**The Twentieth Century City (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 463 (US)** American Thought to 1865 (3) Introduction to, scholarly commentary on, major documents of American Intellectual history, early colonial period to end of the Civil War.

**HIST 463 American Thought to 1865 (3)  
(US)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

To offer such a course without some treatment of race, class, and gender diversity would be undesirable indeed, irresponsible. The movements for the abolition of slavery, for women's rights, and for the rights of workers will receive prominent and necessary attention. The history department does not, however, seek to invade the territories of programs and/or departments that are primarily concerned with women and racial or ethnic minorities. This course will cover such material in ways specifically appropriate to the contacts with American-Indian, Asian-American, African-American and Spanish-speaking populations.

This course will focus on documents produced by men and women of various class and ethnic backgrounds who are assumed to have participated actively in the American intellectual tradition. Discussions of the ideas and publications of well-educated individuals will to some extent dominate the content of the proposed course. Thus, for obvious reasons, it must address the historical importance of documents such as Thomas Jefferson's Notes on the State of Virginia, and Harriet Beecher Stowe's Uncle Tom's Cabin. These documents are of unquestionable importance to American intellectual history, but due to constraints of time, it is not always possible to discuss their historical importance as cultural documents in the existing American history courses. A highly literate African-American essayist like Francis Ellen Watkins Harper is also an obvious candidate for inclusion in this course. A less educated person like Anna Murray Douglass, although she was an important and interesting figure, whose life and values merit serious reflection, could hardly have left behind a body of writings. Francis Harper, on the other hand, commented significantly on the ideological movements of her times. The course is admittedly biased in favor of highly literate historical figures, who interacted with the traditions of American thought and writing.

An example of evaluation methods would be: Students will be expected to write a mid-semester and a final examination, and to prepare a written paper outside of class. Graduate students will be expected to draft a potentially publishable article, which may be archival, historiographical, or interpretive.

General Education: None  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: any American history course at the college freshman level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 464 (US)** American Thought from 1865 (3) Introduction to, scholarly commentary on, major documents of American Intellectual history from end of the Civil War to the present.

**HIST 464 American Thought from 1865  
(US)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

HIST 464 is intended to fill several needs. First, to introduce advanced undergraduates and beginning graduate students to documents of American thought of the sort collected by David A. Hollinger and Charles Capper in the American Intellectual Tradition (New York: Oxford University Press, 1989). Second, to offer a systematic survey of a standard area of American history that students might wish to approach as a coherent field. Third, to provide students with exposure to the bibliography and the historiography of American intellectual history as an established sub-field of American history. It is intended that either semester of the course may be elected independently of the other.

An example of evaluation methods would be: Students will be expected to write a mid-semester and a final examination, and to prepare a written paper outside of class. Graduate students will be expected to draft a potentially publishable article, which may be archival, historiographical, or interpretive.

General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: any American history course at the college freshman level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 465 (US) (AF AM 465) The Post-World War II Civil Rights Movement (3)** The civil rights struggle and its impact upon American politics.

**HIST (AF AM) 465 The Post-World War II Civil Rights Movement (3)  
 (US)**

This course focuses on the post-World War II Civil Rights Movement. It begins with a discussion of the "Long Civil Rights Movement," briefly looking at the roots of the movement in the labor movement and social struggles of the Great Depression and World War II. We then turn to the impact of World War II on African Americans, the growing militancy during the war, the struggles over segregation in the military, the growing role of blacks in the labor movement, and the growing link between African Americans and the rising anti-imperial movements that accelerated after the war. We discuss the role of African Americans in the Cold War and the struggles over the role of Communism and Socialism in the emerging Civil Rights Movement. The course is broken down into key topics of the movement years: the rise of localized grassroots movements all over the United States that were led by local people who sought to challenge school segregation, political disfranchisement, poor housing conditions, police brutality, and job discrimination. While legal disfranchisement and segregation existed solely in the southern states, the entire country practiced both and black people suffered the consequences universally. Much time is spent on the more famous southern civil rights movement, with discussions of the Emmett Till Murder of 1955; the Montgomery Bus Boycott and the rise of Martin Luther King, Jr. and the Southern Christian Leadership Conference; and the Little Rock Crisis of 1957. The beginning of the 1960s saw the creation of the Student Non-Violent Coordinating Committee and the emergence of key women leaders in the struggle such as Mrs. Ella Baker, Mrs. Fannie Lou Hamer, Mrs. Rosa Parks, and Mrs. Septima Clark, to name only a few. We discuss key moments in the 1960s, beginning with SNCC and CORE and the Freedom Rides, the SCLC in Birmingham and Albany; the March on Washington, the 1964 Mississippi Freedom Summer and the murders of Chaney, Goodman, Schwerner, and Medgar Evers; the 1965 Selma to Montgomery March, and the final passage of the 1964 Civil Rights Act and the 1965 Voting Rights Act. The emphasis on the southern struggle is on the local, ordinary people who achieved extraordinary things.

General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: AF AM 100HIST 021HIST 152PL SC 001 or PL SC 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 465 (US) (AF AM 465) The Post-World War II Civil Rights Movement (3)** The civil rights struggle and its impact upon American politics.

**HIST (AF AM) 465 The Post-World War II Civil Rights Movement (3)  
 (US)**

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General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: AF AM 100HIST 021HIST 152PL SC 001 or PL SC 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 466 (US;IL) (WMNST 466) Lesbian and Gay History (3)** Critical exploration of the history of sexuality, focusing especially on the emergence of modern lesbian and gay identities.

**HIST (WMNST) 466 Lesbian and Gay History (3)**  
**(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will explore the relationships in different cultures and historical periods between the dominant culture and homosexuals, whom the culture deemed, at different times, sinful, deviant, criminal or, more recently, a minority community. Students will confront the very nature of difference, and how it has been played out in European and American history. The course will challenge students to deal with how societies define difference itself; how they isolate or punish deviants; and how the creation of the "homosexual" helped establish not simply difference but "normalcy" in a highly sexualized modern culture. Finally, the course will explore notions of identity itself, focusing on the creation of a modern gay and lesbian identity and its impact on broader questions of gender, community, civil rights, and political discourse in the United States.

An example of evaluation methods would be: course presented in a seminar format with grades based on class participation, brief analytical papers, and a longer research or historiographic paper. This course will fulfill a requirement for 400-level courses in both History and Women's Studies majors.

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2013  
 Prerequisite: HIST 117WMNST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 467 (US;IL) (LTNST 467) Latin America and the United States (3)** Historical development of policies of the United States with regard to Latin- American affairs from colonial times to the present.

**Latin America and the United States (3)**

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Humanities  
 Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 468 (IL) Mexico and the Caribbean Nations in the Twentieth Century (3)** Political, economic, and social development in Mexico and the Caribbean since 1900. Emphasis on Mexican, Guatemalan, and Cuban revolutions.

**Mexico and the Caribbean Nations in the Twentieth Century (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 469 (CRIMJ 469) Drugs and Drug Policy in the United States (3)** Examines the history and dimensions of drug use and analyzes the impact of drug policy.

**HIST (CRIMJ) 469 Drugs and Drug Policy in the United States (3)**

For nearly a century, the United States has been waging its version of a hundred years' war on drugs, spending billions of dollars and incarcerating thousands of offenders while failing to significantly reduce the use of illicit drugs. This course examines drug use in a historical context while addressing the changing nature and dimension of drug use, including the pharmacology of drugs, patterns of drug use, and sentencing policies. Because drug control is inextricably linked to social, political, and public policy, the course will provide the student with a foundation for critical thinking and rational decision making relative to the efficacy of the various drug control initiatives. Since drugs seemingly permeate every level

of American society and directly or tangentially touch most Americans' lives, issues such as drug testing in the workplace, the use of drug courier profiles, legalized medical marijuana, and needle exchange programs are evaluated. Students will be expected to learn the pharmacology of various drugs, the history of drug use in the United States since the colonial era, the evolution of federal drug agencies, and acquire knowledge about contemporary drug issues. They also will be expected to develop and strengthen their critical thinking skills as they assess the consequences of implementing particular anti-drug policies and their impact on reducing the use of illicit drug use. An example of the evaluation methods would be: students will be evaluated on the basis of three exams and four "think pieces" (requiring students' critical responses to an assigned topic) scheduled throughout the semester. Class attendance also will influence the grade.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2008  
Prerequisite: CRIMJ 100 or HIST 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 470** Modern Bondage: Slavery in the Americas, 1492-1888 (3) The work, culture, ideology, and political economy of slavery in the Americas between 1500 and 1888.

**Modern Bondage: Slavery in the Americas, 1492-1888 (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2007  
Prerequisite: HIST 011HIST 020HIST 152HIST 178 or HIST 192

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 471Y (IL) (RL ST 471Y)** Classical Islamic Civilization, 600-1258 (3) Pre-Islamic Arabia; Muhammad; Arab conquests; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.

**Classical Islamic Civilization, 600-1258 (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 472 (IL)** The Ottoman Empire and Other Muslim States (3) Turkish and Mongol invasions; Mamluks; Ottoman expansion and institutions; Safavid Persia; disintegration and reform; emergence of modern Turkey and Iran.

**The Ottoman Empire and Other Muslim States (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2006  
Prerequisite: HIST 181

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 473 (IL)** The Contemporary Middle East (3) Political, economic, and social changes in Turkey, Iran, Israel, and the Arab countries in the twentieth century; Arab-Israeli conflict.

**The Contemporary Middle East (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 474 (JAPNS 426, ASIA 474)** Early Modern Japan (3) Japanese history from 1580-1880.

**HIST 474 (ASIA 474, JAPNS 426) Early Modern Japan (3)**

Japan's Tokugawa period can be difficult to grasp. It resembles a modern society in many respects but operated according to a logic of social organization different from that of most modern states. There was a collective sense of national identity, but its characteristics differed significantly from modern forms of Japanese identity. Moreover, modern ideologies have contributed to the characterization of early modern Japan as a rigid society and of the country as a whole having been isolated from the rest of the world. The main purpose of this course is to afford students the opportunity to study early modern Japan in detail and, insofar as possible, on its own terms.

Through readings in primary and secondary sources, and through the evaluation of visual images, this seminar-style course will deepen students' knowledge of Japan and serve as basis for comparative study of other early modern societies. Although the course investigates classic areas of historical study such as institutional development and foreign relations, the emphasis is on social and environmental history. The course encourages students to think about a range of approaches to the past and to think about the ways our contemporary biases influence the ways we understand the past.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172HIST 174JAPNS 120 orJAPNS 121

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 474 (JAPNS 426, ASIA 474) Early Modern Japan (3)** Japanese history from 1580-1880.

### **HIST 474 (ASIA 474, JAPNS 426) Early Modern Japan (3)**

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Through readings in primary and secondary sources, and through the evaluation of visual images, this seminar-style course will deepen students' knowledge of Japan and serve as basis for comparative study of other early modern societies. Although the course investigates classic areas of historical study such as institutional development and foreign relations, the emphasis is on social and environmental history. The course encourages students to think about a range of approaches to the past and to think about the ways our contemporary biases influence the ways we understand the past.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172HIST 174JAPNS 120 orJAPNS 121

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 475Y (IL) (ASIA 475Y) The Making and Emergence of Modern India (3)** India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

### **HIST (ASIA) 475Y The Making and Emergence of Modern India (3) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course covers India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle. It begins during the early modern period, when European travelers encountered the flourishing Mughal Empire, and moves into the dynamic moment following, when the East India Company was one of various competing forces, both locally and globally. It then examines the rise of British power, and the various responses to it from collaboration to mutiny; the multiple development of nationalisms and anticolonialisms, including secular, socialist, Hindu and Muslim variations; the accompanying social reform visions, including caste abolition and feminism; the turbulent paths toward partition and independence, resulting in the postcolonial states of India, Pakistan, Bangladesh, Nepal, Sri Lanka, and Afghanistan. It then follows the continuing trajectories of these countries after independence, from the Nehruvian years to the neoliberal shift, with attention to emerging social movements and issues including caste and gender relations; religious and separatist politics; struggles around land and development; urbanization, and labor migration. This course raises important questions about the nature of modernity and its relationship to global interconnectedness, the rise of capitalism and colonialism, industry and technology; while emphasizing South Asian social and cultural contributions and responses to these global shifts. By filling in the context of this part of the world to that global story, the course enables students to grapple with some of the major economic and geopolitical trends of the early 21st century.



General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 010HIST 011HIST 172HIST 175HIST 176HIST 181 orHIST 191

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 475Y (IL) (ASIA 475Y) The Making and Emergence of Modern India (3)** India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle.

**HIST (ASIA) 475Y The Making and Emergence of Modern India (3)**  
(IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course covers India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle. It begins during the early modern period, when European travelers encountered the flourishing Mughal Empire, and moves into the dynamic moment following, when the East India Company was one of various competing forces, both locally and globally. It then examines the rise of British power, and the various responses to it from collaboration to mutiny; the multiple development of nationalisms and anticolonialisms, including secular, socialist, Hindu and Muslim variations; the accompanying social reform visions, including caste abolition and feminism; the turbulent paths toward partition and independence, resulting in the postcolonial states of India, Pakistan, Bangladesh, Nepal, Sri Lanka, and Afghanistan. It then follows the continuing trajectories of these countries after independence, from the Nehruvian years to the neoliberal shift, with attention to emerging social movements and issues including caste and gender relations; religious and separatist politics; struggles around land and development; urbanization, and labor migration. This course raises important questions about the nature of modernity and its relationship to global interconnectedness, the rise of capitalism and colonialism, industry and technology; while emphasizing South Asian social and cultural contributions and responses to these global shifts. By filling in the context of this part of the world to that global story, the course enables students to grapple with some of the major economic and geopolitical trends of the early 21st century.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2015 Future: Spring 2015

Prerequisite: HIST 010HIST 011HIST 172HIST 175HIST 176HIST 181 orHIST 191

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 476 (IL) (ASIA 476) Technology & Society in Modern Asia (3)** Role of technology in modernization, national identity, and foreign relations of an Asian country from 19th century to present day.

**HIST (ASIA) 476 Technology & Society in Modern Asia (3)**  
(IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The countries of Asia are often seen (or imagined) in the West today in terms of their technological capabilities. This course will examine the role of technology in the modernization, national identities, and foreign relations of one or more countries of East, South, or Southeast Asia from the mid-19th century to the present day. Specific content will vary according to individual instructor, but topics may include the relationship between technological development and international relations, national power, leisure, domestic political and aesthetic movements, war, empire, and trade, as well as the impact of technology on interconnected images of self and other on the part of the peoples of Western and Asian countries.

The objectives of the course are not only to learn about the role of technology in modern East Asia, but also to encourage us to rethink the way we view other countries and the factors that go into those perceptions (as well as developing a new way of understanding of what contributes to the views other peoples hold of their own countries). Students will also consider the changing role that technology has played (and continues to play) in all modern societies.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2014

Prerequisite: ASIA 100HIST 172HIST 173HIST 174HIST 175HIST 176HIST 183HIST 184HIST 188

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 477 American Military History to 1900 (3)** Development of United States military policy, 1776-1900, emphasizing conduct of wars, interrelationship of civil and military authority.

**American Military History to 1900 (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: 3 credits in history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 478** American Military History Since 1900 (3) Development of United States military policy in the 20th and 21st centuries, emphasizing conduct of wars, interrelationship of civil and military authority.

**American Military History Since 1900 (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: 3 credits in history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 479** (IL) History of Imperialism and Nationalism in Africa (3) Theories and types of imperialism; varied patterns of colonial administration; initial African responses; nationalism; decolonization and independence.

**History of Imperialism and Nationalism in Africa (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Other Cultures and Humanities  
 Effective: Spring 2006  
 Prerequisite: HIST 191

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 480** (IL) (ASIA 480) Japan in the Age of Warriors (3) An overview of Japan the 10th to 17th century, a period of political decentralization, cultural efflorescence, and social change.

**HIST (ASIA) 480 Japan in the Age of Warriors (3)  
(IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

By the eighth century, Japan had become a centralized state centered on the reign of a sovereign, commonly known in English as an emperor. At the end of the ninth century, the emperor's court relocated to the city of Heian (Kyoto), and soon thereafter, an elegant court culture developed in the capital. The courtly culture was based on civilian values and civilian rule. In the countryside, however, Japan was gradually becoming militarized. Local warlords began rising to prominence and vying with each other for power. One of them, Taira-no-Masakado, rebelled against the central government during the years 939-940, declaring himself "emperor" of several provinces in eastern Japan centered on Hitachi. Although the central government in Kyoto enlisted other warrior groups to put down Taira-no-Masakado's rebellion, the process of militarization was underway. Buddhist temples also participated in this process, using their wealth and influence to assemble monastic armies on occasion.

This course examines Japanese history beginning approximately in the 10th century, at time when civilian high culture in the capital was approaching the height of its development. At the same time, the process of militarization of the countryside was beginning to undermine that civilian court culture. The course ends in approximately the seventeenth century with the establishment of a military government under the Tokugawa shoguns. This development was ostensibly the peak of warrior influence, with the samurai (=warrior) class entrenched by law as the elite group within society. However, just as the warriors began their rise to power in the tenth century, by the end of the seventeenth century they were rapidly losing influence and prestige to wealthy merchants as the forces of the market economy spread throughout Japanese society.

HIST 480 is a course in medieval Japanese history, broadly defined. Different instructors will emphasize different aspects of Japanese history and culture during this era. Approaches to teaching will also vary depending on the instructor. Class sessions can take the form of lectures or discussions. Assessment methods and learning activities may include debates, discussions, exams, research papers, book review papers, and other similar academic activities.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: HIST 107HIST 172HIST 174 orHIST 407

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 480 (IL) (ASIA 480) Japan in the Age of Warriors (3)** An overview of Japan the 10th to 17th century, a period of political decentralization, cultural efflorescence, and social change.

**HIST (ASIA) 480 Japan in the Age of Warriors (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

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This course examines Japanese history beginning approximately in the 10th century, at time when civilian high culture in the capital was approaching the height of its development. At the same time, the process of militarization of the countryside was beginning to undermine that civilian court culture. The course ends in approximately the seventeenth century with the establishment of a military government under the Tokugawa shoguns. This development was ostensibly the peak of warrior influence, with the samurai (=warrior) class entrenched by law as the elite group within society. However, just as the warriors began their rise to power in the tenth century, by the end of the seventeenth century they were rapidly losing influence and prestige to wealthy merchants as the forces of the market economy spread throughout Japanese society.

HIST 480 is a course in medieval Japanese history, broadly defined. Different instructors will emphasize different aspects of Japanese history and culture during this era. Approaches to teaching will also vary depending on the instructor. Class sessions can take the form of lectures or discussions. Assessment methods and learning activities may include debates, discussions, exams, research papers, book review papers, and other similar academic activities.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: HIST 107HIST 172HIST 174 orHIST 407

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 481 (IL) (ASIA 481) Modern Japan Since 1800 (3)** The transformation of Japan from a relatively isolated, agricultural nation into a highly industrialized world power.

**HIST (ASIA) 481 Modern Japan Since 1800 (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

In the late 19th century, Japan emerged from relative seclusion and grew, within the period of a few decades, into one of the world's major powers. Japan's remarkable transformation into an imperialist power ended suddenly with defeat by the Allied powers in August 1945. But the history of prewar and wartime Japanese nation-building and economic growth set the stage for postwar rebuilding. This course examines Japan's development as a powerful modern state, imperialist aggressor, defeated nation, economic power-house, and pop culture super-power. Specific content will vary according to individual instructor, but may include the structures of state and society in the early 19th century, the creation of the Meiji state (1868-1912), the successes and costs of the Meiji government's program of rapid modernization and Westernization, imperialist expansion, the road to war and defeat in World War II, the postwar U.S. occupation of Japan (1945-1952), Japan's resurgence as a global power, and some of the major challenges facing the Japanese state and society today. The goals of the class are not only to gain an understanding of the history of another country, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will take on the role of historian themselves, thinking critically about assigned texts and making their own interpretations of their meanings. Through readings, discussions, and written work, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: HIST 172HIST 174 orHIST 175

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 481 (IL) (ASIA 481) Modern Japan Since 1800 (3)** The transformation of Japan from a relatively isolated, agricultural nation into a highly industrialized world power.

**HIST (ASIA) 481 Modern Japan Since 1800 (3)**  
(IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

In the late 19th century, Japan emerged from relative seclusion and grew, within the period of a few decades, into one of the world's major powers. Japan's remarkable transformation into an imperialist power ended suddenly with defeat by the Allied powers in August 1945. But the history of prewar and wartime Japanese nation-building and economic growth set the stage for postwar rebuilding. This course examines Japan's development as a powerful modern state, imperialist aggressor, defeated nation, economic power-house, and pop culture super-power. Specific content will vary according to individual instructor, but may include the structures of state and society in the early 19th century, the creation of the Meiji state (1868-1912), the successes and costs of the Meiji government's program of rapid modernization and Westernization, imperialist expansion, the road to war and defeat in World War II, the postwar U.S. occupation of Japan (1945-1952), Japan's resurgence as a global power, and some of the major challenges facing the Japanese state and society today. The goals of the class are not only to gain an understanding of the history of another country, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will take on the role of historian themselves, thinking critically about assigned texts and making their own interpretations of their meanings. Through readings, discussions, and written work, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172HIST 174 orHIST 175

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 482 (CHNS 424, ASIA 482) Confucius and the Great Books of Early China (3)** This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China.

**HIST 482 (ASIA 482, CHNS 424) Confucius and the Great Books of Early China (3)**

This course exposes students to the key texts, thinkers, and ideas that form the foundation of the Chinese classics and classical period. As the first part of a two-seminar series of courses (HIST 484), it provides an integral foundation for the study of Chinese history, culture, or literature. While the emphasis is on the texts and their main themes, the course will encourage historical engagement with the texts by placing them into a context of competing cultural, social, political trends. Readings may be grouped around categories of teachings such as Confucianism, Buddhism, and Daoism, or around thinkers such as "(Confucian) ritualists," "statesmen," "military strategists," "rebels," "recluses," and "spiritual leaders." Students will learn how each of these types of teachings and thinkers related to each other, as well as how they responded to the emergent, centralized political order of the day. This will help students better understand many of the recurrent intellectual, political, and religious themes that arise in later Chinese history as well.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: fifth semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 482 (CHNS 424, ASIA 482) Confucius and the Great Books of Early China (3)** This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China.

**HIST 482 (ASIA 482, CHNS 424) Confucius and the Great Books of Early China (3)**

This course exposes students to the key texts, thinkers, and ideas that form the foundation of the Chinese classics and classical period. As the first part of a two-seminar series of courses (HIST 484), it provides an integral foundation for the study of Chinese history, culture, or literature. While the emphasis is on the texts and their main themes, the course will encourage historical engagement with the texts by placing them into a context of competing cultural, social, political trends. Readings may be grouped around categories of teachings such as Confucianism, Buddhism, and Daoism, or around thinkers such as "(Confucian) ritualists," "statesmen," "military strategists," "rebels," "recluses," and "spiritual leaders." Students will learn how each of these types of teachings and thinkers related to each other, as well as how they responded to the emergent, centralized political order of the day. This will help students better understand many of the

recurrent intellectual, political, and religious themes that arise in later Chinese history as well.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: fifth semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 483 (IL) (ASIA 483) Middle China (3)** The social, political, and cultural issues and developments from the 8th to 16th century.

**HIST (ASIA) 483 Middle China (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This advanced discussion-based course covers the social, political, and cultural issues and developments in Chinese history from roughly the eighth century through the sixteenth century. Specific content will vary according to instructor. Students will gain a strong foundation in Chinese history and culture and experience analyzing historical texts.

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: HIST 174

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 483 (IL) (ASIA 483) Middle China (3)** The social, political, and cultural issues and developments from the 8th to 16th century.

**HIST (ASIA) 483 Middle China (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This advanced discussion-based course covers the social, political, and cultural issues and developments in Chinese history from roughly the eighth century through the sixteenth century. Specific content will vary according to instructor. Students will gain a strong foundation in Chinese history and culture and experience analyzing historical texts.

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: HIST 174

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 484Y (IL) (ASIA 484Y) History of Chinese Thought (3)** A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

**HIST (ASIA) 484Y History of Chinese Thought (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the historical developments of Chinese thought and its multifarious expressions from ancient times to the eighteenth century. It explores the unique Chinese ways and means of making sense of the world and the human condition by probing China's philosophical and religious traditions. It reveals the conscious life of the Chinese in matters moral, ethical, aesthetic and metaphysical. Moreover, by showing the unity, diversity, continuity and discontinuity in Chinese thought throughout the ages, this course debunks the popular "Orientalist" myth that Chinese culture had been a hermetically sealed and stagnant monolith until the modern era when Western influences became dominant.

General Education: None  
Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 174 or HIST 175

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 484Y (IL) (ASIA 484Y) History of Chinese Thought (3)** A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present.

**HIST (ASIA) 484Y History of Chinese Thought (3)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the historical developments of Chinese thought and its multifarious expressions from ancient times to the eighteenth century. It explores the unique Chinese ways and means of making sense of the world and the human condition by probing China's philosophical and religious traditions. It reveals the conscious life of the Chinese in matters moral, ethical, aesthetic and metaphysical. Moreover, by showing the unity, diversity, continuity and discontinuity in Chinese thought throughout the ages, this course debunks the popular "Orientalist" myth that Chinese culture had been a hermetically sealed and stagnant monolith until the modern era when Western influences became dominant.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 174 or HIST 175

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 485Y (IL) (ASIA 485Y) China's Last Empire: The Qing Dynasty, 1644-1911 (3)** China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

**HIST (ASIA) 485Y China's Last Empire: The Qing Dynasty, 1644-1911 (3)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine the Qing dynasty, the last imperial dynasty to rule China, from the seventeenth to early twentieth centuries. More than doubling the size of the previous Ming dynasty, the empire also included people such as Tibetans, Muslims and Mongols who had never before considered themselves as "Chinese" but were now Qing subjects. The course will examine how Manchu ruling family, a non-Chinese people, outnumbered by the Chinese by about three hundred and fifty to one managed to conquer and rule China for nearly three hundred years. Tracing the political, social and cultural development of China starting with the foundation and consolidation of the Qing in 1644 and concluding with the collapse of the dynastic system in 1911, this course examines the role of the imperial system, internal rebellions, and the impact of Western colonialism on China. Considerable time will also be focused on China's ethnic, religious and cultural differences in order to allow a deeper understanding of major issues and themes in late imperial Chinese history. Finally, the theme of China's international relations in Asia and the world and China's shifting place in the world will be a prominent thread of the course. Through a blend of primary and secondary sources, students in this class will need to think critically, read broadly and express their ideas clearly regarding the evolving challenges facing China's last empire.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian history)

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 485Y (IL) (ASIA 485Y) China's Last Empire: The Qing Dynasty, 1644-1911 (3)** China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity.

**HIST (ASIA) 485Y China's Last Empire: The Qing Dynasty, 1644-1911 (3)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine the Qing dynasty, the last imperial dynasty to rule China, from the seventeenth to early twentieth centuries. More than doubling the size of the previous Ming dynasty, the empire also included people such as Tibetans, Muslims and Mongols who had never before considered themselves as "Chinese" but were now Qing subjects. The course will examine how Manchu ruling family, a non-Chinese people, outnumbered by the Chinese by about three hundred and

fifty to one managed to conquer and rule China for nearly three hundred years. Tracing the political, social and cultural development of China starting with the foundation and consolidation of the Qing in 1644 and concluding with the collapse of the dynastic system in 1911, this course examines the role of the imperial system, internal rebellions, and the impact of Western colonialism on China. Considerable time will also be focused on China's ethnic, religious and cultural differences in order to allow a deeper understanding of major issues and themes in late imperial Chinese history. Finally, the theme of China's international relations in Asia and the world and China's shifting place in the world will be a prominent thread of the course. Through a blend of primary and secondary sources, students in this class will need to think critically, read broadly and express their ideas clearly regarding the evolving challenges facing China's last empire.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian history)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 486 (IL) (ASIA 486) China in Revolution (3)** China from 1900 to the present; nationalism, cultural change; development of communism.

**HIST (ASIA) 486 China in Revolution (3)**  
(IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the social and cultural history of modern China from 1900 to the present. Major topics may include the formation of a modern national state, relationships between society and government, economic development and environmental crises, changes in kinship and family life, and changing relationships between elite and popular culture. The course uses excerpts from primary documents, fiction, and film to help students understand the modern Chinese historical experience.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian History)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 486 (IL) (ASIA 486) China in Revolution (3)** China from 1900 to the present; nationalism, cultural change; development of communism.

**HIST (ASIA) 486 China in Revolution (3)**  
(IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the social and cultural history of modern China from 1900 to the present. Major topics may include the formation of a modern national state, relationships between society and government, economic development and environmental crises, changes in kinship and family life, and changing relationships between elite and popular culture. The course uses excerpts from primary documents, fiction, and film to help students understand the modern Chinese historical experience.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 175 or HIST 300H (Honors in East Asian History)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 487 American Diplomacy, 1776-1914 (3)** Developments in the foreign policy of the United States from independence to the eve of World War I.

**American Diplomacy, 1776-1914 (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: HIST 002 or HIST 020

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 488** American Diplomacy Since 1914 (3) Developments in the foreign policy of the United States since the eve of World War I.

### **American Diplomacy Since 1914 (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: HIST 002 or HIST 021

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 489** (IL) (PL SC 486, ASIA 489) International Culture in East Asia (3) Study of the role of culture in East Asian regional and East-West international relations.

### **HIST 489 (PL SC 486/ASIA 489) International Culture in East Asia (3) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine the place of culture in international history through a comparative look at the role of cultural circulation and exchange in relations among China, Korea, and Japan (and between East Asia and the West) from the propagation of Buddhism in the first century A.D. to present-day circulation of popular music, movies, and comics. We will explore the international politics of culture and the politics of international culture, considering questions of what constitutes culture, whether it is ever entirely separate from politics, and how that separation has evolved over time. These larger themes of the course will be tackled by following the historical movement of concrete objects and people throughout the region. This is a course in international history; historical events, problems, and issues will be at the center of our weekly discussions. But it also seeks to explore aspects of international relations.

This course is intended to examine the role of cultural exchange in international relations. The goals of the class are not only to gain an understanding of the uses and impact of culture in international relations, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will take on the role of historian themselves, thinking critically about assigned texts and making their own interpretations of their meanings. Through readings, discussions, presentations, and the final project, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing.

This course is designed to respond to strong student interest in East Asian international history. This course will complement and extend popular survey and upper-level courses such as HIST 172/174/175/480/481/483/484/485/486.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures

Effective: Summer 2013

Prerequisite: any one of the following: HIST 172 HIST 174 HIST 175 HIST 480 HIST 481 HIST 483 HIST 484 HIST 485 HIST 486

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 490** (L ST 490) Archival Management (1-3) Introduction to the principles and procedures in the management of archives and historical manuscripts.

### **Archival Management (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1978

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 491** (IL) British Civil Wars and Revolutions, 1639-1651 (3) This is an advanced course on the history of the general crisis in the British Isles, from the outbreak of war between England and Scotland in 1639 to the securing of the Commonwealth regime following the destruction of the last major royalist army in 1651.

### **British Civil Wars and Revolutions, 1639-1651 (3)**

General Education: None



Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: HIST 002HIST 134 orHIST 436

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 492 (IL) Witchcraft in Early Modern Europe (3)** Survey of the social, economic, political, and religious conditions of accusations and prosecutions of witchcraft in western Europe and north America, from 1500 to 1700.

**Witchcraft in Early Modern Europe (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: HIST 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 493 (IL) (ASIA 493) Japan in the World (3)** Study of Japan's foreign relations and position in the international community from the early 19th century to the present.

**HIST (ASIA) 493 Japan in the World (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine Japan's foreign relations and changing position in the international community, from the rethinking of relations with the Western world in the early nineteenth century to its emergence as a pop culture superpower in the present day. The course will explore the structures of international relations, such as imperialism and international organizations, with the Japanese experience providing a viewpoint that differs from the standard Western-centric narrative in important ways. We will also consider the development of alternative methods of diplomacy, including cultural exchange and economic and technical assistance. Class work may include some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: ASIA 100HIST 172HIST 175 orHIST 481

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 493 (IL) (ASIA 493) Japan in the World (3)** Study of Japan's foreign relations and position in the international community from the early 19th century to the present.

**HIST (ASIA) 493 Japan in the World (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine Japan's foreign relations and changing position in the international community, from the rethinking of relations with the Western world in the early nineteenth century to its emergence as a pop culture superpower in the present day. The course will explore the structures of international relations, such as imperialism and international organizations, with the Japanese experience providing a viewpoint that differs from the standard Western-centric narrative in important ways. We will also consider the development of alternative methods of diplomacy, including cultural exchange and economic and technical assistance. Class work may include some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: ASIA 100HIST 172HIST 175 orHIST 481

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practicums, or internships.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1986  
Prerequisite: prior written approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 497A** World War I (3) Course studies how the Great War happened why it happened and how those nations and people involved were affected. Also it will look at WWI relevance a century later.

**World War I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 497B** Powering America (3) Discover how the United States became the world's biggest consumer and provider of energy. What is the impact of American energy production on the environment?

**Powering America (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 497C** (J ST 497A, WMNST 497A) Gender and Autobiography in Modern Jewish History (3) In this course we will read autobiographies critically and carefully in examining the tremendous changes wrought by modernity in the Jewish community. In particular we will look at memoir literature to illuminate the role of gender in Jewish life over the past two hundred years.

**Gender and Autobiography in Modern Jewish History (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 497C** (J ST 497A, WMNST 497A) Gender and Autobiography in Modern Jewish History (3) In this course we will read autobiographies critically and carefully in examining the tremendous changes wrought by modernity in the Jewish community. In particular we will look at memoir literature to illuminate the role of gender in Jewish life over the past two hundred years.

**Gender and Autobiography in Modern Jewish History (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HIST 499** (IL) Foreign Study--History (1-6) Study in selected foreign countries of various periods and topics in history.

**Foreign Study--History (1-6)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

Prerequisite: 3 credits in the appropriate introductory history course for the geographic location specified

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Honors (HONOR)

**HONOR 201** Developing Critical Thinking for Leadership (1) Discussions on various topics using critical thinking skills to make informed leadership decisions.

**HONOR 201 Developing Critical Thinking for Leadership (1)**

In this course, first-year members of the Presidential Leadership Academy will learn about and develop critical thinking skills to enable them to evaluate and analyze complex problems leading to the ability to make decisions. Upon completion of this course students are expected to be able to identify, evaluate, and construct inductive and deductive arguments; recognize and assess arguments in various forums of reasoning; distinguish the functions of language and its capacity to express and influence meaning; assess the value and credibility of sources; and understand and evaluate the options, consequences, values, and risks in making decisions. The format will typically include some lecture but will be largely discussion based. The course includes a mandatory field trip to various destinations. The emphasis is upon class participation, preparation, and reflection. Students are required to maintain a journal and analyze issues using the critical thinking skills developed in the course. Grading is based on journals and participation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: member of the Presidential Leadership Academy

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HONOR 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HONOR 297H** Human Economics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Human Economics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HONOR 301H** The Role of Knowledge in Society (3) Honors interdisciplinary study of topics utilizing contributions from science/ engineering, business, public policy, behavioral sciences/education, and the humanities.

**HONOR 301H The Role of Knowledge in Society (3)**

This course is designed as an honors interdisciplinary study course composed of topics utilizing contributions from science/engineering, business, public policy, behavioral sciences/education, and the humanities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HONOR 401H** Honors Seminar (1-6 per semester/maximum of 6) In-depth honors-level exploration of a topic or theme that crosses disciplinary boundaries; may be repeated for credit.

**HONOR 401H Honors Seminar (3 per semester/maximum of 6)**

Students will accomplish in-depth honors-level exploration of a topic or theme at the 400-level that crosses disciplinary boundaries. This course may be repeated for credit.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium or approval from the Schreyer Honors College

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HONOR 493H** Honors Service Learning (1-3) A supervised honors experience doing service for campus or community welfare and analyzing related issues.

**HONOR 493H Honors Service Learning (1-3 per semester/maximum of 6)**

Students will have a supervised honors experience doing service, service learning, and/or public scholarship dedicated to improving campus or community welfare and then analyzing the related issues through structured reflection.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HONOR 494M** Interdisciplinary Writing and Thesis Formulation (2) Seminar to help students with interdisciplinary analysis, writing, and formulation of honors projects and proposals.

### **HONOR 494M Interdisciplinary Writing and Thesis Formulation (2)**

This course is a seminar to help students understand various approaches to interdisciplinary analysis. The course helps students learn about writing as an interpretive process. The course helps students with the formulation of their honors thesis projects and proposals.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HONOR 495H** Research Studies (1) A capstone seminar for honors students working on honors theses and projects to work together and learn about their research interests.

### **HONOR 495H Research Studies (1)**

A capstone seminar for honors students working on honors theses and projects. Students work together and learn about their research interests.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: HONOR 301H and enrollment in an honors program belonging to the Penn State Honors Consortium

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HONOR 496H** Honors Thesis (3) Research, creative activities, and writing necessary for pursuit and completion of an interdisciplinary honors thesis.

### **HONOR 496H Honors Thesis (3)**

Students will learn research, creative activities, and writing techniques necessary for the pursuit and completion of an interdisciplinary honors thesis or honors research project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: HONOR 301H senior standing and enrollment in an honors program belonging to the Penn State Honors Consortium

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Horticulture (HORT)**

**HORT 101** (GN) Horticultural Science (3) Introduction to horticulture with emphasis on plant domestication, morphology, classification, world food crops, commodities, gardens, propagation, and agrochemicals.

### **HORT 101 Horticultural Science (3) (GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The course content of Horticulture 101, as indicated in the complete course outline, deals with the fundamental concepts

and specialty areas, which contribute not only to the science and technology involved in horticulture but also to the art. It provides an overview of the role of various specialties of the natural sciences (e.g. plant morphology, physiology, taxonomy, genetics and nutrition, pest management, management and production of crops, landscaping and technology) relevant to a range of plant uses from medicinals and food production to the aesthetic benefits derived from plants. The course begins with the origin and domestication of plants followed by: A. An Overview of horticulture which includes an explanation of the horticulture industry, how to achieve success in horticulture and the relationship between horticulture and the environment; B. Science in horticulture which includes the classification of plants, plant propagation, plant nutrition, environmental factors affecting plant growth and development, plant growth regulators, post harvest physiology and pest management; C. Management and production of horticultural crops which include nursery, floral, turfgrass, vegetable, fruit and nuts; D. Landscaping including designing landscapes, xeroscapes and sitescapes, establishing and maintaining landscapes; and E. Concluding with Technology in horticulture. The course content additionally includes major areas of knowledge based on the fundamentals, universal concepts and achievements in the cluster of scientific disciplines comprising horticulture and provides students with the opportunity to appreciate that the origins, domestication and production of cultivated plants are the essence of human existence.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 120** Computer Applications for Landscape Contracting (2) Emphasis is placed on the use of commercial software used for landscape planning and estimating. Limited to Landscape Contracting majors only.

### **Computer Applications for Landscape Contracting (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 131** Herbaceous Perennial and Annual Identification (3) Herbaceous and annual plant identification; landscape use of herbaceous perennials and greenhouse and garden annuals.

### **Herbaceous Perennial and Annual Identification (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 127BIOL 110 or HORT 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 137** Ornamental Plant Materials (3) Identification and description under fall conditions; discussion of cultural and aesthetic aspects of trees of value in ornamental planting.

### **Ornamental Plant Materials (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 138** Ornamental Plant Materials (3) Identification and description under spring conditions; discussion of cultural and aesthetic aspects of shrubs of value in ornamental plantings.

### **Ornamental Plant Materials (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 150** (GN) Plants in the Human Context (3) An introduction to the many fascinating and vital relationships between plants and human society.

**HORT 150 Plants and Human Context (3)  
(GN)**

The objective of this course is to expose students to the pervasiveness and essentiality of plants in the human experience. Major topics include 1) human civilization as influenced by plants, 2) a history of food from plants, 3) chemicals from plants, 4) non-food plant uses, 5) current issues in plant production, and 6) current botanical issues of global concern. Specific topics range from botanical pharmaceuticals to global warming/use of biofuels, and from culture-specific rotten foods to genetically-modified plants. Students will be exposed to many basic concepts of plant ecology, ecosystem science, emerging technologies, and the criteria used to evaluate sources of scientific information as a natural consequence of studying the range of topics included in the course. Students completing the course will therefore be in an excellent position to intelligently select from the many botanically- and ecologically-oriented majors, minors and options available to them at Penn State. The format of the course consists primarily of lecture/discussions, and includes one team assignment (making a poster) and three individual projects (one page arguments) in addition to a midterm and a final exam. Student evaluations are based on individual exam scores (50%) and on team (20%) and individual (30%) projects.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 201** Applied Arboriculture (2) Overview of methods used to diagnose problems and provide for the long term care of large trees.

**HORT 201 Applied Arboriculture (2)**

The objective of this course is to provide students with the opportunity to develop an appreciation of the skills required to properly care for large trees. The course provides information that is especially useful to those in the Landscape Management option of the Landscape Contracting major. The course will provide an overview of the methods used to diagnose problems and provide for the long term care of large trees. Areas of emphasis will include accessing the upper parts of large trees; safety when working in and around large trees; and the proper selection, use, and maintenance of the equipment used in the arboriculture profession. The course will be taught each Fall semester and will have an enrollment limit of 18. Students will be evaluated by quizzes, exams, and laboratory assignments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

Prerequisite: Students must be physically capable of safely handling a running chainsaw and pulling their weight up a rope.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 202** Plant Propagation (3) Principles and practices of asexual and sexual plant propagation.

**Plant Propagation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 027BIOL 110 or HORT 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 220** CAD Applications in Landscape Contracting (3) Application of computer-aided design software including AutoCAD and LANDCADD to landscape contracting.

**CAD Applications in Landscape Contracting (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: HORT 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 232** Horticultural Systematics (3) Fundamentals of horticultural crop plant classification and systematics. Examples chosen from fruits and vegetables, exclusive of subtropical and tropical fruit.

**Horticultural Systematics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: HORT 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 238** (TURF 238) Turf and Ornamental Weed Control (3) Students will be introduced to the development of integrated weed management strategies utilizing a variety of cultural and chemical methods.

**Turf and Ornamental Weed Control (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 250** Landscape Contracting Design/Build Principles (3) Introduction to the processes and principles of residential landscape site development, from initial client contact to implementation.

**Landscape Contracting Design/Build Principles (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 269** Residential Landscape Planning (3) Principles and techniques in landscape design; preparation of plans of small properties.

**Residential Landscape Planning (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: Landscape Contracting majors in the Design/Build Option

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 301** Principles of Arboriculture (3) Overview of the concepts and methods prescribed for the evaluation and care of large trees in urban settings.

**HORT (FOR) 301 Principles of Arboriculture (3)**

The objective of the course is to introduce students to the theories and practices related to the care of trees in developed areas. The course provides information that is especially useful to those in the Landscape Management option of the Landscape Contracting major, and the Urban Forestry option of the Forestry major. This course will provide an overview of the concepts and methods prescribed for the evaluation and care of large trees in urban settings. Emphasis will be placed on maintaining the long-term health of large trees. Major topic areas will include methods for characterization of tree health, diagnosing problems in trees, the influence of environmental factors on tree health, and the assessment of hazard trees. Proper pruning techniques and factors to consider when making decisions regarding long-term tree care in urban areas will be discussed. The course will be taught each spring semester. Students will be evaluated by quizzes, exams, and laboratory assignments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 110 and SOILS 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 315** Environmental Effects on Horticultural Crops (3) Horticultural plants respond to the environmental factors of light, temperature, water, and fertilizer both in controlled and field environments.

**Environmental Effects on Horticultural Crops (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: HORT 101 HORT 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 352** Flower Arranging (2) Floral design beginning with elements and principles of design. Flower arranging techniques as well as different styles of flower arrangements.

**Flower Arranging (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**HORT 368 Landscape Planting Design (4)** Basic planting design employing the use of indigenous and ornamental plants as design elements in the man-made environment. Intended for Landscape Contracting majors only.

**Landscape Planting Design (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: HORT 269

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 390 Junior Seminar (1)** Current issues in horticulture and agriculture.

**Junior Seminar (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FIFTH-SEMESTER STANDING

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 402W Plant Nutrition (3)** Mineral nutrition of higher plants, including nutrient acquisition, transport, metabolism, and practical implications.

**HORT 402W Plant Nutrition (3)**

The course considers the mineral nutrition of higher plants from physiological, ecological, and agricultural perspectives. The first part of the course considers factors influencing the acquisition of mineral nutrients and their transport in the plant, including nutrient mobility in the soil, root biology, rhizosphere interactions, membrane transport, xylem, and phloem transport. Root symbioses and metabolic assimilation of N and S will also be discussed. The second part of the course gives an overview of mineral metabolism. The final third of the course illustrates the practical dimensions of plant nutrition. The diagnosis of nutritional disorders, nutrition, and yield, foliar fertilization, genetic aspects of plant nutrition, and nutrient cycling will be covered by lecture and laboratory exercises. Laboratory exercises demonstrate lecture topics and permit a "hands-on" involvement with the subject. Emphasis is placed on concepts and integrating principles rather than memorization of technical details.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: HORT 315 orBIOL 441SOILS 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 407 Plant Breeding (3)** The scientific principles and techniques of utilizing genetic variability in improving the heredity of plants for specific purposes.

**HORT 407 Plant Breeding (3)**

Horticulture 407 is a 3-credit course that is taught every spring semester and is required of horticulture undergraduate students at Penn State. This course also attracts upper-division and graduate students from other departments such as Agronomy, Biology, Forest Resources, Plant Pathology, Biochemistry, and Molecular Biology. The objectives of the course are to 1) develop an understanding of the role of genetics in plant breeding, 2) elucidate the diversity of plant characteristics which are subject to improvement, 3) review conventional and contemporary techniques for the development of new cultivars, and 4) present the opportunity for the student to effectively communicate scientific information in writing and through speaking. Horticulture 407 emphasizes basic principles of plant genetics and breeding and the utilization of molecular biology techniques for crop improvement. It includes two-hours of lecture and a two-hour laboratory-discussion session each week. Major topics of discussion during lecture periods include plant reproduction, genetic variation in plants, review of mitosis and meiosis, Mendelian genetics, linkage, and recombination, qualitative and quantitative traits, population genetics, cytogenetics, theory of selection and response to selection, heritability, review of statistical tools useful in plant genetics and breeding, systems of pollination controls in plants including self-incompatibility and male sterility, breeding methods for self- and cross-fertilized plants, and application of modern technologies, including molecular markers, marker-assisted selection, and genetic transformation, to crop improvement. The laboratory sessions are designed to complement the lectures and provide opportunities for hands-on experience. For example, students practice staining and counting plant chromosomes on microscope slides, self- and cross-pollination of different plant species, linkage mapping and analysis of plants for Mendelian segregation, inoculating plants with fungal pathogens and observing and evaluating plants for disease development, extracting DNA from plant tissue and separating DNA segments on agarose medium using gel electrophoresis, and practicing computer programs for gene mapping and analysis of Quantitative Trait Loci (QTLs). Furthermore, students are mentored to prepare a term paper on a plant breeding/plant genetics subject and to orally present their findings to the class using visual aids.

Student evaluation is based on two mid-term exams (each 100 points), one comprehensive final exam (200 points), 10

weekly homework or laboratory reports (for a total of 100 points), and a term paper (50 points for writing and 50 points for presentation). For the presentation, each student is required to turn in a 3-5 page write-up about a topic of interest.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 408** Landscape Plant Establishment and Maintenance (4) The principles and practices involved in the establishment of plants in the landscape, and their subsequent maintenance.

#### **Landscape Plant Establishment and Maintenance (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: HORT 137 or HORT 138; SOILS 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 410W** Issues in Landscape Contracting (3) This will be a survey of business management, regulatory, and environmental issues facing the landscape contracting profession. Laboratory.

#### **Issues in Landscape Contracting (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: HORT 408

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 412W** Post-Harvest Physiology (3) Harvesting, handling, storage, and transportation of horticultural crops; primary emphasis on physiological response to pre- and post-harvest environmental factors.

#### **Post-Harvest Physiology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: 6 credits in horticulture or other plant sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 420** Plant Growth Regulators (3) Plant growth regulators, their chemical and physical properties; general principles, practices, and applications in regulating plant growth and development.

#### **Plant Growth Regulators (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 110 or HORT 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 431** Small Fruit Culture (3) Cultural requirements and production practices of the principal small fruit crops: strawberries, grapes, blueberries, brambles, and cranberries.

#### **Small Fruit Culture (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: HORT 101 HORT 315

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**HORT 432** Deciduous Tree Fruits (3) Science, art, and techniques of regulated cropping; orchard designs and management systems.

**Deciduous Tree Fruits (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: HORT 101HORT 315

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 433** Vegetable Crops (3) Cultural requirements of important vegetable crops in conjunction with physiological processes and problems related to commercial production.

**Vegetable Crops (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: HORT 101HORT 315

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 445** Plant Ecology (3) Advanced lectures on plant ecology which stress integration of physiological, population-level and community-level phenomena, and ecology in agriculture.

**Plant Ecology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 220WFOR 308 orHORT 315

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 450** Greenhouse Management (3) Maintenance and manipulation of the greenhouse production systems including structures, covers, light, temperature, carbon dioxide, water, growing media, fertilizer and greenhouse cost accounting.

**Greenhouse Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: HORT 101HORT 315

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 453** Flower Crop Production and Management (3) Production of greenhouse flower and foliage plants; development of management skills for a greenhouse business.

**Flower Crop Production and Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: HORT 101HORT 315

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 455** Retail Horticulture Business Management (3) The nature, operation, and management of retail horticulture business, emphasizing retail greenhouses, nurseries, and flower shops.

**Retail Horticulture Business Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: HORT 131/HORT 137 or HORT 138 ; 3 credits of marketing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 457 Interior Plantscaping (3)** Foliage identification, environmental factors affecting plants, concepts of interior plant design, installation and maintenance.

### **HORT 457 Interior Plantscaping (3)**

Overview of where foliage plants are native will be followed by a discussion of how each environmental factor will affect foliage plant growth as well as how some of the environmental factors can be managed. Those factors will include light, temperature, humidity, growing media, watering, and fertilization. In addition the students will learn to identify 100 plants that are commonly used in interiors. Design principles will be related to interior plants. The process of analyzing the site, creating an interior plant design, installing the plan and maintaining the finished design will be discussed. Then diagnosing plant problems and integrated pest management will be presented as aspects of plant maintenance. Business principles related to the interior plantscaping industry such as management, marketing and selling and personnel management will be discussed. Students will be evaluated based on exams, quizzes and projects. The course will be offered in alternate spring semesters.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: HORT 101; HORT 202 or HORT 250 or HORT 269

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 459 (BIOTC 459, BIOL 459) Plant Tissue Culture and Biotechnology (3)** Principles and techniques for the in vitro culture, propagation, and genetic manipulations of plant cells.

### **Plant Tissue Culture and Biotechnology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 230W ; or B M B 251 B M B 252

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 464 Landscape Construction I (4)** Standards, processes, and computations for site grading, drainage, earthwork, vehicular circulation, parking; detailing, and finishing of landscape construction materials.

### **Landscape Construction I (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: HORT 269

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 466 Landscape Construction II (5)** Project scheduling methods, plant installation techniques, and field layout principles and practices. Implications of site preparation.

### **Landscape Construction II (5)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: HORT 464

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 468 Landscape Estimating and Bidding (2)** Reading and interpreting contract drawings and specifications, quantity take-offs, cost estimating, and bid document preparation.

### **Landscape Estimating and Bidding (2)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: HORT 466

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 490** Senior Seminar (1) Exploration of the interrelationships of horticulture, science, and society; evaluation of attributes and abilities related to various career opportunities.

**Senior Seminar (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: HORT 390 seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 495** Internship (1-13) Supervised off campus experience in a public or commercial horticultural enterprise. Written and oral critique of activity required.

**Internship (1-13)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: approval of proposed assignment required prior to registration

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HORT 499A** (IL) Landscape in Italy (0.5) Traveling with students that took HORT 499 to Italy to look at various real-life examples of landscape.

**Landscape in Italy (0.5)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Hospitality Mgmt (HM)**

**HM 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual of group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual of group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 201** Introduction to Management in the Hospitality Industry (3) Introduction to the hospitality industry and hospitality management.

**HM 201 Introduction to Management in the Hospitality Industry (3)**

The objectives of this course are to provide an introduction to the hospitality industry, to management practices within the industry, and to the hospitality major. Students have an opportunity to learn about the functions of management; the major components of the hospitality, travel, and tourism industries; trade associations and publications; growth areas and trends; and the need for creative leadership. Main topics typically include: functions of management and functional areas of business segments of the hospitality industry, international business as related to hospitality, services business, the planning process and strategic planning, organization design in hospitality, directing and leading in hospitality, the control process in hospitality, travel and tourism industries hospitality, hotels and lodging, the restaurant business, managed services, leisure and recreation/other hospitality opportunities, beverage management, and management ethics and social responsibility.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

Concurrent: HM 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 202** Colloquium in Hospitality Management (1 per semester, maximum of 4) Major industry and professional speakers

lecture on current issues followed by discussion with students and faculty.

### **HM 202 Colloquium in Hospitality Management (1)**

This course has two primary objectives. First, students have an opportunity to hear from industry leaders. Second, students can determine their career directions, learn about the requirements for success in the industry, and identify career opportunities. The topics for the course vary from semester to semester depending upon the expertise of the distinguished speakers who address the class. However, a common theme is to explore trends in the industry regarding hotels, restaurants, and institutional foodservice. Students may learn about related career opportunities, such as careers with cruise lines, travel agencies, and other sectors in the hospitality and tourism industry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 204 Hotel and Restaurant Marketing and Merchandising (3)** Merchandising and marketing as a system concerned with motivating consumers to purchase hospitality products and services. This course will not meet the prescribed requirements for the HM major in any option.

### **HM 204 Hotel and Restaurant Marketing and Merchandising (3)**

Hospitality marketing and one of its major activities, merchandising, is concerned with motivating consumers to purchase industry products and services. The objective of this course is to introduce students to a systems approach to marketing management and its tools for marketing hospitality products and services. This course allows students the opportunity to identify societal trends that have shaped the current hospitality marketplace as well as to identify demographic, psychographic, and environmental factors that affect customer needs. Merchandising strategies are discussed as appropriate. Main topics include: principles of marketing, marketing orientation, and ethics in the marketing process; services marketing, product marketing, and hospitality marketing process; customer wants and customer needs and stages of buying; marketing research for hospitality services industry (situation analysis, market analysis, and feasibility analysis) primary and secondary market research, market segmentation, trends that influence services and shape the market; marketing mix, marketing strategy, product life cycles, and steps in a marketing plan; product/service mix, product development process, vertical and horizontal integration and partnerships; applying the marketing mix to people - empowering employees, customer mix, total quality management; applying the marketing mix to packaging, programming placement and their roles in marketing hospitality services, developing a package, distribution mix in hospitality, nature of packaging and programming; applying the marketing mix to promotion, advertising public relations, publicity, merchandising, personal selling and sales promotion, promotional mix, elements in the communication process; planning advertising, sales promotion, merchandising; planning, publicity and public relations, personal selling; applying the marketing mix to pricing - setting price, demand.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 228 Hospitality Food Safety (1)** Application of HACCP, U.S. Food Code, biosecurity and other federal regulations to hospitality foodservice operations. Students attain certification in foodservice sanitation.

### **HM 228 Hospitality Food Safety (1)**

This course will examine the science associated with preparing and serving food that is safe for consumption with regards to biological, chemical, and physical contamination. Emphasis is on federal regulations associated with HACCP, the U.S. Food Code, and other issues associated with safety of the food supply in the U.S. Case studies help students apply food safety principles to hospitality operations. Students will attain certification in foodservice sanitation by taking the examination administered by the National Restaurant Association.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**HM 250** Principles of Quantity Food Production (3) Principles and methods of quantity food production including preparation techniques, quality control and evaluation, and cost control.

**Principles of Quantity Food Production (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 260** Hospitality Supervision Seminar (3) Hospitality management topics are discussed with a major emphasis on operations management. This course will not meet the prescribed requirements for the HM major in any option.

**HM 260 Hospitality Supervision Seminar (3)**

This course is an introduction to human resource management in the hospitality industry. The course examines the fundamentals of supervision that include planning, basic management functions, and customer relations and service. The overall course focus is on building relationships with diverse employees through communication, motivation, supervision and leadership. Additional topics covered include the human resource environment in hospitality operations, employee recruitment, selection, orientation, training, empowerment, performance appraisals and discipline, risk management, and labor organizations. An introductory supervision course is vital to the success of a hospitality student. It is important to explore this topic in relation to the labor trends in the United States. It is equally important to examine the current demographic and socio-economic conditions that the student faces. Knowing how to access this information in the future will assist the student throughout his/her career. Emphasis will be placed on the diversity of the student as well as his/her employees and colleagues. Social identity is addressed early in the course. Human relationships and interactions are included throughout the course, as supervisors interact with their employees, colleagues, upper management and customers on a daily basis. Values, traditions, beliefs, and customs shape every human being and students will learn how to be sensitive to those differences through the practical applications in each lesson.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 270** Hospitality Administration Seminar (4) Components of food service systems are identified and studied as separate problems and as a total system. This course will not meet the prescribed requirements for the HM major in any option.

**HM 270 Hospitality Administration Seminar (4)**

The organization of a restaurant facility, from concept to operation, allows a student the opportunity to apply all previously learned course material in the Hospitality Management program. The focus of the course urges the student to apply the principles of marketing, menu planning, food cost control, human resource management, financial accounting, layout and design, and purchasing. This course is presented in a seminar format and includes a restaurant design project. Students who have completed this course gain the perspective of designing a restaurant facility with customers' needs and owners' profits in mind. Main topics include: creating a marketing plan and business plan, financing and leasing, leasing and tax matters, menu writing, menu analysis, function analysis, kitchen design and layout design conventions, recruiting and staffing including training and development, food purchasing, bar and beverage purchasing, beverage and alcohol service, and budgeting and controlling costs. The content of this course is considered fundamental for anyone in hospitality management and, therefore is required of all Hospitality Management majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: HM 250HM 260 ; orMGMT 341

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 271** Introduction to Hospitality Technology (3) Introduction to technologies used in the hospitality industry including networks, security, e-commerce, social media, spreadsheets, databases and property management systems.

**HM 271 Introduction to Hospitality Technology (3)**

This course is designed to introduce students to the technology used in the hospitality industry and to the concepts of information technology. The objectives are to describe how managers in the hospitality industry use various information technologies to solve problems and make decisions, describe the role of hospitality managers in information system development and management, describe the functions of network and security systems within in hospitality technology systems, explain the role of hospitality information systems, e-commerce, distribution technologies, and social media in strengthening an operation or company's competitive position, and demonstrate competency in the use of spreadsheet, database and property management system software with skills applicable to the hospitality industry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Prerequisite or concurrent:HM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 304** Institutional Food Service Management (3) Institutional food service management systems in the hospitality field.

### **HM 304 Institutional Food Service Management (3)**

Institutional and contract food service management is in the growth stage of the hospitality industry life cycle. The objective of this course is to provide an overview of the various segments of institutional food service, including health care, life care, education, business, transportation (i.e., airlines, cruise ships), correctional and recreational services. Main topics typically include: historical overview of institutional/non-commercial food service management, exploring key markets where institutional food service management exists, key systems used in the fundamental areas of quantity food production, current and future trends effecting institutional food service management, career opportunities in the institutional food service management sector, and managed services and multi-department management. This course is an elective in the Hospitality Management program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better required forHM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 305 Restaurant Management (3)** Restaurant food service management systems in the hospitality field; analysis including cost control and quality control techniques.

### **HM 305 Restaurant Management (3)**

Providing quality service and products and ultimately making a profit in a restaurant require the foodservice professional to control and analyze costs. The objective of this course is to provide an overview of the food, labor, budget, and finance information required in restaurant management. Main topics typically include: framework and function of control in foodservice operations, steps and processes of using management information systems in controlling food cost and preparation of food; forecasting and menu pricing techniques in controlling food cost in the preparation and service of food; problems associated with labor costs and analyzing various techniques and tools used to control labor cost effectively through proper staffing and scheduling; methods of controlling food and beverage cost through effective purchasing, receiving, storage, issuing, preparation, inventory, and portion control; techniques of preparation and implementation of effective budgets as control tools; ratio-analysis for analyzing cost in foodservice operations; financial statements used to monitor the financial health of a foodservice operation; and capital budgeting and how it is used. This course is required in the Hospitality Management program. The introductory course in Hospitality Management must have been completed or must be taken concurrently.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: or concurrent:HM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 306 Hospitality in Senior Living (3)** Introduction to senior living and continuing care retirement communities and related hospitality management career opportunities.

### **HM 306 Hospitality in Senior Living (3)**

This course introduces students to continuing care retirement communities (CCRC's) and senior living facilities. The course is taught from a hospitality perspective and focuses on how the application of hospitality management can enhance senior communities and their residents. The multidisciplinary content includes a variety of perspectives on designing and delivering services for seniors, including long-term care administration, geriatric nursing, adulthood and aging, therapeutic recreation, and nutrition and foodservice.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: HM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 311 Wine Appreciation (2)** A study of identification of varieties of wine, methods and techniques of viniculture, development of wine lists and wine marketing.

### **Wine Appreciation (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Students must be 21 years of age or older to register for this course.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 318 Club Management and Operations (2)** Principles and practices of club organizations and management.

### **HM 318 Club Management and Operations (2)**

This course focuses on the unique management skills that are necessary in the private club industry. A key objective is to demonstrate to students the concept of "exceptional service" that is demanded in this field. The course leads students on a tour of the responsibilities and operations of all departments that would be found in a city or country club. Main topics typically include: club management industry and career opportunities; types of clubs that exist in the industry, including structure, organization, and philosophy; the various departments of a successful club including but not limited to: food

and beverage, accounting and cost control, human resources, marketing and promotion, catering and banquets, golf operations, tennis operations, aquatics, and fitness facilities; and management skills required of a club manager: leadership, board relations, general management, service excellence, communications. The course is required in the Professional Golf Management option in the Recreation, Park, and Tourism Management program and is a professional elective for Hospitality Management majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better required for HM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 319 Hospitality Facilities Management (3)** Fundamental principles of facilities planning, facilities management, and maintenance for all segments of the hospitality industry.

### **HM 319 Hospitality Facilities Management (3)**

This course has been designed to provide students with information related to hospitality facility design and maintenance. While managers may not have to fix equipment or install heaters, they should understand the complexity of these tasks and respect the position of the architect and hospitality engineer. Main topics typically include: principles of facility engineering and maintenance, costs associated with the life cycle of a hospitality facility; role of the manager in the planning and maintenance process; function of the building in service and marketing, impact of building design on guest service and operation; evaluation of building and grounds for compliance with the Americans with Disabilities Act of 1990; role of management in development, planning, and remodeling of food service operations; and flow of resources as exhibited in blueprints. The course is a required course for all Hospitality Management majors. Students must first complete the introductory hospitality course and the hospitality colloquium.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better required for HM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 329 Introduction to Food Production and Service (3)** Principles of quality food production and service stressing the integration of menu planning, recipes, cost control, and service.

### **HM 329 Introduction to Food Production and Service (3)**

This course provides students with information on the basic principles of effective food production and service management. The primary focus is the integration of menu planning, recipe writing, including HACCP, and the development and maintenance of quality standards and cost control for both food and labor throughout the foodservice cycle. Students will also be introduced to managing service in the front of the house for foodservice operations. The course is required of HM majors, and is part of the foods sequence, providing knowledge prerequisite for HM 330 and HM 430 in which student prepare and serve food for the public. This course also covers foodservice management competencies required for Nutrition students desiring to obtain a dietetic internship and the RD credential through ADA. Students must complete this course with a C or better before proceeding to the food production classes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Prerequisite or concurrent: HM 228

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 330 Food Production and Service Management (2)** Food service management laboratory stressing the integration of purchasing, menu planning, and costing in quantity production of quality food.

### **HM 330 Food Production and Service Management (2)**

This course is designed as the application of foodservice production and service management stressing the integration of management modules with training in employee positions for the quantity production of quality food. The course draws from the students' theoretical background in accounting, management, nutrition, food production and sanitation, and thus integrates these areas into the daily operation of a campus foodservice facility as a living laboratory. Students, working as a management team, coordinate and manage all aspects of the food service laboratory. Students also

experience a number of employee work positions in the laboratory. Main topics typically include: critical management decisions in a foodservice operation; evaluation of manager and employee performance, interpersonal and time management skills; procedures to prevent sanitation and safety hazards in a foodservice operation; food production, service, sanitation, and quality assurance techniques typical to foodservice operations; technical responsibilities in the development, production and evaluation of a food service system including sales, recipe production and service, cost control, purchasing, facilities management, personnel management, and financial management; critical thinking and leadership skills; and interaction with guests and accurate evaluation of the guests' dining experience.

This foodservice practicum is the second course in the foods sequence. Students enroll in this course after completing the introductory course in food production and service and a Nutrition course in food preparation. The course is a prerequisite for the advanced food production course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required for HM 228 and HM 329 ; and a grade of "C" or better in NUTR 119 or NUTR 120

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 335 Hospitality Financial Accounting (3)** Basic accounting concepts and practices applicable to hospitality organizations.

### **Hospitality Financial Accounting (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required for MATH 021 . Prerequisite or concurrent: HM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 336 Hospitality Managerial Accounting (3)** Collection, processing, and interpretation of accounting data for managerial planning, control, and evaluation in hospitality organizations.

### **HM 336 Hospitality Managerial Accounting (3)**

Managerial decision-making using accounting data is an integral part of the function of managers in the hospitality industry. The accounting function of the lodging business generates financial data, and managers need to be able to interpret the data, analyze it and make decisions based on their interpretation and analysis of the data. This course provides the student with the core knowledge needed to understand the kinds of data generated by the financial systems of hospitality operations, prepare budgets, perform variance analysis, and provide control over the financial aspects of the hospitality business. Main topics typically include:

- Introduction to managerial decision-making in the hospitality industry
- Cost behavior analysis in the hospitality industry
- Cost, volume and profit analysis in the hospitality industry
- Pricing decisions in the hospitality industry
- Preparation of operational budgets in the hospitality industry
- Calculation and interpretation of cost and revenue variances in the hospitality industry
- Preparation of cash budgets and control over cash in hospitality operations
- Preparation of the statement of cash flows in the hospitality industry
- Preparation of proforma financial statements in the hospitality industry

The content of this course is considered fundamental for anyone in hospitality management and, therefore, is required of all Hospitality Management majors. Prior to this course, students are required to have taken Financial Accounting in the Hospitality Industry. HM 336 is a pre-requisite to Financial Management in Hospitality Operations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better in HM 335 or ACCT 211 and a grade of "C" or better in HM 271

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 350 (GQ) Hospitality Decision Making and Information Systems (3)** Application of decision theory and models to solve qualitative and quantitative problems using Hospitality Information Systems and Computer Applications.

### **HM 350 Hospitality Decision Making and Information Systems (3)**

This course provides students with the opportunity to apply analytical techniques, Excel-based models, and simulation to the management of operations in the hospitality industry. The overriding goal is to provide students with the skills needed to make effective, data-driven decisions. Key topics include: decision making under certainty and risk, total quality management, process analysis and design, capacity planning, process strategy, project management, principles of revenue management, and forecasting for operations management.

General Education: GQ  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: A grade of "C" or better required for HM 271 STAT 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 350** (GQ) Hospitality Decision Making and Information Systems (3) Application of decision theory and models to solve qualitative and quantitative problems using Hospitality Information Systems and Computer Applications.

### **HM 350 Hospitality Decision Making and Information Systems (3)**

This course provides students with the opportunity to apply analytical techniques, Excel-based models, and simulation to the management of operations in the hospitality industry. The overriding goal is to provide students with the skills needed to make effective, data-driven decisions. Key topics include: decision making under certainty and risk, total quality management, process analysis and design, capacity planning, process strategy, project management, principles of revenue management, and forecasting for operations management.

General Education: GQ  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: A grade of "C" or better required for HM 271 STAT 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 355** Legal Aspects of the Hospitality Industry (3) Specialized applications of law to the hospitality industry.

### **HM 355 Legal Aspects of the Hospitality Industry (3)**

Laws, courts, and more generally the legal system together constitute an integral feature of the environment within which the hospitality industry operates. The objective of this course is to acquaint students with the application of law to hotels, restaurants, and institutional settings. A hospitality manager who understands the law can prevent many legal problems from occurring, including preventing injuries that may lead to lawsuits.

Main topics in this course typically include: types of law, judicial structure and trial procedures; conduct of legal research, including use of Web resources; legal duties of innkeepers and guests; negligence and other torts; contract law; civil rights and public accommodations, especially protections from discrimination; guests' property; regulation and licensing; employment law, especially protections from discrimination; casinos and the law; and food and alcohol service liability.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: or concurrent: HM 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 365** (IL) Organizational Behavior in the Hospitality Industry (3) Study of individual satisfaction and performance in hospitality organizations. Topics include cultural diversity, motivation, communication, group behavior, and leadership.

### **Organizational Behavior in the Hospitality Industry (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 201

Concurrent: HM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 380 Hotel Management (3)** Introduction to rooms management including front office, housekeeping, security, and engineering. Emphasizes operations, coordination, and communication within and between departments.

### **HM 380 Hotel Management (3)**

HM 380 includes an active-learning component that requires students to be in the on-campus hotels for 48 hours during the semester. This experience will allow the students the opportunity to observe the basic functions of the Rooms Division departments of a hotel. In the Front Office department, students will observe the front desk and reservation clerks. In the Housekeeping department, students will observe the room attendants, public area attendants and laundry workers. In Maintenance, students will observe maintenance employees and be introduced to Safety and Security concepts. The course will include a 2-hour per week lecture that focuses on Rooms Division departments but also briefly discuss other operating departments within a hotel.

Students will also complete other assignments that encourage them to consider how hotel departments operate and work together. Students will keep a daily journal of their work rotation experiences and observations, and will also be asked to answer several questions about how the departmental operations, interdepartmental communication, and other topics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better in HM 201 HM 271

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 384 Introduction to Meeting and Event Planning (3)** This course provides an overview of the meeting, event, and conference sector of the hospitality industry.

### **HM 384 Introduction to Meeting and Event Planning (3)**

This course focuses on the meeting and event sector of the hospitality industry. This course provides an overview of the major processes involved in planning and implementing meetings, special events, and conferences. Students will learn and apply the logistics of building a meeting plan to gain an overall understanding of contract negotiation, menu planning, budgeting, site selection, and on-site management. When applicable, invited speakers will provide an applied perspective about the meeting and event profession.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: Prerequisite or concurrent: HM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 385 Management Principles in Dietetic Services (3)** Application and integration of management principles and leadership skills in dietetic services.

### **HM 385 Management Principles in Dietetic Services (3)**

This course is designed to foster the integration of management principles in the profession of dietetics. Emphasis is placed on leadership development, decision making/problem solving, strategic planning, and marketing of dietetic services. Through case studies, the interrelationship of food and nutrition labor and equipment are demonstrated. Students develop a business plan for a food and nutrition services business venture, which will be presented at the end of the semester. Main topics typically include: effective leadership in dietetics services; interpretation of financial data with emphasis on identifying and correcting problematic areas in food and nutrition services; types of budgets, including operating, capital, and flexible; negotiation techniques in different situations; strategic planning process, including vision and mission statement writing; principles and skills necessary in human resource management and their unique application in food and nutrition services; service marketing principles in a variety of food and nutrition settings; and kitchen equipment layout and design and their relationship to efficient production and service in delivery of nutrition services.

This course is part of the required sequence of foodservice management courses applied nutrition science majors take in the hospitality discipline. Students must have completed a food production course and a nutrition course on administration of nutrition services in a health care setting. This course provides management of dietetic services

principles addressed in the national registration examination for dietitians.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: HM 330NUTR 380

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 386** Introduction to the Gaming and Casino Industry (3) Students will learn about those traits of the casino industry which distinguish it from other segments of the hospitality industry.

### **Introduction to the Gaming and Casino Industry (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: Prerequisite or concurrent:HM 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 387** Casino Controls (3) This course is an overview of controls used in casinos including an exploration of complimentary goods (comps) and services and credit.

### **Casino Controls (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: "C" or better inHM 201HM 335 andHM 386  
 Concurrent: HM 388

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 388** Gaming Operations Management (3) Students will learn casino mathematics, game protection, floor layout methods, departmental organizational structure, and performance analysis.

### **Gaming Operations Management (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: "C" or better inSTAT 200HM 201 andHM 386  
 Concurrent: HM 387

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 395W** Practicum Analysis (3) Written analysis comparing and contrasting conceptual issues in the hospitality industry.

### **HM 395W Practicum Analysis (3)**

The purpose of this course is to help students develop a more thorough understanding of critical and strategic issues impacting the hospitality industry. Drawing on their previous work experience and course work, students will reflect on and analyze a variety of issues, such as those relating to operations, human resource management, marketing, and financial management. Ultimately, the goal of this course is to develop students' critical thinking skills to be successful in their future careers as managers and executives in the hospitality industry.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: HM 201 1000 hours of adviser-approved professional hospitality experience

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.



**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 399 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 411** Beverage Management and Wine Selection (3) Management issues in beverage service and products. Students taste wines, brews, and distilled spirits.

**Beverage Management and Wine Selection (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: students must be at least 21 years old

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 413** New Product Development for Commercial Foodservice (3) This course introduces students to a new product development process that requires coordination, communication, and integration throughout the organization.

**New Product Development for Commercial Foodservice (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: a grade of "C" or better in HM 329

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 415** International Cuisine (3) Cooking and eating practices of cultures around the world, including historical, religious, cultural, geographic, and political influences on each cuisine.

**HM 415 International Cuisine (3)**

The objective of this course is to expose students to managerial and cultural issues of cuisine and how they influence the development of commercial food and beverage operations. The text and lectures lay the foundation for the understanding of culture and cuisine. Main topics typically include: understanding how cuisine has developed over time; exploring a variety of foods grown in distant regions and dissemination as adventures contacted (and often conquered) other people and learned of their cultures; evolution of trade that brought exotic foods from distant locales; geography's role in defining the types of foods and quantities of crops that can be produced around the globe; and critical components of the major world cuisines.

The course is an elective for Hospitality Management students. Prior to taking this professional elective, students must complete the introductory course in food production and management.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: A grade of "C" or better required for HM 201NUTR 100NUTR 119

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 430** Advanced Food Production and Service Management (3) Simulation and application of technical, conceptual,

interpersonal skills. Emphasis on group dynamics; improvement in managerial skills; management team functions.

### **HM 430 Advanced Food Production and Service Management (3)**

This course is designed to give students an opportunity to gain experience in the wide range of skills and techniques that are normally associated with the duties of a hospitality manager. The skills and techniques that will be emphasized include, but are not limited to, duties involved in the planning, execution and evaluation of full-service, theme oriented ala carte dining. Students are expected to form a marketable theme and then develop, produce and evaluate an authentic dining experience. A successful dining experience is contingent upon both guest satisfaction and the achievement of financial goals. Main topics typically include:

- \* Research, describe and produce an authentic restaurant environment from a selected theme
- \* Demonstration of technical responsibilities involved in the development, production and evaluation of a wide range of food service systems including: sales, menu planning, recipe development and evaluation, pricing, purchasing, facilities management, personnel management and financial management
- \* Operational needs and potential problems in a food and beverage operation during production and service
- \* Timely and effective managerial problem identification and decision-making abilities
- \* Interpersonal and teamwork skills both within a management team and with classmates as employees
- \* Interaction with guests and evaluation of guests' dining experiences

The course is a capstone management class in the foods sequence and is required of all Hospitality Management majors. Students must first complete the introductory food production course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required for HM 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 432 Contemporary Issues in Restaurant Management (3)** A focus on special topics and current events in the restaurant industry.

### **HM 432 Contemporary Issues in Restaurant Management (3)**

The purpose of this course is to focus on contemporary issues and current events in the restaurant and food service management. The course will attempt to keep the students as updated as possible regarding the industry by covering these topics and including a discussion of current events from headline news services and other electronic references. Students gain knowledge that is applicable specifically to the restaurant and foodservice industry. This course explores the global food and drink market in today's challenging climate with analysis of trends and conditions expected to influence sales value and volume growth over the next five years. Discussion will include the impact economic shifts have on the restaurant and food service industry and the subsequent influence on consumer purchasing habits and food and drink sales over several years. This course considers food and drink New Product Development (NPD) and other vital branding, marketing and sales strategies in the context of the following challenges, issues and trends expected to influence restaurants and food service management over the years.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: a grade of "C" or better in HM 201 HM 228 and HM 329

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 435 Financial Management in Hospitality Operations (3)** Fiscal techniques in the development, management, and control of hospitality establishments.

### **Financial Management in Hospitality Operations (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required in ECON 102 or ECON 014 and HM 336 . Prerequisite or concurrent: HM 350

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 437 Hospitality Project Evaluation and Funding (3)** Current techniques for project evaluation in the hospitality industry; trends in hospitality project funding.

### **Hospitality Project Evaluation and Funding (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: HM 435

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 438** Cases in Financial Analysis (3) Financial analysis and decision making is examined through a series of hospitality-oriented cases.

### **Cases in Financial Analysis (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: HM 435

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 442** Hospitality Marketing (3) Marketing management in the hospitality industry, including analyzing the market through market research and developing a marketing plan.

### **Hospitality Marketing (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: A grade of "C" or better required in HM 201MKTG 221

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 443** Sales Planning and Advertising for Hospitality Operations (3) Elements of sales management, advertising, promotion, and public relations as applied to hospitality organizations.

### **HM 443 Sales Planning and Advertising for Hospitality Operations (3)**

The hospitality industry is entering an era in which operational and product parity between organizations and their properties is increasingly likely. This is so because of their shared access to technology, design and training devices. Consequently, it becomes evident that increases in sales will be reliant on the competitive advantages that professionals achieve in marketing strategies, sales management, and especially in marketing communications (MARCOM) tactics and execution. This course exposes students to a wide range of hospitality marketing communications issues. Students gather information from electronic media, trade and travel media, and consumer media. Students explore hospitality MARCOM issues through semester-long individual projects. Main topics typically include:

- \* Marketing versus selling strategies
- \* Industry trends that affect advertising and sales especially Internet activities
- \* Types of advertising media
- \* Print advertising principles
- \* Broadcast advertising principles
- \* Foundations of direct marketing
- \* Elementals of public relations
- \* Travel agency relations
- \* Personal sales

This is an elective course. Students must first take the hospitality marketing course in Hospitality Management.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: a grade of "C" or better for HM 442

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 466** (US) Human Resource Management in the Hospitality Industry (3) Recruitment, selection, training, performance appraisal, and compensation of hospitality human resources in today's culturally diverse work force.

### **Human Resource Management in the Hospitality Industry (3)**

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required in HM 201 HM 365

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 467** Management of Hotel and Restaurant Employee Relations (3) Survey and analysis of managerial strategies for employee relations in hospitality operations.

### **HM 467 Management of Hotel and Restaurant Employee Relations (3)**

The objective of this course is to provide students with an understanding of labor relations in the hospitality industry. Students need to know about labor laws as they affect the industry and specifically about collective bargaining. Primary emphasis is given to private-sector labor relations, but some consideration is given to the public sector. Main topics typically include:

- \* Introduction to employee relations in hotels and restaurants
- \* Economic influences on the hotel and restaurant labor market
- \* Labor law as applied to the hospitality industry
- \* Management strategies in collective bargaining
- \* Administration of labor contracts
- \* Management and supervisory strategies in labor disputes

The course is an elective in the hospitality program. Students must first complete the course in hospitality human resources.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better in HM 466

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 471** New Trends and System Selection in Hospitality Information Technology (3) This course introduces the student to new information technology in the hospitality industry and to the system selection process.

### **HM 471 New Trends and System Selection in Hospitality Information Technology (3)**

The purpose of this course is to focus on new IT trends and system selection in the hospitality industry. New trends are topics that have become important or prevalent in the industry and are generally not covered in other courses. Examples include Software as a Service delivery of property management systems, enterprise restaurant management reporting, Web 2-3.0, smart phone applications, Radio Frequency Identification (RFID), etc. The course will attempt to keep the students as updated as possible regarding the industry trends by covering these topics and including a discussion of current events from industry partners, headline news services, and other electronic references. Students gain knowledge that is applicable specifically to the hospitality industry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2015 Future: Summer 2015

Prerequisite: A grade of "C" or better required for HM 271

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 480** Advanced Hotel Management (3) Advanced hotel operations, internal control systems, and service philosophy. Integrates management, departmental operations, law, technology applications, marketing and managerial accounting.

### **Advanced Hotel Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: A grade of "C" or better required in HM 336 HM 380

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 482** Hospitality Real Estate (3) The course focuses on commercial real estate concepts related to the hospitality industry.

**Hospitality Real Estate (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: A grade of "C" or better required inHM 336HM 380

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 483 Revenue Management (3)** Students learn how to effectively implement revenue management strategies and techniques in the hospitality industry.

**Revenue Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: a grade of C or better inHM 350

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 484 Hospitality Entrepreneurship (3)** The course focuses on successfully launching new business ventures in the hospitality industry.

**HM 484 Hospitality Entrepreneurship (3)**

The purpose of this course is to commence the learning process regarding Entrepreneurship in the Hospitality Industry. The course provides the student with a solid foundation of how an idea is generated and taken to market for implementation. The students will examine the characteristics of the entrepreneur and the process followed from generating an idea, to building a business model, preparing a competitive analysis, completing a feasibility study, reviewing intellectual property, developing a business plan, seeking funding and presenting their idea to potential investors. Topics include idea recognition, feasibility studies, business plans, developing a business model, intellectual property, marketing, financing, organizational growth, and franchising. The course is oriented to the student who would like to own a business.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: a grade of "C" or better inHM 336MKTG 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 486 Casino Marketing (3)** Students will learn marketing techniques for casinos which take into account the external environment, individual consumer choices, and ethical considerations.

**HM 486 Casino Marketing (3)**

The primary objective of this course is to introduce the advanced standing student to the factors affecting the effective marketing of a modern casino. General marketing principles and concepts build the foundation for the study of marketing techniques unique to the casino industry. Consumer behavior and external environments create the context in which all marketing decisions and activities occur. Their study ensures the student has the basics to approach any marketing problem. Before the strategic use of marketing to build brand awareness and to ensure profitability is learned, the impact of social and ethical responsibility is studied including disordered gambling and smoking bans. The need to advertise and promote without exacerbating the incidence of disordered gambling is an increasingly necessary ability required of casinos today. A thorough knowledge of segmentation and positioning are required as well. Extra time is allotted to both social responsibility and segmentation/positioning. Strategic marketing entails identifying the components of a marketing plan, their purpose, and the method of execution. Various concepts such as profit-service chain and revenue management are covered to round out the student's knowledge of marketing. The course spends time on promotions which are unique to the casino industry including, but not limited to professional boxing matches and other special events, slot and players' clubs, special entertainment venues, on-floor promotions, and so on. The student learns the importance of location and transportation issues and how they impact the revenue and profitability of a casino. Meetings and conventions generate revenue during off-peak periods and are significant factors in the revenue stream of a casino.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: "C" or better inMKTG 221HM 387HM 388 andHM 495

Concurrent: HM 487

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 487 Casino Operations and Societal Impact of Gaming (3)** Students will learn the structure, culture, and ethical responsibility toward disordered gambling and other lifestyle issues of modern casinos.

### **HM 487 Casino Operations and Societal Impact of Gaming (3)**

The primary objective of this course is to introduce the advanced standing student to the organization structure, the organizational culture, and the ethical responsibility toward disordered gambling and other lifestyle issues of modern casinos. The student will study leaders in the casino industry to gain insight into how they contributed to the growth of their companies and the industry as a whole. Emphasis will be placed on their approach to the ethical issues of their day. The modern day casino is complex and its organizational structure reflects that complexity. The student will study the different structures and reporting relationships of actual casinos to ascertain the factors that impact the level of effectiveness of different organizational charts. The job titles and descriptions of all departments will be examined. The job titles and descriptions of the gaming departments will be studied in greater depth than in Gaming Operations (HM 388). The lifestyle of customers and employees alike will be examined particularly those issues that impact health and social services. Specific topics include relationships of actual casinos to ascertain the factors that impact the level of effectiveness of different organizational charts. The job titles and descriptions of all departments will be examined. The job titles and descriptions of the gaming departments will be studied in greater depth than in Gaming Operations (HM 388). The lifestyle of customers and employees alike will be examined particularly those issues that impact health and social services. Specific topics include disordered gambling and smoking. Disordered gambling will be studied in greater depth than in Introduction to Casino Management (HM 386) and will be examined simultaneously with Casino Marketing (HM 486). The human resources function will be scrutinized as a filtering process for selecting the right employees and for training and reinforcing the organization's commitment to ethical and responsible behavior. The casino design project will take the student's ability to design a slot floor layout, a table games floor layout, to create a list of hotel room amenities, to write a positioning statement for a range of restaurants in a hypothetical casino, to develop a list of multiple entertainment venues and so on to a higher level than previous coursework so that the final product demonstrates the student's knowledge and expertise in casino management.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: "C" or better in HM 387 HM 388 and HM 495

Concurrent: HM 486

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 490W Strategic Hospitality Management (3)** This capstone writing-intensive class integrates content from throughout the previous curriculum, focusing on strategic application to current industry issues.

### **HM 490W Strategic Hospitality Management (3)**

This capstone course integrates previous courses in the curriculum and introduces students to new strategic management concepts. This course adopts a macro perspective by focusing on the total hospitality enterprise and the external competitive environment in which hospitality firms operate. The goal of the course is to develop students' analytical skills to formulate, implement, and evaluate business strategies. Using a case-based approach, the course emphasizes critical thinking and evidence-based decision making.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: a grade of "C" or better for HM 365 HM 435 HM 442

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 492 Advanced Professional Seminar in Hospitality Management (1)** Course prepares senior HM students to assume leadership positions in the hospitality industry (Focus on careers, leadership, ethics, lifelong learning).

### **Advanced Professional Seminar in Hospitality Management (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: 1000 hours of work experience in the hotel restaurant and institutional management industry

Concurrent: HM 430 HM 466 HM 490W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 495A Penn State Hospitality Services Hotel Internship (3)** Supervised internship with Penn State Hospitality Services and weekly class meetings.

**HM 495A Penn State Hospitality Services Hotel Internship (3)**

Students will obtain hands-on work experience through employment in one or more departments with Penn State Hospitality Services. Experience may include front desk, housekeeping, maintenance, sales, accounting, food and beverage, culinary, banquets, or reservations. Students will work 15-20 hours per week throughout the semester and attend weekly classroom sessions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Employment offer from Penn State Hospitality Services approval of internship assignment by program and a minimum overall grade point average of 2.50.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 495A Penn State Hospitality Services Hotel Internship (3)** Supervised internship with Penn State Hospitality Services and weekly class meetings.

**HM 495A Penn State Hospitality Services Hotel Internship (3)**

Students will obtain hands-on work experience through employment in one or more departments with Penn State Hospitality Services. Experience may include front desk, housekeeping, maintenance, sales, accounting, food and beverage, culinary, banquets, or reservations. Students will work 15-20 hours per week throughout the semester and attend weekly classroom sessions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Employment offer from Penn State Hospitality Services approval of internship assignment by program and a minimum overall grade point average of 2.50.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 495B Penn State Hospitality Services Executive Internship (3)** A project-oriented internship with Penn State Hospitality Services either at The Nittany Lion Inn or The Penn Stater Conference Hotel.

**HM 495B Penn State Hospitality Services Executive Internship (3)**

Students will participate in project-based internship under the guidance of a department head with Penn State Hospitality Services. Students will work approximately 15-20 hours per week over the course of a semester. The goal of this internship is to provide students with a variety of work and project experiences to develop their managerial competencies. These assignments will vary from student to student, based on his or her interests and professional development needs.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Selection by Penn State Hospitality Services department head approval of internship assignment by instructor minimum overall grade point average of 2.50 and HM 495A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 495B Penn State Hospitality Services Executive Internship (3)** A project-oriented internship with Penn State Hospitality

Services either at The Nittany Lion Inn or The Penn Stater Conference Hotel.

### **HM 495B Penn State Hospitality Services Executive Internship (3)**

Students will participate in project-based internship under the guidance of a department head with Penn State Hospitality Services. Students will work approximately 15-20 hours per week over the course of a semester. The goal of this internship is to provide students with a variety of work and project experiences to develop their managerial competencies. These assignments will vary from student to student, based on his or her interests and professional development needs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Selection by Penn State Hospitality Services department head approval of internship assignment by instructor minimum overall grade point average of 2.50 and HM 495A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 495C Penn State Housing & Food Service Internship (3)** Supervised internship with Penn State Housing and Food Services and weekly class meetings.

### **HM 495C Penn State Housing & Food Service Internship (3)**

Students will obtain hands on-experience through employment with Penn State Housing and Food Services. Experience may include preparing for concerts and sporting events, front-of-house and back-of house food and beverage operations, shadowing managers, and supervising employees. Students will work 15-20 hours per week throughout the semester and attend weekly classroom sessions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Employment offer from Penn State Housing and Food Services approval of internship assignment by instructor and a minimum overall grade point average of 2.50.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 495C Penn State Housing & Food Service Internship (3)** Supervised internship with Penn State Housing and Food Services and weekly class meetings.

### **HM 495C Penn State Housing & Food Service Internship (3)**

Students will obtain hands on-experience through employment with Penn State Housing and Food Services. Experience may include preparing for concerts and sporting events, front-of-house and back-of house food and beverage operations, shadowing managers, and supervising employees. Students will work 15-20 hours per week throughout the semester and attend weekly classroom sessions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Employment offer from Penn State Housing and Food Services approval of internship assignment by instructor and a minimum overall grade point average of 2.50.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 495D External/Off Campus Internship (3)** A supervised off-campus internship with an approved site participant, typically spanning one semester or a summer in length.

### **HM 495D External/Off Campus Internship (3)**

Students are employed off campus for this internship for a full semester or summer, working 40-50 hours per week in an approved hospitality setting (a minimum of 400 hours). Work experiences and projects will vary from student to student and from site to site.

General Education: None

Diversity: None



Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: approval of proposed work assignment by instructor and a minimum overall grade point average of 2.50

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 495D External/Off Campus Internship (3)** A supervised off-campus internship with an approved site participant, typically spanning one semester or a summer in length.

### **HM 495D External/Off Campus Internship (3)**

Students are employed off campus for this internship for a full semester or summer, working 40-50 hours per week in an approved hospitality setting (a minimum of 400 hours). Work experiences and projects will vary from student to student and from site to site.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: approval of proposed work assignment by instructor and a minimum overall grade point average of 2.50

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 495E External Off Campus Internship (1-6)** Student will participate in a supervised internship with an approved site participant. Internships are typically one semester in length.

### **External Off Campus Internship (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 495F Housing and Food Service Internship (3)** Students will participate in a supervised internship with a facility within PSU housing and food service.

### **Housing and Food Service Internship (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**HM 497B** Advanced Meeting Planning (3) Students will apply advanced concepts and applications to event and meeting planning and implement an event plan.

**Advanced Meeting Planning (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: meeting and events I

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 497E** Corporate Social Responsibility (3) Examines the role of ethics and corporate social responsibility in the hospitality industry.

**Corporate Social Responsibility (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HM 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Hotel, Restaurant, and Institutional Management (HRIM)**

**HRIM 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2007 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2007 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 201** Introduction to Management in the Hospitality Industry (3) Introduction to the hospitality industry and hospitality management.

**HRIM 201 Introduction to Management in the Hospitality Industry(3)**

The objectives of this course are to provide an introduction to the hospitality industry, to management practices within the industry, and to the hospitality major. Students have an opportunity to learn about the functions of management; the major components of the hospitality, travel, and tourism industries; trade associations and publications; growth areas and trends; and the need for creative leadership. Main topics typically include:

Functions of management and functional areas of business segments of the hospitality industry

International business as related to hospitality

Services business

The planning process and strategic planning

Organization design in hospitality

Directing and leading in hospitality

The control process in hospitality

Hospitality, travel, and tourism industries

Hotels and lodging

The restaurant business

Managed services

Leisure and recreation/other hospitality opportunities

Beverage management

Management ethics and social responsibility

This course is an introduction to the field and is required of all hospitality majors. It is a prerequisite for many courses in the major. Students are evaluated based on examinations and exercise and homework assignments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2003 Ending: Summer 2014

Concurrent: HRIM 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 202** Colloquium in Hospitality Management (1 per semester, maximum of 4) Major industry and professional speakers lecture on current issues followed by discussion with students and faculty.

**HRIM 202 Colloquium in Hospitality Management (1 per semester/maximum of 4)**

This course has two primary objectives. First, students have an opportunity to hear from industry leaders. Second, students can determine their career directions, learn about the requirements for success in the industry, and identify career opportunities. The topics for the course vary from semester to semester depending upon the distinguished speakers who are brought to address the class. However, a common theme is trends in the industry regarding hotels, restaurants, and institutional foodservice. Students also may learn about related career opportunities, such as careers with cruise lines, travel agencies, and the like. This course is required of all hospitality majors and is a prerequisite for other courses. The course is often taken in conjunction with the introductory hospitality management course. Students are evaluated based on attendance and a paper.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 204** Hotel and Restaurant Marketing and Merchandising (3) Merchandising and marketing as a system concerned with motivating consumers to purchase hospitality products and services. This course will not meet the prescribed requirements for the HRIM major in any option.

**HRIM 204 Hotel and Restaurant Marketing and Merchandising (3)**

Hospitality marketing and one of its major activities, merchandising, is concerned with motivating consumers to purchase industry products and services. The objective of this course is to introduce students to a systems approach to marketing management and its tools for marketing hospitality products and services. This course allows students the opportunity to identify societal trends that have shaped the current hospitality marketplace as well as identify demographic, psychographic, and environmental factors that affect customer needs. Merchandising strategies are discussed as

appropriate. Main topics include:

- Principles of marketing, marketing orientation, and ethics in the marketing process
- Services marketing, product marketing, and hospitality marketing process
- Customer wants and customer needs and stages of buying
- Marketing research for hospitality services industry (situation analysis, market analysis, and feasibility analysis) primary and secondary market research
- Market segmentation, trends that influence services and shape the market
- Marketing mix, marketing strategy, product life cycles, and steps in a marketing plan
- Product/service mix, product development process, vertical and horizontal integration and partnerships
- Applying the marketing mix to people - empowering employees, customer mix, total quality management
- Applying the marketing mix to packaging, programming placement and their roles in marketing hospitality services, developing a package, distribution mix in hospitality, nature of packaging and programming
- Applying the marketing mix to promotion, advertising public relations, publicity, merchandising, personal selling and sales promotion, promotional mix, elements in the communication process
- Planning advertising, sales promotion, merchandising
- Planning, publicity and public relations, personal selling
- Applying the marketing mix to pricing - setting price, demand

The content of this course is considered fundamental for anyone in hospitality management. This course, or a course similar to it in Marketing is required of all Hotel, Restaurant, and Institutional Management majors. Evaluation methods usually include examination, quizzes, and short writing assignments. Case simulations involving group assignments are also sometimes used. The course is usually offered on the Penn State World Campus on an open enrollment basis and at Penn State Berks on an as-needed basis.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 228 Hospitality Food Safety (1)** Application of HACCP, U.S. Food Code, biosecurity and other federal regulations to hospitality foodservice operations. Students attain certification in foodservice sanitation.

#### **HRIM 228 Hospitality Food Safety (1)**

This course will examine the science associated with preparing and serving food that is safe for consumption with regards to biological, chemical, and physical contamination. Emphasis is on federal regulations associated with HACCP, the U.S. Food Code, and other issues associated with safety of the food supply in the U.S. Case studies help students apply food safety principles to hospitality operations. Students will attain certification in foodservice sanitation by taking the examination administered by the National Restaurant Association. Frequent quizzes will help students prepare for this national exam. This course will be taught each semester and successful completion plus achieving the foodservice sanitation certification is required as a prerequisite for HRIM 330.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 250 Principles of Quantity Food Production (3)** Principles and methods of quantity food production including preparation techniques, quality control and evaluation, and cost control.

#### **HRIM (D S M) 250 Principles of Quantity Food Production (3)**

This course provides an understanding of basic food preparation principles including physical and chemical properties of food, preparation methods and equipment use for managers in restaurant and non-commercial food service operations. Main topics include sensory evaluation, food service equipment, standardized recipes, *mise en place*, cooking methods for principal food groups, menu development, food presentation, convenience foods, seasonings and flavorings, baking principals and current topics related to special diets and new developments in the food supply. Students will develop an understanding of control measures to insure food quality, nutrient retention and achievement of budgetary goals. The objective of this course includes developing a framework for a student to apply organizational skills to the food production worksite.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**HRIM 260 Hospitality Supervision Seminar (3)** Hospitality management topics are discussed with a major emphasis on operations management. This course will not meet the prescribed requirements for the HR&IM major in any option.

### **HRIM 260 Hospitality Supervision Seminar (3)**

This course is an introduction to human resource management in the hospitality industry. The course examines the fundamentals of supervision that include planning, basic management functions, and customer relations and service. The overall course focus is on building relationships with diverse employees through communication, motivation, supervision and leadership. Additional topics covered include the human resource environment in hospitality operations, employee recruitment, selection, orientation, training, empowerment, performance appraisals and discipline, risk management, and labor organizations.

An introductory supervision course is vital to the success of a hospitality student. It is important to explore this topic in relation to the labor trends in the United States. It is equally important to examine the current demographic and socio-economic conditions that the student faces. Knowing how to access this information in the future will assist the student throughout his/her career.

Emphasis will be placed on the diversity of the student as well as his/her employees and colleagues. Social identity is addressed early in the course. Human relationships and interactions are included throughout the course, as supervisors interact with their employees, colleagues, upper management and customers on a daily basis. Values, traditions, beliefs, and customs shape every human being and students will learn how to be sensitive to those differences through the practical applications in each lesson.

**HRIM 260 Hospitality Supervision Seminar (3)** This course is an introduction to human resource management in the hospitality industry. The course examines the fundamentals of supervision that include planning, basic management functions, and customer relations and service. The overall course focus is on building relationships with diverse employees through communication, motivation, supervision and leadership. Additional topics covered include the human resource environment in hospitality operations, employee recruitment, selection, orientation, training, empowerment, performance appraisals and discipline, risk management, and labor organizations. An introductory supervision course is vital to the success of a hospitality student. It is important to explore this topic in relation to the labor trends in the United States. It is equally important to examine the current demographic and socio-economic conditions that the student faces. Knowing how to access this information in the future will assist the student throughout his/her career. Emphasis will be placed on the diversity of the student as well as his/her employees and colleagues. Social identity is addressed early in the course. Human relationships and interactions are included throughout the course, as supervisors interact with their employees, colleagues, upper management and customers on a daily basis. Values, traditions, beliefs, and customs shape every human being and students will learn how to be sensitive to those differences through the practical applications in each lesson.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009 Ending: Summer 2014

Prerequisite: HRIM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 271 Introduction to Hospitality Technology (3)** Introduction to technologies used in the hospitality industry including networks, security, e-commerce, social media, spreadsheets, databases and property management systems.

### **HRIM 271 Introduction to Hospitality Technology (3)**

This course is designed to introduce students to the technology used in the hospitality industry and to the concepts of information technology. The objectives are to describe how managers in the hospitality industry use various information technologies to solve problems and make decisions, describe the role of hospitality managers in information system development and management, describe the functions of network and security systems within in hospitality technology systems, explain the role of hospitality information systems, e-commerce, distribution technologies, and social media in strengthening an operation or company's competitive position, and demonstrate competency in the use of spreadsheet, database and property management system software with skills applicable to the hospitality industry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014 Ending: Summer 2014

Prerequisite: Prerequisite or concurrent:HRIM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 295W Analysis of Field Experience I (3)** Capstone class integrating content from throughout the previous curriculum, including directed written analysis of the 500-hour hospitality working experience.

### **HRIM 295W Analysis of Field Experience I (2)**

This course is designed for current and future operators of lodging, commercial, and on-site (institutional) operations. It

will provide the opportunity for students to apply their theoretical knowledge from previous course work in the major to the hospitality world-of-work. The various course modules will incorporate writing as a mode to allow students to further explore their understanding of hospitality organization, marketing analysis, human resource practice, food production analysis, physical plant considerations, lodging operations, career development, management practice, and financial statement analysis. Case studies and other applied activities through written interpretation will be used to illustrate human resource practices, career development as well as other topics. This course will provide students with opportunities to develop written skills necessary to communicate effectively as hospitality professionals.

The topics typically include:

- Organization of an hospitality environment
- Demographic trends vs. advertising applications
- Employment laws
- Employee coaching
- Food production planning for productivity and control
- Organization of a physical plant
- Operations and quality control in lodging
- Opportunities for continuing hospitality career development
- Strategic planning in the hospitality industry
- Reviews of financial statements

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 201HM 204HM 250HM 335 andHM 380

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 295W** Analysis of Field Experience I (3) Capstone class integrating content from throughout the previous curriculum, including directed written analysis of the 500-hour hospitality working experience.

#### **HRIM 295W Analysis of Field Experience I (2)**

This course is designed for current and future operators of lodging, commercial, and on-site (institutional) operations. It will provide the opportunity for students to apply their theoretical knowledge from previous course work in the major to the hospitality world-of-work. The various course modules will incorporate writing as a mode to allow students to further explore their understanding of hospitality organization, marketing analysis, human resource practice, food production analysis, physical plant considerations, lodging operations, career development, management practice, and financial statement analysis. Case studies and other applied activities through written interpretation will be used to illustrate human resource practices, career development as well as other topics. This course will provide students with opportunities to develop written skills necessary to communicate effectively as hospitality professionals.

The topics typically include:

- Organization of an hospitality environment
- Demographic trends vs. advertising applications
- Employment laws
- Employee coaching
- Food production planning for productivity and control
- Organization of a physical plant
- Operations and quality control in lodging
- Opportunities for continuing hospitality career development
- Strategic planning in the hospitality industry
- Reviews of financial statements

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 201HM 204HM 250HM 335 andHM 380

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**HRIM 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2007 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 304** Institutional Food Service Management (3) Institutional food service management systems in the hospitality field.

### **HRIM 304 Institutional Food Service Management (3)**

Institutional and contract food service management is in the growth stage of the hospitality industry life cycle. The objective of this course is to provide an overview of the various segments of institutional food service, including health care, life care, education, business, transportation (i.e., airlines, cruise ships), correctional and recreational services. Main topics typically include:

- Historical overview of institutional/non-commercial food service management
- Exploring key markets where institutional food service management exists
- Key systems used in the fundamental areas of quantity food production
- Current and future trends affecting institutional food service management
- Career opportunities in the institutional food service management sector
- Managed services and multi-department management

This course is an elective in the Hotel, Restaurant, and Institutional Management program. Students must first complete the introductory hospitality management course. Evaluation methods usually include examinations, quizzes, projects and case studies. The course is offered on an as-needed basis.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better required for HRIM 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 305** Restaurant Management (3) Restaurant food service management systems in the hospitality field; analysis including cost control and quality control techniques.

### **HRIM 305 Restaurant Management (3)**

Providing quality service and products and ultimately making a profit in a restaurant require the foodservice professional to control and analyze costs. The objective of this course is to provide an overview of the food, labor, budget, and finance information required in restaurant management. Main topics typically include:

- Framework and function of control in foodservice operations
- Steps and processes of using management information systems in controlling food cost and preparation of food
- Forecasting and menu pricing techniques in controlling food cost in the preparation and service of food
- Problems associated with labor costs and analyzing various techniques and tools used to control labor cost effectively through proper staffing and scheduling
- Methods of controlling food and beverage cost through effective purchasing, receiving, storage, issuing, preparation, inventory, and portion control
- Techniques of preparation and implementation of effective budgets as control tools
- Ratio-analysis for analyzing cost in foodservice operations
- Financial statements used to monitor the financial health of a foodservice operation
- Capital budgeting and how it is used

This course is required in the Hotel, Restaurant, and Institutional Management program. The introductory course in Hotel,

Restaurant, and Institutional Management must have been completed or must be taken concurrently. Evaluation methods usually include examinations, quizzes, reports, and case studies. The course is offered every spring semester at Penn State Berks for ten students as well as several other students at Penn State Berks who elect to take the course. It is also offered on an open-enrollment basis on Penn State World Campus.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004 Ending: Summer 2014  
Prerequisite: or concurrent: HRIM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 310** Hotel, Restaurant, and Institutional Purchasing and Cost Control (3) Purchasing and cost control principles for hotel, restaurant, and institutional operations.

### **HRIM 310 Hotel, Restaurant, and Institutional Purchasing and Cost Control (3)**

The objective of this course is to provide a practical study of procurement as the basis for cost control and as essential support for all quality hospitality operations. Main topics typically include:

- Principles and functions of purchasing, roles of the purchasing agent
- Mechanics of purchasing, vendor selection, specification development, competitive bid development, freight agreements, purchase order
- Application of principles and mechanics to food commodity procurement (meat Products, seafood, poultry, staples, perishables, produce, and non-food supplies).

This course is an elective in the Hotel, Restaurant, and Institutional Management program. Students must first complete several courses in Hotel, Restaurant, and Institutional Management (the introductory course, colloquium, financial accounting, and introductory hotel management) and a Nutrition course dealing with elementary foods. Evaluation methods usually include examinations and homework assignments. The course is offered during the spring semester and has a maximum enrollment of 100 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: NUTR 119 a grade of "C" or better required for HM 201 HM 335

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 310** Hotel, Restaurant, and Institutional Purchasing and Cost Control (3) Purchasing and cost control principles for hotel, restaurant, and institutional operations.

### **HRIM 310 Hotel, Restaurant, and Institutional Purchasing and Cost Control (3)**

The objective of this course is to provide a practical study of procurement as the basis for cost control and as essential support for all quality hospitality operations. Main topics typically include:

- Principles and functions of purchasing, roles of the purchasing agent
- Mechanics of purchasing, vendor selection, specification development, competitive bid development, freight agreements, purchase order
- Application of principles and mechanics to food commodity procurement (meat Products, seafood, poultry, staples, perishables, produce, and non-food supplies).

This course is an elective in the Hotel, Restaurant, and Institutional Management program. Students must first complete several courses in Hotel, Restaurant, and Institutional Management (the introductory course, colloquium, financial accounting, and introductory hotel management) and a Nutrition course dealing with elementary foods. Evaluation methods usually include examinations and homework assignments. The course is offered during the spring semester and has a maximum enrollment of 100 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: NUTR 119 a grade of "C" or better required for HM 201 HM 335

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 311** Wine Appreciation (2) A study of identification of varieties of wine, methods and techniques of viticulture, development of wine lists and wine marketing.

### **HRIM 311 Wine Appreciation (2)**

The purpose of this course is to commence the learning process regarding the purpose of wine in the hospitality industry.



Topics include the identification of red and white wine grape varieties, methods of viticulture (grape cultivation), techniques of viniculture (wine making), wine producing regions of the world, fortified and sparkling wines, development of wine lists, and wine marketing. Through sensory evaluations, students are exposed to the various varietal characteristics and components of wine, in order to become better service professionals in hospitality.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008 Ending: Summer 2014

Prerequisite: Students must be 21 years of age or older to register for this course.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 318** Club Management and Operations (2) Principles and practices of club organizations and management.

### **HRIM 318 Club Management and Operations (2)**

This course focuses on the unique management skills that are necessary in the private club industry. A key objective is to demonstrate to students the concept of "exceptional service" that is demanded in this field. The course leads students on a tour of the responsibilities and operations of all departments that would be found in a city or country club. Main topics typically include:

The club management industry and career opportunities

Types of clubs that exist in the industry, including structure, organization, and philosophy

The various departments of a successful club including but not limited to: food and beverage, accounting and cost control, human resources, marketing and promotion, catering and banquets, golf operations, tennis operations, aquatics, and fitness facilities

Management skills required of a club manager: leadership, board relations, general management, service excellence, communications

The course is required in the Professional Golf Management option in the Recreation and Park Management program and is a professional elective for Hotel, Restaurant, and Institutional Management majors. Evaluation methods include examinations, short writing assignments, small group projects and participation. The course is usually offered in the fall semester to 200 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better required for HRIM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 319** Hospitality Facilities Management (3) Fundamental principles of facilities planning, facilities management, and maintenance for all segments of the hospitality industry.

### **HRIM 319 Hospitality Facilities Management (3)**

This course has been designed to provide students with information related to hospitality facility design and maintenance. While managers may not have to fix equipment or install heaters, they should understand the complexity of these tasks and respect the position of the architect and hospitality engineer. Main topics typically include:

Principles of facility engineering and maintenance

Costs associated with the life cycle of a hospitality facility

Role of the manager in the planning and maintenance process

Function of the building in service and marketing

Impact of building design on guest service and operation

Evaluation of building and grounds for compliance with the Americans with Disabilities Act of 1990

Role of management in development, planning, and remodeling of food service operations

Flow of resources, as exhibited in blueprints

The course is a required course for all Hotel, Restaurant, and Institutional Management majors. Students must first complete the introductory hospitality course and the hospitality colloquium. Students are evaluated by examinations, written exercises, and a term project. The course is offered fall and spring semesters with an enrollment of about 100 students for each semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better required for HRIM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 329** Introduction to Food Production and Service (3) Principles of quality food production and service stressing the

integration of menu planning, recipes, cost control, and service.

### **HRIM 329 Introduction to Food Production and Service (3)**

This course provides students with information on the basic principles of effective food production and service management. The primary focus is the integration of menu planning, recipe writing, including HACCP, and the development and maintenance of quality standards and cost control for both food and labor throughout the foodservice cycle. Students will also be introduced to managing service in the front of the house for foodservice operations. The course is required of HRIM majors, and is part of the foods sequence, providing knowledge prerequisite for HRIM 330 and HRIM 430 in which student prepare and serve food for the public. This course also covers foodservice management competencies required for Nutrition students desiring to obtain a dietetic internship and the RD credential through ADA. Students must complete this course with a C or better before proceeding to the food production classes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011 Ending: Summer 2014

Prerequisite: Prerequisite or concurrent:HRIM 228

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 330 Food Production and Service Management (2)** Food service management laboratory stressing the integration of purchasing, menu planning, and costing in quantity production of quality food.

### **HRIM 330 Food Production and Service Management (2)**

This course is designed as the application of foodservice production and service management stressing the integration of management modules with training in employee positions for the quantity production of quality food. The course draws from the students' theoretical background in accounting, management, nutrition, food production and sanitation, and thus integrates these areas into the daily operation of a campus foodservice facility as a living laboratory. Students, working as a management team, coordinate and manage all aspects of the food service laboratory. Students also experience a number of employee work positions in the laboratory. Main topics typically include:

- Critical management decisions in a foodservice operation

- Evaluation of manager and employee performance

- Interpersonal and time management skills

- Procedures to prevent sanitation and safety hazards in a foodservice operation

- Food production, service, sanitation, and quality assurance techniques typical to foodservice operations

- Technical responsibilities in the development, production and evaluation of a food service system including: sales, recipe production and service, cost control, purchasing, facilities management, personnel management, and financial management

- Critical thinking and leadership

- Interaction with guests and accurate evaluation of the guests' dining experience

This foodservice practicum is the second course in the foods sequence. Students take this course after the introductory course in food production and service and a Nutrition course in food preparation. Requirements include management reports, performance evaluations, and quizzes. Uniform and attendance policies also are an important component of course requirements. The course is a prerequisite for the advanced food production course. Students are evaluated based on training meals, employee laboratories, management laboratories, a final examination, and performance appraisals. This course is offered fall and spring semesters, with five sections per semester. Maximum enrollment is 100 students per semester. The course usually is offered in the summer as well.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011 Ending: Summer 2014

Prerequisite: A grade of "C" or better required forHRIM 228 andHRIM 329 ; and a grade of "C" or better inNUTR 119 orNUTR 120

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 335 Hospitality Financial Accounting (3)** Basic accounting concepts and practices applicable to hospitality organizations.

### **HRIM 335 Hospitality Financial Accounting (3)**

This course is designed to provide students with a basic knowledge of financial accounting principles and techniques. The course emphasizes what accounting information is, why it is important, and how it is used in the hospitality industry. The approach taken in this course is that accounting is the information system that measures business activities, processes that information into reports, and communicates the results to decision-makers. The students are exposed to all the important elements described above: the measurement system, processing of the information and the communication. However, the emphasis in this course is on the use of financial information from the user's perspective. Unless the user is aware of the process that generates the results of the accounting process, the user cannot make informed decisions. Therefore, the students first learn the structure of the double-entry system of accounting and then they learn how to use the information to make informed financial decisions. Main topics typically include:

Introduction to accounting principles, financial statements, the fundamental accounting equation, and accrual accounting  
 Transactions--journalizing, posting, general journal, general ledger, trial balance  
 Adjusting entries--deferrals, accruals, inventory adjustments, depreciation, adjusted trial balance  
 Completing the accounting cycle--closing entries, balance sheet, income statement, statement of owners equity, closing trial balance  
 Income statement  
 Balance sheet  
 Specialized journals, subsidiary ledgers  
 Cash  
 Receivables and payables  
 Inventory  
 Property--equipment, intangible assets, other assets  
 Payroll taxes

The content of this course is considered fundamental for anyone in hospitality management and, therefore, is required of all Hotel, Restaurant, and Institutional Management majors. Prior to this course, students are required to have taken college algebra. HRIM 335 is a pre-requisite for Managerial Decision Making in the Hospitality Industry. Evaluation methods usually include examinations, quizzes, problem and paper assignments, and a semester project. The course is usually offered fall and spring semesters with enrollments of about 50 to 60 students per section.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for MATH 021 . Prerequisite or concurrent: HRIM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 336 Hospitality Managerial Accounting (3)** Collection, processing, and interpretation of accounting data for managerial planning, control, and evaluation in hospitality organizations.

### **HRIM 336 Hospitality Managerial Accounting (3)**

Managerial decision-making using accounting data is an integral part of the function of managers in the hospitality industry. The accounting function of the lodging business generates financial data, and managers need to be able to interpret the data, analyze it and make decisions based on their interpretation and analysis of the data. This course provides the student with the core knowledge needed to understand the kinds of data generated by the financial systems of hospitality operations, prepare budgets, perform variance analysis, and provide control over the financial aspects of the hospitality business. Main topics typically include:

Introduction to managerial decision-making in the hospitality industry  
 Cost behavior analysis in the hospitality industry  
 Cost, volume and profit analysis in the hospitality industry  
 Pricing decisions in the hospitality industry  
 Preparation of operational budgets in the hospitality industry  
 Calculation and interpretation of cost and revenue variances in the hospitality industry  
 Preparation of cash budgets and control over cash in hospitality operations  
 Preparation of the statement of cash flows in the hospitality industry  
 Preparation of proforma financial statements in the hospitality industry

The content of this course is considered fundamental for anyone in hospitality management and, therefore, is required of all Hotel, Restaurant, and Institutional Management majors. Prior to this course, students are required to have taken Financial Accounting in the Hospitality Industry. HRIM 336 is a pre-requisite to Financial Management in Hospitality Operations. Evaluation methods usually include examinations, quizzes, problem and paper assignments, and a semester project. The course is usually offered fall and spring semesters with enrollments of about 50 to 60 students per section.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better in HRIM 335 or ACCT 211 and a grade of "C" or better in CMPSC 203

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 350 Hospitality Decision Making and Information Systems (3)** Application of decision theory and models to solve qualitative and quantitative problems using Hospitality Information Systems and Computer Applications.

### **HRIM 350 Hospitality Decision Making and Information Systems (3)**

The ability of hospitality managers to use good decision making processes for both everyday decisions (category I) and strategic decisions (category II) has been identified by industry leaders as a key success factor. The objective of this course is to offer the student an opportunity to learn the qualitative (sociological and psychological) factors affecting the decision process and how to apply management science models and computer-based information systems to the functional aspects of management in the hospitality industry. The course focuses on the application of modeling theory to planning

and decision-making in the hospitality industry. Main topics typically include:

- The decision making process Rational decision making
- Values for decision making
- Electric approaches to decision making
- The psychology of decision making
- The sociology of decision making
- Strategic decision success
- Quantitative analysis
- Probability concepts and applications
- Fundamentals of decision theory
- Decision trees and utility theory
- Forecasting - regression, analysis of variance, time series
- Project Management, program evaluation and review technique, critical path method
- Waiting lines and queuing theory

The content of this course is considered fundamental for anyone in hospitality management and, therefore, is required of all Hotel, Restaurant, and Institutional Management majors. Prior to this course, students are required to have taken a course in the principles of programming with business applications course and a course in elementary statistics. This course is a pre-requisite to financial management and marketing courses in the curriculum. Evaluation methods usually include case study analysis, examinations, quizzes, and short writing assignments. Group assignments are often used in a problem-based learning environment. The course is usually offered fall and spring semesters with enrollments of about 80 to 100 students divided into two sections.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for CMPSC 203STAT 200 . Prerequisite or concurrent: HRIM 201HRIM 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 355** Legal Aspects of the Hospitality Industry (3) Specialized applications of law to the hospitality industry.

### **Legal Aspects of the Hospitality Industry (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009 Ending: Summer 2014

Prerequisite: or concurrent: HRIM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 365 (IL)** Organizational Behavior in the Hospitality Industry (3) Study of individual satisfaction and performance in hospitality organizations. Topics include cultural diversity, motivation, communication, group behavior, and leadership.

### **HRIM 365 Organizational Behavior in the Hospitality Industry (3) (IL)**

This course builds on the students' knowledge of the principles of management. The objective of this course is to acquaint students with organizational issues in the hospitality industry. Main topics typically include:

- What constitutes an organization: its components and different ways of understanding organizations
- What factors influence the behavior of individuals, teams, and groups within organizations
- How the behavior of individuals, teams, and groups affects organizational effectiveness and performance
- Making the connections between organizational behavior and hospitality organization effectiveness.

The content of this course is fundamental to understanding how people work in organizations and the use of teams and groups in organizational goal achievement. This is a required course for all Hotel, Restaurant, and Institutional Management majors and is a prerequisite for the course in hospitality human resource management. Evaluation methods may include examinations, quizzes, short writing assignments, and case studies. The course is usually offered fall and spring semesters with enrollments of about 120 students.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: HRIM 201

Concurrent: HRIM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 380** Hotel Management (3) Introduction to rooms management including front office, housekeeping, security, and engineering. Emphasizes operations, coordination, and communication within and between departments.

**HRIM 380 Hotel Management (3)**

HRIM 380 includes an active-learning component that requires students to be in the on-campus hotels for 48 hours during the semester. This experience will allow the students the opportunity to observe the basic functions of the Rooms Division departments of a hotel. In the Front Office department, students will observe the front desk and reservation clerks. In the Housekeeping department, students will observe the room attendants, public area attendants and laundry workers. In Maintenance, students will observe maintenance employees and be introduced to Safety and Security concepts. The course will include a 2-hour per week lecture that focuses on Rooms Division departments but also briefly discuss other operating departments within a hotel.

Students will also complete other assignments that encourage them to consider how hotel departments operate and work together. Students will keep a daily journal of their work rotation experiences and observations, and will also be asked to answer several questions about how the departmental operations, interdepartmental communication, and other topics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014 Ending: Summer 2014

Prerequisite: A grade of "C" or better in HRIM 201 HRIM 271

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 385 Management Principles in Dietetic Services (3)** Application and integration of management principles and leadership skills in dietetic services.

**HRIM 385 Management Principles in Dietetic Services (3)**

This course is designed to foster the integration of management principles in the profession of dietetics. Emphasis is placed on leadership development, decision making/problem solving, strategic planning, and marketing of dietetic services. Through case studies, the interrelationship of food and nutrition labor and equipment are demonstrated. Students develop a business plan for a food and nutrition services business venture, which will be presented at the end of the semester.

Main topics typically include:

Effective leadership in dietetics services.

Interpretation of financial data with emphasis on identifying and correcting problematic areas in food and nutrition services.

Types of budgets, including operating, capital, and flexible.

Negotiation techniques in different situations.

Strategic planning process, including vision and mission statement writing.

Principles and skills necessary in human resource management and their unique application in food and nutrition services.

Service marketing principles in a variety of food and nutrition settings.

Kitchen equipment layout and design and their relationship to efficient production and service in delivery of nutrition services.

This course is part of the required sequence of foodservice management courses applied nutrition science majors take in the hospitality discipline. Students must first take a food production course and a nutrition course on administration of nutrition services in a health care setting. This course provides management of dietetic services principles addressed in the national registration examination for dietitians.

Students are evaluated based on an examination, case study analyses, and development and presentation of a business plan.

This course would be offered initially once per year in the spring semester at the University Park campus. Estimated enrollment would be 40-50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004 Ending: Summer 2014

Prerequisite: HRIM 330 NUTR 380

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 386 Introduction to the Gaming and Casino Industry (3)** Students will learn about those traits of the casino industry which distinguish it from other segments of the hospitality industry.

**HRIM 386 Introduction to the Gaming and Casino Industry (3)**

The objective of this course is to introduce the advanced standing student to the unique traits of the casino industry. The student will learn that Nevada demonstrated that the potential negative societal impact can be minimized through

rigorous, state-sanctioned, state-regulated casino gaming. The review of all American jurisdictions and several international markets with an emphasis on Pennsylvania provides the student with an expanded perspective of career possibilities and the significant economic impact of legalized gaming. The student will learn from casino mathematics how a casino is assured a revenue stream through the house advantage and how game protection is essential to maintaining the house advantage and to the profitability of the operation. Unique marketing activities such as professional events, players' clubs, entertainment, and casino floor promotions are surveyed to demonstrate the market segments casinos attract and to explain the impact of marketing on the image of any particular casino. Technology's significant impact on customer service, cost reduction, and financial controls is discussed. A thorough examination of the social costs and the economic benefits of legalized casino gaming informs the student so that they can understand the public image of casino gaming in general.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010 Ending: Summer 2014

Prerequisite: Prerequisite or concurrent:HRIM 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 387 Casino Controls (3)** This course is an overview of controls used in casinos including an exploration of complimentary goods (comps) and services and credit.

### **HRIM 387 Casino Controls (3)**

The objective of this course is to introduce the advanced standing student to the unique traits of the casino industry. The student will learn that Nevada demonstrated that the potential negative societal impact can be minimized through rigorous, state-sanctioned, state-regulated casino gaming. The review of all American jurisdictions and several international markets with an emphasis on Pennsylvania provides the student with an expanded perspective of career possibilities and the significant economic impact of legalized gaming. The student will learn from casino mathematics how a casino is assured a revenue stream through the house advantage and how game protection is essential to maintaining the house advantage and to the profitability of the operation. Unique marketing activities such as professional events, players' clubs, entertainment, and casino floor promotions are surveyed to demonstrate the market segments casinos attract and to explain the impact of marketing on the image of any particular casino. Technology's significant impact on customer service, cost reduction, and financial controls is discussed. A thorough examination of the social costs and the economic benefits of legalized casino gaming informs the student so that they can understand the public image of casino gaming in general.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010 Ending: Summer 2014

Prerequisite: "C" or better inHRIM 201HRIM 335 andHRIM 386

Concurrent: HRIM 388

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 388 Gaming Operations Management (3)** Students will learn casino mathematics, game protection, floor layout methods, departmental organizational structure, and performance analysis.

### **HRIM 388 Gaming Operations Management (3)**

The primary objective of this course is to introduce the advanced standing student to the management of various games and gaming devices used in a casino. The student learns the impact of the Americans with Disabilities Act on casino design, casino layout, and equipment design. Casino mathematics is explored in greater depth than in the Introduction to the Gaming and Casino Industry (HRIM386). The student is required to calculate odds and expected values in order to fully understand the role the house advantage plays in profitability and to recognize the significance of revenue controls. Each department in the gaming area is reviewed for organizational structure, job titles and descriptions, and performance analysis. The overlap with Casino Controls (HRIM387) is intentional so that the student realizes a major function of any supervisory or management position in the gaming area is control. The student learns and practices the rules of each major game in the casino by playing and dealing. The student must learn the different bets and their payoffs as well as the control techniques needed to prevent theft and cheating. Various methods used by players to manipulate the odds or payoffs are studied so that the student can recognize and prevent them. The performance of the gaming areas is critical to the profitability of a casino. Techniques for analyzing performance of the table games and slots are emphasized due to the relative importance of the revenue in these areas to overall revenues of the casino. In addition, the student must create a staffing chart for the table games department. Security and surveillance are studied in order for the student to discern the difference in roles these two departments play and to understand their importance to the control of revenue and expenses. The student must become familiar with the various pieces of equipment used in each gaming department. The impact of technology on equipment design, game protection, and surveillance activities is studied. The student is taught the selection criteria and maintenance requirements of technology components in order to understand the tradeoffs made when purchasing electronic gaming devices, surveillance cameras and systems, RFID systems, and other components affected by imminent technological advances.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010 Ending: Summer 2014  
Prerequisite: "C" or better in STAT 200 HRIM 201 and HRIM 386  
Concurrent: HRIM 387

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 395W** Practicum Analysis (3) Written analysis comparing and contrasting conceptual issues in the hospitality industry.

### **Practicum Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004 Ending: Summer 2014  
Prerequisite: HRIM 201 1000 hours of adviser-approved professional hospitality experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2007 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 411** Beverage Management and Wine Selection (3) Management issues in beverage service and products. Students taste wines, brews, and distilled spirits.

### **HRIM 411 Beverage Management and Wine Selection (3)**

The objective of this course is to acquaint students in the successful management of all beverage products associated with the hospitality industry. Main topics typically include:

- Production
- Purchasing
- Brand recognition
- Marketing and promotion
- Financial control
- Responsible alcohol service

This course is an elective in the Hotel, Restaurant, and Institutional Management program. Students must be at least 21 years old. Evaluation methods typically include examinations, quizzes, short writing assignments, and research projects. This course is offered spring and fall semesters with enrollments of 40 to 60 students. Students in other majors are welcome after all Hotel, Restaurant, and Institutional Management majors have scheduled.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004 Ending: Fall 2014  
Prerequisite: students must be at least 21 years old

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 413** New Product Development for Commercial Foodservice (3) This course introduces students to a new product development process that requires coordination, communication, and integration throughout the organization.

**HRIM 413 New Product Development for Commercial Foodservice (3)**

New product development is a critical business design process that crosses multiple functional areas in a corporation. In today's globally competitive business environment, new product development is not a strategic option; it is a fundamental prerequisite for a company's survival, organizational renewal, and national economic prosperity. In addition, new product development is not the domain of any one function, but a multidisciplinary process that requires coordination, communication, and integration throughout the organization. This course will operationalize the management link by creating cross-disciplinary teams in which students will learn and apply the skills necessary to design and develop a new product prototype.

This course will present and utilize an integrated approach to new product design, development, and marketing. The course will provide a team experience of formulating, designing, and evaluating a new product concept. Students completing this course will have operational knowledge of and competence with a set of tools and methodologies for product design and development. Students will be able to coordinate multiple interdisciplinary tasks in order to achieve a common objective in an action-oriented business setting.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better for HRIM 329

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 415 International Cuisine (3)** Cooking and eating practices of cultures around the world, including historical, religious, cultural, geographic, and political influences on each cuisine.

**HRIM 415 International Cuisine (3)**

The objective of this course is to expose students to managerial and cultural issues of cuisine and how they influence the development of commercial food and beverage operations. The text and lectures lay the foundation for the understanding of culture and cuisine. Main topics typically include:

- Understanding how cuisine has developed over time
- Variety of foods grown in distant regions and dissemination as adventurers contacted (and often conquered) other people and learned of their cultures
- Evolution of trade that brought exotic foods from distant locales
- Geography's role in defining the types of foods and quantities of crops that can be produced around the globe
- Critical components of the major world cuisines

The course is an elective for Hotel, Restaurant, and Institutional Management students. Prior to taking this professional elective, students must complete the introductory course in food production and management. The course is normally taken in the students' senior year. Students are evaluated based on examinations. The course is offered on an as-needed basis.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 201NUTR 100NUTR 119

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 430 Advanced Food Production and Service Management (3)** Simulation and application of technical, conceptual, interpersonal skills. Emphasis on group dynamics; improvement in managerial skills; management team functions.

**HRIM 430 Advanced Food Production and Service Management (3)**

This course is designed to give students an opportunity to gain experience in the wide range of skills and techniques that are normally associated with the duties of a hospitality manager. The skills and techniques that will be emphasized include, but are not limited to, duties involved in the planning, execution and evaluation of full-service, theme oriented ala carte dining. Students are expected to form a marketable theme and then develop, produce and evaluate an authentic dining experience. A successful dining experience is contingent upon both guest satisfaction and the achievement of financial goals. Main topics typically include:

- Research, describe and produce an authentic restaurant environment from a selected theme
- Demonstration of technical responsibilities involved in the development, production and evaluation of a wide range of food service systems including: sales, menu planning, recipe development and evaluation, pricing, purchasing, facilities management, personnel management and financial management
- Operational needs and potential problems in a food and beverage operation during production and service
- Timely and effective managerial problem identification and decision-making abilities
- Interpersonal and teamwork skills both within a management team and with classmates as employees
- Interaction with guests and evaluation of guests' dining experiences

The course is a capstone management class in the foods sequence and is required of all Hotel, Restaurant, and Institutional Management majors. Students must first complete the introductory food production course. Evaluation



methods include a detailed business plan for a working restaurant created in a management team of approximately eight, quizzes, short written assignments, oral presentations, and subjective performance assessments as a manager and a line employee. The course is usually offered in fall and spring semester and summer session, with approximately 30 students in each section.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 435** Financial Management in Hospitality Operations (3) Fiscal techniques in the development, management, and control of hospitality establishments.

### **HRIM 435 Financial Management in Hospitality Operations (3)**

Financial management is an integral part of decision-making in the hospitality industry. The study of hospitality financial management helps to insure that hospitality decision-makers understand the principles of value creation and incorporate them into their decision-making. This course gives students the opportunity to gain knowledge of the fundamental concepts, tools, and applications that represent the core of financial management as applied to decision-making and value creation in the hospitality industry. Main topics typically include:

- Introduction to financial decision-making in the hospitality industry
- Agency theory and the decision-making process
- Value creation and the goal of hospitality financial management
- The functioning of financial markets that are relevant to hospitality firms
- Principles and methods of value creation in the hospitality industry
- Applications of financial statement analysis to hospitality finance
- Principles and applications of risk analysis to the value creation process
- Principles and applications of the time value of money to the value creation process
- Capital expenditure analysis in the hospitality industry
- Principles and applications of financing hospitality projects and firms
- Other special topics relevant to current hospitality financial issues

The content of this course is considered fundamental for anyone in hospitality management and, therefore, is required of all Hotel, Restaurant, and Institutional Management majors. Prior to this course, students are required to have taken Financial Accounting in the Hospitality Industry, Managerial Accounting in the Hospitality Industry, and three credits of economics. Hospitality Decision-Making is also a pre-requisite for the course but may be taken concurrently. This course is a pre-requisite to Strategic Hospitality Management. Evaluation methods usually include examinations, quizzes, problem and paper assignments, and a semester project. The course is usually offered fall and spring semesters with enrollments of about 45 students per section.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014 Ending: Fall 2014

Prerequisite: A grade of "C" or better required for ECON 102 or ECON 014; HRIM 336 . Prerequisite or concurrent: HRIM 350

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 437** Hospitality Project Evaluation and Funding (3) Current techniques for project evaluation in the hospitality industry; trends in hospitality project funding.

### **HRIM 437 Hospitality Project Evaluation and Funding (3)**

This is an advanced course in the financial evaluation of hospitality projects and the decisions related to their subsequent financing. The selection of value creating projects is integral to the success of hospitality firms. In addition, project financing decisions can have significant impact on the full realization of a project's value creation potential. In order to provide the hospitality managers with state of the art project decision tools, this course examines the theory related to hospitality project selection and financing and applies it to current techniques in the hospitality industry. Main topics typically include:

- Basic principles of hospitality project evaluation
- Present project evaluation techniques in the commercial hospitality sector
- Present project evaluation techniques in the non-commercial hospitality sector
- The use of cap rates in hospitality lodging valuation
- Issues related to incorporating risk assessment in hospitality project evaluation
- Net present value, adjusted present value, and real options in hospitality project evaluation
- Other advanced techniques in hospitality project evaluation
- Basic issues and theory in hospitality project financing
- Trends in commercial and non-commercial hospitality project financing
- Potential interactions between hospitality project selection, project financing, and value creation
- Other special topics relevant to current and future techniques in hospitality project evaluation and financing

This course is an elective course designed for students who desire to gain an in-depth knowledge of hospitality project selection and financing. The course is appropriate for students seeking to obtain the skills necessary for middle or upper management level positions in hospitality organizations. Prior to this course, students are required to have taken Financial Management in Hospitality Operations or its equivalent. Evaluation methods usually include problem assignments, quizzes, examinations, case analyses, and a project. The course is usually offered once a year with enrollments of about 30 students per section.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2004 Ending: Summer 2014  
 Prerequisite: HRIM 435

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 438 Cases in Financial Analysis (3)** Financial analysis and decision making is examined through a series of hospitality-oriented cases.

### **HRIM 438 Cases in Financial Analysis (3)**

This is an advanced course in the application of hospitality financial analysis and decisionmaking techniques to real life hospitality operational situations. Decisions of managers in actual and hypothetical situations are critically examined from the perspective of appropriate financial and accounting theory using a case format approach. Discussions include the ramifications of real life complicating factors on theoretical outcomes. Main topics typically include:

- An overview of the principles of financial analysis
- Financial statement analysis: evaluation of performance from a historical, competitive, and industry perspective; effects of alternative accounting techniques
- Alternate forms of operations and their financial and accounting implications: subsidiaries, joint ventures, partnerships, management agreements
- Budgeting processes and procedures, including operational budgeting and the behavioral implications and procedures common in not-for-profit institutions
- Cost allocation in hospitality organizations: techniques and financial implications
- organization of the financial function: alternative designs
- Special topics relevant to current trends in hospitality financial analysis

This course is an elective course designed for students who desire to gain an in-depth knowledge of current and future techniques and applications of hospitality financial analysis. The course is appropriate for students seeking to obtain the skills necessary for middle or upper management level positions in hospitality organizations. Prior to this course, students are required to have taken Financial Management in Hospitality Operations or its equivalent. Evaluation methods usually include case analyses, presentations, examinations, and quizzes. The course is usually offered once a year with enrollments of about 30 students per section.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2004 Ending: Summer 2014  
 Prerequisite: HRIM 435

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 442 Hospitality Marketing (3)** Marketing management in the hospitality industry, including analyzing the market through market research and developing a marketing plan.

### **HRIM 442 Hospitality Marketing (3)**

Marketing in the hospitality industry is distinctly different than marketing in either the manufacturing or the service industries. The hospitality industry - hotels, restaurants, institutional food service, travel and tourism, is a hybrid that constitutes both products and services. The objective of the course is to give an overview of marketing as applied to the hospitality industry, including but not limited to: unique attributes of service marketing; consumer orientation; understanding consumers and consumer behavior; market segmentation principles; target marketing; product planning; promotion planning; market research; and competitor analysis. Main topics typically include:

- The marketing environment
- Social responsibility and ethics in marketing
- Marketing research and information systems
- Target markets: segmentation and evaluation
- Consumer buying behavior and the purchase decision
- Developing and managing products
- Branding and packaging
- Strategic planning
- Integrating marketing communications
- Advertising and public relations
- Personal selling and sales promotion
- Pricing concepts
- Setting prices

This course is required of all Hotel, Restaurant, and Institutional Management majors. Prior to this course, students are required to have taken a principles of marketing course and the decision models in the hospitality industry course. This course is a pre-requisite to the strategic hospitality management course. Evaluation methods usually include case study analysis, marketing plan projects, strategic plan projects, examinations, quizzes, and short writing assignments. Group assignments are often used in a problem based learning environment. The course is usually offered fall and spring semesters with enrollments of about 80 to 100 students divided into two sections.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 201MKTG 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 443 Sales Planning and Advertising for Hospitality Operations (3)** Elements of sales management, advertising, promotion, and public relations as applied to hospitality organizations.

### **HRIM 443 Sales Planning and Advertising for Hospitality (3)**

The hospitality industry is entering an era in which operational and product parity between organizations and their properties is increasingly likely. This is so because of their shared access to technology, design and training devices. Consequently, it becomes evident that increases in sales will be reliant on the competitive advantages that professionals achieve in marketing strategies, sales management, and especially in marketing communications (MARCOM) tactics and execution. This course exposes students to a wide range of hospitality marketing communications issues. Students gather information from electronic media, trade and travel media, and consumer media. Students explore hospitality MARCOM issues through semester-long individual projects. Main topics typically include:

- Marketing versus selling strategies
- Industry trends that affect advertising and sales especially Internet activities
- Types of advertising media
- Print advertising principles
- Broadcast advertising principles
- Foundations of direct marketing
- Elementals of public relations
- Travel agency relations
- Personal sales

This is an elective course. Students must first take the hospitality marketing course in Hotel, Restaurant, and Institutional Management. Student assessment is accomplished through quantitative objective testing and qualitative subjective exams and quizzes. A portion of the total term assessment is weighted by the student's performance in the individual project mentioned above. The course is usually offered spring semester with an enrollment of 40 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better for HRIM 442

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 466 (US) Human Resource Management in the Hospitality Industry (3)** Recruitment, selection, training, performance appraisal, and compensation of hospitality human resources in today's culturally diverse work force.

### **HRIM 466 Human Resource Management in the Hospitality Industry (3) (US)**

This course builds on students' knowledge of organizational behavior and management. The course discusses human resource (HR) issues in the hospitality industry. The course pays special attention to the changing nature of organizations, the challenges that human resource managers face as a result, and the consequences of HR managers' actions to the organization. Topics typically include:

- Importance of human resources in the hospitality industry
- Processes managers use in recruiting, selecting and training human resources in their organizations
- Legal and social issues that impact human resource management in the hospitality industry
- Roles and responsibilities of a hospitality industry human resources professional

The content of this course is fundamental to understanding how the human resource function operates in hospitality organizations. This is a required course for all Hotel, Restaurant, and Institutional Management majors. Students must first complete the course in hospitality organization behavior. Evaluation methods may include examinations, quizzes, short writing assignments, and case studies. The course is usually offered fall and spring semesters with enrollments of about 45 students.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 201 HRIM 365

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 467** Management of Hotel and Restaurant Employee Relations (3) Survey and analysis of managerial strategies for employee relations in hospitality operations.

### **HRIM 467 Management of Hotel and Restaurant Employee Relations (3)**

The objective of this course is to provide students with an understanding of labor relations in the hospitality industry. Students need to know about labor laws as they affect the industry and specifically about collective bargaining. Primary emphasis is given to private-sector labor relations, but some consideration is given to the public sector. Main topics typically include:

- Introduction to employee relations in hotels and restaurants
- Economic influences on the hotel and restaurant labor market
- Labor law as applied to the hospitality industry
- Management strategies in collective bargaining
- Administration of labor contracts
- Management and supervisory strategies in labor disputes

The course is an elective in the hospitality program. Students must first complete the course in hospitality human resources. Students are evaluated based on examinations, a paper, and an in-class bargaining simulation. The course is offered on an as-needed basis, with enrollment of about 20 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better for HRIM 466

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 471** New Trends and System Selection in Hospitality Information Technology (3) This course introduces the student to new information technology in the hospitality industry and to the system selection process.

### **HRIM 471 New Trends and System Selection in Hospitality Information Technology (3)**

The purpose of this course is to focus on new IT trends and system selection in the hospitality industry. New trends are topics that have become important or prevalent in the industry and are generally not covered in other courses. Examples include Software as a Service delivery of property management systems, enterprise restaurant management reporting, Web 2-3.0, smart phone applications, Radio Frequency Identification (RFID), ect. The course will attempt to keep the students as updated as possible regarding the industry trends by covering these topics and including a discussion of current events from industry partners, headline news services, and other electronic references. Students gain knowledge that is applicable specifically to the hospitality industry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014 Ending: Spring 2015

Prerequisite: A grade of "C" or better required for HRIM 271

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 480** Advanced Hotel Management (3) Advanced hotel operations, internal control systems, and service philosophy. Integrates management, departmental operations, law, technology applications, marketing and managerial accounting.

### **HRIM 480 Advanced Hotel Management (3)**

HRIM 480 is designed to provide students with an advanced knowledge of hotel operations. The course focuses on the responsibilities of executive committee members and the general manager of a hotel. As such, the topics are varied and include discussions of current events in the hotel industry. Students participate in a hotel management simulation exercise to help develop strategic decision-making skills. Main topics typically include:

- Introduction to types of owners in a hotel transaction
- Leading hotel companies and their brands
- Management companies and franchise agreements
- Technology's impact on the hotel business
- Hotel operations in an international environment
- Linkage between hotel operating decisions and the service quality experience
- Management style and problem solving abilities in a team environment

General management perspective on how various operating aspects of a hotel are related to one another  
Individual yield management components' affect on the yield management decision

The course is considered to be a senior-level course and is a required course for all Hotel, Restaurant, and Institutional Management majors. The introductory hotel management course and the hospitality managerial accounting course are prerequisites. The course also builds on knowledge gained in a variety of other hospitality and business courses such as marketing and organizational behavior. Students are evaluated by examinations, written summaries of assigned readings, periodic reports for a simulation exercise, peer evaluations, and simulation performance grades. The course is taught in the technology classroom, 117 Mateer Building (wireless computer laboratory). The course is offered fall and spring semesters with enrollments of about 40 students for each sections.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 336 HRIM 380

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 482 Hospitality Real Estate (3)** The course focuses on commercial real estate concepts related to the hospitality industry.

### **HRIM 482 Hospitality Real Estate (3)**

The purpose of this course is to commence the learning process regarding strategic real estate management in the hospitality industry through a process of discovery. Topics include hospitality property development, ownership, asset management, market analysis, legal issues, financing, investment, and appraisal. The course is oriented towards the responsibilities of hospitality industry corporate staff, developers, and owners.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: A grade of "C" or better required for HRIM 336 HRIM 380

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 483 Revenue Management (3)** Students learn how to effectively implement revenue management strategies and techniques in the hospitality industry.

### **HRIM 483 Revenue Management (3)**

Hospitality managers are charged with making strategic and proactive decisions to maximize total revenue for their properties. Issues that managers have to address in this context include: What market segments should we sell to? What price should we sell to the different markets segments at? What sales or distribution channels should we use? In this course, we focus on the application of revenue management to hospitality organizations. This involves setting prices, determining inventory (e.g., guest rooms, function space) availability across various distribution channels, and imposing restrictions on sales in order to best maximize revenue.

This course focuses on several high-impact drivers for maximizing revenue. You will learn how to forecast demand by market segment – a fundamental component of revenue management applications. You will apply linear programming, an optimization technique, to determine guest room rates and availability based on forecasted demand and available capacity. You will also learn how to determine optimal overbooking levels - designed to minimize the risk of having to walk guests or being left with an unsold room. Group business (e.g., tour operators, conferences, corporate accounts) can constitute a substantial amount of a hotel's business. Therefore, you will learn about how to effectively address a number of group-specific issues such as determining the minimum rate to charge a group, forecasting group utilization and managing attrition. Given the substantial amount of data that a revenue manager typically deals with, extensive use of Microsoft Excel will be required in order for you to effectively apply each of the aforementioned tools and techniques. This emphasis on the application of Excel is reflected in a key deliverable for the course being a fully functioning Excel-based revenue management system that you will develop with a group of your peers.

In this course you will also be exposed to a number of key management and marketing issues relating to the effective implementation of revenue management. You will gain an understanding of where revenue management fits within hospitality organizations, the relationship of the revenue management function with other functions or departments in the organization, as well as the role and job responsibilities of a revenue manager. You will also learn about the distribution channels that hospitality organizations can use to distribute their inventory. Issues that you will discuss include the costs associated with using different distribution channels, distribution channel management (e.g., updating rates and availability across various distribution channels) and maintaining rate parity across distribution channels.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011 Ending: Summer 2014

Prerequisite: a grade of C or better in HRIM 350

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 484 Hospitality Entrepreneurship (3)** The course focuses on successfully launching new business ventures in the hospitality industry.

### **HRIM 484 Hospitality Entrepreneurship (3)**

The purpose of this course is to commence the learning process regarding Entrepreneurship in the Hospitality Industry. The course provides the student with a solid foundation of how an idea is generated and taken to market for implementation. The students will examine the characteristics of the entrepreneur and the process followed from generating an idea, to building a business model, preparing a competitive analysis, completing a feasibility study, reviewing intellectual property, developing a business plan, seeking funding and presenting their idea to potential investors. Topics include idea recognition, feasibility studies, business plans, developing a business model, intellectual property, marketing, financing, organizational growth, and franchising. The course is oriented to the student who would like to own a business.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013 Ending: Fall 2014

Prerequisite: a grade of "C" or better in HRIM 336MKTG 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 486 Casino Marketing (3)** Students will learn marketing techniques for casinos which take into account the external environment, individual consumer choices, and ethical considerations.

### **HRIM 486 Casino Marketing (3)**

The primary objective of this course is to introduce the advanced standing student to the factors affecting the effective marketing of a modern casino. General marketing principles and concepts build the foundation for the study of marketing techniques unique to the casino industry. Consumer behavior and external environments create the context in which all marketing decisions and activities occur. Their study ensures the student has the basics to approach any marketing problem. Before the strategic use of marketing to build brand awareness and to ensure profitability is learned, the impact of social and ethical responsibility is studied including disordered gambling and smoking bans. The need to advertise and promote without exacerbating the incidence of disordered gambling is an increasingly necessary ability required of casinos today. A thorough knowledge of segmentation and positioning are required as well. Extra time is allotted to both social responsibility and segmentation/positioning. Strategic marketing entails identifying the components of a marketing plan, their purpose, and the method of execution. Various concepts such as profit-service chain and revenue management are covered to round out the student's knowledge of marketing. The course spends time on promotions which are unique to the casino industry including, but not limited to professional boxing matches and other special events, slot and players' clubs, special entertainment venues, on-floor promotions, and so on. The student learns the importance of location and transportation issues and how they impact the revenue and profitability of a casino. Meetings and conventions generate revenue during off-peak periods and are significant factors in the revenue stream of a casino. The student must demonstrate their mastery of the material by creating a strategic marketing plan for a hypothetical casino.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010 Ending: Summer 2014

Prerequisite: "C" or better in MKTG 221HRIM 387HRIM 388 andHRIM 495

Concurrent: HRIM 487

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 487 Casino Operations and Societal Impact of Gaming (3)** Students will learn the structure, culture, and ethical responsibility toward disordered gambling and other lifestyle issues of modern casinos.

### **HRIM 487 Casino Operations and Societal Impact on Gaming (3)**

The primary objective of this course is to introduce the advanced standing student to the organization structure, the organizational culture, and the ethical responsibility toward disordered gambling and other lifestyle issues of modern casinos. The student will study leaders in the casino industry to gain insight into how they contributed to the growth of their companies and the industry as a whole. Emphasis will be placed on their approach to the ethical issues of their day. The modern day casino is complex and its organizational structure reflects that complexity. The student will study the different structures and reporting relationships of actual casinos to ascertain the factors that impact the level of effectiveness of different organizational charts. The job titles and descriptions of all departments will be examined. The job titles and descriptions of the gaming departments will be studied in greater depth than in Gaming Operations (HRIM388). The lifestyle of customers and employees alike will be examined particularly those issues that impact health and social services. Specific topics include disordered gambling and smoking. Disordered gambling will be studied in

greater depth than in Introduction to Casino Management (HRIM386) and will be examined simultaneously with Casino Marketing (HRIM486). The human resources function will be scrutinized as a filtering process for selecting the right employees and for training and reinforcing the organization's commitment to ethical and responsible behavior. The casino design project will take the student's ability to design a slot floor layout, a table games floor layout, to create a list of hotel room amenities, to write a positioning statement for a range of restaurants in a hypothetical casino, to develop a list of multiple entertainment venues and so on to a higher level than previous coursework so that the final product demonstrates the student's knowledge and expertise in casino management.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010 Ending: Summer 2014

Prerequisite: "C" or better in HRIM 387 HRIM 388 and HRIM 495

Concurrent: HRIM 486

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 490W Strategic Hospitality Management (3)** This capstone writing-intensive class integrates content from throughout the previous curriculum, focusing on strategic application to current industry issues.

### **Strategic Hospitality Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010 Ending: Summer 2014

Prerequisite: a grade of "C" or better for HRIM 365 HRIM 435 HRIM 442

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 492 Advanced Professional Seminar in Hotel, Restaurant and Institutional Management (1)** Course prepares senior HR&IM students to assume leadership positions in the hospitality industry (Focus on careers, leadership, ethics, lifelong learning).

### **HRIM 492 Advanced Professional Seminar in Hotel, Restaurant and Institutional Management (1)**

The objective of this course is to help students begin their transition from being students to being hospitality managers. With most Hotel, Restaurant, and Institutional Management majors not having yet established careers and having spent most of their lives as students, they need to think systematically about how they will become full-time managers in hospitality. Main topics typically include:

- Career planning and lifelong learning
- Deciding on employers to pursue
- The selection process-getting offers from employers
- Evaluating and choosing between offers
- Negotiating salary, location, benefits, relocation expenses
- Personal budgeting and financial planning
- Balancing work and personal life
- Time and stress management
- Networking and professional associations
- Roles and responsibilities of alumni

This course is required of all hospitality majors. The course is taken after most hospitality courses have been completed and concurrent with other courses that are capstones within various tracks of courses, such as the foods-related courses. The course is usually taken in the final semester of study. As a prerequisite for the course, students must have completed 1,000 hours of work experience in the hospitality industry. Evaluation methods may include quizzes, writing assignments, and class participation. The course is usually offered fall and spring semesters, with enrollments dependent upon the size of the graduating class.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004 Ending: Summer 2014

Prerequisite: 1000 hours of work experience in the hotel restaurant and institutional management industry

Concurrent: HRIM 430 HRIM 466 HRIM 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Spring 2004 Ending: Summer 2014  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 495E** External/Off Campus Internship (1-6) A supervised internship with an approved site participant. Internships are typically one semester or summer in length.

**External/Off Campus Internship (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: prior approval of proposed assignment by instructor. Minimum GPA-2.5.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 498F** International Food Service Management and Cuisine (3) This course is designed to cover major European cuisines and oenology in a European setting.

**International Food Service Management and Cuisine (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 498G** French Cuisine and Culture (3) Program will including intensive classes on language and culture, products, cuisine, wine, and also design and atmosphere.

**French Cuisine and Culture (3)**



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 498I** International Hospitality Management (3) This course is designed to expose students to international hospitality management, organization, practices, and structures in a European setting.

**International Hospitality Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HRIM 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual of group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2007 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Human Development and Family Studies (HD FS)**

**HD FS 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 129** (GS) Introduction to Human Development and Family Studies (3) Introduction to psychosocial and family development at all stages of the individual and family life cycle. Students may take only one course for General Education credit from SOC 030 or HD FS 129.

**HD FS 129 Introduction to Human Development and Family Studies (3)  
(GS)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course provides a basic introduction to the concepts, theories, and research on human development as it occurs over the life span and in context. Students will be introduced to developmental tasks and challenges unique to each stage of human development from the womb through infancy, early and middle childhood, adolescence, emerging adulthood,

middle age and old age. Beginning with the prenatal state and infancy, students will be introduced to the biological, emotional, cognitive, psychosocial, as well as the social, cultural and historical factors that influence growth and development across infancy, childhood, adolescence, adulthood, and advanced adulthood. Students will be introduced to basic concepts, theoretical orientations, and key empirical studies that inform human growth and development. Furthermore, attention is given to the central role of families and family life as a context for development. The formation of intimate relationships, marriage, marital processes, motherhood and fatherhood will be reviewed, as well as problems and challenges that families face such as financial stress, separation and divorce, abuse, and caregiving. Finally how families and family behavior are influenced by their communities, the larger culture, and other social and economic forces will be discussed. Students will be evaluated on the basis of tests, writing assignments, group projects, as well as participation in class discussions and occasional panels. This course will be offered five times a year at University Park, with enrollments in the 200-400 range during the semester and 20-30 in the summer sessions. Enrollments at other locations will vary from 15-200, depending on the campus and the time of the year.

Students may take only one course for General Education credit from SOC 030 or HD FS 129.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 129H** (GS) Introduction to Human Development and Family Studies (3) Introduction to psychosocial and family development at all stages of the individual and family life cycle. Students may take only one course for General Education credit from SOC 030 or HD FS 129.

#### **Introduction to Human Development and Family Studies (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 129S** (GS) Introduction to Human Development and Family Studies (3) Introduction to psychosocial and family development at all stages of the individual and family life cycle.

#### **Introduction to Human Development and Family Studies (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 216** Personal and Interpersonal Skills (2) Conceptions of lifespan personal and interpersonal skill enhancement.

**Personal and Interpersonal Skills (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1990

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 218** Foundations of Marriage (3) Factors influencing the husband/wife relationship across the life course.

**Foundations of Marriage (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1990

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 229** (GS) Infant and Child Development (3) Theory, research, and methods of social/behavioral/biological sciences related to developmental processes and intervention during infancy and childhood.

**HD FS 229 Infant and Child Development (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course introduces students to the study of children from the prenatal period to (not including) adolescence. Students will become familiar with the most prominent theoretical ideas about child development. The latest research on prenatal development, infancy, early and middle childhood will inform the discussions, and students will become familiar with key studies. The major domains of children's functioning covered include social interactions and emotional development, cognitive changes and acquisition of language, physiological growth in infancy and biological changes that underlie the transition out of childhood into adolescence. A key feature of this course is how processes in these different domains interact to influence children's overall adaptation. Finally, informed by a life course developmental framework, this course will place these developmental processes in context. Students will become familiar with the theoretical and empirical literature that locates children's growth and development in the context of families and family change, peer groups, neighborhoods and communities, and the larger cultural context within which they are embedded. Students will be evaluated across several performance areas which may include tests, writing assignments, group projects, and participation in class discussions and panels. This course will be offered five times a year at University Park and varying amounts at Altoona and the Commonwealth Campuses. Enrollments vary by semester and location: Fall/Spring: 15-50 students at the Commonwealth and Altoona locations; 100-200 at University Park. Summer: 10-20 at the Commonwealth and Altoona locations; 20-30 at University Park.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 230** Overview of Curricular Practices in Early Childhood Care and Education (3) Curricular practices in programs for infants, toddlers and preschoolers. Focus on developmentally appropriate practice, emergent curriculum and home/child care links.

**HD FS 230 Overview of Curricular Practices in Early Childhood Care and Education (3)**

This course, intended for current or future providers of early childhood care and education, examines curricular practices in programs for young children. It is required for the proposed Early Childhood Care and Education option to the associate degree in Human Development and Family Studies.

The course addresses current practices in early childhood care and education programs for infants, toddlers, and preschoolers. After a brief examination of the history of early childhood care and education, this course focuses on the use of developmentally appropriate activities and strategies to maximize children's positive growth and development. Each of the traditional early childhood curricular areas (involving physical, social, emotional, cognitive development) is considered, as is the importance of the connection between families and early care and education settings. Reading and discussion in each curricular area stresses diversity issues and inclusion of children with special needs in groups with normally developing children. There is an emphasis on applications of the project approach and emergent curriculum as

appropriate for use with infants, toddlers and preschoolers.

Students show mastery of the course material through tests over each topic of discussion, reports on outside reading related to current issues in early childhood care and education, individual and small group presentations about a specific curricular issues, and use of a reflective journal.

The course will be offered once each academic year, with an enrollment of 15-25 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004  
Prerequisite: HD FS 229

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 231** Guidance in Early Childhood Care and Education (3) Positive guidance methods for infants, toddlers and preschoolers, leading to self-control and social capability. Includes focus on home/childcare links.

### **HD FS 231 Guidance in Early Childhood Care and Education (3)**

This course, intended for current or future providers of early childhood care and education, examines guidance methods for use with young children. It is required for the proposed Early Childhood Care and Education option to the associate degree in Human Development and Family Studies.

The course emphasizes the use of guidance techniques that help children grow in independence, responsibility, self-control, and ability to function as group members. It addresses organization and guidance methods that foster the child's responsibility, independence, positive social interactions and emotional self-control. While the course covers various types of guidance, it emphasizes responding to children with respect and acceptance, using positive discipline. Since guidance is an area in which families and teachers frequently must confer, this course also deals with the use of effective parent-teacher communication skills. It requires weekly experience with young children.

Each student will produce a portfolio demonstrating understanding of guidance techniques and their theoretical backgrounds. In addition, portfolios will demonstrate evidence of competence in analyzing the early childhood care and education environment in terms of its effect on young children's behavior, as well as competence in solving environmental problems that contribute to guidance issues. Portfolios will also demonstrate evidence of competence in communicating with parents and families about guidance issues. Students will reflect, in writing, on their own use of developmentally appropriate guidance techniques in their work with young children.

The course will be offered once each academic year, with an enrollment of 15-25 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004  
Prerequisite: HD FS 229

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 232** Creativity and Play in Early Childhood Care and Education (3) Planning for play, creativity and exploration in programs for infants, toddlers and preschoolers. Includes focus on home/childcare links.

### **HD FS 232 Creativity and Play in Early Childhood Care and Education (3)**

This course, intended for current or future providers of early childhood care and education, examines the development of play and creativity in young children. It is required for the proposed Early Childhood Care and Education option to the associate degree in Human Development and Family Studies.

The course addresses the potential of play, creativity, and exploration in the optimal development of a child. Content includes the development of play, creativity, and aesthetics. The course emphasizes adult-child interaction styles and activities that encourage, enhance and expand play, exploration and creativity in infants, toddlers, and preschoolers throughout the daily care and education routine. There is an emphasis on effective communication with families regarding the benefits of play and open-ended activities. It requires weekly experience with young children.

Each student will develop a portfolio that demonstrates understanding of the development of play, exploration and creativity in the early years, as well as competence in planning for and enhancing that development. The portfolio will also show evidence of competence in communicating with parents and families.

In addition to the portfolio, the student will develop an activity card file containing ideas for developmentally appropriate play and creative activities for infants, toddlers, and preschoolers. Each student will participate in individual and group presentations related to course topics, and will take tests covering reading and other class material.

The course will be offered once each academic year, with an enrollment of 15-25 students.

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Summer 2004  
Prerequisite: HD FS 229

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 233 Emergent Language and Literacy: Development and Practice in Early Childhood Care and Education (3)**  
Fostering development of language and literacy in infants, toddlers and preschoolers. Includes children's literature and focus on home/childcare links.

**HD FS 233 Emergent Language and Literacy: Development and Practice in Early Childhood Care and Education (3)**

This course, intended for current or future providers of early childhood care and education, examines the emergence of language and literacy. It is required for the proposed Early Childhood Care and Education option to the associate degree in Human Development and Family Studies.

The course emphasizes why and how to foster continuous development from first sound through recognizable speech; from initial symbol recognition through reading; from making the first mark through writing. Content also includes choosing literature appropriate for use with infants and young children and methods of integrating literature throughout the daily child care and education routine. There is a focus on developing activities centered on language and literature, and an emphasis on effective communication with parents and families. This course requires weekly experience with young children.

Students will produce a portfolio demonstrating understanding of language and literacy development, competence in planning developmentally appropriate language and literacy activities for infants and young children, and competence in evaluating child care settings in terms of support for emergent language and literacy. Portfolios will also demonstrate evidence of competence in choosing and using good literature with young children, and in communicating to parents and families the importance of facilitating early language and literacy.

In addition to the portfolio, students will develop files of language and literacy activities appropriate for use with infants and young children. They will also take tests related to reading and material covered in class.

The course will be offered once each academic year, with an enrollment of 15-25 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004  
Prerequisite: HD FS 229

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 234 Mathematics and Science Reasoning: Development and Practice in Early Childhood Care and Education (3)**  
Fostering development of mathematical reasoning and scientific inquiry in infants, toddlers and preschoolers. Includes project approach and focus on home/childcare links.

**HD FS 234 Mathematics and Science Reasoning: Development and Practice in Early Childhood care and Education (3)**

This course, intended for current and future providers of early childhood care and education, examines the emergence of mathematics and science reasoning. It is required for the proposed Early Childhood Care and Education option to the associate degree in Human Development and Family Studies.

The course addresses processes involved in mathematical reasoning and scientific inquiry. It emphasizes the development of activities, questioning skills, and observation and documentation techniques that extend infants' and young children's exploration, discovery, and thinking patterns. Content also includes methods of integrating mathematics, science and reasoning activities throughout the daily child care and education routine. Participation in the project approach provides students with an experiential understanding of constructing knowledge. There is also an emphasis on effective communication with parents and families. This course requires weekly experience with young children.

Students will produce a portfolio demonstrating understanding of the development of mathematics and science reasoning in the very early years and competence in planning developmentally appropriate mathematics, science, and logical thinking activities for infants and young children. Portfolios will also demonstrate evidence of competence in communicating to parents and families the importance of exploration and discovery in facilitating young children's mathematics and science knowledge. Students will reflect, in writing, on their own growth in knowledge and competence in facilitating young children's thinking.

In addition to the portfolio, students will develop files of mathematics and science reasoning activities appropriate for use with infants and young children. They will also take tests related to reading and materials covered in class.

The course will be offered once early academic year, with an enrollment of 15-25 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

Prerequisite: HD FS 229

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 239 (GS)** Adolescent Development (3) Social, behavioral, and biological development and intervention throughout adolescence.

**HD FS 239 Adolescent Development (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Only in early infancy do minds, bodies, and abilities change as radically as they do during the teenage years. HD FS 239 is an introductory course that explores the developmental processes that shape our lives between puberty and the end of college. Although each life unfolds in its own unique pattern, we will explore the ways biological, psychological, and sociological influences systematically combine to shape its course. This class will help to develop an understanding of the concepts, methods, and research findings central to the study of adolescent development.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 249 (GS)** Adult Development and Aging (3) Physiological, psychological, and social development and intervention from young adulthood through old age.

**HD FS 249 Adult Development and Aging (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will prove an orientation into the multidisciplinary study of aging and development from middle adulthood to old age. Students will be introduced to theories of aging research methods and current information on the psychological, sociological, and biological aspects of aging.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 250 (US)** (WMNST 250) Sexual Identity over the Life Span (3) Concepts of affectional and sexual orientation over life span, with emphasis on lesbian and gay male personal, family, and community adaptation.

**HD FS (WMNST) 250 Sexual Identity over the Life Span (3)  
(US)**

This course reviews concepts of sexual identity as informed by a human development perspective. Concepts of sexual orientation are discussed in the context of a review of lesbian, gay male, and bisexual lives. Developmental processes of lesbian and gay life are detailed: personal change from the teenage years through adulthood, changes in family and relationship patterns, and impact of communities, laws, and culture. These processes are contrasted to the developmental processes of women and men who identify themselves as heterosexual. The complex effect of gender, race, ethnicity, class status, and historical time on sexual orientation and its expression has generated ongoing controversies in scholarship as well as in public discourse. The course will be an introduction to these controversies as informed by human development research.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: 3 credits in HD FS or 3 credits in social or behavioral sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 287W (GS;US)** Intercultural Community-Building (3) An experiential introduction to negotiating differences in small groups, families, institutions, and communities.

**HD FS 287W Intercultural Community -Building (3)**

**(GS;US)**

This course provides students an experiential introduction to how individuals and families both affect and are affected by the various cultural/community contexts in which they develop, including schools, places of work, and youth and community programs. Students will identify and explore their own unique and shared assumptions, and the relationships between those assumptions and life histories and experiences. They will become aware of the dynamics of how communities are formed and function by forming a community themselves, and through involvement in a local community group or agency. Group discussions and written reflections will link their personal experiences to theory and research presented in class and readings on such topics as developing systems theories, cultural communication theories, and decision-making. The goals of the course are to increase students' understanding of the relations between values, power relations, and the various processes of social change, and encourage the development of communication skills and citizenship. Special emphasis will be placed on developing relationships within culturally and ethnically diverse groups. Because it is designated as a writing intensive course, particular attention will be given to the development of written communication skills. Students will be evaluated on the basis on their performance in several areas, which may include examinations and quizzes, several writing assignments, and participation in class discussions and simulations. The course may be delivered at certain Commonwealth College campuses and Altoona College. Depending on location, the course may be offered during the fall, spring and/or summer sessions, with anticipated class enrollments of 12-20 students.

General Education: GS  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 287X (GS;US) Intercultural Community-Building (3)** An experiential introduction to negotiating differences in small groups, families, institutions, and communities.

**HD FS 287X Intercultural Community-Building (3)**  
**(GS;US)**

Students in HD FS 287X experientially study "individuals and families in their own and other cultures, and ... learn how the family, the workplace, the community, and the larger culture affect and are affected by the individual" (<http://www.psu.edu/dept/HDFS/>). They explore the origins of their unique and shared assumptions based on their perceptions, which in turn are founded on their particular life experiences-in addition to the students themselves, this represents the greatest resource in the course. The role of the instructor is to create a context within which participants can become aware of the dynamics of how communities are formed and function by forming a community themselves.

This course is student centered and focuses on academic and personal student learning. It utilizes an interdisciplinary orientation and makes extensive use of experiential learning activities as an alternative to lecture. Collaborative learning exercises and dialogue are used as the primary modes of communication, and the course emphasizes the student's responsibility in determining the quality of his or her education while contributing to an organizational climate which values difference.

HD FS 287X is designed to prepare students to integrate the diversity of experience that characterizes higher education and citizenship in their local communities. It supports the experience of negotiating differences and building a community within the one-week intensive classroom experience and during their semester long Community-Diversity Project. This transitional experience, in turn, will be more effectively applied to the small-groups, families, institutions, and communities within which the student will ultimately live and work.

Required reading is done before attending class; 40 hours of class contact time are offered in one week, 8:00 a.m. to 5:00 p.m. (one-hour lunch), M-F, before the start of the semester. Written course work is completed during the semester by e-mail, with the class convening for the final exam. The Community-Diversity Project is completed on site in the local community.

Learning will be evaluated in-class through writing assignments and quizzes. Post-class work during the semester requires recursive writing, and a Community-Diversity Project, with Progress Reports.

This course is not linked to, nor related to any other specific courses by being or requiring a prerequisite.

As a (GS) designated course, the focus of HD FS 287X serves well as a foundation course in all other departments.

HD FS 287X does not require any special facilities or labs. Enrollment is limited to 20 per section.

General Education: GS  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 287Y (GS;US) Intercultural Community-Building (3)** An experiential introduction to negotiating differences in small groups, families, institutions, and communities.

**HD FS 287Y Intercultural Community -Building (3)**

**(GS;US)**

This course provides students an experiential introduction to how individuals and families both affect and are affected by the various cultural/community contexts in which they develop, including schools, places of work, and youth and community programs. Students will identify and explore their own unique and shared assumptions, and the relationships between those assumptions and life histories and experiences. They will become aware of the dynamics of how communities are formed and function by forming a community themselves, and through involvement in a local community group or agency. Group discussions and written reflections will link their personal experiences to theory and research presented in class and readings on such topics as developing systems theories, cultural communication theories, and decision-making. The goals of the course are to increase students' understanding of the relations between values, power relations, and the various processes of social change, and encourage the development of communication skills and citizenship. Special emphasis will be placed on developing relationships within culturally and ethnically diverse groups. Because it is designated as a writing intensive course, particular attention will be given to the development of written communication skills. Students will be evaluated on the basis on their performance in several areas, which may include examinations and quizzes, several writing assignments, and participation in class discussions and simulations. The course may be delivered at certain Commonwealth College campuses and Altoona College. Depending on location, the course may be offered during the fall, spring and/or summer sessions, with anticipated class enrollments of 12-20 students.

General Education: GS  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 296** Independent Studies (1-12) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1990

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1990

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 300H** Honors Seminar: Concepts and Issues in Human Development and Family Studies (3) Introduces core concepts and issues in the study of Human Development and Family Studies.

**Honors Seminar: Concepts and Issues in Human Development and Family Studies (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1996  
Prerequisite: HD FS 129 or permission of human development and family studies honors adviser



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 301** Values and Ethics in Health and Human Development Professions (3) Examines bases for choices among values in personal and professional relations in human development processes and supporting services.

**Values and Ethics in Health and Human Development Professions (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 302A** Leadership and Technology Skills for Human Services Professionals A (3) Development of skills essential for contemporary human services professionals, including critical thinking, problem solving, electronic communications, and information handling.

**Leadership and Technology Skills for Human Services Professionals A (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: HD FS 129

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 302B** Leadership and Technology Skills for Human Services Professionals B (3) Application and enhancement of leadership and technology skills in team settings; emphasis on active and collaborative problem-solving.

**Leadership and Technology Skills for Human Services Professionals B (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1997  
Prerequisite: HD FS 302A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 310M** Seminar in Honors--Research Methods (4) Overview of research and methods issues tailored around development of honors thesis proposals.

**HD FS 310M Seminar in Honors--Research Methods (4)**

HD FS 310M is designed to cover all of the elements in designing a research project. Through a series of written projects, students study the scientific method, research question development, and tools and techniques for data gathering and analysis. The course covers how to take a theory about human development and family studies and develop testable hypotheses/research questions. Students learn the basic skills needed for managing and understanding data; analyzing data; and presenting data. Then, students use real data to practice data management, data analysis, and reporting on data in both oral and written forms.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: permission of Human Development and Family Studies honors adviser

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 311** Human Development and Family Studies Interventions (3) Survey of individual and family formal and informal intervention efforts; historical and current perspectives and approaches.

**Human Development and Family Studies Interventions (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1996  
Prerequisite: HD FS 129

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 312W** Empirical Inquiry in Human Development (3) Introduction to the skills involved in critical thinking in general and the methods of empirical inquiry in particular. Open to HD FS majors only.

**Empirical Inquiry in Human Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: a grade of C or better required in EDPSY 101 or STAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 313** Empirical Inquiry in Human Development for Non-Majors (3) Introduction to the skills involved in critical thinking in general and the methods of empirical inquiry in particular.

**HD FS 313 Empirical Inquiry in Human Development for Non-Majors (3)**

The main purpose of this course is to help students become informed and critical consumers of scientific research. Throughout the course, they will develop the critical thinking skills necessary to understand scientific inquiry in the field of Human Development. This course will serve as an introduction on how the tools of the scientific method can be used to understand human behavior, developmental processes, and modification of those processes. Students are encouraged to develop their critical capacities through a process that involves learning basic components of empirical inquiry, such as study design, measurement approaches, and sampling strategies, and applying their understanding of those components to evaluate the conclusions of research studies. Students will be exposed to quantitative and qualitative approaches as well as information on intervention and applied research. The course will consist of lectures and class exercises.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: a grade of C or better in: EDPSY 101 or STAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 315 (US)** Family Development (3) Family functions over the life course; family from a multidisciplinary perspective, emphasizing adaptation and change.

**HD FS 315 Family Development (3)  
(US)**

This course offers an overview of families focusing primarily on contemporary American families. The primary thrust of this course is to step beyond our personal experiences with families and place them within a broader social, historical, cultural and economic context. This class will be multi-disciplinary in its approach to the study of American families. However, we will begin with the historical, demographic and social changes that American families have undergone and try to understand some of the causes and consequences of these changes for the developmental life courses of adults and children in families today. Throughout this course we will be particularly concerned with the diversity of American families stressing differences based on gender, race and ethnicity, and socioeconomic status.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: HD FS 129 ; 3 credits of social behavioral or human biological sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 315Y (US)** Family Development (3) Family functions over the life course; family from a multidisciplinary perspective, emphasizing adaptation and change.

**HD FS 315Y Family Development (3)  
(US)**

This course offers an overview of families focusing primarily on contemporary American families. The primary thrust of this course is to step beyond our personal experiences with families and place them within a broader social, historical, cultural and economic context. This class will be multi-disciplinary in its approach to the study of American families. However, we will begin with the historical, demographic and social changes that American families have undergone and try to understand some of the causes and consequences of these changes for the developmental life courses of adults and children in families today. Throughout this course we will be particularly concerned with the diversity of American families stressing differences based on gender, race and ethnicity, and socioeconomic status.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: HD FS 129 ; 3 credits of social behavioral or human biological sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 330** Observation or Experience with Children, Youth, and Families (1-6) Directed observations of, or supervised experience with children, youth, and families in group or home settings.

**Observation or Experience with Children, Youth, and Families (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: HD FS 229 or PSYCH 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1998

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 397A** Global Youth Justice (3) An exploration, comparison and critical analysis of the most influential concepts, policies and practices in reform of juvenile justice around the globe, aimed to provide better understanding and enhancement of juvenile justice in US.

**Global Youth Justice (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 401** Project Planning, Implementation, and Evaluation in the Human Services (3) Exercises and activities related to

the design, planning, implementation and management, and evaluation of projects and programs in the human services.

**HD FS 401 Project Planning, Implementation, and Evaluation in the Human Services (3)**

HD FS 401 is part of a sequence of courses that develop skills and competencies of the human services student. The course emphasizes the further development of communication skills, diversity skills, team-building skills, critical thinking skills, and technology and leadership skills. Intended to be completed prior to the internship experience, the course will initially focus students' efforts on the identification of a field-based human services project or program, and a setting within which it could be carried out. Subsequently, students will design and plan the project or program, examine and propose effective implementation and management procedures, and incorporate state-of-the art evaluation procedures into the design.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: HD FS 312W ; approval by internship coordinator. Prerequisite or concurrent:HD FS 411

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 402 Human Services Seminar (4)** Presentations and discussion of contemporary human issues by students and visiting professionals.

**Human Services Seminar (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1997

Prerequisite: HD FS 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 405 (US) Gender and Social Development (3)** A review of gender-related patterns of social development over the lifespan, as influenced by biological, sociological, and psychological factors.

**Gender and Social Development (3)**

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: HD FS 129HD FS 312W ; or 6 credits in social sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 410 Communities and Families (3)** Family and community interaction, emphasizing strategies for intervention to solve family-community problems.

**Communities and Families (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1996

Prerequisite: HD FS 312W ; 3 credits of social/behavioral sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 411 The Helping Relationship (3)** Theory and research related to interpersonal conditions which facilitate personal growth; intensive interpersonal competency training.

**The Helping Relationship (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1996

Prerequisite: HD FS 311;HD FS 312W ; or 6 credits in Human Development and Family Studies or psychology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 412 Adult-Child Relationships (3)** Theories, research, and application of adult behavior for maximizing adult- child relationships and optimizing child socialization and self-development.

**Adult-Child Relationships (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: HD FS 229 or PSYCH 212; HD FS 311; HD FS 315 or HD FS 315W; HD FS 312W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 413** Developmental Problems in Adulthood (3) Analysis of individual developmental problems from young adulthood through old age and their prevention and modification.

### **Developmental Problems in Adulthood (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: HD FS 129; HD FS 249; HD FS 312W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 414** Resolving Human Development and Family Problems (3) Strategies for, and roles of professional specialists in, the solution of problems in human development and family functioning.

### **Resolving Human Development and Family Problems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1996  
Prerequisite: HD FS 312W ; 6 credits in Human Development and Family Studies or psychology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 415** Program Development in Family Relationships (3) Methods for planning, developing, and evaluating human service programs for families across the life span.

### **Program Development in Family Relationships (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: HD FS 311; HD FS 312W; HD FS 315 or HD FS 315W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 416 (US) (SOC 411)** Racial and Ethnic Diversity and the American Family (3) This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States.

### **HD FS 416 (SOC 411) Racial and Ethnic Diversity and the American Family (3)**

During the last several decades, the racial and ethnic composition of the U.S. population has changed dramatically. At end of the 20th century, non-Hispanic whites accounted for less than 75 percent of the U.S. population. While blacks remained the largest minority group, there were nearly as many Hispanics as blacks, and the number of Asians was increasing. Population projections indicate that by the middle of the 21st century, Hispanics will make up nearly one-fourth of the U.S. population. Blacks, Asians, and American Indians together will comprise an additional fourth of the population. The last several decades have also brought significant changes in family life in the United States, including declining rates of marriage, a rising age-at-marriage, an increase in cohabitation, and a dramatic rise in the proportion of births outside of marriage. While these trends in family life have been experienced by all racial and ethnic groups, there is substantial variation in family patterns by race and ethnicity. The course will build on other courses in social inequality and the family. The course does not overlap with any existing courses in the Department of Sociology or with courses offered in other relevant departments.

This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States. The student will read articles from major sociological journals and learn to extract major points and issues. He/she will learn to synthesize and critique various arguments on major issues in the field. The student will acquire skills in summarizing and evaluating arguments in essay form. He/she will also develop oral presentation skills. Final grades for the course will be based on class participation, a brief (approximately 5 pages) paper, a group presentation, a midterm examination (essay format) and a final examination (essay format). The course is not required for the Sociology minor or major. However, the course can count as one of the 400-level elective courses in Sociology for the Sociology minor, B.A. or B.S.

General Education: None

Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: 3 credits in sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 417 (US;IL) Biocultural Studies of Family Organization (3)** Study of variability in family organization with an emphasis on cultural and economic factors influencing household organization and family roles.

**Biocultural Studies of Family Organization (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: HD FS 129;HD FS 312W;HD FS 315 orHD FS 315W ; or 6 credits in sociology or anthropology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 418 Family Relationships (3)** Dynamics of family interaction; effects of parenthood, sibling and intergeneration relationships on family solidarity.

**Family Relationships (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: HD FS 312W;HD FS 315 orHD FS 315W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 420 Laboratory in Individual and Family Enhancement (3)** Supervised practice in methods of assessment, intervention, and evaluation to enhance individual and family development.

**Laboratory in Individual and Family Enhancement (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1996  
Prerequisite: HD FS 312W;HD FS 411 ; 6 additional credits in Human Development and Family Studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 424 (US) Family Development in an Economic Context (3)** Economic conditions influencing family functioning; familial effects on the economy; strategies to enhance work-family relations.

**Family Development in an Economic Context (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: HD FS 312W;HD FS 315 orHD FS 315W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 425 (US) Work as a Context for Human Development (3)** Theory and research on role of work in adult development; interrelationships between work and family; workplace interventions to enhance development.

**Work as a Context for Human Development (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: HD FS 312W ; 3 credits in social and behavioral sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 427 (KINES 427) Developmental Sport & Exercise Psychology (3)** Developmental changes in the antecedents and consequences of physical activity across the lifespan.

**HD FS (KINES) 427 Developmental Sport & Exercise Psychology (3)**

Change is constant with physical activity - our reasons for being active change across the lifespan and our experiences with physical activity change how we view ourselves and those around us. Developmental Sport & Exercise Psychology focuses on developmental changes in the psychosocial antecedents and consequences of physical activity across the lifespan. Specific course objectives include (1) describing theoretical frameworks and methods used to study physical activity-related psychosocial development across the lifespan, (2) describing how self-perceptions develop and influence behavior in movement contexts at different points in life, (3) explaining how contextual factors influence developmental processes associated with physical activity, (4) identifying age-related differences in activity-related antecedents and consequences of physical activity, and (5) developing, reviewing, and critiquing theoretically-grounded interventions to address issues related to developmental processes associated with physical activity across the lifespan. Evaluation will be based on written examinations, submission of a series of reflection papers on reading assignments, a group presentation, and the students' engagement in the class. It extends but does not duplicate existing courses in the Department of Innersole, Human Development & Family Studies, and Psychology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: PSYCH 100 and KINES 321 or HD FS 129 or PSYCH 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 428** Infant Development (3) Conceptual analysis, assessment, and empirical investigation of normal and deviant development, prenatal through first two years of life.

**Infant Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: HD FS 229 or PSYCH 212; HD FS 312W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 429** Advanced Child Development (3) Processes of development during childhood from birth to adolescence. Emphasis upon theory, method, and empirical research.

**Advanced Child Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: HD FS 229 or PSYCH 212; HD FS 312W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 430** Experience in Preschool Groups (6) Guided practicum experience in planning and facilitating developmentally appropriate activities for young children.

**Experience in Preschool Groups (6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: HD FS 229 or PSYCH 212; HD FS 312W; HD FS 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 431** (SOC 431) Family Disorganization: Stress Points in the Contemporary Family (3) Focuses on divorce, remarriage, incest, family violence as well as problems associated with family formation and parent-child relations.

**Family Disorganization: Stress Points in the Contemporary Family (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 1996

Prerequisite: HD FS 312W ; 6 credits of Human Development and Family Studies psychology sociology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 432** Developmental Problems in Childhood and Adolescence (3) Analysis of problems in individual development from infancy through adolescence; prevention and modification of developmental difficulties.

**Developmental Problems in Childhood and Adolescence (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: HD FS 229;HD FS 239 or PSYCH 212;HD FS 312W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 433** Developmental Transition to Adulthood (3) Conceptual analysis and empirical investigation of interrelationships between developmental processes during the period of pubertal growth.

**Developmental Transition to Adulthood (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1996

Prerequisite: HD FS 239;HD FS 312W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 434** (SOC 435) Perspectives on Aging (3) An analysis of the demographic, social, and cultural factors affecting the aged population in American society.

**Perspectives on Aging (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

Prerequisite: HD FS 312W ; 6 credits in sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 440** (SOC 440) Family Policy (3) An in-depth examination of family policy.

**HD FS (SOC) 440 Family Policy (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to provide an in-depth examination of family policy. Students will identify and critically analyze major issues, controversies, and policies that affect families. Attention will be devoted to recognizing both intended and unintended consequences of family policies and understanding policy challenges and trade-offs. Students will gain an understanding of how policies are shaped by both facts and myths, as well as our values. Students will examine historical and current trends in family patterns (e.g., divorce, women's labor force participation, nonmarital births) to understand the implications they hold for individuals, families and society. Students will gain an awareness of the social, economic, historical, legal, and political contexts within which family policies exist and are proposed. Although the main focus is on U.S. family policy, some time will be devoted to learning about family policies in other countries. We will learn about several specific family policies in-depth (e.g., welfare), but a final goal is to help students develop a general way of looking at family policy that they can then use to understand any issue of family policy that unfolds throughout their lifetime. This course will foster thoughtful reflection and critical thinking, writing skills, research skills, and skills of synthesis, logic, and argument. Course goals will be accomplished through course readings, writing assignments, lectures, class discussions, debates and group projects. Mastery of course material and student evaluation are assessed in several ways. Students will take a midterm and final exam that cover lectures, class discussions, and assigned readings. Two papers are also required. The first paper is based on an analysis of newspaper articles dealing with family policy issues that students will collect and relate to course materials. The second paper is a literature-based analysis of a family policy in a society outside the United States. Class participation is also essential and its evaluation will be based on a combination of class attendance, contributions to class discussions, participation in group debates and projects, and an oral presentation of the final paper on a non-U.S. family policy.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: 3 credits of SOC or HD FS

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 445** (PSYCH 416) Development Throughout Adulthood (3) Processes of development and change of behavior from early adulthood through old age, emphasizing theory, method, and empirical research.



**Development Throughout Adulthood (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: HD FS 249 or PSYCH 100; HD FS 312W or PSYCH 301W; PSYCH 200 STAT 200 or 3 credits of statistics ; 6 credits in HD FS PSYCH or SOC.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 446** Programs and Services in Gerontology (3) Theoretical and historical views of the conceptualization and delivery of programs and services to older persons within a multidisciplinary developmental framework.

**Programs and Services in Gerontology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1996

Prerequisite: HD FS 249 or HD FS 445; HD FS 312W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 447** Issues in Gerontology (3) Analysis of major issues in adulthood and aging, with an emphasis on integration of theory and research.

**Issues in Gerontology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1996

Prerequisite: HD FS 249 or HD FS 445; HD FS 312W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 450** Developmental Child Programs and Services (3) Current and historical views of the conceptualization and delivery of child programs and services within a multidisciplinary developmental framework.

**Developmental Child Programs and Services (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: HD FS 229 or PSYCH 212; HD FS 312W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 452** Child Maltreatment Prevention, Intervention, and Legal Issues (3) Examines causes, correlates, and consequences of child maltreatment, empirically supported prevention/intervention programs, the Child Welfare System and relevant legal issues.

**Child Maltreatment Prevention, Intervention, and Legal Issues (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: HD FS 229 or HD FS 239; HD FS 312W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 453** Family Participation and Involvement in Child Services (3) Current and historical perspectives of roles and functions of family members in designing, delivering, and evaluating of child service programs.

**Family Participation and Involvement in Child Services (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: HD FS 229; HD FS 312W; HD FS 315 or HD FS 315W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 454** (E C E 454) Development and Administration of Child Service Programs (3) Planning, administering, and evaluating child service programs at several administrative levels using methods from relevant disciplines.

**Development and Administration of Child Service Programs (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1996

Prerequisite: HD FS 312W;HD FS 453;C I 295 orHD FS 330

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 455** Development and Administration of Human Services Programs (3) Fundamentals of program development and administration of human service programs in community settings; emphasis given to program content, strategies, and the overall planning process.

**Development and Administration of Human Services Programs (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: HD FS 311

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 468** Biological Bases of Behavioral Development (3) Biological, genetic, and experiential influences in development through the lifespan.

**Biological Bases of Behavioral Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: HD FS 129 orPSYCH 100;HD FS 312W ; 3 credits in human biology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 477** Analysis of Family Problems (3) Analysis of families' behavioral, managerial, interpersonal, and financial problems and their interrelationships.

**Analysis of Family Problems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: HD FS 312W;HD FS 315 orHD FS 315W ; 3 credits in social sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 490** Introduction to Internship Experience (2) Planning and preparation for field experience in human service setting. Analysis of human service system and arrangement of site.

**Introduction to Internship Experience (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1996

Prerequisite: HD FS 312W ; approval by internship coordinator. Prerequisite or concurrent:HD FS 411

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 494A** Research Practicum (3) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Practicum (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 494B** Research Paper (3) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Paper (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 494H** Senior Honors Thesis (1-6) Independent study under the direction of the thesis advisor of topics related to the interests of the student, culminating in presentation of a thesis.

**Senior Honors Thesis (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1997  
Prerequisite: approval of honors thesis advisor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 495A** Internship: Advanced Experience (9) Full-time, one semester experiential training in human service settings. Open to HD FS majors only.

**HD FS 495A Internship: Advanced Experience (8)**

HD FS 495A represents a full-time, one-semester internship experience. Its focus is experiential learning accompanied by intensive supervision, provided by one-site personnel, as well as University-based mentoring. Taken within a year of the pre-internship course (HD FS 490), which helps the student with the details of making arrangements for their internship, HD FS 495A, taken during the same semester as HD FS 495B, is considered the capstone of the HD FS undergraduate program. The internship can be taken during the fall, spring, or summer semester. It is one full semester spent working as a human service professional in a setting of your choice. Generally interns will work as a full-time professional (35-40 hours a week) for the semester.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: HD FS 490HD FS 301HD FS 455 and permission of internship director

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 495B** Internship: Advanced Project (3) Implementation of internship projects or scholarly paper. Open to HD FS majors only.

**HD FS 495B Internship: Advanced Project (4)**

HD FS 495B is taken at the same time as HD FS 495A, and within a year of the pre-internship course (HD FS 490), which helps you with the details of making arrangements for the HD FS internship, HD FS 495B focuses on the academic aspects of the internship experience. This course can be taken during the fall, spring, or summer semester. Currently, HD FS 495B

consists of writing three papers; The Organizational Analysis, The Policy Analysis, and The Personal Development Paper. The purpose of the organizational analysis paper is to give the intern an opportunity to learn about his or her internship setting or organization in greater depth than might be possible otherwise. This will necessitate the intern taking an active approach to systematically securing information about the internship organization through the review of relevant documents, conducting formal or informal interviews, and observation. This paper will then be saved at the internship office, without identifying information or grade, to be viewed as a source of information about potential internship sites by future students who are seeking internships.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2006  
 Prerequisite: or concurrent: HD FS 495A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 495C** Professional Practicum in Human Services (3-8) Guided professional practicum in human services, usually in the form of a project related to a human services issue.

### **Professional Practicum in Human Services (3-8)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1997  
 Prerequisite: HD FS 401 or HD FS 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1990

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1990

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 497A** Autism - Providing Professional Support for Individual and Families (3) This course will emphasize professional development for students planning to pursue careers in the field of autism. Topics include the stresses and needs of families and siblings of children with Autism Spectrum Disorders (ASD), vocational and social challenges faced as individuals with ASD age into adolescence and adulthood, and techniques to aid parents in becoming effective advocates for their child's academic, social, and behavioral needs. Although the core symptomatology of ASD and empirically validated interventions will be covered as foundational knowledge, these topics will not be the focus of this course. Rather, this course will identify the challenges and strengths likely to be encountered in the lives of families and individuals with ASD and provide current best practices used to help clients navigate life with ASD.

### **Autism - Providing Professional Support for Individual and Families (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 497B** Teaching Human Development and Family Studies (3) Students who excel in HD FS classes may be invited to

become an undergraduate teaching assistant.

**Teaching Human Development and Family Studies (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 497C** Peer and Consultation (1-3) Students register for this course if they will be serving as a teaching assistant in HDFS courses.

**Peer and Consultation (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 497C** Peer and Consultation (1-3) Students register for this course if they will be serving as a teaching assistant in HDFS courses.

**Peer and Consultation (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 499 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 499A (IL)** Early Childhood in Italy (3) This course will give students the opportunity to examine the way in which Italians structure the early childhood years, and the social policies that support this structure. Students will observe children in public, as well as having the opportunity to visit preschool and day care programs for young children.

**Early Childhood in Italy (3)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**HD FS 499B** (IL) Historical Roots of the Modern Italian Family (3) The purpose of this course is to examine the historical roots of the Italian family system as it has evolved from antiquity to modernity. Issues to be explored include the implications of economic, political, religious, and social factors, the status of Italian women over time with regard to legal rights, roles, societal expectations and cultural values, and the attitudes toward and practices regarding child rearing.

#### **Historical Roots of the Modern Italian Family (3)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**HD FS 499C** (IL) Italian Relationships, Both Cultural and Familial (3) The purpose of this course is to examine the cultural factors affecting business, friendship, and family relationships in Italy. Issues to be explored include the implications of economic, political, religious, and social factors on Italian families, and the influence of the Catholic Church on family and social roles in Italy.

#### **Italian Relationships, Both Cultural and Familial (3)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Humanities and Social Sciences (H&SS)**

**H&SS 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&SS 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&SS 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1989

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&SS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1989

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&SS 297A** Introduction to Game Design (3) Design of games as aesthetic objects and cultural artifacts that people find meaningful and entertaining.

**Introduction to Game Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&SS 297A** Introduction to Game Design (3) Design of games as aesthetic objects and cultural artifacts that people find meaningful and entertaining.

**Introduction to Game Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&SS 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&SS 397A** Advanced Game Design (3) Develop habits of successful game designers playing games thoughtfully and documenting those thoughts.

**Advanced Game Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: H&SS 297 or GAME 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**H&SS 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1989

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**H&SS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1989

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Industrial Engineering (I E)**

**I E 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 100S** Discover Industrial Engineering: First-Year Seminar (1) Informational First-year on Industrial Engineering as a career choice and profession; lab exercises; guest speakers; real world problems.

### **I E 100S Discover Industrial Engineering: First-Year Seminar (1) (FYS)**

The objective of this first-year seminar course is to provide information on industrial engineering as a career choice and as a profession. It is a fact that most first-year students have never heard of Industrial Engineering (I E), or the many varied opportunities that exist within the I E major. This course explores the many aspects of the major and also offers the opportunity to interact with I E faculty and students, something that is an uncommon occurrence during the first year of engineering study.

Class time is used for a variety of activities including: interactive class sessions where students work in teams to analyze and solve applied "real-world" problems in industrial and manufacturing engineering; I E faculty guest speakers addressing career opportunities in a particular area within I E; Lab experiences or demonstrations; Alumni guest speakers or panels; Plant tours (1 per semester); I E student panels on topics such as Co-op.

The class atmosphere is relaxed and there are no examinations. Homework assignments are given throughout the semester on relevant topics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 101S** Build Your Own Robot--First-Year Seminar (1) The objective of this first-year seminar course is to provide students hands-on experience with robotics and automation devices.

### **I E 101S Build Your Own Robot (1) (FYS)**

The focus of this first-year seminar course is to provide students hands-on experience with robotics and automation devices. Throughout the semester students will work in small groups (three to four students per group) to construct table top robots and automated machinery which will be controlled using personal computers in a laboratory. These activities which will be supplemented by videos, plant trips, and the Internet to expose students to industrial application of modern robotics and automation technology. Topics covered in the course will include:  
working principles of robots and automated machines  
impact of automation in a global economy and  
group projects

The intent of this hands-on laboratory experience is to provide students an environment that enhances active learning, teamwork, and contact with faculty. Grading will be based on class participation, assignments, lab reports, and



presentations. There will be no exams in this course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 302** Engineering Economy (3) Principles and methods for analyzing the economic feasibility of technical alternatives leading to a decision or recommendation.

**Engineering Economy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 302H** Engineering Economy (3) Principles and methods for analyzing the economic feasibility of technical alternatives leading to a decision or recommendation.

**Engineering Economy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 303** Engineering Economic Analysis (2) Economic analysis of engineering alternatives.

**Engineering Economic Analysis (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 305** Product Design, Specification and Measurement (3) Principles of product design and specifications and methods for product verification.

**I E 305 Product Design, Specification and Measurement (3)**

*Product Design, Specification and Measurement* is a first level junior course in manufacturing, required for all the baccalaureate students in the Department of Industrial and Manufacturing Engineering. It will be offered in fall and spring semesters. It exposes students to the principles required for designing a product and developing the specifications for its components and the methods for product verification and checking conformance to specifications.

Students taking this course should be familiar with introduction to engineering design and should have graphical communication skills.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: Prerequisite or concurrent: MATSE 259

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 306** Machining Process Design & Analysis (3) Application of Engineering Principles for the Design and Implementation of Economic and Effective Machining Processes.

**I E 306 Machining Process Design & Analysis (3)**

Machining Process Design & Analysis is an elective course within the Department of Industrial & Manufacturing Engineering that can be used to satisfy the undergraduate, manufacturing process course requirement. It will be offered both fall and spring semesters. Its purpose is to provide students with an in-depth experience into the science, engineering, and thought processes that are used to apply machining processes to economically convert raw materials into finished products. Students will learn how to design, analyze, implement, and troubleshoot machining processes and machining systems. Students taking this course must have previously completed I E 305, and have knowledge of produce specification, metrology, and computer aided design tools.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: I E 305 I E 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 307** Additive Manufacturing Process and Reverse Engineering (3) The study and application of rapid prototyping technologies in design and manufacturing.

**I E 307 Additive Manufacturing Process and Reverse Engineering (3)**

Speed to market is an essential element of competitiveness. New manufacturing technologies, driven by CAD, such as Additive Manufacturing (AM), Rapid Tooling (RT), and Reverse Engineering are making it possible for companies to significantly cut design and manufacturing cycles times. This course will explore these new manufacturing technologies, study the basic processes and their role in the design and manufacturing cycle, and provide hands on experience with these processes. Students will be able to use process models, characteristics and capabilities of specific AM processes such as Stereo Lithography Process, Fused Deposition Modeling, Selective Laser Sintering, Electron Beam Melting, and 3-D Printing to compare different processes. The students will study the use of these processes for Rapid Tooling applications for sand casting, investment casting, and injection molding. The students will be able to describe the role of CAD and Reverse Engineering in providing the data needed and current technological challenges for AM. The students will be able to develop cost models for the processes to evaluate the production economics. Students will gain hands on experience with the processes and reverse engineering through the laboratory component.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Fall 2013  
Prerequisite: I E 305

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 311 Principles of Solidification Processing (3)** Discussion, laboratory practices, and laboratory experiments covering principles of metal casting and joining, nondestructive testing, and nonmetallic processing.

### **Principles of Solidification Processing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009  
Prerequisite: I E 305

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 312 Product Design and Manufacturing Processes (3)** Theory and principles of mechanical design specification, verification, and manufacturing. Industrial engineering majors may not schedule this course.

### **Product Design and Manufacturing Processes (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: E MCH 213E MCH 210H or E MCH 210 ; Prerequisite or concurrent: E SC 414M or MATSE 259

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 322 Probabilistic Models in Industrial Engineering (3)** The study and application of probability theory in the solution of engineering problems.

### **I E 322 Probabilistic Models in Industrial Engineering (3)**

*Probabilistic Models in Industrial Engineering* is a first level junior course required for all the baccalaureate students in the Department of Industrial and Manufacturing Engineering. It will be offered in fall and spring semesters. It exposes students to the probability theory and models and discrete and continuous probability distributions which are necessary for solving real life engineering problems with uncertainty. Reliability modeling, one such problem of interest to the manufacturers and consumers, will be taught in this course. The course will also cover sampling distributions and point and interval estimation of mean, variance and proportion.

Students taking this course should be familiar with elementary algebra, and differential and integral calculus.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2005  
Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 322H Probabilistic Models in Industrial Engineering (3)** The study and application of probability theory in the solution of engineering problems.

### **Probabilistic Models in Industrial Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 323 Statistical Methods in Industrial Engineering (3)** The study and application of statistics in the solution of engineering problems.

### **I E 323 Statistical Methods in Industrial Engineering (3)**

*Statistical Methods in Industrial Engineering* is a second level junior course required for all the baccalaureate students in the Department of Industrial and Manufacturing Engineering. It will be offered in fall and spring semesters. It exposes students to the statistical tools such as estimation, testing of hypotheses, control charts, process capability indexes, gage R & R studies, simple regression and design of experiments, which are necessary for analyzing and solving real life

engineering problems using data.

Students taking this course should be familiar with the following topics taught in the first course in probability offered in the department.

Probability concepts, Random variables, Independence, Probability Distributions (both discrete and continuous), Mathematical Expectation, Variation and Binomial and Standard Normal tables.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: I E 322

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 327** Introduction to Work Design (3) Job analysis, cognitive and physical considerations in design of work, work measurement.

### **I E 327 Introduction to Work Design (3)**

*Introduction to Work Design* is a first level junior course required for all the baccalaureate students in the Department of Industrial and Manufacturing Engineering. It will be offered in fall and spring semesters. It exposes students to the basic introductory tools required for analyzing and designing both the job and the worksite in a cost-effective manner, as well as measuring the resulting output. These tools include human information processing, basic auditory and visual displays, anthropometry and musculoskeletal principles, cumulative trauma disorders, work measurement and stopwatch time study.

Students taking this course should be familiar with the basic concepts of cost.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: MATH 141 Prerequisite or concurrent: E MCH 211 or E MCH 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 330** Engineering Analytics (3) The study and application of Computing, Information Technology and Analytics to Industrial Engineering.

### **I E 330 Engineering Analytics (3)**

Engineering Analytics is a required course for all baccalaureate students in the Industrial Engineering major. It provides students with a quantitative background in descriptive analytics which deals with data mining, predictive analytics which deals with forecasting, and the use of Big Data in analysis. Examples of analytics will be presented in various industries including manufacturing, healthcare, and distribution. The students will learn to work in settings to make data-informed decisions from large data sets.

Students taking this course should be familiar with differential and integral calculus, statistics, and basic computing.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: I E 322 and CMPSC 200 CMPSC 201 or CMPSC 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 330L** Information Technology for Industrial Engineering (3) The study and application of computing and information technology to industrial engineering.

### **Information Technology for Industrial Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MATH 141 CMPSC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**I E 330P** Information Technology for Industrial Engineering The study and application of computing and information technology to industrial engineering.

### **Information Technology for Industrial Engineering**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MATH 141CMPSC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 399** (IL) Foreign Studies--Industrial Engineering (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies--Industrial Engineering (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 402** Advanced Engineering Economy (3) Concepts and techniques of analyses useful in evaluating engineering projects under deterministic and uncertain conditions.

### **Advanced Engineering Economy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1995  
Prerequisite: I E 302I E 322I E 405

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 405** Deterministic Models in Operations Research (3) Deterministic models in operation research including linear programming, flows in networks, project management, transportation and assignment models and integer programming.

### **I E 405 Deterministic Models in Operations Research (3)**

This course will be an introduction to deterministic modeling. In particular, the student will learn to formulate linear programs, network models, and integer programs. The student will also learn solution strategies such as the simplex method and branch and bound. Duality and sensitivity analysis will be covered along with their economic interpretation. Optimization software will be used for solving the formulations. Practical examples along with a detailed case study will be presented to help the student to synthesize the topic. This will be a required course for all undergraduate students pursuing a baccalaureate degree in Industrial Engineering.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: MATH 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 408 Cognitive Work Design (3)** Design and evaluation of cognitive work, including the human/computer interface, visual displays, software design, and automated system monitoring, with emphasis on human performance.

**I E 408 Cognitive Work Design (3)**

*Cognitive Work Design* is a senior level course offered in the Department of Industrial and Manufacturing Engineering. It is one of two courses which follow I E 327, Introduction to Work Design. This course focuses on the cognitive part of human factors and work design. It will be offered in fall and spring semesters. This course will enable students to design, implement, and evaluate human-computer interfaces according to principles outlined in foundational human-computer interaction readings. Students will be engaged in the active learning of design, programming, and usability concepts by way of building interfaces on the personal computer.

Students taking this course should be familiar with computer programming and introduction to work design.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: I E 327

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 418 Human/Computer Interface Design (3)** Design and evaluation of the human/computer interface, including human performance, visual displays, software design, and automated system monitoring.

**I E 418 Human/Computer Interface Design (3)**

The objective of this course is to enable students to design, implement, and evaluate human-computer interfaces according to principles outlined in foundational human-computer interaction readings. Students will be engaged in the active learning of design, programming, and usability concepts by way of building interfaces on the personal computer as well as on the Palm computing platform. A major component of the course is the capstone design project for which student teams will communicate with users to design, implement, and assess interfaces to improve existing work processes in an actual work domain (e.g., safety office, power plant).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: I E 327 and CMPSC 200 CMPSC 201 or CMPSC 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 419 Work Design - Productivity and Safety (3)** Methods improvement, physical work design, productivity, work measurement; principles and practice of safety.

**I E 419 Work Design - Productivity and Safety (3)**

*Work Design - Productivity and Safety* is a senior level course offered in the Department of Industrial and Manufacturing Engineering. It is one of two courses which follow I E 327, Introduction to Work Design. This course focuses on the methods improvement physical work design, productivity, work measurement; principles and practice of safety. It will be offered in fall and spring semesters. This course will enable students to perform work measurement: develop an MTM analysis, and carry out a work sampling study.

Students taking this course are expected to understand basic concepts of work design.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: I E 327

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 424 Process Quality Engineering (3)** Statistical methods for engineering process characterization and improvement. For non-Industrial Engineering majors.

**Process Quality Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: MATH 141 and either MATH 220 or B E 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 425 Stochastic Models in Operations Research (3)** Stochastic models in operations research with real world applications including dynamic programming, Markov chains, queueing models and inventory models.

### **I E 425 Stochastic Models in Operations Research (3)**

This course will be an introduction to the modeling of stochastic systems. The student will learn about Poisson processes, Markov Chains, Dynamic Programming, and Queueing systems; both model formulations and solutions strategies. The students will learn several applications of these models in manufacturing and service systems, so that they can synthesize the lecture material. The student will study the topic of inventory theory, including fundamental tradeoffs, EOQ modeling, and stochastic models. Grading will be based on exams and homework. This will be a required course for all undergraduate students pursuing a baccalaureate degree in Industrial Engineering.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: MATH 220 and I E 322

Concurrent: I E 405

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 428 Metal Casting (3)** Application of engineering principles to the design of castings; casting of ferrous and nonferrous alloys; laboratory and simulation projects.

### **Metal Casting (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

Prerequisite: I E 311 I E 312 or METAL 408W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 433 Regression Analysis and Design of Experiments (3)** Theory and Application of Regression Analysis and Design of Experiments to build models and optimize process and product parameters.

### **I E 433 Regression Analysis and Design of Experiments (3)**

*Regression Analysis and Design of Experiments* is an elective course for the baccalaureate students in the Department of Industrial and Manufacturing Engineering. It will be offered in the spring semester. It exposes students to the two important statistical tools which are regression analysis and design of experiments. The specific topics include simple and multiple regression analysis, 2k full and fractional designs and analysis and Taguchi's orthogonal arrays.

Students taking this course should be familiar with the following topics taught in the second course in probability and statistics offered in the department.

Properties of point estimators, sampling distributions, testing of hypotheses, and introduction to linear regression and design of experiments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: I E 323

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 434 Statistical Quality Control (3)** Statistical techniques for univariate and multivariate monitoring of independent and autocorrelated processes; foundations of quality control and improvement.

### **I E 434 Statistical Quality Control (3)**

This course is about the use of modern statistical methods for process and product improvement. The goal is to impart a sound understanding of the principles and basis for applying them in a variety of practical situations in manufacturing and service fields. The course will give an overview of the basic statistical methods and then concentrate on some of the more

useful recent developments including univariate and multivariate techniques to monitor autocorrelated data, analyzing process capability, and improving process quality in short-run environments. The course objectives are to: (1) understand the assumptions and theoretical foundations of process monitoring; (2) know how to select, set up, and use monitoring charts effectively depending on the system characteristics; and (3) understand the basic business and economic principles of process monitoring.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: I E 323

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 436 Six Sigma Methodology (3)** Techniques for structured problem-solving to improve the quality and cost of products and processes.

### **I E 436 Six Sigma Methodology (3)**

Six Sigma is a structured, quantitative approach to improving the quality and cost of products and processes. It provides a framework for quality improvement that builds upon statistical tools to achieve business results. Although statistical techniques are emphasized throughout, the course has a strong engineering and management orientation that will prepare students for synthesizing the material that comprises the Six Sigma body of knowledge. Important aspects of the Six Sigma approach include a strong focus on the customer, proactive management, fact-based decision-making, and interdisciplinary collaborations. The course objectives are: (1) to give students a fundamental understanding of and experience with solving a problem using the structured problem-solving approach of Define-Measure-Analyze-Improve-Control (DMAIC); (2) to provide an opportunity for students to solve or be involved with solving business problems with statistical tools; and (3) to help students build confidence in their business sense and statistical skills.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: I E 323

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 453 Simulation Modeling for Decision Support (3)** Introduction of concepts of simulation modeling and analysis, with application to manufacturing and production systems.

### **I E 453 Simulation Modeling for Decision Support (3)**

*Simulation Modeling for Decision Support* is a senior level course offered in the Department of Industrial and Manufacturing Engineering. It is the third course in operations research offered to the undergraduate students. The objective of this course is for students to learn to appropriately apply discrete event simulation modeling for decision support in IE problems through developing skills in model building, simulation output analysis, and communication of technical information and conclusions drawn from data analysis.

Students taking this course should be familiar with computer programming and operations research techniques.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: CMPSC 200CMPSC 201 orCMPSC 202 andI E 323 andI E 425

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 454 Applied Decision Analysis (3)** Theory and practice of decision analysis applied to engineering problems.

### **Applied Decision Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992  
Prerequisite: I E 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 456 (M E 456) Industrial Robot Applications (3)** Introduction to robotics, with emphasis on robot selection, programming, and economic justification for manufacturing applications.



**I E (M E) 456 Industrial Robot Applications (3)**

This course is a technical elective, and is normally taken by students in their Senior years. In this course, students learn about present and future status of robot applications, and are required to apply fundamental knowledge of physics and mathematics to develop software to analyze and control robots.

The course deals with mechanics and control of robot manipulators and wheeled mobile robots. First, students are taught to analyze 3-D kinematics, statics and dynamics of robot manipulators. Then, control algorithms for robot manipulators are presented. Sensors, actuators and softwares used in industrial robots are discussed. In the end, kinematics and control of wheeled mobile robots are presented. During this course, application of computer, particularly Matlab, is emphasized as much as possible.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: MATH 220;MATH 250 orMATH 251;I E 305 orM E 360;CMPSC 200 orCMPSC 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 460 Service Systems Engineering (3)** Use of quantitative models and methods for analysis, design and control of service systems.

**I E 460 Service Systems Engineering (3)**

This course focuses on using operations research methods such as mathematical programming, network analysis and applied probability to solve problems that arise in service systems. The lecture topics will include measuring service quality, methods for evaluating service systems, financial engineering & portfolio optimization, supply chain design & operations, manpower planning & scheduling, and revenue management. Several case studies will be used to illustrate applications. Course grades are based on homework, case studies, mini-project, midterm and final exams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: I E 322 andI E 405

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 462 Introduction to Expert Systems (3)** Building expert systems in general; emphasis on knowledge representation and inference mechanisms in the manufacturing domain.

**Introduction to Expert Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: CMPSC 200CMPSC 201 orCMPSC 202 andI E 323

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 463 Computer Aided Design and Manufacturing (3)** Three dimensional modeling and manufacture of parts and assemblies using Computer Aided Design and manufacturing software, and numerically controlled machines.

**I E 463 Computer Aided Design and Manufacturing (3)**

The objective of this course is to teach the students the fundamentals underlying computer aided design(CAD) and computer aided manufacturing (CAM). The students will learn the drawing elements for CAD, including the coordinate systems, the fundamentals of 3 D modeling techniques and basics such as wireframe models, surface and solid models and parametric modeling. The course will include application of CAM techniques to CNC machines, which consists of programming basics, machine setup and tooling systems. The data issues such as representation formats, data exchange and translation for integration of CAD/CAM will also be addressed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: I E 305

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**I E 464** Assembly of Printed Circuit Boards (3) Manufacturing processes and principles for assembly of printed circuit boards with surface mount and through-hole technology.

**Assembly of Printed Circuit Boards (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: PHYS 212I E 305

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 466** Concurrent Engineering (3) Concurrent engineering methods for product/process development, capturing customer requirements, insuring manufacturability and serviceability.

**Concurrent Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: MATH 141MATH 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 467** Facility Layout and Material Handling (3) Analytical, simulation and computer-aided graphical methods to generate effective layout designs; design and integration of material handling systems and equipment. For Industrial Engineering majors.

**I E 467 Facility Layout and Material Handling (3)**

Students taking this course will learn concepts and methods used to design an effective facility layout and material handling system. Topics include determination of requirements for people, equipment, and space; generation of alternative layouts based on analysis of material flow or qualitative activity relationships; development of concepts for material transport and storage, and evaluation of alternatives using models. Grading is based on homework and exams. Prerequisites for the course are I E 302 which covers methods for analyzing the economic feasibility of technical alternatives, and I E 327 which covers job analysis and physical considerations in design of work. The course is an elective for Industrial Engineering students in the manufacturing systems engineering and engineering service systems specialization tracks.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: I E 302I E 327

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 468** Optimization Modeling and Methods (3) Mathematical modeling of linear, integer, and nonlinear programming problems and computational methods for solving these classes of problems.

**I E 468 Optimization Modeling and Methods (3)**

This course provides an analytic treatment of optimization models in linear, integer, and nonlinear programming. In particular, the course is concerned with the development of mathematical optimization models and computational solution techniques for solving these problems. The mathematical modeling of real-world applications is complemented with the use of modeling software such as LINGO or GAMS (General Algebraic Modeling System), which allows the user to readily develop large-scale mathematical models. The course also considers solution techniques for solving these optimization problems. Students will develop a basic understanding of the solution techniques through actual implementation of simple algorithms, as well as the use of commercial software such as those provided by LINDO, LINGO, and GAMS.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: I E 405MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 469** Global Industrial Engineering Experience (1) Students will learn how to prepare for a short term, professional exchange in a foreign nation. Students will then travel to a designated university within a foreign nation for the purpose of

a five day cultural and professional exchange.

### **I E 469 Global Industrial Engineering Experience (1)**

This course will teach industrial engineering students how to prepare for a short term, professional exchange in a foreign nation and how Industrial & Manufacturing Engineering education and practice is carried out in a foreign nation. Students will be required to research and report on one or more industries in a designated foreign nation. Their report will focus on the products and/or services produced by these industries, the processes employed, known use of industrial and manufacturing engineers and/or practice, and their domestic and global standing.

Students will travel to a designated university within that nation for the purpose of a one week cultural exchange. The designated university will have an Industrial Engineering, Production Engineering, and/or Manufacturing Engineering program. Information about the international destination and the dates of travel will be provided on the course syllabus each semester.

During this period, students will:

1. tour the department and engineering laboratories to learn about the education and research facilities at their host university
2. attend engineering classes within the host university to learn about the engineering topic matter as well as how foreign engineering classes are conducted
3. give and receive engineering presentations with their host university students
4. tour the local community to learn about their culture
5. tour local manufacturing industries and interact with local Industrial/Manufacturing engineers to learn about the companies as well as how industrial & manufacturing engineering is specifically practiced

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2009

Prerequisite: 5th semester standing or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 470 Manufacturing System Design and Analysis (3)** Contemporary design and analysis methodologies used to organize systems for economic manufacture of products.

### **I E 470 Manufacturing System Design and Analysis (3)**

*Manufacturing System Design and Analysis* is a senior level course in manufacturing, required for all the baccalaureate students in the Department of Industrial and Manufacturing Engineering. Students will be exposed to the contemporary techniques used to design and analyze manufacturing systems for economic manufacture of products. Students will learn to design manufacturing systems (human and automated) to satisfy differing types of product demand.

Students taking this course should be familiar with introduction to manufacturing and product specifications and introduction to manufacturing process design and analysis.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: Prerequisite or concurrent: with manufacturing process elective

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 477 Computer Control of Manufacturing Machines and Processes (3)** Elements of computer control and discrete-time modeling. Design and analysis of digital controls for manufacturing machines and processes.

### **I E 477 Computer Control of Manufacturing Machines and Processes (3)**

Objective of this course is to gain physical insight and hands-on experience with modern control engineering. Lectures and laboratory topics will include modeling and simulation of digital control systems, control computers, interfacing, analog-to-digital converters, digital-to-analog converters, programmable logic controllers, sensors and actuators. Lectures will be devoted to case studies in instrumentation for computer control of manufacturing machines and processes. Course includes a significant group project in which students will design and construct a computer controlled machine or process. This course is a senior undergraduate level technical elective course in the manufacturing system engineering track in the Industrial & Manufacturing Engineering Department. This course is also allowed for graduate credit in the Industrial & Manufacturing Engineering Department.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: MATH 141CMPSC 200CMPSC 201 orCMPSC 202 andI E 305

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 478 Retail Services Engineering (3)** Introduction to retail services operations, process models, and application of information technologies to enhance productivity and profitability.

**I E 478 Retail Services Engineering (3)**

Objective of this course is to understand modern retail industry with focus on their operations and information technologies that are used in such systems. The course starts with an overview of the basics of types of retailing, their channels, and economics of their operations. Much of the emphasis in the course is on processes and information technologies used in retail industry such as point of sale systems, barcode, RFID/EPC, global data synchronization, EDI, XML, data warehouse, analytics for decision support and supply chain management. Several case studies will be used to draw out the application of tools and techniques covered in the course. Course includes a group project focused on retail industry. Specific topics will include:

- Global retail industry
- Multi-channel retailing
- Performance and metrics
- Pricing
- Layout and workforce
- Information Systems and SCM
- Barcode and RFID
- Data warehouse and analytics
- Case studies

This course is a senior undergraduate level technical elective course in the IT and Service Engineering track in the Industrial & Manufacturing Engineering Department.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: I E 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 479 (EDSGN 479) Human Centered Product Design and Innovation (3)** Consumer product design for a global market, incorporating human factors principles and user desires in a multicultural perspective.

**I E (EDSGN) 479 Human Centered Product Design and Innovation (3)**

This course will focus on consumer product design for a global market, incorporating human factors and ergonomics principles as well as user needs and emotional desires. The students will be led through product design process, various product design strategies, product planning, managing the development process, product evaluation, decision making tools, and market entry. Special emphasis will be placed on user centered design, incorporating user characteristics, user needs and emotional desires (including Kansei engineering approaches), survey methodology, and usability testing. To emphasize the multicultural perspectives in today's global product design, interdisciplinary teams from two universities on opposites of the globe will apply these principles on actual industrial product designs for leading consumer product manufacturers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: I E 408 or I E 419 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 480W Capstone Design Project (3)** Industry-based senior capstone design project emphasizing manufacturing systems, service systems, and information systems in an interdisciplinary setting.

**I E 480W Capstone Design Project (3)**

Students will develop "real world" engineering project experience through an industry-based project. Projects will focus on manufacturing systems, service systems, and/or information systems. Students will work in teams to complete the projects, where the teams will be interdisciplinary and composed of students from within the major with different areas of expertise and students from other majors as needed. Students interested in taking this course should have senior standing and be familiar with basic principles in manufacturing, operations research, and human factors engineering. Students will be evaluated through in-class participation, and a group project that consists of weekly communication with the project sponsor along with three design reviews, interim written reports and a final report, presentation and poster.

This is a Writing-Intensive course in the department and hence students will be given opportunities to practice writing throughout the semester in multiple writing assignments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009  
Prerequisite: I E 302I E 327I E 323I E 305I E 330I E 405

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 494H Senior Honors Thesis (1-9)** Students must have approval of a thesis adviser before scheduling this course.

### **Senior Honors Thesis (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 497D Micro/Nano Fabrication (3)** An exploration of the emerging science and engineering concepts of how to fabricate very small components and devices on the micro/nano-scale.

### **Micro/Nano Fabrication (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I E 499 (IL) Foreign Studies--Industrial Engineering (1-12)** Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies--Industrial Engineering (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Industrial Engineering Technology (IET)**

**IET 101** Manufacturing Materials, Processes, and Laboratory (3) Mechanical properties of materials; primary processing methods used in manufacturing; ferrous and nonferrous metals; important plastic plus ceramic materials; dimensional verification and measurements; mechanical properties evaluation; laboratory methods; statistical interpretation of data.

**Manufacturing Materials, Processes, and Laboratory (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 105** Economics of Industry (2) Internal economics of industrial enterprise, cost factors, and methods of comparing alternate proposals.

**Economics of Industry (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 109** Inspection and Quality Control (3) Inspection methods and procedures and their application to control and acceptance sampling based on statistical methods.

**Inspection and Quality Control (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: MATH 082

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 215** Production Design (2) The study of manufacturing processes for the purpose of part creation and/or part feature creation using both current and advanced technologies.

**Production Design (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: IET 101 or MET 105

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 216** Production Design Laboratory (2) Laboratory methods in production design including conventional and advanced manufacturing processes, computer applications, and automation/robotics.

**Production Design Laboratory (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: or concurrent: IET 215

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 308** Statistical Quality Control (3) Fundamentals of probability and statistics, introduction to quality control fundamentals, control charts, acceptance sampling.

**Statistical Quality Control (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 311** Elements of Metallurgy (3) Introduction to metallurgical concepts, metallurgical testing, phase diagram studies, heat treating concepts, ferrous and nonferrous systems.

**Elements of Metallurgy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: CHEM 110CHEM 111

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 321** Manufacturing Processes (3) Manufacturing processes for producing metal, plastic, and ceramic items. Primary emphasis is placed on machine tool processes.

**Manufacturing Processes (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 333** Engineering Economics for Technologists (2) Fundamentals of engineering economics; equivalence and rate of return analysis; replacement models; depreciation and tax considerations; and economic decision making for technologists.

**Engineering Economics for Technologists (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: MATH 022 and MATH 026 or MATH 040 or MATH 041

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 402** Production Management (3) Principles and practices of managing the manufacturing operations of companies. Topics include management structure, physical plant, quality control, work sampling.

### **Production Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: IET 321

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IET 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Information Science (IN SC)**

**IN SC 431** Information Systems Architecture (3) Principles and priorities of enterprise system design, middleware and service-oriented architectures and web services.

### **Information Systems Architecture (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IN SC 463** Languages of the Web (3) Taxonomy of programming languages and frameworks used in the development of web-based information systems.

### **Languages of the Web (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**IN SC 480** Software Development Lifecycle (3) Modern Software Development Techniques and Processes. Software Paradigms including OO and lifecycle modeling and improvement.

**Software Development Lifecycle (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IN SC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that they may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IN SC 497A** Special Topics: Network Management II (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that they may be topical or of special interest.

**Special Topics: Network Management II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IN SC 497B** Special Topics: Enterprise Architecture (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that they may be topical or of special interest.

**Special Topics: Enterprise Architecture (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IN SC 497C** Special Topics: Business Intelligence (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that they may be topical or of special interest.

**Special Topics: Business Intelligence (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Information Sciences And Technology (IST)**

**IST 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 110** (GS) Information, People and Technology (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises.

### **IST 110 Introduction to Information, People and Technology (3) (GS)**

Information, People and Technology presents the high points of an education in the College of Information Sciences and Technology. It opens an intellectual journey through the ideas and challenges that IT professionals face in the world. It will address major questions such as: How can we use technology to organize and integrate human enterprises? How can technology help people and organizations adapt rapidly and creatively? What can we do about information overload?

Three perspectives (or facets) address the core issues: information or the basic science of data encoding, transmission and storage; people or the interactions among technologies, institutions, regulations and users; and technology or the design and operation of basic information technology devices. Students completing the course will be confident users and consumers of information technology. Students will develop research and analytical skills to evaluate specific devices and understand how those devices function in larger socio-technical systems. Students will be able to predict and anticipate the impact of new technologies on human institutions as well as understand the potential impact of institutions on the use and design of information technologies.

The course employs an action-oriented approach. Students learn by doing—formulating and solving problems drawn from professional contexts, detecting and recovering from errors related to technology use, and locating, reading and studying materials that support their analysis and problem-solving. Students will accomplish this by participating in team-based learning. The course provides students with the opportunity to use, modify, and evaluate software to search for, frame, and express ideas with fluency. A variety of mechanisms are used to assess student performance. These evaluation methods typically include exams, quizzes, homework assignments, group projects, and peer and self-assessments.

IST 110 is the introductory course in IST, and, as such, serves as a prerequisite for 200-level (intermediate) IST courses. It is a required course for all majors and minors in IST, and meets requirements for a General Education or Bachelor of Arts Social Science (GS) course.

The course is delivered with significant student interaction with technology. At University Park, it is offered in multiple sections (typically 40-60 students per section), in the Fall and Spring semesters. At other Penn State campuses, it would be offered in class sizes typically ranging between 20-50 students.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 110H** (GS) Information, People and Technology 3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises.

**Information, People and Technology 3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 110S** (GS) Information, People and Technology (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises.

**Information, People and Technology (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 110S** (GS) Information, People and Technology (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises.

**Information, People and Technology (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 111** Seminar in IST (1) Introduction to academic requirements, career planning & information literacy for students majoring in College of IST.

**IST 111 Seminar in IST (1)**

IST 111 introduces the student to the academic requirements, career planning and information literacy for the School of Information Sciences and Technology degree programs. Seminar in Information Sciences and Technology is required of all Information Sciences and Technology Associate degree candidates.

Upon completion of the course, the student will have an understanding of the programs and requirements of the School of Information Sciences and Technology and the University, and the career options for which they prepare students. The student will also develop and exercise habits and techniques for continuing self-assessment of learning styles, personality traits, vocational interests, and career plans. The student will learn how to maintain involvement in professional conversations and networks, including local, state, national, international organizations, listservs, etc. Students will have a basic knowledge of professional news literature, and the ability to identify and use reference tools and databases, which provide access to professional knowledge and literature. Finally, the student will have a basic understanding of government plans, policies and actions regarding the information professions including: regulatory agencies of the executive branch, legislative activities, and judicial decisions at local state and national levels. Students will be graded on course attendance, participation, examinations and brief exercises.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 111S** Seminar in Information Sciences and Technology (1) Introduction to academic requirements, career planning, and information literacy for students majoring in the College of Information Sciences and Technology.

**IST 111S Seminar in IST (1)**

IST 111S introduces the student to the academic requirements, career planning and information literacy for the School of Information Sciences and Technology degree programs. Seminar in Information Sciences and Technology is required of all Information Sciences and Technology Associate degree candidates.

Upon completion of the course, the student will have an understanding of the programs and requirements of the School

of Information Sciences and Technology and the University, and the career options for which they prepare students. The student will also develop and exercise habits and techniques for continuing self-assessment of learning styles, personality traits, vocational interests, and career plans. The student will learn how to maintain involvement in professional conversations and networks, including local, state, national, international organizations, listservs, etc. Students will have a basic knowledge of professional news literature, and the ability to identify and use reference tools and databases, which provide access to professional knowledge and literature. Finally, the student will have a basic understanding of government plans, policies and actions regarding the information professions including: regulatory agencies of the executive branch, legislative activities, and judicial decisions at local state and national levels. Students will be graded on course attendance, participation, examinations and brief exercises.

Since this is a core requirement, all IST students will be enrolling; it should be offered at least once per year. As enrollment growth warrants, it may require more frequent offering.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 130 (GA)** Emerging Technologies in Popular Culture (3) A survey course that explores emerging technologies used to produce and consume popular cultural artifacts.

### **IST 130 Emerging Technologies in Popular Culture (3) (GA)**

Popular culture refers to people's capacity to classify, codify, and communicate their experiences symbolically. Popular culture is shaped by the development of new technologies of text, sound and image recording and dissemination. While mass media companies have traditionally served as the primary means by which popular culture is diffused throughout society, emerging technologies enable people to produce and consume their own cultural artifacts as well as redefine mass produced cultural artifacts. As people become more adept in their use of emerging technologies, mass media industries such as film, news, radio and television respond by introducing Internet-based services that deliver both newly designed and repackaged traditional content to consumers. We use four approaches to analyze the intricate relationships between people and industry, emerging technologies and popular culture:

1. Production Analysis: Who owns the media? Who creates new media? What technologies are being used to produce new media? how does new media challenge the historical dominance of mass media?
2. Textual Analysis: how do specific works of popular culture gain their meaning?
3. Audience Analysis: How do different audiences make sense of the same cultural and technological artifacts?
4. Historical Analysis: how do current popular culture perspectives on emerging technologies differ from those of the past? What accounts for these changing perspectives?

Through individual and team-based learning activities, students will analyze and interact with cultural artifacts across popular culture genres. The course content and the assignments are directed at helping students to both create and critique cultural artifacts in ways that demonstrate their understanding of, engagement with, and reflections upon the relationships among people and industry, emerging technology, popular culture.

Assessment is based on students' ability to clearly and convincingly articulate their analysis through classroom discussions, individual activities, and team-based projects. Students will gain hands-on experience with social media such as wikis, virtual worlds, and podcasts. Students will also design and produce short films that demonstrate their ability to integrate and synthesize central themes from the course. Grading will be based on individual and team components.

This is an introductory course in IST, and meets the requirements for a General Education course in Arts (GA).

This course is delivered with significant student and instructor interaction with computers and digital media.

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 140** Introduction to Application Development (3) A first course in concepts and skills for application development.

### **IST 140 Introduction to Application Development (3)**

This is a first course in application development. Applications are computer programs developed to support human activity in enterprise and other social contexts. Examples of applications might include programs to help run a business, manage personal information, or provide entertainment. The emphasis of this course is on learning to translate practical problems through domain analysis into software applications usable in a human or organizational context. It will focus on the knowledge needed to create applications that use high level programming languages, combining original code with

existing code libraries and application programming interfaces (APIs).

Students in this course will learn application development concepts including problem solving using computer programming; how to recognize the need for different types of data and how to use data of different types to represent an application's information; application testing and debugging; basic computer organization; and the basics of operating systems. This is a hands-on, practical course designed for students without prior computer programming experience who will use computer languages and tools to develop applications in their later courses and future careers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: college algebra

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 198 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 210 Organization of Data (4)** Introduction to concept of databases including the storage, manipulation, evaluation, and display of data and related issues.

#### **IST 210 Organization of Data (4)**

The objective of IST 210 is to provide an introduction to the storage, retrieval, manipulation, analysis and display of information. This course includes an introduction to data structures, physical storage devices and access, database models and database management systems architectures, database analysis and design, query languages, user interface design, database administration and policy and social concerns in data management. Students will learn to use a commercial database management system and group assignments and projects, and other performance indicators. Students will be periodically assessed through examinations, individual and group assignments and projects, and other performance indicators.

This course is required of all Information Science and Technology (IST) undergraduates under both Associate and Baccalaureate degrees. It is a common course requirement and is a prerequisite for all degree options. IST 110 is the prerequisite for this course.

This course also requires student access and use of a robust commercial database management system such as Oracle, DB2, or SQLServer.

The laboratory component of the course provides a gentle introduction to boolean algebra and programming concepts (e.g., variables, arrays, and iterations) that are critical for learning database query languages. Furthermore, it provides hands-on activities and team-oriented problems that enhance the student's learning about database technologies.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: IST 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 211** Advanced Topics in Relational Database Management Systems (3) In depth coverage of: database administration, advanced Structures Query Language inquiries, normalization, referential integrity; troubleshooting, tweaking; implementation dependent transactions, embedded SQL, Open Database Connectivity.

### **IST 211 Advanced Topics in Relational Database (3)**

The course aims to develop an in depth understanding and ability to use advanced relational database management systems, specifically to understand and use advanced normalization procedures, advanced referential integrity, and advanced SQL queries in depth. Students will be exposed to the administrative aspects of robust database management systems.

This course will incorporate collaborative and action-learning experiences wherever appropriate. Emphasis will be placed on developing and practicing writing and speaking skills through application of the concepts that define the course.

Students will be evaluated by examination, exercises, quizzes, and a small project from design to implementation (including documentation).

IST 211 is the first advanced IST course for the students pursuing the Data Option in the Information Sciences and Technology Associate Degree program. Successful completion is required prior to enrollment in IST 213, 214. It may be taken simultaneously with IST 212. IST 210 is a prerequisite for IST 211.

Since this is an option requirement, only selected IST students will be enrolling; it should be offered at least once per year in class sizes of 30 or less. As enrollment growth warrants, it may require more frequent offering.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

Prerequisite: IST 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 220** Networking and Telecommunications (3) Introduction to digital network topologies; transmission media, signal modulation, digital packet switching and routing, systems integration, communications management, and security.

### **IST 220 Networking and Telecommunications (3)**

The course includes an introduction to: telecommunications history; telecommunications transmission media (conducted and radiated); transmission characteristics (including an introduction to coding and modulation techniques); error characteristics, detection, and correctional; local and wide area networking applications, hardware, and software; the OSI models; industry standards; topologies; protocols; internetworking devices; communications management; security and recovery; information system applications; and the selection of telecommunications and networking systems. Special attention will be paid to evolving Internet Protocol (IP) technologies, e.g., Internet2.

IST 220 is an introduction to digital networking and telecommunications and their applications in information systems. IST 110 is the only prerequisite. It is a required core course for both the two-year and four-year Information Sciences and Technology degrees, and is a critical part of the curriculum. Its objective is to provide the students with a basic understanding of the working of digital networks and the ability to apply this knowledge to specific applications and situations. Evaluation of knowledge objectives will be by examination; and of application (i.e., selection and management) objectives by grading of group and individual projects and case studies.

As a "core course", IST 220 will be offered every semester at University Park, in as many sections as necessary to meet current demand. At other locations where the Associate and Baccalaureate degrees are offered, it will be offered 1-2 times annually depending on demand. Ideally, section size should not exceed 45 students per class.

While the course is about digital technology and how it works, it is not a "hands on" course, or a training course in particular equipment and/or applications. While there will be demonstrations of relevant technologies, the course is not equipment-intensive and will not involve special technology needs beyond the normal access to computing and the Internet.

The course is not duplicative of any other course currently offered. Although there is some overlap with CMPET 401-402, CSE 458, and COMP 421, none of these courses cover exactly the same material, and they operate at a different level of depth and detail. M I S 180 also overlaps somewhat, but it appears that no current course provides the same 200-level mixture of local and wide-area networking and business communications topics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

Prerequisite: IST 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 225** PC Hardware Basics (3) Preparation for PC hardware support: Students learn data recovery and how to build, configure, upgrade, troubleshoot, diagnose, and repair PC's.

**IST 225 PC Hardware Basics (3)**

IST 225 covers materials needed to prepare students to function as PC support technicians in business and industry. In a hands-on laboratory environment, students learn to build, configure, upgrade, troubleshoot, diagnose, and repair PC hardware. Course modules cover all the basic hardware components of the PC - their functions, interactions, installation, configuration, upgrading, repair, and replacement. Detailed coverage of system BIOS, CMOS setup, and the boot process is also included. Preventive maintenance and data recovery procedures are also studied. IST 225 is one of four courses required for the Networking Option in the Associate degree in Information Sciences and Technology (IST).

The IST 225 is designed to help the student to thoroughly understand all the basic hardware and firmware PC components, from PC resources, their function (BIOS and CMOS setup) and interaction, to diagnosing and resolving resource conflicts. The IST student should be able to install, configure, troubleshoot, repair, recover data, correct errors or replace all basic hardware components. The student should also be able to make appropriate hardware recommendations, purchases and upgrade decisions, as well as, determine appropriate preventive maintenance procedures. Finally, the Information Sciences and Technology major will learn how to foster communications, interpersonal, and group interaction skills through appropriate collaborative and active learning projects, laboratory exercises, and related experiences.

Achievement of knowledge objectives will be evaluated by examinations. Ability to perform hands-on support activities will be evaluated by grading appropriate group and individual hands-on laboratory projects, scenarios, and case studies.

The majority of campuses offering the Associate degree in Information Sciences and Technology will have 20-30 students enrolled in the course. The course will be offered one semester each academic year.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

Prerequisite: IST 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 226 Networking Essentials (3)** Concepts for peer-to-peer and server-based network:International Organization for Standardization-Open Systems Interconnection (ISO-OSI) reference model, industry standards, troubleshooting, performance monitoring, and optimization.

**IST 226 Networking Essentials (3)**

IST 226 covers basic networking concepts such as network types, cable types, wireless technologies, and network adapters. It discusses network models, including the ISO-OSI reference model and all industry standard network architectures. Both peer-to-peer and server-based commercial network operating systems are introduced with hands-on laboratory experience provided. Basic network administration issues are introduced. Internetworking/enterprise networking devices and architectures are also covered, as are network troubleshooting, performance monitoring, and optimization. IST 226 is one of four courses required for the Networking Option in the Associate degree of Information Sciences and Technology (IST).

Achievement of knowledge objectives will be evaluated by examinations. Ability to perform hands-on network administration and support activities will be evaluated by grading appropriate group and individual hands-on laboratory projects, scenarios, and case studies.

Upon completion of this course, the students will be able to understand both cabled and wireless media types and be able to select appropriate media. The student will also understand the ISO-OSI and IEEE models and other industry standards, the roles of drivers and protocols and network architectures. The student will have experience with the installation, configuration and administration of basic server-based networking, as well as, an understanding of wide area/enterprise networking, performance monitoring and network troubleshooting. Most important, the student will learn how to foster communications, interpersonal, and group interaction skills through appropriate collaborative and active learning projects, laboratory exercises, and related experiences.

The majority of campuses offering the Associate degree in Information Sciences and Technology will have 20-30 students enrolled in the course. The course will be offered one semester each academic year.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

Prerequisite: IST 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 227 Network Administration (3)** Administering peer-to-peer and client/server networks: Planning, installation, server configuration, resource management, remote access, performance monitoring, and optimization.

**IST 227 Network Administration (3)**

IST 227 covers the essential knowledge and skills required to successfully administer peer-to-peer and client/server networks. Hands-on experience with commercial networking software such as Windows 9x, NetWare, Windows NT Workstation, and Windows NT Server is an important course component. Topics covered include pre-installation planning,

network installation, network software architecture, server configuration, profiles and logon scripts, user account management, policies, resource sharing and security, disk management, remote access, backup and recovery, performance monitoring, and network optimization. IST 227 is one of four courses required for the Networking Option in the Associate degree in Information Sciences and Technology (IST).

Upon completion of this course, the students will be able to understand network software architecture, plan and install peer-to-peer and server-based networks. The IST student will also be able to manage user accounts, profiles, logon scripts, and system policies. The student will have practical experience with disk storage, resources, security, backup and recovery procedures. Finally, the student will be able to manage remote access features, monitor and optimize network performance, and foster communications, interpersonal, and group interaction skills through appropriate collaborative and active learning projects, laboratory exercises, and related experiences.

Achievement of knowledge objectives will be evaluated by exam. Ability to perform hands-on network administration and support activities will be evaluated by grading appropriate group and individual hands-on laboratory projects, scenarios, and case studies.

The majority of campuses offering the Associate degree in Information Sciences and Technology will have 20-30 students enrolled in the course. The course will be offered one semester each academic year.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999  
Prerequisite: IST 226

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 228 Advanced Network Administration (3)** TCP/IP planning, installation, configuration: IP addressing, subnetting, routing, Dynamic Host Configuration Protocol (DHCP), Windows Internet Naming Service (WINS), address/name resolution, Domain Name System (DNS); database, web, mail server management.

### **IST 228 Advanced Network Administration (3)**

IST 228 covers the essential knowledge and skills required to successfully administer TCP/IP networks and applications servers such as database servers, web servers, and mail servers. Hands-on experience with commercial software such as SQL Server, Exchange Server, and Internet Information Server is an important course component. Topics covered include TCP/IP planning, installation, and configuration, IP addressing, subnetting, IP routing, DHCP, WINS, address and name resolution protocols, DNS, and management of database, web, and mail servers. IST 228 is one of four courses required for the Networking Option in the Associate degree of Information Science and Technology (IST).

Upon completion of this course, the IST students will be able to plan, install, configure and troubleshoot TCP/IP. The student will also understand IP addressing, subnetting, supernetting, routing and configuration. The student will have practical experience installing and configuring DHCP, WINS, and various protocols. Finally, the IST student will have administrative skills with database, server and web software, as well as, the ability to foster communications, interpersonal, and group interaction skills; through appropriate collaborative and active learning projects, laboratory, exercises, and related experiences.

Achievement of knowledge objectives will be evaluated by exam. Ability to perform hands-on network administration and support activities will be evaluated by grading appropriate group and individual hands-on laboratory projects, scenarios, and case studies.

The majority of campuses offering the Associate degree in Information Sciences and Technology will have 20-30 students enrolled in the course. The course will be offered one semester each academic year.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999  
Prerequisite: IST 226

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 230 Language, Logic, and Discrete Mathematics (3)** Introduction to formal languages, mathematical logic, and discrete mathematics, with applications to information sciences and technology.

### **IST 230 Language, Logic, and Discrete Mathematics (3)**

IST 230 is one of the five introductory core courses for the baccalaureate degree program in Information Sciences and Technology. The purpose of IST 230 is to provide students with an understanding of an array of mathematical concepts and methods which form the foundation of modern information science, in a form that will be relevant and useful for IST students. Exams and assignments will be used to assess that understanding. IST 230 will draw some of its material from several mathematical disciplines: formal language theory, mathematical logic, discrete mathematics. In-depth treatments of each of these subjects are offered elsewhere in the University as advanced mathematics and computer science courses. The difference is that IST 230 will present these concepts in a more elementary way, with much more emphasis on IST applications, and in a more eclectic, web-based format. IST 230 will be structured as a small number of modules. Each module will introduce a group of mathematical concepts and present applications of those concepts to problems of



information storage, information retrieval, information management, etc. These include: MODULE 1: SET, RELATIONS, FUNCTIONS, NUMBERS set operations, applications of relations, equivalence relations, function composition, inverse functions, logarithms, exponential function, number systems, applications of number theory. APPLICATIONS: mathematical data types (integers, fractions, real numbers, tuples, function spaces); exponential growth; non-feasible algorithms; public key encryption. MODULE 2: LOGIC AND BOOLEAN ALGEBRA predicates, quantifiers, formulas, interpretations, syllogisms, logical consequence, tableau method, boolean connectives, boolean functions, valuations, truth tables, logic gates. APPLICATIONS: database query languages; specification languages; switching circuits; boolean search expressions. MODULE 3: COMBINATORICS AND PROBABILITY combination, permutation, discrete probability APPLICATIONS: lexicographic ordering; combinatorial explosions; lower bounds of algorithms; reliability of computer systems MODULE 4: GRAPHS AND TREES directed and undirected graphs, weighted graphs, walks, paths, matrix representations, graph algorithms, spanning trees, rooted and structured trees, combining trees to form new trees, inserting nodes in trees, sorting, searching. APPLICATIONS: flow diagrams; task scheduling; critical paths; network connectivity; finite state machines; parsing; derivation; trees as data structures for storing information. MODULE 5: INDUCTION AND RECURSION induction and recursion on the natural numbers and other structures such as trees. APPLICATIONS: recursive evaluation of mathematical and Boolean expressions; recursive searching and sorting algorithms; asymptotic analysis of algorithms. MODULE 6: GRAMMARS, LANGUAGES AND FINITE STATE MACHINES alphabets, strings, grammars, languages, regular languages, regular expressions, finite state machines, language recognizers. APPLICATIONS: regular expression search; efficient pattern matching using finite-state machines.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2004  
 Prerequisite: MATH 110 or MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 235 (US) (WMNST 235)** Gender and the Global Information Technology Sector (3) Integrates information technology and gender studies. Overview issues and socio-cultural shaping of gender in the IT field.

#### **Gender and the Global Information Technology Sector (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 237** Digital Entrepreneurship (3) Introduction to foundational concepts for starting and operating digital business, including business models, funding, strategic, operational, structural, and cultural components.

#### **IST 237 Digital Entrepreneurship (3)**

The proliferation of new IT combined with the reach of the Web, Internet, and mobile devices is opening up new possibilities for individuals and companies to leverage IT to create new digital businesses. This course provides a broad overview of the role of entrepreneurial thinking and innovation in advancing IT-focused businesses. Students will examine how these skills can be leveraged to create new IT-driven businesses as well as to create competitive advantage for existing businesses via new IT products and services (i.e., intrapreneurship). This course provides a broad overview of the role of entrepreneurial thinking and innovation in advancing IT-focused businesses and familiarizes students with the processes and tools used to conceptualize and plan new innovative products and/or services that leverage IT as a core component of their business model. Students will be introduced to concepts, tools, and principles of business management including business strategy, finance, marketing, human resources, and leadership within the context of IT business models.

This will be a very hands-on active class. Using problem-based learning (PBL) and a "flipped" classroom, students will spend time outside class learning key concepts and time inside class applying them. Students will have the opportunity to work in teams to practice skills related to identifying novel ideas, assessing market opportunities, defining customer segments, identifying key partners, and building IT-based business models. In addition to regular in-class hands-on activities, each student will be expected to contribute to a class blog.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 240** Introduction to Computer Languages (3) Introduction to the specification and application of languages and language paradigms that interact with computers.

**IST 240 Introduction to Computer Languages (3)**

IST 240 is one of two courses added to the three core courses for the associate degree program to form the core courses for the baccalaureate degree program in Information Sciences and Technology. The primary goal of this course is to study the foundations underlying the design, specification and use of a wide variety of language paradigms used to interact with computers. The following details the content of the course: (1) nature of languages; (2) elements of languages; (3) classification of languages; (4) formal descriptions of languages; (5) data and types; (6) names and bindings; (7) control structures; (8) language processors; and (9) study experiences.

Student evaluation may be accomplished by means of assignments, examinations, and possibly a project. This course will most likely involve Web-based course material and will therefore require student access to computers and the Web. Although other existing courses are similar to IST 240 in content, none of those courses fit the objective of this course and of this program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: CMPSC 101  
Concurrent: IST 230

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 242 Intermediate & Object-Oriented Application Development (3)** Intermediate application development including algorithms, data structures, and object-oriented concepts.

**IST 242 Intermediate & Object-Oriented Application Development (3)**

This is a second course in application development. It will focus on the intermediate knowledge needed to create applications that use high level programming languages, combining original code with existing code libraries and application programming interfaces (APIs). The perspective will be of application development that takes place within a human and organizational context; in this sense data structures will be construed as representations of organizational entities and information, and algorithms as a reflection of human and organizational processes and activity. Students will also learn about common application architectures and design patterns. This is a hands-on, practical course designed for IST design and development option undergraduate students and others as an elective.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: IST 140 or CMPSC 121 or IST 240

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 247 Contemporary Projects in Software Development (3)** The analysis, design, coding, testing, and documentation of a software project using state-of-the art languages/tools and concepts.

**IST 247 Contemporary Projects in Software Development (3)**

The primary focus of the course will be the development (including definition, design, etc.) and implementation (including supporting documentation) of a contemporary software project. The project should extend concepts and languages/tools learned in previous courses and/or require new knowledge. These new elements should be self or team-taught by the students with the instructor as a facilitator. Active and collaborative learning techniques will be incorporated into all activities. IST 247 is a required course in the Software Development Option of the Associate degree in Information Sciences and Technology (IST).

Upon completion of the course, the students will have experience with all phases of a system development project, ranging from team work and learning new material using collaborative methods to making formal presentations of their projects at different stages.

Students will be graded on course attendance, participation, quizzes, examinations, brief exercises and their project presentation (from design to implementation, including documentation).

IST 247 has prerequisites of CMPBD 205 and either IST 211 or IST 256. It may be taken simultaneously with other IST courses excluding the prerequisites.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 302; IST 211 or IST 256

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 250** New Media and the Web (3) Introduction to how the World Wide Web utilizes emerging technologies. Students acquire conceptual understanding of constructing Web sites.

### **IST 250 New Media and the Web (3)**

This course provides an introduction to how the world wide web utilizes new media technologies. Students will acquire a sound conceptual understanding of how simple to complex web sites are constructed, and how this knowledge can be applied in their professional career. Knowledge gained in this course will dovetail into Information Sciences and Technology Associate degree options.

There are three major course objectives: (1) students will be able to perform a written critical evaluation of any web site, using the criteria listed below for evaluation; (2) students will be able to develop a written and/or electronic comprehensive proposal for the design/redesign of a web site; and (3) students will collaborate in meaningful, deep discussions of the topics listed above with peers, experts, and faculty via interactive technologies, as demonstrated by chat logs or other interaction records.

Students will construct a simple web page that exemplifies the weekly topics. This web page may be built over the course of the initial 10 weeks as new topics are introduced, or the students may construct separate examples for each topic area. In some cases (such as e-commerce) the students may construct a non-functional prototype as opposed to a fully functional site. A quiz on the weekly topic(s) will occur at the end of each week. The quiz will be derived from the assigned readings and chats. This quiz will be on-line and automatically scored. Students will develop a comprehensive proposal for the design/redesign of a web site. Included in the proposal will be: (1) rationale for each decision; and (2) how conceptual criteria covered in segment 1 are applied to the design. IST 250 is part of the core curriculum for the Information Sciences and Technology Associate degree; thus it links to the other core courses in this degree. IST 110 is a prerequisite but may be taken concurrently. In addition, this course is a prerequisite for all courses in the Associate degree Web Administration Option. Generally, enrollment will be 20 students per semester building to 20 students per semester over a 3-4 year ramp-up period of the Information Sciences and Technology program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

Prerequisite: IST 110 or concurrent enrollment

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 255** Fundamentals of Web Administration (3) An introduction to fundamental web administration concepts: Internet, graphic design, Hypertext Markup Language (HTML), security, legal/ethical implications, Internet business.

### **IST 255 Fundamentals of Web Administration (3)**

Students will be required to demonstrate understanding of the course content by building web pages that incorporate and illustrate the facts, concepts, and procedures in the course content, and by identifying given features (such as security flaws) in given web sites. IST 255 is a required course for the Web Administration Option of the Associate degree in Information Sciences and Technology (IST).

Upon completion of the course, students will have knowledge of the fundamental web administration concepts, including information about the Internet, graphic design, basic HTML, security, legal/ethical implications, and business on the Internet.

Achievement of knowledge objectives will be evaluated by examination of students projects, including the following: The student will develop a web page(s) according to established guidelines that demonstrates basic knowledge of visual design, including GUI design principles, use of text, graphics, audio, animation and video.

The majority of campuses offering the Associate degree in Information Sciences and Technology will have 20-30 students enrolled in the course. The course will be offered one semester each academic year.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

Prerequisite: IST 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 256** Programming for the Web (3) An introduction to fundamental Web programming concepts: Advanced Hypertext Markup Language (HTML), Dynamic Hypertext Markup Language (DHTML), extensible Markup Language (XML), Data Warehouses, JavaScript, common Gateway Interface (CGI), and Java.

### **IST 256 Programming for the Web (3)**

The first part of the course consists of introduction of web programming facts and concepts. Students will be required to demonstrate understanding of the course by building web pages via individual and group activities that incorporate and illustrate the facts, concepts, and procedures in the course content. The latter half of the course will involve in-depth programming projects in JavaScript, CGI, and Java, and will incorporate concepts from the first part of the course. IST 256

is required and represents the introductory web programming course for the Web Administration Option of the Associate degree in Information Sciences and Technology (IST).

Upon completion of the course, the IST student will be able to identify basic concepts for programming for the web, including decentralized computing and shared information, client/server/database, e-commerce, design issues, and scalability issues, as demonstrated by miscellaneous tests. The student will also have experience with basic UNIX/NT programming skills, including system programming basics for webmasters, Unix, and NT systems, as demonstrated by completed projects. They will be able to utilize advanced HTML, DHTML concepts, including style sheets, dynamic content, and scripting events, as demonstrated by completed projects. The student will also understand basic concepts for databases/data warehousing/data mining, including information and the organization, database and database management system environments, the relational database model, and object-oriented database model, as demonstrated by miscellaneous tests. They will be able to identify basic concepts about XML, multimedia resources, GUI Programming Environments, such as Visual J++, Symantec Cafe, NetObject's Fusion, and Dreamweaver (or the current equivalent environments). They will be able to utilize current programming technologies to produce functional programming code that enhances web page capabilities.

Students will be graded on course attendance, participation, quizzes, examinations, brief exercises and their project presentation (from design to implementation, including documentation).

The majority of campuses offering the Associate degree in Information Sciences and Technology will have 20-30 students enrolled in the course. The course will be offered one semester each academic year.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

Prerequisite: IST 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 257** Advanced Web Administration (3) Web site server installation, access, management, security, performance monitoring and optimization, network services, and troubleshooting.

### **IST 257 Advanced Web Administration (3)**

IST 257 will help the student to acquire advanced web administration skills, including web server installation, access, management, security, performance monitoring and optimization, database strategies, network services, and troubleshooting. IST 257 is a required course for the Web Administration Option in the Associate degree in Information Science and Technology (IST).

Upon completion of the course, the student will be able to demonstrate an understanding of advanced web administration concepts. The IST student will be able to install, manage, create virtual directories, incorporate network services as demonstrated by inclusion of a functional FTP service, e-mail, and news groups within an active web server environment. They will have knowledge of web security features by utilization of user authentication, network-related techniques, certificate-based techniques and be able to monitor and optimize performance on a web server.

Students will be graded on course attendance, participation, quizzes, examinations, brief exercises and their project presentation (from design to implementation, including documentation).

IST 257 does not appear to be offered in any form at this time. IST 255 is a prerequisite for this course. IST 257 is a required course for the Web Administration Option in the Associate degree in Information Sciences and Technology.

The majority of campuses offering the Associate degree in IST will have 20-30 students enrolled in the course. The course will be offered one semester each academic year.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

Prerequisite: IST 255

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 260W** Introduction to Systems Analysis and Design (3) Introduction to systems analysis and design, stressing the process of requirements acquisition, specification, design, and implementation.

### **IST 260W Introduction to Systems Analysis and Design (3)**

IST 260W is an introductory course to system analysis and design. It covers the process and is intended to be independent of the specific system, whether it be a hardware, software, telecommunication, logistics, or information system. This course can be used as a prerequisite to specific Associate degree system design courses. It can also be used for breadth for those IST students who do not pursue technical emphases. It serves as a writing across the curriculum course for the Information Sciences and Technology Associate degree. The course looks at two design paradigms. A small design project is included in the course.

The objectives of the course include: (1) teaching students the importance of teamwork, project management, and oral

and written communication skills; (2) teaching students a systems design strategy that emphasizes customer requirements at all stages of the process; (3) introducing students to the object oriented design process; (4) giving students a full design experience on a small project such as designing an e-Commerce system; and (5) showing students examples of the writing required for systems design and requiring them to write individual and team reports as well as give oral presentations on their designs.

Students will be evaluated by examinations and by grading of their written reports and oral presentations.

System design courses are taught at the upper-division level in Engineering and Business departments. This is a lower-division course that serves as an introduction for Associate degree students to give them a background for project-level courses in their fourth semester. It will serve as a core requirement in the Associate degree program and act as a prerequisite for the design courses that are capstone courses in many of the Associate degree options. The course will be offered one semester each academic year.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: IST 110IST 210IST 220 andENGL 015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 261** Application Development Design Studio I (3) Introductory design and development studio course for IST and SRA students.

### **IST 261 Application Development Design Studio I (3)**

This studio course will provide opportunities for students to practice the technical skills acquired in their foundation application design and development courses, specifically, in IST 140 and IST 242. The course will follow the general format of experiential studios in the arts and architecture. It will be primarily problem-based and project oriented. Peer and instructor design critiques will be the major feedback and assessment mechanisms. Students in the IST Software Design Studios will be expected to complete deliverables in each phase of the systems development lifecycle (i.e. problem definition, requirements analysis, design, development, test) regardless of the development paradigm employed (plan-based, agile, etc).

A key objective of this design studio will be to introduce students to the challenges faced in different application design and development activities before exposing them to specific techniques to manage these challenges in upper-division courses.

Projects may be undertaken by individuals, pairs, or larger groups but each studio participant will be responsible for producing significant individual project deliverables. Project ideas may come from the student or from the instructor; however, projects related to students' other course deliverables will require the agreement of both instructors.

Students will be required to maintain a design and development journal. This journal will be the analog of an engineering notebook or artist's sketchbook and should contain a running account of the students design and development ideas, explorations, rationale, and other notes.

The IST design and development studios are a forum for serious students to engage with the concepts, process, tools, and materials used to envision and build software applications. Both collaboration and individual performance will be emphasized, as will experimentation, risk-taking, and enthusiasm for the process of designing and building working software applications. Students will be expected to improvise and then respond constructively to feedback from instructors and peers.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: IST 242

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 295A** Distributed Team Project (1-3) Supervised experience in which student teams work on information system design projects gathered from industry or units within the University.

### **IST 295A Distributed Team Project (3)**

This course offers a web-based distributed project that simulates an internship of a student in a company. Faculty gather information system design projects from industry or units within the university. These projects are announced on the web and students bid to join groups to work on the projects. Each project has a faculty mentor with an additional industrial mentor where appropriate. Student groups are formed by the mentors based on the resumes and skill sets of the students. Students bid on one project at a time until they have been selected to be a member of a project team. Membership in a group may include students from different campuses throughout the Penn State System. The majority of communication within the groups and with the mentors is to be via the internet. This course gives a true experience in information project development. Students will be graded as a team by the faculty mentor on the quality of the project. An

individual written report detailing the work accomplished during the course is required from all team members. The grade of the individual report and the team project grade form a basis for student evaluation.

The objectives of the course include: (1) teaching students the importance of teamwork, project management, and oral and written communication skills; and (2) exposing students to the virtual workplace and providing them with meaningful information and technology related tasks.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: IST 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 295B** IST Internship (1-3) Supervised work experience where the student is employed in an information sciences and technology position in industry, government, or academia.

#### **IST 295B IST Internship (1-3)**

This course is offered as an internship for a student within a company. Faculty and industry collaborate to specify the duties of the intern. The faculty member responsible for the course then approves the internship. The internship must consist of a minimum of 150 hours of meaningful information and technology related tasks. A written report by the student, detailing the work accomplished during the internship, is required. This report and a report from the intern supervisor form the basis for the grade.

The objectives of the course include: (1) teaching students the importance of teamwork, project management, and oral and written communication skills; and (2) exposing students to the workplace and providing them with meaningful information and technology related tasks.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: IST 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 297A** Introduction to Analytic Techniques for Problem Solving (3) Problem solving techniques using mathematical models on spreadsheets. Applications to a wide range of management, information technology and security problems.

#### **Introduction to Analytic Techniques for Problem Solving (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: MATH 022 or satisfactory performance on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**IST 297B** Supervised Experience in Instructional Support (3) Introduction to best practices in and supervision of instructional support activities such as coaching, team facilitation, grading, and learning assessment.

**Supervised Experience in Instructional Support (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 297B** Supervised Experience in Instructional Support (3) Introduction to best practices in and supervision of instructional support activities such as coaching, team facilitation, grading, and learning assessment.

**Supervised Experience in Instructional Support (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 297D** Introduction to Application Programming (3) The focus of the course is on beginning programming principles as experienced in the context of object-oriented application development.

**Introduction to Application Programming (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 297E** Digital Entrepreneurship & Innovation Business Fundamentals (3) Introduction to digital entrepreneurship. Basic concepts for setting up/running an it-focused business, success factors, and risks.

**Digital Entrepreneurship & Innovation Business Fundamentals (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 297G** Application Development Design Studio 1 (3) A studio course for students to practice and apply skills learned in basic programming and development courses.

**Application Development Design Studio 1 (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: IST 240 or IST 297J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 297J** Intermediate and Object-Oriented Application Development (3) Intermediate and object-oriented application development in Java, including event-driven and graphical programming, algorithms, data structures, debugging, and testing.

**Intermediate and Object-Oriented Application Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: IST 297D

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 297K** New Media, Individuals, and Institutions (3) Introduction to the rapidly changing world of new media, and their communicative and social impacts on individuals and institutions.

### **New Media, Individuals, and Institutions (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: IST 110 or IST 110S

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 301** Information and Organizations (3) Overview of organizational structures and functions. Includes information processing and analytic perspectives of organizations.

### **IST 301 Information and Organizations (3)**

This course provides students the opportunity to learn and experience:

1. Applicable organization and the ways in which IT can alter and enable these activities.
2. A series of analytic techniques that students can use to investigate the effects of new IT on work and organization.
3. Examples and problems set in and drawn from a range of domains including military, medical, high technology, business and government.

This course is designed around a series of ill-structured, contemporary problems that require students to develop responses by applying analytic techniques and theories of work and organization. At the end of the course, students will be able to:

1. Apply theories of work and organization as analytic techniques.
2. Conduct organizational and inter-organizational process analyses.
3. Map information flows among organizational units and actors.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003  
Prerequisite: IST 210 or IST 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 302** IT Project Management (3) Exploration and application of the basic concepts, methodologies, and tools of project management in the field of information sciences and technology.

### **IST 302 IT Project Management (3)**

This course is designed to introduce and explore the basic concepts and practices of project management and help students understand how to plan and manage IT projects successfully. Throughout the course, students will be asked to utilize course concepts, methodologies, and tools while utilizing technology applications and addressing real-world problems. Students will learn the skills necessary to define project scope, create workable project plans, and manage projects with quality, budget, and schedule in mind. The course is structured around the key phases of project lifecycle, including initiating a project, developing project plans, executing and managing a project, and closing out a project. In addition, students will be taught how to identify and address the change management and political issues associated with project management.

General Education: None  
Diversity: None  
Bachelor of Arts: None



Effective: Summer 2003  
Prerequisite: IST 210/IST 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 311 Object-Oriented Design and Software Applications (3)** Introduction to object-oriented applications including applications in an Object Oriented Design (OOD) language or OOD languages.

### **IST 311 Object-Oriented Design and Software Applications (3)**

IST 311 will be among the courses making the System Development Option in the Baccalaureate degree in Information Sciences and Technology program and would normally be taken in the 5th or 6th semester. It is the first course in the Option sequence. The course is intended to provide students with background in object-oriented design and programming. Students will learn basic object concepts and develop skills to implement programs utilizing object tools. To prepare for such a work environment, students will learn to work together to design, implement and test projects. IST 311 would normally be taken in the 5th or 6th semester. Prerequisite(s): CMPSC 102 or CMPSC 101, IST 240.

CSE 120, Intermediate Programming, handles some topics contained in IST 311, but the focus of CSE 120 is not on object-oriented design. Rather a major portion of its content is on top-down programming. CSE 120 includes numerical methods and algorithm analysis, areas not included in IST 311. IST 311 will introduce students to team-based projects, as well as design principles and object concepts. Student performance will be evaluated by means of assignments, examinations, and team-based projects.

Upon completion of the course, students will be able to apply system development principles using an object-oriented language, show how object-oriented techniques increase productivity of complex systems and begin the development of team skills when programming complex systems.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 102 or CMPSC 101; IST 240

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 331 Organization and Design of Information Systems: User and System Principles (3)** Interdisciplinary survey of topics related to the use and usability of information systems.

### **IST 331 Organization and Design of Information Systems: User and System Principles (3)**

Not too many years ago, people gained information from watching television news or reading the newspaper. Now, nearly half the population of the United States is connected or planning to connect to the Internet. Recent examples include the release of the "Star Report" which generated a record number of "hits" that almost paralyzed the Internet. IST 331 examines these issues, paying special attention to those problems that are directly impacting the performance and future of this rapidly expanding market. The course will expose the "positive and negatives" of the current information system. Next, it will factor in the "human elements" of the equation, and finally, IST 331 will help the Information Sciences and Technology major to understand the enormous responsibility of their work and how they can "make a difference." This course will serve as a required course in the Information, Society, and Public Policy Option of the proposed major in Information Sciences and Technology. Upon completion of this course, the students will be able to evaluate the current information systems and apply communication principles. They will also recognize problems in design, appreciating the "human factor" as it relates to pedagogy and research. The material in this course lends itself to active learning elements such as writing projects, library and internet research, and collaborative learning. Evaluation will be based on a combination of examinations, written assignments and papers, and collaborative projects. The exact mix of evaluation components will be determined by the individual instructors. The proposed course has some overlap in content with existing courses in Psychology, English, Instructional Systems, Industrial Engineering, and Management Science and Information Systems. Frequency: IST 331 will be offered every semester at University Park. At every other campus location where the Baccalaureate degree program is offered, the course will be offered 1-2 times annually depending on demand. Enrollment: Student enrollment at University Park will begin at approximately 50-75 in the first year and grow to 200 over a 3-4 year time period. At other locations, enrollment should range from 25-50 annually.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: IST 230

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 337 Technologies for Digital Entrepreneurs (3)** Introduction to the tools available to IT entrepreneurs considering starting-up or looking to develop new applications.

### **IST 337 Technologies for Digital Entrepreneurs (3)**

This course introduces the student to the applications, technologies, and tools for entrepreneurs engaging in or

considering engaging in a start-up or running a small-to-medium size business. Although there will be some consideration of product concept development and implementation, much of the course will be devoted to the tools and infrastructure need to support a start-up up a small-to-medium size business. These concepts and skills will also support entrepreneurs looking to develop new applications to open new market opportunities.

This will be a very hands-on and active class that relies on approaches such as problem-based learning (PBL), "flipped" classrooms, and learning by doing. Students will spend time outside class learning key concepts and time inside class applying them. Students will have the opportunity to implement applications of the back-end technologies in support of a start-up or small- or medium-sized enterprises.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 341 (US;IL) Human Diversity in the Global Information Economy (3)** Globalization, human diversity and their impacts on IT products, work, workforce, and the knowledge economy and social inclusion in general.

**IST 341 Human Diversity in the Global Information Technology (3)**  
**(US;IL)**

This course examines the effects of human diversity on the analysis, development and use of information systems and technology. This course explores the meaning and implications of diversity. It takes a comprehensive view of diversity that builds upon the notion of 'diversity' as 'differences.' When applied to demographic characteristics of the IT workforce and IT user base, the term includes such meanings as: race, ethnicity, nationality, gender, sexual orientation, religion, socio-economic status, age and disability. The concept of diversity is also applied beyond demographic attributes to also include the characteristics of individuals that make them unique in the ways that they bring different skills, thoughts, perspectives, ideas and talents to the work place. The concept of diversity in IT work is examined from two different viewpoints: that of the 'minority' person who is interacting with the 'majority' person; and that of the 'majority' person who wants to develop greater awareness regarding successful interaction with 'minority' individuals. This course makes extensive use of problem-based learning, experiential learning, case studies, guest speakers and team work with students in other countries.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: IST 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 361 Application Development Design Studio II (3)** Second of two design and development studio courses for IST and SRA students.

**IST 361 Application Development Design Studio II (3)**

This studio course will provide opportunities for students to practice technical skills acquired in their previous design and development courses to date, specifically, in IST 140, Introduction to Application Development; IST 242, Intermediate and Object-Oriented Application Development; and IST 311, Object-Oriented Design and Software Applications. The course will follow the general format of experiential studios in the arts and architecture. It will be primarily largely problem-based and project oriented. Peer and instructor design critiques will be the primary feedback and assessment mechanisms. Students in the IST Software Design Studios will be expected to complete deliverables in each phase of the systems development lifecycle (i.e. problem definition, requirements analysis, design, development, test) regardless of the development paradigm employed (plan-based, agile, etc).

A key objective of this design studio will be to provide application development opportunities where students can apply knowledge and practice techniques gained from their foundation and first upper-division courses.

Projects may be undertaken by individuals, pairs, or larger groups but each studio participant will be responsible for producing significant individual project deliverables. Project ideas may come from the student or from the instructor; however, projects related to students' other course deliverables will require the agreement of both instructors.

Students will be required to maintain a design and development journal. This journal will be the analog of an engineering notebook or artist's sketchbook and should contain a running account of the students design and development ideas, explorations, rationale, and other notes.

The IST design and development studios are a forum for serious students to engage with the concepts, process, tools, and materials used to envision and build software applications. Both collaboration and individual performance will be emphasized, as will experimentation, risk-taking, and enthusiasm for the process of designing and building working

software applications. Students will be expected to improvise and then respond constructively to feedback from instructors and peers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: IST 311 or program approval

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 390** Introduction to Professional Development (1) Interdisciplinary course to introduce students to the issues, concepts and skills involved in successfully transitioning into professional life.

### **IST 390 Introduction to Professional Development (1)**

IST 390 focuses on introducing the students to professionalism and professional development in the field of IT. Emphasis will be placed on the theories and skills required for planning, developing, implementing, and managing professional skills. For example, students will attempt to master relationship skills such as client relationship management and interpersonal communication, business skills such as presentation planning and scheduling; leadership skills such as decision making and goal setting; and career management skills such as networking and interviewing. Additional focus will be placed on the various resources and strategies available for pursuing a successful job search. Students will be given opportunities to practice the concepts, theories, and methodologies learned in class by working in teams on real-world case studies (many derived from corporate partners). Students will be periodically assessed through examinations, case studies, individual and group assignments and projects, and other performance indicators where appropriate.

The audience is students who are ready to enter the work force. For those pursuing Baccalaureate Degrees, this would mean a class standing of Junior or Senior. For those pursuing Associate Degrees, this would mean a second year standing.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 402** Emerging Issues and Technologies (3 per semester/maximum of 9) Introduction to emerging issues, technology forecasting and analysis; overview of emerging issues and leading technologies in IST and how they impact information systems, users, the IT labor force and society.

### **IST 402 Emerging Issues and Technologies (3 per semester/maximum of 9)**

Information Sciences and Technology (IST) is a rapidly changing discipline. New issues, methods, tools, applications and terminology appear on a continual basis. A key skill is the ability to analyze new issues and assess new technologies within the context of the information age. This course prepares students to understand the difference between potential

technological failures and success, fads and revolutionary technology. It also helps students to view emerging issues as an opportunity rather than a threat. Intellectual tools are provided to assist in understanding issues, assessing and forecasting technological changes for feasibility and planning in real world situations. The course provides students with:

- a.) A process framework for analyzing new issues and a theoretical framework to study technological and social impacts of such issues.
- b.) A process framework for recognizing and understanding new technologies and a theoretical framework to take advantage of such technologies.
- c.) Exposure to new issues and technologies.
- d.) Hands-on experience in studying recent technological advances in detail.

The course will also provide students with the ability to:

- a.) Understand the concept of issue analysis and technology forecasting.
- b.) Recognize the importance of new issues and technologies in information sciences.
- c.) Incorporate these new issues and technologies into an existing information systems framework.
- d.) Develop and implement new technology solutions, or discuss policies for addressing emerging issues.
- e.) Predict impacts of issues and technology on information management, users, policies, and the environment.

Each time the course is offered; new issues and/or information technology areas will be explored. Examples of issues and technologies addressed include: wireless communications, security and intrusion detection, intelligent agents, web search, languages, intelligent systems, bio-informatics, advanced visualization and human-computer interactions, ubiquitous-pervasive computing, groupware, computer aided cognition, system design by global IT teams, IT outsourcing, and digital divide.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: IST 210/IST 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 411 Distributed-Object Computing (3)** Introduction to distributed-object computing and its use in client/server and real-world computing applications.

### **IST 411 Distributed-Object Computing (3)**

This course presents the fundamental concepts of distributed-object computing with applications to client/server computing which is an important platform for real-world computing systems. The course focuses on tools and techniques used in the design, development and deployment of client/server systems, including traditional architectures and also distributed-object technologies. Students will also consider issues of managing client/server systems and the relationships between organizational processes and information-system architectures. IST 411 will be an elective course for the Baccalaureate degree program in Information Sciences and Technology. It is expected that students completing the Systems Development Option may take this course to fulfill requirements for the option.

No other course offers an introduction to distributed objects and client/server applications. CMPBD 450 covers network operations, but not the problem of distributed computing. IST 311 and 414 provide general introductions to software, object-oriented design, and applications, but do not address problems specific to client/server architecture and distributed computing. CSE 513 covers the fundamentals of distributed systems and is far more advanced and theoretical than is necessary for IST.

Upon completion of this course, students will have a broad understanding of the fundamental concepts of distributed objects and distributed-computing architectures, and have the ability to apply these concepts to real-world applications. They will receive a broad examination of the major issues surrounding the design, development, deployment, and maintenance of client/server applications, and have the ability to construct such systems. The student will also have experience with current software standards, languages, software, and implementation technologies relating to client/server applications, and have the ability to use these in real-world applications. Student performance will be evaluated by means of assignments, examinations and optionally, a project or paper.

IST 411 will be offered every semester at University Park. At every other campus location where the Baccalaureate degree program is offered, the course will be offered 1-2 times annually depending on demand. Student enrollment at University Park will begin at approximately 50-75 in the first year and grow to 200 over a 3-4 year time period. At other locations, enrollment should range from 25-50 annually.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

Prerequisite: IST 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 412 The Engineering of Complex Software Systems (3)** Introduction to the engineering of complex software systems including software system specification, design and implementation, integration and test, and evolution.

### **IST 412 The Engineering of Complex Software Systems (3)**

IST 412 will provide the students with the skills needed to design, implement, test, and evolve complex software systems. The course will also give students insight into the complexities of managing complex software system projects. It will also give the students an introduction to the responsibilities of complex software system development including software reliability and software safety. IST 412 will be an elective course for the Baccalaureate degree program in Information Sciences and Technology. It is expected that students completing this Option may take this course to fulfill requirements for the option.

Following IST 311, which is required for the Systems Development Option, IST 412 is one of three 400-level courses that may be taken to fulfill the option requirements. The prerequisite of IST 311 ensures that the student has sufficient background in the use of programming languages.

Student performance will be evaluated by means of written and programming assignments, examinations, and a team-based complex software system project.

Upon completion of this course, the student will have experience with software systems, designing principles, implementation concepts, testing of a complex software system project and management of a team-based project.

IST 412 will be offered every semester at University Park. At every other campus location where the Baccalaureate degree program is offered, the course will be offered 1-2 times annually depending on demand. Student enrollment at University Park will begin at approximately 50-75 in the first year and grow to 200 over a 3-4 year time period. At other locations, enrollment should range from 25-50 annually.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999  
Prerequisite: IST 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 413 Usability Engineering (3)** This course addresses activities in the system development process that ensure usability. It considers the emerging concept of usability, requirements gathering and analysis, activity design, information design, interaction design, documentation design, user testing and usability evaluation.

### **IST 413 Usability Engineering (3)**

The modern system development process includes concurrent engineering of usability - features of a system that make it approachable, learnable, as well as easy and satisfying to use. Topics in the course include the emerging concept of usability, requirements gathering and analysis, the use of scenarios and claims to describe and analyze both current human practices and envisioned practices, activity design, information design, interaction design, documentation design, and user testing, including techniques for formative and summative usability evaluation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: IST 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 420 Fundamentals of Systems and Enterprise Integration (3)** Introductory course on integration of information technology into different venues, including the planning, development, and implementation of the integration.

### **IST 420 Fundamentals of Systems and Enterprise Integration (3)**

IST 420 focuses on introducing the student to the role of information systems and technologies in achieving a variety of system goals. Emphasis will be placed on the theories and skills required for planning, developing, implementing, and managing the integration of information technology and different systems. IST 420 is required of all Information Sciences and Technology (IST) undergraduates who have chosen the Information Technology Integration Option in their baccalaureate degree. It is the prerequisite for IST 421 which is also required for the Option. Upon completion of the course, the student will be able to recognize information technology integration. They will also understand the "business processes and information value chain" within a system, and be able to foster an understanding of the role of IT in system integration. Students will be periodically assessed through examinations, case studies, individual and group assignments and projects, and other performance indicators where appropriate.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003  
Prerequisite: IST 240IST 301IST 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 421** Advanced Enterprise Integration: Technologies and Applications (3) Advanced course on the integration of information technology into systems applications.

**IST 421 Advanced Enterprise Integration: Technology and Applications (3)**

IST 421 expands the knowledge gained in IST 420 on the theories and skills required for planning, developing, implementing, and managing information systems. IST 421 is required of all Information Sciences and Technology (IST) undergraduates who have chosen the Information Technology: Integration and Application Option in their Baccalaureate degree. Upon completion of the course, the student will have expanded knowledge of information technology and systems integration issues across multiple application settings. They will also have a deeper understanding of the specific information technology (both hardware and software) that can serve as the foundation for designing systems within an organization, and have experience that fosters an understanding of the role of IT achieving system performance goals.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: IST 420

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 422** Enterprise Architecture Foundations (3) Theoretical foundations and practice of enterprise architecture.

**IST 422 Enterprise Architecture Foundations (3)**

Enterprise Architecture is the overall framework and set of strategic objectives for the usage of technology over time across an organization. Enterprise Architecture can also be described as the top-down, strategy-driven, integrating framework that brings together and manages the business model, applications and technology. Its primary goal is to facilitate improvement and deliver business-aligned information systems. This course presents the key components and processes involved in the effective creation and governance of enterprise architectures. Students will acquire knowledge about the key foundational aspects of enterprise architecture, learn what decisions need to be made and how to make them, and be able to explain and justify their recommendations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: IST 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 423** Enterprise Information Management and Storage Architecture (3) Provide in-depth study of the concepts, issues, and technologies associated with the complex world of enterprise information and storage architecture.

**IST 423 Enterprise Information Management and Storage Architecture (3)**

This course is designed to introduce students to enterprise information storage and management concepts, issues, trends, and technologies. As a junior/senior level course, the focus will center on applying design concepts and associated technologies to real-world problems in the area of enterprise information storage and management . Existing partnerships with leading information management firms will be leveraged to provide real-world exposure to the complex enterprise information storage and management issues facing all organizations today. This course also focuses increasingly on the critical areas of information security and the emerging field of information storage virtualization. The course will mix technical details, applied value, and organizational insights of enterprise information storage and management through the use of labs, case studies, real-life problems, and team projects. This is a unique course that has generated great industry interest.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: IST 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 424** Architectural Modeling of Organizations (3) Theoretical foundations and practice of enterprise modeling.

**IST 424 Architectural Modeling of Organizations (3)**

Enterprise Architecture is the overall framework and set of strategic objectives for the usage of technology over time across an organization. Enterprise Architecture can also be described as the top-down, strategy-driven, integrating

framework that brings together and manages the organization model, applications and technology. Its primary goal is to facilitate improvement and deliver organization-aligned information systems. Effective modeling is crucial for successful EA. This course provides an exposure to the foundational concepts and practices of effective enterprise modeling for EA.

Students will acquire knowledge about the key foundational knowledge in modeling different layers of the enterprise, learn what decisions need to be made and how to make them, and be able to explain and justify their models and recommendations. This course explores the use and effectiveness of architectural modeling to describe an organization and to integrate and manage IT resources strategically from an enterprise perspective. Hands-on exercises and cases studies are used to illustrate the role and effect of enterprise architecture concepts and methodologies. Emphasis is placed on understanding different architectural approaches, standards, and styles. Students will use enterprise architectural tools to develop descriptive models and understand how to integrate and manage IT within and between organizations.

For each general topic area, core readings are used to define standard vocabulary, concepts and relations, methods and criteria for evaluation, and implications for enterprise architecture. Students participate in class discussions as well as complete written assignments that focus on solidifying the understanding of the course content. Students also complete a team modeling project that is motivated by, and whose outcomes are discussed with respect to, one or more theoretical frameworks covered in the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: IST 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 425** (MGMT 425, ENGR 425) New Venture Creation (3) Via problem-based learning, teams define new business ventures to meet current market needs, develop business plans, and present to investors.

### **IST (MGMT/ENGR) 425 Introduction to Entrepreneurship (3)**

The goal of IST (MGMT/ENGR/ENTR) 425 is to better prepare undergraduate students to be business leaders in adaptive, globally-minded, technology-savvy companies. The course is structured so students develop skills that are of high value in any workplace: they develop improved leadership skills, higher self-efficacy, creativity and the ability to deal with ambiguity. On course completion, students will have a working knowledge of traditional and non-traditional ways for identifying a new product or business opportunity, quantifying the potential, understanding the key competitive factors, researching the audience and producing a convincing executive summary for internal or external financing and launch. Students who want to augment the skills and knowledge from their major with the ability to refine a new product/service process in an interdisciplinary team will find IST (MGMT/ENGR/ENTR) 425 a valuable course.

This is a novel problem-based learning (PBL) course, where the learning is student-centered, with faculty acting primarily in the role of facilitators. Active learning happens in this course because students develop ownership in their new business venture concept and are fully responsible for the genesis of the idea. The course leverages the on-line course management system (ANGEL) to define weekly learning objectives, support electronic delivery of assignments, robust video content with entrepreneurs is provided on CD-ROM or via ANGEL, providing additional insights into entrepreneurship. The technology or business segment focus of the class is easily adapted by using different case studies and course mentors.

This will be one of two courses in the new two-course sequence for business students in entrepreneurship. This course will be accepted as a supporting course in the Engineering Entrepreneurship Minor (E-SHIP) and in the Engineering Leadership Development Minor (ELDM). IST (MGMT/ENGR/ENTR) 425 can be used as a technical elective in many of the engineering departments. It will be accepted as a Support of Option course for the Information Sciences and Technology (IST) major.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: ECON 102 or ECON 104 or ECON 014; CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 426** (ENGR 426, MGMT 426) Invention Commercialization (3) Working with Penn State inventions selected by the Intellectual Property Office, student teams define an optimum commercialization path each technology.

### **IST (MGMT/ENGR) 426 Invention Commercialization (3)**

The goal of IST (MGMT/ENGR/ENTR) 426 is to have students understand why invention commercialization is complicated and difficult by participating in the process. For example, the inventor rarely has insights into the markets for his/her invention, is often not interested in the details of commercialization, and can be secretive. In addition, the business and financial communities often do not take the time, or have the resources, to understand new technologies and perform

complex due diligence. Thus lack of due diligence often leads to rejection of innovation because existing companies often discount new technologies from outside the company as NIH - "not invented here".

Effective transfer of new invention or innovation to a commercial product requires at least three different functional communities to interface: technical, legal and business. Each uses a different language, comes from different educational and cultural backgrounds, and may have an inherent distrust of the others. These functional barriers are difficult to overcome.

This course teaches how these barriers can be broken down as student teams help bridge the perceived chasm between key players in the invention commercialization process. In these teams, students bring the skills and knowledge from their major to develop an invention commercialization recommendation for the Technology Transfer Office and the inventor. For example, business students focus on finance and market opportunity assessment; engineering and IST students focus on design refinements, prototyping support, and (if appropriate) making technology suggestions to the inventor.

Upon completing the course, the students will have a working knowledge of different university and corporate technology or invention commercialization processes, important intellectual property management tools for inventions (patents, license agreements, option agreements) source of funding to move inventions toward product development, and delivering top quality presentations which outline the recommended commercialization path. Students who enjoy open-ended projects which involve the interplay of business and invention of who wants to work on interdisciplinary teams with the newest inventions will find this course a valuable course. NOTE: Because the inventions/products are based on Penn State faculty intellectual property, students must sign the Penn State Special Intellectual Property Agreement For Students - For Use When Assigning Intellectual Property to The Pennsylvania State University. The form can be viewed at <http://guru.psu.edu/policies/RAG13.html>

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 orECON 014;CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 431** The Information Environment (3) Survey of social environment of information technology themes: Community, sovereignty, privacy, ethics, economics, and knowledge management.

### **IST 431 The Information Environment (3)**

The ways that people communicate and utilize information is being changed dramatically by new information technologies. Information and the technologies that are employed by create, organize, transfer, and utilize that information in a networked environment, using such global networks as the internet or internal networks such as intranets, have become a key component of the global economy. This global environment can change the way we interact, communicate, and function on the job and in our daily lives. The new technologies also raise new economic, legal, ethical, and social issues that are of grave importance to society. IST 431 examines the overall context of the new information environment and new technical issues relating to knowledge management in the global networked environment. IST 431 is a required course in the Information, Society and Public Policy Option.

There may be some overlap of material with COMM 405, COMM 483, COMM 485, PHIL 407, PHIL 423, PHIL 433 and PL SC 460m but none of these courses cover the same material, or approach it in the same manner.

Upon completion of this course, the student will gain an appreciation of the differences between "cyberspace" and the "real" world. The student will also understand that the implementation and modern information technologies has significant social and policy implications that demand appropriate policy issues in several different contexts (global, national, local). The student will also be able to discuss the major themes in information policy studies (e.g., community, privacy, access, economic participation, security) and be able to relate these themes to the applications of particular technologies. They will be able to describe policy frameworks and issues, as well as the ethical and social implications of these choices.

Homework assignments; Socratic dialogue; analysis and write-up of case studies; assessment of group research projects and presentations; participation in on-line discussion groups; two mid-term and one final examination (objective and essay). The precise mix of evaluation components will be determined by individual instructors; a typical weighting might be exams (60%), written assignments and papers (20%), and collaborative projects (20%).

IST 431 will be offered every semester at University Park. At every other campus location where the Baccalaureate degree program is offered, the course will be offered 1-2 times annually depending on demand. Student enrollment at University Park will begin at approximately 50-75 in the first year and grow to 200 over a 3-4 year time period. At other locations, enrollment should range from 25-50 annually.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: IST 210IST 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 432** Legal and Regulatory Environment of Information Science and Technology (3) Legal environment of information



technology, constitutional/political issues, intellectual property, management, e-commerce, privacy, access, computer contracting, cyberspace regulation.

### **IST 432 Legal and Regulatory Environment of Information Science and Technology (3)**

The new information technologies are creating a global economy heavily dependent upon networked information, hardware, software, and electronic commerce, which calls for adaptation of existing legal and business practices. In many cases, the new technologies pose problems that existing laws or legislation are inadequate to cope with; but the complexity of the environment makes new solutions elusive. This course examines the legal, regulatory, and political environment within which intellectual property rights and examination of contracting issues, licensing of information and products, data protection, patents, cyberspace regulation, and implications for personal privacy. It also focuses on where technology is making regulation difficult by challenging previous concepts upon which our legal and regulatory systems depend.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: IST 301 or SRA 231 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 437 Digital Design & Innovation (3)** This course introduces students to design thinking, user-driven innovation and user experience, and business model implementation issues for IT-driven innovation.

### **IST 437 Digital Design & Innovation (3)**

IT-driven innovation requires a deep understanding of the user, the context of the compute environment, and a systems approach to identifying critical system features. In addition, the IT-driven innovation must meet user needs in a commercially feasible manner. Students taking this class will work in teams to create a design concept and refine it through user analysis and prototyping. To get to a commercially feasible concept, students will analyze the competitive landscape and the ecosystem in which their concept will reside. Each team will express their concepts using the Business Model Canvas— a tool used in both educational and professional settings – to identify the value proposition and potential monetization strategies. Throughout the class, students will be introduced to tools in the IT design space through hands-on problem solving, role playing, and improvisation, among other techniques. A critical part of this course is the in-class coaching that teams will receive from the instructor, as well as guest speakers who can demonstrate the real world challenges of entrepreneurship and innovation. Frequent communication practice using techniques such as idea pitches will help students refine their ability to express their ideas more effectively.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: IST 237

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 440W Information Sciences and Technology Integration and Problem Solving (3)** Problem-based approach to technology integration by focusing on real-life problems faced by an organization.

### **IST 440W Information Sciences and Technology Integration and Problem Solving (3)**

This course is the undergraduate capstone for Information Sciences and Technology majors in the Baccalaureate degree. It requires students to work collaboratively in teams of 4-6 students, with each team comprised of students from more than one option and, if possible, more than one campus. Each team is given a significant real-world problem or issue in which information technology is part of the solution. Teams will be expected to manage the project effectively and to communicate its results clearly to a variety of audiences within an organization. Major topics include: review of problem-based and case-based learning; overview of project management practices; assessment of organizational and technical issues posed by the scenario; development and testing of work plans and analysis of options; communication within the group; communication within a management environment; and presentation of results to a variety of audiences inside and outside the organization.

IST students need to understand the organizational and social contexts in which technology functions. Indeed, many technology problems are multi-dimensional--they have an economic dimension, a legal dimension, a human resources dimension, and so on. This course will require students to analyze, evaluate, and test alternative solutions and to weigh their advantages and disadvantages for the organization.

Students will be evaluated in three ways: by the effectiveness of their team's solution of the technical or organizational problem; by the quality of the students' written and oral presentations; and by the quality of their project management and internal communication. A substantial written paper will be required of each student and each time; in addition, each team will also construct a Web-site for sharing results. Other technologies will be used as required by the project.

It is expected that membership on teams of students will be drawn from the various options in the Information Sciences and Technology major. At least nine credits (including at least one IST 300-level and one IST 400-level course) in the

student's option must be completed before enrollment in IST 440W. This course should be offered every fall and spring semester beginning in the fall semester 2002. It will be taught in sections of 25 and have a total enrollment of approximately 100 per semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2002

Prerequisite: ENGL 202C or ENGL 202D seventh-semester standing (this course is intended for seniors) and the five common course requirements plus at least three of the required courses in an option

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 441** Information Retrieval and Organization (3) Introductory course for seniors and graduate students covering the practices, issues, and theoretical foundations of organizing and analyzing information and information content for the purpose of providing access to textual and nontextual information resources. Introduces students to the principles of information storage and retrieval systems and databases.

### **IST 441 Information Retrieval and Organization (3)**

This is an introductory course for Information Sciences and Technology senior and graduate students covering the practices, issues, and theoretical foundations of organizing and analyzing information and information content for the purpose of providing access to textual and non-textual information resources. This course will introduce students to the principles of information storage and retrieval systems and databases. Students will learn how effective information search and retrieval is interrelated with the organization and description of information to be retrieved. Students will also learn to use a set of tools, such as search engines, and procedures for organizing information. They will become familiar with the techniques involved in conducting effective searches of information resources.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004

Prerequisite: IST 210/IST 240

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 442 (IL)** Information Technology in an International Context (3) International concepts to improve strategies for the design, dissemination, and use of information technology.

### **IST 442 Information Technology in an International Context (3) (IL)**

IST 442 focuses on the implications of the international context for the design, diffusion and use of information technology. The course will provide students with an understanding of the three crucial IT-related characteristics of the international context: 1. information infrastructure, 2. the economic and policy environment, and 3. social and cultural structures. Students will develop analytic skills that will enable them to predict the implications of the international context for information technology and will apply these skills in a final project that addresses a problem in the areas such as information systems integration, interface design, or management of information technology projects.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: IST 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 443** IT Professional Services Theory and Practice (3) Explores and applies the basic concepts, methodologies, tools, and techniques of consulting and professional service organizations in information sciences and technology.

### **IST 443 IT Professional Services Theory and Practice (3)**

This course is designed to introduce students to basic IT professional services theories and practices, including an examination of the professional services industry. A consulting-oriented systems life cycle framework is used as the outline of the course. The phases of this framework include: problem/system analysis and evaluation, requirements definition, solution design, solution development, solution implementation, and on-going evaluation and maintenance. Students will learn how to identify and define client problems, map workflows, develop recommendations, and prototype solutions. They will be given opportunities to practice the concepts and methodologies they learn by working on real-world problems in teams for corporate clients.

This course is designed around real-world problems and projects involving IT systems development, integration and implementation. In this course, the student will be part of a consulting team that is assigned to work with a real corporate client. The student works with the other team members to define their client's problem, map out appropriate workflows, and make recommendations for a solution. Depending on the project, the recommended solution may be prototyped or

fully developed during the course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: IST 210IST 220 . Prerequisite or concurrent:IST 302 orIST 412

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 444** Advanced IT Professional Services (3) Explores advanced IT professional services topics, and the unique application of consulting methods in various industry sectors.

#### **IST 444 Advanced IT Professional Services (3)**

This course is designed to allow students to explore in-depth IT professional services issues and strategies. The advanced topics to be covered during the semester include IT strategy consulting, consulting leadership issues, complex and/or strategic consulting methodologies, IT governance consulting, and an in-depth analysis of professional service firm operations and strategies, and the management of multiple, simultaneous projects and initiatives. This course is designed around real-world issues and projects involving problem identification, advanced research methods, IT solution development, integration, and implementation, primarily from a strategic and/or program management perspective. Furthermore, students will explore the culture, operations, and strategies of large, medium and small IT services organizations. The student will understand leadership and managerial issues associated with strategic alignment of IT and business strategies, executive-level stakeholder management, program management, IT strategic planning, and managing the political landscapes of large-scale IT consulting projects.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: IST 443

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 445H** Globalization Trends and World Issues (3) This course covers trends in globalization and their influence on U.S. policy making as well as the role of the U.S. in international issues.

#### **Globalization Trends and World Issues (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: 6 credits of honors course work

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 446** An Introduction to Building Computer/Video Games (3) An interdisciplinary course that introduces students to process and techniques involved in developing a video or computer game.

#### **IST 446 An Introduction to Building Computer/Video Games (3)**

The course is project driven. Students will form teams and collaborate with one another to develop an interactive immersive experience. During the course, students will be exposed to several techniques for building graphical 3D worlds, animating characters, moving the camera and lights in real-time, and building intelligent characters (using state machine-based architectures). They will also learn different techniques of interactive storytelling, such as linear narrative, branching narrative, and adaptive narrative. Furthermore, they will be introduced to several tools that will aid in realizing their own projects and ideas, such as graphic engines (e.g. Wildtangent), and game engines (e.g. Unreal Tournament).

The course is heavily project driven. Students will, in the first half of the course, learn the tools used in the development of interactive 3D environments. They will submit 2 individual assignments using these tools to develop a simple interactive environment. These individual assignments will be graded and critiqued.

In the second half of the course, students will work on a game idea from generation to actual implementation. Students will be grouped in teams of three to develop a project, integrating concepts they learned through the class. They will use one or more of the tools they learned to build this project. Projects will be continuously evaluated and critiqued during game tuning sessions. In addition, projects will be formally evaluated through two prototypes that are critiqued by the class and the instructor. The students will continuously revise their designs and projects through the semester. The final version of the system is due by the end of the semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: IST 311IST 331 or approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 451 Network Security (3)** Fundamental issues and concepts of network security, network security technologies and protocols, and emerging technologies in network security.

### **IST 451 Network Security (3)**

Information technology has become a key component to support critical infrastructure services in various sectors of our society. In an effort to share information and streamline operations, organizations are creating complex networked systems and opening their networks to customers, suppliers, and other business partners. Increasing network complexity, greater access, and a growing emphasis on the Internet have made information/network security a major concern for organizations.

IST 451 focuses on network security. The course will provide the students with a comprehensive understanding of the fundamental issues and concepts of network security, and the mainstream network security technologies and protocols that are widely used in the real world. The course will also address emerging technologies in network security.

A major component of the course will be several team-based hands-on attack-defense projects. Each project has two phases: the attack phase and the defense phase. A group may be asked to defend against the attacks enforced by another group. This course will incorporate collaborative and action-learning experiences wherever appropriate. Emphasis will be placed on developing and practicing writing and speaking skills through application of the concepts, theories and technologies that define the course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: IST 220SRA 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 452 Legal and Regulatory Environment of Privacy and Security (3)** Exploration of legal, regulatory, public policy, and ethical issues related to security and privacy for information technology professionals in public institutions, private enterprise, and IT services.

### **IST 452 Legal and Regulatory Environment of Privacy and Security (3)**

Institutional constraints on security historically focused on traditional criminal enforcement and a slow but steady increase in civil remedies through the twentieth century. Professional security protection could satisfy reasonable assurance criteria by managing legal and regulatory risks based on commonly-held understandings of burglary, theft, conversion and widely-understood but related institutional constraints in the protection of physical property. This focus retained effectiveness so long as physical security over tangible property appeared successful, even extending to the maintenance of control over mainframe computers and their peripherals. However, the proliferation of networked computers has made access and storage ubiquitous, vastly increasing the vulnerability of confidential data, private information and critical national security infrastructure. Security and privacy regulation compliance responsibility now falls much more harshly on both organizations and most of their individual personnel. These complex new duties constrain organizations in the data management industry as well as suppliers and users of data and all participants in the information supply chain, including consultants, software suppliers, applications service providers, maintenance, outsourcing and communications providers.

Other factors exacerbate these liability risk management difficulties. Advances in network computer storage and use, the broadening perception of heightened value of information and the pervasive availability of rich data warehousing increase the vulnerability of data management. Risks of information theft and integrity losses as well as the explosion of privacy rights and national security concerns now require pervasive and fuller understanding of liability risk management principles/techniques among all managers and subordinates in the data management industry and in government. Information suppliers, handlers, owners and network service providers are increasingly exposed to civil litigation, regulatory oversight/compliance and criminal prosecution for various information-related wrongs. For example, confidentiality is compulsory for corporate trade secrets, privacy is required for personally identifiable information about individuals and secrecy is mandatory over matters of national security; all of which create complex legal duties that are fundamentally driving the design of information handling processes. This course surveys legal and regulatory constraints on information security and privacy practices.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: IST 432

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 453 Legal, Regulatory, Policy Environment of Cyber Forensics (3)** Legal, regulatory and public policy environment of computer and network forensics that constrain investigatory and monitoring activities in computer and network environments.

**IST 453 Legal, Regulatory, Policy Environment of Cyber Forensics (3)**

This course covers the major legal, regulatory and policy issues in cyber-forensics including, pre-trail discovery, production of electronic documents (electronic data discovery or EDD), custody, EDD cost balancing, admissibility of electronic evidence, "business records," expert witness roles and qualification, constitutional rights to privacy and confidentiality, privilege, litigation support, forensic service providers, document retention standards, legal constraints on electronic records management, EDD employment policies, key EDD laws, civil, criminal and regulatory procedure and evidence, litigation holds, spoliation, obstruction of justice, interaction with inside and outside service providers and counsel, EDD strategy, audit trails, and multi-disciplinary relations with computer and network forensic experts. Students are exposed to the failure and successes of particular cyber forensic techniques in the dominant legal and regulatory forums.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: IST 110 and 6th-semester standing or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 454 Computer and Cyber Forensics (3)** Fundamental issues and concepts of computer forensics; aspects of computer and cyber crime; methods to uncover, protect, exploit, and document digital evidence; tools, techniques, and procedure to perform computer and cyber crime investigation.

**IST 454 Computer and Cyber Forensics (3)**

Computer and communication technologies have become the key components to support critical infrastructure services in various sectors of our society. In an effort to share information and streamline operations, organizations are creating complex networked systems and opening their networks to customers, suppliers, and other business partners. Increasing network complexity, greater access, and a growing emphasis on the Internet have made information and network security a major concern for organizations.

IST 454 focuses on computer and cyber forensics. Students will learn different aspects of computer and cyber crime and ways in which to uncover, protect, exploit, and document digital evidence. Students will be exposed to different types of tools (both software and hardware), techniques and procedure, and be able to use them to perform rudimentary forensic investigations.

A major component of the course will be several hands-on exercises and a final team-based project. This course will incorporate collaborative and action-learning experiences wherever appropriate. Emphasis will be placed on developing and practicing writing and speaking skills through application of the concepts, theories and technologies that define the course.

Integrated throughout are perspectives of computer and related legal process, including computer crimes from state and federal law, methods of interaction with law enforcement and prosecutors, admissibility of expert witness testimony and the use of forensic reports in civil, regulatory and internal investigations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: IST 220SRA 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 456 Information Security Management (3)** Contemporary Security Issues; security management processes, architecture and models; risk analysis and management; security planning, analysis and safeguards; security policies development and administration; contingency planning, incidence handling and response; and security standards and certification processes.

**IST 456 Information Security Management (3)**

Communication technologies have become a key component to support critical infrastructure services in various sectors of our society. In an effort to share information and streamline operations, organizations are creating complex networked systems and opening their networks to customers, suppliers, and other business partners. Increasing network complexity, greater access, and a growing emphasis on the Internet have made information systems and network security a major concern for organizations.

IST 456 focuses on security and risk management. Students will learn contemporary security issues; security management processes, architecture and models; risk analysis and management; security planning, analysis and safeguards; security policies development and administration; contingency planning, incidence handling and response; and security standards and certification processes.

A major component of the course will be several case studies and a final team-based project. This course will incorporate collaborative and action-learning experiences wherever appropriate. Emphasis will be placed on developing and practicing writing and speaking skills through application of the concepts, theories and technologies that define the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: IST 220SRA 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 461 Database Management and Administration (3)** Introduces advanced topics in database management systems that are fundamental to effective administration of enterprise information systems.

### **IST 461 Database Management and Administration (3)**

The objective of the course is to enable a student to comprehend principles of database management and administration. The students will learn how data are stored (indexing), accessed (query processing), shared (currency and transactions), and controlled (security). Students will be creating and using these features in a database in the laboratory. They can then develop, use, and tune database systems and applications, utilizing advanced database management features. This course assumes basic familiarity with relational model, Entity-Relationship diagram, SQL query language, and normalization (as covered in IST 210). It builds the foundation on more advanced concepts of database systems that are fundamental to a career in database administration.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: IST 210IST 240

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 462 Database Modeling and Applications (3)** This course introduces advanced topics in database modeling and applications.

### **IST 462 Database Modeling and Applications (3)**

The objective of the course is to enable a student to comprehend advanced database modeling and their applications. Students will model requirements using the advanced techniques and implement various applications in different domains. This course assumes basic familiarity with relational model, Entity-Relationship diagram, SQL query language, and normalization (as covered in IST 210). This course will cover more advanced topics in database modeling and database applications.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: IST 210IST 240

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 489H Research Methods for the Information Sciences and Technology (3)** Seminar course focused on approaches to studying information and communication technologies and writing theses and other research reports.

### **IST 489H Research Methods for the Information Sciences and Technology (3)**

IST 489H provides students the opportunity to learn and experience:

- 1) Conceptualizing what are information and communications technologies.
- 2) Approaches to conducting research on, and reporting results of studies, of ICT.
- 3) The research process and its academic context.

The course is designed around a series of ill-structured, contemporary, problems that require students to develop responses by applying research approaches to ICT. At the end of the course, students will be able to:

- 1) Apply different conceptualizations of ICT to common problems.
- 2) Select and initiate research on ICT.
- 3) Begin writing research-oriented work such as theses and papers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: IST 110 honors standing or permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1999

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 497C** Connective Media Fundamentals (3) The course introduces recent research and development efforts in connective media. Students will develop a real-world computer system.

#### **Connective Media Fundamentals (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: IST 210IST 220IST 230IST 240 and working knowledge of at least one computer programming language

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 497E** Mobile and Ubiquitous Computing (3) Seminar focused on the research themes and hands-on development of mobile & ubiquitous computing applications.

#### **Mobile and Ubiquitous Computing (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

Prerequisite: IST 240 or IST 242

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IST 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Instructional Systems (INSYS)

**INSYS 100** (GS;IL) World Technologies and Learning (3) This course examines the impact of learning technologies from email to online learning on world cultures from a socio-technical perspective.

### **INSYS 100 World Technologies and Learning (3)** (GS;IL)

INSYS 100 examines the socio-cultural impacts of learning technologies of various sorts on world cultures. The course will be offered once each year and will examine several international cases of learning technologies such as email, online learning, telecommunications, and wireless computing, as they are used for education and learning and implemented in several world cultures such as the US, UK, India, China, Africa, Europe, and Oceania. The primary objective of the course is to help students understand how learning technologies impact other cultures, and their own, how learning technologies bring dramatic change and how these changes can be predicted, understood, and planned for. The course will be offered in a blended fashion with portions of the course content, and discussions being held online as well as in face-to-face classroom delivery. The course includes a writing component in the form of several short analyses of cases and a final reflective paper. The analyses are to be conducted in cohorts though online discussions with a final product posted for peer review and faculty evaluation. Consideration of the cases in this way calls the students into active engagement with the content in ways that require them to integrate information from a variety of sources, and analyze the trustworthiness of those sources so that they can share with one another informed judgments and predictions for the future of world learning technologies. The course may offer an important introduction to the area of Instructional Systems, but it is otherwise not related to specific programs of study. It contributes to the General Education requirements for undergraduates. Students will be evaluated based on online discussion papers based on the cases of international learning technology use, completed in cohorts and submitted as a group paper, two quizzes based on the first and final portions of the course to determine students' facility with basic concepts of systems, technological determinism, scenario planning and emerging learning technologies, and a short final paper illustrating the impact of technologies on their own learning experiences and drawing these understandings into broader contexts predicting potential impacts on learning for future generations. Anticipated enrollment is 100.

General Education: GS  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 101** Effective Communication for Educators (3) Introduction to communication for educators, principles of pedagogical communication including educational communication technologies.

### **Effective Communication for Educators (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: CAS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest

### **Special Topics (1-9)**



General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 415A** Systematic Instructional Development (3) Preparation in the use of a nine-step model for systematically analyzing instructional problems and developing validated, practical solutions.

### **Systematic Instructional Development (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 415B** Systematic Instructional Development for Teachers (3) Preparation of teachers to use a systematic model to design learning environments for K-12 classrooms.

### **INSYS 415B Systematic Instructional Development for Teachers (3)**

Instructional design (ID) is a systematic approach to designing learning environments. As a systematic process, ID can be viewed as a problem solving approach to identifying and addressing a learning gap. Instructional design is guided by a variety of learning and instructional theories, is governed by techniques such as needs assessment, learner analysis, and content analysis, and is constantly evaluated through formative and summative techniques. Instructional design models include five generic steps, analysis, design, development, implementation, and evaluation.

INSYS 415B introduces the instructional design process and then focuses on each step of the model from the perspective of the classroom teacher. It prepares teachers to use the instructional design process for the creation of instructional materials, or to modify, alter, or re-design existing materials when they do not work in a particular context, or with a particular group of students.

Upon completion of INSYS 415B, students will be able to:

- \* Define instructional design and relate it to curriculum development and other similar activities of teachers.
- \* Describe the professional associations affiliated with Instructional Design and the appropriate journals read by Instructional Designers and evaluate journals for personal use.
- \* Define, write, and classify instructional goals and outcomes.
- \* Write learning objectives for varied instructional goals.
- \* Analyze learner characteristics.
- \* Create assessments aligned with goals and objectives.
- \* Select instructional materials that are aligned with objectives.
- \* Develop instruction plans and activities that are appropriate for given objectives, tests, and types of students.
- \* Select media that are appropriate for given instructional situation.
- \* Create a formative evaluation plan for an instructional activity.
- \* Synthesize instructional design steps into a systematic model.
- \* Apply a systematic process for creating new instructional materials.
- \* Critically analyze the systematic process and compare it to other possible processes (e.g. constructivism, user-design).

A course in the systematic design of instruction is a core requirement in the Instructional Systems Program and therefore a required course for all graduate students in the program. Since INSYS 415B is intended for classroom teachers who are preparing to use the instructional design process to develop technology based instructional materials for implementation in their classrooms, students who wish to prepare for instructional design in a corporate or higher education setting should take INSYS 415A where the activities and examples are geared to the instructional design process in those settings.

**NOTE:** Students should take either INSYS 415A or INSYS 415B. Students who have completed INSYS 415A should not register for INSYS 415B.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2012  
 Prerequisite: 6th semester standing in education or equivalent professional experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 432** Designing Learning Within Course Management Systems (3) Hands-on design of didactic and constructivist

instructor-facilitated online lessons within the affordances and constraints of course management systems.

**Designing Learning Within Course Management Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

Concurrent: ADTED 470

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 433** Teaching and Learning Online in K-12 Settings (3) Explores uses of online technologies for K-12 settings including cybercharter and blended settings.

**Teaching and Learning Online in K-12 Settings (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 441** Design, Development, and Evaluation of Internet Resources (3) Design, production, and evaluation of instructional materials for delivery on the Internet.

**Design, Development, and Evaluation of Internet Resources (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 442** Innovative Instructional Applications of Microcomputer Technology (3) Educators experience and develop innovative instructional applications of text-processing, database management, spreadsheet, and telecommunication software in their classrooms.

**Innovative Instructional Applications of Microcomputer Technology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: EDTEC 440

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 447** Instructional Design for Multimedia Technologies (3) State of the art multimedia technology hardware such as interactive video, CD-ROM and digitizing audio and video.

**Instructional Design for Multimedia Technologies (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 471** Introduction to Educational System Design (3) Investigates systems theory and how components of educational systems interact; develops insights on current issues and models in Educational System Design.

**Introduction to Educational System Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INSYS 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Integrative Arts (INART)**

**INART 001** (GA) The Arts (3) Develop critical perception, knowledge, and judgments through an examination of the basic concepts common among the arts.

#### **The Arts (3)**

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 003** (GA) Reception of the Arts (3) This course considers how art uses time, space, and causality to define culture and the human condition.

#### **INART 003 Reception of the Arts (3) (GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

INART 003 approaches the study of the arts from the audience's point of view. It is designed to meet the General Education Arts requirement. The course is offered in the Fall and Spring University Park, with a typical enrollment of 50, and is available to other locations through Campus Course Exchange. There are no prerequisites, and students are assumed to have little or no background in art. As a result of taking the course, students are able to use analogy, the idea of structure, and theories of reception and communication in both art and non-art situations. The course is offered on-line, making it particularly useful for students with family and personal obligations, for older students with job obligations, and for students with handicaps limiting their access to traditional "classroom" courses. Although INART 003 is designed for potentially large enrollments, students relate to the instructor on a one-to-one basis through e-mail and

interact with other students using an on-line bulletin board. Writing, criticism, and analytical thinking are required. Evaluation is based on five on-line quizzes, two on-line exams, and participation in on-line discussions. Tests measure students' ability to reason, synthesize materials, and apply ideas about art to other situations. The discussion sessions expand ideas found in art to apply them to everyday life. Writing is required for the course. Students must contribute at least three short essays and post commentary on others' work for 20 points of the final grade. Informal e-mail conversations supplement this requirement. The course's extensive web site includes lessons corresponding to each chapter in the text, a lexicon of difficult terms, links to other web sites, study guides, works of art, and provocative essays about art.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 005 (GA)** Performing Arts (3) Introduction to music, dance, and theatre. Orientation to the aesthetics, theory, and practice of professional performance.

**INART 005 Performing Arts (3)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

INART 005 is not an "art appreciation" course in any traditional sense of the term. Rather, it is focused on the act of experience and the encouragement of critical thinking about those experiences. No effort is made to encourage students to "like" or "dislike" the things that they see and hear or to encourage them to accept the view that some experiences are more or less valuable than others. The idea, simply, is to have informed experiences in the performing arts and think about them in a critical context. Although INART 005 is designed for potentially large enrollments, students relate to the instructor on a one-to-one basis through e-mail and interact with other students using an on-line bulletin board. Writing, criticism, and analytical thinking are required. Grading in INART 005 is determined by attendance, participation in discussions, and a mid-semester and final examination. Fifty percent of the semester grade will be determined by the extent and quality of participation in weekly discussions. Thirty percent of the semester grade will be determined by the mid-semester and final examination (15% each). The final 20% of the semester grade will be based on attendance.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 010 (GA)** The Popular Arts in America: Mass Media Arts (3) An introduction to the arts of the mass media with emphasis on how film, radio, television, and the print media influence and reflect society.

**INART 010 The Popular Arts in America: Mass Media Arts (3)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

INART 010 examines the history and form of the popular arts as antecedents for the development of the mass media arts of 21st century America. The primary goal of the course is to help students develop a critical and analytical approach to dealing with contemporary mass media. The course presupposes some familiarity with modern popular media and takes as its content both historical and contemporary examples as sources for analysis. While the class offers facts and data, the central focus of the course is in the theory, stylistic elements, and structural workings of media content. The pedagogical goal of this approach is to examine not just what the mass media arts are but also where they come from, how they function, and what effects they have on our culture and society. The key to this goal is understanding the naturalized ideologies imbedded in the structural form of popular culture: how the early expressions of popular culture - the minstrel shows, vaudeville, burlesque, pulp fictions, and the early cinema both shaped cultural attitudes and reflected societal notions of race, gender, and socioeconomic norms. Class meetings consist of lectures and in-class discussions that illustrate modern critical approaches to popular culture and the terminology used in presenting critical arguments and ideological viewpoints on these art forms. Reading assignments will support classroom work by presenting students with a diversity of opinion on popular culture and significant examples of that culture in print media. Further, examples of historically significant popular mass media arts will be shown in class and then discussed in relation to the concepts and critical viewpoints covered in lectures. In addition to regular scheduled classes, students will participate in an on-line Media Journal that requires watching, listening to, and reading examples of contemporary mass media art (television programs, motion pictures, comics, graphic novels, etc.). Every two weeks, students will be required to see, read, or hear an assigned contemporary work of popular mass media art and record their critical responses on the online Media Journal that will be accessible to all other members of the class. Grades will be based on three equally weighted objective examinations that will account for 75% of the semester grade. The remaining 25% of the grade will be determined by participation in the online Media Journal.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 015 (GA)** The Popular Arts in America: Performing Arts (3) The development of the performing arts of American popular culture; emphasis on popular music, dance, theatre, and variety arts.

**INART 015 The Popular Arts in America: Performing Arts (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

INART 015 examines the Popular performing arts and their place in American popular culture. broken into four units: popular music, popular stage dance, popular theatre, and acts like the circus and stand up comedy. The course will highlight important influences, artists, events, works, and effects such as:

- 1) Popular Music: This unit will trace the development of the American popular music from the emergence of the popular songwriter in the 1830s to the beginnings of rock and roll. Jazz, country, blues, and mainstream pop will be major genres examined.
- 2) Popular Stage Dance: This unit will cover the evolution of dance as a popular performance art from percussive dances performed in the minstrel show to rock and roll choreography in music videos.
- 3) Popular Theatre: This unit examines the founding forms of popular theatre (minstrelsy, vaudeville, and burlesque) and their effect on later arts like motion pictures and television.
- 4) Popular Variety Arts: This unit deals with those performing arts that fall outside of the broader categories of dance, music, and theatre.

The circus, stand up comedy, and stage magic will be highlighted. There will be three equally weighted objective tests in the course, each covering approximately one-third of the course's content. These examinations account for 75% of the semester grade (25% each). Students in INART 01 5 also participate in the Popular Arts Forum, a semester-long examination of an important contemporary issue in popular culture (cultural imperialism and censorship; sexuality in popular culture; gender, ethnicity, and race in the popular arts; etc.) that requires research, critical thinking, the formation of objective opinions, and discussion. The Popular Arts Forum is conducted online utilizing resources held on the Forum website and World Wide Web. Asynchronous online discussions on the topic will occur three times during the semester. The class will be broken into groups of fifteen students for the purpose of discussion. Participation in the Popular Music Forum will account for 25% of the semester grade. The discussion grade will be determined by the quality of participation and degree of involvement in the discussion.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 050 (GN)** The Science of Music (3) Waves, physics of sound, hearing, musical scales, musical instruments, and room acoustics.

**INART 050 The Science of Music (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will explore the physical and acoustical bases of sound and music.

The physics will include a study of vibrating systems and simple harmonic motion, wave propagation, reflection and refraction, superposition, resonant frequencies, harmonics, phase, the relationship of speed and velocity, and spectra. The acoustics portion will apply these physical properties to hearing, sound and music, covering the nature of the human auditory system, and correlations of pitch to frequency, loudness to amplitude/power/intensity, timbre to spectra and envelope. NOTE: there need be no specific math prerequisite for the course. Though high school algebra and trigonometry will be recommended, these topics will be integrated with the rest of the course material.

With physical and physiological groundwork laid, the subject matter will move to purely musical areas: the construction of musical scales, the nature of consonance, dissonance, and harmony. Twelve-tone equal temperament, the basis of Western common practice music, is not an absolute, but a decision made to facilitate certain musical choices, and a compromise in terms of optimal consonance. The nature of the different instruments will then be discussed - strings, winds, brass, and voice. Different instruments naturally produce different scale types and different types of spectra. Students will learn to appreciate the inherent differences in different instrument types.

The last portion of the course will return to acoustics, exploring the role that performance spaces play in the propagation and reception of sound. The shape and materials of a room determine its characteristic sound. Students will learn about how sound in large auditoriums is characterized by the balance of direct and reflected sound, the distinction between specular and diffuse reflections, the absorptive properties of different building materials, and the nature of reverberation.

Smaller performance spaces are subject to standing waves, flutter echo, and comb filtering. Taking steps to avoid undesirable characteristics is often an easy matter once the nature of these characteristics is understood.

Finally, an overview of perceptual psychological studies of auditory streaming will explore how the auditory system organizes sound on a primitive, unlearned level.

Grading will be based on weekly homework assignments, two midterm exams and a final exam.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 055 (GA)** History of Electroacoustic Music (3) A history of electroacoustic music as a consequence of developments in culture and technology from 1880 to present.

**INART 055 History of Electroacoustic Music (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the interrelationship and parallel development of technology, art and music from the earliest electronic devices to the current ubiquitous computer audio workstation and electronics dance music.

Electronica is a multi-faceted genre that borrows from a number of past innovators. Its artists routinely acknowledge the influence, for example, of *musique concrete*, Karlheinz Stockhausen and the theremin, yet their audiences are often unaware of the roots of the music that occupies much of their recreational time and social energy.

Electroacoustic music developed hand in hand with innovations in communications technology, which in turn influenced the way music was conceived and created. Too often, these correlations are not discussed. Both electrical engineers and musicians use filters, without necessarily realizing that they are both using the same technology for different purposes. FM synthesis revolutionized commercial electronic instruments in the 1980s, yet few people realize that this was the same form of modulation that was the basis of much radio broadcast technology. Many innovators in electronic music started out as inventors or engineers. The creation of electroacoustic music is one of the most fertile cross-disciplinary fields of the twentieth (and now twenty-first) centuries. It has affected the production and reception of music indelibly, and is now a vital component of digital multi-media art, a leading trend of the new century.

The course asks students to be aware of vital technological developments in audio (the evolution from the Edison phonograph to the CD player), electronics (the evolution from the spark gap oscillator to the vacuum tube to the transistor to the microprocessor), cultural movements (from Impressionism and Romanticism to modernism to postmodernism), and to become sensitized to the chief innovators in the field (the differences in the music of Schaffer, Stockhausen, Carlos, Chowning, and others). They are made aware not only of names and terms, but also taught to recognize differences in the different sounds of different composers and styles.

The course has been offered two semesters as a 297 offering. It is designed so that it may eventually be offered completely online. The text is online, and the listening assignments are also posted at the PSU Digital Music Library.

Grading will be based on weekly quizzes that ask for definitions and short answers, four tests that require essays and identification of listening examples, and two papers focused on different compositions/composers.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 062 (GA;US;IL)** West African and African American Arts: from the 1960s to the present (3) An introduction to West African and African American Arts from the 1960s to the present.

**INART 062 West African and African American Arts: From the 1960's to the Present (3)  
(GA;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the interrelationship and parallel development of arts in West Africa and the United States from the 1960s to the present. The cultural ties between the slave trading states of West Africa and the slaves and their descendents of the Americas, though weakened by over three centuries of separation, were never completely erased and the similar experiences of colonial oppression in Africa and slavery in America created expressions in art of remarkable similarity and correspondence. Although this comparable and often equivalent development in artistic expression on both

sides of the Atlantic was, by and large, unrecognized and unacknowledged, the emergence of black nationalism in the 1960s reestablished the historic cultural associations between African and African American arts and created a remarkable artistic interchange that continues to the present day. The 1960s was a pivotal period for both African and African American art. The Civil Rights movement in the United States and the collapse of colonial rule in West Africa gave rise to a new sense of black identity for Africans and those of African descent and a new art that embodied and expressed that newfound identity. During the 1960s, the visual, performing, and literary arts of Africa and Black America celebrated their shared cultural heritage and found common use as instruments of political and social change. The sense of shared history and like experience on both continents influenced and informed black art in powerful ways and continues to motivate and inspire artists as they reflect and comment on their geographically separate, though spiritually linked, worlds. This course focuses on works of art drawn from many diverse traditions in both Africa and the United States and sets those works in the context of the social, political, and cultural movements that helped to create them. Examples of African and African American visual, performing, and literary arts will be examined, compared, and contrasted in order to gain insight into those works while serving as a vehicle for gaining a better understanding of the cultures that created them. INART 062 is a wholly online course that will be offered simultaneously by Penn State and Kwame Nkrumah University of Science and Technology in Ghana. This will allow students in Africa and the United States to participate as members of the same class in discussions and joint projects created on the World Wide Web. Grading will be based on participation in weekly online discussions, an objective mid-term and final, and the successful completion of a collaborative online project developed by students in both countries. INART 062 will be offered in the fall and spring semesters each year.

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Arts  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 062U** (GA;US;IL) West African and African American Arts: from the 1960s to the present (3) An introduction to West African and African American Arts from the 1960s to the present.

**West African and African American Arts: from the 1960s to the present (3)**

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 100** (GA) Seminar in Integrative Arts (3) A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester.

**INART 100 Seminar in Integrative Arts (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

INART 100 is a semester-long seminar that explores a theme or topic through selected works of the visual or performing arts. Various arts will be examined with emphasis on comparison, contrast, and other aspects of interrelation. Although topics will change each semester, they will always be bound to broad concerns in the arts that are shared or common. The approach will be strictly interdisciplinary with emphasis, on discussion and the direct experience of art.

INART 100 is a General Education Arts offering (GA) and, for selected topics, will satisfy the Intercultural and International Competence Requirement (GI).

At University Park, the course is built around twelve to thirteen motion pictures shown as part of the Palmer Museum of Art's film series, a gallery exhibition at the Palmer, and two or three performances at the Center for the Performing Arts. Students are required to attend all of these events and showings. The film series and the gallery exhibition are free. Tickets for the two events at the Center for the Performing Arts must be purchased. Attendance will constitute 20% of the semester grade.

Each week, there will be a required online discussion based on the "Commentaries" associated with the event or exhibition of that week. These "Commentaries" are included with the background information on the events and exhibitions contained in the course web site. Discussions will last for one week and all students are required to participate in all online discussions. Participation in discussions will constitute 50% of the semester grade.

The remaining 30% of the semester grade will be based on a series of objective tests based on the background materials that relate to each film, performance, or gallery exhibition required in the course.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 100W (GA)** Seminar in Integrative Arts (3) A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester.

**INART 100W Seminar in Integrative Arts (3)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

INART 100W is a semester-long seminar that explores a theme or topic through selected works of the visual or performing arts. Various arts will be examined with emphasis on comparison, contrast, and other aspects of interrelation. Although topics will change each semester, they will always be bound to broad concerns in the arts that are shared or common. The approach will be strictly interdisciplinary with emphasis on writing, discussion, and the direct experience of art. INART 100W is a General Education Arts offering (GA), a writing intensive course (W), and, for selected topics, will satisfy the Intercultural and International Competence Requirement (GI). At University Park, the course is built around twelve to thirteen motion pictures shown as part of the Palmer Museum of Art's film series, a gallery exhibition at the Palmer, and two or three performances at the Center for the Performing Arts. Students are required to attend all of these events and showings. The film series and the gallery exhibition are free. Tickets for the two events at the Center for the Performing Arts must be purchased. Attendance will constitute 20% of the semester grade. Each week, there will be a required online discussion based on the "Commentaries" associated with the event or exhibition of that week. These "Commentaries" are included with the background information on the events and exhibitions contained in the course web site. Discussions will last for one week and all students are required to participate in all online discussions. Participation in discussions will constitute 30% of the semester grade. INART 100W is a "writing intensive" course and, as a consequence, a major portion of the course is devoted to the acquisition of skills and practice in writing. There are three required papers in the course: one 600 word critical review, one 900-word critical opinion paper, and a final 1500-word critical opinion paper. Grading will be based on the quality of students' critical arguments and the quality of their writing. These three papers will constitute 50% of the semester grade.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 110 (GA)** The Dramatic Arts in the Mass Media (3) The place of television-radio-film drama in our culture; relationship with other art forms; standards of evaluation.

**INART 110 Dramatic Arts in the Mass Media (3)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

INART 110 examines the history and development of the dramatic arts of the mass media with a particular focus on television as the strongest exemplar of media practice. The primary goal of the course is to help students develop a critical and analytical approach to dealing with the dramatic arts of the contemporary mass media. The course presupposes some familiarity with modern popular media and takes as its content both historical and contemporary examples as sources for analysis. While the class offers facts and data, the central focus of the course is the theory, stylistic elements, and structural workings of media content. The pedagogical goal of this approach is to examine not just what the mass media arts are but also where they come from, how they function, and what effects they have on our culture and society. The key to this goal is understanding the effects and influence of dramas in the mass media on our society and its beliefs and values. Class meetings consist of lectures and in-class discussions that illustrate modern critical approaches to popular culture and the terminology used in presenting critical arguments and ideological viewpoints on the dramatic arts of the mass media. Reading assignments will support classroom work by presenting students with a diversity of opinion on mass media and the influence of television dramas and comedies. Further, examples of historically significant radio and television dramatic works will be shown in class and then discussed in relation to the concepts and critical viewpoints covered in lectures. In addition to regular scheduled classes, students will participate in an on-line Television Journal that requires watching and critically responding to assigned television programs. Each week, students will be required to watch and critically respond to assigned television programs. Their critical responses will be posted on the online Television Journal and made available to all members of the class. Grades will be based on three equally weighted objective examinations that will account for 75% of the semester grade. The remaining 25% of the grade will be determined by participation in the online Television Journal.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**INART 115 (GA;US)** The Popular Arts in America: Popular Music (3) An examination of the roots, development, and significance of popular music in our culture.

**INART 115 The Popular Arts in America: Popular Music (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

INART 115 examines the roots, development, and significance of popular music in our culture. It covers the origin of popular music in the early nineteenth century and introduces the major genres of the art: blues, jazz, country, mainstream pop, and rock and roll. The thrust of the course is sociological and cultural rather than musicological and will trace the music's development in a historical context. The intent of the course is to provide students with a comprehensive overview of popular music, the significance of major artists in its development, and its importance in our social and cultural history. There are three equally weighted objective tests in the course, each covering approximately one-third of the course's content. These examinations account for 75% of the semester grade (25% each). Students in INART 115 also participate in the Popular Music Forum, a semester-long examination of an important contemporary issue in popular music (censorship, copyright infringement and music piracy, music and violence, etc.) that requires research, critical thinking, the formation of objective opinions, and discussion. The Popular Music Forum is conducted online utilizing resources held on the Forum website and World Wide Web. Asynchronous online discussions on the topic will occur three times during the semester. The class will be broken into groups of fifteen students for the purpose of discussion. Participation in the Popular Music Forum will account for 25% of the semester grade. The discussion grade will be determined by the quality of participation and degree of involvement in the discussion.

General Education: GA  
Diversity: US  
Bachelor of Arts: Arts  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 116 (GA;US)** The Popular Arts in America: The History of Rock and Roll-The 1950s (3) This course examines the roots, development, and significance of rock and roll music in its first decade.

**INART 116 The Popular Arts in America: The History of Rock and Roll-The 1950s  
(GA;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is composed of eight chronologically arranged units of study that examine the major developments in early rock and roll in an historical context.

Rock and roll music, especially in the 1950s, was the reflection of the dynamic cross-cultural interplay between country, gospel, rhythm and blues, and mainstream pop. Of central importance in early rock and roll was the influence of African American music and culture and the effect that African American music and culture had when brought into the mainstream. Through an examination of the foundation of emergence of rock and roll in our culture, students gain an understanding of the role played by intercultural cross-influences in shaping both our music and our cultural sensibilities.

Both the content of the course and the assignments in the Popular Music Forum are directed at helping students understand, reflect upon, and critically think about the intercultural nature and effect of our musical heritage.

The thrust of the course is sociological and cultural rather than musicological, and the intent of the course is to provide students with a comprehensive overview of the early development of rock and roll and its importance in our social and cultural history.

Each unit of study will be accompanied by key examples of recorded music from the period of the late 1940s through the 1950s. The course includes approximately 100 important recordings for required study.

Grades in INART 116 will be determined by a series of eight objective tests and four assignments in the Popular Music Forum. The Popular Music Forum will examine important issues in popular music and culture concerning or related to rock and roll in the 1950s that require research, critical thinking, the formation of objective opinions, and discussion. The Popular Music Forum is conducted online as a series of asynchronous discussions on Forum topics. The class will be broken into groups of fifteen students for the purpose of discussion.

Grading will be based on a point system. There are 1200 possible points that can be earned during the course - 800 points on exams (2/3 of the final grade) and 400 points on written assignments in the Popular Music Forum (1/3 of the final grade).

General Education: GA  
Diversity: US  
Bachelor of Arts: Arts  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 125 (GA;US;IL)** The Popular Arts in America: The History of Rock and Roll - Punk Rock (3) An examination of the roots, development, and significance of punk rock in our culture.

**INART 125 The Popular Arts in America: The History of Rock and Roll - Punk Rock (3)  
(GA;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Punk rock was an important and historically significant genre in rock and roll music that initially developed in the United States and Great Britain in the late 1960s and has continued to the present. Through an examination of the now more than thirty-year history of punk rock in our culture and that of Great Britain, students gain an understanding of the role played by punk rock in shaping both our musical and cultural sensibilities and the historical and social movements that influenced and led to the development of punk rock as a musical genre and lifestyle.

This course is composed of eight chronologically arranged units of study that examine the major developments in punk rock in an historical context.

In addition to weekly text assignments, students are required to complete four assignments in the Popular Music Forum. The Popular Music Forum will examine important issues in popular music and culture concerning or related to the historical development of punk rock in both countries that require research, critical thinking, the formation of objective opinions, and discussion. The Popular Music Forum is conducted online as a series of asynchronous discussions on Forum topics. The class will be broken into groups of fifteen students for the purpose of discussion.

Both the content of the course and the assignments in the Popular Music Forum are directed at helping students understand, reflect upon, and critically examine the music created in the genre and the social and cultural forces that influenced and were influenced by punk rock.

The thrust of the course is sociological and cultural rather than musicological, and the intent of the course is to provide students with a comprehensive overview of the development of punk rock its importance in our social and cultural history.

Each unit of study will be accompanied by key examples of recorded music. The course will include approximately 200 important recordings for required study.

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 126 (GA;US) (AF AM 126)** The Popular Arts in America: The History of Rock and Roll - Hip-Hop (3) An examination of the roots, development, and significance of hip-hop in our culture.

**INART (AF AM) 126 The Popular Arts in America: The History of Hip-Hop (3)  
(GA;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Hip-hop is an important and historically significant genre in popular music that initially began in the South Bronx in the early 1970s and has grown to become one of the most influential, controversial, and important new genres in popular music to emerge in the last quarter of the 20th century. It now holds a significant place in our culture and has become a cultural force of global significance. Through an examination of the now forty-year history of hip-hop in our culture and internationally, students gain an understanding of the role played by hip-hop in shaping both our musical and cultural sensibilities and the historical and social movements that influenced and led to the development of hip-hop as a musical genre and lifestyle.

General Education: GA  
Diversity: US  
Bachelor of Arts: Arts  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 199 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 200 (GA)** The Popular Arts in America: Elvis Presley - The King of Rock and Roll (3) The significance and influence of Elvis Presley as an artist and cultural force focusing on his recordings and major performances.

**INART 200 The Popular Arts in America: Elvis Presley - The King of Rock and Roll (3)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirement.

INART 200 is composed of eight chronologically arranged units of study that trace Elvis Presley's life; accomplishments; the significance of his art; his influence as a performer, recording artist, and motion picture star; and, perhaps most important, his place as a force and symbol of social/cultural change in the second half of the 20th century. Elvis was the principal symbol of change in a time when change was all-important. He was the first of the great rock and roll superstars, a herald of the cultural revolution of the 1960s, and the central figure in the musical revolution that brought rock and roll into the popular mainstream. He was - and is - the King of Rock and Roll and his place and importance in the cultural history of the twentieth century can never be overstated or exaggerated.

The thrust of the course is sociological and cultural rather than musicological and the intent of the course is to provide students with a comprehensive overview of Elvis as an artist, his significance in the development of rock and roll, and his importance in our social and cultural history.

Each unit of study will be accomplished by key examples of recorded music and video records of important performances from television and motion pictures. The course includes approximately 100 important recordings and 15 video performances for required study.

Grades in INART 200 will be determined by a series of eight objective tests and four assignments in the Popular Music Forum. The Popular Music Forum will examine important issues in popular music and culture concerning or related to the life of Elvis Presley that require research, critical thinking, the formation of objective opinions, and discussion. The Popular Music Forum is conducted online as a series of asynchronous discussions on Forum topics. The class will be broken into groups of fifteen students for the purpose of discussion.

Grading will be based on a point system. There are 1200 possible points that can be earned during the course - 800 points on exams (2/3 of the final grade) and 400 points on written assignments in the Popular Music Forum (1/3 of the final grade).

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 205 (GA)** Introducing the Beatles (3) The influence and achievement of the Beatles as artists focusing on their recordings and films as sociocultural artifacts.

**INART 205 Introducing the Beatles (3)  
(GA)**

INART 205 is composed of eight units of study that trace the lives and work of the Beatles. The course's chronological design is arranged in order to capture the band's artistic trajectory from two-track recording and the relatively primitive Please Please Me album through the sonic heights of Revolver, Sgt. Pepper's Lonely Hearts Club Band, The White Album, and Abbey Road. This course examines the group's wide-ranging sociocultural influence in terms of music, fashion, film, gender, consumerism, and politics. The thrust of the course is interpretive in nature, with the Beatles' songs and albums receiving considerable scrutiny in terms of their composition, production, and attendant musicianship. Developments in recordings and instrument technology are germane to our understanding of the Beatles' evolving aesthetic, as is the bandmates' development as songwriters who eventually eschew issues associated with romance in order to address larger and more prescient subjects such as loneliness, oppression, nostalgia, ethics, and redemption in their music.

Each unit of study will be accompanied by the analysis of key examples from the Beatles' massive recorded corpus. More

than 100 songs will receive consideration, as will the group's five forays as feature-film stars.

Grades in INART 205 will be determined by two objective examinations- a midterm and a final. Class participation will be a key ingredient in student performance, as will students' work on two papers. The first of such assignments will involve a shorter paper in which students address a particular aspect of the band's sociocultural emergence during their early years. The longer term paper will be researched, argumentative essay in which students will be assigned to discuss any aspect of the Beatles' career - a particular album (or series of albums), their musical influence, or their cultural impact, among other topics - and construct a mature, expansive thesis about its meaning.

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 210 (GA)** Integrative Approaches to Computer-Aided Music Composition (3) Interdisciplinary introduction to music composition using software to assist with notation; historical perspectives drawn from art, dance, theater, and literature.

**INART 210 Integrative Approaches to Computer-Aided Music Composition (3)  
(GA)**

INART 210 is an interdisciplinary introduction to music composition using software to assist with notation. Historical perspectives are drawn from period music, art works, dance, theater, and literature. Student composers are required to complete five collaboration projects with students from other arts areas. Through collaboration, student composers will be able to develop a more informed critical point of view about music composition as an art and important form of human expression. Collaborations are encouraged with student choreographers, filmmakers, animators, visual artists and actors, including improvisation and interactive techniques. Students will have access to music classroom facilities and Macintosh computer lab for score and sound editing; semester end recording of compositions. Prerequisite: basic music literacy skills: MUSIC 008 or instructor permission.

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2004  
Prerequisite: MUSIC 008 or instructor permission

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 215 (GA)** The Craft of Singing (3) Vocal and breathing anatomy and technique, vocal health and classifications, posture, and beginning acting/movement techniques for singers.

**INART 215 The Craft of Singing (3)  
(GA)**

Vocal and breathing anatomy and technique, vocal health and classifications, posture, and beginning acting/movement techniques for singers. Anatomy of the larynx and respiratory system are studied and strengthened through in-class work on vocal and breathing exercises. Focus will be on good tone production and resonance. Aspects of vocal health, voice classification, and basic differences between Classical and Musical Theatre vocal styles are introduced. Techniques that enhance and develop acting and movement choices are also studied through individual and group exercises and through the performance of songs.

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: MUSIC 052MUSIC 104VOICE 110J orTHEA 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 220 (GA;US)** Stand-Up Comedy: A Cultural History (3) An American cultural history from mid-19th through mid-20th Century as seen through the prism of stand-up comedy.

**INART 220 Stand-Up Comedy: A Cultural History (3)  
(GA;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Stand-up comedy, the art of making an audience laugh through primarily the spoken word, is a vital and revealing part of American cultural history. The best American comedians from Mark Twain and his sardonic monologues to Lenny Bruce

and Richard Pryor's unexpurgated free form rants not only entertained, but illuminated, challenged, reflected the times, and at their best influenced the culture for the better.

This course, through rare uncensored video and audio clips, readings, and lecture, offers an American cultural history through the lens of stand-up comedy covering a span from the mid-19th through the 20th Century.

Topics of consideration include the art of the joke and stand-up comedy performance, the evolution of American comedy genres and venues, the significant performers, the impact of technologies such as radio and television, as well as a variety of issues ranging from racism, ethnic, and gender stereotyping to freedom of speech and political and social change.

General Education: GA

Diversity: US

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: sophomore standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 236 (GA)** Integrating Music and Animation with Technology (3) An introduction to the theory, design and creation of musical animations. For general students.

### **Integrating Music and Animation with Technology (3)**

General Education: GA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 258A (GA)** Fundamentals of Digital Audio (3) A thorough introduction to digital music production technologies, covering fundamentals of how digital musical information is stored, processed and transmitted.

### **INART 258A Fundamentals of Digital Audio (3) (GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

A thorough introduction to digital music production technologies, covering the fundamentals of how musical information is stored and transmitted in digital devices.

This course is meant for people who are passionate about working with sound, and who are willing to take on new technical and creative challenges in audio production. It is the pre-requisite for more many advanced courses in music technology and audio production. Students complete a series of low-stakes audio exercises on fundamental operations, a series of written responses to questions on the underlying theory of digital audio, and a small number of extended creative projects.

The software used is at the level of professional audio production workstations. Students complete the course with a set of vocational skills in computer music and audio.

General Education: GA

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: MUSIC 008 or concurrent enrollment in either MUSIC 131 or MUSIC 132

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 258B (GA)** Fundamentals of Digital Audio (1) A general overview of music technologies current to music educators and performers.

### **INART 258B Fundamentals of Digital Audio (1) (GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

A general overview of music technologies current to music educators and performers, as defined by their accrediting organization. This course is meant for students who do not intend to pursue further studies in music technology. Students will be exposed to software that is meant for non-specialists, and learn basics of music recording and editing. Students complete a set of lessons, each of which features a hands-on exercise. They gain a set of technical tools that should be of immediate relevance to their careers, including basics of music recording, audio editing, Internet resources, music arranging and score preparation. This course has a significant active learning component, as all assignments are hands-on creative projects. It qualifies as a General Education Arts (GA) and a BA course.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2012

Concurrent: concurrent enrollment in either MUSIC 131 or MUSIC 132

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 294** Research Projects (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 399 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 410** Early Pennsylvania Decorative Arts and Furniture (3) The study of Pennsylvania and related furniture, pottery, paintings, and decorative arts of the seventeenth, eighteenth, and early nineteenth centuries.

**INART (AM ST) 410 Early Pennsylvania Decorative Arts and Furniture (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course explores the aesthetic, cultural, and social significance of the household arts common in Pennsylvania in the seventeenth, eighteenth, and nineteenth centuries. Emphasis is placed on the major periods and styles (Puritan, William and Mary, Queen Anne, Chippendale, and Federal) as represented in furniture, pottery, paintings and decorative arts. Indigenous styles and crafts representative of Pennsylvania arts and crafts will be explored in detail.

The course combines lecture and discussion with seven field trips to historic sites to provide students with the opportunity to view furniture and decorative arts within the setting of period homes.

The course carries no prerequisite.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 415** Nineteenth Century Pennsylvania Architecture and Restoration (3) Interior and exterior design of early Pennsylvania architecture; understanding and evaluation of and experience in restoration.

**INART (AM ST) 415 Nineteenth Century Pennsylvania Architecture and Restoration (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course provides students with hands-on practical experience in the restoration of historic buildings of the nineteenth century. Each semester, students will research, evaluate, identify problems, and develop solutions to restore these structures in an historically correct manner. Students will then practically restore these structures and gain practical experience in the process of restoration.

Major classroom topics will vary in order to meet the specific needs of the project at hand. Topics may include wood technology, structural problems and solutions, vernacular architecture, use of early tools, etc. Students will also take field trips to several restored homes to gain insight into applicable methods and approaches to restoration and gain perspective on costs and outcomes.

INART 410 Early Pennsylvania Decorative Arts and Furniture is the prerequisite for this course.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012  
Prerequisite: INART 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 494** Research Projects (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 494H** Research Projects (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 496H** Independent Studies - Honors (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies - Honors (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.



**Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INART 499 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Integrative Biosc (IBIOS)**

**IBIOS 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1997

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Interdisciplinary Humanities (I HUM)**

**I HUM 150 (GH;IL)** World Mythologies in the Arts (3) Interdisciplinary, cross cultural, historical, and contemporary study of world mythologies as represented in the visual arts, literature, and film.

**I HUM 150 World Mythologies in the Arts (3)  
(GH) (IL)**

This course is an interdisciplinary, cross-cultural, historical, and contemporary examination of myth as it appears in the visual arts, literature, and film. Each iteration of the course covers myths in the arts of at least several of the following cultures - Greek and Roman, Celtic, Norse, European, Egyptian, Near Eastern, Indian, Chinese, Pacific, African, and Native American. The course is thematic and intercultural, for example in the way myths are told in historical cultures and then retold and transformed in art, literature, and films in later cultures. The course is not a survey of world mythologies, but an interdisciplinary examination of myths in the arts such as painting, film, and literature, with an emphasis on the interpretations and transformative processes applicable to myths as they are (sometimes radically) altered and embodied in art forms that may be far removed in time, place, and meaning from the original contexts of they myths themselves. The films *Whale Rider* and, particularly, *Dead Man*, are rich examples of such mythological transformation. In the latter, the ideas of William Blake and Sioux and Inuit mythology are combined in original ways; such a transformed mythological example most likely would not appear in a typical survey of world mythology. The course is intended to familiarize students with the ways that different cultures have interpreted the world in which they live -- how cultures created their own explanations for phenomena they could not understand, and how contemporary culture gives new life to older myths. We will examine such questions as the meanings of myths as represented in the arts, the various purposes of myths in the arts, such as the functions of creation myths and myths of the hero; theories of how myths originate; and ways that myths have been analyzed, interpreted, and adapted in other cultures through the arts. We will consider in what ways myths are reconceived and altered when they appear in later cultures and in different media within the arts. Students learn to compare and contrast myths in the arts, discuss common elements in myths in the arts, and to interpret the meaning of the myths both within the cultural and historical context in which they were created and the ways they are reinterpreted in later cultures in the arts. Students may work individually and in small groups; may be expected to submit portfolios; may be given quizzes and mid-term and final exams; may be expected to write a term paper; may do a special project such as each student creating his/her own myth in literary, visual, or video form; may be asked to present material to the class.

General Education: GH  
 Diversity: IL

Bachelor of Arts: None  
Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 300W** Interpretations in the Humanities (3) A study of selected themes, topics, or periods that introduces students to interdisciplinary approaches to knowledge, interpretation, and creative expression.

### **I HUM 300W Interpretations in the Humanities (3)**

This course is designed to familiarize majors in all School of Humanities degree programs with several different approaches to understanding creative and scholarly works in a range of humanities areas; to expose them to the viewpoints of others and encourage dialogue among students; to reinforce the interdisciplinary connections among humanities fields; and to improve students' ability to formulate, express, and defend their own interpretations using the approaches studied. Individual instructors select the particular interpretive methods to be studied, along with appropriate primary works or texts and exemplars of the scholarly or critical methods chosen. Instructors will typically organize their sections around specific themes, periods, or topics, which will thus vary from time to time. Students should take the course at the beginning of their upper-division study in the major, ideally in the first semester of the junior year, and after completion of the general education requirements (lower-division study).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: ENGL 015ENGL 202 and at least 30 credits

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 311** (GH;IL) The Western Tradition I (3) From prehistory through the Roman world.

### **I HUM 311 The Western Tradition I (3) (GH;IL)**

This course is appropriate for introducing students to a broad spectrum of materials, methods, and perspectives across the humanities. The course addresses ancient Greek and/or Roman culture with attention to architecture, art, drama, literature, philosophy, science, music, and history. Students are introduced to methods for linking the original works they study (by theme, historical context, and in other ways) and to both discipline-based and interdisciplinary modes of understanding them.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: fifth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 400** Expressions in the Humanities (3) Capstone course for School of Humanities majors: students synthesize and apply approaches to a topic in creative expression and knowledge.

### **I HUM 400 Expressions in the Humanities (3)**

The general goals for this course are (1) to give you a "capstone" experience in which you can bring together the differing disciplines, questions, and material you've encountered in your study within the School of Humanities; (2) to give you some idea of how the various humanities disciplines are related to one another and to their cultural setting at a specific moment in time in regard to a particular issue; (3) to extend your ability to compare works of art in different media or traditions (e.g., painting and literature); and (4) to refine your abilities in viewing, listening, close reading, writing, and discussing works from varied genres and to allow you as seniors to take over some responsibility for your own education by teaching each other parts of the course.

The guiding thread for our exploration will be the questions, "Do we have a "self" or are we multiple selves?" and "What kind of self or selves are we?" Among the subordinate themes we will pursue are the basis for asserting that there is or should be an equality among people; the workings of the social context to ground one's identity and value, but also to restrict its scope; the relation of modern science to the concept of the self and society; the power of the unconscious and the rise of psychoanalytic theory and practice; and critiques of Western assumptions about the individual inherent in Marxism, feminism, and other critical perspectives. We'll pursue these issues through a range of works from Descartes' *Meditations*, which laid the foundation for modern Western individualism, to Sherry Turtle's *Life on the Screen*, which argues that interactions on the Internet show how we are multiple social constructions, not a single self.

In addition to learning about the various works we'll study, there are several goals for how you will learn during this course: (1) You'll become comfortable moving back and forth between different kinds of texts (e.g., literature, philosophy, painting, psychology); (2) You'll develop your ability to express your own perceptions in writing; (3) You'll become more skilled at expressing your ideas in dialogue with others by asking good questions, listening carefully, and responding thoughtfully; (4) You'll increase your own mastery of part of the material by investigating it and teaching it to the class;

and (5) You'll identify questions that have interested you during your time as a student in the School of Humanities and pose them to other students for discussion.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: I HUM 300W seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 410 (IL) Religion and Culture (3)** A comparative examination of several world religions in their social and cultural contexts.

**I HUM 410 Religion and Culture (3)  
(IL)**

A comparative examination of several world religions in their social and cultural contexts-for instance, Christianity, Judaism, Hinduism, Islam, Buddhism, Native American beliefs, and others. Students will explore commonalities and differences among the belief systems and the cultures from which they developed, and investigate the cultural significances of religious belief.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: sixth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 430 Philosophy and Literature (3)** The study of philosophical viewpoints in literature.

**I HUM 430 Philosophy and Literature (3)**

The study of literary texts (novels, poetry, drama) emphasizing the philosophical viewpoints they express, and relating those viewpoints to schools of thought in philosophy.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: fifth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 453 Texts and Culture (3)** Study of art, literature, film, and other creative genres to illustrate the interrelationships between creative expression and cultural practices.

**I HUM 453 Texts and Culture (3)**

This interdisciplinary course offers students the opportunity to study selected works of art, literature, film, popular culture, performances, and other creative genres in order to understand the relationships between creative expression and cultural practices. The perspectives of several academic disciplines and interpretive approaches will be brought to bear on the works studied.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: fifth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 460 Thematic Studies (3)** Analysis of a group of related ideas in art, music, literature, and/or philosophy. (May be repeated for credit.)

**I HUM 460 Thematic Studies (3)**

An interdisciplinary course that addresses a theme expressed in more than one genre or field of the humanities. The course may include works that address a similar theme across a long period of time, or across cultures, or it may focus on a group of thematically related works within one period or culture.

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: fifth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 461 (IL)** Selected Periods in the Humanities (3) Interdisciplinary studies dealing with selected periods of world culture. (May be repeated for credit.)

**I HUM 461 Selected Periods in Humanities (3)  
(IL)**

Study of interdisciplinary aspects of a particular chronological period, including works from several disciplines or genres within the humanities. The period chosen may be from any time and any culture (or more than one culture during the same period).

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: fifth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 491** Seminar in Interdisciplinary Humanities (3) Interdisciplinary studies dealing with selected periods of world culture. (May be repeated for credit.)

**I HUM 491 Seminar in Interdisciplinary Humanities (3)**

This course for advanced students in interdisciplinary humanities or related fields is intended to allow them to explore important issues in interdisciplinary study and to report and write critically about various methods for integrating the academic disciplines and the arts. The course topic will vary and may include a theme, a period, or a particular issue from any time or culture.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: I HUM 300W seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 495** Internship (1-6) Supervised internship for undergraduate or graduate Humanities majors in state offices, educational institutions, arts agencies, community organizations, or humanities councils.

**Internship (1-6)**

General Education: None  
Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: senior-level status for undergraduate students; 18 credits of course work for graduate students; approval of program required

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I HUM 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **International Agriculture (INTAG)**

**INTAG 100** (GS;IL) Introduction to International Agriculture (3) Ag in developing countries; contemporary crucial issues in global agriculture; emphasizing hunger and food security.

**INTAG 100 Introduction to International Agriculture (3)**  
(GS;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This class focuses on agriculture in developing countries and frames this focus with a discussion of contemporary crucial issues facing agriculture on a global scale, emphasizing global hunger and food security.

The primary goal of the course is to inform students about international agriculture, challenging them to think critically and independently about agricultural issues and development, to generate global citizens who are more aware and conversant on important contemporary challenges in the global food, agriculture, and natural resource systems.

The objectives of this course are to acquaint students with: (1) the range of cutting edge issues that play an important role in international agricultural development; (2) information and conceptual frameworks of ongoing multi-faceted debates concerning the global food, agriculture and natural resource systems; (3) the social, cultural and ecological systems that shape human decisions about land use in various areas of the world.

This class will primarily focus on agriculture in developing countries and frame this focus within a discussion of contemporary crucial issues facing food, agriculture and natural resources on a global scale. Specific emphasis will be placed on debates concerning global hunger and food security. Several examples from around the world will be included. Class will take a variety of formats, including formal lectures from INTAG 100 staff and guest lecturers, videos, lab and site visits, student presentations and class discussion time.

The course is part of the International Agriculture minor, and satisfies two General Education requirements. Evaluation consists of group presentations, short papers and exams. The course is offered once every academic year.

General Education: GS  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 300** (IL) Agricultural Production and Farming Systems in the Tropics (3) This course focuses on contemporary issues in tropical agriculture and the production of crops, livestock and forestry within tropical agroecosystems.

**Agricultural Production and Farming Systems in the Tropics (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 470A** (AG BM 470A) Comparing Agricultural and Food Systems in the US and France: Lecture (2.5) Explore key differences and similarities in the food and agricultural systems of the United States and France.

**INTAG (AG BM) 470A Comparing Agricultural and Food Systems in the US and France: Lecture (2.5)**

This course is designed to explore key similarities and differences in the food and agricultural systems of the United States and France. It introduces students to a number of overarching food and agricultural topics that pertain to both countries, and students explore and analyze these key issues from both countries' perspective. These overarching topics include the structure of agricultural and environmental policies, the use agricultural land for biofuel production, organic agriculture, food safety, attitudes and policies surrounding the use of genetically modified crops, the role of large agribusiness firms, attitudes towards diet and health, and several others important topics. Students conduct background reading on these topics, hear lectures -- sometimes from guest presenters --that frame the topics from both the U.S. and France's perspective, and write reports on specific crops or foods that expose key similarities and differences between the two food systems. Finally, students pick one crop or food for an oral presentation that contains background information on how that crop fits into the two food systems, U.S. and France, and analyzes the key issues that relate to the overarching topics already identified.

This course has two components that must be taken in partnership: 470A (FOOD SYS US/FRANCE I) and 470B (FOOD SYS US/FRANCE II). The first is a classroom-based course, and meets regularly during the semester. The second is a two-week component that takes place after the end of the semester. In this second component, after traveling to France, students hear presentations from the French perspective on the overarching topics identified earlier and also explore the topics first hand via field trips to farms, wholesale markets, retail markets, and other places relevant to the French food system. This component is organized by a host university, AgroParisTech. For these two weeks, students live in dorms within the city of Paris. Knowledge of French is not required.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: INTAG 100 or 3 credits in social or behavioral sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 470B** (AG BM 470B) Comparing Agricultural and Food Systems in the United States and France: Travel (0.5) Explore key differences and similarities in the food and agricultural systems of the United States and France.

**INTAG (AG BM) 470B Comparing Agricultural and Food Systems in the US and France: Travel (0.5)**

This course is designed to explore key similarities and differences in the food and agricultural systems of the United States and France. It introduces students to a number of overarching food and agricultural topics that pertain to both countries, and students explore and analyze these key issues from both countries' perspective. These overarching topics include the structure of agricultural and environmental policies, the use agricultural land for biofuel production, organic agriculture, food safety, attitudes and policies surrounding the use of genetically modified crops, the role of large agribusiness firms, attitudes towards diet and health, and several others important topics. Students conduct background reading on these topics, hear lectures -- sometimes from guest presenters --that frame the topics from both the U.S. and France's perspective, and write reports on specific crops or foods that expose key similarities and differences between the two food systems. Finally, students pick one crop or food for an oral presentation that contains background information on how that crop fits into the two food systems, U.S. and France, and analyzes the key issues that relate to the overarching topics already identified.

This course has two components that must be taken in partnership: 470A (FOOD SYS US/FRANCE I) and 470B (FOOD SYS US/FRANCE II). The first is a classroom-based course, and meets regularly during the semester. The second is a two-week component that takes place after the end of the semester. In this second component, after traveling to France, students hear presentations from the French perspective on the overarching topics identified earlier and also explore the topics first hand via field trips to farms, wholesale markets, retail markets, and other places relevant to the French food system. This component is organized by a host university, AgroParisTech. For these two weeks, students live in dorms within the city of Paris. Knowledge of French is not required.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

Prerequisite: INTAG 470A or AG BM 470A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 481 Problems in Agriculture in Tropical Areas (3)** Students apply their "expertise" to problems in agriculture. An integral component is a trip to tropical areas at their expense.

### **Problems in Agriculture in Tropical Areas (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: completion of six credits in applicant's major and successful completion of interview

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 490 Senior Seminar in International Agriculture (3)** Seminar discussions on contemporary topics in global agriculture; capstone course for INTAG minor.

### **INTAG 490 Senior Seminar in International Agriculture (3)**

This course is designed to meet the need for a capstone course within the International Agriculture (INTAG) minor. The course provides a range of experiential learning techniques including intensive reading and in-class discussion, practical experience through a group trip to the nation's capital, and application of the international experiences encountered through the INTAG program. Included is course content designed to provide a holistic integration of the four main INTAG study areas (Socioeconomic and Communication Systems, Animal and Plant Sciences, Natural Resources and the Environment, and Food, Health, and Nutrition). Students will learn about the current state of international agriculture through recent articles and analyses and respond in-class discussions and through written response papers. The second half of the course involves site visits to major international development organizations in Washington, D.C. (US government, international agricultural research organizations, and various NGOs) and participation in the form of an INTAG senior seminar series open to the public. This seminar series allows students to present and discuss their past (or intended) international agriculture experiences while a student at Penn State, and share with both those in the class and those outside of the class options, opinions about and critical issues in international agriculture. This seminar series will be an important tool in promoting the INTAG minor. The students will then synthesize the knowledge they have obtained both from the course and their international agriculture experiences to complete final reports which outline their understanding of the current state of international agriculture. This course is ultimately designed to facilitate the development of students to be global citizens in the agricultural arena.

The course is geared towards students in their junior or senior years. Evaluation consists of class participation (20%), student-led presentation of materials (15%), response papers to readings and D.C. trip (30%); presentation at INTAG seminar series (15%) and the completion of a final paper on their understanding of the current state of international agriculture (20%). The course is offered once every academic year in the Spring semester.

The course is a core requirement for the International Agriculture minor. INTAG 100 is a prerequisite.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: INTAG 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 495 Internship in International Agriculture (1-3)** Observation of and participation in the operation and management of a University-approved international agricultural firm or international agricultural development agency.

### **Internship in International Agriculture (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: Prior approval of proposed internship plan

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013



**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 499I** (IL) (AG BM 499I) Exploring Greek Food Systems (0.5) Travel to Thessaloniki and surrounding sites. Learn about food systems in Greece, how economic issues are affecting agriculture, and the history and culture of the country. The trip concludes in Athens.

**Exploring Greek Food Systems (0.5)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: INTAG 499G or AG BM 499G

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 499K** (IL) Travel Exploring Turfgrass Management in the United Kingdom (0.5) Travel to the United Kingdom to explore differences in turfgrass management between the United States and the United Kingdom.

**Travel Exploring Turfgrass Management in the United Kingdom (0.5)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: INTAG 499J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTAG 499L** (IL) Exploring Contemporary Issues in the Caribbean: A Journey Through Trinidad and Tobago (3) Exploring cultural history and social policy which influences societal issues on the islands of Trinidad and Tobago.

**Exploring Contemporary Issues in the Caribbean: A Journey Through Trinidad and Tobago (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## International Business (I B)

**I B 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### Foreign Studies (1-12)

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 290** International Business Goes to the Movies (1 per semester/maximum of 3) A business elective to expose students to international and global issues through the eyes of film makers around the world.

### I B 290 International Business Goes to the Movies (1 per semester/maximum of 3)

I B 290 is an international business elective class which exposes students to international and global issues through the eyes of film makers around the world. Using film as the medium, students can evaluate differing perspectives and arguments on issues affecting business and economics in the global environment. This course is intended for students who are likely to study abroad during their PSU careers. Thus, the course attempts to prepare students for immersion in a variety of cultures, often different from the US. The course objective is to begin a broadening process of students' world views by examining a wide range of issues captured in film around the world.

Typical topics include the rise of globalization and its impact on various countries and societies, a range of cross-cultural issues and controversies inherent in competing cultural differences between peoples of various nations, the impact of American culture on social, political, economic, and legal institutions throughout the world, and the differential role played by economics in various societies and at different stages of economic development across many nation states.

This course employs film as a powerful medium to enable historical and modern understandings of global issues and international perspectives. As students enter the business world and learned professions, it is imperative that their world view include images and understandings found in a host of competing cultures including Eastern and Central Europe, East Asia, The Middle East, Latin America as well as Western Europe, Australia, and North America.

Upon completion of the course, students will be introduced to a wide range of international issues as well as a foundation for approaching cross-cultural disputes inherent in international and global business. In addition, they will obtain an appreciation of international cinema and its wide scope as an art form, as an informational source for business, and as a powerful medium for argument and debate.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### Independent Studies (1-18)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 297** Special Topics (1-9) Formal courses given infrequently to explore in depth, a comparatively narrow subject interest.

### Special Topics (1-9)

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 303** (IL) International Business Operations (3) A survey of the major aspects of international business environment and operations with an emphasis on the cultural dimension.

### **I B 303 International Business Operations (3) (IL)**

International business is important and necessary because economic isolationism has become impossible. Failure to become a part of the global market assures a nation of declining economic influence and deteriorating standards of living for its citizens. International business therefore presents more opportunities for expansion, growth, and income than does domestic business alone. This course will cover the major aspects of international business environment and operations with emphasis on its impact on the local businesses in your state. In other words, in this course you will learn why international business differs from domestic business, economic theories on international trade, and how managers deal with the uncontrollable forces such as cultural differences of international environment. In this course you will develop a global perspective through studying the impact of other countries and their peoples on society and develop skills that will enable you to interact effectively in an interdependent global community.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: fifth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 395A** Practicum in International Business (3-5) Professional and guided international business work experience taken as part of an approved education abroad program.

### **I B 395A Practicum in International Business (3-5)**

I B 395A is an international business internship that will be taken as part of an approved education abroad program. It is designed to provide experiential-based learning for junior- and senior-level students through which they will apply both prior knowledge and skills learned in the classroom to on-going operations of firms engaged in international business. And at the same time acquire additional knowledge, skills, attitudes and other competencies that will be relevant for further classroom-based learning.

Students will be expected to be adaptable, to communicate at different levels within the organization and, in addition to their knowledge and skills, to contribute to team outcomes and/or delivery of services. Although the specific nature of the practicum will depend on the company or organization involved, it will be project based. Following are examples of typical projects that might be undertaken: serving as a member of a team designing and/or implementing a new management information system, creating a new in-house personnel handbook, undertaking feasibility studies for new products, and researching and reporting on services to support new customers.

Grades will be determined by the faculty member supervising the practicum and will be based on an evaluation of work performance supplied by the company supervisor and the evaluation of written reports. The faculty supervisor will evaluate: required written reports describing the project(s) undertaken during the course of the practicum, how they were completed, and the skills that were used to complete them; a profile of the organization providing the internship; the student's critical appraisal of the company and his or her experience, including a reflection on cultural differences between work in the U.S. environment and the international work environment; and a research-based paper on a project undertaken during the internship or a related topic.

This course and the approved education abroad program of which it is a part, will satisfy the 15-credit study abroad requirement for students who have elected the international business option.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

Prerequisite: B A 301 or FIN 301; B A 302 or SCM 301; B A 303 or MKTG 301 ; and B A 304 or MGMT 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 403 International Business and National Policies (3)** Evaluation of national economic policies in the light of international economic theory; their impacts on operations of the international business firm.

### **I B 403 International Business and National Policies (3)**

I B 403 integrates macro and micro analyses of the dynamics between international businesses/ multinational enterprises (MNEs) and national Governments. Students who successfully complete I B 403 will acquire knowledge of and tools to understand, analyze and evaluate actions, theories and philosophies that influence home and host Government policies, the roles businesses play in shaping, these policies, and how policies and other factors shape competitive strategies of international business firms in the areas of trade, investment and other international economic activities. Theories, Models and Policies - Country-based advantages Imperfect Competition, Barriers to Entry and Strategic Trade Policy Competitive Analysis: Product Life Cycle and Porter Models Integrating Market and Non-Market Strategy Manipulating and Managing External Stakeholders Across Borders Transitional Economies: Opportunities, Risks and Strategies Strategies for Successful Foreign Direct Investment in China Evaluating Opportunities and Risks in Global Industries Privatization of Telecommunications Economic Integration: the Case of Europe Industrial Policy, Foreign Direct Investment and Economic Growth Foreign Market Entry Strategies for Regulated Industries Industrial Policy and International Competition International Competition in Services Industries Update on U.S. and EU policies in the Airline Industry and Impacts on Industry Structure and Firm Strategy.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: ACCTG 211B A 301 or FIN 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 404 Contemporary Issues in International Business (3)** Investigation of issues in international business practice interpreted from the foundations of the social sciences. Topics will be chosen from contemporary issues in global business and economics.

### **I B 404 Contemporary Issues in International Business (3)**

I B 404 enables students to study the most current topics in international and global business from the framework of the social science issues that form the framework for understanding, business decisions. The course provides structured experiences in library research and data gathering, techniques, and builds the habit of reading the international business press daily and analyzing it weekly. The class is typically organized around 3 integrative business topics that represent a spectrum of questions important to business. These include questions about finance and economics in international business, questions about people and organizations in an international environment, and questions about products (development, production, distribution of goods and services) in international business contexts. This is not an introductory course, and as such, the topics chosen should be substantive and nuanced. For example, one topic might be how the structure of franchises must be modified to reflect the property rights in a particular country, and how those property rights laws impact the value of the franchise. The second topic might be how the internationalization of the structure and role of Boards of Directors in multinational firms contribute to globalization, and challenge the cultural norms in those organizations The third topic might be how North American firms have been forced to adjust their product

packaging, in response to environmental impact laws in Germany, and how this shifts the locus of the product message from point-of-purchase to alternative media.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011  
 Prerequisite: ACCTG 211B A 301 orFIN 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 440 (US;IL) (PL SC 440, AFR 440) Globalization and Its Implications (3)** This course explores the socioeconomic implications of globalization.

**I B (AAA S/PL SC) 440 Globalization and Its Implications (3)**  
**(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course explores the socioeconomic implications of globalization and some fundamental changes that have taken place in the global socioeconomic system. The bipolar configuration of global power has been radically altered, market-state relations have been reformulated, and global systems of production and finance have been reorganized. Given these recent changes in the world's structure, globalization as a socioeconomic force is examined with a special emphasis on its implications on social issues, capital-labor relations, the roles of unions and trans-nationals, unemployment issues, poverty and inequality, gender and ethnicity issues, race relations, and democratization around the world. This course also allows students to explore how different countries, communities, social classes, business firms and even institutions are affected differently by globalization. The implications of globalization on African communities is given special attention.

The course is organized into three parts: A) The first part of the course attempts to define globalization and identify its essential characteristics in light of social and economic change. This part attempts to answer questions such as what constitutes globalization, how do we know if globalization is taking place, and what aspects of it are new. B) The second part of the course attempts to assess the implications of the different aspects of globalization (identified in the first part) on many critical social issues, including capital-labor relations, the roles of unions and transnational corporations, problems of unemployment, poverty and inequality, gender, ethnic, and race relations, and democratization. C) The third part of the course examines the implications of globalization to African communities.

This course exposes students to the economic, social, political, and cultural implications of the unfolding global order. It allows them to explore how different countries, communities, social classes, business firms and even institutions are affected differently by globalization. Evaluation will be based on daily attendance, along with a class presentation of a design of a research paper; an actual research paper, a mid-term exam and a final exam.

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2013  
 Prerequisite: AF AM 100 orAFR 110 orPL SC 003 orPL SC 014 orPL SC 020 orPL SC 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 450 The Business Environment of Europe (3)** This course provides an overview of the economic, institutional, and regulatory environment in Europe at the EU and national levels.

**I B 450 The Business Environment of Europe (3)**

This course provides an overview of the business, economic, and regulatory environment in Europe at the European Union (EU) and national levels. The course examines how regional integration, through the EU, has shaped industrial, competition, monetary, and related economic policies, and how Europe's international trade and finance capabilities affect the global economy. As a result, a significant part of the course focuses on the evolution of the EU, its institutional structure, and its impact on business (both European and foreign). The course also compares business-government relations, models of capitalism, and corporate governance in individual European countries, using the United States as a basis of comparison. Particular attention is given to France, Germany, Ireland, and the United Kingdom, and how their business environments differ from each other.

While the primary focus of this seminar will be on these themes, we will use articles from the *Financial Times* and similar publications as the basis of discussion in each class for a range of topics related to Europe. The approach taken in this course is a multidisciplinary one, with the assumption that business executives must understand the political, cultural, institutional, historical, and geographic aspects of Europe if they are to be successful in the business environment of Europe.

Students are expected to be active participants in class discussion. Readings usually will include a textbook, readings packet, and a subscription to the *Financial Times*. Evaluation will be based on a combination of participation and attendance, exams, quizzes, a group project, and essay assignments.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: ACCTG 211B A 301 orFIN 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 460** International Business in Emerging Nations (3) An overview of international business strategies and economic environments of emerging nations with a specific focus on markets in China, India, and Southeast Asia.

### **International Business in Emerging Nations (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: ACCTG 211;FIN 301 orB A 301  
Concurrent: I B 303

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 480** (R M 480) International Real Estate Markets (3) Internatinal perspectives on real estate as property, evaluation of land use regulations, and differences in real estate markets across countries.

### **International Real Estate Markets (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: R M 303 orR M 330W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 494H** Honors Research Project (1-3 per semester/maximum of 6) Supervised honors student research projects identified on an individual or small-group basis.

### **Honors Research Project (1-3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 497** Special Topics (1-9) Formal courses given infrequently to explore in depth, a comparatively narrow subject interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 497A** International Development in African Context (3) Course delves into African's development prospects in the 21st Century, past & current issues in international business.

#### **International Development in African Context (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 497A** International Development in African Context (3) Course delves into African's development prospects in the 21st Century, past & current issues in international business.

#### **International Development in African Context (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 497B** The Global Financial Crisis (3) An overview of the growth of the financial industry in the U.S. economy and the globalization of financial markets. It will look at the role of government, consumers, mortgage companies, the rating agencies and the banking sector in the creation of the housing bubble. The impact of certain financial derivatives on the global economy in general and specific countries in particular will be explored. Through readings of key players involved in the crisis, it will identify risk management issues that are important to this case and look at proposed remedies designed to avoid future problems.

#### **The Global Financial Crisis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**I B 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **International Studies (INTST)**

**INTST 100** (GS;IL) Introduction to International Studies (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.

**INTST 100** Introduction to International Studies (3)  
(GS;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is an interdisciplinary course designed to provide students with an introduction to a range of global issues. The course will emphasize the themes of international interdependence and globalization and their development over time. A key component of this course is cultural diversity and the connecting international and domestic issues, particularly those of race and culture. In both their written and oral work, students will be required to relate international issues to their own fields of study. The disciplines involved are mainly political science and economics, ecology, history, and cultural studies.

General Education: GS  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTST 100S** (GS;IL) Introduction to International Studies (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.

**INTST 100S Introduction to International Studies (3)  
(GS;FYS;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This is an interdisciplinary course designed to provide students with an introduction to a range of global issues. The course will emphasize the themes of international interdependence and globalization and their development over time. A key component of this course is cultural diversity and the connecting international and domestic issues, particularly those of race and culture. In both their written and oral work, students will be required to relate international issues to their own fields of study. The disciplines involved are mainly political science and economics, ecology, history, and cultural studies.

General Education: GS  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTST 100U** (GS;IL) Introduction to International Studies (3) An introductory multidisciplinary course designed to familiarize students with critical international issues.

**Introduction to International Studies (3)**

General Education: GS  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTST 400** (IL) Seminar in International Studies (3) An upper-division seminar focusing on one or two critical international issues from an interdisciplinary perspective; individual projects.

**INTST 400 Seminar in International Studies (3)  
(IL)**

This interdisciplinary course will offer a seminar on some current event, issue, or phenomenon that involves a large number of countries. Topics will vary each year and depend on the faculty member leading the course, but it may include subjects such as the European Union, global economic change, international pop culture, or international response to human rights violations. Both written and oral work will be assigned and graded. Students will discuss material from a variety of academic fields such as political science, economics, sociology, history, anthropology, and cultural studies.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: INTST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTST 493** International Studies (3) Selected topics in International Studies.

**International Studies (3)**



General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: prior participation in an Education Abroad program or international work experience and enrollment in the International Studies major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTST 493H** Schreyer Honors College Global Integration Course (2) Students will integrate their summer experience (India or South America) with themes from the spring course as well as additional themes, and will produce an extended thesis proposal that demonstrates their ability to propose and execute a research project on some topic relevant to the countries they have studied and toured.

#### **Schreyer Honors College Global Integration Course (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: INTST 493H for Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTST 493H** Schreyer Honors College Global Integration Course (2) Students will integrate their summer experience (India or South America) with themes from the spring course as well as additional themes, and will produce an extended thesis proposal that demonstrates their ability to propose and execute a research project on some topic relevant to the countries they have studied and toured.

#### **Schreyer Honors College Global Integration Course (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: INTST 493H for Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTST 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTST 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTST 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.

#### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: Approval by International Studies or Global Studies Advisor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTST 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTST 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Internship (INTSP)**

**INTSP 295A** Internship in Arts and Humanities (1-6) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **ALT 295A Internship in Arts & Humanities (1-6)**

Individual exploration of practical applications of a field of study through a supervised work experience. Final analytic paper, essays, journals and oral presentation as required by the instructor. Satisfactory employer evaluation required for passing grade. Prior approval of a member of the College faculty required.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004  
Prerequisite: minimum 30 credit hours; minimum 2.0 GPA; prior approval of proposed assignment(s) by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTSP 295B** Internship in Business & Engineering (1-6) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **ALT 295B Internship in Business & Engineering (1-6)**

Individual exploration of practical applications of a field of study through a supervised work experience. Final analytic paper, essays, journals and oral presentation as required by the instructor. Satisfactory employer evaluation required for passing grade. Prior approval of a member of the College faculty required.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004  
Prerequisite: minimum 30 credit hours; minimum 2.0 GPA; prior approval of proposed assignment(s) by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTSP 295C** Internship in Education, Human Development, & Social Sciences (1-6) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **ALT 295C Internship in Education, Human Development, & Social Sciences (1-6)**

Individual exploration of practical applications of a field of study through a supervised work experience. Final analytic

paper, essays, journals and oral presentation as required by the instructor. Satisfactory employer evaluation required for passing grade. Prior approval of a member of the College faculty required.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

Prerequisite: minimum 30 credit hours; minimum 2.0 GPA; prior approval of proposed assignment(s) by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTSP 295D** Internship in Mathematics & Natural Sciences (1-6) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **ALT 295D Internship in Mathematics & Natural Sciences (1-6)**

Individual exploration of practical applications of a field of study through a supervised work experience. Final analytic paper, essays, journals and oral presentation as required by the instructor. Satisfactory employer evaluation required for passing grade. Prior approval of a member of the College faculty required.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

Prerequisite: minimum 30 credit hours; minimum 2.0 GPA; prior approval of proposed assignment(s) by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTSP 370** Internship Preparation (1) Planning and preparation for upper-level or capstone internship experience, suited to students' individual academic and career interests.

### **ALT 370 Internship Preparation (1)**

Planning and preparation for upper-level or capstone internship experience, suited to students' individual academic and career interests. Evaluation methods include two-three page reflective/analytic papers at the end of each segment; preparation and presentation at mock interview. This is an optional preparatory course for upper-division/senior-level internships in degree programs not offering formal internship preparation and will be offered for elective credit.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

Prerequisite: formal acceptance into a College major; junior standing; minimum 2.0 GPA; completion of core research/skills course(s) for student's degree program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**INTSP 495A** Internship in Business for non-Business Students (1-6) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **ALT 495A Internship in Business for non-Business Students (1-6)**

Individual exploration of the application of a non-business field of study in a business-related setting. Final analytic paper, essays, journals and oral presentation as required by the instructor. Satisfactory employer evaluation required for passing grade. Prior approval of a member of the College faculty required. Intended for non-Business students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: senior standing; minimum 2.0 GPA; ENGL 015MATH 021ECON 102 or ECON 104MGMT 301MKTG 301INTSP 370ACCTG 211 or substitute approved by the instructor; prior approval of proposed assignment(s) by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Italian (IT)**

**IT 001** Elementary Italian I (4) For beginners. Grammar, with reading and writing of simple Italian; oral and aural work stressed.

**Elementary Italian I (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Spring 1988

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 002** Elementary Italian II (4) Grammar and reading continued; oral and aural phrases progressively increased; composition.

**Elementary Italian II (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Spring 1988  
Prerequisite: IT 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 002H** Elementary Italian II (4) Grammar and reading continued; oral and aural phrases progressively increased; composition.

**Elementary Italian II (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: IT 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 003** Intermediate Italian (4) Advanced grammar; oral and written composition; reading of modern authors; Italian life and culture.

**Intermediate Italian (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language  
Effective: Winter 1978  
Prerequisite: IT 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 003H** Intermediate Italian (4) Advanced grammar; oral and written composition; reading of modern authors; Italian life and culture.

**Intermediate Italian (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: IT 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 010** Intensive Elementary Italian (6) Intensive Italian basic reading, writing, listening, and speaking skills stressed. Lab. Equivalent to IT 001 and half of IT 002.

**IT 010 Intensive Elementary Italian (6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is intended for students with no experience of Italian. It provides an intensive language-learning environment in which to complete 6 credits of elementary Italian (equivalent to IT 001 and the first half of IT 002). Students receive an extensive introduction to Italian grammar, speech, and culture. Evaluation methods include a variety of written and oral exercises (presentations, compositions, quizzes, exams, etc.). All work is done in Italian. The course is offered once per year. Enrollment is limited to 18. The course can count toward the completion of the Italian minor. This course prepares students for IT 020, a continuation of elementary and intermediate Italian.

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 020** Intensive Intermediate Italian (6) Continuation of Intensive Elementary Italian, building on grammar and communication skills (reading, writing, listening, and speaking).

**IT 020 Intensive Intermediate Italian (6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is for students who have successfully completed IT 010 Intensive Elementary Italian, and who seek an intensive learning environment of Italian grammar (all aspects: reading, writing, listening, and speaking). Students learn intermediate Italian in an intensive language-learning environment. Extensive reinforcement of elementary Italian grammar (reading, writing, speaking, listening) and introduction to intermediate Italian grammar, speech, and culture through a variety of written and oral exercises. All work is done in Italian. Homework in the accompanying workbooks is assigned each week. Pronunciation practice in the language lab is also required weekly. There are also supplementary grammatical and cultural activities on the course web page. Equivalent to last half of IT 002 and all of IT 003.

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Summer 2004

Prerequisite: IT 010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 050** Italian Conversation Tutorial (1-3) Roundtable conversation practicum for students concurrently enrolled in IT 001, 002, 003, 010, or 020. May be repeated up to 3 times for credit.

**IT 050 Italian Conversation Tutorial (1-3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Students supplement their elementary or intermediate language classes (001, 002, 003, 010, 020) with this practicum, which has as its objective to improve pronunciation and oral conversational skills. This course must be taken concurrently with an elementary or intermediate language course and may be repeated up to three times for credit. Evaluation based on student participation (80%) and performance in oral drills and exercises (20%).

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2004

Prerequisite: Concurrent enrollment in IT 001 IT 002 IT 003 IT 010 or IT 020

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 051** Elementary Intensive Italian for Graduate Students I (3) Intensive introduction to Italian: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**IT 051 Elementary Intensive Italian for Graduate Students I (3)**

This is the first in a series of three courses designed to give students an intensive introduction to Italian. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the Italian vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 052** Elementary Intensive Italian for Graduate Students II (3) Intensive introduction to Italian: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**IT 052 Elementary Intensive Italian for Graduate Students II (3)**

This is the second in a series of three courses designed to give students an intensive introduction to Italian. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Italian vocabulary. Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: IT 051 or equivalent and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 053** Intermediate Intensive Italian for Graduate Students (3) Continued intensive study of Italian at the intermediate level: reading, writing, speaking, listening, cultural contexts.

### **IT 053 Intermediate Intensive Italian for Graduate Students (3)**

This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Italian. Continued intensive study of Italian at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: IT 052 or equivalent and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 083S** (GH;IL) First-Year Seminar in Italian Literature, Film, and Culture (3) Introduction to the study of Italian literature, film, and culture.

### **IT 083S First Year Seminar in Italian Literature, Film, and Culture (3) (GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The first-year seminar will introduce students to the study of Italian literature, film and culture in their first year at Penn State. Students will read significant texts (in English), view videos (with subtitles), listen to music and explore Italian thought and culture in general. These experiences will help prepare them for additional courses in literature and in Italian, but will also serve as an introduction to things Italian, and as a point of comparison with U.S. culture. In addition to the academic topic and issues this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them including the opportunity to develop relationships with faculty and other students who share their academic interests. This course satisfies both the first-year seminar and a General Education humanities or Bachelor of Arts humanities requirement. We will offer the course once a year with enrollment limit of twenty students.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 110** Topics in Italian Conversation (3) Focus on intensive oral communication practice, especially aimed at preparation for study or work abroad and tourism.

### **IT 110 Topics in Italian Conversation (3)**

This course focuses on intensive oral communication practice, especially in preparation for work, study, or tourism in Italy. Extensive use of video, Italian television, class debates, individual and group presentations, etc. Students should check with department for specific topics as they could vary by semester offered. Prerequisites: IT 003, IT 020, or permission of program. Course does not count toward Italian major, minor, or general education. Evaluation methods include class presentations/debates, short writing assignments, and exams.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: IT 003 or IT 020

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 130 (GH;IL)** Italian Culture and Civilization (3) Italian life from antiquity to the present; literature, film, the arts, and contemporary problems in historical perspective.

**IT 130 Italian Culture and Civilization (3)**  
**(GH;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The course aims to develop critical and analytical skills of undergraduate students. It is an Intercultural/International Competence course dealing thoroughly with ethnicity, religion, and global perspective as it pertains to Italian culture and civilization. The course traces, among other themes, the importance of the Roman Empire, the Catholic Church, the Renaissance, presence and contributions of the Roman Catholic Church, the Italian Renaissance, and Italian immigration, artistic patrimony, and culinary contributions. Historical texts used will emphasize the social history of Italians that portrays the continuous processes of adaptations through the ages. Consideration will be given to the various representative Italians such as Dante, Da Vinci, Machiavelli, St. Francis, St. Clare, Fellini, and Fermi. We will read novels and analyze films that depict aspects of Italian thought and culture from religion to politics.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 131 (GH;US)** Italian American Culture and Civilization (3) Italian-American experience from the late 19th century to present. Socio-political issues seen through cinema and through literary and other readings.

**IT 131 Italian American Culture and Civilization (3)**  
**(GH;US)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Between 1870 and 1920 over five million Italians immigrated to the United States. They were mainly men, and they came primarily to strike it rich. Of those who came, about one-third returned to Italy. Those who remained, often joined by their families, left an indelible mark on the American cultural, political, artistic, educational and social landscape. This course investigates the fascinating story of Italian immigration to the United States, a story that many students' great-grandparents and grandparents actually lived and bequeathed in memory via their personal stories. Our inquiry will be interdisciplinary. We will study historical texts, literature and film, which address the historical and sociological conditions of 19th Century Italy, the odyssey of immigration to and assimilation in the United States, and life in the ethnic neighborhood. We will also explore the Mafia, forms of prejudice, and ways Italians uniquely manifested their social values in labor unions, religion and education. Upon successfully completing this course, students will have a solid grasp of how Italians, in becoming Americans, contributed to the rich fabric of life in the United States.

Evaluation will be done through limited class participation, examinations, and quizzes. There will be eight multiple-choice exams with one essay question, and four quizzes based upon the novel readings. IT 131 will provide an Italian American equivalent to IT 130 (Italian Culture and Civilization). It should fulfill Humanities Breadth and Cultural Diversity requirements. The course will not count toward the minor or major in Italian because it is given in English; nonetheless, it will be complementary in so far as it will give our students a more rounded education concerning Italy and its legacy. IT 131 will be offered once a year with 50 seats per offering.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 197A** Italian for Study Abroad (3) Introduction to key Italian social issues, essential vocabulary terms, phrases and pronunciation to prepare students who are planning to study abroad. Taught in English; no Italian language knowledge is expected.

**Italian for Study Abroad (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 230** (GH) Masterpieces of Italian Literature in English Translation (3) Emphasis on works and authors of international importance. Lectures, readings, and written work in English.

**Masterpieces of Italian Literature in English Translation (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**IT 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1985

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 301 Pathways to Fluency (3)** For majors, minors, and others with adequate preparation; deepening of grammatical skills, integrated conversation, composition, and reading.

**IT 301 Pathways to Fluency (3)**

For majors, minors, and others with adequate preparation, students in this course review grammatical skills through conversation, class debates, reading, and writing assignments based on contemporary cultural materials (web sites, music lyrics, newspaper and magazine articles, etc.) Prerequisite: IT 003. Evaluation methods include class participation, in-class activities (both oral and written), composition, and exams.

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 2005  
Prerequisite: IT 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 320 Introduction to Italian Culture; Food, Fashion, Family (3)** Focus on the social, historical, and socio-political issues of Italy in the last two centuries.

**IT 320 Introduction to Italian Culture: Food, Fashion, Family (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on advanced grammar development in the context of social, historical, and sociopolitical issues of Italy in the last two centuries with particular emphasis on contemporary current events. Readings from newspapers, magazines, and the web on Italian geography, regional differences, Italian politics, food, and cultural traditions. Evaluation methods include exams, current events reviews, class debates, and oral presentations. This course is in Italian. It is for students who have completed IT 003 or equivalent. It will be offered once per year. Enrollment limited to 20.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2004  
Prerequisite: IT 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 325 Introduction to Italy's Genius (3)** Focus on the art, literature, and philosophy of Italy from the Renaissance to present. In Italian.

**IT 325 Introduction to Italy's Genius (3)**

In this course students develop their advanced grammar and conversational skills through readings and class discussions of a variety of works in the Italian arts (literature, art, philosophy, etc.). Taught in Italian. Evaluation methods include class participation, exams, and writing assignments. Prerequisite: IT 003. Course counts toward the Italian major and minor. Offered once per year. Enrollment limited to 20.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: IT 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 330W** Greatest Books of Italian Literature (3) A survey of the greatest books of Italian literature (prose, poetry, drama). Time period varies each semester. In Italian.

### **IT 330W Greatest Books of Italian Literature (3)**

This course is a survey of the greatest books of Italian literature (prose, poetry, drama). Time period varies each semester, and may include early literature (St. Francis, Marco Polo, Dante, Boccaccio, Petrarch, Machiavelli, etc.) or modern authors (Vico, Goldoni, Manzoni, Foscolo, Leopardi, Pirandello, Fo, Calvino, Eco, etc.). Please check with department faculty for current offering. Taught in Italian. Course objectives are to read, discuss, and better understand the enduring relevance of Italy's literary masterpieces, while strengthening linguistic skills in writing (especially), as well as reading, speaking, and listening, through weekly or bi-weekly written reading reactions, critical notebooks, and class discussions/participation. Course is appropriate for students who have successfully completed an intermediate Italian course (such as IT 003 or 020) and counts toward the Italian major (all tracks) and minor. Successful completion of this course may permit further Italian study at the 400-level.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: IT 003/IT 020 or permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 399** (IL) Foreign Study--Italian (1-12) Advanced training in Italian language skills.

### **Foreign Study--Italian (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: IT 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 412** Theory and Practice of Translation (3) Advanced practicum in Italian explores the technical, artistic, and practical applications of translation between Italian and American cultures.

### **IT 412 Theory and Practice of Translation (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course explores the technical, artistic, and practical applications of translation between Italian and American cultures in wide variety of contexts: literature, technical writing, film subtitling, etc. Taught in Italian. Evaluation consists of reading quizzes, short translation assignments, class presentation, longer (roughly 10-page) individual final translation project. Prerequisite: Any 300-level course in Italian.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2004  
Prerequisite: any 300-level course in Italian

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 415** Dante (3) Readings in the Divina Commedia and the related lesser works of Dante Alighieri.

**Dante (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 422** Topics in the Italian Renaissance (3) Topics vary by year and may include "Theories of Love," "Magic, Witchcraft, Alchemy, and the Emergence of Modern Science," etc.

**IT 422 Topics in the Italian Renaissance (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

In this course students develop their advanced language skills while pursuing study of Italian Renaissance and/or Humanist topics. Topics in Italian Renaissance literature vary by year and may include "Theories of Love," "Magic, Witchcraft, Alchemy, and the Emergence of Modern Science," etc. Check with faculty for current topic. Course may only be taken once for credit. Course counts toward the Italian major and minor. Course taught in Italian. Evaluation methods include two midterms, short reading response papers, class presentation, and final exam. Prerequisite: any 300-level Italian course.

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Fall 2005

Prerequisite: any Italian course at the 300-level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 430** Italian Children's Literature (3) This course, conducted in Italian, examines Italian children's books from the post-unification period (1880s) to the present day.

**Italian Children's Literature (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: any 300-level IT course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 450** Nineteenth-Century Italian Literature (3) Italian romanticism, Verismo and neoclassicism, their origin and development in the novel, poetry, and drama.

**Nineteenth-Century Italian Literature (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Winter 1978

Prerequisite: IT 351

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 460** Twentieth-Century Italian Literature (3) Modern and contemporary Italian prose, drama, and poetry.

**Twentieth-Century Italian Literature (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Winter 1978

Prerequisite: IT 351

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 475** Modern Italian Literature and Cinema (3) Focus on silent films, fascism, WWII, Resistance, Neorealism, and reactions against Neorealism.

**IT 475 Modern Italian Literature and Cinema (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will explore the literary, cultural, and historical backdrops behind a variety of films from Fellini's *The Road*, to one of the greatest spaghetti westerns ever made (Leone's *Once Upon a Time in the West*), to the Oscar winner for Best Foreign Film (Benigni's *Life is Beautiful*). Selected 19th and 20th-century prose texts also trace such issues as the individual's role in society and the use of the imagination in the representation of history. This course aims to provide students with the fundamental tools to read texts and watch films critically and intelligently while presenting an overview of some major themes of Italian culture. Students will be evaluated on three in-class exams, paper outline, final paper, and participation in class discussions/activities/debates. IT 475 is the first interdisciplinary course taught in English at the IT 400 level. The course helps satisfy the Italian minor requirement. It is also good for students who have taken IT 130 and want to know more about 20th-century Italian lit/film/culture without having to do course work in Italian. IT 475 may also be of particular interest to students of film and media studies, English or comparative literature, religious studies, and history. This course satisfies the Italian minor or bachelor of arts humanities requirements. IT 475 will be offered once a year with 40 seats per offering.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 480** Italian Women Writers Through the Centuries (3) Analysis of the works of women authors in their historical and literary contexts.

**IT 480 Italian Women Writers Through the Centuries (3)**

Italian women have been stereotyped as the "mamma" or grandmother who cooks, prays, and idolizes her sons. Such an image does not accommodate the wide variety of experiences, perspectives, and contributions of Italian women throughout history. This seminar will explore the writings of female authors from delimited historical periods (alternating among Renaissance, 19th and 20th Centuries). Depending on time period, genres will include autobiography, poetry, historical novel, drama, film, nonfiction. Throughout the course we will consider the political and social developments in Italy with an emphasis on issues of special relevance to women. As we approach each text, we will examine such questions as: the significance of its form; the author's use of language; the ways in which masculinity and femininity are constructed; intersections with the text's historical moment; the political, philosophical and/or theological questions posed by the text; the ways in which the text inserts or distances itself from the Italian literary canon; and the text's depictions, re-evaluations and uses of history. Through their journal assignments in class discussion, students will be encouraged to reflect upon the implications of course concepts in their own culture and historical moment. Evaluation methods include participation in class discussion, journal entries, short analysis papers, and a longer (8-10 page) research paper. In Italian. Prerequisite: any 300-level Italian course. This course is conducted in Italian and counts for the Italian major and minor. The ability to screen VHS and DVD videos is necessary. Enrollment is limited to 20, and the course will be offered at least once every four semesters.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: any 300-level Italian course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 485** Italian-American Cultural Studies (3) In-depth exploration of Italian-American cultural contributions.

**IT 485 Italian-American Cultural Studies (3)**

Italian-American Cultural Studies explores the representation of self-representation of Italian-Americans that have been produced over the past century in a variety of aesthetic forms. Through analysis of literary and cinematic works, informed by readings in history and sociology, students will refine their critical reading and writing skills, come to a deeper understanding of important currents in 20th-century American history, gain a more informed appreciation of the contributions of Italian-Americans to the arts, engage critically with concepts such as "identity," "ethnicity," "gender," and "heritage." This course fulfills requirements for the major and minor in Italian, and allows students interested in Italian-American culture to undertake more in-depth and specialized study than is possible in the 100-level General Education survey offered by the department in English. Evaluation methods include participation in class discussion, short analysis papers, and a longer (8-10 page) research paper. The ability to screen VHS and DVD videos is necessary.

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: any 300-level Italian course

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 490** Dante in Translation (3) The reading of Dante's Divine Comedy and selected minor works.

**Dante in Translation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983  
Prerequisite: junior standing or permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**IT 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Japanese (JAPNS)**

**JAPNS 001** Level One Japanese A (4) Introduction to modern Japanese; development of audio-lingual facility and ability to

read and write Japanese without aid of romanization.

**Level One Japanese A (4)**

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 002** Level One Japanese B (4) Continuation of elementary Japanese, with emphasis on improving audio-lingual facility and strengthening reading and writing skills in modern Japanese.

**Level One Japanese B (4)**

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2011

Prerequisite: JAPNS 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 003** Level Two Japanese A (4) Continued study of modern Japanese at elementary level; extensive audio-lingual practice for conversational fluency; reading/writing original scripts.

**Level Two Japanese A (4)**

General Education: None

Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Spring 2011

Prerequisite: JAPNS 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 051** Elementary Intensive Japanese for Graduate Students I (3) Intensive introduction to Japanese: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**JAPNS 051 Elementary Intensive Japanese for Graduate Students I (3)**

This is the first in a series of three courses designed to give students an intensive introduction to Japanese. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the Japanese vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 052** Elementary Intensive Japanese for Graduate Students II (3) Continued intensive study of Japanese at the intermediate level: reading, writing, speaking, listening, cultural contexts.

**JAPNS 052 Elementary Intensive Japanese for Graduate Students II (3)**

This is the second in a series of three courses designed to give students an intensive introduction to Japanese. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Japanese vocabulary. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: JAPNS 051 or equivalent and graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 053** Intermediate Intensive Japanese for Graduate Students (3) Continued intensive study of Japanese at the intermediate level: reading, writing, speaking, listening, cultural contexts.

**JAPNS 053 Intermediate Intensive Japanese for Graduate Students (3)**

This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Japanese. Continued intensive study of Japanese at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: JAPNS 052 or equivalent and graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 097 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 099 (IL) Foreign Study (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Study (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 110 (IL) Level Two Japanese B (4)** Intermediate Japanese - Continued study of modern Japanese at intermediate level; extensive audio-lingual practice for conversational fluency; reading/writing original scripts.

**JAPNS 110 Conversation, Reading, and Composition (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course offers the instruction of intermediate Japanese where students learn how to communicate and express various ideas using the Japanese language. Each chapter includes new essential vocabulary items, grammar patterns, and kanji which enable us to achieve higher overall communicative fluency in Japanese. By the end of the semester, students are able to construct grammatical structures, such as presuppositions, desire, hypothetical condition, causative, completion, regret, etc. The usage of polite expressions of humble and honorific is introduced. Various aspects of Japanese culture and customs are also discussed throughout the semester. This course fulfills the International Cultures requirement.

General Education: None

Diversity: IL

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2011

Prerequisite: JAPNS 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 120 (GH;IL) Japanese Literature in Its Cultural Context (3)** Japanese literature and film from classical through contemporary times, with attention to changing cultural settings. Taught in English.

**JAPNS 120 Japanese Literature in its Cultural Context (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is intended to provide an introduction to the literature of Japan from the seventh century to the postmodern era. Prior study of Japan is not required and materials will be available in English. Students will learn about major eras of Japanese literature and culture, such as the age of the Man'yōshū, the age of the Genji monogatari (The Tale of Genji), the age of No and Kyōgen, the age of Writ and Learning, the age of Meiji, the age of industrialization, the postwar years, and

postmodernity. The readings will include several genres, such as poetry, folktale, short story, and novel, with an emphasis on prose fiction. The course is structured so that students develop a historical/cultural perspective in order to understand the contexts that have inspired the literary works. By examining literature in its cultural contexts, students will investigate such topics as the relation between social institutions and the individual, the traditional patriarchal system, the changing roles of women, westernization, the Emperor system, and postmodern consumer culture, among others.

Students will read literature and related materials from different periods, with occasional presentations of films. Class work includes some lecture but emphasizes guided discussions, group discussions, and students' presentations. This participatory approach is intended to deepen students' appreciation of the texts, to help them understand value systems that may differ from, or else be shared with, those predominant in modern Western cultures, and to assist students in developing both analytical and expressive abilities. Evaluation will be through means such as in-class presentations, two midterms, one analytic paper (3-7 pages), and in-class participation and discussion.

The course is designed to be suitable for all students generally interested in Japan, or interested in various fields of humanistic study, whether or not they have previously studied the culture of Japan. This course is required for the Japanese major. It is designed to count as General Education and as a B.A. "Other Cultures" course. It will be taught once a year with an enrollment of 40-50.

This course will be taught in the active-learning mode, featuring both lecture and discussion, including oral presentations, which provides students abundant opportunity for expressing their opinions. Web-based activities may also be included, depending on the instructor. Specifically:

Writing, speaking, self-expression: Students will write reaction papers and comprehensive essays (e.g. take-home essay exams), which require the analysis and comparison of various literary works.

Opportunity for information gathering, synthesis and analysis in solving problems; A wide range of texts--synchronic and diachronic terms of time and space--will be comparatively analyzed. Students will use the library as well as electronic resources to research texts and authors for their oral presentations and essays.

Application of intercultural/international competence: Students will explore a wide range of texts in Japanese literature and cultures. Students will compare/contrast texts based on cultural and social contexts.

General Education: GH

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 120W** (GH;IL) Japanese Literature in its Cultural Context (3) Japanese Literature in its Cultural Context: Japanese literature and Culture from Classical through contemporary times; writing intensive.

### **Japanese Literature in its Cultural Context (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Other Cultures

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 121** (GH;IL) Japanese Film and New Media (3) Survey of Japanese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English.

### **JAPNS 121 Japanese Film and New Media (3) (GH; IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is intended to provide an introduction to modern and cutting-edge forms of cultural production in Japan from the twentieth century to the present day. Prior study of Japan is not required and materials will be available in English. Students will learn about major technologies and forms of media, including film, manga, anime, and various forms of "new media" (cell-phone novels, blogs, MMOGs, IM, and Web 2.0 for instance). Readings and screenings will cover several artistic modes including formalism, historiography, documentary, period drama, and experimental works. The course, or individual units within the course, will be structured so that students develop an historical perspective, allowing them to understand the cultural contexts that have inspired the creative works under study. By examining Japanese film and new media with attention to changing cultural settings, students will investigate such topics as the relation between social institutions and the individual, the formation and expression of identity, changing gender roles and family structures, the impact of technological and economic trends on social structure, and changing climates of censorship and freedom of expression. In addition, students will learn to think critically about various media's techniques and aesthetics of representation, and will become more engaged, critical spectators of film and related media.

Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytical and expressive abilities. Through critical reading, group discussion and interpretive writing, students will hone skills for evaluating modes of cultural production and consumption in modern Japan.



The course is designed to be suitable for all students generally interested in Japan, or interested in various fields of humanistic study, whether or not they have previously studied the culture of Japan. This course is required of the Japanese major. It is designed to count as General Education, as a B.A. "Other Cultures" course, and as an IL "International Cultures" course.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 199** (IL) Foreign Study--Basic Japanese (1-8) Small group instruction in spoken and written modern Japanese at the introductory level.

#### **Foreign Study--Basic Japanese (1-8)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 299** (IL) Foreign Study--Intermediate Japanese (1-12) Small group instruction in spoken and written modern Japanese at the intermediate level.

**Foreign Study--Intermediate Japanese (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: JAPNS 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 399** (IL) Foreign Study (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Study (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 401** (IL) Level Three Japanese A (4) Further acquisition of the four language skills in Japanese--reading, writing, speaking and listening comprehension.

**JAPNS 401 Advanced Conversation (4)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course aims to enhance students' abilities in speaking, listening, reading, and writing. The objectives in this course

are: 1) to review, reinforce, and expand the basic grammar; 2) to expand knowledge of Kanji, vocabulary and idioms; 3) to be able to speak not only in single sentences, but in dialogues to perform basic communicative functions; 4) to be able to read and understand simple essays and stories; 5) to be able to write a short composition; and 6) to be able to type Japanese on the computer.

General Education: None

Diversity: IL

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2011

Prerequisite: JAPNS 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 402 (IL) Level Three Japanese B (4)** Exclusively for study abroad returnees. To further develop Japanese proficiency in speaking, listening, reading, and writing.

**JAPNS 402 Advanced Reading (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This class is offered exclusively to students who have studied abroad in Japan. Only primary multimedia sources (i.e., not a text book) will serve as course materials. Five classes a week will consist of reading session, multimedia presentation, and high level discussion. Intensive analysis and class discussion of multimedia materials will provide the student the opportunity to develop advanced ability to understand, construct, and express opinions and complex verbal concepts in appropriate contextual forms/modes.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language and Other Cultures

Effective: Spring 2011

Prerequisite: JAPNS 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 403Y (IL) Level Four Japanese A (4)** Continuation of JAPNS 402. Aims to improve students' proficiency in all four language skills, with a special emphasis on writing.

**JAPNS 403Y Level Four Japanese A (4)  
(IL)**

This is a four credit course designed for those who have completed Level Three Japanese B or the equivalent. The course aims to further develop students' proficiency in all four language skills, with a special emphasis on writing. Students will study several topics such as Japanese society and Japanese literature for content-based language learning throughout the semester. For each topic variety of media will be used—newspaper articles, essays, short stories, TV programs, movies, etc. The majority of reading and writing assignments will be done outside class, with some guidance from the instructor. That will help students become more independent in studying Japanese. They will use appropriate resources such as dictionaries, reference books, online dictionaries and other online resources depending on their individual needs. Class time will be used mainly for discussions of content, feedback on writing, and presentations by students. All class activities will be conducted in Japanese.

Writing exercises include short response papers on topics and summaries of literary pieces or audio visual materials. In the response papers students will reflect more deeply on certain topics, synthesize information from course materials, express their opinions, and support ideas by referring to and citing from source texts. This will help students be prepared for a longer thesis in the next course in the sequence. Discussion on the summaries will cultivate sensitivity toward words and expressions.

The course will help students start building their career in Japanese. Students will familiarize themselves with and if they wish study for the Japanese Language Proficiency Test (Level N2). They will also write a resume and formal letters that could be used in job applications and practice formal spoken communication in business settings.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: JAPNS 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 404 (IL) Level Four Japanese B (4)** Continuation of JAPNS 403Y. Aims to improve students' proficiency in all four language skills through content-based language learning.

**JAPNS 404 Level Four Japanese B (3)**

**(IL)**

This is a four credit course designed for those who have completed Level Four Japanese A or the equivalent. The course aims to further develop students' proficiency in all four language skills. Students will study several topics such as Japanese popular culture and issues in contemporary Japan for content-based language learning throughout the semester. For each topic variety of media will be used—newspaper articles, essays, short stories, TV programs, movies, etc. The majority of reading and writing assignments will be done outside class, with some guidance from the instructor. That will help students become more independent in studying Japanese. They will use appropriate resources such as dictionaries, reference books, online dictionaries and other online resources depending on their individual needs.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Fall 2013  
 Prerequisite: JAPNS 403Y

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 410 (IL) Japanese Through Manga (3)** The course aims to expand students' knowledge and application of Japanese language beyond elementary and intermediate textbooks through the use of manga (graphic novels).

**JAPNS 410 Japanese Through Manga (3)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is a three credit course designed for those who wish to expand their knowledge in Japanese and application of it beyond typical elementary and intermediate textbooks. The course will use manga, the format of which helps students understand the story line, the setting, and the thoughts and emotions of the main characters. Given quick interactions between manga characters and onomatopoeia that accompany pictures, students will learn natural daily communications of Japanese. Class discussions will also cover relevant customs, manners, cultural values, socio-historical context, and social perspectives along with language use. The exact texts will vary from instructor to instructor, and may include film and new media in addition to a primary focus on manga.

The course will serve as a gateway to the further exploration of Japanese authentic texts and audio visual materials.

The prerequisite is JAPNS 110. Students who have successfully completed JAPNS 110, JAPNS 401, or JAPNS 402 are encouraged to take the course. Students who have finished JAPNS 403Y or JAPNS 404 may also take the course.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Other Cultures and Foreign Language  
 Effective: Summer 2013  
 Prerequisite: JAPNS 110 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 421 (IL) Courtly Japan (3)** Focused study of aristocratic society and culture of Heian period Japan.

**JAPNS 421 Courtly Japan (3)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Heian period of Japanese history saw the apex of a refined court culture. Through readings of primary and secondary sources, this seminar-style course will explore the activities, norms, and structures of courtly society in Japan, from the centralization of imperial power in the 8th century through the court's political marginalization in the late 12th century. We will pay particular attention to religion, the arts, politics and governances, gender, and the gradual rise of samurai power in the shadows of the court.

This course is intended to provide an introduction to the political, social, economic, and cultural life of the Heian court of ancient Japan. The goals of the class are not only to gain an understanding of a time and place far removed from our own, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will take on the role of historian or literary critic themselves, thinking critically about assigned texts and making their own interpretations of their meanings. Through readings, discussions, presentations, and the final project, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing.

Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen student's appreciation of the assigned readings, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytic and expressive abilities. The details of evaluation will vary depending on the instructor. In general, the emphasis will be on student performance on a day-to-day basis and as expressed in a final research project.

The course is designed to be suitable for all students generally interested in Japan, or interested in various fields of humanistic study. This course is recommended, but not required, of the Japanese major. It is designed to count as a B.A. "Other Cultures" course, and as an IL "International Cultures" course.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures

Effective: Spring 2012

Prerequisite: JAPNS 120/JAPNS 121 or HIST 172

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 422 (IL) War and the Warrior in Japan (3)** Survey of the role of warfare and the warrior in Japan, with attention to changing cultural settings. Taught in English.

**JAPNS 422 War and the Warrior in Japan (3)  
(IL)**

This course is intended to provide an introduction to the social and historical roles of warfare, and the changing cultural figure of the warrior, in Japan. Some prior study of Japan (JAPNS 120 or JAPNS 121 or HIST 172) is required. All materials will be available in English. Students will learn about subjects like the causes of violence, culturally acceptable ways of resolving conflict, obligations of victor toward vanquished, expectations regarding the memory of the war dead, the ideal of the warrior as a cultural figure, and historical roles that Japanese warriors have played in ages of peace. Readings and screenings will cover several genres, such as film, historiography, history, documentary, classical epic, modern novel, and excerpts from Japanese history textbooks (in translation). The course, or individual units within the course, will be structured so that students develop an historical perspective, allowing them to understand the cultural contexts that have generated attitudes toward war and the warrior in Japan. In addition, students will learn to think critically about various media's techniques and aesthetics of representation, and will become more engaged, critical investigators of literature and related media. Readings and in-class discussion will focus on the image of the warrior as a cultural icon, exploring the many ways in which popular understandings of the warrior have changed over time, for instance, as popularized dramatics began to idealize warriors as moral exemplars in the late medieval period, and then as historical realities made the position of the warrior itself redundant in the early modern era.

Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytical and expressive abilities. Through critical reading, group discussion and interpretive writing, students will hone skills for evaluating modes of cultural production and consumption in premodern and modern Japan. Evaluation will be through means such as in-class presentations, short writing assignments, midterms or quizzes, one analytic paper (3-7 pages), and in-class/on-line participation and discussion.

The course is designed to be suitable for all students generally interested in Japan, or interested in various fields of humanistic study.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures

Effective: Summer 2011

Prerequisite: JAPNS 120 or JAPNS 121 or HIST 172

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 423 (IL) Men, Women, and Animals (3)** Japanese history and culture through the lens of relations between men and women and between humans and animals.

**JAPNS 423 Men, Women, and Animals (3)  
(IL)**

Through readings in primary and secondary sources, and to a lesser extent through the evaluation of visual images, this seminar-style course will examine relations between men and women in changing social contexts over time in Japan. We will also investigate human-animal interactions, in the realms of literature and symbolism, religion, and food production and other aspects of economic production. The course will address issues fundamental to every society past and present. Therefore, it will not only deepen students' knowledge of Japan but it will also provide a solid basis for comparative study of other societies.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: HIST 172/JAPNS 120 or JAPNS 121

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**JAPNS 424 (IL) Traveling Voices (3) Transnational Writings of Japan: from Modern to Contemporary Eras .**

**JAPNS 424 Traveling Voices (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Through literary and visual texts from modern to contemporary eras, this seminar-style course will explore a wide range of narrative voices of Japan, created by writers who are physically or figuratively dispersed in many directions within, towards, and away from Japan, and who therefore problematize "Japanese-ness" by dealing with cultural situations (e.g. identities, marginality) in their writings. Some Prior Study of Japan (JAPNS 120, JAPNS 121, or HIST 172) is required.

Students will explore the rich cultural diversity in Japan and the Japan diaspora, and develop a further understanding of historical border crossers between Japan/East Asia and Americas/the West.

They will become more aware of the reciprocal and transformative cross-cultural interactions in languages, literature, religions, economics, ideas, or political formations.

They will learn how to think critically, in speech and writing, and develop writing analytic skills appropriate to their final paper project.

Evaluation will depend on specific instructor practice, but will certainly emphasize guided discussions, some student presentations (alone or/and group), and writing exercises (especially final research project). A sample guideline might look like this:

Class Participation/discussion  
Response papers  
Informal Presentation (pair or group up to three)  
Mid-term exam  
Final paper presentation  
Final Project

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures

Effective: Spring 2012

Prerequisite: JAPNS 120/JAPNS 121 or HIST 172

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 425 Beyond Anime (3)** Selected works from the history of illustrated narrative from scrolls to chapbook, through film and anime; topics may vary. This seminar-style study of Japanese visual culture will help students see Japanese visual arts in terms that are local to Japanese aesthetics and through those that transcend local cultures.

**Beyond Anime (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: HIST 172/JAPNS 120 or JAPNS 121

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 426 (HIST 474, ASIA 474) Early Modern Japan (3)** Japanese history from 1580 to 1880.

**JAPNS 426 (HIST, ASIA 474) Early Modern Japan (3)**

Japan's Tokugawa period can be difficult to grasp. It resembles a modern society in many respects but operated according to a logic of social organization different from that of most modern states. There was a collective sense of national identity, but its characteristics differed significantly from modern forms of Japanese identity. Moreover, modern ideologies have contributed to the characterization of early modern Japan as a rigid society and of the country as a whole having been isolated from the rest of the world. The main purpose of this course is to afford students the opportunity to study early modern Japan in detail and, insofar as possible, on its own terms.

Through readings in primary and secondary sources, and through the evaluation of visual images, this seminar-style course will deepen students' knowledge of Japan and serve as basis for comparative study of other early modern societies. Although the course investigates classic areas of historical study such as institutional development and foreign relations, the emphasis is on social and environmental history. The course encourages students to think about a range of approaches to the past and to think about the ways our contemporary biases influence the ways we understand the past.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172HIST 174JAPNS 120JAPNS 121JAPNS 421JAPNS 422 orJAPNS 423

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 426** (HIST 474, ASIA 474) Early Modern Japan (3) Japanese history from 1580 to 1880.

### **JAPNS 426 (HIST, ASIA 474) Early Modern Japan (3)**

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Through readings in primary and secondary sources, and through the evaluation of visual images, this seminar-style course will deepen students' knowledge of Japan and serve as basis for comparative study of other early modern societies. Although the course investigates classic areas of historical study such as institutional development and foreign relations, the emphasis is on social and environmental history. The course encourages students to think about a range of approaches to the past and to think about the ways our contemporary biases influence the ways we understand the past.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HIST 172HIST 174JAPNS 120JAPNS 121JAPNS 421JAPNS 422 orJAPNS 423

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 450** (IL) Introduction to Classical Japanese (3) Basic patterns and structures of Classical Japanese from its development in the 6th century through usage in the 20th century.

### **JAPNS 450 Introduction to Classical Japanese (3) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an introduction to the basic grammar and stylistic idiosyncrasies of classical Japanese (bungo). Students will be guided through an examination of key syntactical structures and will be asked to apply their knowledge in order to read, translate, and discuss various texts from the classical, medieval, and early modern periods. In addition to gaining familiarity with standard reference materials (such as dictionaries of classical Japanese), students will also gain a working knowledge of the styles and themes of major works of pre-modern Japanese literature. Successful completion of this course will give students the fundamental skills necessary to read texts composed prior to the 1900's and to engage in research in the field of pre-modern Japanese studies. With this training and knowledge concerning the development of the Japanese language, students will increase their proficiency in modern Japanese and their overall knowledge of Japanese culture and literature.

Prior study of modern Japanese is required (with proficiency equivalent to successful performance in JAPNS 402).

The purpose of the course is to make bungo ("literary Japanese") accessible to as many students as possible. Classical Japanese first appeared in the 6th and 7th centuries and was used to write a wide variety of texts up until the mid-20th century. Knowledge of it is very useful to anyone interested in studying Japanese history, literature, philosophy, politics, art, or culture. The course offers a systematic introduction to the grammar of Classical Japanese, while also presenting Classical Japanese and Modern Japanese as part of a linguistic and cultural continuum.

General Education: None

Diversity: IL

Bachelor of Arts: Foreign Language

Effective: Summer 2013

Prerequisite: JAPNS 402 or equivalent

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 452** (IL) Contemporary Japan: Cultures, Lifestyles, Trends (3 per semester/maximum of 6) Survey of aspects of modern Japanese society; includes readings from Japanese newspapers, magazines, and fiction; topics may vary each semester.

### **JAPNS 452 Contemporary Japan: Cultures, Lifestyles, Trends (3 per semester/maximum of 6) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course orients students to cultural issues and trends in contemporary Japan, and the way that those issues and trends are explored in literature, film, newspapers and magazines. The course examines a selection of Japanese-language materials from an array of genres, modes of representation, and historical settings. Focusing on the postwar era to present (1945-), this course introduces various aspects of contemporary Japanese culture, from literary works of the postwar experience to recent popular culture, including anime (animated movies) and manga (graphic novels). Each work is discussed in terms of its own literary or artistic merit, the social context that produced it, its position within the larger trends of literary development in Japan, and its relevance for the modern reader. This course is designed for (prospective) Japanese major or minor students interested in broadening their knowledge of Japanese culture and society as well as for students who wish to compare other cultures and literatures they have studied with those of Japan.

General Education: None

Diversity: IL

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2010

Prerequisite: JAPNS 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 453 (IL) Japanese Film (3 per semester/maximum of 6)** Selected films and directors representing various aspects of Japanese culture and cinema; topics may vary each semester.

**JAPNS 453 Japanese Film (3 per semester/maximum of 6)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This class will be a seminar-style study of Japanese culture, texts, and language as seen through the lens of Japanese cinema. The goal is to deepen the students' understanding of diverse aspects of Japanese life, history, and culture while developing language skills. Typical class sessions may involve watching sections of film (with or without English subtitles); working with listening comprehension; engaging with student presentations (in Japanese) on studios, directors, or actors; discussing Japanese film history; and analyzing film stills for aesthetic qualities.

Participants will be required to view and discuss films in Japanese (with or without English subtitles). Viewing's will be accompanied by secondary readings (at least some of which may be in Japanese). We will also be discussing the films and readings in the context of nation, identity, history, sociology and culture. Exercises will range from group discussion, web-based research in Japanese and English, presentations, essays and film analysis. Students must prepare for class by reading the material carefully, taking notes, writing down questions, and being ready to take part in lively conversations. Course discussion will take place primarily or exclusively in Japanese.

This course satisfies the International Cultures requirement.

General Education: None

Diversity: IL

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2010

Prerequisite: JAPNS 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 454 (IL) Japanese Literature (3 per semester/maximum of 6)** Selected works from important Japanese texts representing genres such as autobiography, poetry, fiction, and drama; topics may vary each semester.

**JAPNS 454 Japanese Literature (3 per semester/maximum of 6)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This class will be a seminar-style study of contemporary Japanese literature. The goal of the course is to help students move from grammar-assisted reading assignments (which may provide vocabulary lists, grammar notes, and cultural notes) to reading 'raw' materials in Japanese, where students are responsible for knowing how to use the appropriate reference materials so that they can compile vocabulary lists, grammar notes, and cultural notes on their own. Students will be reading selected works from an array of genres such as autobiography, poetry, fiction, drama and essays, with topics and thematic focuses varying from semester to semester.

Typical class sessions may involve reading aloud from a literary work; engaging with student presentations (in Japanese) on authors, genres, thematic elements, and relevant historical or cultural events; discussing Japanese literary history; analyzing short passages for their aesthetic qualities; and working with specific items of grammar or vocabulary. Participants will be required to read and discuss Japanese literature in Japanese. Exercises will range from group discussion, web-based research in Japanese and English, presentations, essays, quizzes and tests. Students must prepare for class by reading the material carefully, taking notes, writing down questions, and being ready to take part in lively conversations. Course discussion will take place primarily or exclusively in Japanese. This course satisfies the International Cultures requirement.

General Education: None

Diversity: IL



Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2010

Prerequisite: JAPNS 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 496B** Global Experiences in Japan (0.5) This embedded course is a two-week education abroad program in which a group of PSU students visit Ibaraki University, Mito, Japan and communicated with Japanese students at Ibaraki.

**Global Experiences in Japan (0.5)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**JAPNS 499** (IL) Foreign Study--Advanced Japanese (1-15) Small group instruction in spoken and written modern Japanese at the advanced level.

### **Foreign Study--Advanced Japanese (1-15)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Spring 2010  
 Prerequisite: JAPNS 110 or JAPNS 299

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Jewish Studies (J ST)**

**J ST 004** (GH;US;IL) (CAMS 004, RL ST 004) Jewish and Christian Foundations (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationship to culture.

### **J ST (CAMS/RL ST) 004 Jewish and Christian Foundations (3)** (GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Jewish and Christian Foundations seeks to help students better understand the Bible as the scriptural background for both Judaism and Christianity. Some people believe the Bible is "scripture," self communicated by God to humanity. To others, this text is a compendious collection of poetry, historical writing, law, myth, and mystical writings, which stems from the religious, political, and cultural milieu of the ancient Near East. Some people believe this is a book designed to bring people to belief in the power and reality of the god discussed in these writings. For others, the book is a source of both unity and division among people in the world, and must be treated as ambiguous in nature. Still others see the biblical text as the single most important collection of literature to have shaped the religious, political, and imaginative contours of western civilization. This course focuses on selected portions of the biblical text, representing diverse strands of historical remembrances, interpreted and re-interpreted in light of critical historical events, and serving, first as an oral, and later as a written account of the life, beliefs, and hopes of Jewish and Christian peoples. Readings from both the Hebrew Bible (the Christian "Old Testament") and the Christian scriptures (the "New Testament") will be used. RL ST 004 provides a broad discussion of the origin of both Judaism and Christianity within a historical and geographical framework. The principle teachers, writers, and "founders" are discussed, including Moses, Isaiah, David, Ezra, Jesus, Peter, and Paul. Students are challenged to read and understand these important writings which have interpreted the human condition and which have oriented generations of people towards a transcendent referent associated with love and loyalty. Evaluation methods may include two hour examinations, a final examination, and two short writing assignments. The examinations are not cumulative. Class participation will also be a factor in overall evaluation for the final grade. RL ST 004 may be used to fulfill requirements for the Religious Studies, Classics and Ancient Mediterranean Studies and Jewish Studies major/minor. This course will be offered twice a year with 125-150 seats per offering. Finally, students will be challenged to evaluate and respond to the literature as it touches on human experience experiences which all people share regardless of their personal religious affiliation.

General Education: GH  
 Diversity: US;IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 010** (GH;IL) (HEBR 010) Jewish Civilization (3) Life of the Jewish people from biblical times; emphasizing cultural, religious, and institutional developments.

### **J ST (HEBR) 010 Jewish Civilization (3)** (GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Jewish tradition goes back thousands of years, and Jews have resided in many different lands. They have become an integral part of many different cultures, yet have often retained (or been forced to retain) a certain degree of separateness or difference. In this course we will trace continuity and change in Jewish traditions from ancient to modern times, and across different regions. Taking into account inter-cultural contact and historical events -- ranging in place from the

Middle East to Muslim Spain to Asia, Africa, Europe, and the Americas, and in time from the ancient world to the medieval era, the Holocaust, and contemporary Israel and the U.S. -- we will explore developments in Jewish history, literature, and culture. The course considers topics such as the attitudes other groups have had toward Jews (and vice-versa), the question of whether Jewish identity is a race, a religion, or an ethnicity, the dilemmas Jews face today, and the ways that Jews in many diverse settings have balanced change and continuity. We will explore the factors that shape Jewish experience in different times and places, the diversities within and among Jewish lifestyles, and the ways in which events and interactions with other peoples have influenced the development of Jewish civilization. Finally, we will consider the dilemmas Jews face today in terms of the preservation of their identity and traditions. The course includes class discussion. Students are evaluated on the basis of essay exams, essay assignments, quizzes, in-class discussion and commentaries, group projects, journals, a final comprehensive exam/essay, web-based activities, and on-line discussion; such means as quizzes, essay examinations, and group projects.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 012 (GH;IL) (CAMS 012, RL ST 012) Lands of the Bible (3)** Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

**J ST (CAMS/RL ST) 012 Lands of the Bible (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

CAMS/J ST/RL ST 012 introduces students to the lands, cities, and peoples associated with the Hebrew and Christian scriptures. Using methodologies from historical geography, archaeology, ancient history, epigraphy, and anthropology, students study the Fertile Crescent, from the Nile Valley, through the Levant and its Jordan River valley, to Mesopotamia--the river valleys of the Tigris and Euphrates. Students will study the cities and states of the cultures along these rivers in the Bronze and Iron Ages, including Memphis/Saqqarah, Thebes, Ugarit, Jerusalem, Lachish, Megiddo, Shechem, Samaria, Hazor, Ebla, Babylon, Ur, Petra, Jericho, 'Akko, and others. These are the lands of the Hebrew and Christian scriptures, but also cities that have been revealed through modern study. For example, the texts excavated at Ugarit (Syria) in the 1920's shed light on the relations between ancient Israelites and their Canaanite neighbors in the period of the "Conquest" and the monarchies of the Iron I and Iron II periods. Students will learn that the culture of the ancient Near East is inexorably linked to an understanding of the religious traditions that grew up in the region, including Judaism, Christianity, and Islam. Classes will be a combination of lecture, discussion, and problem-solving, with frequent use of slides and occasional use of artifacts to illustrate the topics at hand. Students are evaluated on three of the following five means: a midterm test, a final essay examination, a five to seven page term paper, a team research oral presentation, a team research poster presentation. Participation in class discussion will also be evaluated. This course fulfills three credits of the General Education or the B.A. humanities requirement. For majors in Classics and Ancient Mediterranean Studies, the course fulfills the requirement of three credits in Near Eastern literature and language, civilization, or archaeology. The course fulfills the three credit requirement for courses in RL ST 001-099 for the Religious Studies major, and the Jewish Studies major's requirements. The course also would fulfill three credits of the six credit requirement for courses in any field that may be below the 400-level for the Religious Studies Minor, three credits of the nine credits required in course work for the Jewish Studies Minor, and three of the 18 credits required for the Classics and Ancient Mediterranean Studies minor. This course will be offered once a year with 50 seats per offering.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities and Social and Behavioral Sciences  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 012U (GH;IL) (CAMS 012U, RL ST 012U) Lands of the Bible (3)** Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

**Lands of the Bible (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities and Social and Behavioral Sciences  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 060 (GS;IL) (ANTH 060, PL SC 060, SOC 060) Society and Cultures in Modern Israel (3)** An introduction to the society and cultures of the State of Israel from 1948 to the present.

**Society and Cultures in Modern Israel (3)**

General Education: GS  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 070 (GH;IL) (CAMS 070, RL ST 070) Prophecy: The Near East Then and Now (3)** Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.

**J ST (CAMS, RL ST) 070 Prophecy: The Near East Then and Now (3) (GH;IL)**

The objective of this course is to introduce students to the prophetic traditions of the ancient Near East and the Bible of the Judeo-Christian traditions. The course will explore the development of prophetic circles in the ancient Near East (incl. Egypt, Syria, Canaan, and Mesopotamia) and then focus on the major prophetic traditions of the Hebrew Bible (to include at least Isaiah, Jeremiah, Ezekiel, Amos, Hosea, Micah, Haggai, Zechariah, and Daniel) and how these traditions were understood in early Judaism and nascent Christianity. Special attention will be paid to the roles of priests, kings, and prophets in ancient Israel to better understand Israelite and Judaeon prophetic traditions in ancient Israelite society. The course will then examine the rise of apocalypticism and its modern manifestations in the coalition of conservative Christians and Jews in "Zion" -- the new Jerusalem. Additional emphasis will be placed on the religious and political interactions which manifest themselves in the prophetic movements--then and now--including the rhetoric of ideology and propaganda. Important figures and events illustrate these cultural and political trends, in antiquity, and in the contemporary setting.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 083S (GH;IL) First-Year Seminar in Jewish Studies (3)** Critical approaches to the history, sociology, and literature of Jewish Studies.

**J ST 083S First-Year Seminar in Jewish Studies (3) (GH;FYS;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Through a combination of readings, lectures, discussions, and research projects, students will learn to master the subject material of the course and acquire basic skills important to the study of humanities. Students will learn to read academic books, as well as original documents, to formulate arguments, and to write analytical essays and papers. Analyses of this type will provide students with techniques for formulating, identifying, and judging academic arguments and presentations in many fields of learning other than Jewish Studies. The topics chosen for these seminars will introduce students to some of the major figures, historical, literary, religious, and sociological developments in Jewish Studies. By concentrating on these topics, the students will better understand the cultural assumptions of different groups and societies. Although the course will focus on a specific topic, the instructor will aid the student in seeing the larger implications of the issues and controversies discussed in the class. The international and intercultural aspects of the topic will consistently be considered. The course will require students to express their ideas as well as to gather information through research, discussion, and writing. It will consistently challenge students to consider social behavior, the nature of the community, and the value of scholarly work as these relate to the particular topic of the seminar. The course fulfills the first-year requirement, as well as one of the humanities requirements in general education or a Bachelor of Arts humanities requirement. The first-year seminar will be offered twice per year with an enrollment limit of 20 per section.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 090 (GH;IL) (CAMS 090, RL ST 090) Archaeology of Jerusalem: Past and Present (3)** Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

**J ST (CAMS/RL ST) 090 Archaeology of Jerusalem: Past and Present (3) (GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Jerusalem, a holy city for Judaism, Christianity and Islam, is symbolically depicted in art and literature as the physical and spiritual center of the world. Throughout its history, this "city of peace" was a focal point attracting numerous cultures and peoples, the latter sometimes as prophets and more often as conquerors. The reasons for Jerusalem's centrality and significance during the past five millennia as a heavenly and earthly capital are explored in this course.

The course curriculum will survey the religious, political, archaeological and historical record of ancient Jerusalem, beginning with its earliest settlement during the fourth and third millennia BC. Jerusalem's urbanization in the second millennium BC, its role as the capital of biblical Israel and Judah during the First and Second Temple periods, and its transformation as a center of Christianity and later Islam are studied utilizing the testimony of artifacts, architecture, and iconography in relation to the written word. Throughout the ages and continuing into the 21st century, Jerusalem remains a contested city for the three monotheistic faiths. The holy city's impact on the politics of the modern Middle East will be critically examined in light of Jerusalem's history and recent archaeological discoveries and their modern-day interpretation.

Objectives include the critical evaluation of archaeological, historical and literary evidence and its relationship to modern-day political and religious perceptions of Jerusalem. The course will encourage research skills (including library training sessions) and writing and oral communication skills based on an analytical approach to the texts and material culture relevant to Jerusalem.

Student evaluation will be based on active participation (attendance, discussion sessions, group presentations, and individual oral presentations), two short papers, a midterm, and a final exam.

This course will fulfill three credits of the General Education or the B.A. humanities requirement and the GI requirement. For majors in CAMS, the course will fulfill the requirement of three credits in Near Eastern literature and language, civilization, or archaeology; and for those in the CAMS ancient Mediterranean archaeology option it will fulfill the three credits of archaeology course work requirement. The course will fulfill three credits of course work concerned with the ancient period or with the land of Israel.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 102** (GH;IL) (CAMS 102, HIST 102, RL ST 102) Canaan and Israel in Antiquity (3) Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

**J ST (CAMS/HIST/RL ST) 102 Canaan and Israel in Antiquity (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

From the domestication of animals and the dawn of agriculture to the development and socialization of monotheism, the world of the first civilizations led to that of the Bible and ancient Israel. This course, involving a critical view of Biblical texts in light of other ancient sources, archaeology and historical methods, explains the nature and the evolution of society, religion and thought in the Biblical era. Learn how civilization arose, and how the state appropriated religion and applied it for its purposes. How the science of administration developed and deployed ideological tools to further its own ideas of the West developed. This course is deeply subversive, particularly of religious and academic shibboleths. The

only authority in this class is that of the most persuasive reader, and doctrines, whether religious or political, will have to be checked at the door.

An example of evaluation may be: weekly participation in discussion; mid-term and final essay examinations involving a critical evaluation of ancient text's claims in combination with archaeological evidence; a research essay, where the class or section size is lower than 30; an ability to read critically, bringing different classes of evidence to bear on issues arising from the texts, and construct coherent and compelling arguments to a particular thesis. The course provides a Near Eastern counterpart to HIST 100, 402 and a Near Eastern aspect to the Jewish Studies major. It complements RL ST 110, by offering historical exploration of the culture under study in that course. Related courses include HEBR, 010, ENGL 104, RL ST 004, RL ST 012, and RL ST 111. The course helps round out the majors in History and Jewish Studies, particularly in ancient history. It also extends the program in Religious Studies (history of religions), and it contributes to the ancient stream of the prospective program in Jewish Studies and History. The class will be offered once every other year with an enrollment limit of 15-20.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 106 (GH;IL) (RL ST 106) Mysticism (3)** A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

### **Mysticism (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 110 (GH;US;IL) (CAMS 110, RL ST 110) Hebrew Bible: Old Testament (3)** Introduction to the history, literature, and religion of ancient Israel.

### **J ST (CAMS/RL ST) 110 Hebrew Bible: Old Testament (3) (GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Hebrew Bible is the record of the interaction between the people of ancient Israel and their God. As a religious text, the Bible is inextricably intertwined with the cultures of Israel's neighbors, including the Canaanites, Syrians, Greeks, Assyrians, Babylonians, Arabs, Egyptians, and the peoples of the eastern desert. To study the Hebrew Bible and its development during the first millennium BCE is to study the history, culture, and literature of the entire region. Hebrew Bible introduces students to the literature of ancient Israel, its rituals, the stories which established a people's identity, and which defined their moral behavior. Great figures of the texts, such as Moses, David, Solomon, Bathsheba, Ruth, Jeremiah, Daniel, and Ezra, teach us important lessons about life and how people of faith attempted to relate to one another, to God, and to people outside their ethnic group. Students will read from the text and from a textbook which contains scholarly opinion from a variety of sources. Recent archaeological and epigraphical studies will be incorporated into the course to enhance our work. The ultimate goal will be to assess the meaning of the texts in their ancient Near Eastern environment, and to understand the development of Hebrew religion and the beginnings of Rabbinic Judaism. Students will be evaluated using an hour examination, a 6-8 pp. "hermeneutical essay," a final examination, class attendance and discussion. As an introduction to the scriptures of the Hebrew Bible / Old Testament, RL ST 110 utilizes the methodologies used in the academic study of religion. The course is related or linked to many courses in religious studies which use these same methods or which are related to the history and development of Judaism, Christianity, or Islam. RL ST 110 may be used to fulfill requirements for the Religious Studies major. RL ST 110 may also be used to fulfill the GI or GH requirements in the major or minor in Religious Studies, Classics and Ancient Mediterranean Studies and Jewish Studies. The course will be offered at least once a year, with an enrollment of 120.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 111 (GH;IL) (CAMS 111, RL ST 111) Early Judaism (3)** Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

### **J ST (CAMS/RL ST) 111 Early Judaism (3)**

(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Early Judaism will introduce students to the history of Judaism as reflected in Jewish literature from the period of the Babylonian exile (587/6 BCE) to the closure of the Babylonian Talmud (ca. 600 CE). In this period, ancient Hebrew religion was transformed into a new world religion-Judaism. Students will read selections from the Bible, and from other religious literature, including the Dead Sea Scrolls, the Apocrypha, the Christian Scriptures, the Mishnah, and the Talmudim. By tracing the development of various Jewish "parties," students will appreciate how Classical Judaism evolved, and how the early Church emerged from Jewish roots in the first centuries CE. Early Judaism grew from its roots in the period of Achaemenid domination. Jews were dispersed throughout the eastern Mediterranean, so influences from Persian, Hellenistic, and Roman thought naturally influenced the faith's development. Students in Early Judaism will develop a new appreciation for the basic beliefs and practices of Judaism as well as for the beginnings of the Jesus movement and the development of the early Christian Church. Theological and historical questions concerning the origins of evil, the primacy of prayer, the beginnings of Jewish religious architecture, and the rise of anti-Semitism will be explored. Religion is always linked inextricably to culture. Judaism's transformation in contact with diverse cultures will become evident throughout RL ST / CAMS / J ST 111. The methodologies used in this course will enable students to read and evaluate primary and secondary sources used in the academic study of Judaism. Many other courses in Religious Studies (001, 004, 110, 120, 124), Jewish Studies (010 and 102), and Classics and Ancient Mediterranean Studies, as well as History and Art History are closely related or linked to this course. RL ST 111 may be used to fulfill 3 credits in the Humanities, or to fulfill the GI requirement in the major or minor. The course will be offered once each year, with an enrollment of 65. This course will satisfy 3 credits towards the minor in Jewish Studies or the major in Religious Studies, plus being cross-listed with CAMS, fulfilling part of the requirement for courses in supporting or related areas of all Classics and Ancient Mediterranean Studies majors. The course also provides an excellent addition to other courses, such as CAMS 010, "Mesopotamian Civilization;" CAMS 044, "Ancient Near Eastern Mythology;" CAMS 045 "Classical Mythology;" CAMS 033, "Roman Civilization;" and CAMS/RL ST/J ST 012, "Archaeology of the Lands of the Bible."

General Education: GH

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 112 (CAMS 121, RL ST 121) Jesus the Jew (3)** A historical critical examination of the life of Jesus of Nazareth within the context of first century Palestinian Judaism.

**Jesus the Jew (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 114 (GH;US;IL) (RL ST 114) Modern Judaism (3)** Trends in Jewish life and thought since the French revolution; Judaism's responses to the challenge of modernity.

**J ST (RL ST) 114 Modern Judaism (3)**

(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course explores the opportunities and problems of Jews around the world from the late eighteenth century -- the "age of emancipation" -- to the present time. Commercial, political, and intellectual revolutions in the 1700s, giving rise to modern capitalism, republicanism, and an emphasis on reason, combined to induce political states to grant Jews unprecedented freedom. Emancipation introduced new elements into Jewish life: religious change, personal choice, and internal disagreements. In practical ways, life improved for Jews, as they became more prosperous and assimilated. But freedom also increased the chances for loss of identity, as liberals discarded some rituals as old-fashioned and many individuals chose to give up traditional practices. In addition, anti-Semitism persisted, although it was now, at times, more difficult to detect. Traditional forms of hostility to Jews, such as heresy trials and political expulsions, were replaced by subtle expressions of political and social discrimination. But hatred of Jews did not disappear, despite widespread acceptance in Western culture of political liberalism. The class explores these trends in Europe, the Americas, and Israel. It begins by looking at the fragile freedom of nineteenth-century Jews. In the twentieth century, Jewish experience has often been characterized by open conflict: in the Holocaust, the formation of Israel, contemporary black-Jewish relations in the United States, and Jewish-Muslim relations in the Middle East. The course concludes with these recent struggles. Course readings include personal narratives (reminiscences or letters) and works of fiction (a short story, play, and novel). The class is primarily a discussion class, using writing assignments as the principal method of evaluation. The course requires three graded essays and an ungraded proposal. Students are also asked to keep a journal of commentary on course readings. Class attendance and participation are components of the final grade. The course serves as an introduction to modern Judaism as a religion and culture. It prepares undergraduate students for advanced work in European and American Judaism, as well as Israeli history and culture. These advanced courses are found in the Religious Studies and Jewish Studies programs and in the Departments of History and Comparative Literature. It may be used to complete the

major or minor requirements in Religious Studies and Jewish Studies. The class fulfills the humanities requirement for non majors. The course is normally offered once every two years, and the enrollment is 40 students.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 115 (GH;US) (HIST 115, RL ST 115) American Jewish History and Culture (3)** Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.

**J ST (HIST/RL ST) 115 American Jewish History and Culture (3)  
(GH;US)**

Throughout American history, Jewish presence on American soil has compelled Americans to re-think the meaning of religious and ethnic diversity. As one of the earliest non-Christian immigrant populations, American Jews struggled to explain how they could nonetheless fit into American cultural, political and social life. At the same time, many Jews have been concerned with their own survival as a distinctive group, unwilling to cede those practices, behaviors or traits that designate them as a people apart from other Americans. This course is about how these two seemingly contradictory goals—to integrate into America and to remain distinctive from other Americans—shaped the history and experience of Jews in the United States and influenced the way Americans think about diversity and pluralism.

The student of American-Jewish history must be attuned to the multiple ways that Jewishness has been defined: as a race, a religion, a nationality, and an ethnicity. In this course, far from choosing just one of these designations, we will explore Jewish life from many different angles. Topics to be considered include religious reform, immigrant experience, political activism, popular culture, and struggles over community authority. Readings focus on a number of primary texts, including memoirs, novels, films and philosophical essays. Secondary books and articles will also help deepen students' understanding of trends in American-Jewish history and awaken them to diverse interpretations of history. Students will be encouraged to engage actively and critically with the texts by writing short reading responses, longer essays, and participating in classroom discussion and presentations, all of which will serve as the basis for their evaluation.

This course complements offerings in Religious Studies, Jewish Studies and History. It provides a foundation for an already existing upper-level seminar in American Judaism (listed in Jewish Studies and Religious Studies). In addition, the course strengthens the History department's offerings in American history, serving as a basis for students interested in immigration, ethnicity and religious history. Students who are interested in modern Jewish history will also find this course a worthwhile addition to their program of study, since, unlike other courses, it deals primarily with the story of Jewish life in the United States.

This course will be offered approximately once a year, and the enrollment will be 40 students, as is typical for other 100-level Jewish history classes.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 118 (US;IL) (HIST 118) Modern Jewish History: 1492 to Present (3)** Jewish social and political history from 1492 to the present.

**Modern Jewish History: 1492 to Present (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 120 (GH) (CAMS 120, RL ST 120) New Testament (3)** Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

**J ST (CAMS/RL ST) 120 New Testament (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course introduces the student to the New Testament (NT), the principal religious text of Christians. As such, it is one



of the most significant and most studio texts in human history. Written in Greek between approximately 55 C.E. and 110 C-E the New Testament consists of 27 individual books, each written by a separate author (c, authors), that were later assembled into the "New Testament." Because of the growth of Christianity, the NT has influenced every aspect of our world-to name only a few: history, politics, economics, literature, philosophy, ethics, medicine, science, the arts (music, architecture, the visual arts), gender roles, theater and drama, law, psychology, and sociology. After introducing the student to the academic study of religion and the "historical-critical method," our study begins by examining the materials from which the NT's text is reconstructed, and the period in which the NT was authored. This includes exploring other parallel phenomena (such as miraculous hearings, resurrections, and virgin births) in contemporaneous Graeco-Roman religions. After this background is in place, the course turns to an examination of the gospels and their interrelationships, the pictures of Jesus presented (and their relationship to first-century B.C.E. Judaism), variations among Christian understandings of Jesus reflected in the NT and other contemporaneous Christian writings (he was a man, an angel, a lesser divinity), Paul and his life and writings, and the emergence of Christianity from Judaism as a distinct, new, apocalyptic religion. Along the way, we examine the manuscript tradition of the NT, changes that have been made to its text, and different interpretations of certain passages in the NT. We also examine the historical-critical tools scholars use to date and sequence passages in the NT (form, redaction, literary, and historical criticism, for example), for one can correlate the evolution of early Christian theology with the evolution of the NT's text.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 120H (GH) (RL ST 120H, CAMS 120H) New Testament (3)** Introduction to the history, literature, and religion of early Christianity in the Jewish-Hellenistic setting.

#### **New Testament (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 121 (GH;IL) (HIST 121) History of the Holocaust 1933-1945 (3)** Historical analysis of holocaust themes.

#### **History of the Holocaust 1933-1945 (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 122 (GH;IL) (CAMS 122, RL ST 122) Apocalypse and Beyond (3)** This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

**J ST (CAMS/RL ST) 122 Apocalypse and Beyond (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course offers a scholarly survey of apocalyptic literature and apocalyptic imagination about the end of the world, from its beginnings in the ancient Near East and the Bible to some examples from the modern world. The course will cover three areas: 1) the ancient literary genre of apocalypse in the Near East; 2) apocalyptic writings in the Jewish and Christian traditions (especially the books of Daniel and Revelation in the Bible, and the Qumran Dead Sea Scrolls), as well as within Islam, which generated Western apocalyptic thinking throughout the ages; and 3) some historical examples and discussion of the sociological underpinnings of apocalyptic groups in the medieval to modern periods. Additional attention will be paid to the impact that apocalyptic worldviews have had on the secular world, especially in the fine arts and cinema.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 123 (GH;IL) (CAMS 123, RL ST 123) Ancient Monotheisms: Judaism, Christianity, Islam (3)** Examines the origins and early development of the three major monotheisms of the ancient Near East: Judaism, Christianity, and Islam.

**J ST (CAMS/RL ST) 123 Ancient Monotheisms: Judaism, Christianity, Islam (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the origins and early development of the three major monotheistic religions: Judaism, Christianity, and Islam. These three related religious traditions originate in the Near East and all center around a belief in the existence of one single god (monotheism).

The aim of the course is to describe and compare core events, major beliefs, practices, and significant historical trends in each monotheistic tradition from their respective beginnings to around 750 C.E. The course begins with the origins of Judaism, the first religion in the Near East to be monotheistic. It then examines how Christianity branched out of Judaism in ancient Palestine, as well as how Islam emerged in Arabia in the 7th century C.E. within a historical context rich in Jewish and Christian influences.

All three religions share basic beliefs about the nature of deity, the role of the written word in revelation, and prophets as messengers. Equal emphasis will be placed on these commonalities and on the major tenets and practices that differentiate these three religions.

General Education: GH

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 124 (GH;US;IL) (CAMS 124, RL ST 124) Early and Medieval Christianity (3)** Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.

**J ST (CAMS/RL ST) 124 Early and Medieval Christianity (3)**  
**(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course traces the development of one of the world's "Big 5" religions from the death of its founder (about the year 30 CE) down to the middle ages. It focuses on significant trends, controversies, personalities, and turning points. These are not just diverse in terms of chronological breadth, but are also spread geographically from the eastern end of the Roman Empire (the border with Persia) to northern Europe. Attention is given to the various manifestations of Christianity (Judaic, Hellenistic, Latin), and the linkage between local patterns (culture, history and predispositions) and how these shaped the sort of Christianity that took root in particular areas. Students typically will be evaluated on four "pop" quizzes, a midterm and a final exam. The course can be used towards a major or minor in Religious Studies, Classics and Ancient Mediterranean Studies, and Jewish Studies and used to fulfill 3 credits in the Humanities for non-majors. This course will be offered once a year with 175 seats per offering.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 131 (GH;US;IL) (CMLIT 110) Jewish Literature: An International Perspective (3)** Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas.

**J ST 131 (CMLIT 110) Jewish Literature: An International Perspective (3)**  
**(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

CMLIT 110 (J ST 131) will provide an introduction to the multiple worlds of Jewish experience and the different literatures they continue to inspire. Jewish literary creativity has varied widely with the personal and communal experience of writers in many parts of the world, and in many different time periods. Readings usually range from the first Jewish literary text, the Hebrew Bible, to twentieth-century works, including writings about the Holocaust. The course typically includes units such as Jewish writing and culture in Eastern Europe, in the Americas, in Spain during the Middle Ages, and in Israel and

the Middle East today. The material may be organized chronologically, thematically, or by regions or languages. Texts that critique or apparently suppress Jewish identity, as well as texts with representations of Jews by writers of other heritages, may be included for comparative purposes. We will include writings by Jewish authors who have written in languages usually associated with Jewish tradition (such as Hebrew and Yiddish) and in other languages (such as Spanish, Arabic, German, English, etc.). Topics discussed in the literature may focus on questions of Jewish identity and continuity, the situation of Jews as a minority people, the immigrant and diasporic experience, representations of the Holocaust, and the establishment of Israeli culture as a mixture of several traditions. We will question generalizations about the meaning of "Jewish" by showing the wide range of characteristics associated with Jewish literary productions, and the great diversity of depictions of Jews and Jewish lifestyles, in different times and places. In addition to our primary focus on literary texts, we may include examples of other cultural productions (film, music, the visual arts, philosophy, etc.). All offerings of the course include writing assignment and discussion in the evaluation methods. The syllabus often includes 2 or 3 midterm exams (with essay questions); a final exam, paper, or project; oral presentations; participation in online discussions. CMLIT 110 (J ST 131) counts towards the Comparative Literature major and the World Literature minor. No prior knowledge of Jewish tradition is required, and General Education students are welcome. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and the United States and International Cultures requirement.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 132 (GH;US) (ENGL 132) Introduction to Jewish American Literature (3)** A historical and thematic survey of Jewish Literature of the United States.

**J ST (ENGL) 132 Introduction to Jewish American Literature (3)  
(GH) (US)**

This course will provide an introduction to Jewish American literature through a historical survey of the tradition's key texts, figures, and themes. The course will focus on the defining aspects of the literature and on what the literature "thinks" about Jewish American culture and identity. But rather than assuming a unity to Jewish-American culture, this course will use Jewish literature to seek ways of articulating and representing both the points of cohesion and the points of divergence that characterize Jewish life in America. The United States has absorbed large numbers of Jewish immigrants hailing from many parts of the world, holding many different ideas about Jewish practice, and affiliating themselves with many different political, social, and cultural traditions. Moreover, Jews have settled and made homes in a wide variety of American communities. This course aims to explore Jewish American culture's marked diversity by offering a literary window onto the major fault-lines running through Jewish American culture: lines demarcated by gender, by political affiliation, by geography, by pre-immigration community, by religious practice, by attitude toward world Jewry, by national allegiance, and by minhag (or custom), to name just a few. The class therefore provides an opportunity to consider the constitution, origin, and development of Jewish American's identity and social formations by looking at how that identity and those social formations exist and what they "do" in literature written by and about Jews in America. Materials will consist predominantly of primary texts, including prose fiction and nonfiction, poetry, drama, and film. Course methodology will emphasize the close reading of these texts. Through occasional writing exercises, formal papers, in-class projects, and essay examinations, students will respond to, integrate, compare, and analyze these materials. The course complements offerings in Jewish Studies and English, and it will satisfy the GH and US requirements. Most obviously, the course will offer students of Jewish literature, world literature, and American literature an opportunity for contextualization. It enables students in Jewish Studies to study the rich literature of American Jews, and it adds to courses covering Jewish American history, religion, and culture. The course offers students in English a valuable, sustained introduction to an important U.S. and world sub-culture.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 132U (GH;US) (ENGL 132U) Introduction to Jewish American Literature (3)** A historical and thematic survey of Jewish Literature of the United States.

**Introduction to Jewish American Literature (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 134 (GH;IL) (CAMS 134, RL ST 134) Archaeology of Biblical Israel (3)** Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.

**J ST (CAMS/RL ST) 134 Archaeology of Biblical Israel (3)  
(GH;IL)**

Ancient Israel and the Levant, a region that included present-day Israel, Jordan, Palestine, Lebanon, and southern Syria, traditionally served as the land bridge and crossroads that connected the great empires of Mesopotamia and Egypt. Its strategic geographic location has ensured its significance throughout history. Many different cultures and peoples have influenced and controlled this region resulting in a very multi-cultural past reflecting the history of the entire Ancient Near East. This is the background to the origins of the Israelites at the end of the second millennium B.C.E., the birth of the Hebrew Bible, and the emergence of Judaism, Christianity and Islam. This course will focus on Biblical Israel in the southern Levant from the emergence of Ancient Israel (ca. 1200 BCE) through the Second Temple and Roman periods concluding with the development of the region as the "Holy Land" for Jews, Christians and Moslems. Students will examine the emergence of Israel; the arrival and settlement of the Philistines; state formation and the period of the United and Divided Monarchies; the fall of Israel and Judah to the Assyrians and Babylonians; the return from exile during the Persian period; Hellenism and the influence of the Roman world on Palestine; the reemergence of Judah during the Second Temple period; the destruction of the Second Temple and emergence of Rabbinic Judaism; Palestine and its role as the "Holy Land" to Jews, Christians and Moslems. The course grade will be based on active participation (attendance, discussion sessions, group presentations and individual oral presentations), one midterm exam and one paper. This course fulfills three credits of the General Education or the B.A. humanities requirement and the GI requirement. For majors in Classics and Ancient Mediterranean Studies, the course fulfills the requirement of three credits in Near Eastern literature and language, civilization, or archaeology; and for those in the Classics and Ancient Mediterranean Studies ancient Mediterranean archaeology option it fulfills the three credits of archaeology course work requirement. The course fulfills three of the nine credit requirement for courses in RL ST 100-299 for the Religious Studies major, and Jewish Studies major's requirement for three credits of course work. CAMS/J ST/RL ST 134 GH may be used to fulfill the requirements for 12 credits of course work at any level towards a Classics and Ancient Mediterranean Studies Minor. This course will be offered once a year with 50 seats per offering.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 137 (GH;US;IL) (RL ST 137, WMNST 137) Women and Religion (3)** Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.

**J ST (RL ST/WMNST) 137 Women and Religion (3)  
(GH;US;IL)**

Women and Religion examines the historical and contemporary role of women in society and in religion, how those roles are shaped by religious doctrines around leadership, ritual, language, and the valuation of women's experience and history, and the diversity of women's voices speaking to these issues.

An historical inquiry begins with a review of early goddess-based religion and an examination of gender roles promoted in selected creation narratives, including those from Genesis. Additional biblical and non-canonical texts are studied for their various characterizations of woman, the influence of marital status, and her place in the public and private spheres. Historical debates about women consider what roles women played in leadership structures, in religious ceremonies and in the creation of a theological tradition as well as the places women created for themselves outside "official" institutional churches or the formalities of worship.

We study prominent women in biblical history, the early church, the medieval past, and in modern American history. What are their stories and what noteworthy contributions did they make in the history of religion? What do we know of their lives and thought?

Furthermore, the course addresses contemporary issues of importance to women and how those issues are resolved from the multiple perspectives within Judaism and Christianity. Such issues may include dating, marriage, family and divorce; spousal and gender relations; reproductive rights; homosexuality; sexual violence toward women; work outside the home; and religious leadership and inclusion.

Finally, the course examines women's diverse understandings of the ways of being religious. Women are not a homogeneous group and are responding in a multitude of ways to the decisions they face about staying within or working outside established institutions. We consider their choices, from redefining and recreating new traditions and rituals, both within and outside formal worship settings, to returning to goddess worship and other innovations inspired by the most recent feminist movement.

All topics are discussed in light of the different beliefs and understandings across the movements within Judaism as well as within Roman Catholicism and the many Protestant denominations. In addition, the diversity of scholarly interpretation is emphasized, including that offered by feminist theologians and the breadth of women's experience arising from factors of race, ethnicity, sexual orientation, and class and educational background.

General Education: GH  
 Diversity: US;IL  
 Bachelor of Arts: None  
 Effective: Fall 2012  
 Prerequisite: third-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 151** (CAMS 151, HEBR 151) Introductory Biblical Hebrew (3) Fundamentals of Biblical Hebrew grammar, syntax, and vocabulary.

### **J ST (CAMS/HEBR) 151 Introductory Biblical Hebrew (3)**

The aim of CAMS/J ST/HEBR 151 is to introduce students to the fundamentals of Biblical Hebrew as quickly and thoroughly as possible. Biblical Hebrew is the language in which the Old Testament was written, between the period of approximately 1200-200 B.C.E. This focuses primarily on the morphology and syntax of Biblical Hebrew. Drills on each point of grammar, as well as translation of sentences from Hebrew to English and English to Hebrew, and brief passages taken from the Bible are the basis of the student's homework throughout the semester. By the end of the semester, the students will be prepared to read short, unmodified passages of the Bible. The course will focus primarily on reading and writing, though students will read aloud in class regularly in order to ensure correct pronunciation and understanding. CAMS/J ST/HEBR 151 will prepare students to continue with CAMS/J ST/HEBR 152 and then 400-level courses.

The course goals, in addition to providing the students with a firm grounding in Hebrew grammar and vocabulary, include giving the students a basic understanding of the history of the Biblical text. The primary focus will be on mastering paradigms and syntax, but the students will also be introduced to the Biblical texts themselves, which together form such an important piece of literature.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 152** (HEBR 152, CAMS 152) Intermediate Biblical Hebrew (3) Intermediate study of Biblical Hebrew grammar, syntax, and vocabulary.

### **J ST (CAMS/HEBR) 152 Intermediate Biblical Hebrew (3)**

CAMS/J ST/HEBR 152 continues from CAMS/J ST/HEBR 151, which is a prerequisite for enrollment. After a brief review of key grammar and morphology from the first semester, the course will complete the process of providing students with a sufficient grasp of Hebrew vocabulary, morphology, and syntax to enable them to read unadapted passages from Biblical Hebrew texts (with the aid of a lexicon) by the end of the course. Class sessions will focus on grammar drills, sentences, and similar exercises as homework to supplement class work. As the semester progresses, students will read more and more from actual Hebrew texts, rather than composed sentences by the textbook author, so that when the students enter more advanced classes, they will find the transition to reading Hebrew as smooth as possible.

In tandem with the increasing emphasis on Hebrew written by ancient Hebrews, the course will continue to focus on the linguistic and cultural background for the texts that the students read. Students will be evaluated on a combination of written work, including frequent quizzes, tests, homework completion, and course attendance and participation. CAMS/J ST/HEBR 152 will prepare students to continue with courses at the 400-level.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2005  
 Prerequisite: J ST 151

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 153** (GH;IL) (CAMS 153, RL ST 153) Dead Sea Scroll (3) Examines the discovery, contents, and interpretations of the Dead Sea Scroll, Jewish texts from approximately 225 B.C.E. to 68 C.E.

### **J ST (CAMS/RL ST) 153 Dead Sea Scrolls (3) (GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will explore early Judaism through what is known about it from the Dead Sea Scrolls, Jewish documents dating from approximately 225 B.C.E. to 68 C.E. that were discovered in 1947-1956 along the Dead Sea in Jordan (now the West

Bank of Palestine). The course will be divided into three parts: 1) a short introduction to Judaism, especially the history of early Judaism, from the writing of the Hebrew Bible (Old Testament) to the Talmud; 2) a discussion of the caves above the Dead Sea and their relationship to the archaeological site called Khirbet Qumran; and 3) a survey of the contents of the 900+ Dead Sea Scrolls and select readings of some of them. These scrolls are primarily of three kinds: "biblical" books (books that came to comprise what is now known as the Hebrew Bible/Old Testament) and their commentaries or translations; "apocryphal" or "pseudepigraphical" books (previously known Jewish writings that never made it into the Hebrew Bible, such as Tobit, Enoch, etc.); and "sectarian" Jewish writings (previously unknown writings that seem to come from a minority Jewish group).

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 160** (GH;IL) (CAMS 160, RL ST 160) Sacrifice in Ancient Religions (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.

**J ST (CAMS/RL ST) 160 Sacrifice in Ancient Religions (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Sacrifice (from Latin sacer "holy" + facere "to make") is one of the most prominent and troubling aspects of religion, in that it involves making an offering or slaughtering an animal to a deity. Its destruction and violence is often at odds with other rituals and core understandings within a religion, so why is it done and what good does it bring? This course will first examine some competing definitions and theories of sacrifice, and then turn to its manifestations in the ancient societies and religions of Greece, Rome, Egypt, Mesopotamia, Israel/Palestine (along with its neighbors Hatti and Phoenicia), as well as some examples from outside the Mediterranean world and the Near East, such as Mesoamerica or Vedic religion.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 197A** (HIST 197A) East European Jewish History (3) This course examines the history of Jewish life in Eastern Europe beginnings with its Medieval origins and up through the Holocaust. Topics to be covered include religious, political, social, and cultural transformations, in the context of the general political changes in this area.

#### **East European Jewish History (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 197B** Maimonides (3) Nine centuries ago, Moses Maimonides--philosopher and physician--strove to enable medieval Judaism to meet the challenges of modernity. The result was wisdom for our time.

#### **Maimonides (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 199** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 205** (GH;US) (HIST 205) American Antisemitism (3) The Phenomenon of antisemitism in American history from Peter Stuyvesant to the present.

### **J ST (HIST/RL ST) 205 American Antisemitism (3) (GH;US)**

This course explores the phenomenon of antisemitism in American history from the time of Peter Stuyvesant to the present. The significance and role of American antisemitic movements and authors, as well as its role in American society and culture, are examined and compared to those in European history over the same periods. At the same time, the impact of antisemitism on the lives and mentalities of American Jews is discussed. The course focuses on readings taken from original sources and recent historical treatments. The readings include material on colonial texts, Grant's notorious Order, nativists and anti-immigration texts, Gilded Age antisemitism, the Immigration Acts of the 1920's, Henry Ford's antisemitic campaign, Southern antisemitism and the Leo Frank case, the quota system at American universities, employment discrimination, the "Gentlemen's Agreement" system, Black antisemitism, and the New Antisemitism.

General Education: GH  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 210** (GH;IL) (CAMS 210) Numismatics and the Historian (3) Numismatics--the scholarly study of coins and medals--is a major tool in the study of Classical history and archaeology.

### **J ST (CAMS) 210 Numismatics and the Historian (3) (GH;IL)**

**WHY STUDY NUMISMATICS?** Numismatics is the scholarly study of coins. Coinage has been used in the ancient world since the 7th century BCE. Eventually, minted money—i.e. coinage—came to supplant money in other forms, replacing barter as the primary means of exchange in economies around the world. Coinage became a tool of governments to impose taxation upon their subject peoples, and to spread propaganda about governmental goals or issues. Coins are works of art, but they are common, widely circulating “works of art,” which also accomplish a daily monetary function to run commerce and the monetary system of an economy. Coins are also historical records, containing valuable information for the historian who is attempting to reconstruct the history of another time or place. For archaeologists, coins sometimes are the only means of providing absolute dates for excavated strata. The interpretation of numismatic evidence, like any other pieces of evidence in the historical puzzle, however, requires special knowledge and expertise.

This course is not a course in “coin collecting,” although the collector may find the course helpful or interesting. It is an investigation of the development of coined money in the ancient world, with special investigations into (1) how coins were struck and used in Phoenicia of the 5th and 4th centuries BCE; (2) the variety and early uses for coins in the Greek city

states of the 6th-4th centuries BCE; (3) the development of Jewish coins in the Holy Land, from Persian times to the period of the 2nd Revolt (early 2nd century CE); and (4) the development of coinage in the Roman economy of the 1st—5th centuries CE.

Photographs of coins will enhance class work. With the cooperation of the Palmer Museum, on Penn State's University Park Campus, the class will have access at several points during the semester to view and work with coins from the Palmer's collection of ancient Jewish coins. Students will leave the course with a new understanding of what coins are, how they developed, and what they can teach us about ancient history and economics.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 220 (GH;IL) (HIST 220)** The Jewish and Other Diasporas (3) Introduction to and survey of the Jewish and other Diasporas around the world.

**J ST (HIST) 220 The Jewish and Other Diasporas (3)  
(GH;IL)**

The long dominant view that the Jewish experience since antiquity defines Diaspora as a concept has been challenged in recent years. The meaning of the term Diaspora and related terms, especially (ethnic and/or national) identity and (ethnic and/or national) community, is a matter of much debate across disciplines. The longevity and diversity of distinct Jewish communities around the globe make the Jewish case a particularly interesting subject for study. In a wide geographical, chronological and disciplinary comparative sweep, the course will explore the diverse nature of ethno-national and ethno-religious diasporas (and sub-diasporas), their position vis-à-vis their place of origin ("homeland") and their new surrounding culture and society. More specifically, the course will analyze how Diaspora communities in Europe, Asia, and the Atlantic world reconstituted their identities as they expanded into new environments and encountered other cultures, from antiquity to the present. Emphasis will be placed on exploration of the intersection of politics and culture in respect to race, nationality, ethnicity, gender and class. A key question guiding the discussions will relate to the usefulness and limitations of the Diaspora concept, especially in regard to the discourse about globalization where the term is often used.

The course will begin with an extensive discussion of theoretical texts about the Diaspora phenomenon. This is followed by case studies of several larger Diasporas, ranging from the Jewish, the Greek to the Chinese Diaspora. Several case studies, notably the Muslim Diaspora, the concept of a victim Diaspora, or alternative Diasporas highlight the limitations of the Diaspora concept.

The course introduces students to interdisciplinary approaches, placing some emphasis on the use of theoretical texts written by historians, sociologists, political scientists, and anthropologists. The course includes a one-day field trip to the Lower Eastside in New York (visit of the Museum of Chinese in America, walking tour of the Lower Eastside to explore the history of a key American immigrant neighborhood).

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 235 (US;IL) (HIST 235, RL ST 235)** The Church and the Jews (3) Examination of the relationship between Western church and the Jews from the First Century to Enlightenment.

**J ST 235 The Church and the Jews (3)  
(US;IL)**

This course will examine a key aspect of western history - the complex relationship between the Western (Roman Catholic) Church and the Jews, from the first century to the present. We will analyze ideas and policies regarding Jews as expressed in different realms, from theology and canon law to church art and popular preaching. We will also examine how changing conditions led to striking changes in church attitudes and policy, and how church policy was often at odds with popular sentiments about Jews.

The course will be designed to enable students to grasp the fluidity of attitudes over time, and the interplay of economic, social, political, and theological factors; to grasp of essential elements of a key area of conflict in western culture; and to develop their skills in the close reading of primary texts.

Students will be evaluated on the basis of three quizzes and a final exam.

The course would offer a chance for students to develop perspectives previously gained in a number of courses, particularly HIST 001 and 002 (The Western Heritage), RL ST 001 (Introduction to World Religions), RL ST 101 (Comparative Religion), HIST 107 (Medieval Europe), HIST 407 (Early Medieval Society), and J ST 010 (Jewish Civilization). It would complement such courses as HIST 108 (The Crusades), HIST 408 (Church and State in the High Middle Ages), HIST 412



(Intellectual History of the Middle Ages), HIST 414 (Renaissance and Reformation), J ST 111 (Early Judaism), J ST 110 (Hebrew Bible), RL ST 120 (New Testament), and RL ST 124 (Early and Medieval Christianity).

The course will count for 3 credits toward: a) the 22 credits required for the minor in Jewish Studies, b) the 33 credits required for the major in Jewish Studies, c) the 30 credits required for the major in Religious Studies, and d) the 36 credits required for the History major.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 280 (GH;IL) (WMNST 280, RL ST 280) Women and Judaism (3)** Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.

**J ST (WMNST;RL ST) 280 Women and Judaism (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Women and Judaism will introduce students to the roles and views of women as seen in the Jewish tradition. Because Judaism is not monolithic, these views will vary even within time periods and even among rabbis. The goal of this course, therefore, is not for students to leave the class with one idea of what a Jewish woman is or one idea of what issues are at stake for women in Judaism. Rather, the goal is for students to understand the complex relationship women have to this religion. This course will also explore the views of Jewish women and the issues that concern them in contemporary society. Objectives include the following: students will begin to understand the stereotypes that influence how Western society views Jewish women, and as a result, how they have come to view themselves. They will be asked to examine the many important roles that Jewish women have played both in their religion and the society at large. They will be asked to examine how the Jewish tradition both helped and hindered women to play these roles. They will see how Jewish women contributed to the development of their own religion and to the larger culture in which they live. They will develop a deeper appreciation for the complexity of the relationship between women and religion. Topics include images of Jewish women in the Bible and the media, women and Jewish views of sexuality, Jewish ethics, Judaism and feminism, and women and Jewish theology. Students will be evaluated by examination, writing ability (several short papers or one larger paper), and group presentations.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 294 Research Projects (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 295 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that

may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 399** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 401** (IL) (HIST 401) Ancient Technologies and Socio-cultural History in the Ancient Levant (3) Social and intellectual development in the Ancient Levant as they affected and were affected by technological development.

### **Ancient Technologies and Socio-cultural History in the Ancient Levant (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: RL ST 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 405** (IL) (RL ST 405) Ancient Jewish Traditions and Modern Food Movements (3) Jewish laws, customs and attitudes with regard to food production, agricultural policy and eating from biblical to modern times.

### **J ST (RL ST) 405 Ancient Jewish Traditions and Modern Food Movements (3) (IL)**

This course examines Jewish laws, customs and attitudes with regard to food production, agricultural policy and eating from biblical to modern times. These tenets of the Jewish tradition presently underwrite modern movements concerned with land use and food sustainability, as well as ethical behaviors in food production. The goal of the course is to understand how Jewish tradition can inform and contribute to improvements in the modern food system. The starting point is the ancient world of the Israelites,. Students will study agrarian interpretations of the Hebrew Bible as well as extra-biblical sources and archaeological data. The biblical attitudes toward food, eating, and agricultural practices are then traced into the post-biblical period and rabbinic periods. The course then jumps ahead to the present day, to shed light on a number of modern Jewish agricultural and food initiatives concerned with issues such as healthy land use, sustainability, and justice in food production and distribution. These movements proceed from various interpretations of Jewish law and custom, and illustrate how some modern Jewish attitudes toward food and eating are responsible for reimagining, and in some cases reinvigorating, biblical ideas and practices. At the conclusion of this course, students will be able to identify and understand the historical and theological significance of diet and eating practices of ancient Israelites and will understand the development of Jewish food laws and practices in the post-exilic and early rabbinic eras. Students will be able to evaluate the extent to which ancient Jewish thought has influenced modern Jewish attitudes and actions regarding food and social responsibility, and will be able to envision the ways in which Jewish tradition, both ancient and modern, can contribute to current progress and future improvement in our systems of food production, distribution and consumption. While a wide variety of derivative topics will be discussed, this course is particularly appropriate for students pursuing programs of study dealing with the biblical world, the development of early Judaism, Jewish ethics, and/or modern Jewish thought, as well as those studying agriculture and food systems who are interested in how Jewish tradition addresses these universal concerns. Evaluation will be based on weekly 1-2 page written responses to the assigned readings (45%), a midterm exam (15%), final project (30%), participation (10%). No special facilities are required. Course will be offered each term, enrollment limited to 20 students.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**J ST 409Y (IL) (HIST 409Y, RL ST 407Y) European Anti-Semitism from Antiquity to the Present (3)** Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.

**J ST (HIST) 409Y (RL ST 407Y) European Anti-Semitism from Antiquity to the Present (3) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course analyzes major episodes in the history of anti-Semitism and tries to clarify the Motives and dynamics involved. It seeks to understand what these episodes have in common, and what is unique in each case. Is there a single universal, eternal anti-Semitism? Or are there rather anti-Semitisms", each belonging to a unique historical context? Is there a single continuous line of development in anti-Semitism? What is the relationship of a particular anti-Semitism to the national culture in which it originates?

We will be reading the major original texts of anti-Semitism from Roman and ancient writers, through early Christian texts and medieval Christian Blood Libels against the Jews, documents of the Spanish expulsion, Lutheran tracts, Voltaire's essays, German philosophical texts from Kant to Marx, Wagner's racial essays, the Protocols of Zion, and documents of Nazi anti-Semitism by Hitler and Streicher.

The major part of the grade will depend on a short research paper which will be presented in various drafts, so that the final version represents the culmination of discussion and constructive criticism and advice. This course is a parallel course to J ST/HIST 416 (Zionist History) and J ST/HIST 118 (Modern Jewish History). This course will count toward the Religious Studies, Jewish Studies, and History majors and minors in the 400-level category. This course is offered once every other year with 25 seats per offering.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 410 (US;IL) (HIST 410, RL ST 410) Jews in the Medieval World (3)** Trends in medieval Jewish society under Islam and Western Christendom.

**J ST 410 Jews in the Medieval World (3) (US;IL)**

The Jews lived in widely scattered communities under Christian and Islamic rule in the medieval period. This course will examine how Jews adapted the traditions they developed in Palestine and Babylonia in the early centuries C.E. to the new conditions they encountered in Europe and the Mediterranean region from the ninth to the fifteenth centuries. It will focus on the general problem of how traditional societies survive in rapidly changing circumstances, particularly when their members are a minority population. The course will aim at developing students' skills in comparative analysis as they compare the adaptive strategies of Jews in different cultural spheres (the Franco-German region versus Spain, for example). They will also be asked to compare the different polemical stances Jews adopted vis-a-vis Christianity, on the one hand, and Islam, on the other. They will be encouraged to understand the ways in which Jews internalized certain aspects of the majority culture and rejected others. It is hoped that they will come to see how deeply Jewish history was intertwined with medieval Christian and Islamic history, despite inter-religious hostilities and the frequent need for Jews to defend against majority aggression.

Students will be evaluated on the basis of two mid-term exams (the first after the survey of the Muslim world, the second after the examination of the Franco-German region) and a comprehensive final exam.

The course will be linked to most of the courses taught in the field of Jewish Studies, especially J ST 111 (Early Judaism), J ST 114 (Modern Judaism), and J ST 118 (Modern Jewish History from 1492). It will also be linked to offerings in Religious Studies: RL ST 001 (Introduction to World Religions), RL ST 101 (Comparative Religion), RL ST 107 (Introduction to Islam), RL ST 124 (Early and Medieval Christianity), and RL ST 165 (Introduction to Islamic Civilization). Further, it would complement HIST 001 and 002 (The Western Heritage), HIST 107 (Medieval Europe), HIST 108 (The Crusades), HIST 407 (Early Medieval Society), HIST 408 (Church and State in the High Middle Ages), HIST 412 (Intellectual History of the Middle Ages), and HIST 471W (Classical Islamic Civilization, 600-1258).

The course will count for 3 credits toward:

- a) the 22 credits required for the minor in Jewish Studies
- b) the 33 credits required for the major in Jewish Studies
- c) the 30 credits required for the major in Religious Studies
- d) the 36 credits required for the History major

It will be offered once a year with an enrollment of approximately 60 students.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 411 (US;IL) (RL ST 411) Jewish Studies (3)** Study of the life and thought of a particular period or movement in the history of Judaism.

### **Jewish Studies (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: 3 credits in religious studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 412 (RL ST 412) American Judaism (3)** The development of Jewish religion and culture in America from the colonial era to the present.

### **American Judaism (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999  
Prerequisite: HEBR 010 or J ST 010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 416 (HIST 416) Zionist History 1890-1948 (3)** History of Zionist thought and politics to the foundation of Israel 1948.

### **Zionist History 1890-1948 (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 420 (ANTH 420) Archaeology of the Near East (3)** Culture of the Near East and India from Paleolithic times through the Bronze Age.

### **Archaeology of the Near East (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: ANTH 008/ANTH 009/ANTH 011 or ANTH 012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 424H (HIST 424H, RL ST 424H) Monotheism and the Birth of the West (3)** The birth of monotheism and its relation to social organization, the idea of individuality, and science.

### **J ST (HIST/RL ST) 424H (PHIL 434H) Monotheism and the Birth of the West (3)**

Learn about the formation of Western culture, while learning to analyze the texts and other evidence about its formation from a critical, rather than naive, viewpoint. The idea of monotheism probably arose very early and was even briefly implemented as a state cultic policy in Egypt in the 14th century BCE. Why, then, did it take another seven centuries to become widespread--appearing in ancient Judah, Babylon, and Ionia almost simultaneously? To answer this question, the course focuses on several developments, through the medium of primary texts and archaeology: the shift from a state hinterland based in extensive agriculture and household processing to one organized for intensive agriculture and industrial processing the rise of recognizably modern science; the promotion of individuation and an international elite culture in the context of Assyrian and Babylonian imperial ambitions; the development of the historical and archaeological arts in the context of archaizing in order to reinvent local traditions; and the socialization of monotheism and of democracy. Students will be evaluated on their discussion of the textual evidence as well as on reports in class and a final paper. This is the sole honors course treating the birth of the West. It expands on knowledge acquired in courses listed as prerequisites and in CAMS/J ST/RL ST 012; CAMS 044; ANTH/CAMS 133; CAMS/PHIL 200; HIST 100; HIST/J ST 102; and PHIL 200 and enriches the student experience in CAMS 400, CAMS 440, and CAMS 480; HIST 402; J ST 411; PHIL 437, PHIL 453, and PHIL 461. This course counts toward the major in Jewish Studies, History, and Religious Studies and toward the minor in Jewish Studies and Religious Studies. This course will be offered once every other year with 35 seats per offering.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2012  
 Prerequisite: J ST 004J ST 102J ST 110 orJ ST 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 427 (ENGL 427) Topics in Jewish American Literature (3 per semester/maximum of 9)** An in-depth examination of important themes, writers, and/or historical developments in Jewish Literature of the United States.

### **J ST (ENGL) 427 Topics in Jewish American Literature (3)**

This course will provide sustained examination of major themes, texts, and figures in the Jewish American literary tradition. The course will focus on depth rather than breadth in its analysis of the defining aspects of the literature and on what the literature reveals about Jewish American culture and identity. The United States has absorbed large numbers of Jewish immigrants from many parts of the world, holding many different ideas about Jewish practice, and affiliating themselves with many different political, social, and cultural traditions, and moreover Jews have settled and made homes in a wide variety of American communities. Close analysis of literature will therefore provide an opportunity to consider the constitution, origin, and development of Jewish America's wider cultural, political, and social contexts. Materials will consist predominantly of primary texts, including prose fiction and nonfiction, poetry, drama, and film, and the methodology will emphasize the close reading of these texts. The course complements offerings in Jewish Studies, English, and Comparative Literature. Most obviously, the course will offer students of Jewish literature, world literature, and American literature an opportunity for contextualization. It enables students in Jewish Studies to study the rich literature of American Jews, and it adds to courses covering Jewish American history, religion, and culture. The course offers students in English and Comparative Literature a valuable, sustained introduction to an important U.S. and world sub-culture and -literature.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: ENGL 015 orENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 427 (ENGL 427) Topics in Jewish American Literature (3 per semester/maximum of 9)** An in-depth examination of important themes, writers, and/or historical developments in Jewish Literature of the United States.

### **J ST (ENGL) 427 Topics in Jewish American Literature (3)**

This course will provide sustained examination of major themes, texts, and figures in the Jewish American literary tradition. The course will focus on depth rather than breadth in its analysis of the defining aspects of the literature and on what the literature reveals about Jewish American culture and identity. The United States has absorbed large numbers of Jewish immigrants from many parts of the world, holding many different ideas about Jewish practice, and affiliating themselves with many different political, social, and cultural traditions, and moreover Jews have settled and made homes in a wide variety of American communities. Close analysis of literature will therefore provide an opportunity to consider the constitution, origin, and development of Jewish America's wider cultural, political, and social contexts. Materials will consist predominantly of primary texts, including prose fiction and nonfiction, poetry, drama, and film, and the methodology will emphasize the close reading of these texts. The course complements offerings in Jewish Studies, English, and Comparative Literature. Most obviously, the course will offer students of Jewish literature, world literature, and American literature an opportunity for contextualization. It enables students in Jewish Studies to study the rich literature of American Jews, and it adds to courses covering Jewish American history, religion, and culture. The course offers students in English and Comparative Literature a valuable, sustained introduction to an important U.S. and world sub-culture and -literature.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: ENGL 015 orENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 433 Introduction to Jewish Music and Art (3)** Introduction to the study of Jewish music and art from antiquity to the present.

### **J ST 433 Introduction to Jewish Music and Art (3)**

The course will provide an introduction to the importance of art (including architecture) and music to Jewish civilization from the ancient world to the present. The course stresses the way in which Jews have adapted techniques from the

peoples around them, and how their art and music have developed under circumstances ranging from almost complete toleration to extreme persecution. Important periods covered including synagogue art and architecture from late antiquity to the Middle Ages; illuminated manuscripts, decorative arts, and songs from the Middle Ages; the emergence of important professional Jewish artists and musicians in the nineteenth century in Europe; Jewish artists in the forefront of political protest art in the early twentieth century; art and music during the Holocaust and to memorialize it; the flourishing of Jewish art and music in both traditional and new forms since World War II. The historical, social, and intellectual contexts of the development of music and art, rather than technical aspects of musical and artistic creation and perception, will be emphasized. In particular, the role of music and art in preserving Jewish pride and identity under two threatening circumstances – periods of persecution where survival was threatened and periods of toleration where conversion and conformity become alluring – will be considered.

In addition to looking at and listening to works of art and music, written texts describing the historical and social contexts and providing information about the works and their creators will be discussed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: 5th semester standing and one of the following: a previous course in art music or literature or else J ST 010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 434 Media and the American Jewish Experience (3)** Study of United States Jewish history through film and accompanying written text.

### **J ST 434 Media and the American Jewish Experience (3)**

The course examines theater, radio, television, and film as important sources for understanding the Jewish experience and its impact on American culture more generally since the late 19th century. The role of Jews as prominent directors, producers, actors, and writers will be considered in their social-historical context in addition to the subjects covered in the works and programs they have created. Among the topics discussed will be Jewish life in late 19th-early 20th century Europe; immigrant life in turn of the century America and questions such as assimilation, preservation of tradition, family life, social mobility, and male/female relations; Jews in show business, organized crime, and sports; American Jews and the Holocaust; American Jews and Israel; Jews in the modern age; generational and denominational differences among Jews; and Jews and anti-semitism.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: 5th semester standing and one of the following: a previous course in art music or literature or else J ST 115

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 450H (PL SC 450H) Genocide and Tyranny (3)** This course focuses on the conceptualization and socio-political determinants of genocide and tyrannical regimes, with an emphasis on the Holocaust.

### **J ST (PL SC) 450H Genocide and Tyranny (3)**

This course focuses on the etiology of mass killing, with an emphasis on the socio-political determinants and consequences of massacres, ethnic cleansings, and other crimes against humanity. It is designed to help students understand genocide as a phenomenon of political violence and to explore the epistemological issues associated with the study of genocide. Students will learn to use the study of specific events (such as the Holocaust) to understand broader concepts and phenomena (in this case: genocide) as well as to develop analytical and communication skills through active discussion in class sessions.

The course is divided roughly into three parts: The objective of the introductory part of the course is to situate genocide as an act of political violence, and to create a working definition of the concept for the topics covered in subsequent weeks. In the second part various aspects of the Holocaust will be examined. Starting with a history of the Holocaust, we will cover philosophical, political, and military explanations for it. Some of the questions we will discuss in this part of the course include: (a) How does the Holocaust fit into the typologies of genocide? (b) Can extreme genocide that can be studied in a comparative context with the Holocaust? Does the "uniqueness" of the Holocaust influence the manner in which we study it? (c) Were the determinants of the Holocaust rooted in larger social and political factors? (d) Which contemporary political factors were associated with the Holocaust? During the last part of the course, we will discuss three other instances of genocidal violence: Armenia, Yugoslavia, and Rwanda. These events will be discussed using the same theoretical and analytical approaches as in the previous weeks. The concluding sessions will also focus on the questions of why it is important to study genocide, what lessons can be learned from understanding such events, and whether studying genocide is relevant to the current international system. Course topics will be discussed in light of assigned readings and films.

This course fulfills the distribution requirement for international relations, as well as the advanced and related course requirements for Political Science majors. The course fulfills the supporting course requirement for International Politics and Jewish Studies majors.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: PL SC 003PL SC 007 orPL SC 014 orHIST 121

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 457 (US;IL) (ANTH 457, SOC 457) Jewish Communities: Identity, Survival, and Transformation in Unexpected Places (3)** Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement.

**J ST (ANTH/SOC) 457 Jewish Communities: Identity, Survival, and Transformation in Unexpected Places (3) (US;IL)**

This course addresses an understudied aspect of Jewish experience. It aims to expand our understanding of Jewish communities by focusing on those that are, alternatively, small, situated in out-of-the-way places, culturally outside the Jewish urban mainstream, or embedded in a larger society with markedly different values and traditions. These communities often constitute the points-of-contact between Jews and non-Jews, and in so doing sometimes transform Jews, non-Jews, and the relationships among them. Other such communities constitute experiments in Jewish lifeways and provide mainstream Jews with pilot projects for potential social and cultural change. This course will explore the significance of small, little-known, idiosyncratic, and anomalous Jewish communities on Jewish history and culture, and draw on them to instruct students on the social and cultural processes of small or unusual communities generally. The communities studied will be located both in the U.S. and elsewhere in which Jews have lived as a minority community during modern times. The course will look at the founding, growth, and decline of such communities and at their social processes and institutions. It will explore how to understand and analyze such communities, which vary from one part of the world to another. The social world of Jewish communities, large and small, is a core interest of Penn State's Jewish Studies Program. This course will complement the current offerings in Jewish Studies, strengthening the social, cultural, and contemporary perspectives available in the Program. It will provide students with an opportunity to explore individual experience and micro-level processes among Jews, and to study the dynamics of identity and survival. It will complement the current offerings in Sociology and Anthropology by affording an opportunity to focus on community-level social processes and by adding a course on contemporary Jewry. The course will integrate knowledge from a variety of sources and fields, promote intercultural understanding, and meet US and IL requirements. Materials will be interdisciplinary, and will include ethnographies, sociological studies, population studies, histories, and personal narratives. They will include primary texts, creative works, and scholarly analyses. The assignments will be structured to facilitate preliminary experience in independent analysis, library research, or field research. The course will be offered approximately once a year. Enrollment will be limited to 30 students in order to promote active, engaged learning. Evaluations will be based on short papers and outlines that will prepare students for their final, term papers.

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: None  
 Effective: Summer 2006  
 Prerequisite: ANTH 001 orANTH 045HEBR 010J ST 010SOC 001SOC 005SOC 007SOC 015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 468 Modern Jewish Philosophy (3)** Explores the major figures in modern Jewish philosophy and their influences on contemporary philosophy.

**J ST (PHIL) 468 Modern Jewish Philosophy (3)**

The primary objective of this course is to encourage students to have a reflective stance on Jewish thought. Students will learn what comprises Jewish thought and how it is distinguished from theology. They will learn what role religion plays in philosophical thought and what is at stake for a philosophy that emerges from a particular religion. This course will give students perspective on how Judaism links to other philosophical movements, for example, the enlightenment of the modern period. It will enable to think about Judaism from a theoretical perspective, adding a new dimension to what they might study from historical, sociological, or literary viewpoints. Some questions we will consider include: In what ways does it converge/diverge, with the philosophical strains that influence it? In what ways have particular events in history shaped Judaic thinking? Does Judaism, or Judaic thinking, have an essence? If so, what is it? What does Judaism mean for the Jews, and what does it mean for others? And finally, what role does mysticism have in the play between religion and philosophy? Students will be evaluated by written work (short papers and a longer seminar paper) and a class presentation.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2012  
 Prerequisite: one course in Philosophy and/or Jewish Studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**J ST 478 (RL ST 478) Ethics After the Holocaust (3)** Explores the philosophical effects of the Holocaust for thinking about the primary question: Is ethics possible?

**J ST (PHIL/RL ST) 478 Ethics After the Holocaust (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an examination of ethical theories before the Holocaust and how those theories have failed, philosophically and empirically. Course topics will include the history of ethical theory, the nature and problem of evil, goodness and suffering, witnessing and testimony, and the promise of an ethics. This course provides students with philosophical approaches to the issues that emerge out of the events of the Holocaust. The course will help students expand their knowledge of the events of the Holocaust through a philosophical approach that does not merely expose them to what happened, but asks them to think about the implications of what happened: most specifically, how do we understand ethical life, if it cannot stop or confront evil? This course provides students with the philosophical approaches to the issues that emerge out of the events of the Holocaust. It will encourage them to think critically, write effectively and express their thoughts logically. Student evaluation will be based on weekly reaction papers, group presentations, and a final seminar paper. This course covers material in the history of philosophy, contemporary philosophy, and writings pertaining to the Holocaust in various forms (historical, literary documentary, and so forth). It provides links to other major areas in the history of philosophy, postmodernism, ethics, philosophy of religion, and Jewish history. It will be offered every other year.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2012

Prerequisite: one course in Jewish Studies or Philosophy

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 480 (CAMS 480) Greeks and Persians (3)** Development and achievements of the Achaemenid kingdom; relationships between Persians and Greeks.

**Greeks and Persians (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: CAMS 010/CAMS 025 or CAMS 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 494 Research Projects (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 494H Research Projects (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Spring 1998  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 497A** (HIST 497C, WMNST 497A) Gender and Autobiography in Modern Jewish History (3) In this course we will read autobiographies critically and carefully in examining the tremendous change wrought by modernity in the Jewish community. In particular we will look to memoir literature to illuminate the role of gender in Jewish life over the past two hundred years.

### **Gender and Autobiography in Modern Jewish History (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**J ST 499** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Kinesiology (KINES)**

**KINES 001 (GHA)** Introduction to Outdoor Pursuits (1.5-3 per semester, maximum of 12) Introduction to selected outdoor pursuit activities, such as, but not limited to, rock climbing, cross country skiing, backpacking, hiking, orienteering.

**KINES 001 Introduction to Outdoor Pursuits (1.5)  
(GHA)**

Introduction to Outdoor Pursuits is a course that is designed to 'introduce' the student to selected outdoor pursuit activities. The selected activities will depend on the time of the year and availability of resources. The activities could include (but are not limited) to rock climbing, indoor wall climbing, trail day hiking, mountain biking, backpacking, orienteering, kayaking, canoeing, and cross-country skiing. All selected activities will follow the same basic format of skill development and training procedures, history of the activity, available written resources and professional organizations related to the activity, logistical equipment preparation, safety management/risk assessment, and future opportunities to participate in the activity. It is the sole purpose of this course to allow the student to explore different outdoor pursuit activities and then to make a more informed decision as to which activities they might choose to further develop their skill base and competency necessary to partake in the activity at a more advanced level on a lifelong basis. Students will be evaluated by a combination of evaluation techniques. Some examples could include written exams, skill testing and activity management, short writing assignments of topics related to activity, journal keeping and subjective evaluation of performance. This course fulfills the BPA General Education requirement. After completion of the course, students are encouraged to engage in PSOC (Penn State Outing Club) programs, the advanced skills track in the Department of Kinesiology, and other appropriate courses to help with the continued development of 'life skills'.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 003** Drugs in Sports (1) Nature of drug use, misuse, and abuse in the athletic setting with implications for counseling and controls.

**Drugs in Sports (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 004 (GHA)** Principles of Fly Tying and Fly Fishing for Trout (1.5) A course designed to enhance student's knowledge, skill, and performance in fly tying and the sport of fly fishing for trout.

**KINES 004 Principles of Fly Tying and Fly Fishing for Trout (1.5)  
(GHA)**

Kinesiology 004 is a unique course designed to give PSU students of all experience levels an introduction to the lifetime sport of fly fishing. The purpose of the course is to present the students with the many aspects of fly tying and fishing for trout so that they can enjoy fishing success for the remainder of their active adult lives.

In the course the student will acquire the knowledge, skills, and tactics that they will use to problem solve in the constantly changing natural environment. Instruction /participation will include, but is not limited to, the following topics: conditioning, basic fly tying, tying local patterns, conservation techniques, equipment use/care/selection, fly casting, aquatic entomology, stream hydrology, interpretation of fly fishing opportunities, fly fishing-tactics, basic knots, and field trips to local streams. This is an active lab course where students will participate daily.

There are several unique features surrounding the fly fishing course that should be noted. Because of the geologic location of the University, we are located near many of the premiere fly fishing streams in the eastern United States. These streams have made the university not only a destination for fly fishing minded students but also provides an outstanding opportunity for discovery by other students of a positive, new activity. We use these streams as our labs for the field trips to apply what is learned and enhance the basic understanding of the sport. This is not a new course but a new model of the first accredited university fly tying and fishing course started in the 1930s by Mr. George Harvey. George's early teaching and innovations are so well thought of by the fly fishing community that he is known as the dean of fly fishing and Penn State as Fly Fishing.

Students will be evaluated by a combination of techniques. There will be a written exam, skills testing for casting and fly tying, and subjective evaluation of performance. Students who successfully complete KINES 004 will possess a command of fly fishing knowledge and skills. They will be able to approach every fly fishing situation with critical thinking that will allow them to be confident that they can be successful. Students will find that they have enhanced their quality of life now and for the remainder of their lives.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 006 (GHA) Cycling (1.5)** A course designed to give students an understanding of and the ability to establish an exercise program involving riding.

**KINES 006 Cycling (1.5)  
(GHA)**

Kinesiology 006 introduces students to the performance of cycling as a lifelong activity that helps maintain and enhance physical fitness and overall wellness. This course provides the information that the student needs to understand, organize, plan and implement a physical fitness program that features cycling as a primary activity. The centerpiece of this course is a progression of individually-paced rides of varying lengths that are conducted over various terrains. Past activities have included individual time trials, 5 through 25 mile road and trail rides, interval rides, hill rides, and rides to various locations of interest including, Beaver Stadium, the deer research pens, Sunset Park, and various other landmarks around campus and in the community. These activities are complemented by a series of lectures on such topics as the physiology of exercise, cycling safety; goal-setting for personal health; principles and concepts of physical fitness; training methods to address different cycling goals; and nutrition and weight control. Students also participate in team-based projects such as group-designed scavenger hunts and "landmark rides." As a final project, each student is asked to define a measurable fitness goal and design a fitness cycling program to realize that goal. As part of this assignment, students assemble data to indicate that they have achieved their goal, and then identify and analyze the factors that contributed to their success. Students also have the opportunity to monitor their performance throughout the course using a variety of personal assessment inventories and instruments, such as logs and heart rate monitors. When a student completes Kinesiology 006, he or she will be able to identify the components of an effective physical fitness program and explain how cycling contributes to the success of this program; develop realistic fitness goals and design a cycling program to meet these goals; perform a variety of fitness cycling techniques; and understand how cycling promotes psychological well-being. Various evaluation techniques will be used to assess individual progress in Kinesiology 006. These techniques will include (but are not limited to) conventional objective testing, performance on an individual time trial cycling test, personal assessment inventories and assignments, and journaling assignments. There are no special facilities for this course. The Department plans to offer two to four sections each fall and spring semesters with an enrollment of 30 in each section.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 008 (GHA) Competition Casting (1.5)** A course designed to enhance student's knowledge, skills, and performance in all forms of casting for sport fishing.

**KINES 008 Competition Casting (1.5)  
(GHA)**

Kinesiology 008 is a unique course designed to give PSU students, of all experience levels, an introduction to the lifetime activity of competitive casting for all types of sport fishing. The purpose of the course is to present the students with the many aspects of casting as it relates to sport fishing. Casting is the key skill in the sport of angling, if you can not cast you can not fish. It is critical to the students enjoyment as an angler. It allows them to be successful fishers for the remainder of their active adult lives.

In the course, the student will acquire the knowledge, skills, and tactics that they will use to problem solve in the constantly changing natural environment. Instruction/participation will include, but is not limited to, the following topics: conditioning, basic bait, fly and spin casting, conservation techniques, equipment use/care/selection, aquatic entomology, stream hydrology, interpretation of fishing opportunities, fly fishing tactics, basic knots, and field trips to local streams. This is an active lab course where students will participate on a daily basis.

Students will be evaluated by a combination of techniques. There will be a written exam, skills testing for casting, and subjective evaluation of performance. Students who successfully complete KINES 008 will possess a functional command of fishing knowledge and skills. They will be able to approach every fishing situation with the critical thinking that will allow them to be confident that they can be successful. Students will find that they have enhanced their quality of life now and for the remainder of their lives.

KINES 008 class is the first level course that is taught in sequence with the fly fishing and fly fishing masters courses in the Kinesiology activity program.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**KINES 010 (GHA) Indoor Rock Climbing (1.5)** A course designed to provide students with the basic skills, safety, and knowledge of rock climbing.

**KINES 010 Indoor Rock Climbing (1.5)  
(GHA)**

Kinesiology 010 is a course designed to give students a comprehensive introduction to the skills, safety, terminology and equipment used in the sport and recreational activity of rock climbing. This course also provides the knowledge base and experience the student needs to evaluate their continued safe participation in rock climbing. Students will be involved from the onset of the course practicing responsibility, cooperation, and collaborative skills. Group work is an essential component to the success of the student and the course as students work together in teams of climber and belayer (method of securing a climber by the use of a rope). This group connection will also develop communication and trust between climber and belayer. Group work provides the climber with feedback and positive encouragement during the climbs. Observing team member(s) learn and practice constructive encouragement and visual observation in evaluating technique and route choice. Also, immediate instructor and peer assessment will be valuable tools in assisting the climber as they practice to achieve a higher proficiency in climbing techniques. One other vital component to be learned and tested is the proficiency of belaying which instills the important responsibility of safe climbing for all. Each class can begin with a physical preparation for climbing focusing on cardiovascular, strength, and flexibility movements with instruction on proper methods and training procedures. Important information on safety issues and equipment will be presented as a visual demonstration or as an individual assignment. Students have the opportunity to write journals to record goals, share what they have learned in the lessons, and evaluate their progress in the class. Other activities may include internet evaluations of rock climbing web sites and interactive sites. Additional evaluation tools may include objective testing, skill proficiency, and safety knowledge. As a final activity, students can participate in a fun team competition that focuses on group work, problem solving, decision making, and cooperation that challenges the skills practiced in this course. The class will be taught every fall and spring semesters with a suggested enrollment of up to 35 students. An indoor climbing facility or wall will be used.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 010A (GHA) Lead Rock Climbing (1.5)** A course designed to provide students with skills, safety, and knowledge of lead rock climbing in a top rope environment.

**KINES 010A Lead Rock Climbing (1.5)  
(GHA)**

Kinesiology 010A is designed to give students a comprehensive introduction to the skills, safety, terminology and equipment used in the sport and recreational activity of lead rock climbing. Lead climbing involves the climber placing protection with which to protect oneself as opposed to top roping (Kinesiology 010). This course will also provide the knowledge base, experience, and awareness the student needs to evaluate their continued safe participation in lead climbing. The course format is identical to Kinesiology 010 in establishing the same class environment of group work, responsibility, cooperation, and collaborative skills. A strong group work ethic is emphasized with safety practices of utmost importance. Students will be introduced to advanced climbing techniques-foot work, hand holds, and body positions and benefit from immediate encouragement and assessment from both instructor and peers. Lead climbing challenges the climber to be more critically aware of making good decisions in clipping, route choice and direction, backstepping if necessary, body positions, equipment use, and safety. This class delves more into issues of kinesthetic awareness of the climber's relationship to the climbing surface and to gravitational forces when climbing. Students will also be introduced to tying rope knots, making belay stations, tying a cold shut, knowledge and practice in mock falling, cleaning a route, crag, slab, and crack climbing, and lead belaying. To insure the student's safety in lead climbing, mock lead climbing scenarios (students will be top roped and belayed) will provide the students with realistic climbing situations. Each class begins with a physical preparation for climbing focusing on cardiovascular, strength, and flexibility movements with instruction on proper methods and training procedures. Important information on safety issues and equipment will be presented as a visual demonstration or as an individual assignment. Students have the opportunity to write journals to record goals, share what they have learned in the lessons, evaluate their progress in the class, and demonstrate the necessary climbing and clipping techniques for a lead climbing pin. Other activities may include internet evaluations of rock climbing web sites and interactive sites. Additional evaluation tools may include objective testing, skill proficiency, and safety knowledge. As a final activity, groups can participate in a group lead climb activity in which each student is challenged to use the skills learned and practiced in this course. Offerings: Every fall and spring semesters with approximately 35 students. An indoor rock climbing facility/wall will be used.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003  
Prerequisite: KINES 010 or with permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 011 (GHA) Basic Downhill Skiing (1)** Students will gain a comprehensive understanding and basic level of proficiency in Downhill Skiing.

**KINES 011 Basic Downhill Skiing (1)  
(GHA)**

Downhill skiing has grown as a recreational physical activity over the past century. The early days of skiing in the United States were typified by a variety of styles and techniques, many of which were brought to this country by European ski instructors. In 1961, the Professional Ski Instructors of America was formed to unify ski instruction across the country and to develop a successful standard for teaching people to ski. As the equipment and the snowmaking capabilities have changed so has PSIA changed and adapted the techniques to successful skiing. Downhill skiing can be performed at any level across all ages. If done properly, downhill skiing will promote comprehensive wellness while developing important life-long motor skills. This course will promote the proper and safe way to enjoy downhill skiing. Ultimately students will learn the benefits of downhill skiing as a lifetime activity for health and wellness.

Students will be evaluated using a standard percentage scale. Evaluation is based on attendance and active participation (25%); demonstration of acquired skills (55%), theoretical knowledge as measured by written exam (20%). Five sections will be offered every Spring Semester with a maximum enrollment of 50 per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 011A (GHA) Intermediate Downhill Skiing (1)** Students will gain a comprehensive understanding and intermediate to advanced level of proficiency in Downhill Skiing.

**KINES 011A Intermediate Downhill Skiing (1)  
(GHA)**

Downhill skiing has grown as a recreational physical activity over the past century. The early days of skiing in the United States were typified by a variety of styles and techniques, many of which were brought to this country by European ski instructors. In 1961, the Professional Ski Instructors of America was formed to unify ski instruction across the country and to develop a successful standard for teaching people to ski. As the equipment and the snowmaking capabilities have changed so has PSIA changed and adapted the techniques to successful skiing. Downhill skiing can be performed at any level across all ages. If done properly, downhill skiing will promote comprehensive wellness while developing important life-long motor skills. This course will promote the proper and safe way to enjoy downhill skiing. Ultimately students will learn the benefits of downhill skiing as a lifetime activity for health and wellness.

Students will be evaluated using a standard percentage scale. Evaluation is based on attendance and active participation (25%); demonstration of acquired skills (55%), theoretical knowledge as measured by written exam (20%). Five sections will be offered every Spring Semester with a maximum enrollment of 75 per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 012 (GHA) Snowboarding (1)** Students will gain a comprehensive understanding and basic level of proficiency in Snowboarding.

**KINES 012 Snowboarding (1)  
(GHA)**

Snowboarding has exploded as a recreational physical activity over the past two decades. The early days of snowboarding in the United States were typified by a variety of styles and techniques. The Professional Ski Instructors of America identified a need to unify snowboard instruction across the country and thus formed AASI, the American Association of Snowboard Instructors, to develop a successful standard for teaching people to snowboard based upon many of the basic principles behind skiing. As the equipment and the snowmaking capabilities have changed so has PSIA/AASI changed and adapted the techniques to successful snowboarding. Snowboarding can be performed at any level across all ages. If done properly, snowboarding will promote comprehensive wellness while developing important life-long motor skills. This course will promote the proper and safe way to enjoy snowboarding. Ultimately students will learn the benefits of snowboarding as a lifetime activity for health and wellness.

Students will be evaluated using a standard percentage scale. Evaluation is based on attendance and active participation (25%); demonstration of acquired skills (55%), theoretical knowledge as measured by written exam (20%). Five sections will be offered every Spring Semester with a maximum enrollment of 50 per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 013 (GHA) First Aid, Personal Safety, and CPR (1)** A course designed to provide students with the opportunity for Red Cross certification in Community First Aid, Safety, and CPR.

**KINES 013 First Aid, Personal Safety, and CPR (1)  
(GHA)**

Kinesiology 013 provides students with the opportunity for American Red Cross certification in Community First Aid and Safety and Adult, Infant and Child CPR. Students will also be introduced to the AED device. This course can only be taught by an individual who holds a current participation and instructor card in Community First Aid and Safety and Adult, Infant and Child CPR. The main goal of this first aid and CPR course is to provide students with the knowledge and skills necessary to assess an emergency situation, to call for help, to administer mouth to mouth resuscitation or CPR, perform correct choking procedures for conscious and unconscious victims, and to minimize the consequences of injury or sudden illness until advanced emergency medical help arrives. Students will learn to recognize emergencies and make appropriate decisions regarding care. This course teaches the necessary steps in the emergency medical services (EMS) system chain. Students will also receive information on the prevention of injury and illness, with a focus on personal safety. Using healthy lifestyle awareness questionnaires, participants will assess their environment and personal habits to help reduce their risk of injury and illness and risk to others. In accordance by the American Red Cross, this course will provide visual and auditory learning with the use of a required Red Cross manual and videotape. Manikins will be provided for practical skill use. This course also requires the students to work with a partner to practice and demonstrate the skills to each other and then to the instructor for evaluation. Active learning reinforces the information learned from the reading materials and videotape. Peer and instructor feedback are provided before actual demonstration for evaluation of the skills. An objective test for each segment of the course has been prepared by the American Red Cross and a score of 80% or higher is required for Red Cross certification. The tests will be administered by the instructor after the demonstration and passing of the required skills. Frequency of offering: Every fall and spring semesters with an enrollment of up to 12 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 015 Lifestyles for Health (1)** Concepts of health, life-style, and risk factors; development and implementation of personal action plans.

**Lifestyles for Health (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 017 (GHA) Ballroom Dance (1.5)** A course designed to provide students with basic dance skills and an understanding and appreciation of ballroom dance.

**KINES 017 Ballroom Dance (1.5)  
(GHA)**

Kinesiology 017 introduces students to ballroom dance as a social/recreational or competitive activity, with the goal of leading to an active lifestyle. This course provides the basic skills and information necessary to develop and continue one's interest in ballroom dancing. Dance history and etiquette, cooperation with a partner, and learning the fundamentals of leading/following techniques are stressed from the beginning of the semester. As different dances are introduced (FoxTrot, Waltz, Jitterbug/Swing, Polka, Cha-Cha-Cha, Tango, Viennese Waltz, and/or others), additional figures are added throughout the semester. The accompanying practice affords each student with the opportunity to build confidence by combining skills in a variety of ways, listening to music, and preparing to "perform" during evaluation sessions. Both assessment and evaluation for each student occur throughout the semester. Formal evaluation occurs twice during the semester, at the mid-semester and at the end of the semester. Students dance with a partner of his/her own choice in a group of 3-5 couples. The remainder of the class has the option of practicing or observing. Evaluation may also include a written test (on handouts, class notes, etc.), written critique of a dance concert on campus (e.g. Eisenhower Auditorium concerts), or a paper on the competitive aspects of ballroom dancing, DanceSport. Outside opportunities for

dancing are encouraged: Penn State Ballroom Dance Club, Swing Club, etc. Attendance at each class is essential; this is an activity which is dependent upon learning and practicing with a partner. Upon completion on Kinesiology 017, the student will be able to identify music for each of the dances taught, perform basic figures for each dance in combination, know proper leading and following techniques, and work in concert with one or more partners. Frequency of offering: Ten to twelve sections every fall and spring semesters, with an enrollment of 40 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 017S (GHA) Ballroom Dance (1.5)** A course designed to provide students with basic dance skills and an understanding and appreciation of ballroom dance.

**Ballroom Dance (1.5)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 020 (GHA) Modern Dance (1.5)** A course designed to teach the basic skills of modern dance and to develop a further appreciation of modern dance.

**Modern Dance (1.5)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 024 (GHA) Introduction to Lifetime Sports (1.5)** Students participate in lifetime sports such as archery, bowling, golf, and at least one racquet and/or winter sport.

**KINES 024 Introduction to Lifetime Sports (1.5)  
(GHA)**

Kinesiology 024 is a course divided into three or four units, with each unit designed to give students the opportunity to learn sports that have potential for lifetime participation. These units include (but are not limited) to racquet sports, winter sports, archery, bowling, and golf. Other sports that have lifetime social and wellness values may be offered due to specific location considerations such as facility and faculty expertise.

The Kinesiology 024 format with three or four sports will give students an opportunity to gain a breadth of information and experience that will serve as a "gateway" to learning opportunities in more advanced classes that offer more depth and focus. These units may also stimulate participation in intramural clubs, and recreational play and encourage participation in lifetime activities.

Participating in lifetime sports will help students understand that regular activity has social, emotional, and physical benefits with potential for total well-being and a better quality of life.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 025 (GHA) Introduction to Court Sports (1.5)** A course designed to introduce students to various court sports such as tennis, racquetball, handball, squash, and/or badminton.

**KINES 025 Introduction to Court Sports (1.5)  
(GHA)**

Kinesiology 025 is a course that has been designed to give the Penn State student an introduction to selected lifetime court sports such as but not limited to tennis, racquetball, squash, table tennis, badminton, handball, and platform tennis.



Kinesiology 025 is taught in a modular (two or three for a given semester) format with two to three court sports being chosen for the course content for the semester. Students will know which court sports have been selected by listings in the semester Directory of Classes. The fundamental skills, strategies, etiquette, and rules will be covered for each court sport selected. Successful completion of this court sports course serves as a "gateway" to advanced level courses in court sports, intramural and recreations play and provide the skills and knowledge necessary to participate in a lifetime activity.

In Kinesiology 025 information gathering is done in an applied environment and usually in the context of solving complex movement problems. Information is gathered, solutions formulated and performances delivered and analyzed as different practice and game techniques are employed, different strategies are suggested and as different movement approaches are tested.

The students in Kinesiology 025 will work collaboratively with fellow students and peer tutors in their efforts to master court skills which will serve as a gateway to life long participation in these activities. The holistic approach to teaching activity classes employed in Kinesiology classes requires that students understand and appreciate the cultural traditions and values which are embedded in these movement forms.

Students will be evaluated by a combination of (but not limited to) evaluation techniques. Examples of those techniques are written examinations, skills testing, tournament performance, and subjective evaluation of skill level and game performance.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 026** (GHA) Archery/Indoor & Outdoor (1.5) Course designed to introduce students to Archery/Bowhunting.

**KINES 026 Archery/Indoor & Outdoor (1.5)**  
**(GHA)**

KINES 026 is designed to give the Penn State student an introduction to archery from a historical perspective which includes, but is not limited to, cultural use of the bow and arrow for food, protection, recreation and competition. Emphasis is given to the unique role of the bow in Pennsylvania State History and to its role in Pennsylvania Rural Culture. The use of the longbow, the recurve bow, the compound bow and the crossbow will be covered. In addition, Archery can be an activity that provides a positive outlet for those who are physically challenged. The fundamental skills, strategies, rules and regulations will be covered for Archery. Students are encouraged to develop specific outdoor skills which will enhance their success with a bow. These skills include but are not limited to identifying weather patterns which affect shooting, shooting from different heights and angles, selection of the proper clothing, understanding and respecting the wildlife and game animals native to geographical areas. Emphasis is placed upon ethical harvest techniques consistent with current wildlife biology and respective game commission and wildlife managers. Successful completion of the course will provide a foundation for participation in intramural activities, recreational coeducational activities, and will provide a gateway to lifelong movement. While KINES 026 will focus on the skills, strategies and rules of the sport, the underlying sub-focus of the course is the development of persistence and discipline necessary for success and the resulting self-enhancement that accompanies personal success. The commitment to Archery requires students to develop a focus which is achieved only through rigorous attention to fine motor movement. The improvement of individual skills in Archery is important but the process required for target success can be a foundation for a lifelong recreational opportunity. KINES 026 will focus on the skills strategies and rules of archery. Students will be engaged in a collaborative atmosphere. As they seek to solve complex shooting problems they will be required to cooperate to achieve various team goals. Students are evaluated and graded by a combination of techniques which may include but are not limited to tournament performance, written reports, skill acquisition, logged activities and subjective evaluation of team-building ethics. Dress should be appropriate for the conditions (indoor or outdoor). Equipment for this course will be provided but students will be encouraged to purchase their own personal equipment as "personalized bows" greatly enhance a person's on-target efficiency. Frequency of enrollment: Two to four sections every fall and spring semesters with a maximum of 20 students per section. Facilities: There is an existing range in White Building, however the activity can be taught outdoors.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 027** (GHA) Badminton 1 (1.5) The course promotes health, fitness, and enjoyment of the game of badminton.

**KINES 027 Badminton I (1.5)**  
**(GHA)**

Kinesiology 027 is a course designed to give the student a comprehensive involvement in the game of badminton. The basic fundamentals, rules, and strategies will be taught in a drill/modified game format until the student has developed skills and understanding sufficient to compete successfully. It is through the competition that the socialization, fitness, and enjoyment of the game will be enhanced. Hopefully, the desire to continue badminton as a lifelong activity will result.

Successful completion of Badminton I will allow the student to choose an advanced level of this course if he/she desires.

Students can be evaluated by a combination of written examinations/quizzes, skills testing, tournament performance, and subjective evaluation of skill development and game performance.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 028 (GHA) Fencing I (1.5)** Kinesiology 028 is designed to give students knowledge of the rules, strategies and skills of the sport of Fencing.

**KINES 028 Fencing I (1.5)  
(GHA)**

Kinesiology 028 is a course designed to give the student a comprehensive involvement in the sport of FENCING. The basic fundamentals, rules, and strategies will be taught in a drill/modified game format until the student has developed skills and understanding sufficient to compete successfully. It is through the competition where the socialization, fitness and enjoyment of the game will be enhanced. Hopefully, the desire to continue Fencing as a lifelong activity will result. Successful completion of Fencing I will allow the student to choose an advanced level of this course if he/she desires.

Students will be evaluated by a combination of written examinations/quizzes, skills testing, attendance. The department plans to offer four sections every fall semester and two sections every spring semester with a maximum of 25 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 029 (GHA) Golf I (1-1.5)** A course designed to give students an understanding of and a proficiency in golf skills, rules, and etiquette.

**KINES 029 Golf I (1.0-1.5)  
(GHA)**

Kinesiology 029 is a course designed to give students the understanding, knowledge and skills to begin an exploration of the game of golf. While the courses main area of emphasis is on golfs' short game (putting, chipping and pitching) students will be educated about full swing fundamentals and proficiencies will be developed in short and mid-irons.

Perhaps the most unique feature of Golf I is the weekly on course practice. Each week during this course, students will get a chance to apply the skills they have learned during the week on an actual golf course. This practice time is in a situation where only the students from the class are on the course. This situation creates an ideal practice area for the student golfer to become acquainted with situational application of golf skills.

Students who enroll in Kinesiology 029 will find, in the game of golf, a unique form of self-expression. The daily "movement problems" that students will encounter offers a new type of information gathering process accompanied by unusual opportunities to synthesize that information into a "golfing personality". The development of motor skills will complement students' oral and written capabilities.

The active lifestyle requires that the participant be able to gather, synthesize and analyze information. Students in Kinesiology 029 will be asked to involve themselves in Web and CD-ROM based assignments to gather, synthesize and analyze valuable information about golf's rules and etiquette, equipment, and travel planning.

Students will be evaluated by a combination of (but not limited to) evaluation techniques. Examples of those techniques are written examinations, skills testing, written papers and subjective evaluation of skill level and game performance.

The student, who successfully completes Kinesiology 029-Golf I will possess a command of basic golf rules, golfs terminology and golf etiquette. These basic fundamentals will ease the transition from golf student to golfer. Students will find that, after completion of Golf I the work done in this course will prepare them for actual participation in the game of golf.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 029A (GHA) Golf II (1.5)** A course designed to provide a further understanding of and a more advanced proficiency in golf skills, rules and etiquette.

**KINES 029A Golf II (1.5)  
(GHA)**

KINES 029A is a course designed to give students advanced understanding, knowledge and skills and to continue the development of their game of golf. While the courses main area of emphasis is on golfs' short game (putting, chipping and pitching) the student will be educated about full swing fundamentals and proficiencies will be developed in midirons, long irons, fairway metals, and driver.

Perhaps the most unique feature of Golf II is the on course practice. Each week during this course, students will get a chance to apply the skills they have learned during the week on an actual golf course. This practice time is in a situation where the student will learn how to integrate themselves into normal golf play. This creates an ideal practice area for the student golfer to become acquainted with situational application of golf skills and be a part of the golf atmosphere.

Students will be evaluated by a combination of (but not limited to) evaluation techniques. Examples of those techniques are written examinations, skills testing, and subjective evaluation of skill level and game performance.

The student, who successfully completes Kinesiology 029A-Golf II will be proficient in golf rules, golf terminology and golf etiquette. These advanced fundamentals will ease the transition from golf student to golfer. Students will find that, after completion of Golf II, the work done in this course prepares them for actual participation in the game of golf.

The use of the Penn State golf course is required for this course. Three to five sections will be offered every fall semester with an enrollment of up to 30 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004  
Prerequisite: KINES 029 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 041 (GHA) Handball (1.5)** A course designed to introduce students to a basic instructional course in the fundamentals of 4-wall handball.

**KINES 041 Introduction to Handball (1.5)  
(GHA)**

Kinesiology 041 is a course that has been designed to give students an introduction into the dynamic game of handball. It is a challenging game requiring the participant to be able to hit a ball with either hand during a rally in a 20'x 40' four-walled court. The technique of hitting a ball is similar to the motions used in throwing a baseball. Since both hands are used to execute shots, the development of the non-dominant hand ("off" hand) is a unique challenge. The course is structured to develop the "off" hand through a logical progression of drills and game settings, which help the participant to mirror image the dominant hand's motion.

Handball is also a sport, which develops an individual's eye/hand coordination to the highest level possible. This eye/hand coordination transfers exceptionally well for participants who pursue activities such as racquetball, tennis, squash, badminton, hitting a softball, and fielding a softball.

The tremendous amount of footwork and body movement required to execute a shot in handball develops a fitness level similar to a cross-country skiing workout. Handball is a great lifetime activity.

The fundamental skills, strategies, and rules of handball, along with game play, will be integrated throughout the course. The participant will also apply the rules of the game by being taught how to referee a match between fellow students.

Students will be evaluated by a combination of (but not limited to) evaluation techniques. Examples of those techniques are written examination, skills testing, tournament performance, and subjective evaluation of skill level and game performance.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 042 (GHA) Ice Skating--Beginning (1.5)** A course of instruction focused on the physical development and knowledge of basic ice skating skills.

**KINES 042 Ice Skating--Beginning (1.5)  
(GHA)**

A course of instruction focused on the development of basic ice skating skills, and the introduction of a new physical fitness activity into the lifestyle of the Penn State student. The course objectives are to develop balance and control while

performing the basic skills necessary for the execution of many ice skating maneuvers. Basic ice skating skills are relevant to skaters who have goals of recreational skating, learning to play hockey and/or figure skate. These skills include: forward and backward stroking, forward and backward stops, negotiating circles and curves through the use of forward and backward crossovers, developing edge control through the development of consecutive sustained edges, and changing direction from forward to backward and backward to forward through the use of basic two-and one-foot turns. Skills are acquired through the use of exercises and patterns designed to strengthen the fundamentals of skating and to further develop balance, edge control, and confidence while participating in the activity. These exercises are incorporated into each class period, along with a thorough review of previously learned skills and the introduction of new skills. Every effort is made by the instructor to break each skill down into logical steps so that the student will understand the process of each skill. The instructors are encouraged to allow for individual differences in the pacing of skill development. As the course progresses, the instructor has the option of using partner and small group exercises to balance the individual efforts through peer support and involvement. This course will provide the necessary skill foundation for participation in upper-level courses including advanced/beginner, intermediate and advanced skating, as well as hockey, figure and/or recreational skating activities. In addition to the core component of physical skill development, the student will acquire an enlightened appreciation and understanding of the skill and art of ice sports.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 042A (GHA) Ice Skating--Advanced Beginning (1.5)** A course of instruction focused on the physical development and knowledge of basic ice skating skills.

**KINES 042A Ice Skating--Advanced Beginning (1.5)  
(GHA)**

A course of instruction focused on the development of beginning and advanced beginning ice skating skills, and the introduction of a new physical fitness activity into the lifestyle of the Penn State student. The course objectives are to develop balance and control while performing the basic skills necessary for the execution of many ice skating maneuvers. Basic and advanced beginning ice skating skills are relevant to skaters who have goals of recreational skating, learning to play hockey and/or figure skate. These skills include: forward and backward stroking, forward and backward stops, negotiating circles and curves through the use of forward and backward crossovers, developing edge control through the development of consecutive sustained edges and power pull change of edge exercises, and changing direction from forward to backward and backward to forward through the use of one-foot turns. Skills are acquired through the development of exercises and patterns designed to strengthen the fundamentals of skating and to further develop balance, edge control, and confidence while participating in the activity. These exercises are incorporated into each class period, along with a thorough review of previously learned skills and the introduction of new skills. Every effort is made by the instructor to break each skill down into logical steps so that the student will understand the process of each skill. The instructors are encouraged to allow for individual differences in the pacing of skill development. As the course progresses, the instructor has the option of using partner and small group exercises to balance the individual efforts through peer support and involvement. This course will provide the necessary skill foundation for participation in upper-level courses including intermediate and advanced skating, as well as hockey, figure and/or recreational skating activities. In addition to the core component of physical skill development, the student will acquire an enlightened appreciation and understanding of the skill and art of ice sports.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002  
Prerequisite: KINES 042 or some experience with the activity

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 042B (GHA) Ice Skating--Intermediate/Advanced (1.5)** A course of instruction in basic figure skating: field moves, freestyle, choreography, pairs skating, and ice dance.

**KINES 042B Ice Skating--Intermediate/Advanced (1.5)  
(GHA)**

A course of instruction focused on the refinement of basic, intermediate, and advanced ice skating skills. The course objectives are to develop balance, control, and confidence while performing skills relevant to the disciplines of figure skating: freestyle, field moves, ice dance and/or pairs. These skills include: field moves that follow a straight line, diagonal, circular, or continuous pattern. Such exercises and patterns are designed to develop and strengthen the qualities that define figure skating: power, edge control, flow, quickness, and extension. Emphasis is placed on developing both sides (bilateral) of the skater. Students are introduced to basic, intermediate and, when appropriate, advanced freestyle maneuvers including jumps, spins, edge moves, footwork sequences, and connecting steps. Basic ice dance positions and patterns are introduced, and students with a particular interest in this area are given the opportunity to further develop these skills. Introductory pairs skating positions are developed through stroking and crossover patterns. Students with a particular interest in this area are taught pairs edge moves, spins, and basic throw jumps. Students are introduced to the fundamental principles of choreography including pattern, form, development, musical interpretation, style, and expression through the composition of a program incorporating skills developed and refined throughout the course. The student has the option of solo, pair, or group work to balance individual efforts through peer support and involvement.

The instructors are encouraged to allow for individual differences in the pace and development of skills. This course will provide the necessary skill foundation for participation in organized figure skating programs (USFSA, ISI) and club programs promoting a healthful physical fitness activity for the Penn State student. In addition to the core component of physical skill development, the student will acquire an enlightened appreciation and understanding of the skill and art of figure skating and ice sports.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: KINES 042 and/or KINES 042A or equivalent skating experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 043 (GHA) Power Skating (1.5)** A course of instruction in basic power skating specifically designed for ice hockey, applicable to other ice sports.

**KINES 043 Power Skating (1.5)  
(GHA)**

A course of instruction focused on the development and refinement of basic, intermediate, and advanced ice skating skills. Principles of biomechanics and force application are stressed to gain power, strength, flexibility, quickness, and agility. Daily power stroking sessions are conducted to develop physical stamina, endurance, and mental fitness. The course objectives are to improve balance, edge control, and coordination necessary for the successful execution of many ice skating maneuvers. These skills include: forward and backward power strides, forward and backward stops, forward and backward starts, negotiating circles and curves through the use of forward and backward crossovers, developing edge control through the development of consecutive sustained edges and power pull change of edge exercises, changing direction with front to back and back to front turns, stick handling and puck control. Skills are acquired through the development of drills and patterns designed to strengthen the fundamentals of skating and to further develop balance, edge control, and confidence while participating in this activity. These exercises are incorporated into each class period, along with a thorough review of previously learned skills and the introduction of new skills and drills. Every effort is made by the instructor to break each skill down into logical steps so that the student will understand the process of each skill. The instructors are encouraged to allow for individual differences in the pacing of skill development. This course will provide the necessary skill foundation for participation in intramural, club, and adult hockey leagues, as well as recreational skating activities. In addition to the core component of physical skill development, the student will acquire an enlightened appreciation and understanding of the skill of ice sports.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: KINES 042 or KINES 042A or equivalent skating experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 044 (GHA) Racquetball I (1-1.5)** The course promotes health, fitness, and enjoyment of the game of racquetball.

**KINES 044 Racquetball I (1-1.5)  
(GHA)**

Kinesiology 044 is a course designed to give the student a comprehensive involvement in the game of racquetball. The basic fundamentals, rules, and strategies will be taught in a drill/modified game format until the student has developed skills and understanding sufficient to compete successfully. It is through the competition where the socialization, fitness, and enjoyment of the game will be enhanced. Hopefully, the desire to continue racquetball as a lifelong activity will result. Successful completion of Racquetball I will allow the student to choose an advanced level of this course if he/she desires.

Students will be evaluated by a combination of written examinations/quizzes, skills testing, tournament performance, and subjective evaluation of skill development and game performance.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 045 (GHA) NAUI Basic Scuba (1.5)** A course to introduce students to the fundamentals of Scuba diving.

**KINES 045 NAUI Basic Scuba (1.5)  
(GHA)**

KINES 045 introduces students to the fundamental academic concepts and practical skills of scuba diving as described by

NAUI (National Association of Underwater Instructors) standards. This course addresses academic elements and applied sciences such as: the gas laws, Archimedes' principle, physics (light, sound, heat, aquatic pressure relationships), physiology (arterial gas embolism, miscellaneous barotrauma, decompression illness, hypo and hyperthermia), dive planning, equipment configuration and function, and environmental considerations (salt vs. fresh water, dangerous plants and animals, water temperature and visibility, and altitude). In addition this course introduces practical confined water skills including: basic skin diving skills, fundamental Scuba skills (regulator clearing and retrieval, emergency out-of-air ascents, buoyancy control, rescue techniques, ditch and don of gear, underwater communication, and proper partnership), and equipment preparation and assembly.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: meet NAUI standards and/or by permission of the instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 046 (GHA) Squash I (1-1.5)** A course designed to give students an appreciation of and proficiency in the skills, rules, and regulations of squash.

**KINES 046 Squash I (1-1.5)  
(GHA)**

Kinesiology 046 is a course designed to provide students with the motor skills and cognitive understanding necessary to successfully compete in the game of squash. Initial emphasis will center around three areas: 1) developing racquet skills and mechanics; 2) acquiring an understanding of the rules and regulations of the game; and, 3) developing appropriate movement skills. Subsequent effort will focus on applying the above to live-game situations. Here, students will learn to recognize, comprehend, and develop on-court strategies, and will learn to employ these tactics in game play.

Students will emerge from this course with beginning-level squash skills and a solid foundation in racquet fundamentals. This will serve as a "connector" to, not only advanced levels of squash, but other forms of racquet play as well. In turn, this will facilitate the discovery and appreciation of the significant lifetime benefits offered by all racquet sports.

Students will be evaluated by (but not limited to) a combination of techniques: written examinations, skills testing, performance standards, and subjective evaluation of skill level.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 047 (GHA) Beginning Swimming (1.5)** A course designed to give students skills and knowledge necessary to be safe in shallow and deep water.

**KINES 047 Beginning Swimming (1.5)  
(GHA)**

Kinesiology 047 introduces students who are non-swimmers (or those who are fearful of water) to the performance of swimming skills that can be used as lifelong activities for maintenance of physical health and psychological well-being. Students will learn and practice a progression of swimming-related skills designed to acclimate the non-swimmer to the aquatic environment. An introduction to personal safety and rescue skills provides the students with knowledge necessary for safe behavior in an aquatic setting.

The course provides basic knowledge of physics and hydrodynamic principles that will help the students become more effective and efficient swimmers. Exercises and activities that relate to being in and moving through the water will enable the student to understand and demonstrate various hydrodynamic principles.

Group games and activities designed to improve fitness components of endurance, strength, and flexibility are a key component of the beginning swimmers class. Students will often work in groups to improve their swimming skills.

When a student completes this course, he or she should possess skills necessary to be safe in deep water. The student will have developed enough skill to enter deep water and swim at least the length of the pool unassisted. He/she will be able to understand and demonstrate hydrodynamic principles as they relate to movement in the water.

Various evaluation techniques will be used to assess individual progress in Kinesiology 047. These techniques will include (but are not limited to) objective tests, skills performance tests, and personal assessment inventories and assignments. Students will also keep a written journal of their activities.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**KINES 047A (GHA) Advanced Beginner Swimming (1.5)** A course designed to give students skills and knowledge necessary to be safe in shallow and deep water.

**KINES 047A Advanced Beginning Swimming (1.5)  
(GHA)**

Kinesiology 047A introduces students who have limited swimming skills and knowledge to the performance of more refined strokes that can be used as lifelong activities for maintenance of physical health and psychological well-being. Students will be introduced to new strokes and techniques including the front crawl, back crawl, elementary backstroke, sidestroke, breaststroke, and butterfly.

Proper breathing techniques will be stressed.

An introduction to personal safety and rescue skills provides the students with knowledge necessary for safe behavior in an aquatic setting. Students will have an opportunity to learn some basic self-help skills. Reaching and throwing assists from dry land will be included.

The course provides basic knowledge of physics and hydrodynamic principles that will help the students become more effective and efficient swimmers. Exercises and activities that relate to being in and moving through the water will enable the student to understand and demonstrate various hydrodynamic principles.

Group games and activities designed to improve fitness components of endurance, strength, and flexibility are a key component of the advanced beginning swimming class. Students will often work in groups to improve their swimming skills. Group games such as water polo and water basketball will help students develop endurance and strength.

When a student completes this course, he or she should possess skills necessary to swim continuously for at least four lengths of the pool without stopping. The student will also be able to understand and demonstrate hydrodynamic principles as they relate to movement in the water. Proper use of the diving board will also be stressed.

Various evaluation techniques will be used to assess individual progress in Kinesiology 047A. These techniques will include (but are not limited to) objective tests, skills performance tests, and personal assessment inventories and assignments. Students will also keep a written journal of their activities.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: students should be comfortable in shallow and deep water and be moderately proficient in front crawl elementary backstroke sidestroke and breaststroke

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 047B (GHA) Intermediate Swimming (1.5)** A course designed to teach students a variety of swimming strokes and increase their knowledge of fitness using aquatic activities.

**KINES 047B Intermediate Swimming (1.5)  
(GHA)**

Kinesiology 047B introduces students who have attained moderate swimming skills and knowledge to advanced swimming strokes and related swimming activities that can be used throughout one's lifetime for maintenance of physical health and psychological well-being. Students will be introduced to new strokes and techniques including the front crawl, back crawl, elementary backstroke, sidestroke, breaststroke, and butterfly. Students will also be taught the trudgen, trudgen crawl, inverted breaststroke, and overarm sidestroke. Body alignment, coordination, and proper breathing techniques will be stressed. Students will be required to swim longer distances in this class than in Kinesiology 047 or Kinesiology 047A. The course provides the information that the student needs to understand, organize, plan, and implement a physical fitness program that features swimming as the primary activity.

Personal safety and rescue skills as well as swimming rescues using equipment will be part of this class. Students will have an opportunity to learn how to help themselves and others in an aquatic environment. Group games and activities designed to improve fitness components of endurance, strength, and flexibility are a key component of the intermediate swimming class. Students will often work in groups to improve their swimming skills. Group games such as water polo and water basketball will help students develop endurance and strength.

When a student completes Kinesiology 047B, he or she should possess skills necessary to swim continuously for at least five hundred yards (twenty lengths of the pool) without stopping. Proper use of the diving board will also be stressed. The students will be able to perform a forward dive in tuck and/or pike position at the completion of this class. Each student will be able to identify the components of an effective physical fitness program and explain how swimming contributes to the success of this program. Students should be able to develop a swimming program that would help them meet realistic fitness goals.

Various evaluation techniques will be used to assess individual progress in Kinesiology 047B. These techniques will include (but are not limited to) objective tests, skills performance tests, and personal assessment inventories and assignments. Students will also keep a written journal of their activities.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: KINES 047A or equivalent skills; students should be safe in deep water and have proficiency in the front crawl elementary backstroke sidestroke and breaststroke

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 048 (GHA) Tennis I (1.5)** A course designed to give students an appreciation of and proficiency in the skills, rules, and regulations of tennis.

**KINES 048 Tennis I (1.5)  
(GHA)**

Kinesiology 048 is a course designed to introduce students to the basic skills of Tennis. The initial focus will be twofold: stroke development and acquiring an understanding of the rules, regulations, and terminology of the game. Subsequent effort will emphasize the development of movement skills and a progression from hitting to rallying. In turn, students will learn to apply the above to live-game situations (both singles and doubles). Students will emerge from this course with beginning-level tennis skills as well as an appreciation for the requirements of higher-level tennis participation.

Students will be evaluated by (but not limited to) a combination of techniques: written examinations, skills testing, performance standards, and subjective evaluation of skill level.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 048A (GHA) Tennis II (1.5)** A course designed to give students an appreciation of and proficiency in the skills, rules, and regulations of tennis.

**KINES 048A Tennis II (1.5)  
(GHA)**

Kinesiology 048A is a course designed to introduce students to the basic and advanced skills of Tennis. The initial focus will be twofold: stroke development and acquiring an understanding of the rules, regulations, and terminology of the game. Subsequent effort will emphasize the development of movement skills and a progression from hitting to rallying. In turn, students will learn to apply the above to live-game situations (both singles and doubles).

Students will emerge from this course with advanced tennis skills as well as an appreciation for the requirements of higher-level tennis participation.

Students will be evaluated by (but not limited to) a combination of techniques: written examinations, skills testing, performance standards, and subjective evaluation of skill level.

Clean, safe, well-lit course space is needed to properly deliver this course. It is anticipated that two sections will be offered every fall and spring semesters with an enrollment of 30 students per section.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

Prerequisite: KINES 048 or for students who demonstrate reasonable consistency in depth and placement of ground strokes and the serve and who have not had instruction at Penn State.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 054 (GHA) Aikido (1.5)** Students will gain a comprehensive understanding and basic level of proficiency in the Japanese Traditional martial art of Aikido.

**KINES 054 Aikido (1.5)  
(GHA)**

Martial arts have been practiced for centuries as a method of integrating mind, body and spiritual well being. While improving physical fitness and emotional health, martial arts have been the cornerstone of unarmed self-defense throughout the ages. Aikido is a relatively new Japanese martial art developed by a man named Morihei Ueshiba. Ueshiba sensei studied a variety of traditional martial arts and developed the style of Aikido in the early 1900's as a combination primarily of Dyo-ryu Jujitsu and a spiritual philosophy of promoting peace and harmony amongst fellow human beings. Aikido training can be performed at any level across all ages. If done properly, Aikido training will promote comprehensive wellness while developing important life-long motor skills. In this course students will explore the historical development and significance of Aikido and other martial arts. Students will learn a wide number of Aikido techniques in addition to improving physical health and fitness. Throughout the course students will learn to apply principles of Aikido for self-defense and in everyday life. Ultimately students will learn the benefits of Aikido as a lifetime activity for health and wellness. Students will be evaluated using a standard percentage scale. Evaluation is based on



attendance and active participation (60%); demonstration of acquired skills (20%), theoretical knowledge as measured by written exam (20%). One to three sections will be offered every fall and spring semesters with an enrollment of up to 24 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 055** Dance Forms (1.5) Basic skills and methods of teaching and assessing creative movement and folk, square, social, and modern dance.

**Dance Forms (1.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 056** (GHA) Introduction to Martial Arts (1.5) A course designed to give students an introduction to martial arts, and the use of martial arts for lifelong fitness.

**KINES 056 Introduction to Martial Arts (1.5)  
(GHA)**

Martial arts have been practiced for centuries as a method of integrating mind, body, and spiritual well-being. While improving physical fitness and emotional health, martial arts have been the cornerstone of unarmed self-defense throughout the ages. Martial arts training can be performed at any level across all ages. If done properly, martial arts training will promote comprehensive wellness while developing important lifelong motor skills. For many, the emotional and psychological benefits of martial arts training will be as rewarding as the physical improvements experienced.

Kinesiology 056 will introduce the student to the historical development and significance of the martial arts. Students will first learn supportive activities such as meditation and yoga, which will be used to optimally prepare the mind and body, respectively, for martial arts training. Once the students are mentally and physically prepared to begin training, they will begin to learn the traditional martial art Karate. After several weeks of training, the students will then begin to study the relatively newer and more passive martial art Aikido.

Ample time will be devoted to allow students to acquire an appreciation of and basic skill of both Karate and Aikido. In addition, students will learn proper "dojo" etiquette which will allow them to comfortably enter and train in any traditional martial arts dojo.

Throughout the semester, students will improve in physical fitness and learn how martial arts such as Karate and Aikido contribute to improved fitness and overall wellness. The basic principles of organizing, planning, and implementing a physical fitness program will be taught using martial arts training as a method of exercise. The fitness principles learned in class can be applied to any form of activity the student chooses. At the end of the course, the students will be invited to explore their personal health and fitness goals and how martial arts training may be incorporated into their lifelong fitness plan. Although the concept of "self-defense" will not be stressed in this class, some introduction to self-defense will be given, and it is likely that by the end of the course students will feel more physically confident in their ability to avoid and deal with conflict situations.

Various evaluation techniques will be used to assess individual progress in Kinesiology 056. These techniques will include (but are not limited to) conventional objective testing, skill testing, and writing assignments.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 057** (GHA) Personal Defense (1.5) A course designed to give students an understanding of and a proficiency in martial arts and self-defense.

**KINES 057 Personal Defense (1.5)  
(GHA)**

The term "martial art" is used in western idiom to describe a wide variety of Asian self defense systems. Some of these combat systems evolved in civil settings as methods for physical development, personal self defense, and sport. Taekwondo

is perhaps the best example today because of its role in the Olympic Games. This unarmed method evolved in Korea and it can be traced back to the koguryo dynasty, founded 2000 years ago through the study of the ancient Korea and its history.

While improving physical fitness and emotional health, martial arts have been the cornerstone of unarmed self defense throughout the ages. Martial arts training can be performed at any level across all ages. If done properly, martial arts training will promote comprehensive wellness while developing important life-long motor skills. For many, the emotional and psychological benefits of martial arts training will be as rewarding as the physical improvements experienced.

KINES 057 introduces the student to the historical development and significance of the marital arts. Students first learn supportive activities such as relaxation and breathing techniques, which will be used to optimally prepare the mind and body, respectively, for marital arts training. Students start applying mental discipline into the acquired techniques as soon as they learn it and practice it throughout the semester.

Throughout the semester students improve in physical fitness and learn how personal self defense, such as taekwondo and Aikijujitsu, contribute to improved fitness and overall wellness. The basic principles of organizing, planning and implementing a physical fitness program will be taught using martial arts training as a method of exercise. The fitness principles learned in class can be applied to any form of activity the students chooses. At the end of the course the student will be invited to explore their personal health and fitness goals and how martial arts training may be incorporated into their lifelong fitness plan. It is likely that by the end of the course students will feel more physically and mentally confident in their ability to avoid and deal with conflict situations.

Various evaluation techniques will be used in KINES 057. The techniques will include (but are not limited to) conventional objective testing, skill testing, journaling and other writing assignments.

The department plans to offer up to three sections of this course every fall and spring semester with a maximum enrollment of 30 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 058 (GHA) Judo I (1.5)** Kinesiology 058 will help students develop stamina, confidence and discipline, and promote general fitness through the introduction to basic Judo.

**KINES 058 Judo I (1.5)  
(GHA)**

Kinesiology 058 will help students develop stamina, confidence and discipline, teach self-defense, and promote general fitness through the introduction of basic Judo. Developed in Japan in 1882, Judo has quickly spread across the globe and won approval as a modern sport. Judo became the first activity of Asian origin to be accepted as an Olympic event in 1964. Women's Judo was admitted to the Games as a full medal event in 1992. Judo, "the gentle way," is the modern day form of the ancient Japanese Jujitsu. The art is based on the principle of using the opponent's own strength to put him or her off balance, using minimum effort for maximum efficiency. Judo was initially developed by Professor Jigoro Kano, whose techniques were refined to form a combative system that demonstrates the superiority of techniques over mere strength. Although Judo is a martial art, students need not fear physical injury due to enrollment at Kinesiology 058. Judo I covers fundamental falling, throwing and grappling techniques. More dangerous techniques, such as choking and arm locks, are reserved until students have demonstrated satisfactory command of more basic skills. Kinesiology 058 is not simply aimed at introducing students to basic Judo. Judo instruction at Penn State encourages fitness by incorporating a brief session of physical conditioning into each class in an effort to augment the aerobic workout and prevent injuries. Each student is also asked to learn basic terms and some general history of the sport of Judo. Facilities/Class periods - held in the IM Building Combat Room - begin with stretching and generally continue with a series of technique demonstrations, form practices and free workout. Class concludes with conditioning and cool-down exercises. Frequency of enrollment: Two sections every fall and spring semesters with a maximum of 30 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 059 (GHA) Introduction to Karate (1.5)** A course designed to give students an understanding of and a proficiency in Karate.

**KINES 059 Introduction to Karate (1.5)  
(GHA)**

KINES 059 will involve the training in the philosophy, principles and techniques of Karate for self-defense, improvement of overall fitness and to give a greater understanding of the art and themselves. This course will involve physical aspects

of Karate including blocking, punching, striking, kicking and body shifting techniques in correct stance and the application of these techniques against an opponent. The course will also introduce the mental aspects of Karate illustrating the ideals of "the way" (including principles such as character, concentration, self control, manners and self discipline) and how they can be applied in everyday life to benefit themselves and society, this will be achieved through meditation and training. There are three primary components of Karate training; fundamentals (basics), sparring and Kata or forms. The basic techniques consist of blocks, punches, strikes, kicks and combinations of these techniques in correct stance or body position. Sparring can take one of three forms; single step, controlled multi-step sparring and free sparring. Only the second form (both controlled and non-contact) is taught in this introductory class. The third component, kata, consists of a series of predefined blocking, striking and kicking techniques performed by an individual and used to simulate defense against multiple opponents. The forms are used to perfect the fundamental techniques to teach balance and timing of techniques so that they then may be applied to sparring. Throughout the semester students will improve in physical fitness and learn how Karate contributes to improved fitness and overall wellness. The basic principles of organizing, planning and implementing a physical fitness program will be taught using martial arts training as a method of exercise. The fitness principles learned in class can be applied to any form of activity the student chooses. At the end of the course the student will be invited to explore, through a term paper, their personal health and fitness goals and how karate training may be incorporated into their lifelong fitness plan. Although some concepts of "self-defense" are discussed in this class it is not given a priority. However, it is likely that by the end of the course students will feel more physically confident in their ability to avoid and deal with conflict situations. Since Karate is one of the most widely practiced martial arts in the world, the students will also be able to continue their training in Shotokan through either the Penn State Club or at any other club around the world. They will also be given the opportunity to sit a formal grading examination (through a world class examiner), which will hold rank within Karate anywhere in the world, thus acknowledging their abilities gained in this course. This formal ranking is completely at the student's discretion and will not be required for credit toward Kinesiology 059. Frequency of enrollment: One to three sections every fall and spring semesters with a maximum of 30 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 060** Principles and Practices of Healthful Living (3) Facts and principles as related and applied to the science of living serve as a basis for health instruction and student guidance.

#### **Principles and Practices of Healthful Living (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 061** (GHA) Fitness Theory and Practice (3) Students will learn about the science of fitness/wellness; evaluate their present fitness levels and create a personal fitness plan.

#### **KINES 061 Fitness Theory and Practice (3) (GHA)**

Fitness Theory and Practice is a course designed to give the Penn State student a complete understanding of the fundamental principles of physical fitness and the skills necessary to implement a personalized fitness program. This course will provide all the information and skill needed for the student to organize, plan, and implement a complete physical fitness program.

In this course the Penn State student will acquire all the knowledge and critical thinking skills that are essential to the development of a healthful and active lifestyle. Through readings, classroom discussions, personal assessment techniques, video presentation, and World Wide Web based assignments, students will build a foundation of knowledge to guide them in their pursuit of an active and healthy lifestyle.

In addition to the above mentioned knowledge base, students will be guided through laboratory activities designed to: assess personal fitness levels pre-and-post intervention strategies, educate the student about cardiovascular training techniques, flexibility training techniques, muscular strength and endurance training techniques, and implement their own personal fitness program.

Various evaluation techniques will be used to assess student progress in Kinesiology 061. These techniques shall include, but not be limited to, conventional objective testing; group and individual presentations; World Wide Web based assignments and leadership activities; personal assessment inventories; and journaling assignments. Students who have already received credit for Kinesiology 084 or Kinesiology 066 may not enroll in this class because of the duplication of material.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 061S** (GHA) Fitness Theory and Practice (3) Students will learn about the science of fitness/wellness; evaluate their present fitness levels and create a personal fitness plan.

**Fitness Theory and Practice (3)**

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 062** (GHA) Introduction to Cardiovascular Activities (1.5) A course designed to give students an introduction to various types of cardiovascular training.

**KINES 062 Introduction to Cardiovascular Activities (1.5)  
(GHA)**

Kinesiology 062 has been designed to help students become acquainted with and proficient in many types of cardiovascular activities that can be used as part of a lifelong exercise program. Students should expect to participate in a variety of activities such as, but not limited to, walking/jogging, cycling, aquatics, aerobic dance, and cardiovascular exercise machine use. Additionally, students will have an opportunity to learn skills necessary to create safe cardiovascular exercise programs while considering safety and injury prevention.

Kinesiology 062 is taught in a modular format including three to five separate types of cardiovascular exercise being chosen for the course content for the semester. Students will know which courses have been selected by listings in the semester Directory of Classes. Kinesiology 062 will provide a unique balance of training guidelines that can be applied to the various activities one pursues throughout life. Fundamental guidelines for safe exercise, progression, self-monitoring, etiquette, and injury prevention will be introduced throughout the course. Cardiovascular activities serves as a stepping stone to lifetime physical fitness and disease prevention. Self-and group-paced activity will allow for each individual to maximize the benefits of exercise.

Various evaluation techniques will be used to assess progress in Kinesiology 062. These techniques will include, but are not limited to, written examinations, performance assessments, and improvement-based evaluations of cardiovascular endurance and strength.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 063** (GHA) Aerobic Dance (1.5) A course designed to involve students in daily aerobic activity while teaching the fundamentals of overall health and well-being.

**KINES 063 Aerobic Dance (1.5)  
(GHA)**

Kinesiology 063 has been designed to give each Penn State student a basic understanding of the many different aspects of physical fitness while keeping the main focus on aerobic cardiovascular endurance.

In this course, the student will engage in daily participation in the various types of group fitness classes. This practical participation will be supplemented with lectures including, but not limited to, the principles, components, theories, and training techniques of physical fitness.

This course will provide each student with the necessary information and proper means to develop and maintain a healthy active lifestyle and achieve overall well-being.

Various evaluation techniques will be used to assess student's progress in Kinesiology 063. These techniques shall include, but not be limited to, written examinations, group and individual presentations, participation and performance, and homework assignments.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 065 (GHA) Jogging (1.5)** A course designed to give students an understanding of and the ability to establish an exercise program involving jogging.

**KINES 065 Jogging (1.5)  
(GHA)**

Kinesiology 065 introduces students to the performance of jogging as a lifelong activity that helps maintain and enhance physical fitness and overall wellness. This course provides the information that the student needs to understand, organize, plan and implement a physical fitness program that features jogging as a primary activity. The centerpiece of this course is a progression of individually-paced jogs of varying lengths that are conducted over various terrains. Past activities have included 1.5-mile timed runs, 2 through 6 mile runs, interval runs, hill runs, and runs to various locations of interest. Locations include Beaver Stadium, the deer research pens, Sunset Park, and various other landmarks around campus and in the community. These activities are complemented by a series of classroom lectures on such topics as the physiology of exercise, jogging safety; goal-setting for personal health; principles and concept of physical fitness; training methods to address different jogging goals; and nutrition and weight control. Students also participate in team-based projects such as group-designed scavenger hunts, "landmark jogs," and different team games and events that build group interaction skills. As a final project, each student is asked to define a measurable fitness goal and design a fitness jogging program to realize that goal. As part of this assignment, students assemble data to indicate that they have achieved their goal, and then identify and analyze the factors that contributed to their success. Students also have the opportunity to monitor their performance throughout the course using a variety of personal assessment inventories and instruments, such as logs and heart rate monitors. When a student completes Kinesiology 065, he or she will be able to identify the components of an effective physical fitness program and explain how jogging contributes to the success of this program; develop realistic fitness goals and design a jogging program to meet these goals; perform a variety of fitness jogging techniques; and understand how jogging promotes psychological well-being. Frequency of Enrollment: Ten to twelve sections every fall and spring semesters with a maximum of 30 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 067 (GHA) Physical Conditioning (1.5)** A course designed to give students an experience with an understanding of vigorous physical training.

**KINES 067 Physical Conditioning (1.5)  
(GHA)**

Kinesiology 067 has been designed to help students build high levels of overall physical conditioning based upon athletic endeavors such as multi-sport and adventure challenges. Students should expect to physically challenge themselves through a variety of activities focusing on aerobic, anaerobic, and resistance training. Additionally, students will have an opportunity to learn skills necessary to create safe, complete conditioning programs while considering safety and injury prevention.

Physical Conditioning will provide a unique balance of training guidelines that can be applied to the various activities one pursues throughout life. Kinesiology 067 serves as a stepping-stone to lifetime fitness, competition in organized athletic events, and personal challenge activities. Students will develop a holistic approach to training for endurance, strength, and integrated activities. Self-paced activity will allow for each individual to maximize the benefits of physical conditioning.

Through working in groups to complete athletic challenges, students in Kinesiology 067 will integrate exercise, teamwork, and problem-solving skills. Success in group activities will hinge on communication between teammates and the team's ability to work in a cohesive fashion while experiencing a movement-based activity. Students may need to rely on group members for strengths in various areas.

Various evaluation techniques will be used to assess progress in Physical Conditioning. These techniques will include, but are not limited to, written examinations, completion of special challenges integrating aerobic, anaerobic, and resistance training (i.e. obstacle course), and improvement-based evaluations of cardiovascular endurance and strength.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 068 (GHA) Strength Training (1.5)** Designed to improve students' muscular strength/endurance, teaches students how to develop an effective personal strength/endurance training program for lifelong fitness.

**KINES 068 Strength Training (1.5)  
(GHA)**

The purpose of this class is to learn the basic principles of strength training, the role of weight lifting in an overall program of health and wellness, and to acquire the necessary skills and experience to develop an individualized program for developing muscular strength and endurance.

Kinesiology 068 will require the student to understand the following specific objectives:

- 1) Become proficient in the use of various types of equipment used to improve strength and endurance.
- 2) Learn the essential components of a weight training program and overall fitness program.
- 3) Conduct specific tests to measure muscular strength and endurance.
- 4) Assess muscular fitness level by comparing strength testing results to national averages.
- 5) Improve muscular strength and endurance.

Ample time will be devoted to allow students to acquire proper technique for a wide variety of strength training exercises and to create a personal training program. Students will have adequate time to train and should significantly improve strength and endurance throughout the semester. At regular intervals, strength and endurance will be assessed. Students will complete summary reports in which they compare their fitness levels to national standards and will chart individual progress throughout the semester. Throughout the semester, it will be emphasized to the student that strength training is one aspect of a personal health and wellness program and that the student must assume personal responsibility to develop and maintain his/her health and fitness level for life. Students will be encouraged to explore their personal health and fitness goals and how strength training may be incorporated into their lifelong fitness plan.

Various evaluation techniques will be used to assess individual progress in Kinesiology 068. These techniques will include (but are not limited to) conventional objective testing, skill and fitness testing, and writing assignments.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 070 (GHA) Swim Conditioning (1.5)** A course designed to provide students an understanding of and proficiency in swimming conditioning.

**KINES 070 Swim Conditioning (1.5)  
(GHA)**

The primary objective of Kinesiology 070 is to teach students, in both a theoretical and practical manner, the fitness benefits derived from swimming. These benefits include but are not limited to: flexibility, cardiovascular endurance, muscular strength and endurance, and weight management. Because of its non-weight-bearing nature, attention is also given to the exercise value of swimming for arthritic, injured, and overweight individuals. This course promotes swimming as a lifelong pursuit and at the same time enables a student to design an individualized fitness plan, using swimming as the primary activity.

Instruction includes a mixture of classroom and practical experiences, with an emphasis on in-water activity. Fundamentally, the water activity consists of a daily workout, 40-50 minutes in length. Workout components include: a warm-up, light stretching, a main training set, and a warm-down. The training emphasis varies depending upon the placement of the workout during the semester as well as the fitness goal (group or individual) at that particular time. Workouts conducted early in the semester, for example, focus on technical issues and general aerobic improvement as the workload is gradually increased. Subsequent workouts are geared toward improving aerobic and anaerobic conditioning while maintaining a steady but varied workload. Throughout the semester, swimming is the primary activity, but an exposure to water walking/jogging/running and dry-land training is also provided. Moreover, the importance of implementing training variety, proper technique, and appropriate safety procedures is emphasized throughout the course. Classroom sessions are reserved for understanding training principles, terms, and methods. Individual concerns (i.e. fitness goals, videotaping, training alternatives, and problems) are also addressed in this setting.

Swimming ability varies greatly from one individual to another. Because of this, and because space limitations prevent total individuality, students are taught to devise swimming fitness programs that meet both individual and group goals. These workout programs are expected to utilize competitive and noncompetitive strokes, varying degrees of aerobic and anaerobic training, as well as a balanced combination of swimming, kicking, and pulling efforts (using a variety of training equipment). Educational objectives are completed in a systematic yet flexible manner that affords students the opportunity to simultaneously learn and experiment together while developing individual fitness.

Individual progress may be assessed through any or all of the following measures: objective testing, maintenance of a training log, written assignments, and standardized swimming performances. The amount of each is left to the discretion of the instructor. Evaluation methods other than those already mentioned may certainly be used.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002  
Prerequisite: KINES 047A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 072 (GHA) Fitness Walking (1-1.5)** A course designed to give students an understanding of and a proficiency in fitness walking.

**KINES 072 Fitness Walking (1-1.5)  
(GHA)**

Kinesiology 072 introduces students to the performance of fitness walking as a lifelong activity that maintains and enhances physical health and psychological well-being. This course provides the information that the student needs to understand, organize, plan, and implement a physical fitness program that features walking as a primary activity.

The centerpiece of this course is a series of small group and individual walks of varying lengths that are conducted over various terrains. Past activities have included one-mile, four-mile, and eight-mile walks to such locations as the Mushroom Research Center, Beaver Stadium, and various museums, and other landmarks around campus and the community. In addition, hikes to such places as Mt. Nittany and Stone Valley Recreation Area have also been featured. These activities are complemented by a series of classroom lectures on such topics as the philosophy of walking and walking safety; goal-setting for personal health; principles and the concept of physical fitness; the physiology of walking; and nutrition and weight control. Students also participate in team-based projects such as group-designed scavenger hunts and "landmark walks." As a final project, each student is asked to define a measurable fitness goal and design a fitness walking program to realize that goal. As part of this assignment, students assemble data to indicate that they have achieved their goal, and then identify and analyze the factors that contributed to their success. Students also have the opportunity to monitor their performance throughout the course using a variety of personal assessment inventories and instruments, such as logs and heart rate monitors.

When a student completes Kinesiology 072, he or she will be able to identify the components of an effective physical fitness program and explain how walking contributes to the success of this program; develop realistic fitness goals and design a walking program to meet these goals; perform a variety of fitness walking techniques; and understand how walking promotes psychological well-being.

Various evaluation techniques will be used to assess individual progress in Kinesiology 072. These techniques will include, but are not limited to, conventional objective testing, performance on a nationally normed fitness walking test, personal assessment inventories and assignments, and journaling assignments.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 076 (GHA) Introduction to Tai Chi Ch'uan (1.5)** A course designed to introduce students to Tai Chi Ch'uan, a traditional Chinese system of personal cultivation and self-defense.

**KINES 076 Introduction to Tai Chi Ch'uan (1.5)  
(GHA)**

This course will introduce students to Tai Chi Ch'uan a health and martial arts system originating from China, and based on more than five thousand years of observation and practice culled from the major Chinese Schools of philosophy and Chinese medical practice. It is seen as a physical embodiment of the supreme Taoist principles. Tai Chi has become very popular in the rest of the world as a means for attaining physical health and vitality and as a formidable defensive martial art. Tai chi has been the focus of research in China and the west and has been found extremely beneficial for balance, arthritis, Parkinson Disease and for general health and well being.

Students will be introduced to the principles of Tai Chi Ch'uan by learning Tai Chi relaxation techniques and warm ups to relax the joints, right body alignment and Qi Gong exercises to promote the flow of chi or life energy through the body and the internal organs. They will learn and become proficient in the performance of the first part of the Tai Chi Yang form, which is the heart of the practice. The students will also explore the martial aspects of Tai Chi Ch'uan through the practice of push hands, a two person play, and through the demonstration and introduction to the Tai Chi Sword. The martial art aspects will enrich the students experience and demonstrate the interaction of the student's chi with his or her environment.

Students are encouraged to practice daily outside of class and to record their practice and observations in a journal. At the end of the course they will be required to perform the Tai chi form and related exercises on their own.

Evaluation is based on participation, class journal and observations, and the final individual performance of the Tai Chi form and related exercises. No special facilities are required for this course. The department plans to offer one section every fall and spring semesters with an anticipated enrollment of 25 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 077 (GHA) Yoga 1 (1.5)** A course designed to give students an understanding of and proficiency in yoga.

**KINES 077 Yoga I (1.5)**  
**(GHA)****(BA) This course meets the Bachelor of Arts degree requirements.**

Kinesiology 077 introduces students to the performance of yoga as a lifelong activity that maintains and enhances physical health and psychological well-being. This course provides the information that the student needs to understand, organize, plan, and implement a wellness program that features yoga as a primary activity.

The centerpiece of this course is a series of activity classes that introduce students to classical yoga postures that address such needs as stress management, muscular tightness, skeletal alignment, and injury rehabilitation. In addition to posture instruction, each class begins with a period of breathing and meditation practice where students are taught to use various breathing techniques to calm the mind and focus mental energy on specific tasks. These activities are complemented by a series of classroom lectures on such topics as the historical and philosophical foundations of yoga, nutritional practices that enhance the value of a lifelong yoga program, and Eastern-based movement traditions that complement yoga practice. Students also have the opportunity to complete reflective essays on various aspects of yoga philosophy and lead a group-designed yoga class.

When a student completes Kinesiology 077, he or she will be able to identify the components of an effective lifelong wellness program and explain how yoga contributes to the success of this program; perform yoga to develop flexibility, strength, and cardiovascular endurance; select and perform yoga postures that address specific needs (e.g., stress management, muscular tightness); describe the philosophical and historical framework that supports yoga practice; and understand how effective breathing and meditation techniques promote physical and psychological well-being.

Various evaluation techniques will be used to assess students' progress in Kinesiology 077. These techniques can include (but are not limited to) conventional objective testing; skill testing that evaluates the performance of specific yoga postures; reflective essays on aspects of yoga history and philosophy; and performance in a group-designed yoga class.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 077A (GHA) Advanced Yoga (1.5)** A course designed to expand on a student's fundamental understanding of and proficiency in yoga.

**KINES 077A Advanced Yoga (1.5)**  
**(GHA)**

Kinesiology 077A is a course based on a system of ultimate health created in India 5,000 years ago and now practiced by all contemporary societies throughout the world. Students who enter this course are introduced to a deeper and more detailed knowledge and practice of this ancient curriculum. Students will become familiar with the research data that supports that yoga is beneficial to muscular, endocrine, cardiovascular, digestive and skeletal systems of the body. Each class period is devoted to practicing yoga postures with the knowledge of their specific benefits. For instance, when learning the bridge pose students will learn that the bridge increases flexibility in the back and shoulders, strengthens the leg muscles and stimulates thyroid function. Students learn to integrate such knowledge into their personal practice of yoga outside of class. In addition to learning more about the development of a personal practice advanced yoga also provides the students with many opportunities to also practice yoga off of the yoga mat or in their own personal student life. In both written and verbal opportunities students share how yoga and the practice of yoga is "showing up" in their lives. Sanskrit is the Indian language of yoga. There are opportunities in Advanced Yoga to understand and translate the language and to be able to express Sanskrit in relationship to meditation techniques, energy center practices, temperament determination and application of specific yogic activities. When students complete the course they will be able to perform yoga to increase flexibility, strength and cardiovascular endurance. They will have studied and performed breathing techniques, and developed a daily yoga practice. They will also be able to perform new intermediate yoga postures and to perfect the beginning postures learned previous to this classroom experience. They will also have a basic knowledge of the energy systems of the body as described in Indian Ayurvedic medicine. Various evaluation techniques will be used to assess student's progress in Kinesiology 077A. These techniques can include (lesson plan and teaching to support certain postures and posture series, journal writing with verbal and written criteria, and portfolio construction.) There are no special facilities for this course. The Department plans to offer one section each fall and spring semester with a maximum enrollment of 30 students.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003  
Prerequisite: KINES 077

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 081 (GHA) Wellness Theory (3)** Focused on preparing and engaging students in the attitudes and behaviors that enhance quality of life and maximize personal potential.



**Wellness Theory (3)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 082 (GHA)** Action Methods for Stress Management (3) Achieving wellness by studying the effects of stressors on systems of the body and effectiveness of activity to relieve stress.

**Action Methods for Stress Management (3)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 083 (GHA)** Exercise for Stress Management (1.5) A course designed to identify the factors that contribute to student stress and develop strategies that will manage these factors. Students who receive credit for KINES 083 will not receive credit for KINES 082.

**KINES 083 Exercise for Stress Management (1.5)  
(GHA)**

Kinesiology 083 is a course designed to give the Penn State student an introductory understanding of the fundamental principles of stress management. This course will provide pertinent information the student needs to understand, organize, plan, and implement a preliminary stress management program.

In this course, the Penn State student will follow a four-part concept of stress management that encourages the student to identify the factors that contribute to their stress and to develop strategies that will allow the student to manage these factors more effectively. In the first part of the course, material is presented that relates to the importance of knowing oneself and then establishing vehicles for placing oneself in relationships, environments, and situations that consistently support that "self." In the second part of the course, the student is introduced to the elements of fitness and the research data available to date that supports the idea of fitness prescriptions to enhance the relaxation response and/or produce relevant changes in hormone levels. In conjunction with this knowledge and application of such knowledge, the students learn nutritional facts that allow them to understand the chemicals that foods possess that can produce a calming or increased energy effect. Combining this knowledge, the students develop a personal program to incorporate these fitness and nutritional goals into their own lives. In the third part of the course, students are introduced to Eastern literature that indicates that a mind needs to be trained in order to provide a calming effect, increased concentration, and efficiency.

Students practice these skills to train their mind and be able to fully depend on their mind to perform more efficiently in time of stress. In the final part of the course, the students are introduced to the most current definitions of spirituality and are able to appreciate how their own spirituality is demonstrated in their lives. The course is taught through a variety of teaching methods which include lecture, workbook activities, and the repeated use of stress techniques demonstrated by the instructor and practiced by the students in class. This learning is supplemented and reinforced by listening to stress management audio tapes. The students reflect on specific stress concepts by writing self-reflection papers that allow them to reflect on how each concept is "showing up" in their own lives at the present time.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 084 (GHA)** Fitness for Life (1.5-2) A course designed to give students an understanding of the fundamental principles of physical fitness. Students who receive credit for KINES 084 shall not receive credit for either KINES 061 or 081.

**KINES 084 Fitness for Life (1.5)  
(GHA)**

Kinesiology 084 is a course that has been designed to give the Penn State student a complete understanding of the fundamental principles of physical fitness. This course will provide all of the information the student needs to understand, organize, plan and implement a complete physical fitness program.

In this course the Penn State student will acquire the knowledge and critical thinking skills that are essential to the development of a healthful and active lifestyle. Kinesiology 084 will challenge students to be active participants in their learning process. Students will as individuals or as part of a learning team be involved in classroom discussions of various fitness/wellness related topics. Learning teams will delineate key elements of various topics for classroom presentation.

Student will participate in student surveys collecting data, interpreting results and formulating theories about those results. Kinesiology 084 will be an ideal forum in which students can explore their social behaviors as they related to the ethical consumption of resources with regard to health and fitness.

Various evaluation techniques will be used to assess student's progress in Kinesiology 084. These techniques shall include but not be limited to conventional objective testing, group and individual presentations; Web based information gathering, personal assessment inventories, and journaling assignments.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 088 (GHA) Varsity Sport Experience (2)** A course designed to promote an active and healthful lifestyle through participation in a varsity sport sanctioned by Penn State.

**KINES 088 Varsity Sport Experience (2)  
(GHA)**

Kinesiology 088 introduces students to the rigors of the varsity sport experience. This course provides the information that the student needs to understand, organize, plan and thrive in the competitive environment of a collegiate sport program while integrating themselves into the university community.

The "corner stone" of this course is the varsity sport experience itself. Under the tutelage of some of the best instructors in the nation these student-athletes will learn how to prepare for and engage in physical and psychological contests of the highest order. In addition to engagement with the finest physiological training students are taught to work collaboratively in small and large groups to solve complex movement problems. Critical thinking is stressed as students negotiate the complex real world problem of being a student athlete in a collegiate athletic program. Social behavior, community and scholarly conduct are continually addressed as the student-athletes attempt to integrate themselves into the university and local community.

When a student completes Kinesiology 088, he or she will be able to identify the components of an effective physical training program and explain how that program contributes to lifelong wellness; develop training goals and design programs to meet these goals; perform a variety of physical training techniques; and understand how the acquisition of sport specific skills and knowledge promotes psychological well-being.

Members of the Department of Intercollegiate Athletics evaluate the successful completion of this program. Sport-appropriate training and performing venues are provided by Penn State. Enrollment will be based upon seasonal varsity sports.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 089 (GHA) Student Wilderness Experience (3)** Incoming student wilderness experience. Backpacking and one additional adventure: rock climbing, high ropes course/canoeing. One-day of community service.

**KINES 089 Student Wilderness Experience (3)  
(GHA)**

KINES 089 is a 6-day wilderness experience that is offered to incoming students during the summer before the onset of the fall semester. This course includes four days of backpacking and one day of an additional adventure: rock climbing, high ropes course or canoeing. Through these activities students learn the various skills associated with backpacking and wilderness living. Students are engaged in hours of physical activity as they hike between 6 and 8 miles per day on variable, rolling terrain with 30-40lb backpacks upon their backs. Students are placed into small groups of 8-10 students with Penn State students and graduate students who mentor and lead the wilderness experience. Small group discussions focus on life at Penn State, question and answer sessions for students and issues regarding outdoor leadership. KINES 089 emphasizes teamwork, group living skills, and wilderness ethics. Through the first five days of the program these various topics are addressed. Equipment for all activities is provided. Incoming students with all levels of experience may take this course. A community service project is also required. A follow-up classroom session takes place one to two months from the ending point of the program at which time students will turn in their class assignments. KINES 089 is offered in June, July and August prior to the onset of fall classes. Both sections of KINES 089 begin and end at the University Park campus. The course is offered at least twice every year, prior to the beginning of fall semester, with anticipated enrollment of 60 students each section. In 2003, a June and July section will be offered in addition to two weeks in August. Four sessions in total will be offered. KINES 089 will utilize a gymnasium in the Intramural Building for the first day of each session. The course also uses facilities at Stone Valley Recreation area on the last night of the program.

General Education: GHA  
Diversity: None

Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 090** (GHA) Introduction to Team Sports/Indoor (1-1.5) A course designed to introduce students to indoor team sports.

**KINES 090 Introduction to Team Sports/Indoor (1-1.5)  
(GHA)**

Kinesiology 090 is a course that has been designed to give the Penn State student an introduction to a selected indoor team sport such as, but not limited to, basketball, volleyball and/or team handball. The fundamental skills, strategies, and rules will be covered for the selected sport. Successful completion of the course will provide a foundation for participation in intramural activities, recreational activities, and provide a gateway to life long movement.

While Kinesiology 090 will focus on the skills, strategies and rules of a selected team sport, the underlying sub-focus of this course is the development of the social skills required to be a good team member. The commitment to a team sport requires students to encounter a collaborate atmosphere. As the students seek to solve complex movement problems they learn to co-operate to achieve various team goals. The improvement of individual skills is important, however, the successful integration of these individual skills into the team is a valuable life lesson. As the student leaves the university, the lessons learned in this class will prepare him/her for "team " membership in their various areas of professional practice.

Students in Kinesiology 090 will be evaluated by a combination of evaluation techniques which may include, but not be limited to, written reports, skills testing, tournament performance and subject evaluation of "team" work ethics.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 090A** (GHA) Introduction to Team Sports/Indoor - Volleyball (1.5 per semester/maximum of 99) A course designed to introduce students to the team sport of volleyball.

**Introduction to Team Sports/Indoor - Volleyball (1.5 per semester/maximum of 99)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 090B** (GHA) Introduction to Team Sports/Indoor - Basketball (1.5 per semester/maximum of 99) A course designed to introduce students to the team sport of basketball.

**Introduction to Team Sports/Indoor - Basketball (1.5 per semester/maximum of 99)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 090C** (GHA) Introduction to Team Sports/Indoor - Team Handball (1.5 per semester/maximum of 99) A course designed to introduce students to the sport of team handball.

**Introduction to Team Sports/Indoor - Team Handball (1.5 per semester/maximum of 99)**

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 091A** (GHA) Introduction to Team Sports/Outdoor - Soccer (1.5 per semester) A course designed to introduce

students to the outdoor team sport of Soccer.

**KINES 091A Introduction to Team Sports / Outdoor – Soccer (1.5 per semester)  
(GHA)**

Kinesiology 091 is a course that has been designed to give the Penn State student an introduction to a selected outdoor team sport such as but not limited to Soccer, Ultimate Frisbee, Rugby and/or Speedball. The fundamental skills, strategies and rules will be covered for the selected sport. Successful completion of the course will provide a foundation for participation in intramural activities, recreational activities and provide a gateway to life long movement.

While Kinesiology 091 will focus on the skills, strategies and rules of a selected team sport the underlying sub-focus of this course is the development of the social skills required to be a good team member. The commitment to a team sport requires students to encounter a collaborate atmosphere. As the students seek to solve complex movement problems they learn to co-operate to achieve various team goals. The improvement of individual skills is important however the successful integration of these individual skills into the team is a valuable life lesson. As the student leaves the university the lessons learned in this class will prepare him/her for "team " membership in their various areas of professional practice.

Students in Kinesiology 091 will be evaluated by a combination of evaluation techniques which may include but not be limited to written reports, skills testing, tournament performance and subject evaluation of "team" work ethics.

Clean, safe, well-lit court/field is necessary to properly deliver this course. It is anticipated that the department will offer at least two sections every fall and spring with an expected enrollment of 45 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 091C (GHA) Introduction to Team Sports/Outdoor - Rugby (1.5 per semester)** A course designed to introduce students to the outdoor team sport of Rugby.

**Kines 091C Introduction to Team Sports / Outdoor – Rugby (1.5 per semester)  
(GHA)**

Kinesiology 091 is a course that has been designed to give the Penn State students an introduction to a selected outdoor team sport such as but not limited to Soccer, Ultimate Frisbee, Rugby and/or Speedball. The fundamental skills, strategies and rules will be covered for the selected sport. Successful completion of the course will provide a foundation for participation in intramural activities, recreational activities and provide a gateway to life long movement.

While Kinesiology 091 will focus on the skills, strategies and rules of a selected team sport the underlying sub-focus of this course is the development of the social skills required to be a good team member. The commitment to a team sport requires students to encounter a collaborate atmosphere. As the students seek to solve complex movement problems they learn to co-operate to achieve various team goals. The improvement of individual skills is important however the successful integration of these individual skills into the team is a valuable life lesson. As the student leaves the university the lessons learned in this class will prepare him/her for "team " membership in their various areas of professional practice.

Students in Kinesiology 091 will be evaluated by a combination of evaluation techniques which may include but not be limited to written reports, skills testing, tournament performance and subject evaluation of "team" work ethics.

Clean, safe, well-lit space/field is necessary to properly deliver this course. It is anticipated that the department will offer at least two sections every fall and spring with an expected enrollment of 45 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 091D (GHA) Introduction to Team Sports/Outdoor-Ultimate Frisbee (1.5 per semester)** A course designed to introduce students to the outdoor team sport of Ultimate Frisbee.

**KINES 091D Introduction to Team Sports / Outdoor –Ultimate Frisbee (1.5 per semester)  
(GHA)**

Kinesiology 091 is a course that has been designed to give the Penn State student an introduction to a selected outdoor team sport such as but not limited to Soccer, Ultimate Frisbee, Rugby and/or Speedball. The fundamental skills, strategies and rules will be covered for the selected sport. Successful completion of the course will provide a foundation for participation in intramural activities, recreational activities and provide a gateway to life long movement.

While Kinesiology 091 will focus on the skills, strategies and rules of a selected team sport the underlying sub-focus of this course is the development of the social skills required to be a good team member. The commitment to a team sport requires students to encounter a collaborate atmosphere. As the students seek to solve complex movement problems they learn to co-operate to achieve various team goals. The improvement of individual skills is important however the successful integration of these individual skills into the team is a valuable life lesson. As the student leaves the university the lessons learned in this class will prepare him/her for "team " membership in their various areas of professional practice.

Students in Kinesiology 091 will be evaluated by a combination of evaluation techniques which may include but not be limited to written reports, skills testing, tournament performance and subject evaluation of "team" work ethics.

Clean, safe, well-lit court space is necessary to properly deliver this course. It is anticipated that the department will offer at least two sections every fall and spring with an expected enrollment of 45 students per section.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 093 (GHA) Masters Activity (Sport) (1.5 per semester/maximum of 12)** A course that introduces students to movement subcultures by providing the knowledge, habits, and skills for activity across the lifespan.

**KINES 093 Masters Activity (Sport) (1 per semester/maximum of 12)  
(GHA)**

The Masters Curriculum provides a unique approach to movement education. Rather than focusing on regimented skill development over a period of a semester or less, KINES 093 requires students to incorporate activity into their weekly schedules for a year or longer. Because this is a self-paced and self-designed curriculum, students must also take responsibility for the kind, quality, and amount of activity they experience. By signing an activity contract with the master teacher each semester and being required to demonstrate progress made through portfolio evaluations, students are further encouraged to take responsibility for developing the habits of active living-not just fulfilling a requirement. The curriculum is designed to bring a higher percentage of students into a movement subcultures higher percentage than can be achieved in the shorter, instructor-directed, and more traditional educational setting. In order to achieve this in-depth experience, students will be required to take two masters courses (1.5 credit each) in the same activity. Sequential enrollment provisions will be needed, with a maximum of 3 credits counting toward General Education requirements. Each student will meet with the master instructor at the start of a semester to review a menu of activity opportunities (see outline above) in a specific movement domain. Students, in consultation with the instructor, will select a cluster of learning experiences to be encountered that semester. Each menu item chosen will be recorded on the contract along with the method or methods by which that item will be documented in the student's portfolio. The agreed upon documentation must be provided before credit is awarded. A completed contract will be signed by both the student and the master teacher. Regular communication between each student and instructor, consistent with the nature of the contract and the activities selected from the menu, will be assured. In addition, students will be required to become connected to a movement subculture by joining an appropriate organization and/or subscribing to relevant publications during that two-semester period of time needed for completing the requirement. When students have finished the 3 credits, they will be encouraged to continue with Masters development either as performers or as peer instructors for less experienced students. This length and intensity of involvement is designed to produce students who become bona fide members of a movement subculture by the time they leave the program. The expectation is that they will embody the habits, values, and attitudes needed for an active, healthy lifestyle.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: successful completion of relevant activity course or permission of the instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 096 (GHA) Independent Study in Physical Activity (.5-3 per semester)** This course is designed to meet the needs of students to expand Kinesiology experiences beyond the designed course curriculum.

**KINES 096 Independent Study in Physical Activity (1-3 per semester)  
(GHA)**

Students enroll in KINES 096 to take advantage of a unique movement experience in which they plan to participate. They enroll in KINES 096 by an application process. Students who feel that they would like to fulfill their Health Science and Physical

Activity (GHA) requirement by pursuing a movement form outside of the normal curricular offerings apply to the department of Kinesiology. Applications will be screened to see that they fulfill the tenants of the GHA requirement.

The topics for this course vary widely from student to student. A student may be working on a personal contract that has been designed to report the progress of experiences from hiking excursions in Nepal to a mountain biking course in

Crested Butte, Colorado, to walking a mile in 15 minutes after major knee surgery. Therefore, many common topics are an exception rather than a rule during any given semester. Each student completes a proposal form that requires that they describe their need for this course. They are also asked to describe the experience that they have identified in detail and also a preliminary program and implementation plan for the detailed program. This proposal is then approved or denied by the faculty member facilitating the independent study program. After the proposal has been approved or denied the student will receive a letter notifying them of their status in the course. If they have received an approval letter they are instructed in the letter to meet one-on-one with the class instructor. At the initial meeting, the proposal is discussed and when there is an agreement with the student and instructor concerning the requirements for the student to complete the course successfully a contract is written and signed by both the instructor and the student. Weekly contact, at a minimum, with the instructor is required.

Student evaluation techniques shall include but not be limited to objective testing, individual projects, presentations, journals and subjective evaluation of effort involved in meeting the stated goals and objectives for the course.

There are no special facilities for this course. The department plans to offer this course every fall and spring semesters, with an enrollment of up to 25 students each semester.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 097A** Certified Lifeguard (3) Certified Lifeguard American red Cross certification for lifeguarding with CPR/AED/First Aid; must be able to swim 300 yards continuously. Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

#### **Certified Lifeguard (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 097B** Yoga Theory for Wellness (1.5) This course is designed to introduce the students to strategies and practices for optimum health and wellness as a means to decrease stress. The intention of the class is to provide the information needed and the experience of developing a personal practice for ongoing health and wellness using specific yoga practices which are correlated with current wellness strategies.

#### **Yoga Theory for Wellness (1.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 126** The Health Program for the Elementary School Child (1.5) Introduction to the Coordinated School Health Program. Overview of contemporary school-based health education theory, content, methods, and practice.

#### **KINES 126 The Health Program for the Elementary School Child (1.5)**

KINES 126 is an introductory course designed to prepare school-and community-based educators to implement health promotion and disease prevention educational programs to elementary-aged audiences. Emphasis of the course is on the coordinated school health program model, theory, content, and teaching methods. Eight specific components of a

coordinated school health program serve as the foundation for the course: (1) comprehensive school health education; (2) physical education; (3) school health services; (4) school nutrition services; (5) school counseling, psychological, and social services; (6) healthy school environment; and (7) school-site health promotion for faculty and staff; and family and (8) community involvement in school health. Students will gain experience in health promotion and disease prevention concepts; lesson planning; roles and responsibilities of teachers, staff, administrators, and students; and implementing effectively the health education concepts outlined above. The Department will offer one large section each fall and spring semesters with an anticipated enrollment of 150 students per section. A technology room will be required.

Participation in this course will enable the student to:

- a. Analyze the goals, roles, and responsibilities of the classroom teacher concerning the health of the school-aged child.
- b. Identify appropriate educational resources related to school health.
- c. Describe the components of the coordinated school health program
- d. Discuss the importance of learning healthy life skills for elementary-aged learners.
- e. Organize and submit one modified health-based lesson plan for elementary-aged learners.
- f. Demonstrate competency in accessing health education resources from the World Wide Web.

Methods for Evaluation:

Written examinations 50%

Lesson Planning 30%

In-Class Participation 20%

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: EDPSY 014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 127** The Physical Education Program for the Elementary School Child (1.5) Theoretical and practical overview of developmentally appropriate physical education for children.

### **KINES 127 The Physical Education Program for the Elementary School Child (1.5)**

KINES 127 is an introductory course designed to introduce future classroom teachers to the conceptual framework of developmentally appropriate physical education. The class includes both theoretical and practical guidelines for analysis and implementation of children's physical education. The course focuses on applications of the Pennsylvania standards for elementary educators K-6. The components of KINES 127 include: concepts related to becoming and remaining physically active for a lifetime, physical fitness, motor development, movement and fitness concepts and fundamental motor skills, safety procedures, role and value of play, game and sports in child development. Students will gain experience teaching physical education lessons, as well as observing and participating in physical education experiences. Students will be introduced to multi-cultural dance and games. Students will understand the use of small and large equipment. Evaluation will include written examination, group peer teaching, and participation. The Department will offer 4 sections each Fall and Spring semesters with an anticipated enrollment of 30 students. The Department will offer 1 section per summer semester with an anticipated enrollment of 30 students.

Participation in this course will enable students to:

1. Define and develop a philosophy of elementary physical education.
2. Identify developmental characteristics and stages for children grades K-8.
3. Develop professional teaching techniques.
4. Apply activities for physical education, using proper safety procedures.
5. Discuss the importance of nutrition, personal wellness, and lifelong healthy habits.
6. Understand the human body and its systems.
7. Demonstrate competency in accessing physical education activities and resources from the World Wide Web.

Methods for Evaluation:

Writing Examination 50%

Group Peer Teaching and lesson planning 20%

Written Observation of Peer Teaching 10%

Participation 20%

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 135** Introduction to Athletic Training (3) Foundation of injury recognition and prevention; ethical, legal, and professional issues for the athletic trainer. A laboratory based course.

### **KINES 135 Introduction to Athletic Training (3)**

Introduction to Athletic Training provides an overview of the field of athletic training exploring the breadth of athletic

training terminology, issues, and injuries. After completing the course, the students will be able to describe the roles of the sports medicine team, understand the legal considerations for the athletic trainer as a health care provider, and identify the basics of physical conditioning and nutrition in reference to injury prevention. Students will be able to describe an emergency action plan for injuries, lightning safety, and provide a basic plan for dehydration and fluid replacement. Students will be able to identify basic use of therapeutic modalities and principles of therapeutic exercise programs. Students will gain an understanding of acute vs. chronic injury conditions and be able to describe the related anatomy, etiologies, pathologies, signs and symptoms, and general treatment and management for injuries of the foot, ankle, lower leg, knee, hip/groin, shoulder, elbow, wrist, hand, cervical spine, and head. A weekly taping laboratory is included and students are provided rationale and demonstrations for specific taping techniques for a variety of injuries. Students are also provided an overview of general medical conditions that may occur in the athletic arena. Students are evaluated through three (3) exams, six (6) quizzes, performance in taping lab and practical exam, development of a medical condition fact sheet and class presentation of the medical condition, in-class assignments, class participation, and class attendance. This course is offered every fall and spring semesters with a maximum enrollment of 35.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 141 (US;IL)** The Socio-Cultural Dynamics of Kinesiology (3) Evolution of cultural values in physical activity from antiquity to the present.

**KINES 141 The Socio-Cultural Dynamics of Kinesiology (3)  
(US;IL)**

Physical activity involves the bodily processes that scientists explore, from chemical reactions to electrical impulses to muscular accelerations. Human bodies, however, do not just move in vacuums, they move in cultural and social environments as well as in laboratories and on force plates. The Introduction to the Socio-Cultural Dynamics of Kinesiology provides students with opportunities to explore the connections between sport, exercise, physical education, and fitness practices and the broader cultural, political, intellectual and economic patterns that have shaped human cultures from their origins to their contemporary manifestations. The class situates these themes within the context of kinesiology, the study of human movement and activity. The course begins with an introduction to the contemporary realities and historical development of kinesiology. The class offers a wide variety of perspectives, historical, philosophical, sociological, anthropological, and political, on the development and significance of physical activity in human cultures.

This course concentrates on three basic areas of physical activity. The course explores the history of sports, exercise, and fitness, the history of physical education systems, and the history of ideas and beliefs about physical activity and human nature. The class offers a special emphasis through the readings and lectures on the social construction of cultural, national, racial, gender, and class identities as well as other manifestations of human diversity in both the United States and around the globe.

This course introduces students to the fundamental ideas about how and why the human environments we inhabit shape our understandings of our movements, a subject that has long fascinated curious minds. Physical activities such as sport, play, and exercise—seem to be universal phenomena, occurring across the time-span of human history and in every known culture. In every human time and place, people have invented contests of physical of prowess, engaged in physical education, and developed ideas and beliefs about the relation of the body to human nature.

While curiosity about the processes, qualities, and meanings of physical activity may be universal, human movements and our ideas about those movements do not occur in timeless, placeless, ahistorical environments. Human movements and our ideas about them always occur in particular places, at particular times, and in particular cultures. They might share a few universal characteristics but physical activities cannot be divorced from their social and cultural locations. This course surveys the connecting points between physical activities and socio-cultural dynamics.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 165** Health Education Concepts (3) Principles of healthy living which are the basis for health instruction in schools and health care settings.

**Health Education Concepts (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None



Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 180** Introduction to Kinesiology (3) The foundation course of the Kinesiology degree, providing an interdisciplinary approach to the study of movement through problem based learning.

### **KINES 180 Introduction to Kinesiology (3)**

Kinesiology 180 is the foundational course of the Kinesiology degree, and aims to stimulate student's interest and value in the scholarly inquiry of human movement. Students will be introduced to the problems, and methods used to solve them, that are the domain of Kinesiology. The relevance of the study of human movement to different areas of professional practice will be emphasized, along with guidance on multiple possible career paths for Kinesiology undergraduate students (e.g. athletic training, ergonomics, fitness and wellness industry, medicine, occupational therapy, physical therapy, and teaching). To begin with, students will be introduced to the Kinesiology sub-disciplines: biomechanics, motor control, physiology, and psychology. Students will gain experience in different methods of inquiry through active learning, including laboratory-based activities that stress practical application of knowledge. During the later part of the course the sub-disciplines will be integrated in an interdisciplinary approach through student collaboration in solving authentic "real world" problems. Evaluation will include laboratory activities, Readiness Assessments Tests, and/or mid-term and final examination will be administered based on instructor discretion. The Department is planning to offer two sections every fall and spring semesters with an anticipated enrollment of 75 students per section. A technology room will be required. A technology room request form is attached.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 197A** Biophysical Basis of Kinesiology (3) KINES 197A is intended for entry-level students (majors and minor) with an interest in human movement and physical activity. It provides a rigorous introduction to the biophysical foundations of kinesiology including applications of basic science to professional and clinical settings. Students will become familiar with the field of kinesiology, and discuss how this undergraduate major can serve as preparation for a wide range of professional pursuits, including post-graduate occupations, professional programs of study in medicine and allied health fields, and as a basis for biomedical research careers. The course focuses on the biological, physiological, and psychological foundations of human movement, movement disorders, and sport- related performance. It serves as an entry-level complement to KINES 141, which introduces students to the historical and philosophical foundations of kinesiology.

### **Biophysical Basis of Kinesiology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 197A** Biophysical Basis of Kinesiology (3) KINES 197A is intended for entry-level students (majors and minor) with an interest in human movement and physical activity. It provides a rigorous introduction to the biophysical foundations of kinesiology including applications of basic science to professional and clinical settings. Students will become familiar with the field of kinesiology, and discuss how this undergraduate major can serve as preparation for a wide range of professional pursuits, including post-graduate occupations, professional programs of study in medicine and allied health fields, and as a basis for biomedical research careers. The course focuses on the biological, physiological, and psychological foundations of human movement, movement disorders, and sport- related performance. It serves as an entry-level complement to KINES 141, which introduces students to the historical and philosophical foundations of kinesiology.

**Biophysical Basis of Kinesiology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 197A** Biophysical Basis of Kinesiology (3) KINES 197A is intended for entry-level students (majors and minor) with an interest in human movement and physical activity. It provides a rigorous introduction to the biophysical foundations of kinesiology including applications of basic science to professional and clinical settings. Students will become familiar with the field of kinesiology, and discuss how this undergraduate major can serve as preparation for a wide range of professional pursuits, including post-graduate occupations, professional programs of study in medicine and allied health fields, and as a basis for biomedical research careers. The course focuses on the biological, physiological, and psychological foundations of human movement, movement disorders, and sport-related performance. It serves as an entry-level complement to KINES 141, which introduces students to the historical and philosophical foundations of kinesiology.

**Biophysical Basis of Kinesiology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 197B** ROTC Lab (1-6) ROTC Lab accompanying ROTC lectures courses at Behrend.

**ROTC Lab (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 200** Muscle Training: Physiology, Programs, Techniques (3) Physiological basis of strength training emphasizing mechanisms of muscle contraction and growth, program and facility design, and individual exercise technique.

**KINES 200 Muscle Training: Physiology, Programs, Techniques (3)**

This course focuses on the concepts and applications of strength exercise science including relevant testing and evaluation of strength protocols. It explores the organization and administration of resistance training and conditioning facilities including the development of resistance training programs. The course also introduces students to exercise techniques. As a result of this course students will be able to work collaborative with others. They should be able to evaluate information for authority, relevance, currency and accuracy. They will understand the biomechanics of strength training, the physiological adaptations to muscle training and the mechanisms of change with varying populations. In addition they should be able to select and organize appropriate muscle testing protocols. They should be able to teach and demonstrate appropriate strength exercises to an individual or group as well as be able to identify and correct errors an individual might make. They should be able to prescribe the proper exercise and exercise sequence to strengthen a specific muscle or muscle group. And they should be able to design and organize a strength training facility. Knowledge and skills will be assessed by written tests, by laboratory work and by a variety of group projects and term papers. This course is linked to other courses in that it is the course in which students gain knowledge and experience in designing and prescribing resistance training exercises for individuals and groups. As such it contributes core content to the curriculum. The course requires a resistance training room with adequate equipment and computers, both available to students at both locations of the College.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000  
Prerequisite: BIOL 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 201** Cardiorespiratory Training for Health and Performance (3) Exploration of the principles and practical applications of cardiorespiratory training for health and performance enhancement.

### **KINES 201 Cardiorespiratory Training for Health and Performance (3)**

KINES 201 prepares students in understanding the process of developing a cardiorespiratory exercise prescription program. Exercise programming is scripted on an individual basis according to goals, national guidelines, age, interests, available time, and commitment. The benefits of physical activity are becoming increasingly documented. However, physical activity is not without risks. The proper cardiorespiratory exercise prescription is important to the safe participation for a wide range of populations. Students will be able to determine the differences between activity, fitness, and sport performance and be cognizant of the various components and modes of cardiorespiratory activity. Students will understand the different models of cardiorespiratory exercise prescription for health, fitness, and sport performance. Applying this knowledge, students will experience practical applications of cardiorespiratory exercise prescription on various training modalities applied to a wide range of settings. Homework assessments, laboratory activities and/or mid-term and final exams based on the discretion of the course instructor will reflect the pedagogical and practical application of cardiorespiratory exercise prescription concepts.

The Department is planning to offer one section every year with an anticipated enrollment of 25 students per section.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 202** Functional Human Anatomy (4) In-depth examination of the, musculoskeletal, nervous, cardiovascular, and respiratory systems, and their relationship to human movement.

### **Functional Human Anatomy (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 203** Medical Terminology for Allied Health Professionals (3) Comprehensive review of terms related to functions, disorders, diagnosis, and treatment of body systems related to physical activity and movement.

### **KINES 203 Medical Terminology for Allied Health Professionals (3)**

This course is designed for students who wish to enter an allied health field related to physical activity and human movement. This course will help students prepare for careers in physical therapy (PT), occupational therapy (OT), medicine (MD, DO), physician assistant (PA-C), pharmacy (R.Ph), dietary medicine (RD) and emergency care (EMT, EMT-P). Some of the allied health programs listed above requires a 3 credit course in medical terminology prior to admission into graduate school and this course fulfills that requirement.

The goal of this course is to help students develop an understanding of medical terminology related to physical activity and human movement used when dealing with the anatomy and physiology of the systems of the body, disease processes associated with each system, and pharmacology and clinical treatments associated with the pathology of the body systems. Students will appreciate the weights and measures, chemical symbols, diagnoses, procedures, and medical documentation used in allied health fields, especially in sports and human movement medicine.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 220** Inner Sports: Strategies for Maximizing Performance (1) Theory and research in competitive anxiety.

Identification of athletic goals with training in cognitive skills and strategies to maximize performance.

### **Inner Sports: Strategies for Maximizing Performance (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

Prerequisite: active participation in competitive sports

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 231 Athletic Training Clinical Practice I (3)** Preparation in basic psychomotor skills required in the clinical practice of athletic training. This is a laboratory fee based course.

### **KINES 231 Athletic Training Clinical Practice I (2)**

This course is designed to introduce students to basic skills required for the clinical practice of athletic training. The course will teach introductory content and skills related to injury and illness prevention and management. Specific topics include preventing environmental injuries and illnesses, taping and wrapping techniques, protective equipment, preparticipation physical examinations, preparing for emergencies in the athletic setting, and concepts of basic athletic injury management. The course will meet for one hour of lecture and two hours of lab each week. Assessments will include written and practical examinations, homework assignments, and demonstration of practical skills specific to the clinical proficiencies required to sit for the NATABOC exam (must be administered by an NATABOC approved clinical instructor per accreditation guidelines).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: Athletic Training Application Completed

Concurrent: KINES 135 KINES 202 KINES 233

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 232 Athletic Training Clinical Practice II (3)** Preparation in advanced psychomotor skills required in the clinical practice of athletic training. This is a laboratory fee based course.

### **KINES 232 Athletic Training Clinical Practice II (3)**

Athletic Training Clinical Practice II provides instruction in supervised practice of the basic skills required in the practice of athletic training. Topics include documentation of medical records, postural screening, assessment and improvement of flexibility, assessment, and improvement of strength, use of functional rehabilitation protocols, use of common therapeutic modalities, and description of the use of medications in sports medicine. Assessments will include written and practical examinations, homework assignments, and demonstration of practical skills specific to the clinical proficiencies required to sit for the NATABOC exam (must be administered by an NATABOC approved clinical instructor per accreditation guidelines). Students will also complete four-10-hour observations with senior athletic training students. This course provides the student with the opportunity to learn and practice clinical athletic training skills before beginning practicum experiences. The course will meet for 2-hours of lecture and 2-hours of lab each week.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: admitted to the Athletic Training Option KINES 231

Concurrent: KINES 334

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 233 Emergency Care in Athletic Training (3)** Introduction into emergency medical care with emphasis on management of common emergency situations occurring during athletic participation. This is a laboratory fee based course.

### **KINES 233 Emergency Care in Athletic Training (3)**

This course prepares students pursuing the athletic training option in the Department of Kinesiology with the knowledge and skills to respond to medical emergencies. Basic skills including rescue breathing, cardiopulmonary resuscitation, and first aid management of injury and illness emergencies are developed. These skills are supplemented with content related to blood borne pathogens and OSHA regulations needed for personal safety and effective management of athletic training services, the causes and prevention of sudden cardiac death in athletics, and training in the use of automated external defibrillators. The second part of the course focuses on the secondary survey and evaluation and management of central nervous system, musculoskeletal injuries, and shock. The final part of the course addresses conditions of the thorax, abdomen, and musculoskeletal system, environmental hazards encountered in athletics; and drug and alcohol overdoses and poisoning. The course will include the opportunity for professional certification in first aid and cardiopulmonary resuscitation. The course will meet for 2-hours of lecture and 2-hours of lab each week. Assessments will include written examinations, CPR certification (written and practical), blood borne pathogens certification (written), and demonstration of

practical skills specific to the clinical proficiencies required to sit for the NATABOC exam (must be administered by an NATABOC approved clinical instructor per accreditation guidelines).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: Athletic Training Option Application Completed

Concurrent: KINES 135 KINES 231 KINES 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 260** Research Skills in Kinesiology (3) Development of research skills employed in kinesiology, including experimental design, statistical testing and information technology, through experiential learning.

### **KINES 260 Research Skills in Kinesiology (3)**

KINES 260 prepares students to read, understand and critique scientific research. The epistemological belief that knowledge is static and science discovers truth will be challenged. Rather than research being a product achievable only by professors, research will be presented as a process that students can understand and contribute to. Therefore, this course will develop skills and knowledge in understanding and conducting scientific research through practical experience. Specifically, students will learn to search for articles and be able to evaluate different sources of knowledge. Reading strategies will be employed to develop the ability to read and produce research papers according to standard structure and formatting. Students will gain experience using a range of different measurements of human movement and behavior, and understand general measurement issues. Practical experience with different types of research in kinesiology will occur throughout the semester, aiding students to critique and design research. Students will learn when to employ different statistical tests, be able to analyze data using statistical software, and interpret the results. Experience in other computer software will occur throughout the semester to develop student's word processing, spreadsheet and graphical skills. This knowledge and skills will be integrated throughout the semester and culminate in a research project performed by teams of students. In addition to the research project, evaluation will include homework assignments, laboratory activities, and/or mid-term and final examination based on instructor discretion.

The Department is planning to offer one section every spring semester with an anticipated enrollment of 25 students per section. A technology room will be required.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: KINES 180

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 261** Educational Gymnastics (1) This course provides an introduction to developmentally appropriate gymnastics for K-12 students.

### **KINES 261 Educational Gymnastics (1)**

This course is designed for physical education teacher candidates as an introduction to educational gymnastics. Educational gymnastics are developmentally appropriate and recognize differences in student abilities and levels of physical fitness. The course introduces students to the educational philosophy of this approach and contrasts it with Olympic gymnastics. After a review of safety and liability issues related to gymnastics, the majority of the course is devoted to learning to teach the content of educational gymnastics organized into the skill themes of traveling, jumping and landing, balancing, transferring weight and rolling. Teacher candidates are taught to develop gymnastics sequences and to guide students in developing their own gymnastics sequences. The course concludes with techniques for developing rubrics to assess student progress in educational gymnastics.

The course will be offered fall and spring semesters with an anticipated enrollment of up to 25 students. Evaluation includes a paper and poster, quizzes, written rubrics for assessment, and participation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: Official acceptance into the Physical and Health Education Teacher Education (PHETE) option in Kinesiology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 262** Educational Dance (1) This course provides an introduction to a variety of dance forms typically taught as part of K-12 physical education curricula.

### **KINES 262 Educational Dance (1)**

This course is designed for physical education teacher candidates as an introduction to teaching a variety of dance forms in K-12 settings. The course introduces teacher candidates to the educational philosophy and importance of including dance as part of the K-12 physical education curriculum. Dance is included in both state and national physical education standards. The majority of the course is devoted to learning how to teach a variety of dance forms to K-12 students in interesting and enjoyable ways. The dance forms that teacher candidates are introduced to in this course include creative, folk, ethnic, country, western, square, line, ballroom, break, hip-hop and other contemporary dance forms. Teacher candidates are taught to break dances into small steps to make learning to dance enjoyable. They are also taught how to effectively, and appropriately, include music in their teaching. The course concludes with techniques for developing rubrics to assess K-12 student progress in educational dance.

The course will be offered fall and spring semesters with an anticipated enrollment of up to 25 students. Evaluation includes a poster, quizzes, use of instructional techniques and participation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: Official acceptance into the Physical and Health Education Teacher Education (PHETE) option in Kinesiology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 264** Health-Related Physical Fitness (1) Basic skills and methods of teaching, assessing, and prescribing health-related fitness and strength training activities.

### **KINES 264 Health-Related Physical Fitness (1)**

This course will address basic skills and methods for assessing, designing, and teaching health-related fitness education in the K-12 population. It is designed to support existing curriculums and enable pre-service health and physical education teachers to help students meet NASPE's health-related fitness standards. The focus is on designing activities to convey health-related physical fitness knowledge to students in grades K-12. The course includes principles of fitness assessment using assessment software. Participants will learn how to effectively implement a health-related fitness program and assessment techniques into current physical education programs. This student-centered, process-oriented course will challenge students to actively engage in planning and teaching health-related fitness education activities. Students will actively participate in self-learning, self-assessment and peer-assessment. Upon successful completion of the course, students have the opportunity to become a Certified Physical Best Health-Fitness Specialist through the American Alliance for Health, Physical Education, Recreation, and Dance.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: Official acceptance into the Physical and Health Education Teacher Education (PHETE) option in Kinesiology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 266** Adventure/Outdoor Recreational Activities (1) Introduction to adventure/outdoor recreational activities teaching and assessment strategies for K-12 and community groups.

### **KINES 266 Adventure/Outdoor Recreational Activities (1)**

This course is designed to introduce the student to adventure activities for use with diverse populations within educational settings and recreational programming. Applied psychological theory along with effective educational practices will be woven into the adventure activities, skills and risk management needed to design and deliver quality, adventure based activities. An introduction to high-level adventure activities including climbing, high ropes, canoeing, and other selected activities will be included with a critical eye towards the use of this activity to create physically and emotionally safe environments that allow for transformational growth and learning.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: Official acceptance into the Physical and Health Education Teacher Education (PHETE) option in Kinesiology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 268** Technology Applications in Health and Physical Education (1) Integration of technology into health and physical education curriculum.

### **KINES 268 Technology Applications in Health and Physical Education (1)**

The use of technology in health and physical education curricula has increased. Contemporary health and physical educators need to understand and be able to use a variety of technologies in their health and physical education curricula. This course is designed to provide health and physical education teacher candidates with the knowledge and skills to use

current technologies (e.g., pedometers, heart rate monitors, and personal digital assistants) within health and physical education curricula. Additionally, this course will provide teacher candidates with technological skills that will facilitate their professional development.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: Official acceptance into the Physical and Health Education Teacher Education (PHETE) option in Kinesiology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 295A** Observation of Health and Physical Education in the Public Schools (1) Introduction to the career of teaching including guided observation of HPE in K-12 public schools.

#### **KINES 295A Observation of Health and Physical Education in the Public Schools (1)**

Introduction to the career of teaching with guided observation of HPE in K-12 public schools. This course includes three full days of observation (one day elementary school, one day middle school, and one day high school), with four scheduled seminars.

Evaluation includes teaching logs and observation forms, reflection papers, participation, and creation of an electronic-portfolio. This course is offered spring semester with an anticipated enrollment of 50.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 295B** Careers/Observations in Kinesiology (1) Introduction to career information and observational experiences in the Kinesiology field.

#### **Careers/Observations in Kinesiology (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

Prerequisite: third-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 295C** Professional Development - Field Experience (1-2 per semester/maximum of 8) Develops the necessary professional skills needed to maximize the benefits obtained from a professional conference.

#### **KINES 295C Professional Development - Field Experience (1-2 per semester/maximum of 8)**

This course is designed to provide undergraduate students the opportunities of professional development via lecture format, professional travel to a national conference, and guest round table discussions. Throughout the course, students will have exposure to professional communication with faculty through formats including, but not limited to the following: conference forums, faculty/professional/expert dinner discussions, lectures, training sessions, symposiums, break-out sessions, and a poster forum. The students will enhance skills needed to develop networking and interview skills, communicate information effectively, and build resumes to meet the needs for such endeavors as graduate school, internship acquisition, and/or employment. Other class foundational principles include but are not limited to: attending a professional conference, practicing business etiquette at professional lectures and expositions, exposure to professional networking, learning how to exchange knowledge within the professional realm, and researching professional collaborative work. Students will share the experience and knowledge gained from this professional travel through relevant exercises that may include a formal poster forum within the university setting.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: completion of three credits in Kinesiology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296A** Independent Study Athletic Training (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Athletic Training (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296A** Independent Study Athletic Training (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Athletic Training (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296B** Independent Study Biomechanics (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Biomechanics (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296B** Independent Study Biomechanics (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Biomechanics (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296C** Independent Study Exercise Physiology (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Exercise Physiology (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**KINES 296C** Independent Study Exercise Physiology (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Exercise Physiology (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296D** Independent Study History and Philosophy of Sport (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study History and Philosophy of Sport (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296D** Independent Study History and Philosophy of Sport (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study History and Philosophy of Sport (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296E** Independent Study Motor Control (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Motor Control (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296E** Independent Study Motor Control (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Motor Control (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296F** Independent Study Psychology of Movement and Sport (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Psychology of Movement and Sport (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296F** Independent Study Psychology of Movement and Sport (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Psychology of Movement and Sport (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296G** Independent Study Teaching and/or Coaching (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Teaching and/or Coaching (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296G** Independent Study Teaching and/or Coaching (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Teaching and/or Coaching (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296K** Independent Study Applied Kinesiology (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Applied Kinesiology (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 296K** Independent Study Applied Kinesiology (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Applied Kinesiology (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 303** (GHA) Emergency Care - First Aid/Safety/AED (3) Develop skills for First Responder Certification in CPR/AED, First Aid and Safety by American Red Cross or National Safety Council.

**KINES 303 Emergency Care - First Aid/Safety/AED (3)  
(GHA)**

KINES 303 is designed to provide students with the opportunity to acquire and develop the skills and competencies needed for First Responder Certification in CPR/AED, First Aid and Safety from the American Red Cross and/or National Safety Council. Students will understand the role of the Emergency Medical System (EMS) in a complex society and the importance of emergency care in our health care system. KINES 303 will foster the student's critical thinking skills and their ability to assess and evaluate life threatening and disabling injuries and illnesses and to respond with appropriate care and life saving action steps in variety of medical emergencies. Students will develop an understanding of the importance of emergency care, first aid and safety at all levels of society with emphasis on providing and improving the quality of emergency care practices in a wide variety of community organizations, occupations and professions including childcare, education, human services, geriatric care and disaster management. KINES 303 is taught through a variety of teaching methods. Students are prepared for proficiency through readings, classroom discussion, video presentation, practical skills, sudden illness and injury scenarios, group presentations and direct observation of EMS (Ride-Alongs). The course is practice-focused on developing the skills and competencies necessary for emergency scene management, CPR/AED and sudden illness and injury. Various evaluation techniques will be used to assess the students progress in KINES 303. These techniques shall include but not be limited to conventional objective testing, practical skill tests, sudden illness and injury scenarios, group presentation and written observation papers. Students who have already received credit for NURS 203 and/or KINES 233 may not enroll in this course due to duplication of material.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 304** First Aid: Instructors (1) Competencies leading to certification for teaching American Red Cross Advanced First Aid and Emergency Care and American Heart Association Cardiopulmonary Resuscitation. Laboratory.

**First Aid: Instructors (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1998

Prerequisite: KINES 303

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 321** Psychology of Movement Behavior (3) Basic concepts and application of psychological knowledge for organized sport, physical activity, and athletic training.

**KINES 321 Psychology of Movement Behavior (3)**

Psychology of Movement Behavior is designed to introduce students to the basic concepts and applications of psychological knowledge for organized sport, athletic training, and physical activity. The course content is divided into the following four categories. The first section includes an introduction to sport and exercise psychology and sport and exercise participants. The topics covered in this section are the history of sport and exercise psychology, sport and exercise psychology consultants' responsibilities (i.e., research, teaching, and service), and understanding sport and exercise participants' personality traits and motivation for participation. The second section contains topics for understanding of sport and exercise environments including an overview of competition, group dynamics, and the principles of feedback and reinforcement. The third section is dedicated to enhancing sport and exercise performance, and the topics discussed are related to psychological skills training and application (e.g., goal setting, imagery, and relaxation training). The fourth section focuses on enhancing sport and exercise participants' health and well-being. The topics covered in this portion of the class include an understanding addictive behaviors (e.g., exercise dependence, eating disorders, and substance dependence), body image, injury rehabilitation, and exercise initiation, maintenance, and adherence. The general objective of this course is to familiarize the student with the science and practice of sport and exercise psychology from both a theoretical and applied perspective. To achieve this objective, the student will: (a) develop an understanding of how various psychological factors influence athletic performance, physical activity participation, and overall health and well-being; (b) learn the methods used by athletes and exercisers of various skill levels to achieve peak performance; (c) understand the scientific and theoretical background of sport and exercise participation; and (d) comprehend how psychological skills are applied to sport and exercise environments to enhance peak performance and quality of life, and recognize the ethical principles of applying these psychological skills.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must have a C or better in: KINES 180

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 321** Psychology of Movement Behavior (3) Basic concepts and application of psychological knowledge for organized sport, physical activity, and athletic training.

**KINES 321 Psychology of Movement Behavior (3)**

Psychology of Movement Behavior is designed to introduce students to the basic concepts and applications of psychological knowledge for organized sport, athletic training, and physical activity. The course content is divided into the following four categories. The first section includes an introduction to sport and exercise psychology and sport and exercise participants. The topics covered in this section are the history of sport and exercise psychology, sport and exercise psychology consultants' responsibilities (i.e., research, teaching, and service), and understanding sport and exercise participants' personality traits and motivation for participation. The second section contains topics for understanding of sport and exercise environments including an overview of competition, group dynamics, and the principles of feedback and reinforcement. The third section is dedicated to enhancing sport and exercise performance, and the topics discussed are related to psychological skills training and application (e.g., goal setting, imagery, and relaxation training). The fourth section focuses on enhancing sport and exercise participants' health and well-being. The topics covered in this portion of the class include an understanding addictive behaviors (e.g., exercise dependence, eating disorders, and substance dependence), body image, injury rehabilitation, and exercise initiation, maintenance, and adherence. The general objective of this course is to familiarize the student with the science and practice of sport and exercise psychology from both a theoretical and applied perspective. To achieve this objective, the student will: (a) develop an understanding of how various psychological factors influence athletic performance, physical activity participation, and overall health and well-being; (b) learn the methods used by athletes and exercisers of various skill levels to achieve peak performance; (c) understand the scientific and theoretical background of sport and exercise participation; and (d) comprehend how psychological skills are applied to sport and exercise environments to enhance peak performance and quality of life, and recognize the ethical principles of applying these psychological skills.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must have a C or better in: KINES 180

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 334** Mechanisms and Evaluation of Lower Body Athletic Injuries (3) Etiology of athletic injuries with scientific and practical rationales for evaluation of injuries to the lower extremity and lumbosacral spine.

**KINES 334 Mechanisms and Evaluation of Lower Body Athletic Injuries (3)**

This course will focus on: 1) the etiology of athletic injuries to the lower extremity and lumbosacral spine, and 2) evaluation techniques for assessing athletic injuries to the lower extremity and lumbosacral spine. The objectives of this course include: understanding the mechanisms of athletic injuries to the lower body; demonstrating proficiency in the objective and subjective assessment procedures of lower body athletic injuries; recognizing orthopedic, neurovascular, and medical emergencies associated with lower body athletic injuries; recognizing the normal and abnormal mechanics of the lumbosacral spine and lower extremity including the walking and running gait cycles; and integration of injury mechanisms into the treatment and rehabilitation plan of care for the injured athlete. This course includes lectures as well as hands-on laboratory sessions.

Assessment is based on student performance on written examinations, practical examinations, and written assignments. This course is required for students completing the athletic training option within the Kinesiology major. It is designed to be taken concurrently with either KINES 395F or 395G. The course is offered every spring semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: Admitted to the Athletic Training Option KINES 231

Concurrent: KINES 232

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 335 Mechanisms and Evaluation of Upper Body Athletic Injuries (3)** Etiology of athletic injuries with scientific and practical rationales for evaluation of injuries to upper extremity, neck, head, and trunk.

**KINES 335 Mechanisms and Evaluation of Upper Body Athletic Injuries (3)**

This course will focus on: 1) the etiology of athletic injuries to the upper extremity, head, cervical spine, thorax, and abdomen, and 2) evaluation techniques for assessing athletic injuries to the upper extremity, head, cervical spine, thorax, and abdomen. The objectives of this course include: understanding the mechanisms of athletic injuries to the upper body; demonstrating proficiency in the objective and subjective assessment procedures of upper body athletic injuries; recognizing orthopedic, neurovascular, and medical emergencies associated with upper body athletic injuries; recognizing the normal and abnormal mechanics of the cervical spine and upper extremity including the overhand throwing motion; and integration of injury mechanisms into the treatment and rehabilitation plan of care for the injured athlete. This course includes lectures as well as hands-on laboratory sessions.

Assessment is based on student performance on written examinations, practical examinations, and written assignments. A literature review paper detailing the pathoetiology of a specific athletic injury is required. This course is required for students completing the athletic training option within the Kinesiology major. It is designed to be taken concurrently with either KINES 395F or 395G. The course is offered every fall semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 334

Concurrent: KINES 395F KINES 434

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 336 Medical Aspects of Athletic Training (3)** Pathology, assessment, and treatment (including pharmacology) of general medical conditions commonly seen in physically active populations.

**KINES 336 Medical Aspects of Athletic Training (3)**

This course is designed to instruct students in general medicine content and skills related to the clinical practice of athletic training. Specific topics include pathology; pharmacology; physical examination of head, ears, eyes, nose, throat, pulmonary, cardiovascular, gastrointestinal, renal, genitourinary, and dermatological conditions commonly seen in athletes; exertional heat illness; diabetes and exercise; female athlete triad; injuries in athletes with physical disabilities; and psychosocial aspects of patient-provider relationships. Several lectures will be made by physicians who specialize in sports medicine. Lab activities will include the instruction, practice, and assessment of psychomotor skills related to the course content. The course will meet for three hours per week and will include a balance of both lecture and laboratory activities. Student assessment will include written and practical examinations, homework assignments, and demonstration of practical skills specific to the clinical proficiencies required to sit for the NATABOC exam (must be administered by an NATABOC approved clinical instructor per accreditation guidelines).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 335

Concurrent: KINES 395G KINES 435 KINES 436

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 345** Meaning, Ethics, and Movement (3) Development of philosophic reasoning skills to better understand the values of physical activity and ethics in a variety of performance settings.

### **KINES 345 Meaning, Ethics, and Movement (3)**

The course focuses on the development of philosophic reasoning skills to better understand the values and ethics of physical activity in a variety of professional settings. Emphasis is placed on the practicality of good philosophy, on applying philosophic insights to the health and physical activity workplace. The course shows how philosophic commitments are unavoidable and thus, why it is better to formally consider these commitments and evaluate their worth than adopt professional standards and behaviors without critical reflection.

Specific course content emphasizes a number of learning outcomes. The first objectives are related to clarifying the nature of the philosophy of physical activity and relationships between the philosophy and science of human movement. The field of philosophy is described including the areas of metaphysics, epistemology, axiology, ethics and aesthetics. A variety of philosophic methodologies are identified and practiced including inductive, deductive and descriptive reasoning. Emphasis is placed on the varying degrees of confidence placed on the trustworthiness of philosophic methods and the validity of its conclusions. Students take a "philosophic readiness inventory" to determine their own philosophic tendencies and interests. Once the philosophy of physical activity is better understood, its methods and products are compared to the methods and outcomes of science. The course emphasizes a potential complementary relationship between the two where neither one is sufficient.

A major portion of the class is devoted to three rival interpretations of personhood that have significant implications for professional practice. Students review the strengths and weaknesses of dualism, materialism, and holism and see their impact on biomedical ethics, motivational strategies, professional-client relationships, and other facets of health and physical activity professions. The undergirding logic here is that practitioners must first understand what a person is before they can best determine how to intervene or otherwise provide services to them. Attention is also directed to the subject matter of Kinesiology—namely, skilled movement in general and physical abilities in work, exercise, sport, dance, games, and play more specifically. The nature and values of these different ways of moving are analyzed in terms of their ability to serve as "tools" (means to other ends) and "jewels" (ends in themselves). Issues of motivation, efficacy, safety, and other factors are analyzed in an attempt to determine whether a play-and-enjoyment or a work-and-duty philosophy should be emphasized in various professional settings. Quantity and quality of life are juxtaposed to show their interdependence and the variable roles they play in affecting allied medical, coaching, teaching, fitness, recreation, and other movement-related professions. Finally, the course addresses common ethical problems faced by athletes, as well as physical activity and health professionals.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must have a C or better in:KINES 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 345** Meaning, Ethics, and Movement (3) Development of philosophic reasoning skills to better understand the values of physical activity and ethics in a variety of performance settings.

### **KINES 345 Meaning, Ethics, and Movement (3)**

The course focuses on the development of philosophic reasoning skills to better understand the values and ethics of physical activity in a variety of professional settings. Emphasis is placed on the practicality of good philosophy, on applying philosophic insights to the health and physical activity workplace. The course shows how philosophic commitments are unavoidable and thus, why it is better to formally consider these commitments and evaluate their worth than adopt professional standards and behaviors without critical reflection.

Specific course content emphasizes a number of learning outcomes. The first objectives are related to clarifying the nature of the philosophy of physical activity and relationships between the philosophy and science of human movement. The field of philosophy is described including the areas of metaphysics, epistemology, axiology, ethics and aesthetics. A variety of philosophic methodologies are identified and practiced including inductive, deductive and descriptive reasoning. Emphasis is placed on the varying degrees of confidence placed on the trustworthiness of philosophic methods and the validity of its conclusions. Students take a "philosophic readiness inventory" to determine their own philosophic tendencies and interests. Once the philosophy of physical activity is better understood, its methods and products are compared to the methods and outcomes of science. The course emphasizes a potential complementary relationship between the two where neither one is sufficient.

A major portion of the class is devoted to three rival interpretations of personhood that have significant implications for professional practice. Students review the strengths and weaknesses of dualism, materialism, and holism and see their impact on biomedical ethics, motivational strategies, professional-client relationships, and other facets of health and physical activity professions. The undergirding logic here is that practitioners must first understand what a person is before they can best determine how to intervene or otherwise provide services to them. Attention is also directed to the subject matter of Kinesiology—namely, skilled movement in general and physical abilities in work, exercise, sport, dance,

games, and play more specifically. The nature and values of these different ways of moving are analyzed in terms of their ability to serve as "tools" (means to other ends) and "jewels" (ends in themselves). Issues of motivation, efficacy, safety, and other factors are analyzed in an attempt to determine whether a play-and-enjoyment or a work-and-duty philosophy should be emphasized in various professional settings. Quantity and quality of life are juxtaposed to show their interdependence and the variable roles they play in affecting allied medical, coaching, teaching, fitness, recreation, and other movement-related professions. Finally, the course addresses common ethical problems faced by athletes, as well as physical activity and health professionals.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must have a C or better in: KINES 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 350 Exercise Physiology (3)** Structure and function of the human body as applied to health, wellness, exercise, and sports.

### **KINES 350 Exercise Physiology (3)**

Exercise Physiology is a mid- to upper division course that will appeal to students with an interest in human biological adaptation. The course has two primary goals: First, students develop an understanding of the physiological adaptations that occur during and after endurance and resistance exercise. Second, students improve their comprehension of the differences between the acute exercise response and the changes that occur with chronic physical activity (exercise training). A major emphasis is placed on physiological systems as they relate to physical activity, exercise and health, and environmental stress; including, but not limited to, cardiovascular, respiratory, musculoskeletal, renal, neural, and metabolic. These systems are considered singly and in combination with regard to both exercise intensity and exercise duration. The depth of inquiry can range from molecular to organismal (whole-body). In addition, the mechanisms underlying the preventive and protective effects of exercise on human health and performance are discussed. The ability to apply concepts and principles of physiology to situations involving exercise, exercise training and decreased physical activity are highlighted, improving students' abilities to develop and differentiate between paradigms that utilize exercise to improve athletic performance and those that utilize physical activity to promote health. Special topics of applied study may include aging; development; gender; body composition; disease and environmental extremes such as heat, cold, diving and altitude.

Students are required to demonstrate via assessment, knowledge and understanding of the acute physiological response to exercise and physiological adaptations to programs of chronic resistance and endurance exercise. Quantitative and analytical skills are emphasized, especially as they pertain to exercise testing and exercise program evaluation. The ability to interpret scientific data as they pertain to exercise physiology is required. Background knowledge in biology, chemistry, physics, and exercise science represent the knowledge base from which the class is built and contributes to the mastery of concepts presented. This course is required for Athletic Training and Kinesiology majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must have a C or better in: KINES 180 KINES 202 BIOL 141 CHEM 101 or CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 350 Exercise Physiology (3)** Structure and function of the human body as applied to health, wellness, exercise, and sports.

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diving and altitude.

Students are required to demonstrate via assessment, knowledge and understanding of the acute physiological response to exercise and physiological adaptations to programs of chronic resistance and endurance exercise. Quantitative and analytical skills are emphasized, especially as they pertain to exercise testing and exercise program evaluation. The ability to interpret scientific data as they pertain to exercise physiology is required. Background knowledge in biology, chemistry, physics, and exercise science represent the knowledge base from which the class is built and contributes to the mastery of concepts presented. This course is required for Athletic Training and Kinesiology majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must have a C or better in: KINES 180 KINES 202 BIOL 141 CHEM 101 or CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 356 Activity and Disease (3)** Examination of hypokinetic disease on human wellness involving identification, assessment, research, and exercise design of human activity for disease prevention.

### **KINES 356 Activity and Disease (3)**

Content in this course defines what physical activity, fitness, and lifestyle are. It covers the methodological and measurement assessment of physical activity and disease as well as exploring the relationships between physical activity and specific physical diseases, and between physical activity and various disorders of the mind. After this course students will be able to design and implement an exercise program to prevent or combat the effects of a specific disease on an individual. They will understand and be able to persuasively inform clients to the dangers of a sedentary lifestyle. They will know the strategies necessary to motivate and modify individual behavior so that it results in a more healthy lifestyle. And they will be able to design epidemiological research protocols to study the relationship between a specific disease and activity. Knowledge will be assessed by written evaluations, through the use of case studies in the case of exercise prescription skills, and through presentation of high quality group projects. This course will complement other courses in this curriculum but will be the only course devoted to a thorough investigation of the relationship between inactivity and various disease states. No special facilities are needed for the course which is anticipated to enroll between 15 and 25 students. It will be offered annually.

Material in this course and experience in the lab cover the conceptions and applications of strength exercise science. It also addresses testing and evaluation of strength protocols including selecting appropriate tests, organizing testing procedures, and individual testing protocols and procedures. Students will be introduced to material which overviews the organization and administration of resistance training and conditioning facilities. They will also learn the design principles of resistance training programs as well as exercise techniques. After this course, students will understand the biomechanics of strength training, the physiological adaptation to muscle training, and the mechanisms of change with varying populations. They will be able to select and organize appropriate muscle testing protocol. They will be able to teach and demonstrate appropriate strength training exercises to individuals and groups, including being able to identify and correct errors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

Prerequisite: BIOL 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 358 Ergogenic Aids (1)** Skills development including research identification and evaluation of work-enhancing methods and devices as related to human performance and wellness.

### **KINES 358 Ergogenic Aids (1)**

In this course students will learn about the research identification and evaluation of work-enhancing methods and devices as they relate to human performance and wellness. The course will overview historical and ethical issues associated with the use of ergogenic aids, as well as the mechanisms that delineate how they affect body systems. Ergogenic aids will be classified as hormonal, pharmacological, psychological, physiological, mechanical and nutritional. In the course students will also look at various restorative and accelerate healing agents. As a consequence of this course students, will be able to identify specific ergogenic aids, their actions, their legality, advantages, disadvantages, and safety concerns. Students will also understand the research issues involved with ergogenic aids, as well as developing a philosophy for dealing with clients who approach them interested in these kinds of enhancements. Student learning will be evaluated by exams, by the preparation of a mock experiment, and by various written assignments. This course will take an in-depth look at an important area reviewed only superficially in other courses. Because of the topic's relevance to work in this field, this course gives students knowledge necessary to function effectively as a professional. No special facilities are needed to teach the course and it will be offered annually to approximately 15-25 students.

General Education: None



Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000  
Prerequisite: BIOL 141NUTR 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 360** The Neurobiology of Motor Control and Development (3) The neurobiological foundations of human movement, with an emphasis on applications in rehabilitation and athletics.

### **KINES 360 The Neurobiology of Motor Control and Development (3)**

This 3 credit lecture course provides a rigorous presentation of the neuroscientific foundations of human movement control and coordination. This course introduces students to the cellular basis of neurophysiology, while emphasizing the contributions of both sensory and motor systems to motor control, coordination, and development. The course provides an in-depth presentation of systems neuroscience, with a special emphasis on the spinal, brainstem, and cortical contributions to movement. The course introduces the physiology and functional anatomy of the major sensory systems, motor systems, and sensorimotor integration networks, of the spinal cord, brainstem, and hemispheric structures in the central nervous system. These include spinal circuitry underlying reflexes and central pattern generators, basal ganglia organization and functional networks, cerebellar organization and functional networks, primary, secondary, and tertiary cortical areas associated with sensory and motor functions, neural tracts associated with ascending and descending sensory and motor systems, and cortical-subcortical loops. Students are introduced to dysfunction in these systems from both disease and traumatic processes, due to development disabilities such as cerebral palsy, degenerative processes including Parkinson's Disease, vascular disease including stroke, as well as traumatic brain injury. The overall objective of this course is to prepare Kinesiology students with a foundational level preparation in neuroscience, as required for understanding control of human movement, motor coordination, motor development and dysfunctions in these processes. This course forms one of four 300-level core courses that provide the basic science foundations that underlie the study of human movement, including exercise physiology, biomechanics, and the psychology of movement behavior. Neuroscience represents the fourth foundational discipline that contributes to human movement science. This course is presented from a hierarchical perspective, that introduces the cellular basis of neural communication, as well as cortical, brainstem, and spinal systems that underlie sensorimotor functions. It provides a thorough introduction to the central nervous system, focusing on a systems level approach to sensory and motor physiology and its impact on motor control and coordination, as well as both developmental, degenerative, and traumatic disorders in these processes. Considerations of applications of the material to the fields of athletics and rehabilitation medicine are often provided.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: Students must have a C or better in: KINES 180 KINES 202 and BIOL 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 360** The Neurobiology of Motor Control and Development (3) The neurobiological foundations of human movement, with an emphasis on applications in rehabilitation and athletics.

### **KINES 360 The Neurobiology of Motor Control and Development (3)**

This 3 credit lecture course provides a rigorous presentation of the neuroscientific foundations of human movement control and coordination. This course introduces students to the cellular basis of neurophysiology, while emphasizing the contributions of both sensory and motor systems to motor control, coordination, and development. The course provides an in-depth presentation of systems neuroscience, with a special emphasis on the spinal, brainstem, and cortical contributions to movement. The course introduces the physiology and functional anatomy of the major sensory systems, motor systems, and sensorimotor integration networks, of the spinal cord, brainstem, and hemispheric structures in the central nervous system. These include spinal circuitry underlying reflexes and central pattern generators, basal ganglia organization and functional networks, cerebellar organization and functional networks, primary, secondary, and tertiary cortical areas associated with sensory and motor functions, neural tracts associated with ascending and descending sensory and motor systems, and cortical-subcortical loops. Students are introduced to dysfunction in these systems from both disease and traumatic processes, due to development disabilities such as cerebral palsy, degenerative processes including Parkinson's Disease, vascular disease including stroke, as well as traumatic brain injury. The overall objective of this course is to prepare Kinesiology students with a foundational level preparation in neuroscience, as required for understanding control of human movement, motor coordination, motor development and dysfunctions in these processes. This course forms one of four 300-level core courses that provide the basic science foundations that underlie the study of human movement, including exercise physiology, biomechanics, and the psychology of movement behavior. Neuroscience represents the fourth foundational discipline that contributes to human movement science. This course is presented from a hierarchical perspective, that introduces the cellular basis of neural communication, as well as cortical, brainstem, and spinal systems that underlie sensorimotor functions. It provides a thorough introduction to the central nervous system, focusing on a systems level approach to sensory and motor physiology and its impact on motor control and coordination, as well as both developmental, degenerative, and traumatic disorders in these processes. Considerations of applications of the material to the fields of athletics and rehabilitation medicine are often provided.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must have a C or better in: KINES 180 KINES 202 and BIOL 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 362 Teaching Individual Activities (1.5)** This course introduces teacher candidates to the spectrum of individual activities being taught in the K-12 school setting.

### **KINES 362 Teaching Individual Activities (1.5)**

Teaching Individual Activities introduces the future physical educator to the spectrum of individual activities being taught in the school setting. As a result of taking this course, the students will be able to:

- a) Find and use references and resources from the World Wide Web and other sources specific to an individual sport/activity.
- b) To create a professional handbook specific to the individual activity in which they choose to become an expert.
- c) To organize and conduct an introductory clinic that provides a thorough and enjoyable overview of an individual sport/physical activity that they have chosen.
- d) To select, organize, and sequence skills from simple to complex for the individual sport/physical activity that they have chosen.
- e) To select and create mini-games or activities that will assist K-12 students with the skills of their chosen individual sport/physical activity.

This course is taken in conjunction with Teaching Group Activities and KINES 366. The students are required to teach two 50-minute clinics of their classmates. The students will demonstrate competency in basic motor skills and physical activities, content knowledge, and disciplinary concepts during their participation in the clinics. Students will teach the clinics using appropriate instructional cues and prompts for basic motor skills and physical activity. The students will identify, select, and implement appropriate learning/practice opportunities based on expected progressions and related to ranges of individual variations and levels of readiness, while teaching their clinics. The students will demonstrate an understanding of group and individual motivation and behavior by creating a safe and positive learning environment. The clinics can be any individual activity that they choose, within established boundaries. Examples of clinics: Canoeing, Fly Fishing, Golf, Tennis, Pilates, Diving, Bowling, and Badminton. Evaluation of the course is based on: Clinic Presentation, Clinic Handbook, Participation, Final Notebook, and Electronic Portfolio. The course is offered Fall and Spring semesters with a maximum enrollment of 25.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: KINES 261 KINES 262 KINES 264 KINES 266 and KINES 268

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 364 Teaching Group Activities (1.5)** This course introduces teacher candidates to the spectrum of group activities being taught in the K-12 school setting.

### **KINES 364 Teaching Group Activities (1.5)**

Teaching Group Activities introduces the future physical educator to the spectrum of group activities being taught in the school setting. As a result of taking this course, the students will be able to:

- a) Find and use references and resources from the World Wide Web and other sources specific to a group sport/activity.
- b) To create a professional handbook specific to the group activity in which they choose to become an expert.
- c) To organize and conduct an introductory clinic that provides a thorough and enjoyable overview of a group sport/physical activity that they have chosen.
- d) To select, organize, and sequence skills from simple to complex for the group sport/physical activity that they have chosen.
- e) To select and create mini-games or activities that will assist K-12 students with the skills of their chosen group sport/physical activity.

This course is taken in conjunction with Teaching Individual Activities and KINES 366. The students are required to teach two 50-minute clinics to their classmates. The students will demonstrate competency in basic motor skills and physical activities, content knowledge, and disciplinary concepts during their participation in the clinics. Students will teach the clinics using appropriate instructional cues and prompts for basic motor skills and physical activity. The students will identify, select, and implement appropriate learning/practice opportunities based on expected progressions and related to ranges of individual variations and levels of readiness, while teaching their clinics. The students will demonstrate an understanding of group motivation and behavior by creating a safe and positive learning environment. The clinics can be any group activity that they choose, within established boundaries. Examples of clinics: Water Polo, Cooperative Activities, Field Hockey, Lacrosse, Speedball, Ultimate Frisbee, Team Handball. Evaluation of the course is based on: Clinic Presentation, Clinic Handbook, Participation, Final Notebook, and Electronic Portfolio. The course is offered in the Fall and Spring semester with a maximum enrollment of 25.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2010  
 Prerequisite: KINES 261KINES 262KINES 264KINES 266 andKINES 268

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 366** The Process of Teaching Physical Education (3) Analysis of pedagogical skills and methods applied to K-12 physical education.

### **KINES 366 The Process of Teaching Physical Education (3)**

The purpose of this course is to introduce teacher candidates to the pedagogical processes used in teaching K-12 physical education. Physical education instruction techniques related to classroom management, creating effective learning environments, analysis of motor skills, providing effective feedback, content development, creating active learning experiences and systematic analysis of effective instruction comprise the foundation of this class. These pedagogical skills will be practiced and analyzed throughout the semester. Specifically, students will be required to demonstrate the ability to use, analyze and critique these techniques in micro-teaching situations with their peers. The primary focus of the class is to develop a repertoire of effective teaching skills based upon research of teacher effectiveness that enables teacher candidates to become reflective physical educators with the ability to deliver, analyze and modify their teaching to provide developmentally appropriate instruction for elementary, middle and high school students. The content of this course also addresses the physical education teaching standards developed by the National Association for Sport and Physical Education (NASPE), the national accrediting body for physical education teacher education programs that works in conjunction with the National Council for Accreditation of Teacher Education (NCATE) to certify physical education teacher education programs throughout the United States.

Assessment of student performance in the course includes:

1. Participation in laboratory experiences (10%)
2. Performance on knowledge tests (35%)
3. The ability to correctly and effectively demonstrate a repertoire of pedagogical skills in simulated teaching situations (35%)
4. Teaching reflections based on class teaching experiences and analyses and observations of teaching (20%)

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2010  
 Prerequisite: KINES 261KINES 262KINES 264KINES 266 andKINES 268

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 384** Biomechanics (3) Basic mechanical knowledge required to understand human movement.

### **KINES 384 Biomechanics (3)**

Biomechanics examines biological phenomena from a mechanical perspective; this class examines predominantly human movement from this perspective. The class aims to introduce students to the mechanical principles that underpin biomechanics, and to the measurement procedures used in biomechanics. Students will examine these principles for a variety of activities including: walking, running, jumping, quiet standing, throwing, striking, and reaching. Laboratory activities emphasize the qualitative and quantitative analysis of human movement. These sessions require students to work effectively in groups to collect data, and then work independently to analyze and interpret their data. Students use Newton's laws, basic algebra and trigonometry in the analysis of their data, and produce reports about these laboratory activities.

The lectures provide the framework for all class activities. They aim to link the student's knowledge of anatomy with mechanics to provide an understanding of how movement is produced in both health and disease. The lectures provide information about the history, scope, and impact of biomechanics. Students are introduced to the pertinent kinematic variables required for the analysis of human movement. Newton's laws are used to understand both linear and angular human motion. Basic principles from aerodynamics are introduced as they may apply to man and the implements he or she may use. The examination of aerodynamic factors is augmented by examining the mechanics of balls spinning, and bouncing. Approaches for the determination of the inertial properties of human body segments are examined in detail, with a view to understanding the strengths and weaknesses of the various approaches. The theory, methodology, and protocols for image-based motion analysis are introduced as common methodology used in biomechanics. The principles behind force measurement are presented, using force plates as the core example. Students are taught the basics of the interpretation of ground reactions forces, using the impulse-momentum relationship. Contractile muscle mechanics are studied to under the influences of muscle fiber activation, length, and velocity on the production of force are presented. The mechanical properties of tendon are presented (stress-strain relationship), and its role in human movement. Potential and kinetic energy are introduced, along with the concept of energy storage and its application in the analysis of human movement examined. The principles governing modeling are introduced, and approaches for modeling human movement are established and then used to understand the coordination of human movement.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must have a C or better in: KINES 180 KINES 202 and MATH 022

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 384** Biomechanics (3) Basic mechanical knowledge required to understand human movement.

### **KINES 384 Biomechanics (3)**

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The lectures provide the framework for all class activities. They aim to link the student's knowledge of anatomy with mechanics to provide an understanding of how movement is produced in both health and disease. The lectures provide information about the history, scope, and impact of biomechanics. Students are introduced to the pertinent kinematic variables required for the analysis of human movement. Newton's laws are used to understand both linear and angular human motion. Basic principles from aerodynamics are introduced as they may apply to man and the implements he or she may use. The examination of aerodynamic factors is augmented by examining the mechanics of balls spinning, and bouncing. Approaches for the determination of the inertial properties of human body segments are examined in detail, with a view to understanding the strengths and weaknesses of the various approaches. The theory, methodology, and protocols for image-based motion analysis are introduced as common methodology used in biomechanics. The principles behind force measurement are presented, using force plates as the core example. Students are taught the basics of the interpretation of ground reaction forces, using the impulse-momentum relationship. Contractile muscle mechanics are studied to understand the influences of muscle fiber activation, length, and velocity on the production of force are presented. The mechanical properties of tendon are presented (stress-strain relationship), and its role in human movement. Potential and kinetic energy are introduced, along with the concept of energy storage and its application in the analysis of human movement examined. The principles governing modeling are introduced, and approaches for modeling human movement are established and then used to understand the coordination of human movement.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: Students must have a C or better in: KINES 180 KINES 202 and MATH 022

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 395A** Leadership Practicum for Teachers (1) Supervised experiences in guiding individuals and in leading groups in the motor skill learning process.

### **KINES 395A Leadership Practicum for Teachers (1)**

This is a one credit practicum designed to provide teacher candidates with the opportunity to observe, assist, and teach physical education classes in school settings. Most KINES 395A teacher candidates are in the final semester before starting their student-teaching internship and these experiences are intended to provide additional practical experiences in physical education instruction. This practicum involves a minimum of **10 consecutive weeks** during a University semester.

Teacher candidates will be graded on the quality of their observations of physical educators, their teaching, and their ability to describe and analyze pedagogical skills observed in their practicum.

This course is offered every fall and spring semesters with an anticipated enrollment of 25.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 362 KINES 364 KINES 366

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 395B** Leadership Practicum: KINES (1) Supervised experience in leading/assisting in tasks associated with fitness testing/prescription in a variety of settings.

**Leadership Practicum: KINES (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: KINES 295B fifth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 395F** Practicum in Athletic Training (3) Practical experience in the athletic training room and with selected sports activities under direct supervision of the medical staff.

**KINES 395F Practicum in Athletic Training (3)**

This course is designed to give students practical experiences in a variety of clinical settings in which certified athletic trainers are commonly employed. Students will accumulate approximately 100-150 clinical hours learning under the supervision of certified athletic trainers in a variety of clinical settings. These settings include but are not limited to: intramural sports, club sports, outpatient sports medicine clinics, high schools, and intercollegiate athletic training rooms. In addition to clinical experiences there is also a didactic portion of this course which emphasizes students gaining proficiency in important clinical skills. There are also weekly written assignments. The objectives of this course include demonstrating proficiency in: the evaluation of a unconscious athlete; the recognition of cerebral concussion and closed head injury; the recognition of acute injury to the cervical spine; the recognition of fractures and dislocations; the assessment of neurovascular function; the recognition, treatment, and prevention of heat illnesses including heat cramps, heat exhaustion, and heat stroke; the use of splints, stretchers and spine boards in the management of injured athletes; the application of taping and wrapping techniques commonly used in the prevention and management of common athletic injuries; and in obtaining a medical history.

Assessment is based on student performance on written examinations, practical examinations, written assignments, and performance in students' clinical rotations. This course is required for students completing the athletic training option within the Kinesiology major. It is a prerequisite for more advanced athletic training practicums (KINES 395G, 395I, 495F) and it should be taken concurrently with KINES 334 or 335. It is designed to be taken the first semester following admittance to the athletic training option. This course is offered every fall and spring semester.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2006  
Prerequisite: KINES 232  
Concurrent: KINES 335 KINES 434

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 395G** Practicum in Athletic Training (3) Practical experience in the athletic training room and with selected sports activities under direct supervision of the medical staff.

**KINES 395G Practicum in Athletic Training (3)**

This course is designed to provide students didactic and practical clinical experiences in a variety of practice settings in which certified athletic trainers are commonly employed. This is the second clinical assignment after a student is admitted to the Athletic Training option within the Kinesiology major. Students will complete a minimum of 200-250 clock hours under the supervision of a certified athletic trainer in a variety of clinical settings. These settings include but are not limited to: outpatient sports medicine clinics, interscholastic athletic settings, and intercollegiate athletic settings. The objectives of this course include demonstrating proficiency in: assisting lower level students in developing athletic training skills and mastering level-appropriate competencies; demonstrate proficiency in evaluation and documentation of common athletic injuries; assist in the development and documentation of a plan of care for common athletic injuries; demonstrate proficiency in the development and documentation of clinical progression through a plan of care; participate in the application of therapeutic modalities and therapeutic exercise under the supervision of a certified athletic trainer.

In this practical experience, the student is required to demonstrate an understanding of the classroom experiences completed to date and as required by the program option up to the current semester. This practicum has a prerequisite requirement of KINES 395F and is a prerequisite for the subsequent athletic training practicum, KINES 395I. Assessment is based on student performance written examinations, practical examinations, written assignments, and performance assessments by supervising athletic trainer(s). The course is designed to be taken the second semester following admittance to the athletic training option. It is offered every fall and spring semester with an enrollment of 15-20 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2006  
Prerequisite: KINES 395F

Concurrent: KINES 336 KINES 435 KINES 436

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 395I** Practicum in Athletic Training (3) Practical experience in the athletic training room and with selected sports activities under direct supervision of the medical staff.

### **KINES 395I Practicum in Athletic Training (3)**

This course is designed to provide students didactic and practical clinical experiences in a variety of practice settings in which certified athletic trainers are commonly employed. This is the third clinical assignment after a student is admitted to the Athletic Training option within the Kinesiology major. Students will complete a minimum of 250-300 clock hours under the supervision of a certified athletic trainer in a variety of clinical settings. These settings include but are not limited to: outpatient sports medicine clinics, interscholastic athletic settings, and intercollegiate athletic settings. The objectives of this course include demonstrating proficiency in: assisting lower level students in developing athletic training skills and mastering level-appropriate competencies; demonstrate proficiency in evaluation and documentation of common athletic injuries; assist in the development and documentation of a plan of care for common athletic injuries; demonstrate proficiency in the development and documentation of clinical progression through a plan of care; participate in the application of therapeutic modalities and therapeutic exercise under the supervision of a certified athletic trainer.

In this practical experience, the student is required to demonstrate an understanding of the classroom experiences completed to date and as required by the program option up to the current semester. This practicum has a prerequisite requirement of KINES 395G and is a prerequisite for the subsequent athletic training practicum, KINES 495F. Assessment is based on student performance written examinations, practical examinations, written assignments, and performance assessments by supervising athletic trainer(s). The course is designed to be taken the third semester following admittance to the athletic training option. It is offered every fall and spring semester with an enrollment of 15-20 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2006  
Prerequisite: KINES 395G  
Concurrent: KINES 438W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 398** Special Topics Course (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics Course (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 400** Adapted Physical Education (3) Basic concepts of planning and conducting physical education programs for

children with physical, sensory, and/or intellectual impairments.

**KINES 400 Adapted Physical Education (3)**

This is an undergraduate level course teaching students the basic concepts of planning and conducting physical education programs for children with physical, sensory, and/or intellectual impairments. This course will help the student to become more aware of the physical needs of children with disabilities and of the possibilities to professionally deal with these needs. The course requires the student to complete a 10-hour practicum, providing the opportunity to work with children with a disability. The practicum will be conducted in cooperation with physical education staff members working with various schools in State College. The children's difficulties may range from emotional problems to severe physical and mental handicaps. Students are free to identify alternative practicum sites (e.g., work with a friend or family member with a disability). The requirements for the practicum may include: select a child who has a physical, sensory, or intellectual disability; write an Individualized Education Program (IEP) using the guidelines presented in the textbook; implement the IEP in a two-on-one teaching situation (two students, one child); keep a log of all the practice sessions; after completing the 10-hour practicum, write a final report based on the IEP, this final report should state the definition of the problem, the etiology, the general characteristics, the teaching techniques specific to the disability, an evaluation of the actual teaching strategies and an evaluation of the outcome of the practice (did it work?); and, present the findings orally (10-15 minute talk).

The student will generally be evaluated by exam, teaching activity, an oral presentation, and a final report.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: KINES 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 403** Emergency Medical Technology (4) Theoretical and practical aspects of emergency medical techniques as applied in the pre-hospital environment.

**Emergency Medical Technology (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1998

Prerequisite: KINES 303 and/or current advanced first aid and cardiopulmonary resuscitation certification

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 404** Emergency Medical Technology Instructor (2) Educational concepts and skills necessary to present instruction in emergency care; lesson planning, methods of instruction, and evaluation techniques.

**Emergency Medical Technology Instructor (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1997

Prerequisite: KINES 403 with current Pennsylvania Emergency Medical Technician certification

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 410** Physical Growth and Motor Development (3) Study of biologically programmed growth processes and environmental influences leading to attained adult form and biomechanical function.

**Physical Growth and Motor Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: KINES 180

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 411** Introduction to Musculoskeletal Injury and Rehabilitation (3) This course is designed to provide an overview of common musculoskeletal injuries and rehabilitation for pre-allied health and fitness professionals.

**KINES 411 Introduction to Musculoskeletal Injury and Rehabilitation (3)**

This course is designed to provide an overview of basic orthopaedic injuries and related musculoskeletal system dysfunctions as well as rehabilitation of those injuries and dysfunctions. Common orthopaedic injuries of all major musculoskeletal structures and tissues are discussed moving up the kinetic chain from the feet up the lower extremities,

through the spine and out the upper extremities to the hands. Common injuries such as sprains, strains, fractures, tendinopathies, disc herniations, spinal stenosis, compartment syndromes, neural compression, carpal tunnel syndrome and thoracic outlet syndrome will be discussed. Anatomy and function of each body region will be reviewed prior to the discussion of injuries. Mechanisms of injury, tissue pathology and the tissue healing processes are reviewed. The role of inflammation in the healing of injured tissues will be explored and the variations in healing processes between tissues explained. Common surgical procedures for major injuries like anterior cruciate ligament tears will be presented. A general rehabilitation process is discussed and rehabilitation concepts unique to specific injuries are explored. Basic principles of the major components of a rehabilitation program are explained. These major components include the protection of healing tissue, pain control, swelling resolution, restoration of range of motion, facilitation of volitional control, enhancement of muscular strength and endurance, improvement of neuromuscular control, training of functional movement patterns and return to functional activities. The RICE (Rest, Ice, Compression, Elevation) method of treating pain and limiting swelling will be presented. Manual therapy, stretching and exercise activities used to regain range of motion will be explained. Exercises used to improve muscular strength and endurance will be discussed for each region of the body. Methods of facilitating balance and neuromuscular control will be demonstrated. Finally, the benefits of functional exercise in terms of three-dimensional exercise requiring the use of groups of synergistic muscles in a coordinated manner will be presented. In addition, return to sport programs that gradually reintroduce the patient to the real life stresses placed on their injured body part will be explained. Prioritization of addressing the different components of a rehabilitation plan will be discussed and differences between surgical and non-surgical rehabilitation plans presented. Criteria used to make return to play decisions for injured athletes will also be outlined. Modifications of common exercises to accommodate for injuries and allow continued participation in exercise routines will be presented. This course is appropriate for pre-allied health professionals and fitness professionals with an interest in orthopaedic injuries, musculoskeletal system rehabilitation and the construction of exercise programs that prevent, or accommodate for, musculoskeletal problems.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: KINES 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 420** Psychosocial Dimensions of Physical Activity (3) Discussion of theoretical and empirical findings, structuring a frame of reference for exploring man's involvement in physical activity.

#### **Psychosocial Dimensions of Physical Activity (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: KINES 321 or 3 credits in psychology or sociology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 421** Exercise Psychology (3) Psychological antecedents and consequences of physical activity behaviors.

#### **KINES 421 Exercise Psychology (3)**

Exercise Psychology is designed to introduce students to the psychological antecedents and consequences of exercise behaviors. The antecedents of exercise behaviors are the psychosocial and cognitive factors (e.g., beliefs, attitudes, personality traits) that facilitate and/or inhibit exercise behaviors. The consequences of exercise behavior are the physical, psychosocial, and cognitive outcomes (e.g., self-efficacy, body image, mental health) of exercise participation. The antecedents and consequences of exercise behaviors will be presented within the context of contemporary conceptual and theoretical models in exercise psychology. This course is designed to provide students with an overview and foundation of the important psychosocial phenomena related to these antecedents and consequences of exercise behaviors. Students will have the opportunity to apply their knowledge in selected areas within exercise psychology through class discussions and assignments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: KINES 321 and PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 422** Physical Activity Interventions (3) Principles of designing, planning, and implementing theory- and evidence-based physical activity interventions.

#### **KINES 422 Physical Activity Interventions (3)**

This course is designed to acquaint undergraduate students with the application of major theories and models used to



design and guide the development of contemporary physical activity interventions. Students will be familiarized with empirically-supported principles of behavior change and will gain an understanding of the basic strategies and methods used in designing, planning, implementation, and evaluation of physical activity interventions. The course will cover a variety of approaches to physical activity promotion, ranging from clinical and community-based interventions to population-based approaches, while discussing practical strategies and concrete examples of contemporary, evidence-based physical activity interventions. The goal of the course is for students to demonstrate the ability to formulate well-conceived physical activity interventions across a variety of settings and participant populations and learn how to apply theoretical principles and research findings to intervention development.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014  
 Prerequisite: KINES 321 and PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 423** Psychology of Sports Injuries (3) Psychological causes and consequences of sports related injuries in athletes.

### **KINES 423 Psychology of Sports Injuries (3)**

Using lectures/whole class discussion formats, this course is intended to provide the students with the basic knowledge regarding psychological causes and consequences of sport-related injuries, including concussions. Specific course objectives include: (1) developing the proficiency in initiating interviews and observations of athletes suffering from sport-related injuries; (2) assessing psychological impact of injury on athletes; (3) developing critical-thinking skills related to the probability of developing of psychological trauma in athletes with injuries; (4) developing specific skills of psychological assessment of injured athletes; (5) stimulating thinking about temporary research questions as related to psychology of injury. Evaluation will be based on active engagement in class discussions and administration of quizzes and written examinations according to course syllabus. This class extends but does not duplicate existing courses in the Departments of Kinesiology and Psychology.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: KINES 321

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 424 (US)** (WMNST 424) Women and Sport (3) An interdisciplinary approach to contemporary issues related to women and sport from historical, physiological, psychological, and sociological perspectives.

### **Women and Sport (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: PSYCH 100 PSYCH 231 PSYCH 479 SOC 001 or WMNST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 425W** Physical Activity in Diverse Populations (3) An examination of the social, cultural, political, and environmental influences on health and physical activity promotion among diverse populations.

### **Physical Activity in Diverse Populations (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013  
 Prerequisite: KINES 321

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 426** Physical Activity and Public Health (3) Examines the role of physical activity in public health. Includes population level strategies for promoting physical activity in communities.

### **KINES 426 Physical Activity and Public Health (3)**

An examination of the role of physical activity in public health. The first half of the course will provide an introduction to public health and basic epidemiology, measurement, dose-response relationships, chronic disease prevention. We will examine the historical progression of physical activity as a part of public health, including landmark studies showing the

relationships between physical activity and chronic disease morbidity and mortality. Current public health guidelines and national policies related to physical activity will be discussed in detail. Students will debate the scientific foundation for current issues in the field, including fitness vs. fatness as a predictor of health outcomes and comparing behavior vs. objectively measured variables. The role of physical activity in preventing cardiovascular disease, type 2 diabetes, obesity, and cancer, colon and prostate cancer will be discussed. We will focus on large scale epidemiologic studies that highlight prevention.

The second half of the class will focus on a social ecological framework for promoting physical activity and will address population level approaches through policy and environmental strategies, following the Centers for Disease Control and Prevention Task Force for Community Preventive Services guidelines. We will study how features of the built environment can encourage or discourage walking and biking and refer to current research in the field that examines these relationships in different populations (urban/rural, youth/older adults). We will learn about the challenges associated with assessment and measurement at a population level. Policy level approaches to physical activity promotion; including local, state and national; will also be discussed. We will discuss various community level approaches including: point-of-decision prompts, mass media campaigns, enhancing access to physical activity opportunities and other strategies outlined in the guidelines. Lastly, we will examine how physical activity promotion is addressed in other countries through community, policy and environmental strategies in Canada, Australia, Brazil and throughout Europe.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2014  
 Prerequisite: KINES 321

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 427** (HD FS 427) Developmental Sport & Exercise Psychology (3) Developmental changes in the antecedents and consequences of physical activity across the lifespan.

#### **KINES (HD FS) 427 Developmental Sport & Exercise Psychology (3)**

Change is constant with physical activity - our reasons for being active change across the lifespan and our experiences with physical activity change how we view ourselves and those around us. Developmental Sport & Exercise Psychology focuses on developmental changes in the psychosocial antecedents and consequences of physical activity across the lifespan. Specific course objectives include (1) describing theoretical frameworks and methods used to study physical activity-related psychosocial development across the lifespan, (2) describing how self-perceptions develop and influence behavior in movement contexts at different points in life, (3) explaining how contextual factors influence developmental processes associated with physical activity, (4) identifying age-related differences in activity-related antecedents and consequences of physical activity, and (5) developing, reviewing, and critiquing theoretically-grounded interventions to address issues related to developmental processes associated with physical activity across the lifespan. Evaluation will be based on written examinations, submission of a series of reflection papers on reading assignments, a group presentation, and the students' engagement in the class. It extends but does not duplicate existing courses in the Department of Innersole, Human Development & Family Studies, and Psychology.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: PSYCH 100 and KINES 321 or HD FS 129 or PSYCH 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 428** Motivation and Emotion in Movement (3) Theories of motivational and emotional processes and their applications in movement settings.

#### **KINES 428 Motivation and Emotion in Movement (3)**

Motivation & Emotion in Movement will focus on the psychological processes underlying human motivation and emotion in movement settings. Special attention will be directed to social manipulations that can enhance motivation and emotion, and the consequences thereof. This course will be valuable for students whose career goals relate to education, personal training, rehabilitation, coaching, or psychology. Specific course objectives include (1) distinguishing between motivation and emotion, (2) understanding psychological mechanisms underlying common motivational and emotional processes in movement settings, (3) identifying existing applications of motivation and emotion theories in movement settings, and (4) developing, reviewing, and critiquing theoretically-grounded interventions to address issues related to motivational and emotional processes in movement contexts. It extends but does not duplicate existing courses in the Departments of Kinesiology and Psychology.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2014

Prerequisite: KINES 321 and PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 429 Psychology of Sport Performance (3)** Psychological theories of talent development and performance enhancement in sport.

### **KINES 429 Psychology of Sport Performance (3)**

Psychology of Sport Performance will provide a psychological perspective on the phenomenon of superior motor performance. The course will cover nature of superior performance, talent development processes, sources of performance crises, and self-regulation strategies used by athletes, coaches, and psychologists to enhance performance. This course will be valuable for students whose career goals involve training athletes or other performers involved in socially-evaluative performance domains. Specific objectives include (a) distinguishing the antecedents and consequences of subjective and objective performances, (b) conceptualizing motor performance and performance problems in a psychological context, and (c) matching psychologically-based performance problems with theoretically-based intervention strategies. It extends but does not duplicate existing courses in the Departments of Kinesiology and Psychology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: KINES 321 and PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 434 Rehabilitation of Injuries to the Lower Extremities (3)** Theoretical foundation and laboratory experience in manual therapy techniques and therapeutic exercises for the lower extremities.

### **KINES 434 Rehabilitation of Injuries to the Lower Extremities (3)**

Rehabilitation of Injuries to the Lower Extremities is a 3-credit course offered each fall semester with an enrollment limit of 40 students. The course provides students who have been accepted into the undergraduate athletic training option in the Department of Kinesiology with the theoretical foundation for application of manual therapy techniques and therapeutic exercises in the treatment of musculoskeletal injuries sustained by physically active individuals. Laboratory instruction and guided practice in performing manual therapy techniques and therapeutic exercises will also be provided. At the end of this course students: 1) can identify five components of a comprehensive plan of care for an injured athlete; 2) have a working knowledge of the effects of therapeutic exercise on tissue repair and return to activity; 3) have a working knowledge of the impact of pain on programs and therapeutic exercise; 4) are able to perform selected manual therapy techniques and integrate them into a comprehensive plan of care; 5) understand the psychological response to injury and therapeutic exercise; 6) can develop a plan of rehabilitation utilizing principles of tissue healing, therapeutic exercise and manual therapy; and 7) instruct patients in home programs of therapeutic exercise. This course will focus on the basic principles of therapeutic exercise and rehabilitation of injuries to the lower extremities.

This course will be offered every Fall semester with an anticipated enrollment of 25. Evaluation includes quizzes, rehabilitation plan of care, proficiency notebook, mid-term and final practical exams, and written mid-term and final exams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 334

Concurrent: KINES 335 KINES 395F

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 435 Rehabilitation of Injuries to the Trunk and Upper Extremities (3)** Theoretical foundation and laboratory experience in manual therapy techniques and therapeutic exercises for the trunk and upper extremities.

### **KINES 435 Rehabilitation of Injuries to the Trunk and Upper Extremities (3)**

Rehabilitation of Injuries to the Trunk and Upper Extremities is a 3-credit course offered each fall semester with an enrollment limit of 40 students. The course provides students who have been accepted into the undergraduate athletic training option in the Department of Kinesiology with the theoretical foundation for application of manual therapy techniques and therapeutic exercises in the treatment of musculoskeletal injuries sustained by physically active individuals. Laboratory instruction and guided practice in performing manual therapy techniques and therapeutic exercises will also be provided. At the end of this course students: 1) can identify five components of a comprehensive plan of care for an injured athlete; 2) have a working knowledge of the effects of therapeutic exercise on tissue repair and return to activity; 3) have a working knowledge of the impact of pain on programs of therapeutic exercise; 4) are able to perform selected manual therapy techniques and integrate them into a comprehensive plan of care; 5) understand the psychological response to injury and therapeutic exercise; 6) can develop a plan of rehabilitation utilizing principles of tissue healing, therapeutic exercise and manual therapy; and 7) instruct patients in home programs of therapeutic

exercise. This course will focus on review of the basic principles of therapeutic exercise and rehabilitation on injuries to the trunk and upper extremities.

This course is offered every spring semester with an anticipated enrollment of 25. Evaluation methods include quizzes, written and practical exams, rehabilitation plan of care and proficiency notebook.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 434

Concurrent: KINES 336 KINES 435 KINES 395G

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 436** Therapeutic Modalities in Athletic Training (4) Lecture and laboratory course exploring physiological principles and clinical evidence to the use of therapeutic modalities in athletic training.

#### **KINES 436 Therapeutic Modalities in Athletic Training (4)**

Introduction to Therapeutic Modalities is a 4-credit course offered each spring semester with an enrollment limit of 40 students. The course provides students who have been admitted into undergraduate athletic training option in the Department of Kinesiology with the theoretical foundation for the application of contemporary therapeutic modalities in the treatment of musculoskeletal injuries sustained by athletic individuals. At the end of this course students will: 1) have a working knowledge of the inflammatory response to tissue injury, pain perception and the body's analgesic mechanisms; 2) understand the physical principles of thermal, acoustic, electrical, light and mechanical modalities; 3) understand the physiological response to thermal, acoustic, electrical, light and mechanical modalities; 4) be able to search for and appraise clinically relevant trials involving modality application and; 5) apply these understandings and thermal, acoustic, electrical, light and mechanical modalities in the safe and effective manner. Students are evaluated through written examinations, laboratory examinations and submitted written reviews.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 434

Concurrent: KINES 336 KINES 435 ; KINES 395G

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 438W** Administration and Issues in Athletic Training (3) Theoretical and practical aspects for management of an Athletic Training professional practice and identifying contemporary issues related to the profession.

#### **KINES 438W Administration and Issues in Athletic Training (3)**

This course is designed to instruct students in the concepts and skills required for successful administration of an athletic training program and to understand and discuss contemporary professional issues attendant to the Athletic Training profession. General topics to be covered include theoretical basis of management, program management, human resource management, financial resource management, facility design and planning, information management, athletic injury insurance, legal aspects of sports medicine, ethical considerations in sports medicine, preparticipation physical and drug-testing, professional preparation issues, professional practice issues, and clinical practice issues. Experts from the community are brought in to lecture on several of the topics. The course meets for three hours per week and utilizes both lecture and discussion formats. Student assessment includes written examinations, written homework assignments, class participation and debates. This is a writing intensive course. Writing will be used to facilitate critical thinking about course material. Written assignments are based on the technical writing requirements of an athletic training administrator and are graded on both their content and quality.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 436

Concurrent: KINES 395I

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 439W** Ethics in Sport and Sport Management (3) Analysis of moral dilemmas in sport and sport management utilizing the tools of ethics.

#### **Ethics in Sport and Sport Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None  
 Effective: Spring 2001  
 Prerequisite: KINES 345 or 3 credits in humanities

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 440** Philosophy and Sport (3) An examination of human nature from the perspective of our participation in sport.

### **Philosophy and Sport (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2001  
 Prerequisite: KINES 345 or 3 credits in philosophy

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 441** (US) (AM ST 441) History of Sport in American Society (3) Background, establishment, and growth of sport in America from colonial times to the present.

### **KINES (AM ST) 441 History of Sport in American Society (3)**

Study of the background, establishment, and growth of sport in America from colonial times to the present, and the role of American sports in American culture and society. The course will examine the ways that sports have operated in the United States as the country has developed into a modern, mass society. Issues of national identity, commercialism, race, ethnicity, class, and gender will be discussed in relation to the popularity of sports. Another set of issues will center on language and media; students will employ methods of analysis such as ethnography and rhetorical criticism that emphasize the multiple layers of meaning inherent in sports culture. The course satisfies the "area" requirement in "society" for American Studies majors. It is offered once every two years and enrolls approximately 30 students.

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: KINES 141 or 3 credits of United States history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 442** (IL) (CAMS 442) Sport in Ancient Greece and Rome (3) An examination of the continuity of sport in ancient Greek and Roman societies.

### **KINES (CAMS) 442 Sport in Ancient Greece and Rome (3) (IL)**

This course examines the continuity of sport in ancient Greek and Roman societies. It investigates the role of athletic festivals in both cultures as well as the value placed on physical activity as part of the educational process.

The objectives of the course are to enable students to gain an appreciation for the continuous involvement of the ancient Greeks in the areas of competitive athletics and gymnastics[Kinesiology] as an important part of their value system. Moreover, the course will provide a comparison of Greek and Roman attitudes of athletics and gymnastics.

Typical topics include athletics during the Minoan /Mycenaean Bronze Age, Athenian and Spartan philosophies regarding education, the importance of spectator sports in Roman society and their link to politics.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2008  
 Prerequisite: CAMS 025CAMS 033CAMS 140CAMS 150CAMS 100CAMS 101 or KINES 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 443** (IL) The Modern Olympic Games (3) An analysis of the modern Olympic Games from their inception through the current festival.

### **The Modern Olympic Games (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Spring 2006  
 Prerequisite: KINES 141 or 3 credits of history or philosophy

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 444** (US) History of Athletics in Higher Education (3) Origin and development of athletics in American higher education from colonial times to the present.

### **History of Athletics in Higher Education (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Spring 2006  
 Prerequisite: KINES 141 or 3 credits of American history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 445** Alcohol and Drug Education (3) Principles of integration and coordination of alcohol and drug education programs for health education and other health related professions.

### **Alcohol and Drug Education (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 1998  
 Prerequisite: 9 credits of health science and/or psychology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 446** (IL) History of Sport in the Modern World (3) History of sport in modern world, ca. A.D. 1500 to present; concentrates on role of sport in societies outside United States.

### **KINES 446 History of Sport in the Modern World (3) (IL)**

The History of Sport in the Modern World introduces students to the connections between sporting practices and the broader cultural, political, intellectual and economic patterns that shape societies during the modern period in world history (ca. A.D. 1500 to the present). The course begins with a foray into the transition from traditional to modern forms of sport and society and covers the development of a wide variety of athletic games and pastimes from the sixteenth through twentieth centuries. Students will encounter a variety of historic conceptions of sport and explore the role of sport in the development of European, North American, Latin American, Asian, African and Pacific cultures. Students will learn how sports have been shaped by and have shaped by multiple factors, including modern ideas, science, class structures, gender roles, constructions of race, urbanization, nationalism, political conflicts, international relations, and economic institutions.

This is a senior-level course that fills an important historical gap in the Kinesiology Department's sequence of offerings on the history of sport. Other courses in the sequence cover ancient sport, sport in American society, and the Olympic Games. While crucial American developments that impact sports in the modern world are incorporated into this course, this class offers students a global focus that concentrates on the role of sport in societies beyond the borders of the United States. This course also relates to the offerings in the philosophy of sport program by exploring the history of ideas about sport in modern thought. Additionally, the course connects to the science-based offerings in Kinesiology by providing students with and introduction to the history of the scientific study of human performance.

The course introduces students to basic readings and knowledge of the history of sport in the modern world. The class provides opportunities to practice the critical reading and thinking techniques that shape the historian's approach to knowledge. This course will be taught once every year with an anticipated enrollment of 50 students. Evaluation methods that test reading and critical thinking skills are employed. No special facilities are required.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2005  
 Prerequisite: KINES 141 or 3 credits of non-United States history

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 447W** Representing Sport in Popular Film (3) Critical, contextual, and theoretical analyses of sport films focusing on popular narratives of social inequalities.

### **Representing Sport in Popular Film (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: KINES 141 KINES 345

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 448** Coping with Life After Sport (1) Psychosocial concerns affecting student-athletes as they enter the transition period following sport disengagement, focusing on coping interventions.

**KINES 448 Coping with Life after Sport (1)**

KINES 448 is designed for student athletes who have exhausted their eligibility for or will no longer be participating in their respective sport due to injury or other issues. It is also relevant for students in athletic training or those who plan to pursue a career in coaching. The focus of the course is on the identification of issues and stressors affecting the transition and the development of strategies and coping skills to deal with life after sport. This can often be a very emotional and difficult time for student athletes. Discussion is focused on intervention and coping strategies, goal setting, decision making, career planning, and transferable skills. Student athletes will be able to recognize how their athletic experience has helped them to acquire numerous skills and characteristics highly valued in the workplace. Two sections of the course will be offered each semester. Students will be required to submit a weekly reaction paper, do a review of literature, and compile a comprehensive career plan. The class will be highly interactive with regular in-class assignments and projects.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: seventh-semester standing or higher; major or minor in Kinesiology or intercollegiate sport participation

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 452** Applied Cardiovascular Physiology (3) In-depth study of cardiovascular regulation during postural, environmental, and exercise stress.

**KINES 452 Applied Cardiovascular Physiology (3)**

First, the course begins with an intensive review of hemodynamics and basic cardiovascular control mechanisms (neural, hormonal, and local regulation).

Second, students compare and contrast these general principles in six important circulations: splanchnic, renal, cerebral, coronary, cutaneous, and muscle.

Third, they examine the three stresses which affect the circulation: posture (gravity), environment (especially heat) and exercise. For each stress, students identify the regional circulation(s) most affected and how they contribute to an integrated (systemic) cardiovascular response that is unique for each stress.

Finally, combinations of posture, heat, and exercise stress are considered to illustrate competing cardiovascular control mechanisms.

At each step students are introduced to seminal research papers illustrating the concept being studied.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: KINES 350

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 453** Environmental Physiology (3) This course examines physiological function of humans at rest and during prolonged or maximal exercise in conjunction with environment stress (heat, cold, altitude, hyperbaria).

**Environmental Physiology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: KINES 350

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 454** Women's Health and Exercise Across the Lifespan (3) In-depth study of the physiological role of exercise in modulating the health of girls and women during different phases of the lifespan.

**KINES 454 Women's Health and Exercise Across the Lifespan (3)**

First, the course begins with a review of general principles of research conduct and publication, themes that will be carried throughout all material covered in this class. A review of the historical aspect of women's health research and a review of the state of knowledge in women's health in the wake of the contemporary scientific endeavors such as the Women's Health Initiative will also be explored. Second, students will learn physiology of puberty, menstrual function and bone health and the impact of exercise on these processes. Third, students will learn current concepts of exercise related to the female athlete and clinical implications of alterations in normal physiology. The impact of oral contraceptives on health and exercise performance will be also discussed. Fourth, students will learn menopausal physiology, alterations in clinical status associated with this life stage, and review current research related to the Women's Health Initiative. Finally,

a discussion of the effects of gender differences on health and exercise will be discussed. At each step students will be exposed to relevant research methods issues, and introduced to seminal research papers illustrating the concept being evaluated.

This course is designed for students who wish to develop a richer understanding of the physiological role of exercise in modulating the health of girls and women during different phases of the lifespan. Particular attention will be given to the physiological role of exercise in modulating the health of girls and women during different phases of the lifespan, including but not limited to childhood, adolescence, adulthood and later adulthood.

The course will expose students to the rich research literature in women's exercise and health across the lifespan. Students will improve their ability to read and summarize original research literature through in depth presentation and discussion of seminal studies. Moreover, students will develop an understanding of how research has informed the state of knowledge on issues covered in this class and students will develop "language understanding" appropriate for interpreting and reading research papers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: KINES 350

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 455 Physiological Basis of Exercise as Medicine (3)** Reviews the physiological basis of exercise for enhancing health and protecting against chronic diseases.

### **KINES 455 Physiological Basis of Exercise as Medicine (3)**

This course is designed for students interested in developing a deeper understanding of the physiological mechanisms behind exercise as medicine. Course content will consist of a mixture of selected book chapters as well as contemporary review and primary research articles. This course begins with an overview of the current exercise deficiency problem, including the societal, behavioral, and economic changes of the past century which have contributed to the modern day epidemic of chronic inactivity-related disease. After developing an appreciation for the scope of these problems, students will be introduced to the "tools" needed to critically evaluate the association between exercise and/or inactivity on health and the mechanisms by which these associations may occur, including: basic principles of epidemiology, searching/reviewing scientific literature, and experimental design. The remainder of the course will be focused on how exercise/physical activity modifies molecular/tissue-level and integrative physiological function, and describes the extent to which these modifications confer either preventative or therapeutic benefit. This will be accomplished through a combination of lectures, in-class/take-home assignments, as well as student-led discussions. Students will also use the "tools" that they learned at the beginning of the semester to demonstrate and share knowledge with others; integration of this information may include a thorough analysis of a chronic condition including the pathophysiology, strength of evidence for exercise as medicine, and physiological actions of exercise in prevention or treatment. Students may also be given the opportunity to translate their knowledge from this course into educational materials (e.g., flyers, pamphlets, screensavers, fitness center displays, social media, etc) for use during "Exercise is Medicine" week.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: BIOL 141 or equivalent; KINES 350

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 456 Physical Fitness Appraisal (4)** The basic components of physical fitness, how it can be measured, and how it can be developed.

### **Physical Fitness Appraisal (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: or concurrent: KINES 350 3 credits in statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 457 Exercise Prescription and Case Studies (3)** Principles of exercise prescription; application of fitness appraisal based on current practices using evaluation and discussion of case studies.

### **KINES 457 Exercise Prescription and Case Studies (3)**



The major purpose of this course is to provide those students interested in allied medical careers (e.g., cardiac rehabilitation, hospital testing, wellness centers, corporate fitness centers, physical therapy) with skills and practical knowledge regarding exercise diagnostics and prescription. Particular emphasis is placed on clinical diagnostic procedures, interpretation and terminology and this course directly contributes to the knowledge base expected for future employment in this area. At the conclusion of KINES 457, the students will be able to demonstrate on written examinations and in discussions, a knowledge and understanding of basic exercise prescription principles for apparently healthy, at risk and diseased populations, with special- emphasis on the cardiac patient. Inherent in the course goals is an understanding of the chronic physiological adaptations that occur as a result of programs of endurance and resistance exercise in apparently healthy, at risk and diseased populations.

This course includes lectures as well as hands-on laboratory sessions. Evaluation is based on student performance on written examinations, written and oral case study presentations, and written assignments. This course will be taken after students have completed KINES 456 and will complete the learning scheme involving fitness appraisal and subsequent prescription of exercise programs.

The course is offered fall and spring semesters with an enrollment of 35 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: KINES 350KINES 456

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 460** Movement Disorders (3) Major peripheral and central movement disorders and methods of their treatment.

### **Movement Disorders (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1999

Prerequisite: KINES 360KINES 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 461W** Preparation for Research Project (2) Planning and preparation for research project.

### **KINES 461W Preparation for Research Project (2)**

This course prepares students to conduct a research project in KINES 462W. Students will begin by critically examining different research approaches. They will explore the development and assessment of research topics paying special attention to both scientific and philosophical justifications. They will learn how to identify research populations and how a human subjects review protects those involved in research studies. They will identify and critique the various inventories and assessment tools available for the kind of research they propose. Students will complete a research proposal including review of literature and method section, and submit an application to the Institutional Review Board. These goals will be achieved through a series of writing assignments.

Students are expected to demonstrate the following outcomes:

- 1) Communicating and writing ideas relevant to the field of Kinesiology.
- 2) Understanding and describing the major issues in the field.
- 3) Understanding the principles of how to conduct research in wellness, fitness and/or associated practice.
- 4) Understanding and communicating the methods of scientific discovery.

Students are evaluated on their research proposal (50% of final grade) which is drafted and revised during the semester. Further writing assignments (50%) assess and enhance student's competency in research methods and statistics. The course is offered every fall semester with a total enrollment of 25 each semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 180KINES 260STAT 200KINES 321KINES 345KINES 350KINES 360KINES 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 462W** Research Project (2) Completion of research topic.

### **KINES 462W Research Project (2)**

During this course students will collect and analyze data for a research project. They will trouble shoot any data collection problems and learn how to use computerized programs for statistical analysis of data. They will learn about various presentation modes relevant to the written and oral presentation of research data. Students will prepare and be evaluated on a research paper that reports on their research project. In addition, they will present their work orally in showcase

sessions to which fellow students and faculty members are invited. The goal is for students to produce as close as possible to publishable papers. This course is part of a two-course sequence and can only be taken upon successful completion of KINES 461W. It, along with the internship experience, are the culminating experiences in the Exercise Science - Science Emphasis. Facilitates needed will be determined based on the individual research project. This course will be offered only in the spring semester of each year. Enrollment will vary from 1 to 25.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 461W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 463** Acquisition of Motor Skills (3) Examination of principles of motor learning; the application of strategic factors such as: practice types, schedules, augmented information, and motivation.

### **KINES 463 Acquisition of Motor Skills (3)**

This course is intended for students interested in the principles of motor learning (learning, retention and transfer) and the application of specific learning strategies such as, practice, feedback, demonstrations, and instructions. Through lectures, discussions, and course readings in addition to writing assignments, the goal is for students to develop a unified conceptual framework for motor learning and its facilitation through intervention strategies.

The evaluation for the final grade will be based upon a synthesis of assessment in three areas: a) Term Project (30% of final grade) - a report on a learning experiment or a synthesis paper on a learning principle or a learning strategy; b) Mid-Term Exam (30% of final grade) - questions requiring short 2-3 sentence answers; and, c) Final Exam (40% of final grade) - requiring essay length answers to selected questions that integrate key issues from all the course material.

This course will build on the concepts outlined in KINES 171 and 360. It will represent the culminating upper level undergraduate course in motor learning. This course will be an elective available to students who have completed the required KINES 360 course. It can be used to fulfill requirements for the Kinesiology major and the Movement Science, Teacher Preparation, and Athletic Training Options.

This course will be available to students outside of the Kinesiology major who may, upon approval, substitute the KINES 360 prerequisite requirement. The course will be offered every spring semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

Prerequisite: KINES 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 464** Children's Physical Education Curriculum and Practicum (3) Curriculum for elementary school physical education emphasizing the skill theme approach.

### **KINES 464 Children's Physical Education Curriculum and Practicum (3)**

The purpose of this course is to introduce teacher candidates to the skill theme approach and developmentally appropriate physical education for children. Appropriate planning, instruction, and assessment make-up the foundation of this course. These techniques are then applied when they teach small groups of children from a local elementary school. Specifically, students will develop and implement developmentally appropriate lesson plans with children and then analyze and reflect on their teaching effectiveness. A primary focus of the class is using the skill theme approach to guide children to reach appropriate cognitive, affective and motor objectives as stated in state and national standards. Students also develop curricular scope and sequence overviews that are used to guide curriculum and lesson development from grades K-5.

Assessment of student performance in the course includes entrance and exit slips based on assigned readings, class lectures and discussion, and laboratory experiences. Students are also graded on their planning, analysis and reflection of their teaching in elementary schools. There is also a final exam that requires students to translate theory into practice as applied to elementary school physical education.

Assessment:

Entrance and exit slips 15%

Teaching in the schools 40%

Final exams 15%

Project 15%

Laboratories 15%

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 362KINES 364KINES 366

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 465 Neurobiology of Sensorimotor Stroke Rehabilitation (3)** This course is designed to expose students to the recent topics in motor stroke rehabilitation research through literature.

### **KINES 465 Neurobiology of Sensorimotor Stroke Rehabilitation (3)**

This 3-credit course is designed to expose students to the most recent topics in motor stroke rehabilitation research through reading of current literature. The course addresses the neurobiological foundations of motor deficits in stroke, including contralesional and ipsilesional effects, current research on mechanisms of motor recovery, and the most current research on intervention strategies, such as constraint induced therapy, robot aided rehabilitation, virtual reality therapy, and sensory motor interventions. The purpose of the course is to provide an understanding of the neurophysiological and biomechanical foundations of motor deficits that occur with stroke, and of current treatment approaches.

Stroke presents a significant social problem that is emphasized in current statistics reported by the American Heart Association indicating that each year, about 780,000 people in the United States experience a new or recurrent stroke. While stroke can produce deficits in perceptual, cognitive, and motor processes, this course is focused on sensorimotor deficits and associated rehabilitation interventions that tend to be employed by physical and occupational therapists in the rehabilitation environment.

Sensory-motor strokes often result in weakness and deficits in voluntary movement of the limbs on the opposite side of the body as the damaged hemisphere (Contralesional). These motor deficits currently receive primary focus in occupational and physical therapy treatment for stroke. However, regardless of improvements in contralesional arm function, most patients also show deficits in coordination of the ipsilesional arm that is on the same side of the body as the damaged hemisphere. For many hemiparetic patients, functional recovery relies heavily on this arm. This class will focus on understanding both ipsilesional and contralesional motor deficits in stroke. Physiological and biomechanical mechanisms of dysfunction will be emphasized. Recovery of function will be addressed through analysis of physiological and biomechanical measures that are used to track changes in neural function. In addition, current research that is focused on developing rehabilitation intervention protocols that systematically address remediation of dysfunction, and facilitation of recovery will be discussed.

Students will be guided in reading, critiquing, and presenting primary scientific manuscripts and review articles. Active discussions of presented material are encouraged, and grades are based on presentations, quizzes, and participation in class.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: KINES 360KINES 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 466 Assessment and Evaluation in Physical Education and Health Education (2)** Explores measurement as an important and distinct component in a variety of physical education and health education contexts.

### **KINES 466 Assessment and Evaluation in Physical Education and Health Education (2)**

This course addresses measurement as an important and distinct component of other processes such as assessment and evaluation in a variety of physical education and health education contexts (i.e. student performance, teacher performance, program outcomes). Teacher candidates will explain the inter-relationships among objectives, learning activities, and measurement strategies. They will design performance-based and standards-based measurement plans and tools that are necessary when assessing, evaluating, researching or making decisions about performances in physical education and health education. These plans will be performance-based, include select response and constructed response measurement instruments; measure what matters most in all learning domains; and demonstrate that instruction and assessment are seamless. These performances can range from constructed-response or non-traditional performance tasks like motor skill performance, fitness assessments, oral presentations, written reports, portfolios, program evaluation, and teaching effectiveness. Teacher candidates will be expected to recognize many and develop a few authentic and traditional measurement techniques/tools (including peer and self-assessments). These techniques and tools will assess student understanding and performance, provide feedback, and communicate student progress. These tools will measure what matters most and be valid and reliable. These tools are to be embedded with instruction and used by self, peer and instructor. When available, these tools will be integrated with technology to enhance the management of data. In this course, teacher candidates will recommend strategies for implementing results of a measurement by identifying implications from findings for future curricula, instructions, and other activities. They will differentiate between formative and summative measurements and describe ways the lesson/unit/curricula can be improved based on measurement results. Teacher candidates will also demonstrate their ability to interpret results and infer implications from the findings. For example, identifying instructional gaps between learning activities and objectives and using learning and performance data to make informed curricular and/or instructional decisions. In doing so, teacher candidates will contrast the results of norm- and criterion-referenced evaluation. This course will complement existing Methods courses (field experiences) in our teacher preparation curriculum by aligning instructional planning and implementation with measurement of these learning experiences. Teacher candidates will be evaluated with quizzes, assessment plans, measurement tool development, data collection and data interpretation. One section of this course will be offered each

semester with a projected enrollment of 25 students.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2006  
 Prerequisite: KINES 362KINES 364KINES 366

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 468** Health Instruction in the School--Content and Method (3) Methods, materials, and units of instruction.

### **KINES 468 Health Instruction in the School--Content and Method (3)**

This course is designed to prepare future middle and secondary school health and physical education teacher candidates in teaching health by providing a framework for comprehensive school health education, up-to-date health knowledge in ten areas of health, and designing the classroom as a laboratory in which students develop and practice teaching skills for health.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2006  
 Prerequisite: KINES 362KINES 364 andKINES 366

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 469W** Curriculum Development in Health and Physical Education (3) The content and process of K-12 school health and physical education curriculum development for public school students.

### **KINES 469W Curriculum Development in Health and Physical Education (3)**

The purpose of this course is to prepare prospective health and physical education teachers to plan and design curricular content that meets the needs of students in grades K-12 and aligns with state and national standards. The philosophical and theoretical basis for curricular decision--making will be explored.

Instructional Objectives:

1. design a physical education curriculum outline for a selected school setting (elem, middle, secondary)
2. design a health education curriculum outline for secondary or middle school health
3. assess a current HPE program and the extent to which the program is consistent with good practices, national standards, and state standards

Relationship of course to other courses:

This is the only course that addresses Health and Physical Education Curriculum Design. Students take this course after or concurrently with three-- methods--intensive courses. This course serves as the capstone course in the Teacher Preparation option. It applies pedagogical content knowledge in health and physical education to curriculum models and design. Students take this course the semester before student teaching.

Projected offering and enrollment: this course is offered every semester and has an enrollment limit of 30

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2006  
 Prerequisite: KINES 362KINES 364KINES 366

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 481W** Scientific Basis of Exercise for Older Adults (3) Study of age-associated physical changes and the effects of exercise on the aging process.

### **Scientific Basis of Exercise for Older Adults (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2001  
 Prerequisite: KINES 350

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 483** Motor Patterns of Children (3) Development of motor patterns. Fundamentals of movement, basic motor skills, and adaptation of the body to external forces.

**Motor Patterns of Children (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: KINES 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 484** Advanced Biomechanics (3) The use of advanced biomechanics to provide an in-depth understanding of the principles which underpin human movement.

**Advanced Biomechanics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: KINES 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 485** Science of Training Athletes (3) Application of scientific data knowledge to analyze sport training.

**Science of Training Athletes (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1996  
Prerequisite: KINES 350KINES 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 486** Legal Issues in Sport (3) Contemporary legal issues in sport and their implications for sport managers.

**Legal Issues in Sport (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 488** Mechanics of Locomotion (3) This course examines the forces and motions characteristic of locomotion, with emphasis on walking, the most common human activity.

**KINES 488 Mechanics of Locomotion (3)  
(GHA)**

Walking has been described as the most commonly performed human activity. Diseases or injuries that reduce the ability to walk independently and efficiently are especially likely to adversely affect quality of life. Kinesiology 488 introduces students to the elements of normal walking and how walking motions are affected by changes in age, walking speed, and pathological conditions. Advanced topics covered in this course include other forms of locomotion, including running and cycling, and the use of mathematical models to understand phenomena related to locomotion.

Students enrolled in this course learn the particulars of human locomotion, but in so doing they also gain an understanding of kinematics and kinetic analysis, joint mechanics, and the clinical treatment of movement disorders. Basic principles of mechanics are applied to establish how walking motions result from forces produced by muscles, gravity, and contact with the ground. Students planning to pursue graduate study in movement biomechanics or in clinical areas such as physical therapy are especially likely to benefit from the focus on these areas.

The requirements for Kinesiology 488 include two mid-term tests and a final examination, four laboratory reports, and a literature review. Laboratories (held during regularly scheduled class periods) introduce students to current experimental methods used to measure motions, forces, and muscle activity during locomotion. Completion of several case studies during the semester gives students practical experience with the interpretation of motion analysis data, the factors that influence clinical decisions in the treatment of movement disorders, and ethical considerations in biomechanics research.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002  
Prerequisite: KINES 384 or previous coursework in biomechanics (or mechanics) and musculoskeletal anatomy

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 492W** Programming for Business and Agencies (3) Fundamentals of program development applied to corporate and private physical fitness businesses.

### **KINES 492W Programming for Business and Agencies (3)**

This course will use an experiential approach to acquire knowledge and skills necessary to assess, plan, implement and evaluate health/wellness/fitness programs within a business/corporate setting. Students will actively participate in a process-oriented, student-centered learning environment that includes cooperative learning, critical thinking, effective communication, assessment, and problem solving. Students will assess, plan, implement and evaluate a health-related program (i.e., wellness fair, career fair, road race, fitness programs). Students will write business letters, operating plans, mini-grants, budgets, flyers, press releases, newspaper articles, surveys, and other written communication projects relevant to the fitness/wellness business. Students will access and evaluate health/wellness resources (i.e., agencies, Internet, media, speakers).

As indicated by the "W", this is a writing intensive course and will follow university guidelines for such courses. Most of the assignments will involve group-based problem solving. This course is offered Spring Semesters with a maximum enrollment of 35.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 395B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 493** Principles and Ethics of Coaching (3) Integration of the practical and theoretical knowledge necessary for effective coaching through classroom and field experiences.

### **KINES 493 Principles and Ethics of Coaching (3)**

The Principle and Ethics of Coaching examines the challenges of today's coaching profession through societal norms and expectations from the past and present. The course begins with a study of the coaching profession covering past and current coaches who have experienced success and failure in the profession. Students learn how the profession has developed as a result of changing values, demands, emphasis and expectations in the athletic world. Students will learn how to work with Title IX, parents, high school and collegiate regulations, season structures and the various roles and responsibilities of today's coach. The course is a senior-level course providing students in Kinesiology with an in depth study of the profession that has historically been associated with careers in Kinesiology. This course relates to other courses in sport ethics, sport philosophy and history of sport as they provide the theoretical background for coaching decisions. In addition, this course demonstrates practical implementation of theories from nutrition as well as activity courses. The course offers students an in depth study of sport and gender specific differences as they relate to the coaching profession. The students observe, question and study current coaches while examining their own backgrounds to develop set of principles to handle today's coaching issues. A coaching experience is an optional opportunity afforded to students while writing skills must be demonstrated by all students through written exams, papers and/or projects. Enrollment is optimal at 20-25 students, however, larger numbers may be accommodated. The course will be taught during Fall and Summer semesters. The emphasis on class discussion and interaction with various athletic coaches introduces students to realities of today's coaching profession and the challenges of the 21<sup>st</sup> century coach. Video and power point enhance the multi media approach to this course and further enhance the learning environment. Evaluation of the students requires an understanding of assigned readings, class discussion, and the student's ability to demonstrate critical thinking skills.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 180 or KINES 366

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 494H** Senior Honors Thesis (1-6) Independent study directed by a faculty supervisor that culminates in the production of a thesis.

### **Senior Honors Thesis (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: Approval of honors thesis advisor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**KINES 495A** Practicum in Student Teaching (12) Supervised teaching of health and physical education in K-12 public schools with seminars focused on transition from student to professional.

**KINES 495A Practicum in Student Teaching (12)**

The teacher candidate will be placed in either an elementary or secondary school setting for the first 8 weeks of the student teaching experience, followed by placement in the level not selected first for the last 7 weeks. The teacher candidate will be teaching both health and physical education during each placement. The teacher candidate will be assigned on-site cooperating teachers will be supervised by a university faculty member who makes a minimum of four on-site visits, plus review of teaching via two videotape.

During the 15-week semester, there are four seminars of approximately 5 hours each, during which all teacher candidates meet with the coordinator of the student teaching program to discuss topics related to the multiple roles of teachers in public schools and the transition to becoming a professional teacher. In addition, some time in each seminar is devoted to experience sharing and collaborative problem solving. The following topics are covered during the seminars: legal liability and sexual harassment, electronic portfolios, resume and cover letter writing, health and physical education professionals, preparation for employment, interviewing, best teaching practices and sharing, classroom management, and technology in physical education. In addition, the student teachers are required to complete a variety of assignments including: a professional portfolio, unpaid service activity reflection, daily notebook, videotapes and reflection, and Pennsylvania teaching application and essay.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: A grade of C or higher in all required courses in the Teacher Preparation Option

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 495B** Field and/or Research Practicum in Kinesiology (6) Participation under supervision in a field or research practicum.

**KINES 495B Field and/or Research Practicum in Kinesiology (6)**

This course places students in the workplaces or research settings with the expectation that these experiences will allow them the opportunity to apply and integrate content from all their courses in the program. They will be placed at a variety of sites, including but not limited to research laboratories, professional fitness centers, rehabilitation facilities, senior centers, community health and wellness programs, and hospitals. They will learn the day-to-day requirements of being "on the job" or "in the lab," including professional management practices and ethical considerations. Practicum work will be evaluated on an ongoing basis with the student intern, work place supervisor, and faculty member involved in the process. The course will take place off campus as work sites and no special on-campus facilities are required. It will be offered annually as the last course in the major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 395B seventh-semester standing 9 credits of 400-level KINES courses 2.00 cumulative GPA

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 495C** Exercise Science Practicum (3 per semester/maximum of 6) Participation under supervision in a health and fitness setting.

**KINES 495C Exercise Science Practicum (3 per semester/maximum of 6)**

This course places students in the work place with the expectation that the experience will allow them the opportunity to apply and integrate content from all the courses in the program. They will be placed at professional fitness centers, rehab facilities, senior centers, and wellness centers. They will learn the day-to-day requirements of being "on the job" such as time management, record keeping, client interactions, feedback delivery, fitness program establishment and implementations, business and management practices as well as ethical considerations. Their field experience will be focused on four in-class days during which students will collectively explore work place issues. Practicum work will be evaluated on an ongoing basis with the student intern, work place supervisor, and faculty member involved in the process. The course will take place off campus as work sites and no special on-campus facilities are required. It will be offered annually as the last course in the major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: KINES 141KINES 180KINES 200KINES 202 and fifth semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 495D** Expanded Field and/or Research Practicum in Kinesiology (1-6) Additional participation under supervision in a field or research practicum.

**KINES 495D Expanded Field and/or Research Practicum in Kinesiology (1-6)**

This course, in combination with KINES 495B, places students in the workplaces or research settings with the expectation that these experiences will allow them the opportunity to apply and integrate content from all their courses in the program. They will be placed at a variety of sites, including but not limited to research laboratories, professional fitness centers, rehabilitation facilities, senior centers, community health and wellness programs, and hospitals. They will learn the day-to-day requirements of being "on the job" or "in the lab," including professional management practices and ethical considerations. Practicum work will be evaluated on an ongoing basis with the student intern, work place supervisor, and faculty member involved in the process. The course will take place off campus at work sites and no special on-campus facilities are required. It will be offered annually as the last course in the major.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

Concurrent: KINES 495B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 495E** Advanced Professional Development in Kinesiology (3) Professional development preparation focused on knowledge, skills and abilities to complete national certification; obtain internships, employment or graduate school admission.

**KINES 495E Advanced Professional Development in Kinesiology (3)**

This course is designed to provide undergraduate students the opportunities of fitness professional pre-certification preparation via lecture format, professional travel to acquire hands-on skills at a top caliber training facility, and an expert panel round table discussions. Throughout the course, students will have exposure to professional communication with faculty through formats including, but are not limited to the following: faculty/professional/expert discussions, lectures, training sessions, quizzes and examinations that are designed to prepare students to pass a national certification. Students will enhance skills needed to develop exercise leadership characteristics, communicate information effectively, and build a foundation of exercise testing and prescription guidelines which are safe, effective and motivating to clientele. Other class foundational principles include but are not limited to Exercise Programming; Health Risk Assessment; Serial Testing; Metabolic Calculations; Nutrition and Weight Management and Facility Administration. Students will take practical experience and knowledge gained from this professional course and apply principles into their proposed field of study in a safe and effective manner.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: KINES 350  
Concurrent: KINES 456 and KINES 457

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 495F** Field Practicum in Athletic Training (3) Participation under supervision in a field practicum.

**Field Practicum in Athletic Training (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: KINES 395I

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None



Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496A** Independent Study Athletic Training (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Athletic Training (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496A** Independent Study Athletic Training (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Athletic Training (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496B** Independent Study Biomechanics (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Biomechanics (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496B** Independent Study Biomechanics (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Biomechanics (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496C** Independent Study Exercise Physiology (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Exercise Physiology (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496C** Independent Study Exercise Physiology (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Exercise Physiology (1-18)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496D** Independent Study History and Philosophy of Sport (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study History and Philosophy of Sport (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496D** Independent Study History and Philosophy of Sport (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study History and Philosophy of Sport (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496E** Independent Study Motor Control (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Motor Control (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496E** Independent Study Motor Control (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Motor Control (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496F** Independent Study Psychology of Movement and Sport (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Psychology of Movement and Sport (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496F** Independent Study Psychology of Movement and Sport (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Psychology of Movement and Sport (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496G** Independent Study Teaching and/or Coaching (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Teaching and/or Coaching (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496G** Independent Study Teaching and/or Coaching (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Teaching and/or Coaching (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496H** Kinesiology Honors Independent Study (1-9 per semester/maximum of 18) For non-thesis independent study/research by Schreyer Honors College scholars.

**Kinesiology Honors Independent Study (1-9 per semester/maximum of 18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496K** Independent Study Applied Kinesiology (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Applied Kinesiology (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 496K** Independent Study Applied Kinesiology (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Study Applied Kinesiology (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497A** Genetics and Human Performance (3) Acquaint students with one of the most rapidly expanding areas of basic biological science that will influence Kinesiology. The course is along the lines of the interaction of genetic and environmental factors in human function at peak (performance) levels, as well as, normal functional baselines.

**Genetics and Human Performance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497A** Genetics and Human Performance (3) Acquaint students with one of the most rapidly expanding areas of basic biological science that will influence Kinesiology. The course is along the lines of the interaction of genetic and environmental factors in human function at peak (performance) levels, as well as, normal functional baselines.

**Genetics and Human Performance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497B** Clinical Neuroanatomy (3) The goal of this course is for students to obtain a working knowledge of the nervous system and neurological disorders. This course is most appropriate for students pursuing a career in medicine or the allied health professions.

**Clinical Neuroanatomy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: KINES 180KINES 202KINES 360 andBIOL 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497B** Clinical Neuroanatomy (3) The goal of this course is for students to obtain a working knowledge of the nervous system and neurological disorders. This course is most appropriate for students pursuing a career in medicine or the allied health professions.

**Clinical Neuroanatomy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: KINES 180KINES 202KINES 360 andBIOL 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497C** Nutrition, Exercise, and Sport Performance (3) The course is designed to support critical thinking in exercise nutrition. This requires knowledge of fundamental principles of nutrition, exercise, and performance, as well as an understanding of the scientific methods that can be used to evaluate the benefits of harm of nutritional practices. These skills will enable students to independently acquire knowledge in the field of exercise nutrition, and to translate this knowledge into practice.

**Nutrition, Exercise, and Sport Performance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: KINES 350NUTR 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497C** Nutrition, Exercise, and Sport Performance (3) The course is designed to support critical thinking in exercise nutrition. This requires knowledge of fundamental principles of nutrition, exercise, and performance, as well as an understanding of the scientific methods that can be used to evaluate the benefits of harm of nutritional practices. These skills will enable students to independently acquire knowledge in the field of exercise nutrition, and to translate this knowledge into practice.

### **Nutrition, Exercise, and Sport Performance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: KINES 350NUTR 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497D** High School Athletics - Administration and Coaching (3) Examination and full disclosure of the role and responsibilities of the interscholastic athletic director.

### **High School Athletics - Administration and Coaching (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497E** Ergogenic Aids (3) Students will describe and evaluate the evidence base for agents and practices used to improve aerobic power, strength, body composition, metabolism and thermoregulation as they relate to exercise and physical activity.

### **Ergogenic Aids (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: KINES 345KINES 350 andBIOL 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497E** Ergogenic Aids (3) Students will describe and evaluate the evidence base for agents and practices used to improve aerobic power, strength, body composition, metabolism and thermoregulation as they relate to exercise and physical activity.

### **Ergogenic Aids (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: KINES 345KINES 350 andBIOL 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497F** Physical Activity and Public Health (3) An examination of the role of physical activity in public health. Includes introduction to basic epidemiology, measurement, dose-response relationships, chronic disease prevention, and population level strategies for promoting physical activity in communities through policy and environmental strategies.

### **Physical Activity and Public Health (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: KINES 321

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 497K** EKG Interpretation (3) Providing skills and experience needed to read and interpret normal and abnormal EKG's. at may be topical or of special interest.

### **EKG Interpretation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: KINES 456 with "C" grade or better or with program permission

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KINES 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Korean (KOR)**

**KOR 001** Level One Korean A (4) Listening, speaking, reading, writing Korean: an introduction for beginners; basic structures and vocabulary; cultural elements.

### **Level One Korean A (4)**

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 002** Level One Korean B (4) Listening, speaking, reading, writing Korean: structures and vocabulary; cultural elements.

### **Level One Korean B (4)**

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Spring 2011

Prerequisite: KOR 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 003** Level Two Korean A (4) Further development of listening, speaking, reading, writing skills in Korean; cultural elements.

### **Level Two Korean A (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2011  
Prerequisite: KOR 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 110** Level Two Korean B (4) This is the fourth semester course of sequenced Korean study at Penn State. It is the Advanced-Intermediate course.

#### **KOR 110 Level Two Korean B (4)**

This is the second part of intermediate Korean and a continuation of Korean 3 offered at Penn State. Classroom activities will be built around the textbook lessons and all activities will be designed such that students will have multiple opportunities to practice listening, speaking, reading, and writing. Pedagogical materials also include the use of multi-media based authentic language samples from a variety of modalities (spoken, written, and computer mediated) produced for Korean nationals (e.g., tv dramas, movies, magazines, internet sites and blogs, essays, short stories, magazine articles, advertisements). These will supplement the textbook and will provide insights into daily life in Korea, sociocultural values of the Korean people, as well as a broader representation of Korean language, history, literature, and culture. Students will also work within various genres of Korean discourse and literature and learn to recognize and accurately use the particular language styles that are associated with those genres.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: KOR 001KOR 002 andKOR 003 (or equivalent cumulative knowledge of Korean)

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 197A** Introduction to Korean Culture (3) This course is to help students understand Korea and its culture using

popular TV dramas, films, and K-pops. Lecture and discussion, and films will be used. The course will cover the following topics: history, popular culture, religion, and social issues. Students will also learn beginner level Korean in class.

**Introduction to Korean Culture (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 199 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**KOR 299 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 401 (IL) Level 3 Korean A (4)** KOR 401 is the first semester of third-year Korean, which is equivalent to Advanced-Intermediate Korean I.

**KOR 401 Level 3 Korean A (4)  
(IL)**

Korean 401 is the first half of the 3rd year Korean (or Advanced-Intermediate Korean I). KOR 401 is designed for the learners who have background in KOR 110 or equivalent. The medium of instruction will be Korean. The students in this course will explore various topics and styles in Korean and further improve their skills of listening, reading, speaking, and writing in Korean to be able to better comprehend Korean culture and society.

The objectives in this course are 1) to review, reinforce, and expand the basic grammar, 2) to expand knowledge of vocabulary and idioms, 3) to be able to speak not only in single sentences, but in dialogues to perform basic communicative functions, 4) to be able to read and understand simple essays and stories, and 5) to be able to write short compositions in Korean.

As an advanced-intermediate Korean language course, it does not only strive to enable the students to interact successfully in Korean, but it also encourages them to deepen their understanding of Korean culture and society. In addition, it aims to cultivate students' knowledge and awareness of the similarities and differences between Korean and American culture, by introducing cultural values, tradition, beliefs, and customs of Korea during the course and also promoting discussion on the topics. It is expected that through enhanced Korean language proficiency and cultural knowledge of Korea, students can increase their ability to locate and evaluate information about Korea for their further academic and/or professional needs.

The course is designed to be suitable for the students who have successfully completed Korean 110 (or its equivalent, through such means as study abroad). This course is designed to meet the Korean minor requirement and also count as an IL ("International Cultures").

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: KOR 110 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 402 (IL) Level 3 Korean B (4)** KOR 402 is the second semester of third-year Korean, which is equivalent to Advanced-Intermediate Korean II.

**KOR 402 Level 3 Korean B (4)  
(IL)**

Korean 402 is the second half of the 3rd year Korean (or Advanced-Intermediate Korean II). KOR 402 is designed for the learners who have background in KOR 401 or equivalent. The medium of instruction will be Korean. The students in this course will explore various topics and styles in Korean and further improve their skills of listening, reading, speaking, and writing in Korean to be able to better comprehend Korean culture and society.

The objectives in this course are 1) to review, reinforce, and expand the basic grammar, 2) to expand knowledge of vocabulary and idioms, 3) to be able to speak not only in single sentences, but in dialogues to perform basic communicative functions, 4) to be able to read and understand simple essays and stories, and 5) to be able to write short compositions in Korean.

As an advanced-intermediate Korean language course, it does not only strive to enable the students to interact successfully in Korean, but it also encourages them to deepen their understanding of Korean culture and society. In addition, it aims to cultivate students' knowledge and awareness of the similarities and differences between Korean and American culture, by introducing cultural values, tradition, beliefs, and customs of Korea during the course and also promoting discussion on the topics. It is expected that through enhanced Korean language proficiency and cultural knowledge of Korea, students can increase their ability to locate and evaluate information about Korea for their further academic and/or professional needs.

The course is designed to be suitable for the students who have successfully completed Korean 401 (or its equivalent, through such means as study abroad). This course is designed to meet the Korean minor requirement and also count as an IL ("International").

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: KOR 401 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KOR 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Labor Studies and Employment Relations (LER)**

**LER 083S** (GS) First-Year Seminar in Labor Studies and Employment Relations (3) Critical approaches to the dimensions and direction in Labor and Employment Relations.

#### **LER 083S First-Year Seminar in Labor Studies and Employment Relations (3) (GS;FYS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of the community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests.

Students will write essay exams, and critique a published study on the relevant topic of their own choices in teams. Class participation is required.

The course will provide students with the opportunity to study Labor and Employment Relations in their first semester at the University. This experience will serve as a preparation for additional courses in Labor and Employment Relations as well as an introduction to college-level study generally. The course fulfills both a first-year seminar and a general education or Bachelor of Arts social/behavioral science requirement. Class periods stress discussion of assigned readings, debates, and collaborative research projects.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 100** (GS) Employment Relations (3) Introductory analysis of the employment relationship and of the interrelated

interests of managements, workers, unions, and the public.

**LER 100 Employment Relations (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The purpose of this course is to introduce students to the employment relations process in the U.S. and to the institutions that participate in this process. This will be done by examining the areas: the evolution of labor-management relations in this country, including the history of workers' attempts to organize unions, management's response, and government's role; the institutions that participate in the employment relations process--unions, management, and government; the process of employment relations, including organizing a union, negotiating a contract, and administering that contract; outcomes of collective bargaining, public sector/international employment relations, and current issues/trends in employment relations.

Employment relations is a process studied from a multi-disciplinary perspective. This course will, therefore, draw on a number of social and behavioral science disciplines including economics, history, psychology, political science, and sociology.

This course will also incorporate active and collaborative approaches to learning. Through recitation sections, students will have an opportunity to gain experience in taking responsibility for learning and in working with others in a team situation. Students will be evaluated on the basis of exams, group activities, written assignments, and class participation.

This course is the introductory course in Labor Studies and Employment Relations (LER) curriculum. It will help prepare students for all subsequent courses in the LER B.A. and B.S. majors and serve as a prerequisite for some advanced LER courses. This course is required for the LER B.A. and B.S. majors and the LER minor. It also counts toward the fulfillment of the general education or Bachelor of Arts social/behavioral science requirement.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 136 (US) (WMNST 136) Race, Gender, and Employment (3)** Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

**LER (WMNST) 136 Race, Gender, and Employment (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

To accomplish the goals of the course, students will participate in a variety of in-class and out-of-class exercises designed to expose them to issues of inequality generally, and more specifically, to inequalities relating to employment. Activities are designed to connect real world experiences to class readings and discussion. For example, students may be asked to conduct their own job evaluation in conjunction with a reading on gender bias in job evaluation systems. The course also relies heavily on student participation via the reporting of the results of their activities, and in discussion of assigned readings. A semester-long group project will enable students to focus their interests and become experts in one sub-area. Group projects include a collaboratively written paper as well as a class presentation designed to inform the class about a topic previously not covered through class readings, discussions, or lectures.

General Education: None  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 136U (US) (WMNST 136U) Race, Gender, and Employment (3)** Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

**Race, Gender, and Employment (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that

may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 201** (GS) Employment Relationship: Law and Policy (3) An examination of basic legal principles underlying the employment relationship and their social, political, and economic bases.

**LER 201 Employment Relationship: Law and Policy (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

LER 201 provides students with an overview of the employment law relationship in the United States.

The course begins with a study of the legal principles which affect the creation, development, and implementation of employment law. Several of the most fundamental employment law principles, such as the Master/Servant relationship and the theory of Agency, are adopted from the English common law. Students review the United States Constitution and the constitutional principles necessary to understand employment laws are examined.

Students will study several federal and state statutes, including Worker's Compensation laws (with an emphasis on the Pennsylvania Worker's Compensation statutes), the Social Security Act, the Fair Labor Standards Act, the National Labor Relations Act, and Equal Employment Opportunity laws. As appropriate, the history, politics, and policies underlying these statutes are discussed. The necessity of understanding not only the legalities of EEO laws but also the societal need to eliminate discrimination results in a thorough study of Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act, the Civil Rights Act of 1991, and the Americans with Disabilities Act. Successful completion of this course equips students with a competency in employment law, transferable to an entry-level human resources or management position.

Students write reviews of various involving different employment laws, including case law and precedents, evidence and interpretation. The course content naturally lends itself to gathering and analyzing information. Students analyze the application of law to various cases, judging the logical consistency between the principle of the law and the case to which it is applied. Library resources are an essential component; on-line resources increasingly are used. The course deals exclusively with laws regulating employment practices and relations among employees in the U.S. workplace. It concentrates on discrimination, equity, due process, social and civil conduct.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 312** Research Methods in Labor Studies and Employment Relations (4) Provides an understanding of social science research as employed in the field of Human Resources and Employment Relations.

**LER 312 Research Methods in Labor Studies and Employment Relations (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The general objective of this course is to understand the processes and values of social science research. This will be approached in two ways: by deciphering and evaluating research published in employment relations, human resources, and other social science literature, and in designing and completing an empirical research study. Since first-hand knowledge is essential to understanding the intricacies of the research process, students will conduct an empirical research project on a topic of their choice with guidance from the instructor. This course is tailored to meet the specific needs of Labor and employment Relations students through the use of examples and readings closely related to a broad range of employment and work issues. Attention is given to the evaluation of the kinds of studies students may find useful in their future careers, whether it be in human resources management, employment relations management, or graduate or law school.

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 399** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 400** (IL) Comparative Employment Relations Systems (3) Analysis of structure and elements of employment relations systems in developed and developing areas.

**LER 400 Comparative Employment Relations Systems (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course explores contemporary topics in employment relations in the world. The course examines seven examples of employment relations systems, each carefully chosen to illustrate important variations in employment relations practices. It also provides an overview of economic globalization and its impact on employment relations. Topics include global sweatshops, child labor, the diffusion of human resource practices, and corporate social responsibility. The first country case is Germany, which provides an example of a country with strong national unions and a highly developed system of works councils. The Swedish case exemplifies a long-tradition of centralized bargaining and tripartite relations that is now in transition. The third case, Japan, illustrates some of the initial experiences with team work, just-in-time production, and employee commitment through job security and training. China offers an example of a socialist system in transition that has become an economic powerhouse through massive export processing zones, government controlled unions, and wage competition. Brazil provides an important example of a Latin American country with a state dominated employee relations system. South Africa offers a case of highly politicized employment relations in a country in transition from extreme racial segregation to a democracy. Finally, India represents Asia's other economic powerhouse, with an English speaking workforce that is drawn to the booming call center industry and export-oriented production. The second half of the course looks at broader themes related to the topic of globalization. Sweatshops in Mexico and child labor in India examined alongside the diffusion of high-end human resource practices in Brazil. In this section, student will also study inter-governmental institutions such as the World Trade Organization, and the International Monetary Fund. The final unit of this section examines the topic of Corporate Social Responsibility (CSR), recent attempts by corporations -at times in coordination with labor unions--to establish basic sets of rules or standards for their employees wherever units of the corporation might be located in the world today.

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: 3 credits in Labor and Employment Relations

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 401** The Law of Labor-Management Relations (3) Development of Anglo-American law regulating collective bargaining, with emphasis on American labor-management relations under Wagner, Taft-Hartley, and other acts.

**LER 401 The Law of Labor - Management Relations (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine the evolution of labor law in the United States. The N.L.R.A. itself, and the decisions of the National Labor Relations Board (N.L.R.B) and the courts, will be examined in order to gain an understanding of the current legal framework underpinning our system of labor-management relations. Major issues to be examined include the rights of employees to union representation; the formation of bargaining units; the conduct of organizing campaigns and elections; the duty to bargain; strikes, striker's rights, and lockouts; picketing, boycotts, and related activity; the enforcement of collective bargaining agreements and the duty to arbitrate; union members' rights and responsibilities, the duty of fair representation; and federal-state relationships in labor relations. Also covered in the course will be the legal framework for public sector labor-management relations, with specific attention paid to Pennsylvania Acts 111 and 195. The course will be taught from a liberal arts perspective, meaning that societal factors influencing the law--history, politics, and economics --will be emphasized. Student performance will be evaluated by means of tests, short papers, and such reports as may be required. This course is complementary to others in Labor Law, including LER 434, Collective Bargaining and LER 435 Labor Relations in the Public Sector. The course requires no special facilities or equipment; however, students enrolled are expected to have computer skills sufficient for communication and word processing purposes.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: 3 credits in Labor and Employment Relations or Political Science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 414W** Labor and Employment Relations Theory (3) Content and implications of major and minor theories of Labor and Employment Relations.

### **LER 414W Labor and Employment Relations Theory (3)**

The purpose of this course is to introduce students to the social scientific thought related to studies of work and employment relations. Work constitutes a basic activity in all societies whereby human effort transforms raw materials into objects having accrued value as a result of the human effort. Employment relations constitute formal arrangements between an employer(s) and individuals who engage in specific work activities. Work and employment relations as such vary within and across societies as they are conditioned by population density, technologies, markets and state regulations. The specific focus of this course will be theories and theorists that have significantly impacted the current understandings of the common features of work and employment relations, as well as variations across them.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: 6 credits in Labor and Employment Relations

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 424** Employment Compensation (3) Development and management of employee compensation systems.

### **LER 424 Employment Compensation (3)**

Employment Compensation provides an overview of compensation programs, practices, and strategies. This course examines various compensation systems, that serve as an integral component of human resource management operations. Upon completion of this course, students will have a better understanding of compensation program design and development, the criteria used to compensate employees, and challenges that compensation professionals may encounter. Requirements for this course include regular attendance and participation, completion of three case studies, three project assignments, and three examinations which will consist of short answer and multiple choice questions.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: LER 201 and sixth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 425** Employee Benefits (3) The examination of employee benefits programs used by employers to meet the welfare needs of employees and their families.

### **LER 425 Employee Benefits (3)**

This course is a comprehensive survey of the programs, principles and trends in planning and administering employee benefit programs for private and public employers. The objectives for this course are to provide students with an understanding of employee benefit programs and their broad implications for the workplace, the role of employee benefits in motivating and retaining employees, and the recent trends in employee benefit offerings and cost containment approaches.

Topics covered include strategic and tactical planning considerations used in implementing and changing benefit programs, discretionary and mandatory benefits, Social Security, health insurance structures, disability and life insurance programs, workers' compensation, retirement programs, executive benefits, paid-time off programs and accommodation and enhancement programs.

This course builds on introductory general foundation courses in human resources and labor relations. It provides students with a working knowledge of employee benefits and its important role in human resources and labor relations careers.

Students must select and write a research paper on a benefits topic of special interest. Course grades will be determined from examinations and the research paper.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: LER 201 and 6th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**LER 426 Staffing and Training Strategies in Organizations (3)** This course focuses on the theory and practice of human resource staffing and training in organizations.

**Staffing and Training Strategies in Organizations (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2011

Prerequisite: 3 credits in Labor and Employment Relations (LER) or Human Resources and Employment Relations (HRER)

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 434 Collective Bargaining and Contract Administration (3)** Theory, practice, and economic impact of collective bargaining, including administration of the collective bargaining agreement.

**LER 434 Collective Bargaining and Contract Administration (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Upon completing the course, students should be able to identify and explain the concepts, principles and practical application of various types of negotiations between labor and management, understand the basic legal framework governing collective bargaining in the U.S. and the rights of the parties under the law, explain the typical processes of collective bargaining as practiced in industrial, service and public sectors in the U.S., prepare for negotiations/collective bargaining, and negotiate issues. The course will also help students to develop concrete negotiation skills and provide them with the opportunity to apply those skills, with the benefit of observation and feedback. Lastly, the course will introduce students to the contract administration process utilized by unions and employers. Students will become familiar with grievance procedures and arbitration processes and begin to develop basic skills in resolving disputes over the application and interpretation of labor agreements.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: LER 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 435 Labor Relations in the Public Sector (3)** Analysis of labor relations problems within different areas of public employment.

**LER 435 Labor Relations in the Public Sector (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Upon completing this course, students should be able to identify the legal frameworks that govern collective bargaining between employers and unions in federal, state and local governments. Students should also be able to explain the process of collective bargaining in the government sector and the special circumstances that make public sector bargaining different from private sector bargaining. At course end, students should be able to identify the parties involved in public sector bargaining, including those involved in dispute resolution, and explain their priorities in the labor relations process. Students should come to understand and articulate the reasons why it is important to study and more fully comprehend the public sector labor relations process. Together, we will explore the distinctions between public and private sector employers that impact labor relations in the public sector, in order to better understand those distinctions. Also, we will explore the principal historical differences between negotiations in the public and private sectors, in order that students can better articulate those differences. In addition, we will work to understand the principal arguments for and against the right to strike for public sector employees, as well as other impasse resolution processes. Finally, we will work to identify and discuss the challenges facing public sector labor relations in the near term and in the intermediate term.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: 3 credits in Labor and Employment Relations

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 437 Workplace Dispute Resolution (3)** Dispute resolution practices and procedures used in the workplace and employment law settings.

**LER 437 Workplace Dispute Resolution (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines dispute resolution procedures in unionized and nonunion workplaces. The course begins with an examination of grievance procedures in unionized workplaces and the system of labor arbitration. Students will read labor arbitration decisions and learn how to research arbitration issues. The second major theme of the course is an examination of the design and use of nonunion workplace dispute resolution procedures. Students will read descriptions and analyses of examples of nonunion grievance procedures. Finally, the course will look at procedures for resolving employment law disputes and the major public policy debates surrounding mandatory nonunion arbitration procedures. Students will read some of the major legal cases in this area of the law and perspectives both for and against mandatory arbitration. A key objective of the course is to enable students to both understand and think critically about different alternative dispute resolution procedures and their role in employment relations. As part of achieving this objective, the course will include simulated dispute resolution exercises to provide students with experience in using techniques such as arbitration, mediation, and peer review. Additional course requirements include regular class attendance and participation, and paper assignments based on each of three main sections of the course. This course builds on and is complementary with other coursework in Labor and Employment Relations in the areas of employment relations, employment and labor law, and human resource management. It also compliments courses in other departments in the area of dispute management and resolution, including the Minor in Dispute Management and Resolution. LER 437 may also be taken as an elective by students in the MS in Human Resources and Employment Relations and compliments coursework in the graduate program.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: LER 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 444 Workplace Safety and Health: Principles and Practices (3)** The role of employees, unions, employers, and government in dealing with work-related safety and health issues.

**LER 444 Workplace Safety and Health: Principles and Practices (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Workplace Safety and Health: Policies and Practices focuses on the roles of employees, unions, employers, and government in addressing work-related safety and health issues. The course will introduce students to the three interrelated fields of workplace safety, workplace health, and environmental protection. Students will be provided with an overview of key issues within these fields and gain an appreciation for their importance within the workplace. Students will also become familiar with the fundamental concepts involved in the management of workplace safety and health issues.

LER 444 satisfies requirements within the Labor Studies and Employment Relations major and may be taken as an elective. LER 444 is complementary to other courses dealing with employee relations and legal principles within the workplace.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2013

Prerequisite: LER 100 or sixth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 445Y (US) (AF AM 445Y, PL SC 445Y) Politics of Affirmative Action (3)** Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

**LER (AAA S/PL SC) 445Y Politics of Affirmative Action (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The objectives of this course are to introduce students to the relationship between affirmative action and other policies purportedly designed to end racial inequality in the U.S. This course approaches the study of affirmative action in the context of the historic racial discrimination and inequality that Black Americans have faced since the founding of the Nation. The purpose of this course is to help students think about how contemporary and historic affirmative action policies relate to race, concepts racial inequality, the historic and continuing causes for racial inequality, public opinion, American politics and economic thought. The course materials will lead students through scholarly and popular articles, books and video presentations on the topic. It is hoped that students will become familiar with the history of affirmative action from its conception. Students will gain an intimate understanding of affirmative action economic and social outcomes on various racial groups. No prior knowledge is assumed, however a knowledge of civil rights history, quantitative methods, and constitutional law will be useful. The Politics of Affirmative Action satisfies the requirements for major and minor electives for the African American Studies, and major and minor electives for Political Science, and Labor Studies and Industrial Relations. Students are evaluated on the basis of an examination, term paper, class participation

and class presentations of papers.

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2012

Prerequisite: AAA S 100 level course and PL SC 001 or PL SC 007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 458Y (US) (HIST 458Y) History of Work in America (3)** A study of selected problems in the history of work in the United States, especially since 1877.

**LER (HIST) 458Y History of Work in America (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will address economic, technological, social, cultural and political aspects of employment and self-employment. Major topics of concern will include methods of producing goods and services, work time and working conditions, the composition of the workforce, the changing functions of managers of labor, the role of the state in shaping labor markets and regulating employment relations, the formation and operation of unions and other representative bodies, and the relation of work to the family and other social institutions. Course requirements include regular attendance and participation, three essay exams and one term paper of a minimum of 10 pages. The essay exams and term papers will serve as instruments for gaining a fuller understanding of the subject matter by directing the students to examine and discuss major substantive problems in the field. In addition, some students will undertake original research in primary sources, thereby learning something of historical research methods. Writing will be treated as a process; besides regular encouragement of students to submit a paper proposal and bibliography, a paper outline, a rough draft, and a final draft. In addition, they are advised that the instructor will read and comment on as many additional drafts as they care to submit.

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: HIST 021/HIST 156 or LER 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 459 Collective Bargaining in Professional Sports (3)** Students will learn how collective bargaining works in professional sports and how it compares to bargaining in other industries.

**Collective Bargaining in Professional Sports (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: 4th semester standing and LER 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 460 Human Resources Ethics (3)** Ethics of human resources management.

**LER 460 Human Resource Ethics (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed for students who have received an introduction to human resources management and would like to spend some time thinking about the ethics of using various human resources practices. Students will devise their own personal codes of ethics, review the codes of others, and apply them to human resources situations. The course has limited enrollment to ensure participation in class discussions. Course work involves class discussion and presentations, outside reading, written in-class and out-of-class assignments, group and individual projects. All students are required to have completed a human resources or personnel management course, because the course assumes knowledge of this material for the students to be able to evaluate the ethical implications of human resources management decisions.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Take one of the following courses: ARMY 402H P A 460HM 466MGMT 341MGMT 441NAVSC 402NURS 432PSYCH 281 3 credits in Labor and Employment Relations (LER) or Human Resources and Employment Relations (HRER)

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**LER 460 Human Resources Ethics (3) Ethics of human resources management.**

**LER 460 Human Resource Ethics (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed for students who have received an introduction to human resources management and would like to spend some time thinking about the ethics of using various human resources practices. Students will devise their own personal codes of ethics, review the codes of others, and apply them to human resources situations. The course has limited enrollment to ensure participation in class discussions. Course work involves class discussion and presentations, outside reading, written in-class and out-of-class assignments, group and individual projects. All students are required to have completed a human resources or personnel management course, because the course assumes knowledge of this material for the students to be able to evaluate the ethical implications of human resources management decisions.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Take one of the following courses: ARMY 402H P A 460HM 466MGMT 341MGMT 441NAVSC 402NURS 432PSYCH 281 3 credits in Labor and Employment Relations (LER) or Human Resources and Employment Relations (HRER)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 464 (OLEAD 464) Communication Skills for Leaders in Groups and Organizations (3) Theory-and research-based communication skills for leaders dealing with work-related problems in contemporary groups and organizations.**

**LER 464 Communication Skills for Leaders in Groups and Organizations (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

LER 464 Communication Skills for Leaders in Groups and Organizations is a survey of theory, research, and practice related to the communication processes by which individuals in groups and organizations exercise influence, whether or not they occupy positions of acknowledged leadership, and may be taken as part of an Labor and Industrial Relations major or minor, or as an elective by students in other disciplines. The course is offered once each academic year and has an enrollment limit of 40 students per offering. The course requires no special facilities. It extends to other courses in the major primarily in the areas of Industrial Relations and Human Resources. It is also complementary to courses focusing on groups and organizations in Sociology, Psychology, Management, and Engineering. During the course, students are exposed to a variety of theoretical perspectives on the study of leadership, learn about research illuminating its functions, and become acquainted with communication practices derived from and/or suggested by such theories and research that contribute to the exercise of influence and, thereby, effective group and organizational performance. These terminal outcomes define the objectives of the course. Focus will be on leadership as both role-related behavior and goal-directed behavior, regardless of roles that members of groups and organizations occupy.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 465 (OLEAD 465) Collective Decision Making (3) Application of theories of decision making to work-related issues in groups and organizations requiring collective resolution and action.**

**LER 465 Collective Decision Making (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course presents a broad overview of theories, research, and practices in decision making as related to work-related choice making in groups and organizations and is open to students majoring or minoring in Labor and Industrial Relations, as well as to students who may wish to use the course as an elective. The course is offered once each academic year and has an enrollment limit of 40 students per offering. It requires no special facilities. L I R 465 extends to other courses in the major, primarily in the areas of Industrial Relations and Human Resources. It is also complementary to courses dealing with decision making in groups and organizations in sociology, psychology, and management. Of particular interest are decision making practices, as well as theories that account for them, in single-motive situations (in which participants in the process are pursuing a common goal) and mixed-motive situations (in which two or more of the participants are competitively related, but must cooperate to achieve their objectives). Hence, the course deals both with (1) conventional decision making, as in the case of boards, task forces, problem-solving groups, and quality circles or teams, appropriate to single-motive situations and (2) processes, such as bargaining, negotiation, and dispute management/resolution, appropriate to mixed-motive situations. The course also deals with the influence of organizational culture on decision-making in both types of situations. Upon completing L I R 465, students will have been exposed to a broad array of theoretical perspectives on decision making in groups and organizations, will be familiar with research testing these theories, and be aware of decision making practices suggested by theory and research that are

useful in situations requiring collective choice and action. These terminal outcomes of the course reflect the objectives.

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 468 American Labor Unions (3)** Students will examine, debate and gain a fundamental understanding of the current state of the American labor movement.

### **American Labor Unions (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: LER 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 472 (WMNST 472) Work-Life Practices and Policies (3)** Explore the causes and consequences of conflicts between work, family, and other life commitments, and how these may be resolved.

### **LER 472 Work-Life Practices and Policies (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The interdisciplinary field of work-family and work-life developed as a result of middle-class women's entry into the labor force, a movement that generated conflict between family and paid work commitments. Overall, the course addresses the reasons the field developed, relevant theoretical perspectives regarding the issues, and related problems as well as proposed solutions at both the public and private sector levels. The overarching objectives of the course are to expand students' understanding of conflicts between work and family commitments, and how these might be resolved through private and public sector initiatives. Specifically, the course concerns how individuals, families, and organizations interact to help hinder the achievement of balance between work and life commitments, and relevant effects on those involved. The changing demographics of the family, laws and trends around working time, father and mother time with children, the expanded need for elder care, work-life programs such as flextime, concierge services, paid parental leave, part-time careers, paid time-off banks, and the role of unions, corporations and government legislation are covered. The course attempts to link the likely future needs of students to broader trends in society and how balance could be achieved at the level of individuals, families, other stakeholders in the community, and for society as well. Fields of research relevant to the course include labor studies, women's studies, Industrial/Organizational psychology, the sociology of work and of family, and child development. Students will be evaluated on the basis of class participation, through two in-class examinations, and through a final written or oral project providing a chronology and analysis of an adult's work-family history. The course is offered most fall and spring semesters, and typically 30 students are enrolled.

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008  
Prerequisite: 3 credits of LER

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 475H (GEOG 475H) Labor in the Global Economy: U.S. and South African Perspectives (3)** This course focuses on how the nature of work is changing in the global economy, and the implications for economic opportunity and inequality in both .

### **LER (GEOG) 475H Labor in the Global Economy: U.S. and South African Perspectives (3)**

This seminar focuses on how the nature of work is changing in the "new economy", and the implications for economic opportunity and inequality in both the United States and South Africa. Sections of the course examine: theoretical approaches to understanding contemporary process of labor restructuring, including globalization, rise of an information economy, and growth in service sector employment; case studies of restructuring processes in different industrial sectors in both the U.S. and South Africa; and innovative labor organizing initiatives at a local, regional and global scale. This course aims to develop a framework for understanding the nature of contemporary processes of economic restructuring and its impact on the world of work. Drawing on research in both a South African and U.S. context, key case studies in the changing nature of work will be examined. This will provide a deeper understanding of how broad macro-level changes in the nature of contemporary capitalism are mediated by a variety of technological, political, and socio-economic factors in particular industries and geographic contexts. Finally, an in-depth look at workers' responses to these changes at different scales (local, regional, global) will help deepen our understanding of the contested nature of workplace restructuring while exploring promising strategies for improving working conditions. This is a reading-intensive course dealing with the theoretical literature on rapid economic restructuring and how this is shaping work and employment. It is

run in collaboration with the Sociology of Work Program at the University of Witwatersrand in Johannesburg, South Africa, with video-conference discussions linking the two courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: A minimum of 12 GEOG or LER credits before taking the course (or the permission of the program).

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 480** Current Issues in Human Resources (3) Examines current issues in the field of human resource management, including innovative work schedules, telecommuting, non-traditional office environments, etc.

### **LER 480 Current Issues in Human Resources (3)**

Students will study the relevant human resources and strategic issues that affect businesses across all industries and how it relates to the strategic planning of the company. The course will provide real life examples and experiences. Students will study and discuss the strategies, innovations, and successes of companies and how these issues and challenges relate to the human resources function today and in the future. Timely books which are being read in companies and presented at seminars will be the required reading. Students will interact with guest speakers who will be executives and hear these experts share their strategies and ideas regarding the issues facing not only their organization, but all organizations today. This course will require students to integrate and apply knowledge from their previous coursework in human resources and labor relations. A student must know and understand the laws that relate to the work place and have a strong knowledge of the principles of management and labor relations. This course will serve as a compliment to Mgmt 100, 341, 441 and LIR 100, 201, 401 and 434. This course is intended for seniors who are in their final two semesters of study and are serious about pursuing a job in human resources and labor relations. Evaluation will be based on participation, exams, essays, and reaction papers.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: 3 credits of LER

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 485** The Business Side of Human Resources (3) Students will examine the interface between HR, the business model, and other aspects of the business organization.

### **LER 485 The Business Side of Human Resources (3)**

Students will have the opportunity to learn about important business issues in human resource management that will introduce them to the interface between human resources and other areas of the operation of a business. This course will focus on subject matter that will better prepare students for the broader role that human resource managers are being requested to play in terms of contributing to the profitability of their employers. In the investigation of the course material, students will be exposed to real life examples and experiences, interaction with outside human resource professionals and guest speakers that will broaden their understanding of the concepts learned in their previous course work in human resources and labor relations.

Some examples of the subject matter that will be addressed in this course are: Human resource and business ethics; Basic introduction of the interrelationship of human resources and business finance and accounting; Human resource metrics; Employment process; Leadership and relationship building; Communication in the workplace; Professional networking; Business etiquette; Human resource culture in business.

The course is best designed for senior and graduate students who have serious interest in pursuing employment in human resources and/or labor relations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: 6th semester standing and 6 credits of Labor Studies and Employment Relations

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 488** Career Development Seminar I (1.5) This course features an introduction to several useful career development resources, development of a personal profile of your career-related strengths and interests, exploration of career options, creation of a career development plan, and guidance for securing prospective internships and other relevant experiences.

### **LER 488 Career Development Seminar I (1.5)**

This course is the first of two 1.5-credit seminars designed to help students plan and launch their career in labor, employment relations, or human resources. This seminar features an engaging discovery-oriented approach to career

development that includes exploration of the world of work, students' personal needs and preferences, and strategies for finding an optimal match in the world of work. This experiential course immerses students in the process of charting their career path and preparing for success as a professional. This seminar fosters the development of practical career management skills that can be applied throughout the students' entire career.

This seminar, the first in the two-part series, will help students to chart an overall career track as a professional in labor, employment relations, or human resources. This course features an introduction to several useful career development resources, development of a personal profile of career-related strengths and interests, exploration of career options, creation of a career development plan, and guidance for securing prospective internships and other career development experiences.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: 4th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 489 Career Development Seminar II (1.5)** This course is the second of two 1.5-credit seminars designed to help LER majors launch their career in labor, employment relations, or human resources. Both seminars guide students through the process of charting their career path and preparing for success as a professional. This seminar focuses on helping students to cultivate their professional brand, plan a job search strategy, market themselves as a professional in the world of work, manage a variety of interview challenges, and strengthen key work habits that are valued by employers and essential to success as a professional.

#### **LER 489 Career Development Seminar II (1.5)**

This course is the second of two 1.5-credit seminars designed to help LER majors launch their career. The first seminar in the series is targeted toward juniors, while the second is designed for seniors. Both seminars guide students through the process of charting their career path and preparing for success as a professional.

This seminar requires students to complete specific career development activities and then complete reflection and application exercises related to those activities. Utilizing a discovery-oriented approach, this course helps students to cultivate their professional brand, plan a job search strategy, market themselves as a professional, manage a variety of interview challenges, and strengthen key work habits that are valued by employers and essential to success as a professional. The course incorporates services offered by Penn State Career Services and the Liberal Arts Career Enrichment Network.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: LER 488

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**LER 495** Labor Studies Internship (1-12) Supervised practicum in labor relations setting with union, management, or government agency.

**Labor Studies Internship (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: prior approval by department

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 497A** International Human Resource Management (3) International Human Resource Management builds on the foundations of human resource management (HR) by considering what this concept means in different countries around the world. As organizations become increasingly international, issues of national culture and institutions can often stand in the way of a seamless progression of HRM across national boundaries. From a cultural perspective, the course compares how people in different countries see themselves and others around them, and how expectations, values, and beliefs can differ. From an institutional perspective, it compares how national level legislation, state intervention, trade union influence, and the respective power of shareholders versus stakeholders all impact on patterns of HRM practices in different countries.

**International Human Resource Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 497B** Leadership Development: A Life-Long Learning Perspective (3) The course examines the continuing influence of social and environmental factors in shaping leadership and leadership development.

**Leadership Development: A Life-Long Learning Perspective (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 497C** Career Development Seminar II (1.5) This seminar will help students to position themselves for a successful career as a professional in human resources, employment relations, or labor. This seminar focuses on helping students to launch their career by prioritizing potential employers and promoting yourself as a strong candidate for a career path and



positions that match their interests and strengths. Students will discover proven techniques for marketing themselves through their resume, correspondence, and screening interviews. This seminar includes guidelines for managing behavior-based interviews, strategies for showing prospective employers and recruiters how they can meet their needs and add value. The course also offers useful tips for negotiating offers and compensation packages as well as suggestions related to planning for graduate or professional school.

**Career Development Seminar II (1.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LER 499 (IL)** Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Landscape Architecture (LARCH)**

**LARCH 060 (GA;US;IL)** History of Design on the Land (3) A survey of the historical development of outdoor space in relationship to allied arts from early beginnings to this century.

**LARCH 060 History of Landscape Architecture (3)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

LARCH 060 is an introductory survey course of the historical development of designed outdoor space in relationship to the allied arts from early beginnings to present day. Although the profession of architecture was not named until 1858, with the award-winning design of Central Park by Frederick Law Olmsted and Calvert Vaux, the art of design on the land has been practiced since the beginning of time. It is the creation of human environments, inevitably expressing the creator's perception of the relationship between humanity and nature.

As with all art, the design of outdoor spaces reveals a culture's beliefs, values, and aspirations. If one studies design in different cultures and time periods, one can learn a great deal about that society. One can also begin to see history holistically, to detect trends, to relate yesterday to today, and to question the present and future. In the course we explore the outdoor spatial designs of history, with emphasis upon what these designs reveal about cultural attitudes toward nature, humanity and art. While we will address middle and far-eastern landscapes, the course focuses upon western civilizations with the second half focusing on American landscapes.

The objective of this course is to present a concise analysis of the design of outdoor space with special emphasis on American design from 1800 to date. It is hoped that students will gain an increased awareness of landscape architecture as an art, and of their own built environment as a product of cultural values.

Grades are based upon three examinations: two during the course and one during final exam period. Each examination is worth 33 1/3% of your final grade. Each exam will consist mostly of multiple-choice questions some of which may be based on slides; there may also be short answer questions. The specific format will be announced prior to each exam. Both lecture content and reading packet material will be covered on the exams. Computer tutorials are available and designed to aid in your understanding of the reading packet. As well, the lectures are taped and are available for review through the University's Classroom Recording unit. To further aid you in understanding course content, a study guide will be posted every week at the web address.

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 065 (GA;US;IL)** Built Environment and Culture (3) Investigates the relationship between socio-cultural practices and the development and organization of contemporary built environments.

**LARCH 065 Built Environment and Culture (3)**  
**(GA;US;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This interdisciplinary course is based on the premise that space is an active structuring element of human experience. Using theoretical orientations from landscape architecture, architecture, urban planning, geography, sociology, and cultural anthropology this course will investigate how social structures are spatially embedded in contemporary built environments. It will do so by examining environments at three scales (house, street, and city) in different parts of the world. It will explore both western and non-western environments with emphasis on environments that students are likely to be unfamiliar with. Within each scale and region it will focus on the spatial experience of different groups based on racial, ethnic, gender, class, and other identities.

This course will equip students with the necessary skills to understand and analyze the relationship between existing social and power structures of society and the organization of specific built environments. It will enable them to compare their experience of environments with those of other groups in society. It will also introduce students to the aesthetics of everyday environments in both national and international contexts. There are no prerequisites for this course. This course will complement LARCH 060 and other courses related to human settlements and urbanization offered by various departments/programs like Architecture, Art History, Geography, History, and Sociology.

Students will be evaluated through low stakes testing (a series of three exams), frequent quizzes, leading of discussion sessions, and a group project. Peer evaluation will also be part of the final grade.

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 097 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 112 Introductory Design Studio (3)** Provides students with an interdisciplinary introduction to studio work in landscape design.

**LARCH 112 Introductory Design Studio (3)**

This course provides an introduction to landscape design. Students will create studio work that investigates, from a variety of disciplinary understandings, basic issues and problems in the arts and design disciplines. The course is thematically linked to LARCH 121S: Landscape Architecture Orientation Seminar taken in the preceding semester and will be team-taught to provide an interdisciplinary structure. This course will foster interdisciplinary awareness and provide students with a common language (or several common languages) with which they can communicate with other students in the design disciplines. Ways of learning about design through projects and assignments that incorporate various technologies will be included in the course. The course will integrate a variety of methodologies and approaches rather than teach discipline-specific subject matter.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011

Prerequisite: admission into the Department of Landscape Architecture LARCH 121S and LARCH 151

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 121S Landscape Architecture Orientation Seminar (1)** Introductory seminar involving readings on significant issues in landscape architecture. LARCH majors only.

**LARCH 121S Landscape Architecture Orientation Seminar (1)**

LARCH 121S is a seminar course, the first of many in an entering student's Penn State career. Seminar classes offer the opportunity to read, think, share ideas through informal discussion, and refine personal thoughts reflection. The seminar is a common and useful tool to explore important ideas and develop critical thinking skills. The design and theory sequence begins with the freshman seminar, LARCH 121S, which introduces students to landscape architecture issues.

In this seminar students read and discuss the challenges and opportunities faced by contemporary landscape architects. This is the first of a ten-seminar sequence addressing theory and issues. As an introductory course, LARCH 121S is a "stand-alone" seminar - all those in the professional core of the program are linked to design studios.

To support student explorations, the class undertakes a series of readings of seminal works in landscape architecture and allied field that students carefully consider, question, and discuss. As a major part of student evaluation, they maintain a journal of their evolving ideas about the course content.

Entering landscape architecture majors sometimes have a restricted notion of the wide variety of career directions that face them within the field of landscape architecture. This class proposes that the principal role of the landscape designer and planner is to make "place" - a combination of physical, cultural and compositional cues that imbue built and natural forms with meaning. The goal of this first-year seminar class is for students to understand the type, or types, of place that landscape can be. The course introduces students to concepts of landscape as place, and asks them to ponder, explore, and respond to ideas about various perspectives on landscape "place." This introduces them to the broad range of issues and activities that are addressed in the seemingly simple term, "landscape architecture."

**Course Objectives:**

- a) To become familiar with important issues in contemporary landscape architecture.
- b) To exercise and hone skills in critical thinking.
- c) To exercise and hone skills in speaking and writing persuasively.
- d) To begin to explore roles as future "place makers."

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 151** Introduction to Design Visualization (3) Provides students with an introduction to visualization techniques for landscape architectural design and planning.

**LARCH 151 Introduction to Design Visualization (3)**

The complexity and scale of most design projects and the collaborative nature of design work necessitate the use of graphic images to develop and communicate design ideas from the very early conceptual stage to the final construction documents. These "design drawings" are an integral part of the problem solving and design process. They require a good eye, a creative imagination and a skilled hand.

Developing skill at design drawing and visualization starts with an understanding of basic concepts of seeing, perception, and principles of communication. It requires becoming familiar with and skilled at using a graphic vocabulary of drawings and symbols that are commonly used in the design disciplines to communicate with one another. And of course, although concepts and theory are important, practice is essential. As Paul Laseau says in *Graphic Thinking For Architects And Designers*, "The knowledge that drawing and thinking are important to [landscape] architecture is not sufficient. Natural drawing talent is not enough. To sustain the necessary lifetime effort of learning and perfecting graphic thinking, we need to find pleasure in drawing and thinking." The goal of this course is for students to begin developing their visual communication skills using a range of media and to start on a "lifetime effort" of enjoyable and productive graphic thinking and communication. Both concepts and techniques will be stressed.

Students work on exercises that develop facility with basic conventions. The tools and principles introduced in this class feed directly into the more advanced and computer-aided visualization and presentation methods emphasized in the following class, LARCH 251: Design Visualization and Graphics I.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: admission into the Department of Landscape Architecture

Concurrent: LARCH 121S

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**LARCH 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 211** Design and Theory I: Introduction to Principles of Landscape Architectural Design (4) An introduction to design theories and principles of landscape architecture. LARCH majors only.

**LARCH 211 Design and Theory I: Introduction to Principles of Landscape Architectural Design (4)**

LARCH 211 is the first of a four-class sequence of design studios at the core of the professional design program. The design studio is an active learning setting where principles discovered in lecture or seminar classes are subject to experiments in the form of design projects. In this setting, central class setting where solutions to complex problems are synthesized and tested, based on information gathered in earlier and concurrent classes. Whereas, the theory classes and studios of the Arts and Architecture Core Curriculum, A&A 101, 102S, 103, and 104, address broad themes and principles in the arts and design, LARCH 211 is focused on landscape architectural design.

Landscape architectural principles and issues are introduced through design explorations and projects, associated lectures and field trips, and corollary readings and reading discussions - the latter developed through the companion seminar, LARCH 221. As the curriculum progresses, the principles introduced (or expanded upon) become increasingly complex and build upon prior studio content.

The second-year design and theory studio and seminar content is introductory in nature. The fall semester (LARCH 211 and 221) covers basic spatial design concepts such as introduction to precedent, landscape design processes and elements, ordering principles, and is focused on design using the palette of landform, plants and structure. The studio project types are small in scale and relatively abstract. They introduce place-awareness design and focus upon small landscape spaces and the placement of objects in the landscape, both built and natural.

**Course Objectives:**

- a) Achieve working knowledge of the three critical building blocks that will underpin the student's future design experiments: space, experiential function, and intent.
- b) Acquire a working knowledge of spatial composition - both the vocabulary and the design impact of compositional elements and principles.
- c) Develop an introductory understanding of the space making potential of vegetation, landform, and structure.
- d) Gain experience in model building and understanding of its usefulness in spatial design.
- e) Develop the student's skills in design criticism.
- f) Introduce the iterative process of landscape architectural design, including the importance of independent design decision-making based on a variety of criticism.
- g) Experience visual note taking and understand its usefulness in the design process.
- h) Develop the habit of self-reflection about the individual's design process.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: LARCH 112  
Concurrent: LARCH 221

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 212** Design and Theory II: Introduction to Issues of Place (4) Studio design addressing issues of nature and culture; application of theories, processes, and presentation methods learned in course and concurrent courses. LARCH majors only.

**LARCH 212 Design and Theory II: Introduction to Issues of Place (4)**

LARCH 212 is second of a four-class sequence of design studios at the core of the professional design program. The course follows LARCH 211 and continues to develop the fundamental concepts and basic skills of landscape architectural design. The particular emphasis of this class is on introduction to site analysis encompassing both natural and cultural elements of place. The studio project types are small to moderate in scale and have basic programs. In many cases, second-year site design projects include community projects (i.e. parks) with real human issues and sites. Group discussions and critiques will be important activities in the studio.

This course will build upon the ideas explored in LARCH 211 of composition with the basic design elements (landform, vegetation, structures) of landscape design and the ecology of site from LARCH 241. Via a series of studio projects, charrettes (intensive applied workshops) and field trips, LARCH 212 will engage students with design challenges on real sites in the State College/University Park community. Students will be challenged to develop the comprehensive

understanding of site and activities (program) required to become an effective landscape architect. Included in the most important parts of that comprehension are natural, social, historical, and aesthetic site conditions; functions, activities and program requirements; site and community context; and relevant design concepts, theories and examples.

The subsequent challenge for students will be the development of design processes necessary to integrate site and program understandings into unified, successful design.

Course objectives:

- To explore the iterative and self-critical design process essential to all design activities.
- To clearly and effectively communicate design proposals, graphically and verbally.
- To master graphic techniques and composition needed for competent presentation.
- To practice written and oral presentation skills, culminating in public presentation of student designs to audiences including community representations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: LARCH 211 LARCH 221 LARCH 251

Concurrent: LARCH 222

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 221 Design Theory Seminar (1)** Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 211.

**LARCH 221 Design Theory Seminar (1)**

Each of the four design studios that constitute the core of the professional curriculum has a companion seminar that provides the vehicle for structured exploration of the theoretical and philosophical framework within which we design and plan. The seminar is a small group setting where directed readings, independent research and reflection are employed to explore the context of contemporary design.

LARCH 221 is the first of a four-class sequence of design seminars. LARCH 221 is focused on landscape architectural design.

Landscape architectural principles and issues are introduced through studies of design precedents, corollary readings in the sociological, psychological and cultural contexts of design and small-group discussions - the latter frequently related to topics under investigation in the companion studio, LARCH 211. As the curriculum progresses, the issues explored become increasingly complex and build upon prior seminars.

The second-year theory seminar content is introductory in nature. The fall semester (LARCH 221) covers introductory writings addressing the broadest principles of landscape design processes, discussions of fundamental ordering principles, and philosophical positions on the interrelationships of landform, plants and structure. They introduce place-awareness through concepts such as genius loci, ordering principles such as the golden section, and experiential responses to landscape from phenomenological viewpoints.

Course Objectives:

- To become familiar with important issues in contemporary landscape architecture.
- To exercise and hone skills in critical thinking.
- To exercise and hone skills in speaking and writing persuasively.
- To begin to explore the issues that impinge upon and shape "place."

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: LARCH 112

Concurrent: LARCH 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 222 Design Theory Seminar (1)** Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 212.

**LARCH 222 Design Theory Seminar (1)**

LARCH 222 is the companion seminar to the design studio LARCH 212. The seminar is a small group setting where directed readings, independent research and reflection are employed to explore the context of contemporary design. Topics in LARCH 222 reflect the projects being explored in the companion studio but, in general, move beyond exploration of basic design concepts to include an emphasis on both natural and cultural elements of place and provides essential background to the processes and principles of site analysis in as much as those reflect the technological and cultural biases that are brought to design.

Landscape architectural principles and issues relevant to the design topics being pursued in LARCH 212 are introduced

through studies of design precedents, corollary readings in the sociological, psychological, and cultural contexts of design and small-group discussions - the latter frequently related to topics under investigation in the companion studio, LARCH 212. As the curriculum progresses, the issues explored become increasingly complex and build upon prior seminars.

The second-year theory seminar content is introductory in nature. The spring semester (LARCH 222) continues to cover introductory writings addressing the broadset principles of landscape design processes, discussions of fundamental ordering principles, and philosophical positions on the interrelationships of landform, plants and structure - increasingly in the context of the design types being explored in LARCH 212. They introduce place-awareness through concepts derived from sociology, social psychology and cultural anthropology.

**Course Objectives:**

- To increase familiarity with important issues in contemporary landscape architecture.
- To continue to develop skills in critical thinking.
- To continue to build skills in speaking and writing persuasively.
- To bring focused attention to the issues that impact the design of small, private and public spaces.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: LARCH 211/LARCH 221

Concurrent: LARCH 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 231 Introduction to Design Implementation (3)** Introduction of basic principles and tools supporting landform data, site systems, grading, visualization representation and site circulation.

**LARCH 231 Introduction to Design Implementation (2)**

As an introductory design implementation course, this course provides the foundation for site design in landscape architecture. At the core of the course are four general bodies of knowledge: Geometrics, Landform Manipulation, Site Systems, and Computer Applications for Site Analysis and Design.

**Geometrics:** In order to perform landform manipulation, students must be able to efficiently acquire and process basic physical information about a site and are required to understand a suite of measurements. This course will first provide an overview of the digital and paper data sources available to landscape architects. Students will develop basic skills in manipulating or processing these data in order to comply with the requirements of site design. The course will also provide the basic measurements and formulae required for students to efficiently and accurately manipulate landforms.

**Landform Manipulation:** One of the most critical skills landscape architects must acquire as designers is the ability to design landforms to accommodate changes in use and to translate their design ideas into dimensionally precise topographic representations of their designs. This course provides the basic knowledge for students to complete this process. Beginning with a single site element, students are expected to explore the suite of opportunities to place and modify a site to fit a single site element. Increased complexity is added to the suite throughout the remaining portions of the semester, thus enabling students to balance the opportunities and constraints presented by each individual design element and the overall site design.

**Site Systems:** Building on ecological components of the curriculum, this course provides the first site specific and physical understanding of basic site systems critical to every landscape architect's design. Students will primarily focus on the major site features as related to site drainage, such as soil, topography, and surface geology, but will also be expected to recognize regional context in their designs.

**Computer Applications for Site Analysis and Design:** A central component underlying the instruction of the course is providing students with a suite of computer tools.

**Course objectives:**

- a) To assist in initial efforts in acquiring and processing site data;
- b) To perform calculations such as cut and fill, spot elevations, and slope calculations;
- c) To visualize and complete basic manipulation of landforms;
- d) To understand the interaction of physical site features on individual sites (e.g., soil and topography); and
- e) To communicate their final site designs according to professional standards

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: LARCH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 241 Ecological Principles for Landscape Design (3)** The development of basic ecological knowledge that becomes the basis for sensitive ecological design.

**LARCH 241 Vegetation Ecology and Landscape Design (3)**

Landscape architecture is so thoroughly in and of the environment that ecological concerns permeate every aspect of practice. Students encounter ecological concepts throughout the curriculum, in the context of social and cultural systems and ecologies as well as the more familiar natural system ecology. The curriculum's entry-point to considering ecology as a fundamental shaper of design and planning is LARCH 241, Ecological Principles for Landscape Design, which introduces students to the basic concepts in ecology such that they will be able to apply ecological knowledge in landscape design and management.

The course focuses on basic ecological principles and concepts at all scales, with special emphasis on the small-scale site and the larger, regional-scale landscape. Key concepts explored in the class include: population, community, ecosystem and landscape. Students will learn the characteristics of healthy ecosystems and will begin to cover the adverse impacts that can result from failure to apply sound ecological principles in design and planning. The principles learned in this class provide the foundation for later explorations that include responses to overlying patterns of human land use and development.

The course achieves the above through a variety of learning activities. The core of the class comprises traditional assigned readings and lectures delivered in the classroom (copies of the readings and PowerPoint slides from lectures are available on-line on ANGEL). The class also includes numerous field experiences, both in the immediate campus area and the close-by off-campus locations. The instructor leads several different types of field experiences - some oriented to ecology and restoration, others focused on natural history and site comprehension.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: LARCH majors only or permission of the program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 251 Design Visualization and Graphics I (3)** Advanced visualization principles and techniques; computer-aided design, image processing, color theory and application; visual thinking and problem solving. For Landscape Architecture majors only.

### **LARCH 251 Design Visualization and Graphics I (2)**

The products of landscape architectural design and planning are inherently visual, and our visual sense is most important in assessment and evaluation of the qualities the environment, or future environments, presents to us. Direct illustration of the world is traditionally accomplished through tools and approaches such as hand-sketching and figure drawing, and draws upon understandings of color theory and perspective.

Increasingly, those tools are being supplanted by computer-based tools, especially as the representation of future scenarios becomes a bigger part of community and professional decision-making processes. Technical drawing is increasingly supplemented by visual simulation, modeling, animation and other advanced techniques.

While visual communication is tightly woven into the heart of design and planning studios, LARCH 251 provides students with an introduction to several types of hand drawing and computer-aided drawing and animation techniques. Students work on both basic drafting conventions and more creative graphic-rendering techniques. The tools and principles introduced in this class are used extensively throughout the program. Computer-aided visualization and presentation methods are emphasized, including the fundamentals of 2-D and 3-D illustrative rendition.

Course Objectives:

- Achieve working knowledge of basic illustration principles: line, color, shading, perspective.
- Master the basics of 2-D and 3-D representation in both hand- and computer -media.
- Acquire a working knowledge of spatial composition and its expression through both traditional and computer-based media.
- Develop an introductory understanding of data formats for computer illustration and modeling, and the integration of multiple data types and formats into presentations.
- Gain experience in 3-D computer model building and understanding of its usefulness in spatial design.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: LARCH 151

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 272 Landscape Architecture Field Trip (1)** A week-long class trip to visit recent projects, offices, and outstanding historical developments.

### **LARCH 272 Landscape Architecture Field Trip (1)**

During their first and second years in the landscape architecture program, students are introduced to ways of looking at the landscape that are quite new to them—to look at the visible landscape as representation of its past cultural, political, bio-physical, and geological influences. Through design studios and methods classes, students have been exposed to design approaches addressing aesthetic and experiential goals, and to others that employ engineering strategies for land

shaping and management of water resources. They have taken general education classes that focus on soils, history, cultural geography and communications. The second year ends with a field trip that places students in settings where all of these influences are seen at work together and asks them to reflect on that integration of influences. The trip emphasizes the importance of regional context and diversity by traversing a cross-section of physiographic regions of the Mid-Atlantic States—typically from the Maryland shore to the edge of Lake Erie.

LARCH 272 is a one-credit course that serves to immerse students in an understanding of how diverse influences, some planned, others not, coalesce to form the vital changing landscapes of the Mid-Atlantic region. The course comprises a field trip to representative ecosystems across the physiographic regions of New Jersey and Pennsylvania, linking the Mid-Atlantic and Great Lake geographic regions. Through hiking, canoeing and driving, students experience selected physical, biological and spatial conditions in these landscapes in order to compare and contrast their origins, processes, structures and patterns, and potentials for landscape design and planning.

**Course Objectives:**

- To become familiar with notable regional ecosystems;
- To experience, record and respond to representative sites;
- To trace the connection between physical and biological processes and plant communities
- To understand these sites as dynamic and beautiful places that are concurrently being nurtured and threatened by humans;
- To relate these experiences to landscape design, planning and management

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: LARCH 241

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 311** Design and Theory III: Regional Planning and Landscape Systems (4) An introduction to site planning, management, and design.

**LARCH 311 Design and Theory III: Site Planning and Design (4)**

During the third year of this professional curriculum, design and theory references build upon the second-year experiences and expand to both broader (regional ) and more detailed (site) investigations. The fall semester design studio and seminar classes (LARCH 311 and 321 respectively) cover regional context as a preamble to large-scale master



planning.

LARCH 311 considers the broader landscape and systems within the landscape. There are two very good reasons to learn to work at the broader landscape scale: to make informed planning, design and management recommendations at that level, and to enlighten site-scale design with a regional perspective. Students begin exploring ways to understand and address issues of regional context before focusing on local-scale site design in the spring semester. Projects from the fall include an emphasis on regional analysis, site and program analysis, and site design in the regional context. Studio work involves research and report writing and medium- to large-scale projects where site design and program are directly influenced by regional factors. Topography, geomorphology, land use, transportation, regional ecology, demographics, landscape history, visual analysis, etc., are introduced, all bound into current technological formats using such tools as Geographic Information Systems.

Students explore ideas about landscape-scale conservation, linkages and recreational programming - important types of regional-scale work with which landscape architects are involved. They apply knowledge of the landscape in considering public planning, design and management interventions, including exploration of alternatives for landscape conservation and recreation. Students become involved, through community outreach projects, with interactive and real (e.g. sometimes messy) public dialogue that may help build community-wide enthusiasm for a landscape project of regional significance.

#### Course Objectives:

- To further student understanding of place and landscape experience as an interaction of those features and processes at the human scale.
- To introduce students to basic approaches and techniques for analyzing landscape systems and features as a primary basis for identifying issues and discovering design and planning opportunities.
- To introduce Geographic Information Systems (GIS) as a primary tool in regional analysis and planning, and to integrate GIS into a broadly based approach to managing data, developing concepts and communicating ideas.
- To develop student ability to use landscape and spatial data as the basis from which to draw conclusions and identify opportunities and actions.
- To continue to develop skills in integrated oral, verbal and graphic communication.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: LARCH 241LARCH 212LARCH 222

Concurrent: LARCH 321

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 312 Design and Theory IV: Site and Community Design (4)** An introduction to master planning and community design. For landscape architecture majors only.

#### **LARCH 312 Design and Theory IV: Site and Regional Planning (4)**

In the spring semester of the third year, LARCH 312 and 322 continue the students' progress in working with regional contextual factors, but with an emphasis on site design at a variety of scales. Project types include a progression from small- through large-scale design with increasingly complex programs, human issues, and ecological parameters. Implementation is strongly integrated into this site-design context. This class constitutes a capstone to the professional core of the curriculum and accomplishes the first comprehensive integration of the student's technical and communication skills, their ecological and socio-cultural knowledge, and their developing skills as designers.

LARCH 312 directly references the understanding of the regional context from the preceding LARCH 311 to take students into community master planning issues. An introduction to those issues and the issues of sprawl and landscape history then allows a transition to community form and housing-type topics. In this class, students gain an understanding of designing communities and everyday human habitat - at several scales, including the interrelationships of natural, cultural and economic factors on the past, present and future development of communities. They develop awareness that even small, individual site design requires an understanding of larger environmental and cultural contexts. To this end, they learn to assess physical and cultural geographies at regional and local scales and their implications for community design at the site scale.

#### Course Objectives:

- To further develop expertise in the analysis and assessment of the natural, cultural, social and experiential facets of sites and their surroundings.
- To refine understanding of the role of data gathering, research, and analysis in design.
- To explore issues of land use planning and develop an understanding of logical interrelationships among different land uses.
- To develop skills in meshing the attributes of a site with the expectations of a program and the feature of actual buildings.
- To practice and refine site design skills, from functional/technical aspects (building location, circulation, orientation, drainage, grading, planting, materials) to experiential facts (spaces, sequences, view, character).
- To practice and refine skills in place making, drawing upon local context, site, and program to create a responsive and memorial design.
- To enhance confidence and skill in developing a design vision through independent design decision-making.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: LARCH 311LARCH 321

Concurrent: LARCH 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 321 Design Theory Seminar (1)** Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 311.

### **LARCH 321 Design Theory Seminar (1)**

LARCH 321 is the companion seminar to the design studio LARCH 311. The seminar is a small group setting where directed readings, independent research and reflection are employed to explore the context of contemporary design.

Topics in LARCH 321 reflect the projects being explored in the companion studio. During the third year, theory references build upon the second-year experiences and expand to broader regional investigations. The fall semester (LARCH 311 and 321) covers regional context as a preamble to large-scale master planning in land-use issues. In the seminar, students read broadly about the genesis of regional context as a construct of cultural, as well as biophysical influences. The concept of "reading" the landscape is fully explored, introducing students to the clues and cues by which the origins of the existing landscape can be discerned.

Themes in the third-year theory seminars become increasingly sophisticated. The regional landscape is the setting for some of our most pressing public debates - landscape restoration vs. agro-industry; landscape as economic resource vs. spiritual renewal; landscape as repository of cultural history vs dynamic reflection of current values. These themes are explored through readings that include the fundamental influences of topography; geology; regional ecology and hydrology; the human overlays of land use; transportation; demographics; and the cultural influences and responses seen in landscape history, cultural and visual analysis, etc., are introduced.

#### **Course Objectives:**

- To explore the political and philosophical influences that shape the regional landscape.
- To expose students to important debates on the future of the regional landscape.
- To continue to develop the ability to engage in public debate of these issues.
- To continue to build skills in speaking and writing persuasively.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: LARCH 241LARCH 212LARCH 222

Concurrent: LARCH 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 322 Design Theory Seminar (1)** Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 312.

### **LARCH 322 Design Theory Seminar (1)**

LARCH 322 is the companion seminar to the design studio LARCH 312. The seminar is a small group setting where directed readings, independent research and reflection are employed to explore the context of contemporary design.

Topics in LARCH 322 reflect the projects being explored in the companion studio. During the third year, theory references build upon the second-year experiences and expand to broader regional investigations. The spring semester (LARCH 312 and 322) covers site design issues within a regional context. In the seminar, students gain an understanding of communities and the complex of values that shape them, including the interrelationships of natural, cultural and economic factors on the future development of communities. Habitat management, watershed management, real-estate values, zoning and planning ordinances, individual and community rights are topics of discussions in this seminar.

Students develop awareness that even small, individual site design requires an understanding of larger environmental and cultural contexts, and that success in planning at that large scale depends on implementation of wise planning at the site scale. Readings and discussion are supplemented by research and report writing that address contemporary debates on policy and planning.

LARCH 322 also provides a setting for joining ideas presented in the context of both small-scale and large-scale design to engender in students a comprehensive view of the world of landscape design as an integrated whole where concepts developed at small scale become the framework and guiding principles for larger scale, vice versa.

#### **Course Objectives:**

- To explore students' values as they shape the designed landscape.
- To expose students to important debates on the future shape of the inhabited landscape.
- To continue to develop the ability to engage in public debate of these issues.
- To continue to build skills in speaking and writing persuasively.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: LARCH 311/LARCH 321

Concurrent: LARCH 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 331 (IL) Landscape Architectural Design Implementation I (3)** Introduction to landscape construction materials and their use in design; includes principles and techniques for detailed design of site elements. For Landscape Architecture majors only.

### **LARCH 331 Landscape Architectural Design Implementation III (3)**

The landscape architect calls upon a rich array of materials to construct the built elements of landscape—walls, ground surfaces, overhead structures and furniture systems. The functional success and durability of many historical and traditional construction methods is based on a learned appreciation of the qualities and behaviors of materials in use in the landscape. Students develop understanding of the fundamental structural qualities of materials and use that knowledge to devise and illustrate their own design details. The same understanding of material behaviors will be used to investigate the qualities of novel construction materials, and will guide the development of construction details that respond to new constraints and opportunities.

The main focus of 331 will be on materials and construction detailing, with emphasis on techniques appropriate for an array of design situations. Representation of design ideas using computer-aided-drafting is expected in this class.

Lecture topics:

- Material qualities; physical, chemical, structural
- Construction details and specifications
- Control of moisture penetration
- Issues of health, safety and welfare (danger, security, observation)
- Design behavior / people spaces
- Site furniture—selection, layout etc.
- Site layout/staking plan
- Paving—patterns and materials
- Fountains and water features
- ADA and Universal Design
- Trees in Urban Design
- Material selection in the urban environment
- Outdoor lighting
- Public art and sculpture
- Stairs, walls and elevation changes
- Sustainable design and construction
- Site utilities

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: LARCH 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 332 Landscape Architectural Design Implementation II (3)** Introduces the principles and techniques of planting design, including instruction in proper construction documentation. For Landscape Architecture majors only.

### **LARCH 332 Landscape Architectural Design Implementation II (3)**

Plants and planting design are critical elements of the education of a landscape architect. LARCH 322 is designed to develop students' appreciation of plants in the landscape while advancing knowledge and skills in planting design, techniques, and documentation as a distinct-but-integral part of the landscape development and stewardship process. The focus of the course on both plant association and individual species will continue to consider the landscape architect's palette, as well as the realities that sustain life on and around a landscape site. The class constitutes the third part of a sequence of LARCH 241, 341 and 332 that provides a comprehensive introduction to plants in their role within the ecosystem, as naturally occurring and interdependent plant communities, and in this third class as the representation of deliberate design decisions that seek to achieve the integrity of the natural systems that inspire them.

This practical step-by-step studio-format course will enable students to see plants less as simplistic design objects and more as complex living elements that grow, die and regenerate, that are inherently part of larger biophysical and aesthetic landscape systems, and that ultimately contribute to the quality of human life.

Course Objectives:

- Confirmation of planting objectives within the context of the given overall project goals.
- Analysis of the site and its context from the interrelated perspectives of general planting design principles and site-specific planting design objectives.
- Application of the given planting program that reflects project goals and site analysis.
- Research and development of a planting palette and demonstrated implementation of approaches to sustainable plant

communities, with emphasis on soil-plant relationships, microclimatic and vegetation management considerations.

- Conceptualization, studio critique, and refinement of a planting design through the application of planting design principles: spatial, visual/sensory, ecological, horticultural, functional, and educational.
- Preparation of a refined and realistic working drawing package using computer-aided- drafting that includes planting plans, installation details, plant establishment notes, and other directions to the contractor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: LARCH 331/LARCH 341

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 341 Plants, People and Place: Plants in Landscape Architectural Design (3)** The ecological, historic, and aesthetic values of native and ornamental herbaceous and woody plants and their use in landscape design.

### **LARCH 341 Plants, People and Place: Plants in Landscape Architectural Design (3)**

LARCH 341 is concerned with the key roles of plants and plant communities in the design, planning and management of the land. Students study the ecology and dynamics of native communities including plant geography, plant/soil/water relationships, plant community succession, forest ecosystem dynamics, plant/wildlife relationships, invasive non-native plants, and landscape restoration. Another focus of the course, bearing upon the role of plants in creating place, will be to study the cultural history and human ecology of the use of native and non-native plants. The course will also address the management and protection of sensitive native plant communities, the value of plants in the management of storm-water and the protection of soil resources, and the critical role of plants in sustainable design.

The design suitability of native and non-native ornamental woody and herbaceous plants will be studied through fieldwork, case studies, hand and computer rendering, and digital and photographic resources. Students will study plant taxonomy and the use of identification keys. Using these tools, they will be expected to develop a personal handbook of planting design resources, including an illustrated collection of plant species characteristics, based on their field work experiences, for use in later courses and professional practice. They will record their observations on the cultural values and meaning of plants, as well as their uses in design. This course is part of the preparation for later courses in planting design in the landscape architecture professional curriculum.

Planting design is shaped by the availability and distribution of woody and herbaceous plants and seeds. Students will be provided an overview of the processes of production, installation and management of plants in the landscape, with special reference to regionally native materials, and including visits to nurseries, greenhouses, and seed production farms as well as guest speakers from horticulture and agronomy. Methods of plant and seed installation will be reviewed and field trips to landscapes under construction will be arranged in order to observe those processes directly. The use of mulches, geo-textiles, mycorrhizal inoculation, soil management and amendment, site protection, and arboricultural protection in the establishment and management of contemporary landscapes systems will be studied.

#### **Course Objectives:**

- a) To develop an understanding of the functional and ecological contribution of native and non-native plants and plant communities to the contemporary landscape.
- b) To explore such areas as bioremediation and hydrology
- c) To expose students to the therapeutic values of plants and plant communities
- d) To investigate the use of vegetation in noise and pollution control

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: LARCH 241

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 361W Historic Issues in Landscape Architecture (3)** A review of design history (precedent studies), an introduction to historic method, history as an informant to design, reading the historic landscape, and issues of preservation and restoration. Landscape Architecture majors only.

### **LARCH 361W Historic Issues in Landscape Architecture (3)**

LARCH 361W, Historical Issues in Landscape Architecture, is a writing-intensive course that enables a more thorough investigation of historic issues as they relate to design. The dual goal of this course is to introduce students to a variety of ways that landscape architects address and use history in their work, and to develop their skills in verbally communicating ideas on this subject through presentations, reports, and proposals.

The course is devoted to a wide range of relevant issues and topics confronting the profession and discipline of landscape architecture in the 21st century. It investigates the modern designed landscape as a distinct mode of cultural production—with its own materials, medium, codes, ethics, and concerns—in the context of landscape architectural theory's interconnection to evolving societal constructions of nature, social issues, environmentalism, and the city. It begins with the emergence of a modern sensibility about landscape in the late 13th century and trade developments through modernism postmodernism, and into post modernism. Information dissemination will be by lectures and student

explorations through short papers.

This writing-intensive course provides third-year landscape architecture students a grounding in contemporary theoretical issues that impact landscape architecture, from social to environmental theories, both by landscape architects and by other theoreticians. The goal is to provide students an understanding of contemporary ideas that influence the work of landscape architects.

**Course Objectives:**

- To expand the student's knowledge of contemporary landscape architectural practice.
- To enable the student to gain a better understanding of the conceptual frameworks within which exemplary work has been and is currently being produced.
- To identify and describe the interactions between social formations, landscape theory, and built work.
- To introduce landscape architectural theory as a practice which occupies the space between the binary opposites of cultural/nature, architecture/landscape, and art/science.
- To illustrate the means by which theory can explain, frame, and situate design work in the past, present, and future.
- To allow the student to refine his or her critical abilities relative to built works and writings in contemporary landscape architecture.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: LARCH 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 382 Professional Practice (3)** An investigation of current professional and business practices in the field of landscape architecture. For Landscape Architecture majors only.

**LARCH 382 Professional Practice (3)**

LARCH 382 has a three-part role. It comprises an introduction to the variety of practice opportunities in landscape architecture, their opportunities and drawbacks; it provides an introduction to critical office management practices; and it assists students in the employment application process through coaching on interview technique and guidance on the preparation of supporting material.

It is the overarching intent of this course to help students understand what it will mean to be a professional practicing in the new millennium and in a constantly changing marketplace of ideas. Topics covered include ethics, public relations, office and project-related practices, personal and professional development, and legal aspects of practice: contracts, specifications, liability insurance. Through active participation in the course, students will come to realize the diversity inherent in the profession.

**Course objectives:**

- To introduce a range of practice types—small, private practice, large-scale corporate practice, federal and state agencies, not-for-profit organizations, and other non-governmental organizations;
- To discuss relations with other professionals, including the formation of teams and other strategic alliances, and negotiation of professional fees;
- To outline and illustrate the various roles and responsibilities individuals might have both in and outside of an office, including situations of personal vs corporate responsibility; and
- To investigate the inherent values or point of view of principals and others that effect how decisions are made and change occurs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: LARCH 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 399 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 400** Introduction to Design and Theory (IUG) (5) Introductory landscape architectural design and applied theory for IUG students.

**Introduction to Design and Theory (IUG) (5)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 1998  
 Prerequisite: admission to the IUG program  
 Concurrent: LARCH 400A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 414** Design and Theory V: Advanced Landscape Architectural Design (5 per semester/maximum of 15) Review of landscape architectural theories and issues; supports development of comprehensive design study and/or independent honors (Thesis-Based) design projects. LARCH Majors only.

**LARCH 414 Design and Theory V: Advanced Landscape Architectural Design (5-15)**

Fourth- and fifth-year design studios are designated "depth" studios. Each studio is aligned with one of the department's associated research centers or pursues special topical content and continues the development of site-scale planning and design skills for landscape architecture students with larger and more complex sites and programs. Students select a topic from the range of options. Students may choose to take a given topic on a maximum of two occasions.

Topics are related to issues that have been introduced in previous studios and are as varied as possible from studio to studio. This allows students to select a topic of interest to explore with great intensity and detail. The studio alternatives offered each year are based on faculty expertise and student interest, and are chosen by the department head's review of faculty proposals. To date, studio topics have ranged from historic preservation to recreational landscapes, urban ecology to community planning. The type of project is determined on an individual basis, and will be rigorous and require a high level of depth of thought and a sophisticated product.

Project types include regional master planning, large-scale site planning and medium-scale community/housing design. The design issues emphasize urban form, community identity and open-space systems in the United States as a follow-up to urban patterns experienced during the student's previous study abroad. The project types may include such topics as inner-city locations with mixed-use and complex programs that progress from research and planning to site-scale design. Often, students work with an actual client, such as an urban planning commission or a city economic development entity, etc. Issues of urban form as a setting for significant practice opportunities are emphasized. Locations such as brown fields, urban entertainment districts, waterfronts, housing infill, etc., form the basis for design response in context.

**Course Objectives:**

- To develop an in-depth understanding of one or another aspect of landscape architecture.
- To be exposed to the rigor and challenges of developing and implementing one's own design expertise in the context of a specific environmental concern.
- To exercise the design principles, technological tools and communication strategies developed during the course of the specific design studios.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: LARCH 312/LARCH 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 424** Design Theory Seminar (3 per semester/maximum of 9) Inquiry-based reading and discussion of design theory literature relevant to contemporary landscape architecture issues. Topics vary each semester.

**LARCH 424 Design Theory Seminar (1-3)**

LARCH 424, Design Theory Seminar, is a companion to the depth studios, LARCH 414. However, unlike the seminars offered during second and third years, LARCH 424 is not tied topically to any particular depth studio. Instead, this seminar provides a vehicle for rigorous and structured exploration of the theoretical and philosophical issues that face landscape architectural designers and planners. The seminar is a small group setting where directed readings, independent research

and reflection are employed to explore the context of contemporary design.

These seminars, offered to fourth- and fifth-year students, enable professors and students to take their investigations to greater depth. Seminars are offered by different professors each semester and the content is expected to be somewhat aligned with the faculty member's research and scholarship or pursues special landscape architectural topical content of the faculty's choosing. Students select seminars from the range of options offered. This allows students to select a topic of interest to explore with great intensity and detail. Students are required to take up to three seminars to achieve a minimum of three credits.

Topics are related to issues that have been introduced in previous studios and seminars and the department ensures that students have access to the widest range of topics. The seminar alternatives offered each year are based on faculty expertise and student interest, and are chosen by the department head's review of faculty proposals. Seminar topics related to our research centers include historic preservation, urban ecology, community planning and watershed stewardship. From time to time topics independent of our research centers, such as the impact of technology on design or the impact of public policy on design and planning, will be addressed. The type of seminar outcome is determined by instructors on an individual basis, and will be rigorous and require a high level of depth of thought and a sophisticated product.

#### Course Objectives:

- To further develop an in-depth understanding of the theoretical or socio-political context for one or another aspect of landscape architecture.
- To challenge students to articulate their own values in the context of a specific environmental concern.
- To examine the means by which designers reconcile their own, their clients', and society's values in the pursuit of particular design or planning goals.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: LARCH 312LARCH 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 431 Landscape Architectural Design Implementation III (3)** Introduces the principles and techniques of stormwater management and drainage design, including instruction in proper construction documentation, calculations and estimations. For Landscape Architecture majors only.

#### **Landscape Architectural Design Implementation III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: LARCH 332LARCH 312

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 450 Geodesign: Geospatial Technology for Design (3)** Interactive geodesign and digital design studio.

#### **LARCH 450 Geodesign: Geospatial Technology for Design (3)**

This course addresses the role of continually evolving information technologies in landscape architectural research and practice by reference to long legacy of theoretical contributions from the field that have sought to reconcile and benefit from integrating the sciences of society and environment with art, design, and planning. This interactive digital design course is an advanced geodesign methods and principles class that applies digital tools to landscape research, modeling, analysis and design. This course presents a digital process for analyzing, managing, and ultimately designing landscape systems by allowing students to inventory, analyze and evaluate complex spatial datasets. Students will learn to critically evaluate and implement the interplay between various factors and design alternative futures.

Lectures will introduce key geodesign principles and techniques. The goal is to investigate an array of geospatial software as a powerful design tool in a broad and integrated manner for all the activities of the landscape architect, designer, planner and architect. Using a variety of geospatial and digital tools, students will develop a process to study, analyze, and plan landscape systems. They will utilize activities from each lesson to develop primary and alternative strategies for their proposed project. The problem-based approach used by this course will encourage cross-cultural contexts for student projects.

Geospatial design computing technology enables many alternate approaches to problem-solving, so that students will customize their own learning experiences within the concrete structure of the course. This course brings advanced geospatial and digital analysis and evaluation into the design process, where concepts and ideas are vetted for suitability against a wide array of physical and social, place-based information. This on-the-fly suitability analysis provides a framework for design, giving landscape architects, architects, land-use planners, and others involved with design the tools to directly leverage geospatial information within their design workflows.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 494H** Research Projects - Honors (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects - Honors (1-12 per semester/maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 495** Internship (1-13) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.

**Internship (1-13)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1981  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 496H** Independent Studies - Honors (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies - Honors (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 497A** Ecology and Field Identification of Central Appalachian Flora (3) This course is an introduction to the field identification and ecology of herbaceous and woody plants of the central Appalachian region. We will focus on field



characteristics of common plants and learn how to identify them to the level of species, if possible. This class is entirely field based and we will be taking field trips each and every week, regardless of the weather. Some trips will be within walking distance, others will require a van. As such, class enrollment is limited to 13 students. There will be weekly quizzes of both common and scientific names. You will also develop a digital plant collection by the end of the semester. As the seasons change, certain plants die back and others come into flower. The end of the semester will likely be an examination of winter characteristics.

### **Ecology and Field Identification of Central Appalachian Flora (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 497B** Advanced Digital Landscape Modeling and Rendering (3) As digital 3D modeling software has become more powerful and easy to use, it is now possible for the average student or professional to create stunning, photorealistic renderings of complex scenes that were once only possible by enlisting the most sophisticated Hollywood movie studios or professional computer graphics illustrators. As impressive as these computer renderings are, the quest for photographic realism has resulted in the loss of one of the most important qualities of traditional design drawings and renderings, imperfection. It's the "imperfections" (or perhaps subtle variations) in nature and the built environment that helps produce beauty. Perhaps it's the imperfection and ambiguity in traditional rendering techniques that helps make them so appealing and effective for visual communication.

### **Advanced Digital Landscape Modeling and Rendering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 499A** (IL) Design Theory Seminar (1) Inquiry-based reading and discussion of design theory literature relevant to the focus and content of the associated design studio course, LARCH 499B. LARCH majors only.

### **Design Theory Seminar (1)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: LARCH 361W

Concurrent: LARCH 499B LARCH 499C LARCH 499D

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 499B** (IL) Design and Theory VI: Contemporary/International Landscape Architectural Design Issues (5) Study of and design for sites, programs, and social groups associated with ongoing contemporary landscape architectural concerns. LARCH majors only.

### **Design and Theory VI: Contemporary/International Landscape Architectural Design Issues (5)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: LARCH 312 LARCH 361W

Concurrent: LARCH 499A LARCH 499C LARCH 499D

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**LARCH 499D** (IL) Contemporary/International Special Topics (3) Special topics related to, and study in conjunction with 499B. Landscape Architecture majors only.

### **Contemporary/International Special Topics (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: LARCH 361W  
Concurrent: LARCH 499B

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 499E** (IL) People and Protected Areas (3) LARCH 499E is a three-credit seminar that aims to introduce students to key issues associated with communities, community design, biodiversity conservation, and the interface of people and conservation in the vicinity of Udzungwa Mountains National Park in south-central Tanzania. The format of the course is reading and discussion, where students read assigned literature and then contribute to discussions led by faculty, both to demonstrate their understanding of the reading assignments and to begin to explore key issues introduced by those readings. Students also write two papers, the first examining the interface of rural land use planning, community design, and biodiversity conservation; and the second focusing on biodiversity conservation in the context of human settlement near Udzungwa Mountains National Park. Student evaluation is based on seminar participation and the two papers.

### **People and Protected Areas (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 499F** (IL) Community Design in the Vicinity of Udzungwa Mountains (5) LARCH 499F is a five-credit course that focuses on student research projects associated with communities along the eastern boundary of Udzungwa Mountains National Park. We have purposefully maintained a general definition for the course to allow students to design projects that best suit their interests and skills. For example, some students may focus on evaluating existing village configurations and propose new designs that help villagers better meet their daily needs. Other students, in turn, may focus on developing a more marketable park that attracts larger numbers of visitors who stay in or near the park for longer periods of time - generating more income that ultimately will find its way, in part, to local communities.

### **Community Design in the Vicinity of Udzungwa Mountains (5)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LARCH 499G** (IL) The Contribution of Service-Learning to Students and Community (1) LARCH 499G is a one-credit course designed to enable students to reflect on what for most will be their first opportunity to visit and work in rural East Africa. It involves the development of daily journals to record reflections on their evolving awareness of Tanzania and the challenges that people and conservation face in this less-developed country. The journals provide a foundation of reflections about one or more issues that interest each - maybe (though not necessarily) something close to the focus of the specific education abroad experience involved (e.g., the relationship between people and protected areas in south-central Tanzania), maybe international development in general, or maybe another topic. The journals also should be important personally: In all likelihood, this six-week period will expose students to places, people, and challenges that they have never seen in person.

### **The Contribution of Service-Learning to Students and Community (1)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Language and Literacy Education (LL ED)**

**LL ED 005** College Reading Improvement I (3) Improvement of basic reading skills: vocabulary development; literal and interpretive comprehension; application of these skills more efficiently into college work.

**College Reading Improvement I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1992

Prerequisite: limited to students whose academic profile sheets indicate help in reading is needed

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 010** College Reading Improvement II (3) Development of higher level comprehension, vocabulary, and study skills incorporated into content area reading.

**College Reading Improvement II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1992

Prerequisite: LL ED 005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 297A** Language and Composition (1) Develop proficiency in researching, writing, reading and rhetoric through the exploration of current issues and policies in the field of education.

**Language and Composition (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 400** Teaching Reading in the Elementary School (3) Introduction to the reading program; acquaintance with materials and techniques; observations of reading instruction; correlation with human growth and development.

### **LL ED 400 Teaching Reading in the Elementary School (3)**

LLED 400 is intended to help teacher candidates become knowledgeable users of theory and language about language, literacy and culture; and to think through instructional problems thoroughly, using multiple sources of information to experiment with alternative solutions. Dealing specifically with reading, we recognize that text goes beyond print texts to include multimodal visual, auditory, digital, movement, and artifactual texts. In LLED 400, candidates learn to understand how children develop as readers and users of literacies in and out of school. Candidates learn how to teach in ways that support children's successful development and uses of multiple kinds of literacy, including reading. Literacy teaching is both an intellectual and practical matter in which teachers work with students in ways that recognize the complexities of language and its social uses, learning and its cultural contexts, and schooling as organizational phenomena. Children enter schools with multiple types of literacy knowledge and cultural experiences. Coming to understand these complexities requires the coordination of both theoretical awareness and applied knowledge. Candidates' practice is developed as they learn to address the puzzles children present as they construct their knowledge of language, literacy, and literature in various social situations. Developing practical strategies to teach literacy requires a dedication of head, hand, and heart to treat all people with dignity, acknowledging the contributions of all cultural groups and respecting diversity as it honors ideals of social justice.

In LLED 400, teacher candidates develop a repertoire of organizational, instructional, and evaluative strategies that are based on research and best professional practices. Candidates work on projects independently and in collaborative groups. Content is presented by the instructor through a combination of lectures, weekly readings and reflections on readings, class discussion, activities and demonstrations, and viewing and analyzing video. Projects include an analysis of children as readers and curriculum planning.

LLED 400 is part of a block of courses in a PSU teacher education program that is unified by the basic set of principles supporting the development of a broader and more inclusive understanding of texts, children, and communities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: C I 295A or C I 295B; EDTHP 115 or EDTHP selection

Concurrent: LL ED 401 LL ED 402 for CEAED majors

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 401** Teaching Language arts in Elementary School (3) Principles, problems, materials, and techniques involved in teaching speaking, listening, writing, and reading in the elementary school.

### **LL ED 401 Teaching Language Arts in Elementary School (3)**

The purpose of LLED 401 is to acquaint teacher candidates with theories and practices of teaching writing. Candidates are immersed in the study and experience of workshop and strategic models of writing instruction. Basic goals of this course are to help candidates to use language well and thoughtfully concerning writing instruction, literacy, literature and culture; and to think through instructional problems thoroughly, using multiple sources of information to experiment with alternative solutions. We also expect candidates to understand the roles which culture plays in literacy practices, literature, identifications of "ability," and schooling; to learn how people function effectively in groups; and to develop a repertoire of organizational, instructional, and evaluative strategies.

LLED 401 is part of a block of courses in a PSU teacher education program that is unified by the basic set of principles supporting the development of a broader and more inclusive understanding of texts, children, and communities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: C I 295A or C I 295B; EDTHP 115 or EDTHP selection

Concurrent: LL ED 400 LL ED 402 for CEAED majors

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 402** Teaching Children's Literature (3) Survey of children's literature with an emphasis on the importance of literature in the development of the elementary school curriculum.

### **LL ED 402 Teaching Children's Literature (3)**

The purpose of LL ED 402 is to familiarize teacher candidates with different theories and practices of teaching literature. Candidates are immersed in the study and experiences of literature and strategic models of literature instruction. Understanding that belief systems inadvertently determine the models of literature instruction educators adopt, LLED 402 asks candidates to be mindful of the diverse nature of our communities, and encourages them to strive to create literary communities that respect, value, and encourage multiple modes of expressions. The basic course goals are to help candidates to understand the importance of story in all human lives; to exhibit a wide repertoire of flexible strategies for interpreting literature; to understand socio-cultural influences upon writing and literature; to know and be able to use basic reference tools and selection guides for research; to become familiar with different genres, diverse texts, and styles; to read for sequence and for secrets; to articulate responses to literature across a variety of media; to weave into the exploration of each of these goals a struggle to understand and to accept human difference; and to understand the role that literature plays in the school curriculum.

The course presents theories of teaching literature and models of literature instruction that place at the center socio-cultural practices typical of democratic literary communities. This requires knowledge of how literature and texts work in real life and in a variety of social and cultural contexts. Informed by research, standards and current practices, LLED 402 exhibits the power of literature, the complexities of students' learning and experiences with texts, and the problem solving character of teaching.

LLED 402 is part of a block of courses in a PSU teacher education program that is unified by the basic set of principles supporting the development of a broader and more inclusive understanding of texts, children, and communities.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: C I 295A or C I 295B; EDTHP 115 or EDTHP selection  
Concurrent: LL ED 400 LL ED 401 for CEAED majors

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 411 Teaching Language Arts in Secondary Schools I (3)** Exploration of language, literacy, and culture and development of curricular designs for teaching language arts in secondary schools.

#### **Teaching Language Arts in Secondary Schools I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994  
Prerequisite: ENGL 200 or 200-level literature course ENGL 444  
Concurrent: LL ED 420

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 412W Teaching Language Arts in Secondary Schools II (3)** Exploration of language, literacy, and culture and development of curricular designs for teaching language arts in secondary schools.

#### **LL ED 412W Teaching Language Arts in Secondary Schools II (3)**

This three-credit course addresses the theory, practice, and implications of teaching the English language arts at the secondary level. The course is the discipline-specific component of the Secondary Education block taken by majors in Secondary Education prior to student teaching. In this course, students explore issues in language, literacy, and culture and development of curricular designs for teaching language arts in secondary schools. Through in-class and out-of-class activities completed both independently and in collaboration, students read about, talk about, and practice teaching all of the language arts—reading, writing, speaking, listening, and thinking. Activities highlight ways of planning for instruction and ways of assessing student learning as teachers implement those plans. In addition, students will take up the professional issues facing beginning teachers of the English language arts—issues of professionalism and the teaching role, relationships with students, and how teaching can fit into a life. The course builds upon content developed in other courses in the major, including theories of reading, composition, media literacy, and pedagogy. Students engage in a variety of writing tasks both in support of developing course content and as a means of making their work public. This writing includes (but is not limited to) lesson planning, reflective writing on experiences both in the course and in related field experience, and the development of a professional portfolio. During class sessions, informal writing is used for a variety of purposes such as brainstorming, facilitating collaborative work, or framing discussion. Throughout the semester, students draft and receive feedback on a variety of portfolio components, which are revised and incorporated into a final version of the portfolio due at the end of the course. Portfolio contents vary according to instructor, but examples might include statements of educational philosophy, analysis of student writing from field experience, commentary on unit and lesson materials, reflective writing on reading and writing processes, and professional documents such as lesson plans and letters to mentors and potential employers.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: LL ED 411 or LL ED 400

Concurrent: C I 412W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 420 Adolescent Literature and Literacy (3)** Exploration of adolescent literacy and curricular designs for using the diversity of cultural voices in adolescent literature in secondary schools.

### **Adolescent Literature and Literacy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1992

Concurrent: LL ED 411

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 445 Teaching English in Bilingual/Dialectal Education (3)** Theories, techniques, materials for teaching English speaking, reading, and writing to bilingual and nonnative speakers in elementary and secondary schools.

### **Teaching English in Bilingual/Dialectal Education (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 450 Content Area Reading (3)** Study of reading skills and materials for specific content areas; diagnostic and instructional procedures for classroom teachers.

### **LL ED 450 Content Area Reading (3)**

LL ED 450 is designed to explore the roles of texts and literacies within the daily lives of middle school age students. We will examine both in-school and out-of-school literacy practices related to meaning-making in specific communities of practice. In doing so, we will work from a broader definition of "text" that includes print, images, sound, hybrid combinations and artifacts from popular culture. In school, we examine how literacies are involved in the learning of content, emphasizing how social practices of thinking in different ways about the world have been organized into school subjects and how teachers can help students to engage productively in those practices. Out of school, we look at the ways in which this age group uses text and other forms of literacy to make sense of and in their lives. Toward that end, we look closely at the media that they use and the types of texts that are produced for and by them. Although we honor the traditional practices of academic disciplines, we recognize how new texts and tasks ford those boundaries in order to pose and address school and everyday problems.

The basic goals of this course are to help teacher candidates to use language well and thoughtfully concerning literacy, text, and culture; and to think through instructional problems thoroughly, using multiple sources of information to experiment with alternative solutions. We also expect candidates to understand the roles that culture plays in literacy practices, texts, schooling and assessments of "ability"; to learn how people function effectively in groups; and to develop a repertoire of organizational, instructional, and assessment strategies.

This course considers how intermediate grades and middle schools are communities of practice that connect disciplines through the use of language and texts to make sense of the world. The communities surrounding schools influence these uses, and this course follows the students' learning outside the classroom and schools as well as within.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: EDPSY 014 or teaching experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 462 The Art of the Picturebook 3** An in-depth study of picturebooks as art objects providing aesthetic experiences and contributing to our aesthetic development in literacy education.

### **LL ED 462 The Art of the Picturebook (3)**

The Art of the Picturebook explores a wide range of picturebooks with the idea that illustrations are visual art evoking

thoughts and feelings. Because picturebooks provide aesthetic experiences and contribute to aesthetic development, they are rich and important sources for literacy education. This course provides opportunities to extend students' repertoire of strategies for making sense of picturebooks, to deepen knowledge about picturebooks and the artists who create them, and to consider ways to help children become more sophisticated readers of picturebooks.

While picturebooks are often emphasized as integral to the literacy development of young children, they can be engaging and desirable for older children as well. Course topics include picturebooks for the very young, as well as picturebooks that could appeal to elementary and middle school children. Whether picturebooks appear relatively simple and straightforward or contain innovatively complex or metafictional design elements, close readings of them with an understanding of terminology offer opportunities to express and discuss reactions and interpretations. The Art of the Picturebook provides students a forum for exploring preferences, ideas, insights, and questions about selected picturebooks, along with curricular and pedagogical considerations. Course readings include interviews with illustrators, selections about creating picture compositions, and scholarly essays presenting theoretical perspectives and ideas about picturebooks as literature and art for children's literacy development.

This course emphasizes that reading and interpreting picturebooks is an active, creative process that is socially, culturally, and historically situated. Authors and illustrators are influenced by culture, so their art reflects values of that culture, consciously or unconsciously. A reader's experience with a picturebook is also influenced by cultural and social contexts in a given moment. Because engaging in aesthetic experiences is an active, creative process, reading picturebooks is, as Jane Doonan (1993), author of *Looking at Pictures in Picture Books*, asserts, a form of play. The Art of the Picturebook approaches picturebooks as sources of deep play.

The course also provides opportunities to research selected illustrators, both for class discussions and an illustrator study project (e.g., a Wiki page). The culminating illustrator study project involves an in-depth investigation of a key children's book illustrator and a process of sharing works-in-progress with classmates for collaborative editing.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2009

Prerequisite: ENGL 015 and 5th semester standing or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 465 Fantasy Literature for Children (3)** A study of fantasy literature for children looking at a variety of fantasy stories and examining them from different perspectives.

### **LL ED 465 Fantasy Literature for Children (3)**

Fantasy Literature for Children explores a range of fantasy literature including literary fairy tales, toy fantasies, ghosts/horror/suspense, science fiction, reworked fairy tales, low fantasy, and high fantasy. This course will consider different rationalizations for fantasy literature and will examine some of the key stories that illustrate fantasy from different perspectives, such as literary, social, and psychological angles.

This course will look at, first, the beginnings of modern fantasy with the fairy tales of Hans Christian Andersen and Carlo Collodi's classic, *Pinocchio*. Then the course reading will include ghosts and other supernatural fantasy stories, and "reworked" fairy tales, a current trend in fantasy literature. Despite of some scholarly debates on science fiction, that is, whether it should be categorized into fantasy or not, this course will consider science fiction as being similar enough to fantasy for it to be included. The course will also include a study of fantasy books currently popular with school-age readers.

Fantasy can be divided into two main groups: low fantasy and high fantasy. Several of the stories to be read in the course are perhaps best categorized as low fantasies, not because of what they are, but because they are not high fantasy, which has a mythic quality to it. High fantasy seems to go beyond the particulars of its story to explore the nature of good and of evil. Though high fantasies can be humorous at times, the overall tone is serious. Often characters are on quests and the stakes of success or failure usually involve saving the world from some great evil or preventing the tyranny of some powerful and evil ruler.

Reading the different types of fantasy literature and the literary critiques and analyses of those works, this course will be wrestling with the overall importance of those books in the lives of children by pondering imagination and its role in the lives of children throughout the course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: ENGL 015 and 5th semester standing or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 480 Media Literacy in the Classroom (3)** Exploration of media languages and literacy in classrooms, learning in an electronic age; issues, ideas, and teaching strategies.

### **Media Literacy in the Classroom (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

Concurrent: LL ED 411 LL ED 420

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 495** School Practicum in Reading (1-18) Supervised practicum providing field experiences at any grade level, with opportunities to assume various teaching roles.

**School Practicum in Reading (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1992  
Prerequisite: LL ED 400

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 497A** CEAED PK-4 Literacy Block (15) Course serves as block until CEAED students are registered by Department for appropriate section of LL ED 400, 401, 402, A ED 303 and MUSIC 241.

**CEAED PK-4 Literacy Block (15)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 497A** CEAED PK-4 Literacy Block (15) Course serves as block until CEAED students are registered by Department for appropriate section of LL ED 400, 401, 402, A ED 303 and MUSIC 241.

**CEAED PK-4 Literacy Block (15)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 497A** CEAED PK-4 Literacy Block (15) Course serves as block until CEAED students are registered by Department



for appropriate section of LL ED 400, 401, 402, A ED 303 and MUSIC 241.

**CEAED PK-4 Literacy Block (15)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 497B** CEAED 4-8 Literacy Block (9) Block of three 3 credit courses required of all students in CEAED 4-8 major including LL ED 400, 401, and 402.

**CEAED 4-8 Literacy Block (9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 497C** Children's Literature Through Picturebooks (3) Students will gain knowledge of picture books and how picture books contribute to the literacy development of pre-K to 4th grade children.

**Children's Literature Through Picturebooks (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 5th semester standing; ENGL 015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LL ED 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Languages (LANG)

**LANG 051** Elementary Intensive Less Commonly Taught Language for Graduate Students I (3) Intensive introduction to a less commonly taught language: first half of elementary sequence in reading, writing, speaking, listening, cultural contexts.

**Elementary Intensive Less Commonly Taught Language for Graduate Students I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 052** Elementary Intensive Less Commonly Taught Language for Graduate Students II (3) Intensive introduction to a less commonly taught language: second half of elementary sequence in reading, writing, speaking, listening, cultural contexts.

**Elementary Intensive Less Commonly Taught Language for Graduate Students II (3)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: LANG 051 and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 053** Intermediate Intensive Less Commonly Taught Language for Graduate Students (3) Continued intensive study of a less commonly taught language at the intermediate level: reading, writing, speaking, listening, cultural contexts.

**Intermediate Intensive Less Commonly Taught Language for Graduate Students (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: LANG 052 or equivalent and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 196** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 196A** Elementary Intensive Turkish I (4) Intensive introduction to Turkish: first half of elementary sequence in reading, writing, speaking, listening, cultural contexts.

**Elementary Intensive Turkish I (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 196B** Elementary Turkish II (4) Intensive introduction to Turkish: second half of elementary sequence in reading, writing, speaking, listening, cultural contexts.

**Elementary Turkish II (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 296B** Intermediate Intensive Turkish (4) Continued intensive study of Turkish at the intermediate level: reading, writing, speaking, listening, cultural contexts.

**Intermediate Intensive Turkish (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LANG 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Latin (LATIN)

**LATIN 001** Elementary Latin (4) Pronunciation; inflections; simple rules of syntax.

**Elementary Latin (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Winter 1978

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 002** Elementary Latin (4) Advanced syntax and sentence structure.

**Elementary Latin (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Winter 1978  
Prerequisite: LATIN 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 003** Intermediate Latin (4) Selected readings from representative authors.

**Intermediate Latin (4)**

General Education: None

Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Winter 1978

Prerequisite: LATIN 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 051** Elementary Intensive Latin for Graduate Students I (3) Intensive introduction to Latin: first half of graduate intensive sequence in elementary reading, writing, syntax, and cultural contexts.

**LATIN 051 Elementary Intensive Latin for Graduate Students I (3)**

This is the first in a series of three courses designed to give students an intensive introduction to Latin. This is the first half of elementary sequence in reading, writing, syntax, and cultural contexts. Students will learn the Latin alphabet, vocabulary, and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 052** Elementary Intensive Latin for Graduate Students II (3) Intensive introduction to Latin: second half of graduate intensive sequence in elementary reading, writing, syntax, and cultural contexts.

**LATIN 052 Elementary Intensive Latin for Graduate Students II (3)**

This is the second in a series of three courses designed to give students an intensive introduction to Latin. This is the second half of elementary sequence in reading, writing, syntax, and cultural contexts. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: LATIN 051 and graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 053** Intermediate Intensive Latin for Graduate Students (3) Continued intensive study of Latin at the intermediate level: reading, writing, syntax, and cultural contexts.

**LATIN 053 Intermediate Intensive Latin for Graduate Students (3)**

This is the third in a series of three courses designed to give students an intensive intermediate knowledge of Latin. This is an intensive sequence in reading, writing, syntax, and cultural contexts. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: LATIN 052 or equivalent and graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 099 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 101** Introductory Latin (4) Introduction to Latin forms, syntax, and vocabulary.

**LATIN 101 Introductory Latin (4)**

The aim of LATIN 101 is to introduce students to the fundamentals of classical Latin as soon as possible. Classical Latin is the literary dialect spoken and written by Romans from the first century BCE to the second century CE. This is the language that the classical Roman authors wrote, poets such as Catullus, Virgil, Horace, Ovid, Lucan, and Seneca and prose writers such as Caesar, Sallust, Cicero, Livy, Petronius, Tacitus, and Suetonius. The purpose of the course is to teach students the morphology, syntax, and vocabulary of classical Latin and train them to read and translate simple and complex sentences. The course consists of short weekly presentations of new grammatical and lexical content, vocabulary to be memorized, drills to practice forms and concepts, exercises in reading sentences, homework assignments translating sentences from Latin into English and English into Latin, and regular quizzes and tests to ensure retention and comprehension of material. The goal of the course in the first semester is for students to be able to read short passages of continuous prose based on classical Latin models. The course focuses on reading, translating, and writing rather than speaking, although students will be expected to be able to read Latin aloud with correct pronunciation. LATIN 101 prepares students for Latin 102, the second semester of Introductory Latin, which in turn prepares students to take a 400-level course in Latin.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 102** Advanced Latin (4) Advanced study of Latin grammar, syntax, and vocabulary.

**LATIN 102 Advanced Latin (4)**

LATIN 102 continues from LATIN 101, which is a prerequisite for enrollment. Students who have taken at least three years of high school Latin may qualify to enroll in the course if they have performed well on either a Latin A.P. exam (minimum grade of 3) or a placement exam set by the instructor. LATIN 102 pursues the advanced study of the forms of syntax of classical Latin, the literary dialect spoken and written by Romans from the first century BCE to the second century CE. This is the language that the classical Roman authors wrote, poets such as Catullus, Virgil, Horace, Ovid, Lucan, and Seneca and prose writers such as Caesar, Sallust, Cicero, Livy, Petronius, Tacitus, and Suetonius. The purpose of the course is to equip students with the grammatical rules to read and write complex sentences in Latin. The course consists of short weekly presentations of new grammatical and lexical content, vocabulary to be memorized, drills to practice forms and concepts, exercises in reading sentences, homework assignments translating sentences from Latin into English and English into Latin, and regular quizzes and tests to ensure retention and comprehension of material. The goal of the course in the second semester is for students to be able to read longer passages of continuous Latin prose that has not been adapted. The course focuses on reading, translating, and writing rather than speaking, although students will be expected to be able to read Latin aloud with correct pronunciation. LATIN 102 will also continue to introduce students to Roman civilization and prepares students to take a 400-level course in Latin.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: LATIN 101 or evidence of advanced placement through a Latin A.P. exam (minimum grade of 3) or a placement exam set by the instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 203** Latin Reading and Composition (4) The course reviews Latin grammar, syntax, and vocabulary and introduces students to classical Latin poetry and prose.

#### **LATIN 203 Latin Reading and Composition (4)**

This four-credit course is at the intermediate-level and follows LATIN 003 or LATIN 102. It satisfies the 12th-credit foreign language requirement and prepares students to take 400-level Latin courses. The course is concerned with perfecting the knowledge of Latin grammar, which in the Middle Ages was considered to be the mother of the other Liberal Arts. This is accomplished by the review of grammatical rules and by the reading and explanation of Latin authors. The course reviews the forms, syntax, and vocabulary of Latin, and gives students practice exercises that improve translation skills. Equally important, students are introduced to the principles of Latin style by learning how to translate English into Latin. The review of Latin grammar and the introduction to Latin prose composition provide students with the competence to read representative Roman authors in poetry and prose. Rudimentary Latin readings, supported by school commentaries, are intended to familiarize students with famous examples of classical Roman literature while exemplifying the principles of classical Latin style. For the Republican period, students read selections of Caesar's Gallic Wars or a speech by Cicero and selections of Catullus's love poetry. For the Imperial period, one investigates different accounts of the rape of Lucretia by Livy and Ovid, in poetry and prose, respectively. These readings not only show how exemplary authors write in different styles, but how Latin language and literature lay the linguistic and cultural foundations of western civilization. Evaluation methods include assessment of students through in-class oral and written drills, in-class translation of Latin into English and English into Latin, weekly translation assignments, biweekly quizzes, two tests, and a final exam. These methods are intended to promote the learning of Latin vocabulary and grammar, to increase the comprehension of the assigned readings, and to foster an appreciation of the stylistic virtuosity of Rome's greatest writers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: LATIN 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**LATIN 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 402** Republican Literature (3-12) Selected works by Plautus, Lucretius, Catullus, Cicero (content varies).

**Republican Literature (3-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 1995  
Prerequisite: LATIN 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 403** Augustan Age Literature (3-12) Selected works by Virgil, Horace, Propertius, Tibullus, Ovid, Livy (content varies).

**Augustan Age Literature (3-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 1995  
Prerequisite: LATIN 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 404** Silver Age Literature (3-12) Selected works by Petronius, Seneca, Tacitus, Juvenal, Martial, Pliny the Younger (content varies).

**Silver Age Literature (3-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 1995  
Prerequisite: LATIN 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**LATIN 420** Medieval Latin Literature (3-6) Survey of Medieval Latin literature.

**Medieval Latin Literature (3-6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Spring 1995

Prerequisite: LATIN 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 450W** History of Latin (3) History of the Latin language and its speakers, from their origins to the 2nd century C.E.

**History of Latin (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1994

Prerequisite: LING 102;LATIN 401LATIN 402 orLATIN 403

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LATIN 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Latin American Studies (LATAM)

**LATAM 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Latina and Latino Studies (LTNST)

**LTNST 100** (GH;US) Introduction to Latina/s Studies (3) This course provides an interdisciplinary introduction to the study of Latinas/os in the U.S.

**LTNST 100 Introduction to Latina/o Studies (3)**  
**(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides an interdisciplinary introduction to the study of Latinas/os in the U.S. It begins with a historical overview of the major events in the U.S. southwest, Mexico, and the Caribbean that led to the creation of Latina/o communities in this country; we explore in this historical context the reasons for migration and the effects on identity of movement between countries and within the U.S. The course then moves to a consideration of the social protest movements of the 1960s, including Chicano and Puerto Rican nationalism, the farmworker movement, and Latina feminism. It then proceeds to present-day issues as they affect the major Latina/o groups in the U.S., attending to both similarities and differences within and between the major groups. The goal is to show that "Latino" is not a monolithic category but that it does unite various populations (Chicano, Dominican, Cuban, Puerto Rican, etc.) for strategic purposes. The class addresses Latina/o participation/incorporation in the economy, the political system and public education, with attention to how public sphere participation is shaped by language, legal status, and connection to countries of origin. The class analyzes how Latina/o families are shaped by these social issues, with particular emphasis to how generation shapes life experiences. Finally, the course considers Latina/o cultural production, analyzing how artists across genres such as literature, film, performance, and music represent their cultures and respond creatively to the issues discussed throughout the semester.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 127** (US) (HIST 127) Introduction to U.S. Latina/o History (3) This course introduces students to the history of U.S. Latina/os, including Puerto Ricans, Dominicans, Chicanos, Cubans, and Central Americans.

**LTNST (HIST) 127 Introduction to U.S. Latina/o History (3)**  
**(US)**

This course introduces students to the history of U.S. Latina/os, drawing on the multiple experiences of Puerto Ricans, Dominicans, Chicanos/Mexicanos, Cubans, and Central Americans. Course content features the divergent development of U.S. Latina/o cultural and political identities rooted in the Caribbean, Mexico, Central American, and the United States. Students will understand the formation of racial and class hierarchies within U.S. Latina/o communities; the processes of

(international) migration; gendered hierarchies and responses to sexism; and the complexities of U.S. Latina/o identity. Lectures are supplemented with discussion days in which students respond to readings under the guidance of a graduate teaching assistant. Grading stresses proficiency in analytical, historical writing.

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 226 (GH;US;IL) (ENGL 226) Latina and Latino Border Theories (3)** English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture.

### **Latina and Latino Border Theories (3)**

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 300 (US) (WMNST 300) Latinas in the US: Gender Culture and Society (3)** This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latina feminisms in the United States.

### **LTNST (WMNST) 300 Latina Feminisms (3) (US)**

This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latina feminisms in the United States. It shows the connections to as well as the divergences from Latin American feminism by beginning with an analysis of how the Spanish conquest, the imposition of Catholicism, and subsequent years of colonialism shaped gender and sexual identities. It examines the contemporary effects of these historical issues and inquires into the common concerns of Latin American feminists and Latina feminists. It asks how theories and

practices have diverged given different geographies, both between the U.S. and Latin America and within the U.S. The course then moves to the 1960s and 1970s in the U.S., when Chicano and Puerto Rican nationalist movements also gave rise to a feminist consciousness amongst Latinas; the conjuncture of race, ethnicity, gender, and sexuality is considered, with attention to how Latinas critiqued Anglo feminism's narrow focus on gender. The next unit focuses on family formations, considering social science and feminist discourse on the issues of patriarchy. How have Latina feminists valued yet also rearticulated the traditional family? What critiques have been made against heterosexism? How have lesbians and gays formulated new kinds of families? How does migration shape family relations? The final section of the course explores how Latina artists in different genres have responded to and resisted traditional gendered and sexual roles. Literature, film, performance art, and hip hop are all examined for their diverse representations of sexual desire.

General Education: None

Diversity: US

Bachelor of Arts: Humanities and Social and Behavioral Sciences

Effective: Spring 2013

Prerequisite: LTNST 100 or WMNST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 315 (GH;US) (SPAN 315) Spanish and Spanish-speakers in the U.S. (3)** In this course, we investigate various aspects of the language(s) and language behaviors of U.S. Latinos.

**LTNST (SPAN) 315 Spanish and Spanish-speakers in the U.S. (3)  
(GH;US)**

The course is premised on the idea that language is a crucial component in the formation of identity. To understand Latina/o identity formation in the U.S., then, one must analyze what role languages--Spanish and English--have played in identity formation. The class commences with a brief historical assessment of the various U.S. Latino communities, including Mexican-American, Cuban-American, and Puerto Rican communities. Such a historical purview proves significant in the study of the cultural traditions that persist in these communities, chief among these, the Spanish language. In exploring the Spanish language in U.S. Latino communities, we consider several major sets of questions, among them the following: In what ways do the languages of U.S. Latino communities differ from those of monolingual Spanish- (and English-) speaking communities? What factors contribute to the maintenance and loss of Spanish in these communities? How does language contribute to the creation of individual and societal identity? How is language exploited in the representation of other U.S. Latino cultural traditions? We consider these questions across a variety of genres: poetry, prose (autobiography in particular), film, art, television, and music. These texts reveal how social environments determine language use as well as how artists have used language to reshape social environments, through, for example, the development of new language practices such as Spanish-English code switching. The course also connects these cultural practices to debates on Spanish in public life and policy.

General Education: GH

Diversity: US

Bachelor of Arts: Humanities

Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 403 (US) (CMLIT 403) Latina/o Literature and Culture (3)** Literary and other forms of cultural expression (film, music, art, and theater) are compared across different Latina/o communities.

**LTNST (CMLIT) 403 Varieties of Latina/o Cultural Expression (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides students with a multi-faceted comparative view of Latina/o literature in relation to other forms of cultural expression. First, the course presents a variety of cultural expressions to students in an effort to teach them the different ways that form affects content. Each text will be studied in its historical context as well, thereby providing students with a sense of Latina/o cultural history. Second, this course compares works from within the same genre, allowing students to recognize the ways that Latina/o culture has worked to build identity, to deconstruct identity, and to challenge cultural stereotypes. Such comparison further facilitates comparison of the ways that different cultural forms

have been used by diverse Latina/o communities. Third, this course compares cultural forms, allowing students to see how Latina/o poetry affects music or how Latina/o theater affects novels. Fourth, this course will include texts that represent a variety of linguistic and national contexts, including many countries in Latin America, thereby allowing students to see the relationship between history, culture, language, geography, and identity. These are all themes that are at the center of both Latina/o Studies and Comparative Literature. A comparative perspective facilitates appreciation of the vast and varied ways that Latina/o communities have used cultural expression. A particular point of contact between Latina/o Studies and Comparative Literature is the influence of hybridity. A central issue explored in this course concerns the intricate connections between multiple ways of expressing identity, in the arts, literature, music, etc., in diverse circumstances, such as locations where Latina/o cultures may be in the mainstream (such as in Latin America) and in the minority (in the U.S.). Drawing upon approaches offered by comparative literature and theories such as post-structuralism, feminism, and post-colonialism, we will examine the complex process through which Latina/o culture has been defined, disseminated, contested, and commercialized. Of particular interest from a comparative perspective are the ways that Latina/o cultures are created through hybridization, processes of mutual borrowing and differentiation, as well as through transnational processes of migration, urbanization, and cultural contact. The course's objective is to show not only how complex societies consolidate a shared culture but also how diverse Latina/o communities have produced a multiplicity of cultures that have been expressed via a broad range of cultural registers. These communities often span vast geographical areas, not only in the U.S. but across the Americas as people continue to look to their countries of origin for artistic inspiration.

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Fall 2012

Prerequisite: 3 credits in the humanities or in any LTNST course or 4th-semester proficiency in Spanish

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 426 (US) (ENGL 426) Chicana and Chicano Cultural Production: Literature, Film, Music (3)** An in-depth study of Chicana/Chicano literature, film, and music from the inception of the Chicano Movement (1965-1975) to the present.

#### **Chicana and Chicano Cultural Production: Literature, Film, Music (3)**

General Education: None

Diversity: US

Bachelor of Arts: Humanities

Effective: Fall 2012

Prerequisite: 3 credits in English

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 467 (US;IL) (HIST 467) Latin America and the United States (3)** Historical development of policies of the United States with regard to Latin- American affairs from colonial times to the present.

#### **Latin America and the United States (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 479 (GH;US) (LTNST 479) U.S. Latina/o Culture en Espanol (3)** The history, culture, art, and social issues of Latinos in the United States.

#### **LTNST (SPAN) 479 U.S. Latina/o Culture en Espanol (3)**

This is an overview of literature and culture, in Spanish, created within the United States. We will read fiction, essays and film, but also consider poetry, travel accounts, visual art and performances, and cultural practice and sociological issues (like "quinceañeras" and soccer leagues) in order to discuss some of the following themes particular to the Hispanic experience within the U.S.: immigration and transnationalism; the imaginary homeland; families and assimilation; conflicted identity; language and a sense of place. We will emphasize two basic tools of literary analysis: "close reading," and library research. However, the class project will have quite a bit of creative latitude.

General Education: GH

Diversity: US

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: SPAN 253W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LTNST 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Law And Society (LAWSC)**

**LAWSC 495** Undergraduate Field Experience or Practicum (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.

**Undergraduate Field Experience or Practicum (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LAWSC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Letters Arts And Sci (LAS)**

**LAS 495** Undergraduate Field Experience or Practicum (1-18) Supervised off-campus, nongroup instruction including field

experiences, practica, or internships. Written or oral critique of activity required.

**Undergraduate Field Experience or Practicum (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LAS 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Liberal Arts (L A)**

**L A 083S** First Year Seminar in the Liberal Arts (1) An exploration of a theme through the lens of the humanities, social sciences and diverse cultural perspectives.

**First Year Seminar in the Liberal Arts (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: open only to DUS students

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 100S** Contemporary Legal Issues (3) An introduction to law-related issues with a focus on current legal topics viewed from an across discipline perspective.

**L A 100S Contemporary Legal Issues (3)**

Contemporary Legal Issues is an across discipline, first-year seminar designed to introduce students to the foundational framework of law as a major social institution. The essential role of research in an academic community will be

highlighted. The cross-disciplinary perspective from the humanities and social sciences provides an opportunity for students to consider the social and cultural contexts that distinguish legal studies as a scholarly field. Issues for exploration are determined by the instructor and student interest. Students will utilize university learning tools and engage in academic experiences that are essential for the development of academic skill sets. By the end of the seminar students will have a better sense of what insights a law and society perspective provides.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 101H (GWS) Honors Rhetoric and Civic Life (4)** Within a liberal arts framework and with attention to public discourse--speaking, writing, online communication, and visual presentation--this course instructs students in the arts, practices, and principles of rhetoric.

**L A 101H Honors Rhetoric and Civic Life (4)  
(GWS)**

This course offers students comprehensive training in oral, written, visual, and digital communication for the twenty-first century. It unites these various modes under the flexible art of rhetoric and uses the pedagogies associated with the rhetorical tradition both to strengthen communication skills and to sharpen critical awareness of the challenges and advantages presented by oral, written, visual, and digital modes. Students will read about and discuss rhetorical concepts and situations and put their knowledge immediately to use by analyzing civic rhetoric on campus and in their communities (including their networked communities), by researching current issues, and by developing and presenting arguments in oral, written, visual, and digital form.

The course is designed (although not required) for first-year Schreyer Honors College students and Paterno Fellows aspirants in the College of the Liberal Arts. In other words, it appeals to students with well developed communication abilities who might otherwise take English 30 and/or CAS 100H. It is aimed at developing students' skills in composing and delivering purposeful and effective texts. Whether or not those discourses are delivered verbally or visually (on paper, electronically, or orally), students will draw on established rhetorical canons of invention, arrangement, style, memory (tapping the resources of stored knowledge, such as the library), and delivery. Students will also become fluent in the rhetorical appeals of ethos, logos, and pathos in order to shape texts that are ethical yet purposeful. To meet these goals, students will meet in small classes (of no more than twenty students), where they will receive guided instruction in writing, public speaking, and the use of technology in order to learn the distinctive features of oral, written, visual, and electronic rhetoric. Staff for the course will be experienced full time faculty and advanced doctoral candidates in rhetoric drawn from English and CAS.

This course will satisfy the Gen Ed Writing/Speaking (GWS) requirement for Schreyer Honors College students and aspiring Paterno Liberal Arts Fellows. Because this four-credit course will substitute for the six-credit ENGL 015/030 plus CAS 100 requirement, students who complete LA 101 will need to take an additional two credits somewhere in order to complete graduation requirements.

General Education: GWS  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 198 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None



Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 199** (IL) Foreign Study--Liberal Arts (1-9) Study in selected foreign countries of the cultural, institutional, and/or social development of the host country.

**Foreign Study--Liberal Arts (1-9)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 200** Business and the Liberal Arts (1) Introduction to business careers and concepts for students enrolling in the Business and the Liberal Arts minor.

**L A 200 Business and the Liberal Arts (1)**

The Business and the Liberal Arts course, designed to introduce students to the possibilities of the Business and the Liberal Arts Minor, is organized around a set of topics and modules. Each module introduces students to specific topics related to the minor and to the business world, with an emphasis on how the Liberal Arts can be used to understand business, and how a liberal arts degree can be used in business careers. While the course will of course be faculty-led, we expect that many modules will be enhanced by the participation of prominent alumni in business careers who hold degrees in the Liberal Arts. Each module will include readings and discussion; when possible, these will be supplemented by these alumni classroom visits.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 201W** Experiential Learning Portfolio (3) Students will learn how to assemble a portfolio that reflects their progress, knowledge, and insight into college-level study.

**L A 201W Experiential Learning Portfolio (3)**

This course will instruct students in what has become a distinctive model of performance assessment – a learning portfolio. Students will learn to assemble the components required to demonstrate their progress, articulate their knowledge, and gain insight into the qualities of learning that are expected of college-level study. Students will utilize active engagement and questioning of how we know what we know. The course is designed to assist learners in contextualizing what they have learned and provide them with the skills to contextualize what they learn in the future. By the end of the course, students will have developed an experiential learning portfolio.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 294** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis. (No course under L A 294/494 may be offered without approval of the associate dean of liberal arts. All courses must have a specific title and letter suffix.)

**Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**L A 295** Undergraduate Field Experience or Practicum (1-18) Approved experience, related to student career objectives, in agencies external to the University.

**Undergraduate Field Experience or Practicum (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical of of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 399** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 401** Professional Development for the Liberal Arts Student (1) Provides Liberal Arts students with the techniques and information necessary to specify and implement postgraduation educational and career plans.

**Professional Development for the Liberal Arts Student (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 402** Fundraising Leadership: Building a Strong Base (3) The course will focus on the fundamentals of fundraising and leadership, including communications, management of events and people, and stewardship.

**Fundraising Leadership: Building a Strong Base (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: 60 undergraduate credits or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 494** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis. (No course under L A 294/494 may be offered without approval of the associate dean of liberal arts. All courses must have a specific title and letter suffix.)

**Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 494H** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis. (No course under L A 294/494 may be offered without approval of the associate dean of liberal arts. All courses must have a specific title and letter suffix.)

**Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 495** Undergraduate Field Experience or Practicum (1-12) Approved experience, related to student career objectives, in agencies external to University.

**Undergraduate Field Experience or Practicum (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1981

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 498H** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L A 499** (IL) Foreign Study--Liberal Arts (1-9) Study in selected foreign countries of the cultural, institutional, and/or social development of the host country.

#### **Foreign Study--Liberal Arts (1-9)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Library Studies (L ST)**

**L ST 083S** The Twenty-First Century Researcher (1) Students learn to use technology and Libraries resources to access and cite relevant information into academic research projects.

#### **L ST 083S The Twenty-First Century Researcher (1)**

This course will equip students with research skills for academic success at Penn State. The class will investigate the Libraries' physical facility and scholarly, academic online resources as a single, holistic learning lab, and engage students by providing hands-on experience in how to conduct research across the disciplines and in all formats. Students will develop and use several cutting-edge communications tools, including blogs, podcasts, and personal portals. By the end of the course, students will be able to create and conduct research projects, and integrate their findings into outstanding papers and presentations in a variety of media.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 100** Information Search Strategy (1) Concepts and methodology for determining informational needs and planning efficient strategies to locate information in a library.

**Information Search Strategy (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1985  
Prerequisite: or concurrent: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 100H** Information Search Strategy (1) Concepts and methodology for determining informational needs and planning efficient strategies to locate information in a library.

**Information Search Strategy (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: or concurrent: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 110** Information Organization and Retrieval (3) Information structure and resource related to search and problem-solving procedures to identify, organize, and locate print and nonprint materials.

**Information Organization and Retrieval (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 301H** Information Research Methods and Systems (1) Survey of information theories, structures and resources as related to library research methods for social, behavioral sciences and the humanities.

**Information Research Methods and Systems (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 370** Research Methods for Law and Government Information Resources (3) Evaluating, retrieving and integrating Federal and Legal Information Resources into scholarly research.

**L ST 370 Research Methods for Law and Government Information Resources (3)**

This course covers basic legal research and government information skills: (1) the structure and types of federal primary and secondary legal sources; (2) the structure and types of federal government information; and (3) electronic and print databases and indices to locate legal and government information. Students will develop research methods for locating and using judicial, executive, and legislative branch information sources in scholarly and disciplinary research.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: 3 credits in Administration of Justice Political Science Communication History or Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 490** (HIST 490) Archival Management (1-3) Introduction to the principles and procedures in the management of archives and historical manuscripts.

**Archival Management (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1978

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 495** Internship (1-9) Directed internship in library studies, archival administration, rare books curation and/or preservation.

**Internship (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1995  
Prerequisite: L ST 490 or L ST 496

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses. Students may not register for these courses without prior written approval of a faculty member in the department in which the courses are listed.

**Independent Studies (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**L ST 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Linguistics (LING)**

**LING 001 (GS;US;IL)** The Study of Language (3) A non-technical introduction to the study of human language, and its role in human interaction. Students who have successfully completed LING 100 may not enroll in LING 001.

### **LING 001 The Study of Language (3) (GS;US;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

LING 001 examines the nature of human language and its links to human culture. A major focus of this course is on examining how languages are structured, how all languages are similar, how they differ, and how a language affects and is affected by the culture of its speakers and the sociopolitical context in which it is situated. The course begins by discussing the essential characteristics of every human language. It ends by examining the factors that have put languages at risk throughout history and what is causing them to become increasingly endangered. The course examines such issues as: speakers attitudes toward language through an examination of phenomena close to home, like African American Vernacular English and various regional accents, how shared Linguistic practices create unity (South Africa, The Americas, Asia), what role languages play in maintaining difference and, indeed signaling socio-political diversity (Serbian versus Croatian, Hebrew, Yiddish, Afrikaans, Taiwanese, The Linguistic Geography of Africa), and how language reflects human origins, migrations, and history.

LING 001 is a core course for the minor in Linguistics and it may also be used for the General Education requirement in Social/Behavioral Science, for a B.A. Social/Behavioral Science requirement, for the General Education Intercultural/International Competence requirement.

The course is offered two times a year. It meets three hours per week and the total enrollment each semester is limited to 75 students. Assessment is based on two examinations, five problem assignments that require short essays (around 2 pages), one problem assignment that requires a more extended analytical essay (around 4-5 pages), and participation in class and group discussions.

General Education: GS  
 Diversity: US;IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 097 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**LING 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 100** (GS) Foundations of Linguistics (3) Systematic study of linguistic structures in a variety of the world's languages; an overview of language, and its organization.

**LING 100 Foundations of Linguistics (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Linguistics is, broadly, the scientific study of language. At the heart of linguistics is the search for the unconscious knowledge that humans have about language(s), an understanding of the structure of language, and knowledge about how languages differ from each other. Speakers of all languages know a great deal about their language, usually without knowing that they possess such knowledge. For example, a speaker of American English possesses knowledge about word order: s/he understands that "Sarah admires the teacher" is grammatical, while "Admires Sarah teacher" is not, and also that "The teacher admires Sarah" means something entirely different. A speaker knows that when someone asks a "yes-no question", s/he typically reverses the order of words at the beginning of the sentence and that the voice goes up at the end of the sentence, as, for example, in "Are you going?". Speakers also possess knowledge about the sounds of their language, e.g. which consonants can go together in a word. For example, speakers know that "slint" could be an English word, while "sbint" or "srint" could not. In addition, speakers know the rules of language use, such as when to issue a command ("Get me a glass of water") and when to ask a question ("Could I have a glass of water, please"?). Furthermore, they recognize dialects which are different from their own, and they can recognize earlier stages of their own language, as in a Shakespearian quotation, or a liturgical formula.

This course equips students with the tools to investigate these aspects of language and language use. As a scientific discipline, linguistics employs strict methodologies to approach issues like the ones above. Students learn to transcribe speech phonetically, then to analyze the raw data into phonological statements about the sound system of languages. Likewise in word structure, students are equipped with the tools to segment words into their significant parts (called morphemes), which reveals interesting facts about how words are stored in memory. Through the study of syntax students learn about the unimaginable complexity of syntactic rules, and are taught the basics of how to unravel the mysteries of sentence structure. And when the whole complex of sounds, words and sentences is put together, rules of meaning are brought to bear, and the sentence is assigned a semantic reading. How this happens is discussed in the section on semantics.

Linguistics 100 introduces these topics and provides enough information for students to understand the basics of the discipline.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 102** (GH) Introduction to Historical Linguistics (3) How languages change and evolve over time; language families; effects of borrowing and language contact.

**LING 102 Introduction to Historical Linguistics (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Introduction to Historical Linguistics is designed to introduce the basic theories, methods, and data linguists used to study ancient languages and the connections between seemingly diverse peoples and cultures. The diversity of human language has been a topic of speculation since ancient times, popularly accounted for by similar stories and legends across cultures and religions. The course will survey these ideas and combine them with the major trends of philological thinking from antiquity to the present day. An important aspect of this course is in reviewing the philological record to examine the importance, and at times even sacredness, of the written word to various cultures. The course reviews in particular the works of the Greek, Latin and Sanskrit scholars, the anonymous Icelandic grammarian, and the influential work of the 19th century European philologists. It also examines how spoken language, in particular, leads us to an understanding of how different societies can be linked a common source for their language.

General Education: GH

Diversity: None

Bachelor of Arts: Humanities  
Effective: Spring 2002  
Prerequisite: LING 010 or LING 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 294** Research Project A1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project A1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None

Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 402** Syntax I (3) Principles of grammatical analysis in the generative framework; an overview of syntactic structures across languages.

**LING 402 Syntax I (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The aim of this course is to provide students with the background needed to understand advances in modern generative syntactic theory and to encourage them to do creative and informed research in this area on English or other languages that they might know. The course provides a historical overview of the development of generative syntax. We explore in depth a number of topics that challenge any syntactic theory and we attempt to propose testable hypotheses concerning language structure.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 404 Phonology I (3)** The analysis of the sound systems of human languages; focus on common phonological processes across languages and on phonetics-phonology interface.

#### **LING 404 Phonology I (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is about sound patterning in language. In particular, we will learn how human speech sounds are produced and how they function together as a system. We will learn the International Phonetic Alphabet applied to English. We will discuss phonological data from many different languages to seek common phonological processes that occur despite the apparent surface diversity of languages. We will do extensive work on phonological problems in order to master basic phonological analysis.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 429 (PSYCH 426) Language and Thought (3)** Relations between language and cognition; cognitive implications of normal and impaired language development; cognition and bilingualism.

#### **LING (PSYCH 426) 429 Language and Thought (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Is language a special and uniquely human ability that develops and functions independently of other cognitive processes? Do individuals who speak different languages also have different concepts about the meaning of objects and ideas? Does language development depend on exposure to spoken language? In this course we will examine the relation between language and thought by considering evidence on language and cognition in both children and adults. Topics to be covered include the typical development and use of language as well as language and cognition in individuals whose language and/or cognition is impaired in some form. The latter include individuals with aphasia who have sustained brain damage following stroke or head injury, schizophrenics whose language reflects aspects of their disorder, children diagnosed with Williams Syndrome who appear to have good or even precocious language abilities in the face of severe cognitive impairment, and Alzheimer's patients in whom semantic memory has begun to deteriorate. The course will also discuss the acquisition of sign language among deaf individuals and the consequences of bilingualism for children raised with two languages and for adults with proficiency in more than a single language.

The purpose of this course is to provide a survey of current scholarship on the relation of language and thought, including a review of recent developments in the primary literature. The necessary background is covered in introductory Psychology and Linguistics courses, which serve as alternative prerequisites. Students will learn about the consequences of typical and impaired development for relations between cognition and language ability. It is distinguished from PSYCH 457, Psychology of Language, by a focus on the implications of language, language development, and language impairment, for cognitive processes. It covers some topics also addressed by current courses in Linguistics and in Communications Sciences and Disorders, but is distinguished from those courses by its focus on perspectives and theories from cognitive psychology. This course may be used toward the 400-level PSY requirements of the PSYBA and PSYBS majors, and toward the PSY minor. Students typically will be assessed on the basis of class participation and discussion (20%), four papers (total 60%), and an in-class presentation based on reading original research literature (20%). The course typically will be offered once each year at the University Park campus with an enrollment limit of 50.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2007  
 Prerequisite: PSYCH 100LING 001 orLING 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 446 (PSYCH 427) L1 Acquisition (3)** How children learn their first language; psycholinguistic aspects of lexical, syntactic, semantic, and phonological development.

**LING 446 (PSYCH 427) L1 Acquisition (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on how children learn their first language from the theoretical perspectives of imitation theories, social construction theories, and innateness theories. In addition, the course covers the various stages of language acquisition including phonological (sound system), morphological (word meaning), syntactical (grammar) and semantic (meaning) development from birth to adulthood. Other related subfields covered in the course include the acquisition of Pidgin and Creole languages, bilingual and multilingual acquisition, and language acquisition and linguistic change.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2010

Prerequisite: LING 100 or PSYCH 002 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 447 Bilingualism (3)** Explores the social and psychological aspects of bilingualism; topics include languages in contact, transference, maintenance, and loss.

**LING 447 Bilingualism (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course presents a panoramic view of the major questions, research methods and results in bilingualism research. We will cover the following topics, in addition to those topics that emerge from students' research: bilingualism in society; political and social results of language contact; effects of social attitudes on bilinguals; how bilingualism affect language: transfer, code-switch, language contact and language change; the bilingual brain, psycholinguistic effects of having two grammars in sentence production, phonological perception and lexical storage; childhood bilingualism; developmental and educational consequences of bilingualism.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 448 Sociolinguistics (3)** Issues in the study of language in its sociocultural context; analysis of social dialects and speech styles.

**LING 448 Sociolinguistics (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course investigates sociolinguistics variation and linguistic change. We will be concerned with identifying the mechanisms by which changes come about and are transmitted within a linguistic system. The course contrasts traditional studies of change and variation which concentrate on linguistic internal factors to those that are based on sociolinguistic factors. Research from a wide variety of languages and cultures will be examined.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 449 Semantics I (3)** The study of meaning in human language; methods of analysis; study of sense, reference, compositionality, quantification, presupposition, and sentence-level meaning.

**LING 449 Semantics I (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines our best understanding of how humans produce and understand utterances to have particular meanings. This course examines lexical semantics, which is concerned with word meaning, phrasal semantics, which examines phrase meanings and with pragmatics, the study of meaning in contexts. Because meanings cannot always be built up or deduced from the combined meaning of smaller elements, students will attempt to divulge the semantic principles at work in human language through a wide variety of problems and activities.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 457 (PSYCH 457) Psychology of Language (3)** Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.

**LING (PSYCH) 457 Psychology of Language (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

How do we process language? Why do we easily adjust to a speaker with a foreign accent? How do young children come to speak the language to which they are exposed? Why is it difficult to learn a second language as an adult? This course focuses on the cognitive processes engaged by language use. Topics to be covered include speech perception, word recognition, representation of word meaning, comprehension of sentences, spoken production of words and sentences, and first and second language acquisition. In addition, the role of language in the study of thought and the role of biological mechanisms in theories of language learning will be discussed, as well as ways in which research on the language of special populations (e.g., deaf signers, dyslexics, aphasics) can inform theories of language processing and representation.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: PSYCH 100 or LING 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 457 (PSYCH 457) Psychology of Language (3)** Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.

**LING (PSYCH) 457 Psychology of Language (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

How do we process language? Why do we easily adjust to a speaker with a foreign accent? How do young children come to speak the language to which they are exposed? Why is it difficult to learn a second language as an adult? This course focuses on the cognitive processes engaged by language use. Topics to be covered include speech perception, word recognition, representation of word meaning, comprehension of sentences, spoken production of words and sentences, and first and second language acquisition. In addition, the role of language in the study of thought and the role of biological mechanisms in theories of language learning will be discussed, as well as ways in which research on the language of special populations (e.g., deaf signers, dyslexics, aphasics) can inform theories of language processing and representation.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: PSYCH 100 or LING 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 493 Field Methods (3)** Primary linguistic investigation of a language different from English; field work with a native speaker; data gathering; linguistic analysis.

**LING 493 Field Methods (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

In this course, students work directly (in groups) with a native speaker of a foreign language with which no one in the class has any prior familiarity. The students will work to uncover the set of sounds relevant to the language in question by winnowing down possible sound contrasts made in human languages. They will begin to construct a lexicon (vocabulary) built with a phonetic alphabet to discover how words are formed in the language. They will refine their techniques of questioning their research participant based on principles of linguistic field work. Finally, groups will present their findings for discussion and revision.

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 497A** EEG/ERP Methods and Experimental Research (3) This course introduces students to the basic concepts, principles and research methods in scalp-recorded EEG, in particular the application of the Event-Related brain Potentials (ERPs) technique, signal-averaged EEG recordings that are time-locked to perceptual or cognitive events. The course also includes a practical part in which students receive hands-on training in which they learn to record, analyze and interpret ERP data.

**EEG/ERP Methods and Experimental Research (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**LING 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**LING 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Management (MGMT)

**MGMT 001S** Business Leadership (3) The aim of this course is to introduce fundamental concepts of business management and leadership.

**MGMT 001S Business Leadership (3)  
(FYS)**

MGMT 001S aims to introduce students to the academic discipline of management through the study of leadership and management principles and practices. The course is intended for First Year students enrolled in the Smeal College of Business Administration and other First Year students as recommended by their advisor.

The course will cover a variety of concepts pertinent to leadership and management. We will begin by focusing on Leadership Theory and the practical manifestation of leadership in business and society. We will discuss how different leadership styles have appropriate application, and attempt to identify current leadership practices. We will also trace the evolution of management theory in this century, and distinguish between facts and fads in management. The class will then investigate the current business/industrial trend toward "Teams" and group problem solving, and will participate in experiential team-building exercises.

The course format will consist of lectures, outside reading, small-group discussion, class discussion and projects, and experiential exercises. Students will be, required to use multiple University resources, including the libraries, the computer center, class list-serve and e-mail, the internet, and the CDPC. Projects will include investigation of various disciplines within the broad area of business as exemplified by the variety of majors and options in the Smeal College of Business Administration.

The term grade for this course will be determined by a weighted average of essay exams, written assignments, and class participation. The weights are as follows: mid-term 35%, writing assignments 15%, participation 15%, and final exam 35%.

This course is also intended to fulfill the First Year Seminar requirement for students in the Smeal College of Business Administration. The course will accomplish this goal by conforming to the Criteria for First Year Seminars as spelled out in the Faculty Senate Legislation of 1998.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 100** Survey of Management (3) Introduction to organizational factors relevant to management processes, including leadership, motivation, job design, technology, organizational design and environments, systems, change. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 304 or MGMT 301.

**Survey of Management (3)**

General Education: None



Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1989

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 100W** Survey of Management (3) Introduction to organizational factors relevant to management processes, including leadership, motivation, job design, technology, organizational design and environments, systems, change. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 304 or MGMT 301.

### **Survey of Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1993

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 150** Supervisory Management (3) Preparation for supervisory positions in formal organizations. Emphasis placed on the motivational aspects of the supervisor's job.

### **Supervisory Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1990  
Prerequisite: MGMT 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 197** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 199 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 215** Entrepreneurial Mindset (3) This course provides the opportunity to learn to think like an entrepreneur in the broader context of social entrepreneurship, intrapreneurship, creative problem solving, opportunity recognition, and innovation.

### **MGMT 215 Entrepreneurial Mindset (3)**

An entrepreneurial mindset can be applied to different situations such as social entrepreneurship, intrapreneurship, creative problem solving, opportunity recognition, technology management, innovation and career development, etc. The skills and attributes of an entrepreneurial mindset can be used to expand career options and career paths for students in any major. Students will develop self-efficacy, leadership, recognition of new opportunities, resourcefulness, creativity and comfort with ambiguity. Further, this course will help students develop an appreciation for mistakes and failure as valuable learning opportunities.

Through experiential exercises and problem based learning the student will be afforded the opportunity to study, apply and absorb an entrepreneurial mindset as an approach to viewing the world, to recognizing opportunities and to

developing novel solutions.

After taking this course the student, regardless of a student's major or college, will have a greater understanding of how to apply entrepreneurial thinking to problems and adopt entrepreneurial solutions to those problems to transform them from problems into opportunities.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1989

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1989

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 301** Basic Management Concepts (3) Study of fundamental principles and processes available to the understanding of management. Not available to students who have taken B A 304.

**MGMT 301 Basic Management Concepts (3)**

MGMT 301, Basic Management Concepts, is a three credit course offered each semester across Penn State. MGMT 301 exposes undergraduate students to the fundamental principles and basic concepts of management, with emphasis on organizational design, management processes, leadership, motivation, and managing teams and individuals in a global business environment. Understanding these principles and concepts is extremely important for students preparing for and

entering the business profession.

Managers plan, organize, lead, and control. These functions provide a foundation for MGMT 301 and are included in all course topics and modules. Typical modules include: An Overview of Management; Strategy and Structure; Organizational Behavior; and Group/Organizational Dynamics. The overview of management focuses on the manager's role and function, decision making, ethics, and managerial oversight. Topics covered in a strategy and structure module will include culture, environmental influences, strategy, organizational structure, globalization, and innovation. Organizational Behavior focuses on how decision making is influenced by various stakeholders who have formal and informal authority and control in a business. What motivates individuals and who are leaders in an organization is discussed along with group dynamics. Understanding team processes, conflict, adaptation to change, and various levels of group and one-on-one communication is important and will be covered by reviewing traditional management strategies and structures along with discussions on current and evolving management issues.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: ENGL 015 or ENGL 030; ECON 102 or ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 301H Basic Management Concepts (Honors) (3)** Study of fundamental principles and processes available to the understanding of management.

### **MGMT 301H Basic Management Concepts (3)**

Organizations are ubiquitous. Students will likely spend a major part of their lives working for one or, perhaps, leading one they have started. Although sound technical skills and relevant knowledge are important reasons an organization hires employees, the ability to lead and manage people is critical for future advancement. This course is focused on the social facets of organizations – as opposed to elements such as finance, marketing, operations, etc. A good grasp of how organizations work will help students succeed in their careers. This course provides a forum to critically engage with theories and concepts that attempt to explain organizational practices. It is designed to not only provide students with the basic fundamentals that may be used as tools to become better managers, but also help students question their own assumptions about how people ought to behave and how they actually do behave in organizations. This course, builds on the concepts embedded in a traditional foundation management course by researching the theories these courses are built upon and pointing out the advantages and limitations of these different approaches.

The topics covered in this course will provide both the breadth and depth of understanding of various topics including organizational structure, strategy, culture, leadership styles, ethics, and staffing that fall under the domain of Management & Organization. In addition, specific challenges faced by managers in contemporary organizations such as managing teams, globalization, and diversity are also incorporated. These topics are covered using lectures, independent research, case analyses and experiential exercises that will help you develop in-depth domain knowledge as well as managerial skills. In addition, the course will facilitate the development of research and analytic skills through the inclusion of individual presentations of current topics that represent critical issues in organizations. A team project will further enhance knowledge acquisition of specific issues facing organizations and, since teams are prevalent across most organizational settings, also help develop teamwork skills.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: ENGL 015 ENGL 030 ENGL 137H or CAS 137H ECON 102 ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 301W Basic Management Concepts (3)** Examination of fundamental principles and processes applicable to the study of management. Not available to students who have taken B A 304.

### **MGMT 301W Basic Management Concepts (3)**

MGMT 301W, Basic Management Concepts, is a three credit course offered each semester across Penn State. MGMT 301W exposes undergraduate students to the fundamental principles and basic concepts of management, with emphasis on organizational design, management processes, leadership, motivation, and managing teams and individuals in a global business environment. Understanding these principles and concepts is extremely important for students preparing for and entering the business profession.

Managers plan, organize, lead, and control. These functions provide a foundation for MGMT 301W and are included in all course topics and modules. Typical modules include: An Overview of Management; Strategy and Structure; Organizational Behavior; and Group/Organizational Dynamics. The overview of management focuses on the manager's role and function, decision making, ethics, and managerial oversight. Topics covered in a strategy and structure module will include culture, environmental influences, strategy, organizational structure, globalization, and innovation. Organizational Behavior

focuses on how decision making is influenced by various stakeholders who have formal and informal authority and control in a business. What motivates individuals and who are leaders in an organization is discussed along with group dynamics. Understanding team processes, conflict, adaptation to change, and various levels of group and one-on-one communication is important and will be covered by reviewing traditional management strategies and structures along with discussions on current and evolving management issues.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: ENGL 015 or ENGL 030; ECON 102 or ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 321** Leadership and Motivation (3) Applies organizational behavior theories, concepts, and skills to leading and motivating individuals and groups.

### **Leadership and Motivation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: B A 304 or MGMT 301 or 3 credits of psychology sociology or cultural anthropology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 326** Organizational Behavior and Design (3) Concepts, theories, and methods of managing people and designing organizations.

### **MGMT 326 Organizational Behavior and Design (3)**

This introductory course covers the concepts, theories, and methods of managing people and designing organizations. Issues and challenges of managing at different organizational levels (individual, group, project, and total organization) are discussed and illustrated with real-world examples. Students learn about the latest means of designing high-performing organizations, including how to change an organization. This course will serve as a foundation for taking advanced management courses. The primary method of evaluation is an examination after each of the four major parts of the course, but class participation and short papers may also be used for evaluation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: B A 304 or MGMT 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 331** Management and Organization (3) Designing organizations to effectively manage new technologies, structures, and people in changing global contexts.

### **Management and Organization (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: B A 304 MGMT 100 or MGMT 301 ; or 3 credits of psychology sociology or cultural anthropology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 341** Human Resource Management (3) Introduction to the strategic planning and implementation of human resource management, including staffing, development, appraisal, and rewards.

### **Human Resource Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: B A 304 or MGMT 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 397A** Organizational Theory (1-6) Develop insights in students as to how organizations work and how different contingency factors can impact organizations and management decisions.

**Organizational Theory (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: MGMT 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 400** Organization Development (3) A study of organizational change and methodologies related with change and improvement. Examination of planned change on processes, strategies, people and culture in organizations.

**Organization Development (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MGMT 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**MGMT 401** Contemporary Issues in Management (3) Advanced treatment of topics of current managerial significance. Issues examined will differ by instructor, section, and semester. Consult departmental office.

**Contemporary Issues in Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MGMT 321MGMT 331 ; orMGMT 326

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 402** Experiences in Organizational Relations (3) An experiential approach to study of behavior in organizations, applying concepts and theories of management to interpersonal situations.

**Experiences in Organizational Relations (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MGMT 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 409** Project Management for Engineers (3) The course provides a real-time experience to students in engineering and engineering technology in project management with a focus on leadership behavior and decision making.

**Project Management for Engineers (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: 7th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 410** Project Management (3) A problem-based, interdisciplinary course in project management skills and techniques needed to manage projects in a modern business environment.

**MGMT 410 Project Management (3)**

Project Management has been labeled by Fortune magazine as the number one career choice for the coming decade. Increasingly, organizations are adopting project management techniques and structures within their business framework. Project management offers the twin advantages of allowing organizations to create products and processes efficiently, through optimal use of resources, and rapidly, in order to respond to rapid time-to-market demands. This course would greatly aid business majors, as companies are in great need of a trained cadre of qualified project managers who can allow the business firm to operate to its highest potential.

The role of the instructor in this course is to train students in the wide variety of demands and skills for which they must be qualified: the ability to exert leadership in managing project teams, an understanding of people and behavioral skills, and the ability to effectively use computer-based scheduling and tracking software to keep timetables and schedules.

The course itself would be set up around semester-long projects, either developed by the instructor, or developed (in collaboration with the instructor) by students involved in business enterprises. As a result, students would have real-time experience in the challenges of creating a unified team, solving problems, tracking their projects, and presenting a final paper and presentation on the process.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MGMT 301SCM 310

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 415** Project Portfolio Management and Organizations (3) An advanced course in project management focusing on portfolio planning and control within the context of specific organizational challenges.

**MGMT 415 Project Portfolio Management and Organizations (3)**

Project Portfolio Management (PPM) is a strategically-focused course on the management of projects, programs, and

portfolios in organizations. The management of individual projects is a complex, multi-level challenge involving myriad issues of planning, organizing, and controlling all project elements. Project portfolio management addresses a more strategic need; namely, the process of project selection in order to develop a balanced portfolio of projects designed to support organizational initiatives. As a result, this course addresses the critical issues of maximizing value in a portfolio, linking projects to organizational strategy, understanding the critical organization effects of structure, environment, and culture on project success, and creating a coherent PPM framework for the firm.

Because the focus is more strategic, the role of the instructor in this course is to go beyond the mechanics of planning and controlling a single project to training students how to think strategically where projects and programs are concerned; to recognize their role in creating a PPM plan for an organization, selecting projects for value, rebalancing a project portfolio, and maintaining this focus within the organization.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: SCM 301MGMT 409 orMGMT 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 418** Project Planning and Resource Management (3) Advanced course in project management focusing on a more in-depth approach to project planning and scheduling and resource management.

### **MGMT 418 Project Planning and Resource Management (3)**

Project Planning and Resource Management is a more in-depth look at some of the most important aspects of project management; the ability to accurately plan and schedule projects using the latest and most accurate methods. Further, the course addresses resource management within the context of planning, noting the important linkage between these two elements. Accurate planning can be done through a variety of techniques, including CPM, PERT, simulation, linear programming and other optimization methods. Students will learn when each of these methods are most useful, benefits and drawbacks of various planning and resource management techniques, and how to apply these techniques to their projects. In addition, students will learn about different types of project risks, and techniques for analyzing and managing these risks.

Because the focus is hand-on and problem-based. The role of the instructor in this course is to demonstrate these analytical techniques through classroom exercises and assignments and software packages, including MS Project, simulation, and Analytic Hierarchical Process (AHP).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: SCM 301MGMT 409 orMGMT 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 420** Negotiation and Conflict Management (3) An exploration of the sources of interpersonal conflict and strategies of resolution in the managerial context.

### **Negotiation and Conflict Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2010

Prerequisite: MGMT 301 orB A 304

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 424** Interpersonal Relationships in Organizations (3) Developing individual skills in interpersonal and group settings and experience-based and conceptual training in relating effectively to other people.

### **Interpersonal Relationships in Organizations (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MGMT 321 orMGMT 326

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 425** (IST 425, ENGR 425) New Venture Creation (3) Via problem-based learning, teams define new business ventures to meet current market needs, develop business plans, and present to investors.

**MGMT (IST/ENGR) 425 Introduction to Entrepreneurship (3)**

The goal of MGMT (IST/ENGR/ENTR) 425 is to better prepare undergraduate students to be business leaders in adaptive, globally-minded, technology-savvy companies. The course is structured so students develop skills that are of high value in any workplace: they develop improved leadership skills, higher self-efficacy, creativity and the ability to deal with ambiguity. On course completion, students will have a working knowledge of traditional and non-traditional ways for identifying a new product or business opportunity, quantifying the potential, understanding the key competitive factors, researching the audience and producing a convincing executive summary for internal or external financing and launch. Students who want to augment the skills and knowledge from their major with the ability to refine a new product/service process in an interdisciplinary team will find MGMT (IST/ENGR/ENTR) 425 a valuable course.

This is a novel problem-based learning (PBL) course, where the learning is student-centered, with faculty acting primarily in the role of facilitators. Active learning happens in this course because students develop ownership in their new business venture concept and are fully responsible for the genesis of the idea. The course leverages the on-line course management system (ANGEL) to define weekly learning objectives, support electronic delivery of assignments, robust video content with entrepreneurs is provided on CD-ROM or via ANGEL, providing additional insights into entrepreneurship. The technology or business segment focus of the class is easily adapted by using different case studies and course mentors.

This will be one of two courses in the new two-course sequence for business students in entrepreneurship. This course will be accepted as a supporting course in the Engineering Entrepreneurship Minor (E-SHIP) and in the Engineering Leadership Development Minor (ELDM). MGMT (IST/ENGR/ENTR) 425 can be used as a technical elective in many of the engineering departments. It will be accepted as a Support of Option course for the Information Sciences and Technology (IST) major.

This course will be offered each Fall and Spring semester with two sections each semester. Class enrollment per section will be set at 60 total.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 orECON 014;CAS 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 426** (ENGR 426, IST 426) Invention Commercialization (3) Working with Penn State inventions selected by the Intellectual Property Office, student teams define an optimum commercialization path each technology.

**MGMT (IST/ENGR) 426 Invention Commercialization (3)**

The goal of MGMT (IST/ENGR/ENTR) 426 is to have students understand why invention commercialization is complicated and difficult by participating in the process. For example, the inventor rarely has insights into the markets for his/her invention, is often not interested in the details of commercialization, and can be secretive. In addition, the business and financial communities often do not take the time, or have the resources, to understand new technologies and perform complex due diligence. Thus lack of due diligence often leads to rejection of innovation because existing companies often discount new technologies from outside the company as NIH - "not invented here".

Effective transfer of new invention or innovation to a commercial product requires at least three different functional communities to interface: technical, legal and business. Each uses a different language, comes from different educational and cultural backgrounds, and may have an inherent distrust of the others. These functional barriers are difficult to overcome.

This course teaches how these barriers can be broken down as student teams help bridge the perceived chasm between key players in the invention commercialization process. In these teams, students bring the skills and knowledge from their major to develop an invention commercialization recommendation for the Technology Transfer Office and the inventor. For example, business students focus on finance and market opportunity assessment; engineering and IST students focus on design refinements, prototyping support, and (if appropriate) making technology suggestions to the inventor.

Upon completing the course, the students will have a working knowledge of different university and corporate technology or invention commercialization processes, important intellectual property management tools for inventions (patents, license agreements, option agreements) source of funding to move inventions toward product development, and delivering top quality presentations which outline the recommended commercialization path. Students who enjoy open-ended projects which involve the interplay of business and invention of who wants to work on interdisciplinary teams with the newest inventions will find this course a valuable course. NOTE: Because the inventions/products are based on Penn State faculty intellectual property, students must sign the Penn State Special Intellectual Property Agreement For Students - For Use When Assigning Intellectual Property to The Pennsylvania State University. The form can be viewed at <http://guru.psu.edu/policies/RAG13.html>

The course will be offered both Spring and Fall semesters with an enrollment of 40 students.

General Education: None

Diversity: None



Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 orECON 014;CAS 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 427 Managing an Entrepreneurial Start-Up Company (3)** Exploration of the tensions and experiences of starting and growing a new company.

### **MGMT 427 Managing an Entrepreneurial Start-Up Company (3)**

Start-up companies have a high failure rate. Acquiring and balancing limited resources, changing direction quickly, building a coherent team, managing intellectual property, and creating new markets all test a wide range of managerial skills not usually demanded in one person within a larger organization. Whereas a large company has a strong and well-defined structure and ample resources to deal with unexpected challenges, a start-up usually has insufficient resources, or management experience and yet must deal with daily important and often unpredictable forces. It is the tenacity of an entrepreneur that can take a company through the valleys of despair to eventually succeed.

Students will be exposed to these tensions and experience through problem-based learning methods what it is like to start and grow a new company. The course will provide students with knowledge and experience to increase the likelihood of success whether as a principal in a small company or an investor representative.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: ECON 102 orECON 104 orECON 014;CAS 100 ; 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 431 Entrepreneurship and Small Business Management (3)** Entrepreneurship, new ventures, and management of small firms.

### **Entrepreneurship and Small Business Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: ACCTG 211MGMT 301MKTG 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 432 Small Business Field Study (3)** Supervised field study with a small firm.

### **Small Business Field Study (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MGMT 431

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 433 Leadership and Team Building (3)** Team-based learning approach to developing conceptual knowledge, skills sets, and personal competencies needed for leading and managing organizations.

### **MGMT 433 Leadership and Team Building (3)**

To lead effectively and to manage others in contemporary work contexts requires mastery not only of conceptual knowledge, but also of the intra- and inter-personal competencies and skills sets that are vital to successful performance in a work environment. This course emphasizes an experiential-based learning approach that is designed to impart skill sets and competencies in areas such as leadership, teambuilding, negotiating, communicating, valuing diversity, managing conflict, and more. The course thus uses assessment exercises, role playing techniques, group problem solving exercises, and other experiential-based learning techniques in order to provide students with a framework for better understanding their own strengths and weaknesses, to enable them to practice, enhance, and to gain confidence in their competencies in these various areas, as well as to enable students to better appreciate when and how to effectively apply these skills sets and competencies in the workplace.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MGMT 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 440** Advanced Human Resource Management (3) In depth study of human resource management and personnel administration functions and processes.

**Advanced Human Resource Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MGMT 341

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 441** Organizational Staffing and Development (3) This course focuses on the skills and methods managers need to manage staffing and development activities in organizations.

**MGMT 441 HRM Professional Seminar (Part 1): Staffing and Development (3)**

The purpose of this course is to give students the skills and knowledge they need to contribute to organizational staffing and development activities. Students will learn technical and organizational aspects of making hiring decisions, designing and implementing training programs, and developing career management initiatives. Topics include strategic human resource management, HR planning, the contingency workforce, HR information systems and technologies, job design, recruitment, selection, employment legislation, diversity, training, management development, career planning, and the like. This course is normally taken in the first semester of the senior year. It builds on information introduced in MGMT 341 (Human Resources Management) and moves beyond survey-level material to more specialized knowledge and skill. The course is taken concurrently with MGMT 442 (HRM Part One) and is typically taken as a precursor to MGMT 443 (HRM Proseminar, Part Two) and 444 (HRM Practicum, Part Two). These courses together constitute the core of the HRM Option for Management majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: MGMT 341

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 443** Performance Management (3) This course focuses on skills and methods managers need to enhance the contribution of employees to organizational performance and effectiveness.

**MGMT 443 HRM Professional Seminar Part Two: Performance Management (3)**

The purpose of this course is to give students the skills and knowledge they need to enhance the contribution of employees to the performance and effectiveness of the organization. Students will learn technical and organizational aspects of performance planning, goal setting, performance and feedback, compensation and reward systems, incentive systems, high performance work organizational change, and the like. This course is normally taken in the second semester of the senior year. It builds on information introduced in MGMT 341 (Human Resources Management) and moves beyond survey-level material to more specialized knowledge and skill. The course is taken concurrently with MGMT 444 (HRM Practicum, Part Two) and is typically taken after students have completed MGMT 441 (HRM Proseminar, Part One) and MGMT 442 (HRM Practicum, Part One). These courses together constitute the core of the HRM Option for Management majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: MGMT 341

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 445** (US) Managing a Diverse Workforce (3) This course focuses on developing knowledge and skills for managing demographic, functional, occupational and identity-based differences within and among organizations.

**MGMT 445 Managing a Diverse Workforce (3)**

This course focuses on developing knowledge and skills for managing differences within and among organizations. It provides an in-depth look at the sources of diversity-related conflicts in organizations, constructive approaches for managing these conflicts, and how corporations can leverage diversity for competitive advantage. The overall objective is to provide students with an understanding of the business case for diversity, the legal requirements surrounding the management of diversity in organizations, the structural dimensions of implementing diversity programs, skills for

managing diversity in teams, as well as a general sensitivity to the kinds of issues that create conflicts within and between firms. Students will explore legal requirements including: EEOC, affirmative action, and the Americans with Disabilities Act and the implications of these for selection, compensation, promotion and dismissal. Examples of specific steps corporations have taken to address demographic, functional, occupational, and identity-based differences will be provided. Through the use of interactive case studies and experiential exercises, students will be given opportunities to learn about and appreciate their own and others' cultural heritages, reflect on constructive approaches for handling diversity-related conflicts (including those stemming from functional, occupational and identity-based differences as well as demographic ones) and for designing human resource management systems that capitalize on diversity and promotes inclusion.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: B A 304 orMGMT 301;MGMT 341

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 445 (US) Managing a Diverse Workforce (3)** This course focuses on developing knowledge and skills for managing demographic, functional, occupational and identity-based differences within and among organizations.

### **MGMT 445 Managing a Diverse Workforce (3)**

This course focuses on developing knowledge and skills for managing differences within and among organizations. It provides an in-depth look at the sources of diversity-related conflicts in organizations, constructive approaches for managing these conflicts, and how corporations can leverage diversity for competitive advantage. The overall objective is to provide students with an understanding of the business case for diversity, the legal requirements surrounding the management of diversity in organizations, the structural dimensions of implementing diversity programs, skills for managing diversity in teams, as well as a general sensitivity to the kinds of issues that create conflicts within and between firms. Students will explore legal requirements including: EEOC, affirmative action, and the Americans with Disabilities Act and the implications of these for selection, compensation, promotion and dismissal. Examples of specific steps corporations have taken to address demographic, functional, occupational, and identity-based differences will be provided. Through the use of interactive case studies and experiential exercises, students will be given opportunities to learn about and appreciate their own and others' cultural heritages, reflect on constructive approaches for handling diversity-related conflicts (including those stemming from functional, occupational and identity-based differences as well as demographic ones) and for designing human resource management systems that capitalize on diversity and promotes inclusion.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: B A 304 orMGMT 301;MGMT 341

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 450 Labor Management Relations (3)** Study of the key concepts and processes involved in current American labor/management relations.

### **Labor Management Relations (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MGMT 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 451W Business, Ethics, and Society (3)** Advanced examination of social, ethical, legal, economic, equity, environmental, public policy, and political influences on managerial decisions and strategies.

### **MGMT 451W Business, Ethics, and Society (3)**

Focuses on the knowledge, skills, and perspectives that a manager must have in order to deal with the social, legal, ethical, and political demands in society. Ecological, ethical, and public policy dimensions of various managerial decisions are examined.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: B A 241 and B A 242 or B A 243 or B A 342

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 451W Business, Ethics, and Society (3)** Advanced examination of social, ethical, legal, economic, equity, environmental, public policy, and political influences on managerial decisions and strategies.

### **MGMT 451W Business, Ethics, and Society (3)**

Focuses on the knowledge, skills, and perspectives that a manager must have in order to deal with the social, legal, ethical, and political demands in society. Ecological, ethical, and public policy dimensions of various managerial decisions are examined.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: B A 241 and B A 242 or B A 243 or B A 342

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 453 Creativity and Innovation (3)** Analysis of the process of innovation in organizations and of how creativity and other variables influence the process.

### **MGMT 453 Creativity and Innovation (3)**

Creativity and Innovation analyzes the process of innovation in modern business organizations and the variables that influence the process. The relationship between creativity and innovation is investigated and individual, organizational and environmental influences on both the creative and innovation processes are examined. Special attention is given to organizational architectures that are conducive to innovation. A major objective of the course is to help students develop the competencies necessary for managing innovative organizations.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2007  
 Prerequisite: MGMT 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 461 (IL) International Management (3)** Examines issues of nations and cultures including motivation, communication, negotiation, leadership, ethics and social responsibility, and women in management.

### **International Management (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: B A 304 or MGMT 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 466 Organizational Learning and Knowledge Management (3)** Examination of the social processes through which organizations continuously develop, acquire, interpret, and apply information and knowledge for performance enhancement and continuous improvement.

### **MGMT 466 Organizational Learning and Knowledge Management (3)**

The primary focus of this course is to examine critically the social structures and processes through which organizations continuously acquire, develop, organize interpret, distribute and apply information and knowledge for performance enhancement and continuous improvement. Topics such as single-loop learning, double loop learning, and deuterolearning (i.e., learning how to learn) are considered, particularly as they apply to self managed work teams, process-based and network structural design, employee involvement approaches, impact of organizational culture and leadership practices. A second focus of the course is to examine the social processes and structures through which the key outcome of the learning process -- organizational knowledge -- usually expressed in terms of improved core competencies, and intellectual capital, can be leveraged across products, functions, business units, geographical regions, and competitive environments to improve organizational performance and competitive advantage and provide added

value for customers. Particular emphasis is placed on knowledge management in support of the organization's competitive strategy, with a focus on the exchange of tacit, person-to-person knowledge that is difficult to codify and store. Additional emphasis is placed on the mechanisms available for organizational members to gain access to needed knowledge.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MGMT 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 471 Strategic Management (3)** Issues that influence the competitive performance of the firm are identified and examined.

### **MGMT 471 Strategic Management (3)**

This course focuses on the management of the firm using a strategic perspective. The strategic perspective emphasizes the firm as the unit of analysis (e.g., analyzing how a firm competes in its industry), and it addresses key decisions that have a long-term impact on the structure and performance of the organization (e.g., diversifying into a new business or changing the company's strategy). The course draws heavily on prior business courses in accounting, marketing, finance, and international management. Key topics include industry analysis, competitor analysis, company analysis, corporate-level strategy, business-level strategy, strategy implementation, and firm performance. The course is normally taught using the case methods, but the course may include a computer simulation and/or oral group presentations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: MGMT 326B A 411 or taken concurrently

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 471W Strategic Management and Business Policy (3)** Study of strategic management and business policy formulation and implementation processes.

### **Strategic Management and Business Policy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MGMT 301MKTG 301FIN 301SCM 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 475W Strategic Product Development (3)** Study of an organization, industry, and evaluation of the introduction to a new product. Preparation of proposal for industry product.

### **MGMT 475W Strategic Product Development (3)**

This course is the first of a two course sequence that will provide a capstone experience for the Interdisciplinary Business and Engineering BS degree. The tools of strategic management and cross-functional collaboration will be introduced and serve as a background for the design, development, and implementation of a new product within an existing corporation. Student teams will be provided with an industry concept and work toward the objectives of a firm sponsoring the product concept. During the first semester, the evaluation of the product including feasibility of the product, design, manufacture, and intellectual property will be evaluated by student teams and presented to the firm. The final document will include a complete written assessment of each of the components of feasibility.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: 7th semester standing;MGMT 300;FIN 301;SCM 310;MKTG 301;M E 300 orMET 330;MCH T 213 orE MCH 213;EET 101 orE E 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 476 Product Realization Capstone (3)** Study of an organization, industry, and evaluation of the introduction of a new product. Preparation of proposal for industry product.

**MGMT 476 Product Realization Capstone (3)**

This course is the second of a two course sequence that will provide a capstone experience for the Interdisciplinary Business & Engineering BD degree. The tools of strategic management and cross-functional collaboration will be used to design, develop, and implement a new product within an existing corporation. Student teams will be provided with an industry concept and work toward the objectives of a firm sponsoring the product concept. During the second semester, the evaluation of the product including feasibility of the product, design, manufacture, and intellectual property will be used by student teams and a final presentation and written assessment will be prepared for the firm.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: MGMT 475W ; 8th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 483 Compliance and Fairness in Organizations (3)** Compliance with employment laws with respect to managing human resources and fair treatment in employer-employee relationships.

**MGMT 483 Compliance and Fairness in Organizations (3)**

This course is intended for undergraduate students who want to learn more about the laws governing the employment practices introduced in the survey course in human resource management. This course will clarify the legal context within which businesses in general, and managers in particular, manage their employees. Students will learn about the legal rights and responsibilities of both employers and employees. Objectives of the course include learning how to comply with workplace laws and regulations, learning how to legally and effectively implement these requirements in an organization, and, as managers of human resources, knowing how to run a safe and fair workplace. To accomplish these objectives, students will evaluate and analyze federal employment laws and regulations, state employment laws (where applicable), and U.S. Supreme Court rulings. The emphasis will be on providing an informed legal context for managerial behavior. Student achievement of these learning objectives will be evaluated using several methods: students will summarize, interpret, and analyze employment law cases, write and develop a portfolio of critical essays of corporate employment practices, research and present (with team members) a project analyzing a current legal challenge to a specific company employment practice, and prepare a comprehensive written examination of material covered in the course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: MGMT 341

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 489 Seminar in Management (3)** A capstone course in management for students of high academic achievement. Emphasis on in-depth research of current interest.

**Seminar in Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MGMT 301 and at least senior status

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1989

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1989

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MGMT 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Mangt Info Systems (MIS)

**MIS 103** Microcomputer Applications in Business (3) Introduction to current business uses of the microcomputer, including spreadsheets, database management, word processing, and decision-making models.

### Microcomputer Applications in Business (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 190** Microcomputer Accounting and Transaction Processing (3) Use of accounting software to manage small to medium sized businesses, transaction processing, general ledger, payables, receivables, inventory management, payroll.

### Microcomputer Accounting and Transaction Processing (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: CMPSC 203 or MIS 103 . Prerequisite or concurrent: 2 credits in Financial Accounting

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 197** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### Foreign Studies (1-12)

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 204** Introduction to Business Information Systems (3) Introduction to the use of information systems in business organizations.

### MIS 204 Introduction to Business Information Systems (3)

Introduction to Business Information Systems is an applications-oriented course that provides an overview of (1) the role of information systems in business process design, (2) the current technologies used for obtaining, storing, and communicating information in support of operations and decision-making within a business organization, and (3) the concepts and principles for programming, developing, and using popular spreadsheet and database tools. Applications focus on important problems and issues found in business disciplines, including accounting, finance, marketing, supply chain operations, and general management.

The evaluation of students will be based on tests, programming projects, and hands-on exercises. This course is a prescribed course for Smeal Business students. M I S 204 will be offered in the fall, spring and summer semesters, and enrollment per annum of approximately 1, 200 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 204H** Honors Introduction to Management Information Systems (3) Introduction to the use of information systems in business organizations.

### **MIS 204H Introduction to Management Information Systems Honors (3)**

This honors section of MIS 204, will provide enhanced, in depth learning for Schreyer Honor students. MIS 204 is an applications-oriented course that provides an overview of (1) the role of information systems in business process design, (2) the current technologies used for obtaining, storing, and communicating information in support of operations and decision-making within a business organizations, and (3) the concepts and principles for programming, developing, and using popular spreadsheet and database tools. Applications focus on important problems and issues found in business disciplines, including accounting, finance, marketing, supply chain operations, and general management.

The responsibility to understand and recognize opportunities to use information systems belongs to all managers in an organization, not just the information technology managers. As future business managers in diverse functional areas, our students begin their journey to understand the foundations of information systems and how managers are using these systems to increase the competitiveness of their organizations.

As an introductory course, students should be able to come into the class without any prior experience. However, even students with experience will hopefully learn something new. Students will develop a general understanding of how a business functions, understand how information and technology is used within a business and develop new student IT skill sets. In summary, we aim to provide an opportunity for all undergraduate business majors to use IT in their current or future jobs in such a way to ensure the success of their organization.

In addition, the Schreyer Honor students will also be exposed to business data mining, a highly intelligent application of information technology in a variety of business contexts that often lead to core competitive advantages.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 301** Business Analytics (3) The application of IT tools and techniques to extract value from data sets to manage, manipulate and analyze data in organizations.

**MIS 301 Business Analytics (3)**

MIS 301 investigates use of databases, basic data mining tools, social networking software, and advanced level of spreadsheet management for analysis of large amounts of data. Learning methods emphasize active learning in the application of methods and tools to real data and the presentation of the results. Topics may include methods for analyzing not only structured data, but also unstructured data from the web, emails, blogs, social networks, click streams, etc. Finally, techniques for visualizing, presenting and communicating information in a useful way will be presented.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: SCM 200 or STAT 200; MIS 204  
Concurrent: MATH 110 or MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 301** Business Analytics (3) The application of IT tools and techniques to extract value from data sets to manage, manipulate and analyze data in organizations.

**MIS 301 Business Analytics (3)**

MIS 301 investigates use of databases, basic data mining tools, social networking software, and advanced level of spreadsheet management for analysis of large amounts of data. Learning methods emphasize active learning in the application of methods and tools to real data and the presentation of the results. Topics may include methods for analyzing not only structured data, but also unstructured data from the web, emails, blogs, social networks, click streams, etc. Finally, techniques for visualizing, presenting and communicating information in a useful way will be presented.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: SCM 200 or STAT 200; MIS 204  
Concurrent: MATH 110 or MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 307** Algorithmic Concepts (3) Using state-of-art programming language; concepts, program structure and design, documentation, file handling, and elementary data structures are introduced.

**MIS 307 Algorithmic Concepts (3)**

INFSY 307, Algorithmic Concepts , is a required course for information systems majors in the business program. The objective of the course is to present students with the principles of object oriented design and programming using a state-of-the-art programming language such as C++ or Java. Concepts include algorithm development, programming structure, documentation, UML modeling, file management, and elementary data structures such as arrays. The course prerequisites are CMPBD 204 or CMPSC 101 or CSE 103 .

This course requires the students to demonstrate their mastery of object oriented design and programming through a

series of individual programming assignments. In addition, students are assigned a team project to foster problem solving, communication, and team skills required in the Information Technology work force. Individual assessment is also evaluated through exams.

INFSY 307 will be offered once per semester with multiple sections based on student enrollment and demand.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 102 or CMPSC 101 or CMPSC 121

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 336 Database Management Systems (3)** Theory and utilization of database management systems in organizations, including data modeling and applications development.

### **Database Management Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: MIS 204 or MIS 110 or CMPSC 121 or CMPSC 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 387 Website Design and Administration (3)** Applied, hands-on, interdisciplinary website design/administration course. Acquired concepts, techniques and tools are exercised in individual and team projects.

### **MIS 387 Website Design and Administration (3)**

This course is designed to teach students how to design, create, deploy, and administer websites. The students will have the opportunity to obtain a solid understanding of some of the tools and techniques, beyond basic HTML, used to publish on the Internet via the World Wide Web. Additionally, the students will learn how to present themselves professionally on the web to a specific target audience. The students' experiences will not be limited to the design and implementation of a website, but will include the opportunity to work within a team, to understand the benefits of working with client organizations to develop a website, and a web implementation plan.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: MIS 204

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 390 Information Systems Management and Applications (3)** Specification, design and implementation of information systems directed at aiding decision making in organizations.

### **MIS 390 Information System Management and Applications (3)**

INFSY 390, Information Systems Management & Applications, is a required course for Information Systems and Business students. The course covers topics and concepts in Management Information Systems (MIS) and information technology management. Upon successful completion of this course, students will have a broad knowledge of contemporary issues and applications of MIS in business.

In addition to exams, students use hands-on case studies and popular information technology applications in the class room. Students in the course also learn how to develop modern computer-based information systems through a business application project that helps them understand the role of MIS in business organizations.

Topics covered in the course include information systems in the enterprise, e-business and e-commerce, telecommunications and networking, database management, knowledge management, decision support systems, business value of information systems, and social and ethical issues of information systems.

The course prerequisites are IST 110 or MIS 204 & MIS103 or CMPSC203.

INFSY 390 will be offered once per semester with multiple sections based on student enrollment and demand.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MIS 204

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 391 E-Commerce Strategies (3)** Introduction to the fundamental Principles of Electronic Commerce (E-Commerce) technologies, applications, and management of E-Commerce in modern organizations.

**MIS 391 Principles of E-Commerce (3)**

INFSY 391 provides an introduction to the fundamental concepts of e-commerce and serves as a foundation for business undergraduate students to understand e-commerce application and management in modern organizations. The course is designed to appeal to all business undergraduate students. Upon successful completion of this course, the student will have an understanding of the various types of e-commerce utilization and management in organizations throughout the world.

INFSY 391 is an elective in the Business program. INFSY 390, Information Systems Management & Applications, is a required course for Information Systems and Business students and is a prerequisite for INFSY 391. In INFSY 391, Business students will continue to explore the inter-relationship between information technology and organizational functions and management.

In addition to examinations, students will be assigned to project- and team-based assignments where students will actively examine e-commerce applications as well as management cases and the impact of e-commerce on the modern organization. Student performance will be evaluated using both examinations and team project assignments.

INFSY 391 will be offered once per semester with multiple sections based on student enrollment and demand.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MIS 390

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 397A Data Analytics (3)** An introduction to data analytics with data preparation, visualization, dimensions reduction, modeling, and applications in different domain areas.

**Data Analytics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: SCM 200 or STAT 200 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 398 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 399 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 404** Introduction to ERP and Business Processes (3) A problem-based, interdisciplinary course on Enterprise Resource Planning (ERP) concepts and business processes.

**MIS 404 Introduction to ERP and Business Processes (3)**

Enterprise Resource Planning (ERP) a group of integrated software modules used to run virtually all business processes in an organization. The course explains and demonstrates how business processes such as sales logistics, production/material management, procurement, and human resources are supported in an ERP software package.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: MIS 204 or 1st Level Programming Course or with the permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 405** Supply Chain Information Systmes with Oracle (3) Strategic design and implementation of Oracle supply chain management information systems in an ERP environment.

**MIS 405 Supply Chain Information Systems with Oracle (3)**

This course involves extensive discussion and study in the design and understanding of supply chain information systems. The vast majority of business data is generated through the use of supply chain information systems. Successful program mangers and business analysts must understand how the data is generated, and how this strategic data is used to integrate various business functions. This course will focus on the implementation and management of supply chain information systems, and will include topics in the following areas:

- Inventory Management
- Purchasing and Materials Management
- Bills of Material and Engineering
- Master Scheduling and Material Requirements Planning

This course will include a special focus on Oracle eBusiness suite applications and numerous hands-on exercises that will ensure participants understand implementation strategies, supply chain information system processes, and data analysis.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: SCM 301MIS 204

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 406** Customer Information Systems with Oracle (3) A technology-based exploration of the various Oracle Order Management and Customer Relationship Management tools.

**MIS 406 Customer Information Systems with Oracle (3)**

This course provides a detailed explanation of customer relationship and order management within the organizational supply chain. The course demonstrates how Order Management process flows, application functionality, and organizational requirements are utilized to manage and control sales order fulfillment. Additionally the course will demonstrate how Oracle's integrated Customer Relationship Management (CRM) solution provides information-driven sales, service, and marketing support to the organization. Extensive use of state-of-the-art Oracle business software technology is employed.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: MIS 405

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 407** Enterprise Integration with Oracle (3) This is a technology course focusing on software development in an Oracle eBusiness ERP Environment.

**MIS 407 Enterprise Integration with Oracle (3)**

The Oracle Enterprise Integration course will cover the primary functionality of core business application modules and the flow of data through the major database tables. Students will perform SQL queries of critical Oracle ERP tables. Students will develop PL SQL program units which are the foundation of Oracle business modules. The open interfaces for Oracle Inventory and Oracle Purchasing will be demonstrated via programming sessions.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2012  
 Prerequisite: MIS 336

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 410 Health Informatics Capstone (3)** Develop understanding of concepts in Health Information Systems including current trends and issues in using, designing and managing Health systems.

### **Health Informatics Capstone (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: MIS 336KINES 203

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 413 Interface design for Information Systems Applications (3)** The study of interface design emphasizing application and user requirements, development and testing techniques, and information processing issues.

### **MIS 413 Interface Design for Information Systems Applications (3)**

In order to design an information system, the designer must undertake a thorough task analysis to determine the proper functionality of the system. The designer must give attention to system reliability, security, standardization, portability, integration, and many other issues. While these issues are important, they do not directly address the needs of the system's users. The system's interface is the vehicle with which users interact with the system. It is, in essence, the system from the users' standpoint. A poorly-designed interface will deter people from using the system, while a well-designed interface will encourage system usage.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: MIS 307MIS 465

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 430 Systems Analysis (3)** Information analysis and the logical specification of the system.

### **Systems Analysis (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: Prerequisite or concurrent:MIS 336

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 431 Business Data Management (3)** Management of data including large, complex sets to support business analytics, strategy, and operations.

### **MIS 431 Business Data Management (3)**

Business Data Management will enable students to use various database designs to acquire the information needed to make effective business decisions. Successful students will be able to design, create and implement a relational database in MySQL and be able to write SQL statements to obtain information from a database. In addition, students will investigate the next generation approaches for storing, manipulating, and managing web data in unstructured formats. Students will gain an understanding of the advantages and disadvantages among XML, NoSQL, NewSQL, and Relational databases. After completing this course, students should have the knowledge, skills, and abilities to be able to:

- have an understanding of SQL by retrieving data from a database using SQL
- design a database system including an ER Model, and implement the design in an enterprise database application such

as MySQL

- have an understanding of NoSQL databases such as MongoDB and Graph databases, XML native databases, NewSQL databases and the advantages and disadvantages of these databases

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MIS 301

Concurrent: SCM 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 431 Business Data Management (3)** Management of data including large, complex sets to support business analytics, strategy, and operations.

### **MIS 431 Business Data Management (3)**

Business Data Management will enable students to use various database designs to acquire the information needed to make effective business decisions. Successful students will be able to design, create and implement a relational database in MySQL and be able to write SQL statements to obtain information from a database. In addition, students will investigate the next generation approaches for storing, manipulating, and managing web data in unstructured formats. Students will gain an understanding of the advantages and disadvantages among XML, NoSQL, NewSQL, and Relational databases. After completing this course, students should have the knowledge, skills, and abilities to be able to:

- have an understanding of SQL by retrieving data from a database using SQL
- design a database system including an ER Model, and implement the design in an enterprise database application such as MySQL
- have an understanding of NoSQL databases such as MongoDB and Graph databases, XML native databases, NewSQL databases and the advantages and disadvantages of these databases

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MIS 301

Concurrent: SCM 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 432 Business Information System Analysis (3)** The analysis of business information systems and the requirements specifications of redesigned systems.

### **MIS 432 Business Information System Analysis (3)**

Business Information Systems Analysis introduces concepts underlying computer based information systems development. The course focuses on object-oriented concepts, project management and principles of systems development using standard UML diagram methodologies. The course develops a solid understanding of information systems development through the analysis of current information systems and the requirement specifications of a redesigned system, and also provides significant hands on experience using current technologies.

After completing this course, the student should have the knowledge, skills, and abilities to be able to:

- define and document an existing information system;
- analyze an existing information system and specify the requirements for a replacement system;
- use a specific Computer-Aided Software Engineering (CASE) tool to assist in Systems Analysis;
- understand alternative approaches to systems development;
- understand the purpose, context and commonly expected "deliverables" of systems analysis and
- create a substantial project and prepare a professional report

The evaluation of students will be based on tests, lab work, and homework. This is a prescribed course for the M I S major and a support-of-major course for Smeal students M I S 432 will be offered in the fall and spring semesters in sections ranging from 25 to 40 students.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: MIS 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 434 Internet Technologies (3)** Technical foundations and web applications to support internet-based commerce.

### **MIS 434 Internet Technologies (3)**

An increasing volume of business is being conducted over the internet and using mobile devices. In addition a paradigm shift is taking place in that computing platforms are moving from within enterprises to the "cloud," giving rise to the new area of cloud computing. Further mobile devices and platforms are evolving at a rapid pace. As every stationary or moving object (appliance, device, gadget, person, facility, etc.) in the world gets connected to the internet, it is creating a new kind of internet called the "internet of things" that allows sharing of a variety of information about these objects. These developments are leading to major shifts in the way that business is carried out giving rise to an important range of issues related to computing platforms, devices, security, privacy, search advertising, etc. as they relate to business. The focus of this course is to help students gain a deeper understanding of such issues because every business is likely to face them.

We will first expose students to the technological foundations of the e-business environment and to web applications development in the business setting. They will learn about a variety of technologies as they relate to business, such as:

- Web platforms and devices
- Web applications
- Web search and advertising
- Security and privacy of business information on the internet
- Mobile commerce using apps for mobile platforms
- Cloud computing from technical and economic perspectives
- Internet of things

At the end of this course students will appreciate the importance of the internet for a business and learn how to help their business exploit various internet technologies so they can perform better. They will also learn the risks posed by these technologies and how they can protect their business from them.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: MIS 431  
Concurrent: MIS 432

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 434 Internet Technologies (3)** Technical foundations and web applications to support internet-based commerce.

### **MIS 434 Internet Technologies (3)**

An increasing volume of business is being conducted over the internet and using mobile devices. In addition a paradigm shift is taking place in that computing platforms are moving from within enterprises to the "cloud," giving rise to the new area of cloud computing. Further mobile devices and platforms are evolving at a rapid pace. As every stationary or moving object (appliance, device, gadget, person, facility, etc.) in the world gets connected to the internet, it is creating a new kind of internet called the "internet of things" that allows sharing of a variety of information about these objects. These developments are leading to major shifts in the way that business is carried out giving rise to an important range of issues related to computing platforms, devices, security, privacy, search advertising, etc. as they relate to business. The focus of this course is to help students gain a deeper understanding of such issues because every business is likely to face them.

We will first expose students to the technological foundations of the e-business environment and to web applications development in the business setting. They will learn about a variety of technologies as they relate to business, such as:

- Web platforms and devices
- Web applications
- Web search and advertising
- Security and privacy of business information on the internet
- Mobile commerce using apps for mobile platforms
- Cloud computing from technical and economic perspectives
- Internet of things

At the end of this course students will appreciate the importance of the internet for a business and learn how to help their



business exploit various internet technologies so they can perform better. They will also learn the risks posed by these technologies and how they can protect their business from them.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: MIS 431  
 Concurrent: MIS 432

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 435 Systems Design and Implementation (4)** Logical and physical design of information systems and implementation.

### **MIS 435 Systems Design and Implementation (3)**

Current systems development methods involve a use-case based, and iterative and incremental approach. This is the approach generally used on object-oriented systems development projects and is the approach taught in this course.

Design aspects of the course will emphasize design patterns and their application to systems design using the standard software design notation—The Unified Modeling Language. An Agile (light-weight) approach to systems design will be emphasized. Implementation aspects of the course will focus on object-oriented programming using a modern object-oriented programming language.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2012  
 Prerequisite: MIS 430 and a second-level programming course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 436 Business Data Communications (3)** Introduction to the principles and techniques of business data communication encompassing transmission concepts, network analysis, design, implementation, and administration.

### **MIS 436 Business Data Communications (3)**

This course will provide a comprehensive introduction to the principles and techniques of business data communications. The content is directed towards the business student who desires a technical overview of the concepts of data transmission and methodologies employed in designing and managing communication networks. Five specific goals are to provide:

- 1) basic understanding of fundamental transmission concepts underlying current data communication practices used in business;
- 2) an introduction to techniques employed in the design and analysis of communication networks;
- 3) a survey of management issues concerning network planning implementation and administration;
- 4 ) a cursory overview of commercial networking hardware and software products and methodologies used in their evaluation;
- 5) a framework for assessing the strategic uses of communication networks in business.

Students are expected to prepare the end-of-chapter exercises as well as any additional questions based upon other assigned readings. There are four major examinations in this course. Questions will be drawn from the list of expectations concerning the readings and from lecture material. There will be a major student team project associated with this course. The project "deliverables" will be due in phases, and progress will be closely monitored. Students are expected to demonstrate consistent progress and project management skills. The final grade will be based upon the exam average, the team project, and other "subjective" assessments of student performance, such as class attendance, preparedness, and participation.

Students should have completed M I S 431 prior to scheduling this course.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: MIS 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 441 Business Intelligence for Decision Making (3)** Application of Information Technology based methods and tools to analyze business data and support decision making.

### **MIS 441 Business Intelligence for Decision Making (3)**

Business intelligence encompasses the IT tools for exploring, analyzing, integrating, and reporting business data for fact-based, intelligent decision making. This course primarily investigates methods and tools for exploring and analyzing large amounts of business data also called "Big Data." Learning methods emphasize active learning in the application of methods and tools to real data and the presentation of the results. Students will be exposed to a variety of methods for analyzing both structured and unstructured data and they will work with business data sets to understand the value that can be extracted from large data sets. They will also learn how to classify and associate data to discover business rules that can be used to support decision making. The course will also cover methods to analyze social media information and about tools that can facilitate such analysis and discovery. Again they will get a chance to work with data from real social networks to gain an appreciation of how value can be obtained from such networks. Finally, they will learn about techniques for visualizing, presenting and communicating information in a useful way, e.g. through dashboards and with other technologies on various platforms.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: MIS 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 442 Business Information Systems Design (3)** Object-oriented concepts such as: object, instance, class, inheritance, polymorphism; application of these methodologies and design patterns to business system analysis.

### **MIS 442 Object Oriented Business Systems (3)**

Business Information System Design provides an introduction to the logical and physical design of computer based business information systems. The course represents a natural progression from the Business Information Systems Analysis course (M I S 432). Emphasis is placed on object-oriented development paradigms for translating the system analysis results into detailed design specifications for the follow-up system implementation. The course develops a comprehensive understanding of different aspects of business information systems development, including project management, design specification, human interface design, new development methodologies, as well as the practical issues regarding system implementation, operation, and maintenance. The course also provides significant hands-on experience using current software development technologies in team-based real system development projects.

After completing this course, the student should have the knowledge, skills, and abilities to be able to:

- Explain and apply fundamental principles of systems design, implementation, operation, and maintenance in the business context.
- Effectively use system design languages and concepts to produce detailed design specifications based on system analysis outputs.
- Understand the entire life cycle of business information systems and perform effective management throughout the cycle.
- Describe basic elements of advanced topics such as outsourcing, rapid development, extreme programming, and major system development environments.

The evaluation of students will be based on tests, lab work, homework, and course project. This is a prescribed course for the M I S major. M I S 442 will be offered in the fall and spring semesters in sections ranging from 25 to 40 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: MIS 432

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 445 Business Intelligence (4)** Develops insights and skills related to Business Intelligence, Data Warehousing, Data Mining, Analytics, OLAP, and report generators.

### **MIS 445 Management Reporting Systems (4)**

This course develops insights and skills required to analyze management reporting systems, propose improvements, create reports, extract and package data using various software tools, and design data warehouses. It prepares students for the position of a Business Intelligence Specialist who can apply insight and technical competence to the challenges of leveraging Reporting, OLAP, Data Mining, Business Intelligence (BI), and Data Warehouse technologies.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: MIS 336

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 446** Information Technology and Business Strategy (3) Strategic use and management of information technology in digital global economy.

### **MIS 446 Information Technology and Business Strategy (3)**

This course introduces the basics on the interplay between information technology and business strategies. The course starts with the general topic of strategic use of information technology in business (as enabler, differentiator, and disruptor) using examples from a variety of industries, followed by detailed coverage of the information technology strategy in individual industries including e-logistics, e-tailing, e-marketing, e-finance. The course also covers basics on the business information technology infrastructure and environments (Internet, Web, service-oriented computing, and security and risks). Towards the end, the course discusses the role of information technology in the global economy, business value of the explosively growing digital social networks, and other emerging trends and new technology opportunities.

Topics include:

- Information technology strategy. IT-business strategy alignment; IT as enabler, differentiator, and disruptor.
- Internet and Web infrastructure; extranet, intranet, hosting strategies; platform independence; eBusiness technology standards; open versus proprietary technologies; interoperability.
- Web Services for implementing business applications; software as a service; Services science and services oriented architectures.
- Overview of E-Business models, B2B, B2C, (x2y).
- E-logistics and supply chain: Analysis of Dell model; Internet auctions, eBay; e-hubs; i-mode, GPS, RFID.
- E-tailing: Amazon, eBay, Walmart, recommendation systems, reputation systems.
- E-marketing: search engine advertising (Google AdWords/AdSense, Yahoo Search Marketing); database marketing (precision targeting).
- E-finance: online brokerage (Schwab, E\*Trade), wealth management (e-strategy, technology for churn prediction and customer acquisition/retention), payment technologies (paypal), computational trading strategies.
- Collaboration/Community technologies: Blogs, MySpace, Facebook, YouTube, Voice over IP, videoconferencing, RSS, etc.; Impact on business communication and media industry.
- Need for security in ecommerce – threats and solutions.
- Globalization and IT. Offshoring and outsourcing.
- Emerging trends and technology opportunities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: MIS 390

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 448** Business Telecommunications (3) Introduces telecommunication concepts, its evolution, and present applications in business. Discusses the software and hardware components of telecommunication networks.

### **Business Telecommunications (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MIS 390

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 450** System Design Project (3) A project in the design, specification, and programming of a system in an application area.

### **MIS 450 System Design Project (3)**

MIS 450, Systems Design Project, is a required course for information systems majors in the business program. MIS 450 is the capstone course. The primary objective of this course is for students to develop Information Systems (IS) solutions to real-life problems by following the entire systems development lifecycle (SDLC). The course allows students to demonstrate their mastery of the SDLC methodologies and analytical skills. Students develop a team project to foster problem solving, communication, and team skills. Individual assessment is evaluated through demonstration of the understanding of IS skills (i.e. application development, oral presentations, and written communication). Individuals are required to prepare professional written documents (i.e. definition document, the solution proposal, and the design document). Then students develop a solution prototype matching the criteria outlined in their requirement documents.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: MIS 307/MIS 465; MIS 448 ; 3 additional credits of MIS at the 300- or 400-level; seventh or eighth semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 461 Web Technologies (3)** Fundamentals of Web development for e-business and related project management.

### **MIS 461 Web Technologies (3)**

The objectives of this course are to enable students to fully understand the purpose, structure, and components of technologies utilized for e-business applications; to gain substantial hands-on experience, creating applications for e-business; understand how XML and other technologies are revolutionizing the Web and what it will do for complex real-world applications; to make students aware of research issues that apply to Web development; and to strengthen collaborative skills related to project development and management.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MIS 307 and MIS 465

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 465 DataBase Management (3)** Provides a comparison of techniques, methodology of systems, limitations, and applications of various data base management systems.

### **MIS 465 Database Management (3)**

INFSY 445, Database Management, is a required course for information systems majors in the business program. The objective of the course is to present database design and development, specifically relational database management systems (RDBMS), along with project work on developing database systems. The course coverage includes conceptual data modeling, relational data model, structured query language (SQL), data normalization, database integrity, and database administration. Advanced topics such as distributed databases and data warehousing are also discussed briefly. The course prerequisite is CMPBD 204 or CMPSC 101 or CSE 103 and INFSY 390.

This course is centered on a group project involving the design and development of a relational DBMS. Student groups also work on case and homework problems related to database design. A suitable relational database package, like ORACLE, is used by students in the group project. Database design and development involving the creation of tables, queries, forms, and reports are the center piece of the group project.

INFSY 445 will be offered once per semester with multiple sections based on student enrollment and demand.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 102 or CMPSC 101 or CMPSC 121 and MIS 390

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 466 Business Programming for the WEB (3)** Advanced programming for WEB-based applications.

### **MIS 466 Business Programming for the Web (3)**

The objective of this course is to teach students how to create and maintain business applications on the WEB. Students will learn how to use tags, scripting, and a low-level programming language to support business applications.

Students will be encouraged to use the afore mentioned tools to provide useful and well-designed content to the WEB community. The course assumes knowledge of an object-oriented programming language and some introduction to HTML. A state-of-the-art programming language will be used to facilitate learning for project development. Team skills and problem solving, as an important part of the development process, will be emphasized and integrated into project development activities. To be successful in such a work environment, students need to learn how to work together to design, implement and test projects. Electronic commerce, employee training and development, accounting, and finance applications are typical of application areas that will be emphasized.

Specific goals of the course are to:

- 1) expose students to concepts and principles necessary to provide well-designed and useful content on the WEB
- 2) teach students how to apply programming in a WEB-based environment
- 3) show students how these techniques increase productivity of complex systems, and
- 4) further student development of team skills when programming complex systems

INFSY 435 is an elective in the Information Systems program. INFSY 307 or the equivalent, required of all Information System majors.

Student performance will be evaluated by means of assignments, examinations, and team-based projects.

It is expected that this changed course will be offered two times during each academic year.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MIS 307

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 470 Advanced Applications Development (4)** Focus on concepts and practice of advanced tools and techniques such as application generators, object-oriented methods, and client/server development.

#### **MIS 470 Advanced Applications Development (4)**

Develop concepts and skills of advanced tools and techniques for web application development. Design and implement a web user interface that is attractive and intuitive using such tools as ASP.Net. Become familiar with IDEs such as Microsoft Visual Studio and develop skills to access data from popular relational databases in the context of modern web technology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: MIS 336CMPSC 102 orCMPSC 121

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 479 Management of Operations Information/ERP (3)** Management and implementation of enterprise information systems for business integration and supply chain management.

#### **MIS 479 Management of Operations Information/ERP ( 3)**

This course examines enterprise-wide information systems architecture for the business setting and examines current commercial systems, with a special focus on SAP R/3 development tools and techniques. Topics include:

- The acquisition, installation and operation of integrated Enterprise Information Systems [EIS], formerly referred to as Enterprise Resource Management [ERP] systems
- The strategic decisions regarding approaches business organizations select for the acquisition and integration of EIS components and how executive level support for such endeavors is obtained
- The overall management and coordination techniques used in the design, development and implementation of an organization's EIS, including the role that software vendors and other third party's play in the acquisition and implementation of enterprise systems
- The coordination and control of multi-party relationships. Specific analysis and design techniques are taught, including tools and methodologies for analyzing business processes in preparation for implementation of EIS, as well as database and data warehousing requirements.
- The methods of determining data communication network requirements
- The practical implementation concerns are addressed, such as preparing internal organizational units for migration to a new EIS architecture and to the maintenance and operation of EIS including concerns involving security and control.
- The managerial and technical issues involved in the developing and testing of applications and user interfaces and customization of commercial packages.
- The career planning issues and ways of obtaining training for specialization and advancement in careers involving EIS.

This course will be writing intensive. As such, student evaluations will consist of, at a minimum: examinations, position papers, case studies (written and oral), and homework assignments. Both individual and group assignments will be used. The objective is to enhance writing ability relevant to students preparing for careers in business. Group report writing, brief technical writing, technical documentation, end-user documentation, and memo writing will be covered. The major group writing assignments will be required throughout the semester, as well as individual assignments that will be prepared in preparation for the group. Peer assessments and instructor feedback and evaluation will be provided on a regular basis. This is a prescribed course for the M I S major and will be provided in fall and spring semester in sections of not more than 30 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: MIS 390 orMIS 431

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**MIS 479W** Enterprise Information Systems (3) Management and implementation of enterprise information systems for business integration and supply chain management.

### **MIS 479W Enterprise Information Systems (3)**

This course examines enterprise-wide information systems architecture for the business setting and examines current commercial systems, with a special focus on SAP R/3 development tools and techniques.

Topics include:

- The acquisition, installation and operation of Enterprise Information Systems (EIS), formerly referred to as Enterprise Resource Management (ERP) systems
- The strategic decisions regarding approaches business organizations select for the acquisition and integration of EIS components and how executive level support for such endeavors is obtained
- The overall management and coordination techniques used in the design, development and implementation of an organization's EIS, including the role that software vendors and other third party's play in the acquisition and implementation of enterprise systems.
- The coordination and control of multi-party relationships. Specific analysis and design techniques are taught, including tools and methodologies for analyzing business processes in preparation for implementation of EIS, as well as database and data warehousing requirements.
- The methods of determining data communication network requirements
- The practical implementation concerns are addressed, such as preparing internal organizational units for migration to a new EIS architecture and to the maintenance and operation of EIS including concerns involving security and control.
- The managerial and technical issues involved in the developing and testing of applications and user interfaces and customization of commercial packages.
- The career planning issues and ways of obtaining training for specialization and advancement in careers involving EIS.

This course is writing intensive. As such, student evaluations will consist of, at a minimum: examinations, position papers, case studies (written and oral), and assignments. Both individual and group assignments will be used. The objective is to enhance writing ability relevant to students preparing for careers in business. Group report writing, brief technical writing, technical documentation, end-user documentation, and memo writing will be covered. The major group writing assignments will be required throughout the semester, as well as individual assignments that will be prepared in preparation for the group. Peer assessments and instructor feedback and evaluation will be provided on a regular basis. This is a prescribed course for the MIS major.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MIS 434

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 479W** Enterprise Information Systems (3) Management and implementation of enterprise information systems for business integration and supply chain management.

### **MIS 479W Enterprise Information Systems (3)**

This course examines enterprise-wide information systems architecture for the business setting and examines current commercial systems, with a special focus on SAP R/3 development tools and techniques.

Topics include:

- The acquisition, installation and operation of Enterprise Information Systems (EIS), formerly referred to as Enterprise Resource Management (ERP) systems
- The strategic decisions regarding approaches business organizations select for the acquisition and integration of EIS components and how executive level support for such endeavors is obtained
- The overall management and coordination techniques used in the design, development and implementation of an organization's EIS, including the role that software vendors and other third party's play in the acquisition and implementation of enterprise systems.
- The coordination and control of multi-party relationships. Specific analysis and design techniques are taught, including tools and methodologies for analyzing business processes in preparation for implementation of EIS, as well as database and data warehousing requirements.
- The methods of determining data communication network requirements
- The practical implementation concerns are addressed, such as preparing internal organizational units for migration to a new EIS architecture and to the maintenance and operation of EIS including concerns involving security and control.
- The managerial and technical issues involved in the developing and testing of applications and user interfaces and customization of commercial packages.
- The career planning issues and ways of obtaining training for specialization and advancement in careers involving EIS.

This course is writing intensive. As such, student evaluations will consist of, at a minimum: examinations, position papers, case studies (written and oral), and assignments. Both individual and group assignments will be used. The objective is to enhance writing ability relevant to students preparing for careers in business. Group report writing, brief technical writing, technical documentation, end-user documentation, and memo writing will be covered. The major group writing assignments will be required throughout the semester, as well as individual assignments that will be prepared in preparation for the group. Peer assessments and instructor feedback and evaluation will be provided on a regular basis. This is a prescribed course for the MIS major.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: MIS 434

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 489 Seminar in Information Systems (3)** Covers new trends and concepts in information/processing technology and their applications and impact on computer information systems.

### **MIS 489 Seminar in Information Systems (3)**

INFSY 489, Seminar in Information Systems , is an elective course for information systems majors in the business program. Information Systems is a rapidly changing discipline and students must be aware of these changes. This course covers new trends and concepts in information/processing technology and their applications and impact on computer information systems. In this course, students are introduced to new methods, tools, applications and terminology. The students develop key skills in the ability to assess new technologies, and the ability to incorporate these technologies into complex information systems.

Students learn how to work with business applications in the latest prevalent technology. They work both individually and in groups on problems related to the topic addressed in the seminar. Topics for the seminar can differ with each offering of the course. This course is designed to provide the flexibility to coverage current issues and trend in the Information Technology world. Such topics could be (but not limited to) : advanced networking, mobile computing, wireless infrastructure, security, ERP, SAP, and others...

The course prerequisites are INFSY 307 & INFSY 445

INFSY 489 will be offered once per semester based on student enrollment and demand. The topics will vary upon it offering.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: MIS 307 and MIS 465

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 496A** Social Media Project Development (1-6) Work with instructor to develop a series of exercises and projects for a social media module and course.

**Social Media Project Development (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: MIS 387

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIS 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

## Marketing (MKTG)

**MKTG 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### Foreign Studies (1-12)

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 220** Introduction to Selling Techniques (3) Principles underlying the sales process and practical application of these principles to selling situations. Studies role of selling in total marketing process.

### Introduction to Selling Techniques (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: third-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 221** Contemporary American Marketing (3) Social and economic aspects, movement of goods and services from producers to consumers; analysis of marketing functions, systems, and institutions. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 303 or MKTG 301.

### Contemporary American Marketing (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1996  
Prerequisite: 3 credits in economics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 221W** Contemporary American Marketing (3) Social and economic aspects; movement of goods and services from producers to consumers; analysis of marketing functions, systems, and institutions. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 303 or MKTG 301.

### Contemporary American Marketing (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1993  
Prerequisite: 3 credits in economics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### Independent Studies (1-18)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 301** Principles of Marketing (3) Focuses on customer behavior, product, channels of distribution, promotion, and pricing with emphasis on a culturally diverse environment. Not available to students who have taken B A 303.

#### **MKTG 301 Principles of Marketing (3)**

MKTG 301, Principles of Marketing is a three credit course offered each semester across Penn State and covers terminology and important concepts related to marketing in the business environment. Domestic and international environments that impact marketing are included, with particular emphasis on the marketing environment, segmentation, positioning and targeting. MKTG 301 course objectives include providing an overview and introduction to marketing; demonstrating the relationship of marketing to other functions and processes in a business organization on an integrated basis; providing real world examples of challenges and issues related to marketing; and explaining and discussing important concepts and analytical tools in marketing.

Major themes embedded in the foundation of MKTG 301 include domestic and global economic factors influencing current marketing environments; how consumer, business and organizational customers are segmented and targeted; how marketing research and information systems are used to create and guide marketing strategies; how products are developed to serve customers, businesses and organizations; how service products are developed and managed to meet customer needs; how customers are reached through various conventional and technological channels and how these sales management processes are managed; how people in the United States and other nations are influenced by marketing in the non-profit sector; how products and services are marketed to other businesses and organizational customers; how marketing communications programs, which include advertising, publicity, sales promotion and web sites, are designed to reach domestic and international customers; how pricing strategies support corporate objectives in various economic climates; and how marketing programs adapt to shifts towards global markets.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

Prerequisite: ENGL 015 or ENGL 030; ECON 102 or ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 301H** Principles of Marketing (Honors) (3) This course emphasizes fundamental marketing concepts (e.g., segmentation, targeting, and positioning) and the use of marketing research to inform managerial decision-making.

#### **MKTG 301H Principles of Marketing (Honors) (3)**

Marketing begins and ends with the customer, from determining wants and needs to providing customer satisfaction. This course will emphasize fundamental marketing concepts, such as segmentation, targeting, and positioning, and the 4 P's (product, price, place, and promotion). In addition, the course will emphasize the use of marketing research to inform managerial decision-making. The overarching goal of this course is to introduce you to a) the role of marketing within business organizations and society, and b) the concepts and activities in marketing that create and deliver value to customers. At the conclusion of this course, students will be able to: 1) explain the fundamental concepts of marketing and the role of marketing in business; 2) apply marketing concepts and analysis tools to managerial decision-making; and, 3) provide real-world examples of challenges and issues in marketing.

Major themes embedded in MKTG 301H include: domestic and global socioeconomic factors that influence marketing environments; the use of marketing research and information systems to create and guide marketing strategies; how consumers, businesses and organizational customers are segmented and targeted; how products are developed to serve customers, businesses and organizations; unique issues in the marketing of services versus goods; how customers are reached through conventional and technological channels; the sales function, including how sales processes are managed; how marketing communications programs (including advertising, publicity, sales promotion and new media) influence

customers; how pricing strategies support corporate objectives, and how consumers respond to pricing; the roles of non-profit and social marketing; corporate social responsibility and sustainability in marketing; and the impact of marketing on society.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: ENGL 015 ENGL 030 ENGL 137H or CAS 137H; ECON 102 or ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 301W** Principles of Marketing (3) Focuses on customer behavior, product, channels of distribution, promotion, and pricing with emphasis on a culturally diverse environment. Not available to students who have taken BA 303.

### **MKTG 301W Principles of Marketing (3)**

MKTG 301W, Principles of Marketing is a three credit course offered each semester across Penn State and covers terminology and important concepts related to marketing in the business environment. Domestic and international environments that impact marketing are included, with particular emphasis on the marketing environment, segmentation, positioning and targeting. MKTG 301W course objectives include providing an overview and introduction to marketing; demonstrating the relationship of marketing to other functions and processes in a business organization on an integrated basis; providing real world examples of challenges and issues related to marketing; and explaining and discussing important concepts and analytical tools in marketing.

Major themes embedded in the foundation of MKTG 301W include domestic and global economic factors influencing current marketing environments; how consumer, business and organizational customers are segmented and targeted; how marketing research and information systems are used to create and guide marketing strategies; how products are developed to serve customers, businesses and organizations; how service products are developed and managed to meet customer needs; how customers are reached through various conventional and technological channels and how these sales management processes are managed; how people in the United States and other nations are influenced by marketing in the non-profit sector; how products and services are marketed to other businesses and organizational customers; how marketing communications programs, which include advertising, publicity, sales promotion and web sites, are designed to reach domestic and international customers; how pricing strategies support corporate objectives in various economic climates; and how marketing programs adapt to shifts towards global markets.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: ENGL 015 or ENGL 030; ECON 102 or ECON 104; MATH 021 or higher or satisfactory score on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 302** Marketing Techniques for Electronic Commerce (3) Explores methods to implement/adapt marketing methods to the Internet; builds upon introductory marketing classes to examine what does/doesn't work.

### **MKTG 302 Marketing Techniques for Electronic Commerce (3)**

This course examines the role of commerce and marketing with special focus on Internet commerce topics including: the commerce value chain, business strategies and business strategies for the global marketplace. Several Internet business models are examined. These include: business-to-business (B2B); business-to-consumer (B2C); consumer-to-consumer (C2C); and government-to-consumer (G2C); and other permutations of these models. Marketing fundamentals include market segmentation and product life cycle, and similar topics are reviewed with the emphasis on Internet implementation. Specific methods for conducting market research using the Internet as well as methods to determine who is the "average" Internet user are examined. Advertising methods for the Internet vs. the traditional advertising mediums of TV, radio, and print, and methods to measure advertising success on the Internet are discussed. The Internet removes existing roadblocks and adds new roadblocks for businesses, thus requiring different pricing strategies. Distribution channels and methods of supply-chain management are studied. How marketers utilize e-mail, site commissions, cookies, filters, and databases is examined. Security, privacy, and ethical issues, e.g., consumers' rights to privacy and sale of consumer information, are reviewed. Finally, a market plan to migrate business functions to the Internet is developed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: B A 303 or MKTG 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 310** Public Relations and Marketing (3) Examination of the role of public relations in a company's efforts to manufacture and market its products and services.

**Public Relations and Marketing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: B A 303 orMKTG 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 327** Retailing (3) Management of marketing institutions in distribution channels from producers to consumers. Emphasis on retail institutions: location, personnel, merchandising, control, promotion.

**Retailing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: B A 303 orMKTG 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 330** Consumer Behavior (3) Application of behavioral science concepts to the understanding of buyer behavior as a basis for marketing management decision making.

**Consumer Behavior (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: B A 303 orMKTG 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 342** Marketing Research (3) Research approaches, methods, and applications studied as a formal approach to problem solving for marketing decisions.

**Marketing Research (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: B A 303 orMKTG 301;SCM 200 orSTAT 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 344** Buyer Behavior (3) Application of behavioral science concepts to the understanding of buyer behavior as a basis for strategic decisions in marketing management.

**MKTG 344 Buyer Behavior (3)**

This course will acquaint students with the field of consumer behavior and its major concepts, research techniques, and research findings. Consumer behavior is presented as an actionable and strategic discipline. Students will be exposed to individual and psychological factors, as well as the social and cultural factors, that influence consumer behavior.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: MKTG 301 andMKTG 342

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 410** Personal Selling (3) Principles underlying the selling process and practical application of these principles to selling situations.

**Personal Selling (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MKTG 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 420** Direct Marketing (3) Applies principles of marketing management to the direct marketing of products by mail, telephone, print, and broadcast media.

**Direct Marketing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: MKTG 330 or MKTG 342

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 422** Advertising and Sales Promotion Management (3) Perspectives and models of the key decisions involved in managing advertising and sales promotion campaigns.

**Advertising and Sales Promotion Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MKTG 330 or MKTG 342

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 426** Business Marketing (3) Developing marketing strategies and programs. The course emphasizes the special nature of the business and organizational markets.

**Business Marketing (3)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: MKTG 330MKTG 342

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 428** Advanced Sales Management (3) Approaches to planning, organizing, staffing, training, directing, and controlling the sales force in support of marketing objectives.

**Advanced Sales Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MKTG 330MKTG 342

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 437** Advanced Retailing and Merchandise Management (3) Analyzing planning and controlling the retail merchandising effort, including procurement, resource selection, vendor relations, product presentation, inventory control.

**Advanced Retailing and Merchandise Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: MKTG 330MKTG 342

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 440** Services Marketing (3) Marketing theory and methods applied to profit and nonprofit service industries such as health care, finance, transportation, tourism, arts and consulting.

**Services Marketing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: MKTG 330MKTG 342

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 441** Sustainability in Marketing Strategy (3) This course examines sustainability in marketing strategy, including real- world applications, green solutions, and using marketing principles to solve social issues.

**MKTG 441 Sustainability in Marketing Strategy (3)**

This course will examine the growing trend of sustainability and its implications for marketing in today's world and in the future. It will explore how businesses develop and implement marketing strategies to promote sustainability, and analyze how companies are performing.

Businesses are increasingly applying the concepts of sustainability to their decision-making for marketing strategy. Some firms are leaders in the sustainability movement, and are motivated by ethical conviction to do well for society and the environment. Others find themselves forced by pressure from shareholders, customers, governmental regulation, and peers.

Given this increased attention to the concepts of sustainability by stakeholders, businesses are also looking for future employees with an understanding of the phenomenon.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: MKTG 301MKTG 342

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 443** Sports Marketing (3) This course will focus on how companies develop, execute and measure marketing strategies and tactics to use sports teams, families, leagues and other organizations to market their products and services domestically and internationally to consumers and business partners. The course will examine the marketing

strategies employed by sports teams and leagues.

### **MKTG 443 Sports Marketing (3)**

"Sports Marketing" is designed to explore how various types of businesses and other organizations market products and/or service related to sports as well as how sports are used as marketing platforms for non-sports products. Unique aspects of the sports business will be explored including how strategies and tactics related to marketing in this sector differs from other industries. The purpose of this course is to provide an overview of various aspects of sports marketing. This will include the use of sports as a marketing tool for other products, the marketing of sports products and emerging considerations that are relevant for both marketing through and the marketing of sports. Since sports involves consumers, businesses and other organizations, this courses will cover B2C as well as B2B marketing.

How product, distribution, pricing and promotional programs are developed particular to this industry will be one of the primary focuses. Relationship marketing, the role of technology, sponsorships, ambush marketing, partnership leveraging, endorsements, venue naming rights, licensing and emerging legal and ethical issues will also be important focuses.

A guest speaker series will provide additional professional perspectives on a variety of unique aspects of marketing particular to sports. Reading Sports Business Journal, the most highly regarded source of news by sports industry employees, will further expand this knowledge base as will current news events related to the industry. Students will be provided an opportunity to network with guest speakers and those interested in considering sports among their job search, will also be able to receive internship and career counseling from the instructional team. Students enrolled in this class will also be able to submit resumes and requests to be interviewed for internships with various sports organizations being arranged in cooperation with the Smeal College Corporate and Career Services Office.

Students will apply what is being learned in the class to the development of a project related to sports marketing, with the added benefit of having a deliverable which can be used to further the search for jobs and/or internships in the sports business.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: B A 303 or MKTG 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 445 (IL) Global Marketing (3)** Role of international marketing in the global environment; political, economic, geographic, historical, cultural conditions; developing and implementing international marketing strategies.

### **MKTG (I B) 445 Global Marketing (3) (IL)**

MKTG/I B 445 focuses on the wide range of issues, which face enterprises as they develop and execute marketing strategies and tactics, designed to support business activities in markets outside their home country. This course deals directly with these issues as they apply to firms, which concentrate on a few markets closer to home, or on many markets throughout the world, including via the Internet. This course also deals with the important role played by governments in shaping the global marketing environment, including through trade policies, treaties and marketing supports. Students successfully completing this course also gain a greater understanding of the cultural, technological, economic, political and social environments which international businesses and global marketers face as they seek to expand their product and/or service offerings into other nations. Understanding this important part of the challenge facing international businesses and global marketers is achieved through the text, lectures, and student group projects and presentations including some focused on specific countries, including both major trading partners of the United States and select emerging new markets. This course is designed for students who have an interest in these topics and/or who plan to enter fields such as international business or global marketing and/or who expect to work for businesses, which are active internationally. Class discussions and projects are designed to help students explore these topics in greater depth. A series of small group assignments and presentations will further help students apply what is being learned via problem-based learning. This is an interactive class. Therefore, a portion of the grade each student achieves will be based on class attendance and participation. Students are also expected to pay attention to examples of the issues discussed in class that they encounter during the semester in print broadcast, and online communications. Along with material from lectures and the text, issues discussed in class will be included in the exam.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: B A 303 or MKTG 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 450W Marketing Strategy (3)** Market-oriented problems of the firm; identification and selection of market opportunities; formulation of competitive strategies; marketing policies and programs.

### **Marketing Strategy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MKTG 330MKTG 342

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 475 Innovation and Product Management (3)** This course is an application-oriented interdisciplinary course on new product development concepts, and innovation management.

### **MKTG 475 Innovation and Product Management (3)**

This course is designed to provide students the opportunity to examine and understand the new product development process. It takes the process from the strategy and ideation stage to the after-market product launch. The course blends the perspectives of marketing, management, and engineering into a single approach to product development. It provides students with an appreciation for the realities of industrial new product development practice. Therefore, case studies and other in-class assignments are designed in a way that students can apply the theoretical/abstract concepts to the real life phenomenon. The new product development projects are assigned to teams in real life, students have the opportunity to complete the case analyses and assignments in teams. Course aims to integrate micro level new product development issues (e.g., firm-level product strategy) to macro level issues (e.g., anti-trust regulations and legislations).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: MKTG 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 476 Sales Management (3)** Application of modern management principles to field sales force planning, organization, and administration; selection, training, and compensation plans.

### **Sales Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MKTG 301 andMGMT 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 478 Services Marketing Management (3)** Conceptual understanding of services and the analytical tools that are used in solving strategic services marketing problems.

### **Services Marketing Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MKTG 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 480 Intermediate Social Media Marketing (3)** Social Media Marketing tools, techniques, and strategies to build brands and customers.

### **MKTG 480 Intermediate Social Media Marketing (3)**

In today's business world, marketers must become more creative in the ways in which they present their company on an Internet based platform such as Twitter, Facebook, and Linked-In in order to present increasingly relevant products and services to a more receptive customer base. The course, Intermediate Social Media Marketing, is designed to provide hands-on experiences with the use of Social Media Marketing tools and techniques while adhering to socially acceptable and ethical standards and protocols.

The technology tools and platforms include but not limited to: Facebook, LinkedIn, Twitter, YouTube, Google+, Pinterest, Foursquare, Friendster, Technorati, Blogs, Vlogs, Podcats, Hootsuite, Radian6, various search engines, and QR codes. These social media tools can be used to find, reach, connect, and automate marketing messages to efficiently and effectively build relationships, stronger brands and loyalty. These technologies may be utilized with or without a fully realized marketing automation structure, allowing ideas to be shared on a global platform.

Students will learn and apply the major categories of Social Media tools, the how's and why's of their use, and decide what venues to use to reach the social media marketing objectives of firms, which may include improving the content to increase online presence, brand awareness, fan likings, customer inquiries, and sales.



During this course, students will devise a social media marketing plan for a local firm (or firms) that addresses (1) platform, (2) content, and (3) interaction. This course will achieve academic excellence by having students research the latest techniques and practices of social media, mobile, and direct marketing to build a social media marketing plan for a local firm (or firms) to expand its markets. Students will be analyzing a firm's current traditional and social media marketing practices, and short-term and long-term goals for its target markets.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: MIS 204 and MKTG 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 485 Business-to-Business Marketing (3)** Application of marketing principles to commercial enterprises, industrial firms, government, and other non-profit institutions.

### **Business-to-Business Marketing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MKTG 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 495 Internship (1-18)** Supervised off campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: B A 303 OR MKTG 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 497A** Sports Business (3) This course will introduce you to the major marketing and business activities of the sports industry. Emphasis will be placed on understanding the unique aspects of the sports product that is being marketed and on the sports consumer to whom the product is targeted. The course will cover a wide range of marketing concepts in international, intercollegiate, and men's and women's professional sports.

### **Sports Business (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: MKTG 330MKTG 342

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MKTG 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Materials Engineering Technology (MAE T)**

**MAE T 201** Introduction to Materials Engineering Technology (3) An introduction to Materials Engineering Technology emphasizing relationships between structure and properties of engineering materials.

### **MAE T 201 Introduction to Materials Engineering Technology (3)**

This course provides an overview of the basic science and technology of materials to two year associate degree students. The objective is to provide students with an understanding of how structure/property/processing relationships are developed and used for different types of materials with an emphasis on ferrous based metal alloys. Knowledge of these basics is needed to provide a foundation for study of the fundamentals and applications of powder metallurgy.

The course begins with a general introduction to materials science and materials engineering. Here the student is expected to gain an appreciation for the importance of studying materials. The first major topic covers the fundamental

basis of the science of materials - atomic structure and bonding. Basic chemistry is reviewed, including the structure of atoms, chemical bonding, types of bonds, and the relationship of bonding to arrangement in the periodic table. The next topic addresses crystal structure and crystal geometry. Crystal structures for common metals are presented using the hard sphere model. The concepts of space lattice, unit cells, crystallographic directions, crystallographic planes, and polymorphism are discussed. Following crystal structures, the basic science of solidification is introduced and some common processing techniques used for fabricating metal components are presented. This includes direct pour ingot casting, semicontinuous casting, continuous casting, and growth of single crystals. Crystalline imperfections in solids and how these imperfections can influence material properties are discussed. The phenomenon of diffusion in solids is covered so that students may gain a quantitative understanding of the kinetics of rate processes and the effects of temperature on diffusion. A few practical industrial applications of diffusion processes are presented. An important topic covered in this course is interpretation of binary phase diagrams. The student is expected to understand the concepts of phase diagram, Gibb's phase rule, binary isomorphous alloy systems, lever rule, nonequilibrium solidification, binary eutectic alloy systems, binary peritectic alloy systems, and binary monotectic systems. In addition, invariant reactions and phase diagrams with intermediate phases and compounds are discussed. The last topic covers engineering alloys with emphasis on iron and steel alloys. Steel processing, alloy designation, phases, constituents, and invariant reactions in the iron-iron carbide phase diagram are reviewed. The student is introduced to isothermal transformation diagrams and learns how to predict microstructures formed during common heat treatments. Alloy steels are presented, including classification of alloy steels, effects of alloying elements, and hardenability testing.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 110MATH 082

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MAE T 202 Materials Testing (3)** A review of industrial methods and testing standards used for mechanical property testing and evaluation of engineering materials.

### **MAE T 202 Materials Testing (3)**

This course provides an overview of testing of engineering materials to two year associate degree students. The objective is for students to gain familiarity with common methods of testing for the properties of materials. A broad knowledge of materials testing is needed in dealing with the specification and acceptance of materials fabricated using powdered metal (P/M) technology.

This course begins with a short introduction on the role of testing in controlling material properties. The first major topic is metrology. This gives the students a review of common gauges used for dimensional measurement. The next topic covers statistics and data analysis. Here it is important for the student to gain an understanding of how to record and present numerical data. The concepts of mean, standard deviation, coefficient of variation, grouped data, frequency polygon, ogive, cumulative percent, and histogram are reviewed. Following statistics, the basic principles of mechanical behavior are presented. The concepts of stress, strain, elasticity, strength, and ductility are introduced. Tensile testing is covered in considerable depth and includes details of the testing apparatus, test specimens, test procedures, and data interpretation. Other common mechanical tests used in engineering work are presented. This includes compression testing, hardness testing, shear testing, bend testing, and impact testing. The student is introduced to standard procedures used in materials testing as described by the American Society for Testing and Materials (ASTM) and by other literature published by the Metal Powder industries Federation (MPIF). Fatigue testing is introduced to the student using stress vs. cycles to failure curves. This also includes various types of fatigue testing apparatus, test specimens, and test procedures. Nondestructive testing (NDT) techniques are discussed. The emphasis here is on how surface and subsurface structural flaws (i.e., cracks) may be detected in components without physically destroying them.

A major shift in topics occurs when scanning electron microscopy (SEM) is presented. The SEM is an important topic because of its use in fractography and failure analysis. Elements of fracture mechanics are covered to give insight into why and how fracture may occur in components at stress levels well below the ultimate tensile strength due to the presence of a critical sized flaw. The final topic in the course is failure analysis. Case histories of actual part failures are discussed, and suggested guidelines in carrying out failure analysis are presented.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: MATH 082PHYS 150

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MAE T 203 Introduction to Powder Metallurgy (3)** A comprehensive study of powdered metal technology including production, characterization, compaction, sintering, and finishing operations.

### **MAE T 203 Introduction to Powder Metallurgy (3)**

This course is comprehensive study of powdered metal technology for two year associate degree students. The objective is for students to gain familiarity with fundamental concepts associated with powdered metal (P/M) technology. Topics

include powder sampling, powder characterization, test methods/techniques, compaction, sintering, finishing operations, and powder fabrication.

This course starts with a brief introduction to powder metallurgy that covers the historical development and industrial need for P/M engineered components. The first major topic is powders. Different ways to obtain a representative sample of powder from a large storage container are discussed. Powder characteristics such as average particle size, particle shape, flow ability, and particle size distribution are covered in some detail. Other important properties of loose powder covered include apparent (Hall) density, Arnold density, and tap density. The student is introduced to standard procedures used in powder testing as described by the Metal Powder Industries Federation (MPIF). The next major topic is powder compaction. This starts with a short description of the different types of presses used in classical "die press and sinter" P/M processing. Different types of die press set ups are reviewed along with compaction tooling requirements. Compressibility of loose powder is discussed with an emphasis on the factors for predicting, both qualitatively and quantitatively, that influence the green density of powder compacts. The effect of lubricants on compressibility is included here. A milestone topic in this course is on sintering theory. Material transport mechanisms that may occur during sintering and their effects of densification are presented from a theoretical viewpoint. Variables that influence densification during sintering are emphasized. Liquid phase sintering and activated sintering are included. Practical examples and microstructures of sintered engineering materials are presented. Sintering furnaces are discussed with the comparative advantages and disadvantages of different types of sintering atmospheres used. The effect of the sintering atmosphere on the composition, microstructure and mechanical properties of powder compacts is discussed. The next topic is finishing operations that are used to modify components after they have been sintered. This includes operations like refinishing, sizing, coining, steam oxidation, tumbling, and machining. The last topic covered in this course is powder fabrication. Four basic methods of producing metal powders are discussed: mechanical fabrication, electrolytic fabrication, chemical fabrication, and atomization. Typical examples of the resulting powders are given along with how fabrication method affects the size, shape, microstructure, chemistry and cost of the powder.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 110MATH 082

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MAE T 204W Structure Characterization Laboratory (3)** A hands-on experience course with emphasis on equipment and lab techniques used for microstructural evaluation of metals.

### **MAE T 204W Structure Characterization Laboratory (3)**

This is a laboratory course for two year associate degree students with emphasis on equipment and techniques used for microstructural evaluation of metals. The objective is to provide students with practical laboratory skills in metallography and optical microscopy needed to observe and interpret microstructures of various metal alloys. Furthermore, the student gains valuable writing experience in preparing concise and effective technical reports.

Lectures, videotapes, and demonstrations are used to introduce students to fundamental concepts and special techniques used in metallography and microstructural analysis of metals. The course begins with a brief overview of metallography and a discussion of safety in the laboratory. Elements of good technical report writing are introduced. Metallographic principles are presented using reference brochures and videotapes. This includes sectioning, mounting, coarse grinding, fine grinding, rough polishing, final polishing and microetching. Added topics cover the fundamentals of metallographs and photomicrography.

A review of the iron-iron carbide system is given based upon material presented in MAE T 201 taught in the third semester of the materials program. Supplementary material on copper alloys is introduced latter in the course so that the physical metallurgy of brass and bronze can be better grasped by the student.

This course has three laboratory experiments: (1) specimen preparation and optical microscopy, (2) characterization of powdered metal (P/Ni) iron and carbon steel alloys, and (3) characterization of wrought brass, wrought bronze, and sintered bronze alloys. Each experiment requires that the students prepare a technical report that is graded for its grammar, spelling, technical accuracy, and completeness. The student gains valuable experience in preparing metallographic specimens and appreciates the importance of achieving a representative structure. Laboratory work requires observing and interpreting microstructures of both wrought and porous P/N4 iron and carbon steel alloys. Quantitative metallography is used by students to estimate the carbon content of a selected P/M carbon steel alloy. Special metallographic techniques are learned for preparing porous P/1/4 alloys to reveal their true pore structure. The student develops experimental skills in measuring the density P/M samples and the surface hardness of polished metallographic samples. Also, experience at identifying microconstituents in non-ferrous based alloys is of particular value to the student. The technical reports require the presentation of Rockwell hardness and Knoop microhardness data in the form of tables and graphs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: MAE T 201CHEM 111PHYS 150

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MAE T 205 Powder Metallurgy Laboratory (4)** A capstone course emphasizing hands-on laboratory experience in powder metallurgy and semester project; field trips to nearby P/M industries.

**MAE T 205 Powder Metallurgy Laboratory (4)**

This is a capstone course emphasizing hands-on laboratory experience in powder metallurgy. Students carry out routine engineering tests on powdered metal materials and document experimental data in a laboratory notebook. Each student is assigned a semester project and prepares a final written report and oral presentation on their findings. Class field trips give students direct exposure to local industries that use P/M technology.

The course begins with a brief introduction covering course requirements and lab safety rules. A review of technical writing is presented which addresses elements of effective workplace writing, technical business letters, resumes, cover letters, and use of the Penn State library. A general discussion and demonstration is given for various metal powder testing methods. This is based upon material presented in MAE T 203 taught in the third semester of the materials program. The student is referred to the published procedures described in the standard test methods for metal powders and powder metallurgy products established by the Metal Powder Industries Federation (MPIF). Supplementary material on stainless steel alloys is introduced since this type of powder is used for the in-class demonstrations by the instructor. Students are required to participate in a class exercise in characterizing a selected stainless steel powder. This exercise covers powder sampling, flow ability, apparent density, tap density, sieve analysis, average particle size and powder shape. The exercise also covers powder compaction behavior by requiring the students to fabricate transverse rupture specimens and measure the resulting green density associated with a given loading pressure. Each student learns how to record their data in their own laboratory notebook using a standard format. One unique feature of this course is the scheduled class field trips to nearby P/M industries and the particulate matter laboratory at State College.

A major turning point occurs when each student is assigned a semester project and allowed to work independently on their project for the remainder of the semester. This project requires that the student contact a vendor and order metal powder for evaluation. The student performs engineering tests on this powder and prepares a written report on their findings. An outline for the content and depth of discussion for written reports is provided by the instructor. The last scheduled day of class is used for student presentations on their semester project to peers and industry representatives.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: MAE T 201MAE T 202MAE T 203CHEM 111MATH 083

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MAE T 294 Research Topics (1-12)** Supervised student activities on research projects identified on an individual or small group basis.

**Research Topics (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2009

Prerequisite: third semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MAE T 296 Independent Study (1-6)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Study (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2009

Prerequisite: prior written approval of MAE T faculty member

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MAE T 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

## Materials Science and Engineering (MATSE)

**MATSE 081 (GN;IL)** Materials in Today's World (3) A survey of the properties, manufacture, and uses of polymers, ceramics and metals in today's world with emphasis on modern developments and new materials.

### **MATSE 081 Materials in Today's World (3) (GN;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

MATSE 081 presents the basic science and technology of materials to non-science students. The course concentrates on "Materials in Today's World" but frames the discussion in a relevant historical framework. The lectures are built around "The Central Paradigm of Materials Science and Engineering" which links processing to structures to properties to performance.

The fundamental basis of the science of materials, structure, is addressed first. Beginning at the sub-atomic level, the students are introduced to the intrinsically simple concept of metals and non-metals, and to a fundamental understanding of The Periodic Table. From these conceptual ideas, ceramics and electronic materials are rationalized on the basis of their electronic structures.

The properties of materials, e.g., mechanical, thermal, electronic and photonic are developed directly from a knowledge of the structures discussed in earlier lectures. The concept of materials' design is introduced with respect to the properties of density, melting point and hardness. "Young's modulus design" is also described.

There are as many processing routes as there are materials. Hence, the slate of lectures on processing, investigates prototypical examples of: metals - steel; ceramics - vitreous ceramics; and polymers-polyethylene. Current practices for e.g., the processing of steel and vitreous ceramics are compared with those, which were employed in antiquity.

The performance of materials is a constant theme that permeates all the lectures. For example, during the "firing of clay ceramics", the question "how does the temperature of firing affect both performance and utility?" is addressed.

The great thinkers of the physical sciences are introduced via vignettes that are presented, often at the beginning of class. Giants such as Aristotle and Newton are described, warts and all, in an effort to make science a broader part of the human experience. The professor also uses many examples from his own scientific experiences, and his interaction with some of the more (in) famous of the modern scientists.

General Education: GN

Diversity: IL

Bachelor of Arts: Natural Sciences

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 090H** High-Tech Materials (1) A series of introductory seminars concerning the most important aspects of modern materials technology; some laboratory visits will be included.

### **High-Tech Materials (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 091 (GN)** Polymers, Life and Society (3) An exploration of the science and use of polymer materials and their impact on society using a case study approach.

### **MATSE 091 Polymers, Life and Society (3) (GN)**

Over the course of the last 100 years, polymeric materials have transformed the way we live. Modern transportation systems, much of contemporary medicine and the entire electronics and computer industry would not be possible without polymers. In order to understand the nature of these materials and why they are ubiquitous in modern society, this course will provide students with a basic knowledge of the structure, synthesis and properties of these materials, starting with atoms and molecules and proceeding through basic elements of the chemistry and physics of these materials. Students will discover the commonalities and differences between synthetic polymers, such as polyesters and nylons, and natural or biological polymers, such as cotton and silk. In order to provide a narrative thread, the course will be structured in terms of "case studies" in the history of the development of specific materials (e.g., nylon) and ideas about their structure, starting from a consideration of the fundamental nature of matter. This approach will not only give students an overview of the nature and properties of polymer materials, but also show them how the discipline fits into the larger context of the

nature of scientific discovery and the interplay of innovation, vision, luck, perseverance, and personalities involved in this development. Last but not least, the course will make students aware of a number of contemporary global concerns about the use of polymers in general and some polymers (and additives) in particular, again through the medium of specific case studies.

The intended audiences include undergraduates at Penn State, as well as adult learners who need to have a broader knowledge of polymer materials. Learning and discovery will be facilitated by a broad range of interactive programs and animations developed over the last five years by faculty in the Department of Material Science and Engineering. A self-contained CD incorporating this material and structured as a complete self-learning tool will be used in instruction. The course material is being constructed using the Macromedia program Director, which allows versions of the CD that run on Windows and the Mac platform to be made available. Students will also need access to the internet, as they will also use on-line resources to discover and analyze material. Interactive on-line quizzes will provide instantaneous feedback and allow students to assess their progress. Overall student assessment will be based on a combination of quizzes of this type, term projects and an "open-book" final exam.

MATSE 091 will be offered three times each year, in the Fall, Spring, and the first-six week summer session, commencing Fall 2005.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 101 (GN) (EGEE 101)** Energy and the Environment (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

### **Energy and the Environment (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 101A (GN;IL) (EGEE 101A)** Energy and the Environment (3) Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives.

### **Energy and the Environment (3)**

General Education: GN  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 112 (GN)** Applied Materials Chemistry for Engineers (3) Chemistry of materials with emphasis on intermolecular forces between atoms, molecules, ions, and dense materials and inorganic and organic physical chemistry. In most majors, this course is not a substitute for CHEM 013 or CHEM 112.

### **Applied Materials Chemistry for Engineers (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009  
Prerequisite: CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 201** Introduction to Materials Science (3) Concepts of relationships between structure and thermal, optical, magnetic, electrical, and mechanical properties of metals, ceramics, glasses, and polymers.

### **Introduction to Materials Science (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 112;MATH 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 202** Introduction to Polymer Materials (3) The materials science of organic or soft materials with an emphasis on synthetic and natural polymer.

**MATSE 202 Introduction to Polymer Materials (3)**

Materials made from many types of natural organic materials, (cotton, wool, hemp, leather, etc.) have been with us throughout recorded history and have played crucial roles in the rise of civilizations and the economies of tribes and nations. Over the course of the last 100 years or so the development of synthetic organic materials, particularly polymers, has transformed the way we live. Modern transportation systems, much of contemporary medicine and the entire electronics and computer industry would not be possible without these materials. In order to understand their nature and provide a basis for a more in-depth understanding of these materials provided by courses with a more specific focus, why they are ubiquitous in modern society, this course will provide students with a basic knowledge of the structure, synthesis and properties and processing of these materials, starting with a review of atomic and molecular structure and proceeding through basic elements of the chemical synthesis, structure, mechanical properties and processing of these materials. Students will discover the commonalities and differences between synthetic polymers, such as polyesters and nylons, and natural or biological polymers, such as cotton and silk. A comparison will also be made between the mechanical properties of "hard", inorganic materials such as metals and ceramics, and "soft", organic materials such as polymers. The primary intended audience is undergraduates in Materials Science and Engineering. This course will provide a necessary overview of organic materials for those students who will focus on inorganic materials in the major and also provide an introduction to organic materials for those students who will specialize in polymers and other organic materials. It is also anticipated that students in other disciplines who want to obtain an overview of the science and engineering of organic materials would want to take this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: CHEM 202MATH 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 259** Properties and Processing of Engineering Materials (3) Relationship of structure and processing variables to the properties and service behavior of metals, polymers, and ceramics.

**Properties and Processing of Engineering Materials (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 213 or E MCH 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 400** Crystal Chemistry (3) Principles of crystal chemistry applied to structures, structural defects and properties of organic, inorganic, intermetallic, and metallic crystals.

**Crystal Chemistry (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 112CHEM 113MATH 231MATH 251PHYS 214

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 401** Thermodynamics of Materials (3) Review of equilibrium thermodynamics and applications to metallurgical and



material systems.

### **Thermodynamics of Materials (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: CHEM 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 402** Materials Process Kinetics (3) A treatment of process kinetics including chemical reaction kinetics and momentum, energy and mass transport.

### **Materials Process Kinetics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 403** (BME 443) Biomedical Materials (3) Describe properties of materials and composites and their in vivo interactions.

### **MATSE 403 (BIOE 443) Biomedical Materials (3)**

Metals, polymers, and ceramics, and their composites, which are capable of emulating the functions of hard and soft tissues, are the subjects of this course. The subject matter shall be confined to implanted materials; external appliances, such as casts, braces, etc are not considered. The topical content of this course will be grouped into four areas. A general introduction to selected aspects of physiology will be presented. This will provide the background necessary to appreciate the factors which govern the selection of biomedical materials. Specific emphases will be placed on polymerization of biopolymers (polypeptides and polysaccharides) and the general relationships between conformation and biological function, the biochemistry of blood and blood surface interactions, the formation of teeth and bone and the relationships between microstructure, composition and function, the immune responses to implanted materials, the resorption of bone (osteoporosis) and the development of caries. The perspective placed on these topics will be that of materials science. The selection of ceramics for hard tissue prosthesis will be discussed. Orthopaedic and dental applications for ceramics will be discussed. Specific ceramic materials to be treated include dental porcelain, alumina- and zirconia-based ceramics, and bioglasses and pyrolytic carbons. Various classes of inorganic cements, gypsum, zinc phosphates, zinc carboxylates, silicates, and glassionomer cements will also be considered as ceramics. Hydroxyapatite, Hap-based composites and Hap-metal interactions will be discussed in particular. Relationships among physical properties, mechanical properties, and chemical interactions with biological fluids will be described. Dental and orthopedic applications of metals will be described. The fracture toughness of metals, their electrochemical responses in vivo, and the nature of the interfacial interactions with hard tissues will be treated. Dental amalgams and the noble metals for dental applications will be considered. Metals and alloys, such as Ti, Co-Cr, and vitallium, used in prosthetic applications, will be described and their properties and limitations discussed. The phenomenon of stress shielding and the immune responses associated with the accumulation of metallic and polymeric particular debris in the vicinity of an implant will be discussed in particular. Polymeric materials are important in a broad range of biomedical applications. Among these are soft tissue prostheses, hemostatic agents, dental restoratives, bone replacement materials, and surgical adhesives. In some applications it is desirable that a polymeric material biodegrade while in others property retention is desirable.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MATSE 201 or CHEM 112 and MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 403** (BME 443) Biomedical Materials (3) Describe properties of materials and composites and their in vivo interactions.

### **MATSE 403 (BIOE 443) Biomedical Materials (3)**

Metals, polymers, and ceramics, and their composites, which are capable of emulating the functions of hard and soft tissues, are the subjects of this course. The subject matter shall be confined to implanted materials; external appliances, such as casts, braces, etc are not considered. The topical content of this course will be grouped into four areas. A general introduction to selected aspects of physiology will be presented. This will provide the background necessary to appreciate the factors which govern the selection of biomedical materials. Specific emphases will be placed on polymerization of biopolymers (polypeptides and polysaccharides) and the general relationships between conformation and biological

function, the biochemistry of blood and blood surface interactions, the formation of teeth and bone and the relationships between microstructure, composition and function, the immune responses to implanted materials, the resorption of bone (osteoporosis) and the development of caries. The perspective placed on these topics will be that of materials science. The selection of ceramics for hard tissue prosthesis will be discussed. Orthopaedic and dental applications for ceramics will be discussed. Specific ceramic materials to be treated include dental porcelain, alumina- and zirconia-based ceramics, and bioglasses and pyrolytic carbons. Various classes of inorganic cements, gypsum, zinc phosphates, zinc carboxylates, silicates, and glassionomer cements will also be considered as ceramics. Hydroxyapatite, Hap-based composites and Hap-metal interactions will be discussed in particular Relationships among physical properties, mechanical properties, and chemical interactions with biological fluids will be described. Dental and orthopedic applications of metals will be described. The fracture toughness of metals, their electrochemical responses in vivo, and the nature of the interfacial interactions with hard tissues will be treated Dental amalgams and the noble metals for dental applications will be considered. Metals and alloys, such as Ti, Co-Cr, and vitallium, used in prosthetic applications, will be described and their properties and limitations discussed The phenomenon of stress shielding and the immune responses associated with the accumulation of metallic and polymeric particular debris in the vicinity of an implant will be discussed in particular Polymeric materials are important in a broad range of biomedical applications. Among these are soft tissue prostheses, hemostatic agents, dental restoratives, bone replacement materials, and surgical adhesives. In some applications it is desirable that a polymeric material biodegrade while in others property retention is desirable.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201 orCHEM 112 andMATH 230 orMATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 404 (IL) (BME 444) Surfaces and the Biological Response to Materials (3)** Focus is on the special properties of surfaces as an important causative and mediating agent in the biological response to materials.

#### **MATSE 404 (BIOE 444) Surfaces and the Biological Response to Materials (3)**

This course factors the classical picture of the biological response to materials into spatial and temporal components, identifying the special properties of surfaces as an important causative and mediating agent. Biophysical mechanisms are emphasized that lead to formulation of structure property relationships and the biological response to materials. Contact activation of the blood plasma coagulation cascade, bioadhesion, and protein adsorption are used as example biological responses to material surfaces to illustrate concepts and principles. Leading theories attempting to correlate both kind and intensity of biological responses to surface and interfacial energetics will be compared and contrasted through a process that will quantify important surface thermodynamic properties of materials. The hydrophobic effect and related phenomena, especially as this pertains to water solvent effects in biology, receives special emphasis. Course materials are drawn from a selection of relevant library reserve texts.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: CHEM 112 orMATSE 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 404 (IL) (BME 444) Surfaces and the Biological Response to Materials (3)** Focus is on the special properties of surfaces as an important causative and mediating agent in the biological response to materials.

#### **MATSE 404 (BIOE 444) Surfaces and the Biological Response to Materials (3)**

This course factors the classical picture of the biological response to materials into spatial and temporal components, identifying the special properties of surfaces as an important causative and mediating agent. Biophysical mechanisms are emphasized that lead to formulation of structure property relationships and the biological response to materials. Contact activation of the blood plasma coagulation cascade, bioadhesion, and protein adsorption are used as example biological responses to material surfaces to illustrate concepts and principles. Leading theories attempting to correlate both kind and intensity of biological responses to surface and interfacial energetics will be compared and contrasted through a process that will quantify important surface thermodynamic properties of materials. The hydrophobic effect and related phenomena, especially as this pertains to water solvent effects in biology, receives special emphasis. Course materials are drawn from a selection of relevant library reserve texts.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: CHEM 112 orMATSE 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 409** (NUC E 409) Nuclear Materials (3) Nuclear reactor materials: relationship between changes in material properties and microstructural evolution of nuclear cladding and fuel under irradiation.

**MATSE (NUC E) 409 Nuclear Materials (3)**

MATSE/NUC E 409 provides a background on the types of materials used in nuclear reactors and their response to neutron irradiation. Most of the materials problems encountered in the operation of nuclear power reactors for energy production are discussed here. The objective of the course is to give nuclear engineering students a background in materials so they understand the limitations put on reactor operations and reactor design by materials performance. In the first part of the course, we review basic concepts of physical metallurgy, to develop a mechanistic and microstructurally based view of material properties. In the second part of the course, we present the methods to calculate displacement damage to the material produced by exposure to neutron irradiation. The microstructural evolution that results from the reactor exposure (including radiation damage and defect cluster evolution, and changes) is described. The aim is to create a linkage between these changes at the atomistic level and the changes in macroscopic behavior of the material. Special attention is given to property changes that affect fuel performance and operational safety. Both mathematical methods and experimental techniques are emphasized so that theoretical modeling is instructed by experimental data. Students use the TRIM and SPECTER codes to quantitatively evaluate neutron damage, as well as learn simple analytical models that describe microstructural evolution and property changes under irradiation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: PHYS 214

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 410** Phase Relations in Materials Systems (3) Phase rule; construction and interpretations of equilibrium diagrams; importance of nonequilibrium in materials.

**MATSE 410 Phase Relations in Materials Systems (3)**

This course integrates three core components of materials science and engineering: thermodynamics, kinetics, and interface crystallography in understanding processing and development of inorganic materials. It is the key course bridging the fundamentals to practical materials processing. Phase equilibria, phase diagrams, phase transformations and heat treatments are addressed in great details through nucleation, transformation kinetics, crystal interface and diffusion. The complexity of materials is discussed in hierarchy from pure elements, binaries, ternaries to multicomponents.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201MATSE 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 410** Phase Relations in Materials Systems (3) Phase rule; construction and interpretations of equilibrium diagrams; importance of nonequilibrium in materials.

**MATSE 410 Phase Relations in Materials Systems (3)**

This course integrates three core components of materials science and engineering: thermodynamics, kinetics, and interface crystallography in understanding processing and development of inorganic materials. It is the key course bridging the fundamentals to practical materials processing. Phase equilibria, phase diagrams, phase transformations and heat treatments are addressed in great details through nucleation, transformation kinetics, crystal interface and diffusion. The complexity of materials is discussed in hierarchy from pure elements, binaries, ternaries to multicomponents.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201MATSE 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 411** Processing of Ceramics (3) Principles of ceramic processing, including powder preparation and characterization, forming operations, and the basic phenomena underlying these operations.

**MATSE 411 Processing of Ceramics (3)**

This course covers the scientific and engineering principles of manufacturing of ceramic products. The course covers powder synthesis and characterization; surface and colloid chemistry; fabrication; and densification by sintering. There is an emphasis on the physical chemistry of particulate systems as relates to the various stages processing. The course is offered every fall semester and is required for BS graduates of the Ceramic Science and Engineering option in Materials Science and Engineering.

The course objectives are for the student to (1) become knowledgeable of all steps involved in ceramic manufacture from powder synthesis through final densification by sintering, (2) understand the rationale and compromises for selecting a given processing route, (3) understand and be able to apply the parametric relations for manufacture of a ceramic with a specified microstructure, and (4) understand the physical chemistry fundamentals responsible for the unique properties of fine powders.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2005

Prerequisite: MATSE 400MATSE 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 412** Thermal Properties of Materials (3) Generation of high temperatures, measurement of temperature, heat transfer and furnace design, thermal stability of ceramic materials, applied thermodynamics.

**MATSE 412 Thermal Properties of Materials (3)**

The fundamentals of achieving, measuring, and controlling high temperature for materials processing are addressed. The crystal physics underlying heat capacity, internal energy, phonon and photon conduction, and thermal expansion is used to rationalize the behavior of a wide variety of ceramic and metallic materials in severe thermal environments. Micro- and macroscopic thermal transport, thermal shock and fatigue behavior, and thermochemical durability are addressed insofar as their impact on the design of, and with, high performance materials in thermostructural applications.

Case studies on materials selection and design using the fundamentals of inorganic crystal chemistry, physics, thermodynamics, kinetics, elastic, and mechanical properties are widely employed. Students interested in disciplines such as metallurgy, ceramic science, electronic and photonic materials, mechanical engineering, aerospace engineering, industrial engineering, engineering science, and chemical engineering will benefit significantly from this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201 orMATSE 259MATSE 401

Concurrent: MATSE 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 412** Thermal Properties of Materials (3) Generation of high temperatures, measurement of temperature, heat transfer and furnace design, thermal stability of ceramic materials, applied thermodynamics.

**MATSE 412 Thermal Properties of Materials (3)**

The fundamentals of achieving, measuring, and controlling high temperature for materials processing are addressed. The crystal physics underlying heat capacity, internal energy, phonon and photon conduction, and thermal expansion is used to rationalize the behavior of a wide variety of ceramic and metallic materials in severe thermal environments. Micro- and macroscopic thermal transport, thermal shock and fatigue behavior, and thermochemical durability are addressed insofar as their impact on the design of, and with, high performance materials in thermostructural applications.

Case studies on materials selection and design using the fundamentals of inorganic crystal chemistry, physics, thermodynamics, kinetics, elastic, and mechanical properties are widely employed. Students interested in disciplines such as metallurgy, ceramic science, electronic and photonic materials, mechanical engineering, aerospace engineering, industrial engineering, engineering science, and chemical engineering will benefit significantly from this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201 or MATSE 259 MATSE 401

Concurrent: MATSE 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 413 Solid-State Materials (3)** Structures of metallic, ionic, and covalent solids, amorphous materials, and surfaces; electronic structure; electronic properties of solids and their manipulation.

### **Solid-State Materials (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: or concurrent: MATSE 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 415 Introduction to Glass Science (3)** Composition, melting, fabrication, properties, and uses of glass; combinations of glass with metals and other materials.

### **MATSE 415 Introduction to Glass Science (3)**

This course aims to explain the unique characteristics of the glassy state, and to describe their role in the processing, application, and engineering performance of amorphous materials and glass products. The course teaches fundamental concepts of amorphous structure, and then utilizes them to establish structure-property relations in various glass systems. The viscosity, thermal expansion, chemical durability, strength behavior, and optical properties of silicate-based glasses are emphasized, although the important properties of phosphate, halide, and chalcogenide glasses are not overlooked. Also included are phenomenological descriptions of glass formation, liquid-liquid immiscibility, viscous flow, structural relaxation, stress relaxation, and crystallization in glass. Various methods for the synthesis of glass are reviewed (melting, CVD, and sol/gel), along with important manufacturing processes for commercial glass products. Throughout the course, the applications of glass and glass components in electronics, photonics, biomedicine, transportation, and energy are described to rationalize the use of glass (i.e., the materials selection), the specific glass composition, and the associated processing method.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: MATSE 400 MATSE 401 MATSE 402 MATSE 462

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 417 (E SC 417) Electrical and Magnetic Properties (3)** Electrical conductivity, dielectric properties, piezoelectric and ferroelectric phenomena; magnetic properties of ceramics.

### **MATSE (E SC) 417 Electrical and Magnetic Properties (3)**

MATSE 417 is designed to provide students with a fundamental understanding of the different responses a material can have to applied electrical or magnetic fields. Important properties are introduced and correlated with knowledge of material chemistry, crystal structure, and microstructure to provide an understanding of the mechanisms responsible for controlling the observed properties, as well as the ways in which properties can be engineered. Electronic and magnetic properties encompass dielectric, ferroelectric, conductor, superconductor, and ferromagnetic materials. Material properties and structures are related to sensors, energy storage and conversion devices, biomedical devices and electronic components in telecommunications.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MATSE 400 MATSE 413

Concurrent: MATSE 402

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 417 (E SC 417) Electrical and Magnetic Properties (3)** Electrical conductivity, dielectric properties, piezoelectric and

ferroelectric phenomena; magnetic properties of ceramics.

### **MATSE (E SC) 417 Electrical and Magnetic Properties (3)**

MATSE 417 is designed to provide students with a fundamental understanding of the different responses a material can have to applied electrical or magnetic fields. Important properties are introduced and correlated with knowledge of material chemistry, crystal structure, and microstructure to provide an understanding of the mechanisms responsible for controlling the observed properties, as well as the ways in which properties can be engineered. Electronic and magnetic properties encompass dielectric, ferroelectric, conductor, superconductor, and ferromagnetic materials. Material properties and structures are related to sensors, energy storage and conversion devices, biomedical devices and electronic components in telecommunications.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MATSE 400MATSE 413

Concurrent: MATSE 402

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 419 Computational Materials Science and Engineering (3)** Introduction to computational material science and engineering. Overview of the computational methods for materials, from atomistic to the continuum scale.

### **MATSE 419 Computational Materials Science and Engineering (3)**

Modeling is a critically important tool in the field of materials. This course is designed to inform students about all areas of materials modeling, and to explore the use of modeling in different research areas. This is a hands-on undergraduate level course, mandatory for all MATSE students, covering current methods for modeling soft and hard matter, at the atomistic, meso and continuum scale levels. It consists of an overview of individual techniques of modeling from atomistic molecular dynamics and Monte Carlo, coarse-grained molecular dynamics, and multiscale modeling, to the continuum (e.g. SAFT, CALPHAD). It also includes a computer laboratory component with hands-on exercises. At the conclusion of the course, students will understand the physical basis and basic procedures of each technique. Students will be able to understand the general literature in modeling and its connection with experimental work, as well as to communicate with experts in the field. From the laboratory practices, they will learn how the individual modeling techniques contribute to knowledge in each area, and to interconnect them with experimental information.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: CMPSC 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 421 Corrosion Engineering (3)** Industrial forms of corrosion and preventive methods, and their description in terms of basic thermodynamic and kinetic considerations.

### **MATSE 421 Corrosion Engineering (3)**

This variable 2 or 3-credit course is an introduction to the corrosion field and more broadly to the principles of electrochemistry and to the electrode reactions that occur during the undesirable corrosive degradation of metal, and also in various important commercial processes such as electroplating, electroless plating, battery and fuel cell operation, aqueous extraction metallurgy and corrosion prevention techniques. The objectives of this course are to introduce the student to the (1) principles of electrode reactions, (2) nature of commercial corrosion resistant alloys and their compositions, (3) various forms of corrosion and preventative measures, and (4) design of electrochemical laboratory and field procedures for detecting corrosion processes and determining their rates. Thermodynamic and rate data are used to make engineering decisions relative to the occurrence of corrosion, to the effectiveness of the various preventative measures, and to electrochemical design. Corrosion processes and electrode reactions more generally are primarily concerned with the surface properties of materials, but the bulk properties, such as microstructure, grain size, hardness, and composition, are discussed in terms of their impact on materials degradation. In-class closed-book exams and problem sets, and homework that allow student collaboration, are used for evaluation. Computer access to the course is available and includes all lecture material, old exams with answers, home works, and syllabus on the Web. This course is offered every year with typical class size of less than 20 students. The 2-credit version is required in the Metals Science and Engineering curriculum. The 3-credit version includes additional lecture material and some laboratory demonstrations; evaluation included a lab report.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 112PHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 422 Thermochemical Processing (3)** Physico-chemical aspects of high temperature extraction and processing of metals and alloys. Design and evaluation of processes and process options.

**MATSE 422 Thermochemical Processing (3)**

An important goal of materials engineering is to efficiently produce metals and alloys of specific composition. Familiar examples include the tonnage production of metals and alloys, the production of ultra high purity electronic materials such as silicon and germanium, and the deposition of thin films for various applications. In this course the students get an understanding of the physical and chemical principles underlying these operations and how these principles are applied in industrial practice. The students get ample opportunities to apply thermodynamics, kinetics, and transport phenomena to understand why the processes currently in use work. Furthermore, they learn how to marshal information for the design of projected new processes and process options.

Broadly stated, the topics include solid-state reactions, production of liquid metals, and processing, all carried out at high temperatures. The topics are covered in a set of lecture notes available from the instructor. The lectures are accompanied by about fifteen problems sets in the form of home work and class work so that the students experience first-hand how the principles of thermodynamics and rate processes are applied in solving important problems in thermochemical processing.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002  
Prerequisite: MATSE 401MATSE 402

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 424 Materials Selection and Design (1)** Introduction to the selection and design of materials for structural applications.

**Materials Selection and Design (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2002  
Prerequisite: MATSE 201 orMATSE 259

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 425 Processing of Metals (3)** Modern methods of shaping metals in liquid and solid states: casting, joining, powder and deformation processing. Design of new technology.

**MATSE 425 Processing of Metals (3)**

This course focuses on how metals and alloys may be processed into different shapes and how those processing procedures affect the metallurgical microstructure and properties. Consideration of shape, the alloy composition, and property goals are all factors in selecting an optimum processing "window". Such carefully selected processing conditions not only produce the desired component shape in a cost-efficient manner but also ensure acceptable properties and safe in-service performance. This course surveys the following metal processing procedures: (a) solidification processing, (b) heat treatment processing, (c) welding, (d) deformation processing, and (e) powder metallurgy.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2006  
Prerequisite: MATSE 402MATSE 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 426 (MN PR 426) Aqueous Processing (3)** A study of the chemical and engineering principles pertinent to metal processing in aqueous systems: hydrometallurgical extraction, plating, materials preparation.

**MATSE (MN PR) 426 Aqueous Processing (3)**

This 3-credit course deals with the chemical and engineering principles underlying the aqueous processing of metals: metal extraction from primary and secondary sources, electroplating, and metal finishing, powder synthesis, energy storage and conversion, and treatment of recycling of metal-containing toxic wastes.

1. Physico-Chemical Principles - Thermodynamic, chemical kinetic and transport factors which control hydrochemical processes (leaching; precipitation; adsorption; solvent extraction; ion exchange; electrowinning, electrorefining and electroplating; membrane processes; energy storage and conversion); graphical representation of homogeneous and solid/solution equilibria; chemical reagents.
2. Engineering Principles - Reactor design and staged operations; ideal batch, continuous stirred-tank and plug-flow reactors; fluidized bed reactors; electrochemical reactors; multistage separation processes (solid-liquid, liquid-liquid, and gas-liquid systems).
3. Process Synthesis - Design of metal separation (extraction, refining, waste treatment) materials synthesis, metal finishing, and energy storage/conversion processes and system-integration of unit operations, industrial practice. Emphasis on closing circuits to minimize or eliminate waste effluents.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: EME 301 or MATSE 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 430 Materials Characterization (3)** Elements of crystallography and the characterization of crystalline and non-crystalline materials using x-ray diffraction, electron microscopic, and other instrumental techniques.

### **MATSE 430 Materials Characterization (3)**

This course will introduce students to characterization techniques for quantifying microstructure, chemistry and atomic structure of solid state materials. Elastic and inelastic interactions of radiation (e.g. electromagnetic and electrons) with solid state materials are the basis for most characterization techniques. Utilizing these interactions it is possible to obtain structural and chemical information from materials, often at small length scales. In this course, students will be introduced to the most common imaging, diffraction and spectroscopy techniques used for materials characterization. They will develop an understanding of the underlying physics behind the techniques to enable interpretation of the data. The course will be beneficial for any student interested in solid-state materials, as it provides a key component of the processing-structure-properties process.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201 MATSE 202 or MATSE 443

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 430 Materials Characterization (3)** Elements of crystallography and the characterization of crystalline and non-crystalline materials using x-ray diffraction, electron microscopic, and other instrumental techniques.

### **MATSE 430 Materials Characterization (3)**

This course will introduce students to characterization techniques for quantifying microstructure, chemistry and atomic structure of solid state materials. Elastic and inelastic interactions of radiation (e.g. electromagnetic and electrons) with solid state materials are the basis for most characterization techniques. Utilizing these interactions it is possible to obtain structural and chemical information from materials, often at small length scales. In this course, students will be introduced to the most common imaging, diffraction and spectroscopy techniques used for materials characterization. They will develop an understanding of the underlying physics behind the techniques to enable interpretation of the data. The course will be beneficial for any student interested in solid-state materials, as it provides a key component of the processing-structure-properties process.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201 MATSE 202 or MATSE 443

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 435 Optical Properties of Materials (3)** Electromagnetic spectrum, interaction of light with materials, color, thin film optical coatings, electro-, integrated and nonlinear optics.

### **Optical Properties of Materials (3)**

General Education: None



Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1996  
Prerequisite: MATSE 400

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 436** Mechanical Properties of Materials (3) Fundamental relationships between structure and mechanical behavior of materials.

**MATSE 436 Mechanical Properties of Materials (3)**

The topics covered in this course are essential to students in the Materials Science and Engineering options, and these are also required for materials engineering courses nationally accredited by the professional societies. The course is taught at the 400 level because it requires the fundamental courses in mathematics and physics to be completed. The course also requires completion of an introductory course in materials science. This new course typically fits into the junior or senior year, when students in the major are understanding how the properties of materials can be changed by controlling the structure of materials. The course has also been designed such that students in other engineering majors can take this course as a technical elective. Some of the information in this course is used in laboratory courses for the major. The course is not required as a prerequisite for other courses.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: MATH 231MATH 250 orMATH 251MATSE 201 orMATSE 259PHYS 211 orE SC 314

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 440** (E MCH 440) Nondestructive Evaluation of Flaws (3) Methods and limitations of nondestructive evaluation of mechanical flaws; optical, acoustical, electromagnetic, x-ray, radiography, thermography, and dye techniques.

**Nondestructive Evaluation of Flaws (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E MCH 213 orE MCH 210H orE MCH 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 441** Polymeric Materials I (3) Manufacture of industrially significant polymers together with discussion of their major chemical, physical, and mechanical properties.

**MATSE 441 Polymeric Materials I (3)**

This 3-credit course focuses on about 40 commercially most important polymers together with the discussion of synthesis routes, industrial production processes, processing methods, physical and chemical properties, and applications.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: CHEM 210MATH 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 443** Introduction to the Materials Science of Polymers (3) Introduction to the nature and structure of high polymers. Characteristics of polymers and polymer systems.

**MATSE 443 Introduction to the Materials Science of Polymers (3)**

This course is an introduction to the field of polymer science and engineering, providing an overview of the synthesis and structure of these materials; the crystalline and glassy states; solution properties and phase behavior; and mechanical and rheological properties.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: CHEM 210MATH 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 444** Solid State Properties of Polymeric Materials (3) Structure/property relationships in the bulk solid state of polymers. Characterization of bulk properties and structure.

**MATSE 444 Solid State Properties of Polymeric Materials (3)**

Prerequisite is PLMSE 406. Understanding relationships between structure and properties in the bulk solid state of polymers is important in designing and utilizing polymers in many applications. In trying to understand 'structure' we also need to define what is meant by and important in 'structure' and review tools used to measure desired structural features. Two-thirds of the course addresses accepted general features of the polymeric solid state, with particular emphasis on characterization of semicrystalline polymers since semicrystalline polymers represent approximately 75% of industrially important polymers. In this portion of the course, we will be particularly concerned with defining and measuring percentage crystallinity and with defining and measuring orientation in polymers. Both of these parameters play important roles in establishing physical characteristics of polymers, in particular in mechanical properties. Mechanical properties continues to be an important feature for polymers since polymers possess the widest available range of mechanical properties of any material. The remainder of the course covers new and/or continuing topics selected from composition-branching distribution; barrier properties of thin films and recycle-degradation of polymers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003  
Prerequisite: MATSE 443

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 445 Thermodynamics, Microstructure, and Characterization of Polymers (3)** The properties of individual polymer chains. Theoretical and experimental techniques pertaining to the characterization of polymeric microstructure.

**MATSE 445 Thermodynamics, Microstructure, and Characterization of Polymers (3)**

This course develops fundamental understanding of microstructures and chain conformations of polymers, and addresses theoretical and experimental techniques pertaining to the characterization of polymeric microstructure.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MATSE 202 or MATSE 443

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 445 Thermodynamics, Microstructure, and Characterization of Polymers (3)** The properties of individual polymer chains. Theoretical and experimental techniques pertaining to the characterization of polymeric microstructure.

**MATSE 445 Thermodynamics, Microstructure, and Characterization of Polymers (3)**

This course develops fundamental understanding of microstructures and chain conformations of polymers, and addresses theoretical and experimental techniques pertaining to the characterization of polymeric microstructure.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MATSE 202 or MATSE 443

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 446 Mechanical and Electrical Properties of Polymers and Composites (3)** The mechanical (viscoelastic) and electric properties of polymers and poly-based composites.

**MATSE 446 Mechanical and Electrical Properties of Polymers and Composites (3)**

This course is an introduction to the mechanical and electrical properties of polymers and polymer-based composites: focusing on the importance of molecular structure, rubber elasticity, mechanisms of yielding, viscoelasticity and manifestation thereof, static and ac dielectric properties, and conduction.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MATSE 202 or MATSE 443

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 446** Mechanical and Electrical Properties of Polymers and Composites (3) The mechanical (viscoelastic) and electric properties of polymers and poly-based composites.

**MATSE 446 Mechanical and Electrical Properties of Polymers and Composites (3)**

This course is an introduction to the mechanical and electrical properties of polymers and polymer-based composites: focusing on the importance of molecular structure, rubber elasticity, mechanisms of yielding, viscoelasticity and manifestation thereof, static and ac dielectric properties, and conduction.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MATSE 202 or MATSE 443

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 447** Rheology and Processing of Polymers (3) This course deals with the fluid mechanics, rheology, and processing of polymeric materials.

**Rheology and Processing of Polymers (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MATSE 202 or MATSE 443

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 447** Rheology and Processing of Polymers (3) This course deals with the fluid mechanics, rheology, and processing of polymeric materials.

**Rheology and Processing of Polymers (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MATSE 202 or MATSE 443

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 448** (CH E 442) Polymer Processing Technology (3) Basic principles of polymer melt processing are reviewed and subsequently applied to the most important industrial processing operations.

**MATSE 448 (CH E 442) Polymer Processing Technology (3)**

MATSE 448 involves both lectures and laboratory experiments illustrating the interrelations between structure, processing conditions, and physical properties of industrial polymer products. Students apply engineering fundamentals and principles of polymer melt rheology to analyze industrial processing operations. Unlike typical polymer processing courses offered at most U.S. universities, MATSE 448 covers detailed analyses of individual processing operations, rather than dwelling on underlying polymer science fundamentals that are covered elsewhere in our curriculum. Students learn to optimize processing variables, given a particular set of materials and conditions, establishing how processing conditions impact the physical properties of finished polymer products. We explore the physics governing processing operations including extrusion, mixing, calendaring, blow molding, thermoforming fiber spinning compression molding, injection molding, and nanolithography.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: MATSE 447 or CH E 302A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 450** (E SC 450) Synthesis and Processing of Electronic and Photonic Materials (3) The materials science of applying

thin film coatings, etching, and bulk crystal growth; includes materials transport, accumulation, epitaxy, and defects.

### **Synthesis and Processing of Electronic and Photonic Materials (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2005

Prerequisite: MATSE 201 or E SC 414H sixth semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 455** Properties and Characterization of Electronic and Photonic Materials (3) Materials characterization in general; electrical properties of crystals, contacts, films; optical properties of single phase materials, waveguide, and multilayer stacks.

### **Properties and Characterization of Electronic and Photonic Materials (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2005

Prerequisite: MATSE 201 or E SC 414ME SC 314

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 460** Introductory Laboratory in Materials (1) An introduction to comparative physical properties and characteristics of various materials including mechanical, electrical thermal, and structure/ morphology.

### **MATSE 460 Introductory Laboratory in Materials (1)**

This is a lab course whose goal is to provide an integrated approach to materials science and engineering. Any individual lab will consist of a number of elements, initially students will be provided with a presentation summary of the proposed lab. This could be film, video, web delivery, hard copy or live presentation. Presentation time will be limited but should be reviewed before students attempt the hands-on lab. All labs will examine a variety of different materials including metal, ceramics and polymers. Labs will be integrative in the sense that they will include use of spreadsheets, data plotting, and presentation of results as written reports and/or as a "PowerPoint" presentation. The labs selected have been chosen specifically because they cut across all current basic materials disciplines. These labs are intended to provide students with a broad appreciation of the range and contrast of material structures and properties, in order that students more fully appreciate the breadth of material science and engineering.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: or concurrent: MATSE 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 462** General Properties Laboratory in Materials (1) An introduction to comparative physical properties of various materials including mechanical, thermal electrical properties and the measurement of said properties.

### **MATSE 462 General Properties Laboratory in Materials (1)**

This is a lab course whose goal is to provide an integrated approach to physical property measurements in materials science and engineering. Any individual lab will consist of a number of elements, initially students will be provided with a presentation summary of the proposed lab. This could be film, video, web delivery, hard copy or live presentation. Presentation time will be limited but should be reviewed before students attempt the hands-on lab. All labs will examine a variety of different materials including metal, ceramics, polymers and composites. Labs will be integrative in the sense that they will include use of spreadsheets, data plotting, and presentation of results as written reports and/or as a "PowerPoint" presentation. The labs selected have been chosen specifically because they cut across all current basic materials disciplines. These labs are intended to provide students with a broad appreciation of the range and contrast of material properties and the measurement of such properties, in order that students more fully appreciate the breadth of material science and engineering.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: MATSE 460

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 463** Characterization and Processing of Electronic and Photonic Materials Laboratory (1) Provides experience with

key processing methods for EPM materials and advanced characterization methods for EPM materials and simple device structures.

### **Characterization and Processing of Electronic and Photonic Materials Laboratory (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: MATSE 400MATSE 430MATSE 450MATSE 455MATSE 460

Concurrent: MATSE 450 MATSE 455

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 468** Ceramics Laboratory III (1) Cermaic processing and powder characteristics.

### **MATSE 468 Ceramics Laboratory III (1)**

This course will demonstrate to students the experimental techniques by which the key powder characteristics and powder processes are determined, how to analyze the data from the measurements, and to reveal the interaction between properties, processing and structure. The course concentrates on the importance of powder characterization, forming techniques, sintering and microstructure characterization in the processing of ceramics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: MATSE 462

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 471** Metallurgy Laboratory I (1) A laboratory integrating experimental aspects of material contained in MATSE 402, 413, and 410, e.g. phase diagram determination, solidification micro- structures, etc.

### **MATSE 471 Metallurgy Laboratory I (1)**

This course is largely an introduction to basic laboratory characterization techniques (optical microscopy, scanning electron microscopy, image analysis, hardness testing, thermal analysis). However, it also applies those characterization techniques in the context of Design of Experiments. This laboratory class also contains significant drills in technical writing.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2005

Prerequisite: MATSE 430

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 472** Metallurgy Laboratory II (1) Application of principles of mechanical metallurgy, pyroprocessing, corrosion and metal processing.

### **MATSE 472 Metallurgy Laboratory II (1)**

This course provides a range on laboratory experiences ranging from metals processing to alloy properties. A primary course objective is to demonstrate important relationships between the processing, microstructure, and properties of metals. The individual laboratory practices include the following: powder metallurgy, metal casting, mechanical property testing and analysis, welding and weldment characterization, non-destructive testing, failure analysis and fractography, computational processing design, corrosion, and aqueous processing. The course requires hands-on involvement by the students in the design and planning of experiments as well as data acquisition and analysis of results. Students work in groups, and written reports are the primary basis for grading.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: MATSE 410MATSE 471

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 473** Polymeric Materials Laboratory--Synthesis (1) Principles and practices of polymerization, including condensation, free radical (bulk, solution, suspension, emulsion), ionic, and Zeigler-Natta procedures.

**MATSE 473 Polymeric Materials Laboratory--Synthesis (1)**

This laboratory course provides students exposure to a variety of synthetic techniques basic to Polymer Science. From the polymerization of styrene to the preparation of urethane foams, students will see the role varied synthetic methods and chemistries play in determining the final form and properties of a given polymer. Students also learn the polymer structure characterization by examining the produced polymers with proper tools and instruments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: MATSE 443

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 474 Polymeric Materials Laboratory--Characterization (1)** Principles and practices involved in determination of properties, structure and morphology, employing thermal, mechanical, spectroscopic, viscometric and computer techniques.

**MATSE 474 Polymeric Materials Laboratory--Characterization (1)**

Prerequisite for the course is MATSE 443. This course introduces the student to a series of simple physical and physical-chemistry tests on polymers that are the basis for a wide range of more complex tests routinely carried out in industry. In addition to the tests listed below students are also instructed in preparation of lab reports and in some of the typical problems associated with presenting data. A final report utilizes data collected by a number of different student teams throughout the course of the lab. Finally, students are demonstrated a number of state-of-the-art characterization tools used specifically to determine properties of interest in the polymer area. Grading is based on written lab reports (10% for each of 8 separate reports and 20%) for a final comprehensive report using data from other groups as well as the student's own group.

**Course content**

**Injection Molding** - students work with a simple injection molder to find optimum molding conditions to prepare sample bars for mechanical testing.

**Static Mechanical Testing** - an Instron is used to determine modulus, yield, and elongation to break for samples prepared above and for other materials.

**Izod Impact Test** - injection molded samples are used to measure notched impact tests on what are typically tough materials.

**Dilute Solution Viscometer** - standard solution viscosity tests are used to measure intrinsic viscosity of polymer solutions and (viscosity average) molecular weight.

**Melt Viscometer** - melt index and 'die swell' are easily measured with a simple ram and die 'melt indexer' as a measure of processibility.

**Optical Microscopy** - some semi-crystallizable polymers produce large enough spherulities that rate of crystallization can be followed optically.

**Elasticity** - a simple experiment measuring the retractive force of an elastic band as a function of temperature shows the entropic origin of elasticity.

**Copolymerization Computer**

A computer program (VI) allows students to try a wide variety of 'what if' experiments to measure the effects of a range of copolymerization parameters.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: MATSE 443

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 475 (E SC 475) Particulate Materials Processing (3)** Fundamentals of processing particulate materials including production, characterization, handling, compaction, and sintering of metal, carbide, intermetallic, and composite powders.

**Particulate Materials Processing (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 315E SC 414 or MATSE 259

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**MATSE 483** (E SC 483) Simulation and Design of Nanostructures (3) Introduction to computer simulation techniques and their applications at the physical/life sciences interface.

**MATSE (E SC) 483 Simulation and Design of Nanostructures (3)**

Students will learn the simulation techniques and the design rules of nanostructures. Basic concepts of computer modeling will be introduced using quantum and classical approaches. Fundamental physical phenomena encountered in the molecular fields of computational physics, chemistry, and biology will be studied. Applications are drawn from a broad range of fields including soft and condensed matter to build an understanding of nanostructures.

The course will assume knowledge and skill developed in the prerequisite courses of PHYS 214 and MATH 230. Students are expected to combine knowledge from other courses with information presented here to develop sophisticated interpretations and understanding of physical and chemical principles of nanostructures and their design rules.

Evaluation methods to be used in this course will be two in-class examinations and one final period examination. The course contains a computer code generation and implementation component. Students will use commercial or educational computer codes (e.g. Matlab, Mathematica, AMBER, CHARMM, VASP, etc.) which are available at our high performance computing clusters (<http://gears.aset.psu.edu/hpc/>). Students will use the computing clusters to perform simulations which are accessible from any classroom or laboratory at Penn State.

The principal objectives of the course is to learn the fundamental physics of nanostructures and to design them with computer simulations. This approach starts from classical molecular dynamics that apply on the large scale biological and synthetic assemblies and encompasses quantum mechanics for the molecular and atomic sizes. This course will give a broad scientific picture of simulation techniques in the area of nano-science and technology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: PHYS 214 or E SC 312 MATH 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 484W** (IL) International Internship in Materials: Research Definition and Methodology (3) A course focused on international research, specific design and methodology, facilitated through the International Internship in Materials and Program.

**MATSE 484W International Internship in Materials: Research Definition and Methodology (3) (IL)**

The objective of this course is to enrich our students' preparation for careers in materials science and engineering in a global environment. The course will emphasize the development of international communication skills as well as an appreciation of cultural and technical issues associated with conducting research in overseas laboratories. Students will select a research topic in collaboration with a Materials Science and Engineering faculty mentor and a mentor from an overseas laboratory or University. Students will perform and document a literature review encompassing the technical, economic, manufacturability, sustainability, environmental, safety/health, social and political issues of relevance to the topic, with emphasis on the cultural, social, and scientific differences and similarities in performing the research in an international venue. Students will articulate and document a research hypothesis, experimental approach and methodology necessary to comprehensively evaluate the topic, and commence laboratory research under the supervision of the mentor at the host institution.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: Sixth-semester standing in Materials Science and Engineering; MATSE 201 MATSE 460 MATSE 492W  
satisfactory completion of cultural class from Office of Education Abroad

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 485W** (IL) International Internship in Materials: Experimentation and Documentation (3) A course focused on international research, specifically experimentation and documentation, facilitated through the International Internship in Materials Program.

**MATSE 485W International Internship in Materials: Experimentation and Documentation (3) (IL)**

The objective of this course is to enrich students' preparation for careers in materials science and engineering in a global environment. The course is intended as a follow-up to MATSE 484W: International Internship in Materials: Research Definition and Methodology, in which the student will complete the research and documentation on the topic developed in that course. It may be used as a direct substitution for MATSE 494W: Research and Design Senior Project in the degree requirements for Materials Science and Engineering. The course will continue the student's development of international communication skills and appreciation of cultural and technical issues associated with conducting research in overseas

laboratories. Students will complete their research experimentation, data analysis and interpretation under the supervision of a Materials Science and Engineering faculty mentor and a mentor from their host overseas laboratory or University. Students will compile a written thesis encompassing their technical findings, with specific emphasis on the economic, manufacturability, sustainability, environmental, safety/health, social and political issues of relevance to the topic. It is expected that the students will carefully and comprehensively articulate and consider the cultural, social, and scientific differences and similarities they experienced in performing the research in an international venue.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: Seventh-semester standing in Materials Science and Engineering; MATSE 484W ; satisfactory completion of cultural class from Office of Education Abroad

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 492W** Materials Engineering Methodology and Design (3) Designed to familiarize students with the literature and technology developments in the use of, and design with, materials in industrial applications.

### **MATSE 492W Materials Engineering Methodology and Design (3)**

The objective of this course is to teach students the skills to solve realistic problems related to the use of materials in industrial practice. This will be accomplished by considering alternatives for materials design or selection and proposing the most effective scientific or engineering solutions. The methodology will take into account other forces acting on the design process, such as economic, environmental, sustainability, manufacturability, ethical, health and safety, social and political concerns. Students will develop these design skills by working in teams on projects defined by industry, and will learn to communicate their solutions in verbal and written form. Students will also learn the key features needed in developing a team approach to solving problems.

Typically, evaluation is based on written reports, performance in presentations, and instructors's assessment of the student's participation in design team activities. At the conclusion of the course, each student will select a design or independent research topic for their capstone senior-year design project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201MATSE 202MATSE 436 sixth semester standing in Materials Science and Engineering

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 492W** Materials Engineering Methodology and Design (3) Designed to familiarize students with the literature and technology developments in the use of, and design with, materials in industrial applications.

### **MATSE 492W Materials Engineering Methodology and Design (3)**

The objective of this course is to teach students the skills to solve realistic problems related to the use of materials in industrial practice. This will be accomplished by considering alternatives for materials design or selection and proposing the most effective scientific or engineering solutions. The methodology will take into account other forces acting on the design process, such as economic, environmental, sustainability, manufacturability, ethical, health and safety, social and political concerns. Students will develop these design skills by working in teams on projects defined by industry, and will learn to communicate their solutions in verbal and written form. Students will also learn the key features needed in developing a team approach to solving problems.

Typically, evaluation is based on written reports, performance in presentations, and instructors's assessment of the student's participation in design team activities. At the conclusion of the course, each student will select a design or independent research topic for their capstone senior-year design project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MATSE 201MATSE 202MATSE 436 sixth semester standing in Materials Science and Engineering

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 493W** Materials Science and Engineering Multidisciplinary Capstone Design Project (3) This course focuses on multidisciplinary industry-sponsored and community service-based design projects offered in conjunction with the College of Engineering's Learning Factory.



**MATSE 493W Materials Science and Engineering Multidisciplinary Capstone Design Project (3)**

This course will provide students with the opportunity to learn the design process in the context of an industry-sponsored or community service-based design project that demands they produce a working solution. The design projects in this course will be structured for students from two or more different engineering majors, as defined by the project sponsors in collaboration with the instructor and departmental project coordinators. The project sponsor will provide the technical expertise for the project, a clear definition of all project deliverables that are expected, and the financial support to cover needed materials and supplies and travel costs. Project sponsors will be invited to attend the Project Kickoff at the start of the semester to present their ideas and answer questions from the students as well as the Design Showcase at the end of the semester where teams display their results to the project sponsors and the public. The Center for Engineering Design and Entrepreneurship (CEDE) in Hammond Building and the Bernard M. Gordon Learning Factory will provide the facilities where the design teams can work together to develop the design concept and prototype solutions. Faculty members in the School of Engineering Design, Technology, and Professional Programs (SEDAPP) will administer the course, including reading, evaluating, and grading the final project report, provide lectures on topics including on project management, design, product manufacturing, intellectual property, engineering ethics, societal/global/contemporary/professional issues, and related technical topics, and organize invited technical lectures related to industry projects. In accordance with standard Learning Factory procedures, specific multidisciplinary projects will be selected for this course to provide challenging senior-year design experiences for all students, and the Director of the Learning Factory will coordinate the selection of these projects with the course instructor prior to the start of each semester of the course offering. Multidisciplinary teams will be formed based on specific project needs (i.e., expertise from two or more disciplines based on the project scope).

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2012  
 Prerequisite: MATSE 492W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 494M Research and Design Senior Project (1-3)** Continuation of a research problem in materials culminating in a bound thesis describing the work.

**Research and Design Senior Project (1-3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 494W Research and Design Senior Project (1-3)** Continuation of a research problem in materials culminating in a bound thesis describing the work.

**MATSE 494W Research and Design Senior Project (2)**

This course continues the senior thesis research topic addressed by the student in MATSE 493W. This is a capstone research/design project which integrates: a) background literature search with articulation of a research hypothesis, b) design and implementation of an experimental plan to test the hypothesis, and c) conclusions regarding the validity of the hypothesis based on the experimental data obtained in the course of the research.

The main characteristic of this course is the performance of the research plan articulated in MATSE 493W, followed by interpretation of the data in the context of the original hypothesis(es). Laboratory research is generally performed in collaboration with faculty and graduate research assistants, using equipment and facilities in a wide range of laboratories throughout campus. Occasionally, the nature of the research may require the student to collaborate with researchers outside of Penn State, perhaps even spending some time in residence at other facilities.

The course culminates in the preparation of a bound thesis detailing the relevance and findings of the research. Assessment of the student's progress is via grading of all components of the thesis (literature review/background, statement of the problem, design of the experimental plan, results and discussion, conclusions, recommendations for future work, and references/appendices), as well as the diligence of the student in performing the experimental research in a professional and timely fashion. The course is offered each semester to allow for differing schedules for students following the conventional MATSE curriculum versus those who have elected to participate in the Cooperative Education program.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATSE 497A** Nanomedical Applications in Materials Science and Engineering (3) This course will cover topics in MATSE of special interest for nanomedical applications. Topics include nanoparticle systems for drug delivery and bioimaging, interfaces in biological systems, and material interactions in the physiological environment.

#### **Nanomedical Applications in Materials Science and Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: CHEM 112 or MATSE 112 MATH 141 BIOL 110 and BIOL 230W or equivalent CHEM 210 or CHEM 202 MATSE 403 or equivalent or upon approval of Dr. Adair

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Mathematics (MATH)**

**MATH 001** Developmental Mathematics (6) Arithmetic operations, ratios, proportions, percents; measurement; polynomial and rational expressions; exponents, radicals; equations, inequalities, systems of equations; graphing; applications. Students who have passed MATH 003 may not schedule this course for credit. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

#### **Developmental Mathematics (6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 002** Elementary Geometry With Problem Solving (4) Geometric congruence, similarity, area, surface area, volume, introductory trigonometry; emphasis on logical reasoning skills and the solution of applied problems. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

#### **Elementary Geometry With Problem Solving (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: MATH 001 2 units of high school algebra or satisfactory performance on the mathematics placement

examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 003 Basic Skills (3)** Natural numbers; integers; rational numbers; decimals; ratio, proportion; percent; graphs; applications. Students who have passed MATH 001 may not schedule this course for credit. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

**Basic Skills (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 004 Intermediate Algebra (3)** Algebraic expressions; linear, absolute value equations and inequalities; lines; systems of linear equations; integral exponents; polynomials; factoring. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

**Intermediate Algebra (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: basic arithmetic skills or satisfactory performance on the mathematics placement examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 017 (GQ) Finite Mathematics (3)** Introduction to logic, sets, probability.

**Finite Mathematics (3)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 1988  
Prerequisite: 2 units of high school mathematics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 018 (GQ) Elementary Linear Algebra (3)** Linear functions; systems of equations; matrices; linear programming.

**Elementary Linear Algebra (3)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1999  
Prerequisite: 2 units of high school mathematics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 021 (GQ) College Algebra I (3)** Quadratic equations; equations in quadratic form; word problems; graphing; algebraic fractions; negative and rational exponents; radicals.

**College Algebra I (3)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 2013  
Prerequisite: MATH 004 or satisfactory performance on the mathematics placement examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 022 (GQ) College Algebra II and Analytic Geometry (3)** Relations, functions, graphs; polynomial, rational functions, graphs; word problems; nonlinear inequalities; inverse functions; exponential, logarithmic functions; conic sections; simultaneous equations.

**College Algebra II and Analytic Geometry (3)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2013

Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 026 (GQ) Plane Trigonometry (3)** Trigonometric functions; solutions of triangles; trigonometric equations; identities.

### **Plane Trigonometry (3)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2013

Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination; 1 unit of geometry

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 030 (GQ) Problem Solving (3)** Concepts in problem solving; reducing new problems to old ones; techniques for attacking problems; building mathematical models.

### **Problem Solving (3)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 033 (GQ) Mathematics for Sustainability (3)** Mathematical analysis of sustainability; measurement, rates of change, risk and probability, networks; examples.

### **MATH 033 Mathematics for Sustainability (3) (GQ)**

This course is intended to be one of several offered by the mathematics department with the goal of helping students from non-technical majors partially satisfy their general education quantification. It is designed to provide an introduction to various mathematical modeling techniques, with an emphasis on examples related to environmental and economic sustainability. The course may be used to fulfill three credits of the GQ requirement for some majors, but it does not serve as a prerequisite for any mathematics courses and should be treated as a terminal course.

The course will provide students with the mathematical background and quantitative reasoning skills necessary to engage as informed citizens in discussions of sustainability related to resources, pollution, recycling, economic change, and similar matters of public interest. These include the four key ideas of "measuring" (representing information by numbers, problems of measurement, units, estimation skills); "changing" (quantities changing with time, rates of change, the distinction between stocks and flows, simple models, interest and discount rates); "risking" (probability, expectation, skew distributions and upside vs downside risks, uses and limitations of cost-benefit analysis, risk v. uncertainty); and "networking" (graphs, social networks, the strength of weak ties, social capital).

General Education: GQ

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: one unit of algebra or MATH 004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 034 (GQ) The Mathematics of Money (3)** Simple interest, simple discount, compound interest, annuities, investments, retirement plans, taxes, credit cards, and mortgages.

### **MATH 034 The Mathematics of Money (3) (GQ)**

This course is intended to be one of several offered by the mathematics department with the goal of helping students from non-technical majors partially satisfy their general education quantification. It is designed to provide a sound introduction to the uses of college level mathematics in personal finance applications. Topics include: simple interest, simple discount, compound interest, annuities, investments, retirement plans, taxes, credit cards, and mortgages.

General Education: GQ

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009  
Prerequisite: one unit of algebra or MATH 004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 035 (GQ)** General View of Mathematics (3) Survey of mathematical thought in logic, geometry, combinatorics, and chance.

**General View of Mathematics (3)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 036 (GQ)** Insights Into Mathematics (3) Examples of mathematical applications in many areas including voting theory, fair division, apportionment, and Euler and Hamilton circuits.

**MATH 036 Insights Into Mathematics (3)  
(GQ)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course is one of several offered by the Mathematics Department with the goal of helping students from non-technical majors partially satisfy their General Education Quantification (GQ) requirement. In this course, we hope to demonstrate to the students that mathematics is very useful in contemporary problems in our society - from voting theory issues to apportionment of the seats in the U.S. House of Representatives to optimizing the route taken by a delivery person and a variety of other issues. We focus on historical issues related to such contemporary problems and also discuss the merits of various problem-solving techniques throughout the course.

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 2008  
Prerequisite: one unit of algebra or MATH 004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 040 (GQ)** Algebra, Trigonometry, and Analytic Geometry (5) Concepts of algebra; equations; inequalities; functions; graphs; polynomial and rational functions; exponential and logarithmic functions; trigonometry; analytic geometry; complex numbers.

**Algebra, Trigonometry, and Analytic Geometry (5)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 2013  
Prerequisite: satisfactory performance on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 041 (GQ)** Trigonometry and Analytic Geometry (3-4) Straight lines; circles; functions and graphs; graphs of polynomial and rational functions; exponential and logarithmic functions; trigonometry; conic sections.

**Trigonometry and Analytic Geometry (3-4)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 2013  
Prerequisite: MATH 021 or satisfactory performance on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 081 (GQ)** Technical Mathematics I (3) Algebraic expressions, equations, systems of equations, trigonometric functions, graphs, solution of triangles, vectors.

**Technical Mathematics I (3)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2013

Prerequisite: MATH 004 or satisfactory performance on the mathematics placement examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 082** (GQ) Technical Mathematics II (3) Exponents, radicals, complex numbers, theory of equations, inequalities, half angle and double angle formulas, inverse trigonometric functions, exponential, logarithm, conic sections.

### **Technical Mathematics II (3)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 1995

Prerequisite: MATH 081

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 083** (GQ) Technical Calculus (4) Limits, derivatives of algebraic functions, implicit differentiation, related rates, applied extrema problems, curve sketching, integration, numerical integration, applications of integration, integration techniques, differential equations.

### **Technical Calculus (4)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 1995

Prerequisite: MATH 082

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 097A** Math Tutorial (1) Course designed to help students develop study skills and a strong foundation, in basic mathematics and to further their intellectual independence in MATH 021, 022, 026, 040, and 140.

### **Math Tutorial (1)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 097C** Introduction Algebra Problem Solving (4) Introduction Algebra Problem Solving is a college level introduction to algebra combined with individualized review of basic algebra.

### **Introduction Algebra Problem Solving (4)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: MATH 021

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 110** (GQ) Techniques of Calculus I (4) Functions, graphs, derivatives, integrals, techniques of differentiation and

integration, exponentials, improper integrals, applications. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

### **Techniques of Calculus I (4)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2013

Prerequisite: MATH 022 or satisfactory performance on the mathematics placement examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 111** (GQ) Techniques of Calculus II (2) Analytic geometry, partial differentiation, maxima and minima, differential equations.

### **Techniques of Calculus II (2)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 1988

Prerequisite: MATH 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 140** (GQ) Calculus With Analytic Geometry I (4) Functions, limits; analytic geometry; derivatives, differentials, applications; integrals, applications. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

### **Calculus With Analytic Geometry I (4)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2013

Prerequisite: MATH 022MATH 026 ; orMATH 040 orMATH 041 or satisfactory performance on the mathematics placement examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 140A** (GQ) Calculus, Analytic Geometry, Algebra, and Trigonometry (6) Review of algebra and trigonometry; analytic geometry; functions; limits; derivatives, differentials, applications; integrals, applications. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

### **Calculus, Analytic Geometry, Algebra, and Trigonometry (6)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2013

Prerequisite: satisfactory performance on the mathematics placement examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 140B** (GQ) Calculus and Biology I (4) Functions, limits, analytic geometry; derivatives, differentials, applications from biology; integrals, applications from biology. Students may take only one course for credit from MATH 110, 140, 140A, and 140B.

### **Calculus and Biology I (4)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2013

Prerequisite: MATH 022MATH 026 ; orMATH 040 orMATH 041 or satisfactory performance on mathematics placement examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 140E** (GQ) Calculus with Engineering Applications I (4) Functions; limits; analytic geometry; derivatives; differentials, applications; integrals, applications.

### **MATH 140E Calculus with Engineering Applications I (4) (GQ)**

MATH 140E enriches the regular MATH 140 syllabus by adding weekly applied problems, a small number of laboratory sessions, and a major group project for which both written and oral presentation is required. It is a rigorous calculus course with additional motivation and applications in the engineering sciences. The core material is the same as MATH 140.

MATH 140E provides an alternative to the regular MATH 140 for engineering majors. This course addresses the additional needs of engineering majors with regard to problem formulation and the interpretation of their mathematical solutions.

The prerequisite for the course is MATH 022, 026; or MATH 040, 041; or satisfactory performance in the mathematics proficiency examination. Six sections of this course are offered every Fall semester.

Course evaluation is based on quizzes, weekly applied problems, two midterms, a group project, and a final examination.

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2013

Prerequisite: MATH 022MATH 026 ; orMATH 040 orMATH 041 or satisfactory performance in the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 140G (GQ)** Calculus with Earth and Mineral Sciences Applications I (4) Functions, limits, analytic geometry; derivatives, differentials, applications from the earth and mineral sciences; integrals, applications from the earth and mineral sciences. Students may only take one course for credit from MATH 110, 140, 140A, 140B, 140E, and 140G.

**MATH 140G Calculus with Earth and Mineral Sciences Applications I (4)  
(GQ)**

This course is the first in a sequence of three calculus courses designed for students in the earth and mineral sciences and related fields. Topics include limits of functions, continuity; the definition of the derivative, various rules for computing derivatives (such as the product rule, quotient rule, and chain rule), implicit differentiation, higher-order derivatives, solving related rate problems, and applications of differentiation such as curve sketching, optimization problems, and Newton's method; the definition of the definite integral, computation of areas, the Fundamental Theorem of Calculus, integration by substitution, and various applications of integration such as computation of areas between two curves, volumes of solids, and work. The typical delivery format for the course is four 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments.

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2013

Prerequisite: MATH 022MATH 026 ; orMATH 040 orMATH 041 or satisfactory performance on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 140H (GQ)** Honors Calculus with Analytic Geometry I (4) Honors course in functions, limits; analytic geometry; derivatives, differentials, applications; integrals, applications. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

**MATH 140H Honors Calculus with Analytic Geometry I (4)  
(GQ)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course is the first in a sequence of three calculus courses designed for students in engineering, science, and related fields. Topics include limits of functions, continuity; the definition of the derivative, various rules for computer derivatives (such as the product rule, quotient rule, and chain rule), implicit differentiation, higher-order derivatives, solving related rate problems, and applications of differentiation such as curve sketching, optimization problems, and Newton's method; the definition of the definite integral, computation of areas, the Fundamental Theorem of Calculus, integration by substitution, and various applications of integration such as computation of areas between two curves, volumes of solids, and work.

The typical delivery format for the course is four 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments.

In contrast to the non-honors version of this course, the honors version is typically more theoretical and will often include more sophisticated problems. Moreover, certain topics are often discussed in more depth and are sometimes expanded to include applications which are not visited in the non-honors version of the course.

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2013



Prerequisite: MATH 022MATH 026 ; orMATH 040 orMATH 041 or satisfactory performance on the mathematics placement examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 141** (GQ) Calculus with Analytic Geometry II (4) Derivatives, integrals, applications; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, and 141H.

**Calculus with Analytic Geometry II (4)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 1996

Prerequisite: MATH 140MATH 140AMATH 140B orMATH 140H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 141B** (GQ) Calculus and Biology II (4) Derivatives, integrals, applications from biology; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141 and 141B.

**Calculus and Biology II (4)**

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 1996

Prerequisite: MATH 140B

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 141E** (GQ) Calculus with Engineering Applications II (4) Integration, applications; sequences and series; parametric equations, application.

**MATH 141E Calculus with Engineering Applications II (4)  
(GQ)**

MATH 141E enriches the regular MATH 141 syllabus by adding weekly applied problems, a small number of laboratory sessions, and a major group project for which both written and oral presentations are required. It is a rigorous calculus course with additional motivation and applications in the engineering sciences, designed to enhance the student's problem solving skills and their understanding of how calculus is applied to real world problems. The core material is the same as MATH 141.

MATH 141E provides an alternative to the regular MATH 141 for engineering majors. This course addresses the additional needs of engineering majors with regard to problem formulation and the interpretation of their mathematical solutions.

The prerequisite of the course is MATH 140, 140A, 140B, or 140E; or the consent of the instructor. Six sections of this course are offered every Spring semester.

Course evaluation is based on quizzes, weekly applied problems, two midterms, a group project, and a final examination.

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2001

Prerequisite: MATH 140MATH 140AMATH 140B orMATH 140E

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 141G** (GQ) Calculus with Earth and Mineral Sciences Applications II (4) Derivatives, integrals, applications from the earth and mineral sciences; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, 141E, and 141G.

**MATH 141G Calculus with Earth and Mineral Sciences Applications II (4)  
(GQ)**

This course is the second in a sequence of three calculus courses designed for students in the earth and mineral sciences and related fields. Topics include inverse functions of exponential, logarithmic, and trigonometric functions; indeterminate forms and L'Hopital's rule; various techniques of integration, including integration by parts, trigonometric integrals, trigonometric substitution, and partial fractions; improper integration; infinite sequences and series, tests for convergence and divergence of infinite series, including the integral test, comparison tests, ratio test, root test; power series, Taylor and Maclaurin Series; parametric equations and polar coordinates.

The typical delivery format of the course is four 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments.

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 2005  
Prerequisite: MATH 140MATH 140AMATH 140BMATH 140E orMATH 140G

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 141H (GQ)** Honors Calculus with Analytic Geometry II (4) Honors course in derivatives, integrals, applications; sequences and series; analytic geometry; polar coordinates. Students may take only one course for credit from MATH 141, 141B, and 141H.

**MATH 141H Honors Calculus with Analytic Geometry II (4)  
(GQ)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is the second in a sequence of three calculus courses designed for students in engineering, science, and related fields. Topics include inverse functions of exponential, logarithmic, and trigonometric functions; indeterminate forms and L'Hopital's rule; various techniques of integration, including integration by parts, trigonometric integrals, trigonometric substitution, and partial fractions; improper integration; infinite sequences and series, tests for convergence and divergence of infinite series, including the integral test, comparison tests, ratio test, root test; power series, Taylor and Maclaurin Series; parametric equations and polar coordinates.

The typical delivery format for the course is four 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments.

In contrast to the non-honors version of this course, the honors version is typically more theoretical and will often include more sophisticated problems. Moreover, certain topics are often discussed in more depth and are sometimes expanded to include applications which are not visited in the non-honors version of the course.

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 2006  
Prerequisite: MATH 140MATH 140AMATH 140B orMATH 140H

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 199 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Quantification  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 200 (GQ)** Problem Solving in Mathematics (3) Fundamental concepts of arithmetic and geometry, including problem solving, number systems, and elementary number theory. For elementary and special education teacher certification candidates only. A student who has passed EDMTH 444 may not take MATH 200 for credit.

**MATH 200 Problem Solving in Mathematics (3)  
(GQ)**

This is a course in mathematics content for prospective elementary school teachers. Students are assumed to have successfully completed two years of high school algebra and one year of high school geometry. Students are expected to have reasonable arithmetic skills. The content and processes of mathematics are presented in this course to develop mathematical knowledge and skills and to develop positive attitudes toward mathematics. Problem solving is incorporated

throughout the topics of number systems, number theory, probability, and geometry, giving future elementary school teachers tools to further explore mathematical content required to convey the usefulness, beauty and power of mathematics to their own students.

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 201 (GQ) Problem Solving in Mathematics II (3)** A continuation of MATH 200, this course studies the foundations of elementary school mathematics with an emphasis on problem solving.

**MATH 201 Problem Solving in Mathematics II (3)  
(GQ)**

Problem Solving in Mathematics II studies the foundations of elementary school mathematics with an emphasis on problem solving. Mathematical ways of thinking are integrated throughout the study of probability, statistics, graphing, geometric shapes, and measurement. This course is designed for prospective teachers not only to gain the ability to explain the mathematics in elementary school courses, but also to help them comprehend the underlying mathematical concepts. Gaining a deeper understanding will enable them to assist their young students in the classroom since effective mathematical teaching requires understanding what students know, what they need to learn, and then helping them to learn it well.

General Education: GQ  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: completion of MATH 200 is suggested

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 210 (GQ) Calculus with Engineering Technology Applications (3)** Topics in calculus with an emphasis on applications in engineering technology.

**MATH 210 Calculus with Engineering Technology Applications (3)**

MATH 210 is a three-credit course to be taken either after the MATH 081, 082, 083 sequence or after a semester of college-level calculus. The content of the course is geared toward the needs of engineering technology majors and places a large emphasis on technology and applications. The course provides mathematical tools required in the upper division engineering technology courses. A primary goal is to have students use technology to solve more realistic problems than the standard simplistic ones that can be solved by "pencil and paper." Student evaluation will be performed through exams, quizzes, graded assignments, and a cumulative final exam. It is expected that MATH 210 will be offered every semester with an enrollment of 44-80 students.

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2013  
Prerequisite: trigonometry and an introductory course in calculus

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 211 (GQ) Intermediate Calculus and Differential Equations with Applications (3)** Topics in ordinary differential equations, linear algebra, complex numbers, Eigenvalue solutions and Laplace transform methods.

**MATH 211 Intermediate Calculus and Differential Equations with Applications (4)**

MATH 211 is a three-credit course to be taken after MATH 210. The content of the course is geared toward the needs of engineering technology majors and places a large emphasis on technology and applications. The course provides mathematical tools required in the engineering technology courses at the sixth semester and above. A primary goal is to have students use technology to solve more realistic problems than the standard simplistic ones that can be solved by "pencil and paper." Student evaluation will be performed through exams, quizzes, graded assignments, and a cumulative final exam. It is expected that MATH 211 will be offered every semester with an enrollment of 44-80 students.

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2013  
Prerequisite: MATH 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 220** (GQ) Matrices (2-3) Systems of linear equations; matrix algebra; eigenvalues and eigenvectors; linear systems of differential equations.

**MATH 220 Matrices (2-3)  
(GQ)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Systems of linear equations appear everywhere in mathematics and its applications. MATH 220 will give students the basic tools necessary to analyze and understand such systems.

The initial portion of the course teaches the fundamentals of solving linear systems. This requires the language and notation of matrices and fundamental techniques for working with matrices such as row and column operations, echelon form, and invertibility. The determinant of a matrix is also introduced; it gives a test for invertibility.

In the second part of the course the key ideas of eigenvector and eigenvalue are developed. These allow one to analyze a complicated matrix problem into simpler components and appear in many disguises in physical problems. The course also introduces the concept of a vector space, a crucial element in future linear algebra courses.

This course is completed by a wide variety of students across the university, including students majoring in engineering programs, the sciences, and mathematics. (In case of many of these students, MATH 220 is a required course in their degree program.)

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 2009

Prerequisite: MATH 110 MATH 140 or MATH 140H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 220H** (GQ) Honors Matrices (2-3) Honors course in systems of linear equations; matrix algebra; eigenvalues and eigenvectors; linear systems of differential equations.

**MATH 220H Honors Matrices (2)  
(GQ)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is intended as an introduction to linear algebra with a focus on solving systems for linear equations. Topics include systems of linear equations, row reduction and echelon forms, linear independence, introduction to linear transformations, matrix operations, inverse matrices, dimension and rank, determinants, eigenvalues, eigenvectors, diagonalization, and orthogonality.

The typical delivery format for the course is two 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments.

In contrast to the non-honors version of this course, the honors version is typically more theoretical and will often include more sophisticated problems. Moreover, certain topics are often discussed in more depth and are sometimes expanded to include applications which are not visited in the non-honors version of the course.

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 2009

Prerequisite: MATH 110 MATH 140 or MATH 140H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 230** Calculus and Vector Analysis (4) Three-dimensional analytic geometry; vectors in space; partial differentiation; double and triple integrals; integral vector calculus. Students who have passed either Math 231 or 232 may not schedule Math 230 or 230H for credit.

**Calculus and Vector Analysis (4)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 1996

Prerequisite: MATH 141 or MATH 141H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 230H** Honors Calculus and Vector Analysis (4) Honors course in three-dimensional analytic geometry; vectors in space; partial differentiation; double and triple integrals; integral vector calculus. Students who have passed either MATH 231 or 232 may not schedule MATH 230 or 230H for credit.

#### **MATH 230H Honors Calculus and Vector Analysis (4)**

This course is the third in a sequence of three calculus courses designed for students in engineering, science, and related fields. Topics include vectors in space, dot products, cross products; vector-valued functions, modeling motion, arc length, curvature; functions of several variables, limits, continuity, partial derivatives, directional derivatives, gradient vectors, Lagrange multipliers; double integrals, triple integrals; line integrals, Green's Theorem, Stokes' Theorem, the Divergence Theorem.

The typical delivery format for the course is four 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments.

In contrast to the non-honors version of this course, the honors version is typically more theoretical and will often include more sophisticated problems. Moreover, certain topics are often discussed in more depth and are sometimes expanded to include applications which are not visited in the non-honors version of the course.

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 2006

Prerequisite: MATH 141 or MATH 141H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 231** Calculus of Several Variables (2) Analytic geometry in space; partial differentiation and applications. Students who have passed MATH 230 or MATH 230H may not schedule this course.

#### **Calculus of Several Variables (2)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 1996

Prerequisite: MATH 141 or MATH 141H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 231H** Honors Calculus of Several Variables (2) Honors course in analytic geometry in space; partial differentiation and applications. Students who have passed MATH 230 or MATH 230H may not schedule this course.

#### **MATH 231H Honors Calculus of Several Variables (2)**

This course covers a subset of the material found in MATH 230. Topics include vectors in space, dot products, cross products; vector-valued functions, modeling motion, arc length, curvature; functions of several variables, limits, continuity, partial derivatives, directional derivatives, gradient vectors, Lagrange multipliers.

The typical delivery format for the course is two 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments.

In contrast to the non-honors version of this course, the honors version is typically more theoretical and will often include more sophisticated problems. Moreover, certain topics are often discussed in more depth and are sometimes expanded to include applications which are not visited in the non-honors version of the course.

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2006

Prerequisite: MATH 141 or MATH 141H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 232** Integral Vector Calculus (2) Multidimensional analytic geometry, double and triple integrals; potential fields; flux; Green's, divergence and Stokes' theorems. Students who have passed MATH 230 may not schedule this course for credit.

#### **Integral Vector Calculus (2)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 1996

Prerequisite: MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 250** Ordinary Differential Equations (3) First- and second-order equations; special functions; Laplace transform solutions; higher order equations. Students who have passed MATH 251 may not schedule this course for credit.

### **Ordinary Differential Equations (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1988  
Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 251** Ordinary and Partial Differential Equations (4) First- and second-order equations; special functions; Laplace transform solutions; higher order equations; Fourier series; partial differential equations.

### **Ordinary and Partial Differential Equations (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1988  
Prerequisite: MATH 141 or MATH 141H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 251H** Honors Ordinary and Partial Differential Equations (4) Honors course in first- and second-order equations; special functions; Laplace transform solutions; higher order equations; Fourier series; partial differential equations.

### **MATH 251H Honors Ordinary and Partial Differential Equations (4)**

This course serves as an introduction to ordinary and partial differential equations. Topics include various techniques for solving first and second order ordinary differential equations, an introduction to numerical methods, solving systems of two ordinary differential equations, nonlinear differential equations and stability, Laplace transforms, Fourier series, and partial differential equations.

The typical delivery format for the course is four 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments.

In contrast to the non-honors version of this course, the honors version is typically more theoretical and will often include more sophisticated problems. Moreover, certain topics are often discussed in more depth and are sometimes expanded to include applications which are not visited in the non-honors version of the course.

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 2006  
Prerequisite: MATH 141 or MATH 141H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 296** Independent Studies (1-18) Creative projects, including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 310** Elementary Combinatorics (3) Fundamental techniques of enumeration and construction of combinatorial structures, permutations, recurrences, inclusion-exclusion, permanents, 0, 1- matrices, Latin squares, combinatorial designs.

**Elementary Combinatorics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 1985  
Prerequisite: MATH 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 310A** Concepts in Combinatorics - Recitation (1) Recitation for MATH 310H - Concepts in Combinatorics.

**Concepts in Combinatorics - Recitation (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2013  
Prerequisite: MATH 220  
Concurrent: MATH 310H

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 310H** Honors Concepts of Combinatorics (3) Honors version of elementary and enumerative combinatorics.

**MATH 310H Honors Concepts of Combinatorics (3)**

Math 310 introduces students to the fundamental techniques (i.e., addition, subtraction, multiplication, and division) and structures (i.e., permutations and combinations) of counting. An emphasis is placed on understanding the combinatorial interpretations of these objects and using these interpretations to prove various identities (as opposed to using mathematical induction). By the end of the semester, the successful student will be able to apply these methods to a complete set of distribution problems (distributing distinct/identical objects to distinct/identical boxes).

While Math 310H will introduce the student to the same fundamental techniques and structures, more of an emphasis will be placed on a variety of different counting techniques. Students will be exposed to the principle of inclusion-exclusion, the transfer-matrix method, bijective proofs, and see a much more in-depth treatment of generating functions. The successful student will be able to apply these techniques to a much broader spectrum of combinatorial problems than what is seen in Math 310.

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2012  
Prerequisite: MATH 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 311M** Honors Concepts of Discrete Mathematics (3) Basic methods of mathematical thinking and fundamental mathematical structures, primarily in the context of numbers, groups, and symmetries.

**Honors Concepts of Discrete Mathematics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2006  
Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 311W** Concepts of Discrete Mathematics (3-4) Introduction to mathematical proofs; elementary number theory and group theory. Students who have passed CMPSC 360 may not schedule this course for credit.

**Concepts of Discrete Mathematics (3-4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2007  
Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 312** Concepts of Real Analysis (3) An introduction to rigorous analytic proofs involving properties of real numbers, continuity, differentiation, integration, and infinite sequences and series.

**Concepts of Real Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 1994  
Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 312A** Honors Concepts of Real Analysis - Recitation (1) A recitation component to MATH 312H, practice in problem solving.

**Honors Concepts of Real Analysis - Recitation (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 2012  
Prerequisite: MATH 140HMATH 311M  
Concurrent: MATH 312H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 312H** Honors Concepts of Real Analysis (3) Basic methods of mathematical thinking and fundamental structures, primarily in the context of infinite sets, real numbers, and metric spaces.

**Honors Concepts of Real Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 2006  
Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 313A** Concepts of Geometry - Recitation (1) A recitation component to Math 313H, practice in problem solving.

**Concepts of Geometry - Recitation (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: MATH 140HMATH 311M  
Concurrent: MATH 313H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**MATH 313H** Concepts of Geometry (3) Development thorough understanding and technical mastery of foundations of modern geometry.

### **MATH 313H Concepts of Geometry (3)**

The central aim of this course is to develop thorough understanding and technical mastery of foundations of modern geometry. Basic high school geometry is assumed; axioms are mentioned, but not used to deduce theorems. Approach in development of the Euclidean geometry of the plane and the 3-dimensional space is mostly synthetic with an emphasis on groups of transformations. Linear algebra is invoked to clarify and generalize the results in dimension 2 and 3 to any dimension. It culminates in the last part of the course where six 2-dimensional geometries and their symmetry groups are discussed.

This course is a part of a new "pre-MASS" program (PMASS) aimed at freshman/sophomore level students, which will operate in steady state in the spring semesters. This course is directly linked with a proposed course Math 313R, its 1-credit recitation component. It is highly recommended to all mathematics, physics and natural sciences majors who are graduate school bound, and is a great opportunity for all Schreyer Scholars.

The following topics will be covered: Euclidean geometry of the plane (distance, isometries, scalar product of vectors, examples of isometries: rotations, reflections, translations, orientation, symmetries of planar figures, review of basic notions of group theory, cyclic and dihedral groups, classification of isometries of Euclidean plane, discrete groups of isometries and crystallographic restrictions. similarity transformations, selected results from classical Euclidean geometry); Euclidean geometry of the 3-dimensional space and the sphere (distance, isometries, scalar product of vectors, planes and lines in the 3-dimensional space, normal vectors to planes, classification of pairs of lines, isometries with a fixed point: rotations and reflections, orientation, isometries of the sphere, classification of orientation-reversing isometries with a fixed point, finite groups of isometries of the 3-dimensional space, existence of a fixed point, examples: cyclic, dihedral, and groups of symmetries of Platonic solids, classification of isometries without fixed point: translations and screw-motions, intrinsic geometry of the sphere, elliptic plane: a first example of non-Euclidean geometry); Elements of linear algebra and its application to geometry in 2, 3, and n dimension (real and complex vector spaces. linear independence of vectors, basis and dimension, eigenvalues and eigenvectors, diagonalizable matrices, classification of matrices in dimension 2: elliptic, hyperbolic and parabolic matrices, orthogonal matrices and isometries of the n-dimensional space); Six 2-dimensional geometries (Projective geometry, affine geometry, inversions and conformal geometry, Euclidean geometry revisited, geometry of elliptic plane, hyperbolic geometry).

The achievement of educational objectives will be assessed through weekly homework, class participation, and midterm and final exams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: MATH 140HMATH 311M

Concurrent: MATH 312H MATH 312R MATH 313R

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 314H** PMASS Problem Solving Seminar (1) Group work on challenging problems, discussions and project presentations.

### **MATH 314H PMASS Problem Solving Seminar (1)**

A 1-credit Problem Solving Seminar will feature group work on challenging problems which require only elementary techniques for their solution. Each student of the PMASS program will be required to participate in two individual or group projects. Unlike those in MASS Program, the projects will not be necessarily closely related to the courses, although the course instructors will be encouraged to offer topics and supervise the work. Some projects will grow out of the work of the problem solving seminar, and the seminar will be a venue for the students to discuss their research projects.

This course is a part of a new "pre-MASS" program (PMASS) aimed at freshman/sophomore level students, which will operate in steady state in the spring semesters. This course is linked with other PMASS courses, and is highly recommended to all mathematics, physics and natural sciences majors who are graduate school bound, and is a great opportunity for all Schreyer Scholars.

Each student of the PMASS program will be required to participate in two individual or group projects. The achievement of educational objectives will be assessed through evaluations of the project presentations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: MATH 140HMATH 311M

Concurrent: MATH 312H MATH 312R MATH 313R MATH 313H MATH 315H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 315** Foundations of Mathematics (3) A consideration of selected topics in the foundations of mathematics, with emphasis on development of basic meaning and concepts.

**Foundations of Mathematics (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Spring 2007  
 Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 315H** PMASS Colloquium (1) Bi-weekly lecture series with multiple invite speakers.

**MATH 315H PMASS Colloquium (1)**

This bi-weekly lecture series will feature multiple invited speakers. Unlike MASS colloquia that focus on specific topics, those

lectures will be broad in scope and not very technical.

We envision that advanced high school students from State College Area High School will attend these lectures that will be properly advertised. This will help to attract talented high school students to undergraduate study of mathematics and related subjects, and will also enhance our existing collaboration with mathematics educators in the area.

This course is a part of a new "pre-MASS" program (PMASS) aimed at freshman/sophomore level students, which will operate in steady state in the spring semesters. This course is highly recommended to all mathematics, physics and natural sciences majors who are graduate school bound, and is a great opportunity for all Schreyer Scholars.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011  
 Prerequisite: MATH 140H MATH 311M  
 Concurrent: MATH 312H MATH 313R MATH 313H MATH 312R MATH 314H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 318** (STAT 318) Elementary Probability (3) Combinatorial analysis, axioms of probability, conditional probability and independence, discrete and continuous random variables, expectation, limit theorems, additional topics. Students who have passed either MATH(STAT) 414 or 418 may not schedule this course for credit.

**Elementary Probability (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Spring 1989  
 Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 319** (STAT 319) Applied Statistics in Science (3) Statistical inference: principles and methods, estimation and testing hypotheses, regression and correlation analysis, analysis of variance, computer analysis. Students who have passed MATH(STAT) 415 may not schedule this course for credit.

**Applied Statistics in Science (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Spring 1989  
 Prerequisite: MATH 318 or knowledge of basic probability

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### Foreign Studies (1-12)

General Education: None  
Diversity: IL  
Bachelor of Arts: Quantification  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 401** Introduction to Analysis I (3) Review of calculus, properties of real numbers, infinite series, uniform convergence, power series. Students who have passed Math. 403 may not schedule this course.

### Introduction to Analysis I (3)

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1983  
Prerequisite: MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 403** Classical Analysis I (3) Topology of  $\mathbb{R}^n$ , compactness, continuity of functions, uniform convergence, Arzela-Ascoli theorem in the plane, Stone-Weierstrass theorem.

### Classical Analysis I (3)

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 1996  
Prerequisite: MATH 312

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 403H** Honors Classical Analysis I (3) Development of a thorough understanding and technical mastery of foundations of classical analysis in the framework of metric spaces.

### MATH 403H Honors Classical Analysis I (3)

The central aim of this course is to develop thorough understanding and technical mastery of foundations of classical analysis in the framework of metric spaces rather than multidimensional Euclidean spaces. This level of abstraction is essential since it is in the background of functional analysis, a fundamental tool for modern mathematics and physics. Another motivation for studying analysis in this wider context is that many general results about functions of one or several real variables are more easily grasped at this more abstract level, and, besides, the same methods and techniques are applicable to a wider class of problems, e.g. to the study of function spaces. This approach also brings to high relief some of the fundamental connections between analysis on one hand and (higher) algebra and geometry on the other.

This course is a sequel to Math 312H; it is highly recommended to all mathematics, physics and natural sciences majors who are graduate school bound, and is a great opportunity for all Schreyer Scholars.

The following topics will be covered: Metric spaces (topology, convergence, Cauchy sequences and completeness); Maps between metric spaces (continuous maps and homeomorphisms, stronger continuity properties: uniform continuity, Hoelder and Lipschitz continuity, contraction mapping principle, points of discontinuity and the Baire Category Theorem); Compact metric spaces (continuity and compactness, connectedness, total boundedness, coverings and Lebesgue number, perfect metric spaces, characterization of Cantor sets, fractals); Function spaces (spaces of continuous maps, uniform continuity and equicontinuity, Arzela-Ascoli Theorem, uniform approximation by polynomials. Stone-Weierstrass Theorem).

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2010  
Prerequisite: MATH 311 or MATH 312H

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 404** Classical Analysis II (3) Differentiation of functions from  $R_n$  to  $R_m$ , implicit function theorem, Riemann integration, Fubini's theorem, Fourier analysis.

**Classical Analysis II (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Fall 1985  
 Prerequisite: MATH 403

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 405** Advanced Calculus for Engineers and Scientists I (3) Vector calculus, linear algebra, ordinary and partial differential equations. Students who have passed MATH 411 or 412 may not take this course for credit.

**Advanced Calculus for Engineers and Scientists I (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Spring 1994  
 Prerequisite: MATH 231; MATH 250 or MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 406** Advanced Calculus for Engineers and Scientists II (3) Complex analytic functions, sequences and series, residues, Fourier and Laplace transforms. Students who have passed MATH 421 may not take this course for credit.

**Advanced Calculus for Engineers and Scientists II (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Spring 1994  
 Prerequisite: MATH 405

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 408** Advanced Calculus (3) Differential and integral calculus of functions of several variables, line and surface integrals, infinite series, series of functions, power series.

**Advanced Calculus (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Spring 2007  
 Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 410** Complex Analysis for Mathematics and Engineering (3) Complex analytic functions; Cauchy-Riemann equations; complex contour integrals; Cauchy's integral formula; Taylor and Laurent series; residue theory; applications in engineering.

**MATH 410 Complex Analysis for Mathematics and Engineering (3)**

A succinct stand-alone course description (up to 400 words) to be made available to students through the on-line Bulletin and Schedule of Courses.

This is a complex analysis course designed for students in mathematics, applied mathematics, engineering, science, and related fields. Topics include complex numbers; analytic functions, complex differentiability, and the Cauchy-Riemann equations; complex exponential, logarithmic, power, and trigonometric functions; complex contour integrals; Cauchy's theorem; Cauchy's integral formula; Taylor and Laurent series; residue theory; and various applications in areas of science and engineering.

This course focuses on the definitions, concepts, calculation techniques, supporting theory, and examples of applications suited to the usage of complex analysis in mathematics, applied mathematics, science, and engineering.

Students who have passed MATH 406 or MATH 421 may not take this course for credit.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: MATH 230 or MATH 232

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 411** Ordinary Differential Equations (3) Linear ordinary differential equations; existence and uniqueness questions; series solutions; special functions; eigenvalue problems; Laplace transforms; additional topics and applications.

### **Ordinary Differential Equations (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 1983

Prerequisite: MATH 230 or MATH 231; MATH 250 or MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 412** Fourier Series and Partial Differential Equations (3) Orthogonal systems and Fourier series; derivation and classification of partial differential equations; eigenvalue function method and its applications; additional topics.

### **MATH 412 Fourier Series and Partial Differential Equations (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The purpose of MATH 412 is to introduce students to the origins, theory, and applications of partial differential equations. Several basic physical phenomena are considered - including flows, vibrations, and diffusions - and used to derive the relevant equations. The fundamentals of the mathematical theory of partial differential equations are motivated and developed for the students through the systematic exploration of these classic physical systems and their corresponding equations: the Laplace, wave, and heat equations.

In addition to treating the physical origins of the equations, this course focuses on solving evolution equations as initial value problems on unbounded domains (the Cauchy problem), and also on solving partial differential equations on bounded domains (boundary value problems). There is not one but many techniques for solving these equations, and the course presents some aspect of the expansion in orthogonal functions (including Fourier series), eigenvalue theory, functional analysis, and the use of separation of variables, Fourier transforms, and Laplace transforms to solve PDEs by converting them to ordinary differential equations.

This course currently serves a cross-section of students at the university with interests or the need for this advanced subject mathematics, including students majoring in the engineering program, meteorology, physics, and mathematics. This typically includes the most advanced physics, engineering, and meteorology students, as well as mathematics majors with interests in applied mathematics.

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 2009

Prerequisite: MATH 230; MATH 250 or MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 414** (STAT 414) Introduction to Probability Theory (3) Probability spaces, discrete and continuous random variables, transformations, expectations, generating functions, conditional distributions, law of large numbers, central limit theorems. Students may take only one course from MATH(STAT) 414 and 418 for credit.

### **Introduction to Probability Theory (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2001

Prerequisite: MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 415** (STAT 415) Introduction to Mathematical Statistics (3) A theoretical treatment of statistical inference, including sufficiency, estimation, testing, regression, analysis of variance, and chi-square tests.

### **Introduction to Mathematical Statistics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 1989

Prerequisite: MATH 414

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 416 (STAT 416) Stochastic Modeling (3)** Review of distribution models, probability generating functions, transforms, convolutions, Markov chains, equilibrium distributions, Poisson process, birth and death processes, estimation.

**Stochastic Modeling (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 1984

Prerequisite: MATH 318 or MATH 414; MATH 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 417 Qualitative Theory of Differential Equations (3)** Linear differential equations, stability of stationary solutions, ordinary bifurcation, exchange of stability, Hopf bifurcation, stability of periodic solutions, applications.

**MATH 417 Qualitative Theory of Differential Equations (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The main objective of the course is the qualitative theory of ordinary differential equations such as existence and uniqueness of solutions, dependence on initial data and parameters, and basic stability of solutions for both linear and nonlinear equations. It is designed to introduce students to modern concepts including the bifurcation theory, intermittent (transitional) and chaotic behavior of solutions and dynamical system approach to differential equations. Along the way, a number of applications are discussed and students get familiar with some basic examples illustrating main principles of the theory, such as Lorenz attractor, predator-prey models, etc.

The course is completed by students majoring in engineering programs, the sciences, and mathematics.

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 2009

Prerequisite: MATH 220; MATH 250 or MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 418 (STAT 418) Introduction to Probability and Stochastic Processes for Engineering (3)** Introduction to probability axioms, combinatorics, random variables, limit laws, and stochastic processes. Students may take only one course from MATH(STAT) 414 and 418 for credit.

**MATH (STAT) 418 Introduction to Probability and Stochastic Processing for Engineering (3)**

This course gives an introduction to probability and random processes. The topics are not covered as deeply as in a semester-long course in probability only or in a semester-long course in stochastic processes only. It is intended as a service course primarily for engineering students, though no engineering background is required or assumed. The topics covered include probability axioms, conditional probability, and combinatorics; discrete random variables; random variables with continuous distributions; jointly distributed random variables and random vectors; sums of random variables and moment generating functions; and stochastic processes, including Poisson, Brownian motion, and Gaussian processes.

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2011

Prerequisite: MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 419 (PHYS 419) Theoretical Mechanics (3)** Principles of Newtonian, Lagrangian, and Hamiltonian mechanics of particles with applications to vibrations, rotations, orbital motion, and collisions.

**Theoretical Mechanics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 2007

Prerequisite: MATH 230 or MATH 231; MATH 250 or MATH 251; PHYS 212, PHYS 213 and PHYS 214

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**MATH 421** Complex Analysis (3) Infinite sequences and series; algebra and geometry of complex numbers; analytic functions; integration; power series; residue calculus; conformal mapping, applications.

### **Complex Analysis (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 1993

Prerequisite: MATH 230MATH 232 orMATH 405;MATH 401 orMATH 403

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 422** Wavelets and Fourier Analysis: Theory and Applications (3) Fundamental mathematical issues of the theory of wavelets for senior undergraduate and graduate students in mathematics, engineering, physics, and computer science.

### **MATH 422 Wavelets and Fourier Analysis: Theory and Application (3)**

Numerous problems arising in science and engineering find a common mathematical language in the theory of wavelets. Wavelet analysis can be viewed as an alternative as well as a generalization of classical Fourier analysis. In the latter case, the goal is to measure the local frequency content of a signal, while in the case of wavelets one is comparing several magnifications of this sequence with distinct resolutions. The goal of wavelets in mathematics engineering and science may be illustrated with the following archetypical problem. Suppose that we are given a real valued function of one variable representing some real-life phenomenon. For instance the function may represent a voice signal that we wish to transmit over the telephone lines or store in a compact disk. The whole function is given by the totality of its values and this makes it a continuum set of points. Both Fourier and wavelet analyses deal with discretizing the information and possibly extracting from it an appropriate finite sample. The difference between both types of approaches can be illustrated by the method of construction of the corresponding building blocks. In Fourier analysis, this process involves multiplications of a fixed "window function" by sines and cosines. In the case of wavelets, the window function is no longer multiplied by trigonometric functions, but instead it is translated and dilated by arbitrary translations and dilations.

The subject of wavelets appeared in the mid 1980's influenced by ideas from both pure mathematics (harmonic analysis, functional analysis, approximation theory, fractal sets) and applied mathematics (signal and image processing, mathematical physics, numerical analysis).

The purpose of the course is to show how wavelets can be constructed, illustrate why they provide us with a particularly powerful tool in mathematical analysis, and indicate how they can be used in applications.

The course is open to a wide range of undergraduate as well as graduate students with majors in mathematics, science, engineering and computer science. The course is accessible to students with some basic knowledge of the Fourier transform and its applications.

Main topics include:

- 1) the wavelet transform;
- 2) orthogonal wavelet decomposition;
- 3) applications to data compression, numerical analysis, image processing.

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Summer 2000

Prerequisite: complete one of the following:MATH 312MATH 401MATH 403MATH 405 orMATH 412

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 425** Introduction to Operations Research (3) Nature of operations research, problem formulation, model construction, deriving solution from models, allocation problems, general linear allocation problem, inventory problems.

### **Introduction to Operations Research (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 2012

Prerequisite: MATH 141 andMATH 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 426** Introduction to Modern Geometry (3) Plane and space curves; space surfaces; curvature; intrinsic geometry of surfaces; Gauss-Bonnet theorem; covariant differentiation; tensor analysis.

### **Introduction to Modern Geometry (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification  
Effective: Spring 1994  
Prerequisite: MATH 401 or MATH 403

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 427** Foundations of Geometry (3) Euclidean and various non-Euclidean geometries and their development from postulate systems. Students who have passed MATH 427 may not schedule MATH 471.

### **Foundations of Geometry (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 1994  
Prerequisite: MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 428** Geometry for Teachers (1) Research in mathematics education using ideas from Euclidean and non-Euclidean geometry. Students who have passed MATH 471 may not schedule MTHBD 478.

### **MATH 428 Geometry for Teachers (1)**

MTHBD 478 is designed to introduce students to mathematics education and research in education. The student will present topics in written and verbal classroom reports. Students will be evaluated on research papers and classroom presentations of those papers, classroom technology demonstration of geometry topics, and classroom demonstration of teaching geometry.

This course supplements MTHBD 477 by providing the education component that is required by the state of Pennsylvania for obtaining certification in teaching mathematics. This course is offered only at Penn State Erie, The Behrend College.

MTHBD 478 is a suggested core course for some of the students in the Behrend Mathematics major. It may serve the Mathematics minor as an elective at the 400-level. It is not applicable to the General Education course offerings.

This course will be offered every other year and enrollment is generally between 10 to 15 students.

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2007  
Prerequisite: MATH 311W . Prerequisite or concurrent: MATH 427

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 429** Introduction to Topology (3) Metric spaces, topological spaces, separation axioms, product spaces, identification spaces, compactness, connectedness, fundamental group.

### **Introduction to Topology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 1994  
Prerequisite: MATH 311W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 430** Linear Algebra and Discrete Models I (3) Vector spaces, linear transformations, matrices determinants, characteristic values and vectors, systems of linear equations, applications to discrete models.

### **Linear Algebra and Discrete Models I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2010  
Prerequisite: MATH 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 431** Linear Algebra and Discrete Models II (3) Vector spaces and linear transformations, matrices, determinants, characteristic values and vectors, systems of linear equations, applications to discrete models.

### **Linear Algebra and Discrete Models II (3)**



General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Spring 2007  
 Prerequisite: MATH 430

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 435** Basic Abstract Algebra (3) Elementary theory of groups, rings, and fields. Students who have passed MATH 435 may not schedule MATH 470.

### **Basic Abstract Algebra (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Spring 2010  
 Prerequisite: MATH 311W or MATH 315

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 436** Linear Algebra (3) Vector spaces and linear transformations, canonical forms of matrices, elementary divisors, invariant factors; applications. Students who have passed MATH 436 may not schedule MATH 441.

### **Linear Algebra (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Fall 1983  
 Prerequisite: MATH 311W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 437** Algebraic Geometry (3) Study of curves in the plane defined by polynomial equations  $p(x,y) = 0$ . Projective equivalence, singular points, classification of cubics.

### **MATH 437 Algebraic Geometry (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The geometric study of algebraic equations is one of the oldest and deepest parts of mathematics, and it lies at the heart of modern developments in geometry, algebra, number theory and physics. Students completing MATH 437 will understand many new algebraic and geometric ideas by studying examples of curves defined by equations of degrees 2 and 3 in the plane.

First come conics (given by equations of degree 2 in two variables). Rigid motions, similarities, and affine transformations give different classifications of them. New ideas then show how to get a conic through any five points and prove Pascal's theorem about six points on a conic. Special cases suggest extension of the usual plane to the projective plane, with "points at infinity," homogeneous coordinates, and projective transformations.

The main part of the course turns to equations of degree 3 and their singularities, flex points, tangents, and degeneracies. Several new ideas, both algebraic and analytic, are brought in to prove the existence of complex flex points on singular cubics and then real flex points on nonsingular real cubics. There is then a classification on complex projective cubics by a single parameter and finally a full classification of all real projective cubics.

As time permits, relations to further topics are sketched: addition of points on a nonsingular cubic, Mordell's theorem, doubly periodic functions, and Fermat's last theorem.

The course is typically taken by mathematics majors.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Quantification  
 Effective: Spring 2009  
 Prerequisite: MATH 230 or MATH 231; MATH 311W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 441** Matrix Algebra (3) Determinants, matrices, linear equations, characteristic roots, quadratic forms, vector spaces. Students who have passed Math 436 may not schedule this course.

### **Matrix Algebra (3)**

General Education: None

Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1985  
Prerequisite: MATH 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 444** Mathematical Statistics and Applications I (3) Distributions of random variables, special distributions, limiting distributions, sampling, statistical inference, point and interval estimation, orthogonal polynomials, and least squares.

### **Mathematical Statistics and Applications I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2007  
Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 445** Mathematical Statistics and Applications II (3) Further topics in point estimation, statistical hypotheses, other statistical tests, nonparametric methods.

### **Mathematical Statistics and Applications II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2007  
Prerequisite: MATH 444

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 446** Introduction to Applied Statistics I (3) Descriptive statistics, probability theory, discrete and continuous probability distributions, statistical inferences for means and proportions.

### **Introduction to Applied Statistics I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2007  
Prerequisite: MATH 022 or MATH 040

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 447** Introduction to Applied Statistics II (3) Regression, correlation, analysis of variance, contingency tables, nonparametric methods, time series, index numbers.

### **Introduction to Applied Statistics II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 449** Applied Ordinary Differential Equations (3) Differential and difference equations and their application to biology, chemistry, and physics; techniques in dynamical systems theory.

### **MATH 449 Mathematical Modeling (3)**

Many phenomena that arise in the natural sciences, such as the motion of pendulum or signal conduction in neurons or oscillations in certain chemical reactions, can be modeled using nonlinear differential equations. This course will develop the mathematical techniques needed to investigate such differential equations. These techniques include the study of equilibria, stability, phase plane analysis, bifurcation analysis and chaos. The course will assume prior knowledge of ordinary differential equations at the MATH 250/251 level; this is the only prerequisite for the course. We will focus on understanding and interpreting the behavior of the solutions to the differential equation models rather than on deriving the model equations themselves. Evaluation will be based on midterm exams, a final exam, graded homework, and graded longer projects which may involve computer work. The course should be of interest to any science or engineering major and some models will be chosen to reflect the fields of interest of the class. The goal is for the students to be able to apply the techniques learned in the course to mathematical models that they will encounter in other classes or situations. The class will be offered every other year with an expected enrollment of 10-15 students.

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2007  
Prerequisite: MATH 250 or MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 450 Mathematical Modeling (3)** Constructing mathematical models of physical phenomena; topics include pendulum motion, polymer fluids, chemical reactions, waves, flight, and chaos.

### **MATH 450 Mathematical Modeling (3)**

The purpose of the course is to introduce mathematical modeling, i.e., the construction of mathematical structures which capture relevant physical phenomena. The course will systematically explore mathematical ideas and tools used to study the natural world. Particular emphasis will be placed on the process of creating a mathematical model starting from a physical scenario. Typically this process will begin with an experiment either demonstrated in the W. G. Pritchard Lab or performed by the students in class.

Once a particular model has been developed, students will use mathematical analysis and experimentation to determine the properties and relevance of the model, and to make predictions. Often the model can be satisfactory; however, many times one also finds new features of the system that are not adequately accounted for in the model, and the process begins again. It is this cycle the course will focus on. For a given phenomenon (e.g., flow of viscous fluid, pendulum motion) several models may be compared and contrasted, and possible simplifications will be discussed.

A significant aspect of the course is its laboratory component, in which the students will perform experiments or observe demonstrations. However, the main emphasis will be placed on creating and rigorously analyzing the mathematical aspects of the models. Instead of presenting a finely tuned model for a given phenomenon, this course will try to convey some of the heuristic, intuitive, and mathematical ideas employed in modeling.

Examples of physical systems to be considered include: simple and compound pendulum motion, chemical oscillations, water waves, and elastic behavior of polymer solutions.

The course is open to a wide range of undergraduate as well as graduate students with majors in mathematics, biology, chemistry, engineering, and physics. The course should be accessible to students with some basic knowledge of mathematical analysis and differential equations. Main topics include: modeling with ordinary differential equations; bifurcation theory and stability; traveling waves in epidemics, chemical reactions, free fluid surfaces, and polymer solutions; fluctuations in nature, stochastic differential equations and chaos.

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2007  
Prerequisite: MATH 315 and MATH 430 or MATH 405 or MATH 412

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 451 (CMPSC 451) Numerical Computations (3)** Algorithms for interpolation, approximation, integration, nonlinear equations, linear systems, fast FOURIER transform, and differential equations emphasizing computational properties and implementation. Students may take only one course for credit from MATH 451 and 455.

### **Numerical Computations (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2008  
Prerequisite: 3 credits of programming; MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 455 (CMPSC 455) Introduction to Numerical Analysis I (3)** Floating point computation, numerical rootfinding, interpolation, numerical quadrature, direct methods for linear systems. Students may take only one course for credit from MATH 451 and MATH 455.

### **Introduction to Numerical Analysis I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2008  
Prerequisite: CMPSC 201 CMPSC 202 or CMPSC 121; MATH 220; MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 456** (CMPSC 456) Introduction to Numerical Analysis II (3) Polynomial and piecewise polynomial approximation, matrix least squares problems, numerical solution of eigenvalue problems, numerical solution of ordinary differential equations.

**Introduction to Numerical Analysis II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2008  
Prerequisite: MATH 455

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 457** Introduction to Mathematical Logic (3) Propositional logic, first-order predicate logic, axioms and rules of inference, structures, models, definability, completeness, compactness.

**Introduction to Mathematical Logic (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 2011  
Prerequisite: MATH 311W ; 3 additional credits in philosophy

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 461** (PHYS 461) Theoretical Mechanics (3) Continuation of Math.(Phys.) 419. Theoretical treatment of dynamics of a rigid body, theory of elasticity, aggregates of particles, wave motion, mechanics of fluids.

**Theoretical Mechanics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1986  
Prerequisite: MATH 419

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 465** Number Theory (3) Elements, divisibility of numbers, congruences, residues, and forms.

**MATH 465 Number Theory (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course serves as an upper-level introduction to the fundamentals of elementary number theory. A major emphasis in the course is placed on the role that the prime numbers play in the study of properties of the integers along with the related topics of divisibility and factorization of integers. Additional topics covered in the course include congruences (and the theorems of Euler and Fermat which are classics in this area), properties of arithmetic functions including those which are multiplicative, and other topics such as Pythagorean triples and representations of numbers as sums of squares.

This course is completed by a wide variety of students across the university, especially those majoring in mathematics. (In many of the options in the MTHBS degree, MATH 465 can be used to satisfy one of the major requirements.) The course is also taken quite frequently by non-mathematics majors who wish to use the course to satisfy an upper-level requirement for the mathematics minor.

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2009  
Prerequisite: MATH 311W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 467** (CMPSC 467) Factorization and Primality Testing (3) Prime sieves, factoring, computer numeration systems, congruences, multiplicative functions, primitive roots, cryptography, quadratic residues. Students who have passed MATH 465 may not schedule this course.

**Factorization and Primality Testing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 1995  
Prerequisite: MATH 311W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 468** Mathematical Coding Theory (3) Shannon's theorem, block codes, linear codes, Hamming codes, Hadamard codes, Golay codes, Reed-Muller codes, bounds on codes, cyclic codes.

### **Mathematical Coding Theory (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 1983

Prerequisite: MATH 311W ; advanced calculus

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 470** Algebra for Teachers (3) An introduction to algebraic structures and to the axiomatic approach, including the elements of linear algebra. Designed for teachers and prospective teachers. Students who have passed Math 435 may not schedule this course.

### **Algebra for Teachers (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 1988

Prerequisite: MATH 311W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 471** Geometry for Teachers (4) Problem solving oriented introduction to Euclidean and non-Euclidean geometries; construction problems and geometrical transformations via "Geometer's Sketchpad" software. Intended primarily for those seeking teacher certification in secondary mathematics. Students who have passed MATH 427 may not schedule this course.

### **Geometry for Teachers (4)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 1996

Prerequisite: MATH 311W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 475W** (US;IL) History of Mathematics (3) A global survey of the history of mathematics as viewed as a human response to cultural, political, economic, and societal pressures.

### **MATH 475W Introduction to the History of Mathematics (3) (DF)**

The primary goal of this course is to explore where mathematics comes from, how it was labored on, how ideas were preceived, and how theories developed. Development in algebra, geometry, arthimetic and calculus will be discussed.

A second goal is to help students understand the important of written communication in mathematics and to provide opportunities for students to improve the quality of their writing. The primary means for accomplishing this goal will be four papers, 4-8 pages in length. These will be written for an audience of mathematically-knowledgeable readers. In addition, each quiz will contain at least one essay question.

Students will be evaluated on quizzes, homework, papers, and a final exam. Quizzes will total 250 points, the papers 200 points, and the final exam 150 points.

This course is a required course in the Mathematical Science (MA SC) BS curriculum. This course is also available as an elective for students in the Computer Science (COMP) program.

No special facilities are required for this course. This course will be offered once per year, with an expected enrollment of 25-40 students.

General Education: None

Diversity: US;IL

Bachelor of Arts: Quantification

Effective: Spring 2012

Prerequisite: MATH 315 or MATH 311W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 479** (PHYS 479) Special and General Relativity (3) Mathematical description, physical concepts, and experimental tests of special and general relativity.

**MATH (PHYS) 479 Special and General Relativity (3)**

This course is intended as an elective course (within the undergraduate Physics program) for Physics majors to be taken in their senior year. Intended to be cross-listed with MATH, it can also be used in support of a Mathematics minor and, in some options, within the Math program as a program elective as well. The course significantly expands upon the introduction to Special Relativity (SR) seen in PHYS 237, including discussions of experimental tests of SR and applications to relativistic mechanics. It then introduces students to the mathematical machinery required to understand General Relativity (GR), starting with the description of curved spacetimes and geodesics. It discusses solutions to the Einstein equations and surveys the classic tests which established the validity of General Relativity. It concludes with applications of GR in such areas as black hole physics, the generation and detection of gravitational waves, other topics (such as cosmology, relativistic astrophysics, etc.).

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 2007

Prerequisite: PHYS 237PHYS 400PHYS 419;MATH 250 orMATH 251;MATH 230 orMATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 482** Mathematical Methods of Operations Research (3) Survey of linear and nonlinear programming; mathematics of optimization; queues; simulation.

**Mathematical Methods of Operations Research (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 2007

Prerequisite: MATH 220MATH 230STAT 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 484** Linear Programs and Related Problems (3) Introduction to theory and applications of linear programming; the simplex algorithm and newer methods of solution; duality theory.

**Linear Programs and Related Problems (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 1987

Prerequisite: MATH 220;MATH 230 orMATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 485** Graph Theory (3) Introduction to the theory and applications of graphs and directed graphs. Emphasis on the fundamental theorems and their proofs.

**Graph Theory (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Spring 1987

Prerequisite: MATH 311W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 486** Mathematical Theory of Games (3) Basic theorems, concepts, and methods in the mathematical study of games of strategy; determination of optimal play when possible.

**MATH 486 Mathematical Theory of Games (3)**

This course covers several major classes of models and methods for analyzing multi-party strategic interactions, i.e. games. Specific topics include extensive and strategic form games, continuous games, cooperative games, strictly competitive games, repeated games and adaptive learning, and evolutionary models. The effects on outcomes of information, communication, and other modeling assumptions are discussed. Real-world examples drawn from economics, biology, anthropology, management and everyday life are discussed in detail. When appropriate, computer algebra systems are incorporated in the course. The course typically meets during either two 75-minute periods each week or three 50-minute periods each week. Evaluation methods may vary by instructor, but will typically include a combination of examinations, quizzes, homework, and projects.

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2006  
Prerequisite: MATH 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Spring 2007  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 497A** Finite Fields and Applications (4) This course will consist of an introduction to the theory of finite fields. We

also discuss some of the many practical applications of finite fields. These applications will include algebraic coding theory for the error-free transmission of information, and cryptology for the secure transmission of information. Finite fields are also of great use in the construction of various kinds of combinatorial designs.

#### **Finite Fields and Applications (4)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: acceptance into the MASS Program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 497B** An Introduction to Dynamical Systems (4) The theory of dynamical systems is a modern branch of mathematics. Its main objective is to analyze long-term behavior of systems that evolve over time. In this course, we will introduce the fundamental concepts and tools of dynamics and discuss an array of examples with gradual increase in complexity. The topics will include contractions, linear maps, differential equations, recurrence, equidistribution, hyperbolic systems, symbolic systems and coding, fractals, entropy, and chaos.

#### **An Introduction to Dynamical Systems (4)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: acceptance into the MASS program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 497C** Affine and Projective Geometries (4) This course is an introduction to Geometry and its goal is to describe Geometry following Felix Klein's Erlangen program, that is an the action of the group of isometries. The emphasis is on Affine, Projective and non- Euclidean (Lobachevsky-Poincare hyperbolic geometries).

#### **Affine and Projective Geometries (4)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: acceptance into the MASS program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 497D** MASS Interdisciplinary Seminar (3) The seminar is designed to focus on selected interdisciplinary topics in algebra, analysis and geometry to coordinate core courses and to prepare students to MASS Colloquium.

#### **MASS Interdisciplinary Seminar (3)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: acceptance into the MASS Program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 497E** MASS Colloquium (1) Cover selected topics in Mathematics.

#### **MASS Colloquium (1)**

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: acceptance into MASS program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 497G** MASS Research Project (4) Supervised student activities on research projects identified on an individual or small-group basis.

#### **MASS Research Project (4)**

General Education: None

Diversity: None



Bachelor of Arts: Quantification

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: acceptance into the MASS program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### Special Topics (1-9)

General Education: None

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### Foreign Studies (1-12)

General Education: None

Diversity: IL

Bachelor of Arts: Quantification

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MATH 499A** (IL) Geometry and Mathematical Physics (2) PSU-PKU International Undergraduate Summer School, 2014 in Beijing, China.

### Geometry and Mathematical Physics (2)

General Education: None

Diversity: IL

Bachelor of Arts: Quantification

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: MATH 220MATH 230MATH 250MATH 312

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Mathematics Education (MTHED)

**MTHED 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### Special Topics (1-9)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 411** Teaching Secondary Mathematics I (3) Conditions for learning mathematics; problem solving; subject matter types; curriculum; learning goals; nature and history of mathematics at secondary level

### MTHED 411 Teaching Secondary Mathematics I (3)

This is the first of two secondary mathematics methods courses. In this course, participants look at mathematics teaching and learning from a teacher's perspective as well as from a student's perspective. Course participants engage in mathematical problem solving and in the study of the history and nature of mathematics as the foundation for understanding current curriculum and standards. Lesson planning follows from the consideration of different types of mathematical content, including skills and concepts. Looking specifically at the learning of mathematics and questioning to promote higher-level thinking prepares students for field experiences in subsequent semesters.

The goals for the course are:

- To improve understanding of some of the mathematical concepts which are important in secondary school mathematics.

- To improve understanding of the nature of mathematics: what is important, how it is practiced, how mathematical validity is determined.
- To improve understanding of the historical development of selected topics from secondary school mathematics.
- To develop a vision of good school mathematics.
- To see mathematics, mathematics learning, and mathematics teaching as problematic and to develop an inquiry approach to and an ability to reflect on these domains.
- To increase understanding of secondary school students' mathematical thinking and understanding.
- To increase ability to specify subject matter involved in a specific mathematics topic and make distinctions among them.
- To improve understanding of various teaching strategies and their strengths and weaknesses.
- To increase ability to choose among lessons and curriculum materials based on the intended mathematical subject matter and the current understandings of the students.
- To increase insight into creating a thriving, supportive mathematics classroom culture.

Students are evaluated through written assignments, examinations, classroom performance, presentations, and lesson plans.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: acceptance into Secondary Education/Mathematics Option certification program; C I 295 ; a grade of C or better in CMPSC 101MATH 140MATH 141MATH 220MATH 230MATH 311W

Concurrent: MTHED 427

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 412W Teaching Secondary Mathematics II (3)** Assessing learning and instruction; methods of evaluation and grading; long- term planning; accommodating needs of diverse learners; connecting theory and practice.

### **MTHED 412W Teaching Secondary Mathematics II (3)**

MTHED 412 is an inherently cumulative experience. This course builds upon ideas developed in MTHED 411 and MTHED 427. In particular, students continue to consider types of subject matter, problem solving, lesson planning, technology use, questioning, history and nature of mathematics, and curriculum and standards. MTHED 412 then links understanding of mathematics education with other education courses and with field experiences as well as with understanding of K-16 mathematics. Students focus on lesson and unit development and implementation, assessment and evaluation, classroom management and organization within school communities, and continued professional growth as reflective practitioners. Students are encouraged to draw whenever possible on education psychology, adolescent psychology, educational theory and policy, mathematics, and other bodies of knowledge. In other words, course participants live as teachers with a wealth of knowledge and responsibility to draw on that knowledge in the service of their students.

Student goals are to:

- Develop an expanded view of the process of teaching mathematics;
- Develop a deeper understanding of what it means to learn mathematics and the processes by which mathematics is learned;
- Be able to reflect on the instruction and one's learning in MTHED 412 and to relate it to students' learning of secondary mathematics;
- Be able to plan and teach appropriate mathematics lessons and reflect on one's teaching;
- Be familiar with and be able to draw on a variety of teaching resources;
- Investigate current issues influencing evaluation in the secondary mathematics curriculum;
- Choose goals and content for middle school and high school mathematics courses;
- Develop strategies for assessing and evaluating what students have learned
- Create and implement assessment instruments for middle school and high school mathematics courses;
- Develop insights into student understanding, especially in relationship to exceptional students as well as to mathematically talented and challenged students;
- Identify the needs of diverse learners and to develop strategies to address these needs;
- Create classroom environments that are conducive to learning; and
- Incorporate appropriate technology in the teaching and learning of mathematics.

Students are evaluated through written assignments, examinations, classroom performance, unit lesson and evaluation plans. Throughout the course writing is a process to help students learn course content as well as to help students learn ways of writing needed in the work of the secondary mathematics teacher.

The course is offered each Fall and Spring semester with typical enrollment of 20-25 students in each of 1 or 2 sections. Through co-requisite course, CI 495C, students spend approximately five full weeks in secondary school classrooms.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: a grade of C or better in MTHED 411

Concurrent: C I 412W C I 495C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 420** Teaching Mathematics in the Elementary Schools (3) Strategies for teaching mathematics at the elementary school level; analysis of the philosophy and content of contemporary programs of instruction.

### **MTHED 420 Teaching Mathematics in the Elementary Schools (3)**

MTHED 420 is designed to help teacher candidates: 1) to come to see mathematics, mathematics learning, and mathematics teaching as complex and to develop an inquiry approach to these domains; 2) to improve their understanding of the mathematical concepts and procedures they will teach, and to improve their understanding of children's mathematical learning and thinking about these concepts and procedures; 3) to increase their ability to choose among tasks, lessons, and curriculum materials from a variety of print and electronic sources based on intended mathematical understandings; 4) to develop a productive mathematics culture in the classroom; and 5) to explore key educational issues, such as equity, assessment, and technology, with respect to mathematics teaching and learning. In the course, teacher candidates explore important mathematical ideas and their development. They will become familiar with important pedagogical principles and questions. To help candidates develop an inquiry approach toward teaching mathematics, course assignments engage them in reflecting on readings and class discussions, their previous experiences as a learner of mathematics, and their ongoing experiences observing and teaching in classroom settings. MTHED 420 is a part of a block of courses in a PSU teacher education program that is unified by a basic set of principles and a field experience component.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: LL ED 400LL ED 401LL ED 402 ; a grade of C or better required in MATH 200

Concurrent: C I 495A or C I 495B ; SCIED 458 SS ED 430W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 424** Contemporary School Mathematics Programs (3) In-depth analysis of school mathematics programs and the factors and forces influencing them; contemporary curriculum developments.

### **Contemporary School Mathematics Programs (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: MTHED 412W or MTHED 420

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 427** Teaching Mathematics in Technology-Intensive Environments (3) Interaction among pedagogy, content, and technology in mathematics teaching and learning in technology-intensive environments; secondary, early college curricula; laboratory experience.

### **MTHED 427 Teaching Mathematics in Technology-Intensive Environments (3)**

Students should expect to learn something about each of several common types of mathematics software, new things about secondary school mathematics, and a lot about how to make decisions about how to use technology as an effective mathematics teacher. Students will also use communication software (e.g., word processors, e-mail, PowerPoint) not as objects of our discussion but in simple ways to generate and share products, assignments, and ideas.

The course has a significant lab component. Students will be assessed based on written assignments, lesson plans, oral presentations, class participation, and examinations. The course is offered each fall and spring semester with an approximate enrollment of 20 students per semester. Students must enroll concurrently in MTHED 411.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: acceptance into Secondary Education/Mathematics Option certification program; C I 295 ; a grade of C or better in CMPS 101MATH 140MATH 141MATH 220MATH 230MATH 311W

Concurrent: MTHED 411

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 430** Students' Mathematical Thinking (3 per semester, maximum of 6) Develop abilities in planning, conducting, and interpreting mathematics interviews to gain an understanding of students' thinking processes and current knowledge.

### **Students' Mathematical Thinking (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

Prerequisite: C I 495DC I 495E or experience teachnig mathematics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 431** Data Analysis in Secondary School Mathematics (3) Intense development of foundations of data analysis for secondary mathematics as a process using statistical concepts for predictions and inferences.

### **MTHED 431 Data Analysis in Secondary School Mathematics (3)**

As prospective secondary mathematics teachers, students will develop broad and deep understanding of measures of and representations for center, measures of spread, distribution, and correlation. They will become fluent in using dynamic statistics programs, various physical models, and representations to convey the essence of these statistical concepts to secondary school students. They will compare various statistical methods and measures and make and defend claims both in terms of the discipline and in terms of how these ideas unfold for learners in school mathematics. They will connect these statistical concepts to the broader study of secondary school mathematics.

In particular, students will see data analysis as a process. It involves the systematic application of statistical techniques, as well as logical techniques, to summarize, interpret, and compare data. Although the emphasis of the course will be on statistical concepts, one of the main themes of the course will involve understandings the mathematical structure of these statistical concepts. For example, students should be able to answer, from a mathematical perspective, why some data analysis techniques are more useful than other techniques.

Intended as an elective for students in Secondary Education/Mathematics Education, the course helps students both to enrich and apply the pedagogical ideas and technology uses from their methods courses and to connect their collegiate mathematics experiences to school curricula. In particular, it helps to build prospective teachers' understanding of statistics as a vital part of secondary mathematics. Class activities involve use of physical manipulatives and mathematics technology (e.g., spreadsheets, dynamic statistics environments, and graphing calculators), as appropriate.

Students in this course would be expected to complete weekly assignments and exams and to participate in classroom investigations of statistical concepts. Course grades depend on students' performance on all of these measures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: CMPSC 101 or equivalent; at least 18 credits of mathematics at or above the calculus level; acceptance into secondary mathematics certification program or permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 432** Mathematical Modeling in Secondary School Mathematics (3) Students work from teaching and curricular perspective to explore and apply school and undergraduate mathematics to model real-world phenomena.

### **MTHED 432 Mathematical Modeling in Secondary School Mathematics (3)**

Given the attention to mathematical modeling and applications in secondary school mathematics, prospective teachers need to be able to recognize situations that allow secondary school students to use relevant mathematics to apply mathematics and to model real-world phenomena as a means to learn about various mathematical topics. This course provides experiences in generating, interpreting, and evaluating geometric, discrete, stochastic, and function models. The course also helps prospective teachers develop an understanding of how mathematical modeling arises in school mathematics and how students learn mathematics through modeling.

Intended as an elective for students in Secondary Education/Mathematics Education, the course helps students both to enrich and apply the pedagogical ideas and technology uses from their methods courses and to connect their collegiate mathematics experiences to school curricula. Class activities involve use of physical manipulatives and mathematics technology (e.g., spreadsheets, geometry construction environments, and graphing calculators), as appropriate.

Students in this course would be expected to complete a major modeling project and paper in addition to weekly assignments, exams, quizzes, and written reflections of classroom participation. Course grades depend on students' performance on all of these measures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: CMPSC 101 or equivalent; at least 18 creidts of mathematics at or above the calculus level; acceptance into secondary mathematics certification program or permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 433** Function Concept in Secondary School Mathematics (3) This course develops the concept of function as an essential topic that underlies and connects school and collegiate mathematics.

**MTHED 433 Function Concept in Secondary School Mathematics (3)**

Prospective teachers as students need to understand the concept of function deeply as an essential topic of school and collegiate mathematics. In this course, they develop greater facility in using multiple representations and encounter function ideas as they unfold in multiple areas of mathematics, thus extending their understanding of collegiate mathematics and its connection to school mathematics. The students become conversant in current state and national expectations about functions as a mathematical entity. They plan appropriate instruction to develop secondary school student's understanding of function.

Intended as an elective for students in Secondary Education/Mathematics Education, the course helps students both to enrich and apply the pedagogical ideas and technology uses from their methods courses and to connect their collegiate mathematics experiences to school curricula. In particular, it helps to build prospective teacher's conceptual understanding of function so that they may draw more strongly on this understanding to engage secondary students in mathematics. Class activities involve use of physical manipulatives and mathematics technology (e.g., spreadsheets, geometry construction environments, and graphing calculators), as appropriate.

Students in this course would be expected to complete a major project and paper in addition to weekly assignments, exams, quizzes, and written reflections of classroom participation. Course grades depend on students' performance on all of these measures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: CMPSC 101 or equivalent; at least 18 credits of mathematics at or above the calculus level; acceptance into secondary mathematics certification program or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MTHED 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Mechanical Engineering (M E)**

**M E 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 097S** First Year Seminar (1) This 1-credit first-year seminar course is offered concurrently with M E 443W. The course involves a hands-on laboratory with integrated discussions regarding the hybrid electric vehicle.

**First Year Seminar (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 101S** Toy Fundamentals: First-Year Seminar (1) First-Year Seminar focusing on toy design and manufacture.

**M E 101S Toy Fundamentals (1)  
(FYS)**

Toy Fundamentals is a First-Year Seminar intending to be an introduction to engineering design and prototyping through a product type everyone has used: toys! This five-week class explores the history of toys, marketing, toy design for different ages, and includes toy dissection, design, prototyping and field testing. It will run in the first 5 weeks of the semester.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 102S** Smart Lego Robots & Design (1) First-Year Seminar focusing on the development of technology exploration kits for middle-school-aged children.

**M E 102S Toys for Technology Exploration: First-Year Seminar (1)**

This is a First-Year Seminar that focuses on an important sub-group of toys. "Learning-by-doing" is a recognized method for improving student's learning in grades K-12 (and in college!). As part of "Toys for Technology Exploration", existing hands-on kits used for science and math education for ages 10-14 will be reviewed. The new standards for science and technology education in Pennsylvania are used to guide new hands-on kit designs, and these designs will be prototyped and field-tested with public school students.

**Note**: Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 105S** Product Dissection A: Bicycles--First-Year Seminar (1) A First-Year Seminar in which students analyze and disassemble a multi-speed bicycle.

**M E 105S Product Dissection A: Bicycles (1)  
(FYS)**

Students are led through the disassembly, testing, troubleshooting and re-assembly of 10- and 15-speed bicycles. Routine maintenance, common problems, and fundamental design principles are addressed. Also, manufacturing and design issues such as material selection, fabrication technology, and reliability will be discussed. Students may supply their own bicycle, or use one from our supply.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 106S Product Dissection B: Household Appliances--First-Year Seminar (1)** A First-Year Seminar in which students analyze and disassemble household appliances.

**M E 106S Product Dissection B: Household Appliances (1)  
(FYS)**

Students will disassemble, analyze and re-assemble a series of small household appliances such as telephones and electric drills. Lectures will discuss issues of design and manufacturing as well as consumer product testing. Students will conceive, design, and carry out a consumer product testing program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 107S Product Dissection C: The Enigmatic Engine--First-Year Seminar (1)** A First-Year Seminar in which students analyze and disassemble a single-cylinder lawnmower engine.

**M E 107S Product Dissection C: The Enigmatic Engine (1)  
(FYS)**

Students are led through the disassembly of a single cylinder lawn mower engine. Students work with faculty and student helpers to understand concepts of operation, manufacturing and assembly. Then the engines are reassembled and started. Guest speakers will lead discussions regarding the use of fossil fuels, design for manufacturing, and marketing.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 190S Special Topics in Mechanical Engineering: First-Year Seminar (1)** A First-Year Seminar focusing on issues related to Mechanical Engineering.

**M E 190S Special Topics in Mechanical Engineering: First-Year Seminar (1)  
(FYS)**

In this First-Year Seminar, students will explore the Mechanical Engineering profession by means of treatment of a particular topic in M E. Students will be assigned pertinent readings and the professor will lead discussions on the ethical, professional, and societal aspects of the topic area. The seminar will also feature group activities and encourage participation in the classroom setting.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 199 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 201** Introduction to Thermal Science (3) Application of the basic concepts of thermodynamics, fluid dynamics, and heat transfer to the solution of engineering problems.

**Introduction to Thermal Science (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: CHEM 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 240** Product Dissection (3) Dissection of products and processes; reverse engineering, examination of materials usage, manufacturing processes, design, invention, and consumer issues.

**M E 240 Product Dissection (3)**

This course examines the way in which products and machines work: their physical operation, the manner in which they are constructed, and the design and societal considerations that determine the difference between success and failure in the marketplace. The primary objectives in this course are to develop a basic aptitude for engineering and engineering design and to develop mental visualization skills by examination of design and manufacture of consumer and industrial products. Heavy emphasis is placed on hands-on laboratory experience and the development of team and communication skills.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: EDSGN 100PHYS 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 300** Engineering Thermodynamics I (3) Basic thermodynamics concepts, properties of pure substances, first and second law analysis of systems and control volumes.

**M E 300 Engineering Thermodynamics I (3)**

This course is designed to develop an understanding of thermodynamic concepts and their application for the student by providing an integrative modeling and analysis approach to thermal-fluids systems. The course emphasizes the integration and application of fundamental principles of mass and energy conservation and fundamental ideal gas and non-ideal working fluids concepts to fundamental engineering systems. These systems include basic spark-ignition engines and turbojet engines as well as basic and extended Rankine and refrigeration cycles. Emphasis is on creating engineering models of these systems and indicating how the idealized versions of these systems can be extended to more realistic descriptions. Besides these mass and energy conservation concepts the course introduces the basic concepts of heat transfer and mass flow, providing a foundation in these subjects to be further expanded in later courses. The course aims to develop knowledge and initiate skills for "thinking like an engineer."



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: CHEM 110  
Concurrent: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 300 Engineering Thermodynamics I (3)** Basic thermodynamics concepts, properties of pure substances, first and second law analysis of systems and control volumes.

### **M E 300 Engineering Thermodynamics I (3)**

This course is designed to develop an understanding of thermodynamic concepts and their application for the student by providing an integrative modeling and analysis approach to thermal-fluids systems. The course emphasizes the integration and application of fundamental principles of mass and energy conservation and fundamental ideal gas and non-ideal working fluids concepts to fundamental engineering systems. These systems include basic spark-ignition engines and turbojet engines as well as basic and extended Rankine and refrigeration cycles. Emphasis is on creating engineering models of these systems and indicating how the idealized versions of these systems can be extended to more realistic descriptions. Besides these mass and energy conservation concepts the course introduces the basic concepts of heat transfer and mass flow, providing a foundation in these subjects to be further expanded in later courses. The course aims to develop knowledge and initiate skills for "thinking like an engineer."

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: CHEM 110  
Concurrent: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 302 Engineering Thermodynamics and Heat Transfer (4)** Thermodynamics and Heat Transfer with pertinent applications to devices important in mechanical engineering. For students in engineering science.

### **M E 302 Engineering Thermodynamics and Heat Transfer (4)**

M E 302, Engineering Thermodynamics and Heat Transfer, is a required course for engineering science students. This course presents the fundamental principles of thermodynamics and heat transfer. The students are expected to develop skills necessary to apply these principles to common engineering problems involving properties of matter, energy, and energy transport. The scope of the thermodynamics instruction, which constitutes approximately three quarters of the course, is limited to the classical viewpoint as opposed to the statistical viewpoint. Control volume analysis techniques are introduced for closed and open systems undergoing steady or transient processes. The techniques are applied to analyze common power and refrigeration cycles, including gas and vapor systems. Instruction on heat transfer, limited to approximately one quarter of the course, includes an overview of the three modes (conduction, convection, and radiation), with consideration of forced and free convective heat transfer for both internal and external flows. Heat exchangers and heat transfer from extended surfaces are presented at a very basic level.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: CHEM 110/PHYS 211 and MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 302 Engineering Thermodynamics and Heat Transfer (4)** Thermodynamics and Heat Transfer with pertinent applications to devices important in mechanical engineering. For students in engineering science.

### **M E 302 Engineering Thermodynamics and Heat Transfer (4)**

M E 302, Engineering Thermodynamics and Heat Transfer, is a required course for engineering science students. This course presents the fundamental principles of thermodynamics and heat transfer. The students are expected to develop skills necessary to apply these principles to common engineering problems involving properties of matter, energy, and energy transport. The scope of the thermodynamics instruction, which constitutes approximately three quarters of the course, is limited to the classical viewpoint as opposed to the statistical viewpoint. Control volume analysis techniques are introduced for closed and open systems undergoing steady or transient processes. The techniques are applied to analyze common power and refrigeration cycles, including gas and vapor systems. Instruction on heat transfer, limited to approximately one quarter of the course, includes an overview of the three modes (conduction, convection, and

radiation), with consideration of forced and free convective heat transfer for both internal and external flows. Heat exchangers and heat transfer from extended surfaces are presented at a very basic level.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: CHEM 110PHYS 211 andMATH 230 orMATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 308** Fluid Flow and Heat Transfer Laboratory (1) Experimental work to enhance understanding of thermodynamics, fluid dynamics, and heat transfer.

### **Fluid Flow and Heat Transfer Laboratory (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 320 . Prerequisite or concurrent:M E 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 315** Heat Transfer Laboratory (1) Application of the fundamental concepts associated with conduction, convection, and radiation to the actual measurements of heat transfer.

### **Heat Transfer Laboratory (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 320 . Prerequisite or concurrent:M E 345M E 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 320** Fluid FLOW (3) Thermodynamic and dynamic principles applied to fluid behavior; ideal, viscous, and compressible fluids under internal and external flow conditions.

### **Fluid FLOW (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 212MATH 251;M E 201 orM E 300;MATH 230 orMATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 325** Fluids Laboratory (1) Laboratory experience with fluid mechanics measurement techniques: flow visualization, pressure measurement, hot-wire anemometry, laser Doppler anemometry, computer data acquisition.

### **Fluids Laboratory (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 320M E 345

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 340** Mechanical Engineering Design Methodology (3) The design process; problem definition, conceptual design, system design, detail design, evaluation and test, implementation, documentation and communication.

### **M E 340 Mechanical Engineering Design Methodology (3)**

This course is intended to provide mechanical engineering students with the fundamental tools to produce an effective design solution in a realistic professional environment with conflicting customer needs and technical capabilities. The students will identify the system design targets through interaction with the "customer", develop multiple conceptual designs, select the best design solution and produce a functional prototype. The course is project driven with significant input from the students in defining the work objectives and goals. Initially several mini-projects will be assigned with specific objectives such as identifying customer needs, quantifying technical design specifications and decision making.

The course culminates with a student team based design competition. The competition provides an opportunity to apply the design process to an open-ended mechanical engineering problem.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: EDSGN 100 ; Prerequisite or concurrent: M E 320 or BME 409; M E 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 340 Mechanical Engineering Design Methodology (3)** The design process; problem definition, conceptual design, system design, detail design, evaluation and test, implementation, documentation and communication.

### **M E 340 Mechanical Engineering Design Methodology (3)**

This course is intended to provide mechanical engineering students with the fundamental tools to produce an effective design solution in a realistic professional environment with conflicting customer needs and technical capabilities. The students will identify the system design targets through interaction with the "customer", develop multiple conceptual designs, select the best design solution and produce a functional prototype. The course is project driven with significant input from the students in defining the work objectives and goals. Initially several mini-projects will be assigned with specific objectives such as identifying customer needs, quantifying technical design specifications and decision making. The course culminates with a student team based design competition. The competition provides an opportunity to apply the design process to an open-ended mechanical engineering problem.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: EDSGN 100 ; Prerequisite or concurrent: M E 320 or BME 409; M E 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 345 Instrumentation, Measurements, and Statistics (4)** Fundamentals of statistics, sensors, instrumentation, and measurement of mechanical phenomena such as temperature, flow, pressure, force, stress, displacement, and acceleration.

### **M E 345 Instrumentation, Measurements, and Statistics (4)**

This course is required for all mechanical engineering students, and is taken in the junior year. It serves as an introduction to the fundamental principles of instrumentation and measurement, along with statistics, and integrates and applies what the students have learned in their electrical engineering course.

The course includes a 3-hour-per-week hands-on laboratory where students apply the material learned in the lecture. For many students this is the first time they have actual hands-on experience with electronics and measurement equipment, such as oscilloscopes, breadboards, function generators, digital data acquisition systems, integrated circuits strain gages, displacement meters, thermocouples, tachometers, dynamometers, filters, volume flow meters, velocity meters, pressure transducers, etc. Students learn not only how to use these devices in the lab, but also the fundamental principles of their operation. Statistical analysis is integrated into the course, especially in the hands-on laboratories, where statistics is used to analyze and interpret acquired data.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: Prerequisite or concurrent: E E 212 or E E 211 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 345W Instrumentation, Measurements, and Statistics (4)** Measurement concepts, probability and statistics, error analysis; electro- mechanical transducers, applied electrical and mechanical measurements, electrical and electronics instruments, data acquisition and instrumentation systems.

### **Instrumentation, Measurements, and Statistics (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: Prerequisite or concurrent: E E 212 or E E 211 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 347 Computer-Aided Engineering (3)** Introduction to the tools and techniques of computer-aided design, including

CAD, spreadsheets, numerical methods, and finite element analysis.

### **M E 347 Computer-Aided Engineering (3)**

In this course students learn how to use a variety of computer tools for engineering analysis and design. These tools include Computer-Aided Design software such as solid modeling, spreadsheets, numerical methods, and finite element analysis. A major emphasis of the course is the development and solution of mathematical models of engineering systems or components. Students see how simplified analysis diagrams (free-body diagrams, block diagrams and control volumes) can be developed for real systems and components, and how these diagrams can be used to develop the mathematical models. Numerical techniques for solving these models, including systems of equations, non-linear equations, ordinary and partial differential equations, numerical differentiation and integration, and curve fitting are discussed. Students are also taught how to learn a new computer package with minimal formal instruction. Students are evaluated through the use of written exams during the semester, a comprehensive written final, weekly homework assignments, and a design project. This course is required in the Mechanical Engineering program, integrates material from a number of previous courses, and provides the student with tools that will be used in a number of subsequent courses. It is offered annually in the fall semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 201 or CMPSC 202; EDSGN 100 or EDSGN 100S . Prerequisite or concurrent: E MCH 213 MATH 220 MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 349 Intermediate Mechanics of Materials (3)** Intermediate topics in mechanics of materials with computer applications.

### **M E 349 Intermediate Mechanics of Materials (3)**

This course introduces students to intermediate and applied topics in mechanical behavior of materials with an emphasis on design and computation. This course will give students the tools to do practical analysis and the foundation needed to prepare them for other mechanical engineering courses in design and other elective courses. Subjects covered include stress analysis, deformation & deflection, material failure and finite element analysis. Stress analysis includes the study of stress concentrations, stress transformations and principal stresses. Stress-based static failure theories for brittle and ductile materials are investigated. Two-way bending of beams is covered as well as torsional deformation of non-circular cross sections. Buckling and pressure vessels are introduced as separate topics while the finite element analysis is introduced as a computational tool to study stress and deformation. Throughout the course students will use a commercial finite element program to verify and visualize results from analysis of the various topics. During the course, students are introduced to the basic theory of the finite element method.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: E MCH 213 EDSGN 100S Prerequisite or concurrent: CMPSC 200 MATH 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 355 Dynamic Systems Laboratory (1)** Experimental investigation of simple position, velocity, and temperature control systems with analog and digital controllers.

### **M E 355 Dynamic Systems Laboratory (1)**

The objective of the Dynamic Systems Laboratory is to enable students to experimentally investigate the calibration, response characteristics, modeling, and control of mechanical and fluid systems.

This course is intended to allow students to develop some hands-on experience and working knowledge of basic dynamic and control systems. Specifically, to

1. Identify the actuators, sensors, plants, and controllers of physical control systems.
2. Calibrate encoders, temperature, laser displacement, and flow sensors.
3. Measure steady state, step, and frequency response of thermal, fluid, and mechanical systems.
4. Compare simulation and experimental results to validate theoretical model.
5. Design PID controllers for thermal, fluid, and mechanical systems.
6. Implement and test PID controllers for thermal, fluid, and mechanical systems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: M E 345 ; Prerequisite or concurrent: M E 450

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**M E 357 System Dynamics (3)** Mathematical modeling and analysis of linear dynamic systems; performance and design of simple controllers.

**M E 357 System Dynamics (3)**

This course is to explore the modeling of linear systems via transfer functions and state-space models; analysis of systems in the time and frequency domain using transfer functions and state-space models; development of control techniques based on PID. The use of software Matlab and Simulink is another emphasis. Students are evaluated through the use of written exams during the semester, a comprehensive written final, weekly homework assignments, and a design project. This course is required in the ME BD program at Behrend, integrates material from a number of previous courses, and provides the student with tools that will be used in a number of subsequent courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: CMPSC 200E E 211 or E 212MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 360 Mechanical Design (3)** Specification of components such as shafts, bearings, and power transformers; optimal designs for operational, environmental, and manufacturing requirements.

**M E 360 Mechanical Design (3)**

This course is required for all mechanical engineering students, and is taken in the junior year. It is an introduction to analysis and design of mechanical components. It helps provide practical insight into theory provided by prerequisites in engineering mechanics and materials science. Students initially perform yielding and fatigue failure predictions for general structural elements and then focus on specific mechanical components such as gears, fluid film bearing, rolling element bearings, screws, shafts and springs. Use and interpretation of finite element analyses (FEA) are also introduced. The overall goals are for students to learn to make basic design decisions regarding the suitability of different materials in mechanical components (e.g. steel versus aluminum); and to make basic design decisions regarding the suitability of different components in a mechanical system (e.g. ball bearings versus fluid film bearings).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: CMPSC 200 Prerequisite or concurrent: E MCH 315

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 365 Materials Testing Laboratory (1)** Laboratory for materials testing, property identification and modification, failure analysis, and metallurgical testing.

**M E 365 Materials Testing Laboratory (1)**

This laboratory course provides an integrated approach to materials science and engineering. The laboratory examines the important relationships between processing, microstructure, and the properties of materials. The course provides an introduction to basic characterization techniques for materials, such as microscopy, hardness testing, fracture testing and analysis, fatigue testing, and impact testing. In addition, material selection and heat treatment topics are covered. The course requires hands-on involvement by the students in the planning of experiments as well as data manipulation and analysis of results. The laboratory exercises are intended to provide students with a broad appreciation of the breadth of material science and engineering and the principles behind material characterization and property modification. Students work in groups, and written reports are the primary basis for grading.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: Prerequisite or concurrent: MATSE 259

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 367 Machine Design (3)** Design and selection of machine components and connections. Stress analysis and modes of failure of materials used in machine components.

**M E 367 Machine Design (3)**

This course introduces students to the process for selection, design and failure analysis of various common machine elements. This course will give students the foundation to design mechanical systems and the tools to design, select, or

analyze machine components for practical applications necessary for their senior design projects and other mechanical engineering electives. Subjects include the reliability, safety factors, and the design of machine elements including shafts, roller bearings, brakes, clutches, gears, belt and chain drives, and additional topics such as screws, springs, journal bearings, and connections. Both static and cyclic loading are considered as part of the design and analysis process. Extensive use is made of material properties, design tables, figures and graphs to assist in the design and analysis process. The course includes a comprehensive project that incorporates several of the topics covered in the course in the design of a mechanical system. The goal of the project is for students to learn how various machine components and procedures are used in the Machine Design process as well as giving them further experience in teamwork and presentation skills.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: M E 349 Prerequisite or concurrent: MATSE 259

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 368 Materials Properties and Characterization (4)** Properties and characteristics of materials.

#### **Materials Properties and Characterization (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CHEM 110E MCH 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 370 Vibration of Mechanical Systems (3)** Modeling and analysis of vibration characteristics of mechanical systems with single degree and multiple degrees of freedom. Vibration control by isolation, absorption and balancing.

#### **M E 370 Vibration of Mechanical Systems (3)**

The course studies vibration characteristics of mechanical systems and vibration control. It is divided into four main topics. Fundamental aspects of mechanical vibrations are studied first. Types and causes of various vibratory motions are described. The concepts of mathematical modeling of the vibratory systems are presented. Model elements including mass/inertia, spring and damper elements and their corresponding describing equations are studied. Single degree-of-freedom vibrations are modeled and analyzed. Equations describing free vibrations of undamped and damped systems are derived. Natural frequency and damping ratio are defined and their physical significance discussed. Harmonically excited vibrations are studied with many practical application problems; resonance and its physical significance are emphasized. The theoretical aspects of general periodic vibrations and non-periodic vibrations are formulated by means of Fourier analysis and convolution integral. Vibrations of multiple degrees-of-freedom systems are studied. Mathematical models governing free vibrations are formulated. Equations determining the natural frequencies and mode shapes of the system are derived with relation to eigenvalue problems. Harmonically excited vibrations are analyzed with practical applications. Vibration control in relation to engineering design is the last topic studied. Various vibration control concepts and techniques are presented including vibration isolation, vibration absorption and balancing to reduce the intensity of the source of excitation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: E MCH 212CMPSC 200MATH 220MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 375 Vibrations Laboratory (1)** Experimental measurement and analysis of mechanical system dynamics.

#### **Vibrations Laboratory (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: or concurrent: M E 370 M E 345

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 380 Machine Dynamics (3)** Kinematic analysis of mechanisms such as linkages, flywheels, cams and gears. Dynamic forces and vibrations of mechanisms.

**M E 380 Machine Dynamics (3)**

In this course students learn how to apply the techniques of dynamics to analyze both the motion and forces associated with planar mechanisms. Students learn how to model and solve for the position, velocity, acceleration and forces on linkages using vectors. They also study the kinematics of gears, flywheels and cams. Machine vibrations is introduced as an integral part of Machine Dynamics. Students learn how to model simple mechanical systems as vibrating systems and then analyze the vibratory response of these systems. Once these analytical skills have been developed, the students can apply these skills to the design of linkages, internal combustion engines, gears, shafts and cams. Several in-class exams are used to evaluate students' performance. Computer problems are assigned so students can experience the solution methods to some of the more complex problems. This required course integrates material from calculus and dynamics to provide the student with tools that can be used to analyze the motion of machinery and can be used in the design of machinery and machine components. It is offered annually in the Fall semester and occasionally in the Spring semester.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009  
Prerequisite: E MCH 212MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 400** Thermodynamics of Propulsion and Power Systems (3) Analysis and modeling of propulsion and power systems, including combustion, compressible flow through nozzles, chemical equilibrium, and moist air systems.

**M E 400 Thermodynamics of Propulsion and Power Systems (3)**

This course is specifically designed to take advantage of the senior level standing of the student by providing an integrative modeling and analysis approach to thermal-fluids systems. The course emphasizes the integration and application of fundamental principles of mass, momentum, and energy conservation to relatively complex systems. These systems include spark-ignition and diesel engines, gas-turbine engines for power production, and turbojet engines. The integration of the topics of combustion, compressible flow, and psychrometrics allow these systems to be analyzed in their totality. Emphasis is on creating engineering models of these systems. The course aims to integrate previous knowledge and develop skill in "thinking like an engineer."

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: M E 300 and M E 320 ; Prerequisite or concurrent: M E 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 401** Refrigeration and Air Conditioning (3) Theoretical principles, design, performance, and selection of various refrigeration and air-conditioning systems; building heat and cooling loads; solar heating.

**Refrigeration and Air Conditioning (3)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: M E 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 402 Power Plants (3)** A study of fossil-fuel steam generation and utility plants, including cogeneration, gas turbine, and combined cycles.

### **M E 402 Power Plants (3)**

This course serves as an introduction to fossil-fuel plants for both steam generation and electricity production. Following an overview of an entire plant and an introduction to combustion processes, each subsystem of a fossil-fuel plant will be considered. The subsystems include fuel preparation and handling, boiler types and the fundamentals of steam generation, water systems (condensate-feedwater, makeup, cooling, and waste), and turbomachinery. Consideration will be given to environmental aspects of steam and power generation as well as operations, maintenance, and controls issues. Students will spend time at the West Campus Steam Plant (WCSP) to observe the various systems discussed in class. Data taken from the WCSP will be used in problem solving and in an assessment of the plant.

#### **Course Objectives:**

To acquaint students with both steam generation and electricity production and to present some of the engineering calculations encountered in practice.

Objectives that students will meet at the end of the course:

1. list the subsystems of a plant, indicating the function of each subsystem
2. sketch typical subsystems of a power plant (example: sketch the coal and ash handling system)
3. perform basic analyses associated with each subsystem
4. sketch the flow of water-steam, fuel, and air through a plant
5. analyze a heat balance, perform an availability analysis, and interpret the results of those analyses
6. select the type of plant appropriate for a given application
7. perform an energy audit on the auxiliary systems
8. perform a water audit on the plant
9. use DoE Best Practices (or equivalent program) to assess a steam plant

Students will be required to draw on material from core undergraduate courses in thermodynamics (M E 030 and M E 031), fluid mechanics (M E 033), and heat transfer (M E 412). Students must be able to:  
 sketch the configuration and draw a T-s diagram for a Rankine cycle and a Brayton cycle  
 indicate the general trends for the ideal cycles (example: for a Brayton cycle, how does the efficiency depend on the pressure ratio, inlet temperature, etc.)  
 define the basic modifications to the simple Rankine cycle and simple Brayton cycle  
 discuss the significance of the modifications  
 state the definition of the adiabatic efficiency for turbines and pumps  
 perform an energy balance given a particular cycle  
 use the Darcy-Weisbach equation to determine the friction losses in pipes and ducts  
 perform simple analysis of a heat exchanger

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: M E 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 403 Polymer Electrolyte Fuel Cell Engines (3)** Introduction to Fundamentals of Polymer Electrolyte Fuel Cells (PEFCs). Includes fundamentals of electrochemistry, thermodynamics, fluid mechanics, heat transfer materials, and manufacturing issues of PEFCs. A brief survey of other fuel cell types is also included.

### **M E 403 Polymer Electrolyte Fuel Cell Engines (3)**

This course is intended for the engineering student interested in obtaining a fundamental background required for polymer electrolyte fuel cell (PEFC) modeling and diagnosis. Those students with interest in the basic design, operation, and characteristics of PEFC systems should also benefit.

This course serves as an introduction to the fundamental principles of electrochemistry, thermodynamics, heat and mass transfer, materials and manufacturing issues related to PEFC engines. The various types of PEFC components and technologies are dissected in detail, including direct inject alternative fuel systems. A survey of cutting-edge issues in fuel cell technology including the future direction of PEFC technology will be presented as time permits. The student will also participate in an experimental lab study to aid in the understanding of these systems, a computer-based simulation project, and a group-based fuel cell system design project. Issues of specific interest to mechanical engineers, including water management and heat and mass transfer in thin film porous media, will be dealt with in depth. A brief survey of other fuel cell types is also presented.

General Education: None



Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2011  
 Prerequisite: M E 300 Prerequisite or concurrent: M E 320  
 Concurrent: M E 410 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 404 Gas Turbines (3)** Thermodynamic cycles relating to gas turbines; analysis and performance of compressors, combustion chambers, single- and multi-stage turbines; recent developments.

### **M E 404 Gas Turbines (3)**

This course enables students with the proper background to gain specialized knowledge as a step towards becoming practitioners in the field of gas turbines. The information imparted covers from basic cycles to properties of materials required to put together these impressive machines. Competent course performance requires knowledge of basic thermodynamics, fluids and heat transfer. The homework is carefully graduated in order to highlight key aspects already covered in the lectures, with new thinking an unavoidable part. As an optional part of the course, students can run and acquire data in an actual gas turbine. Additionally, those with a strong background in fluids can design blades and study the flow around them with CDF.

Course Objectives: Upon completion of this course, students should be able to:

1. Analyze cogeneration plants.
2. Analyze turbofans, jets and turbojets.
3. Specify a typical gas turbine installation, including auxiliaries.
4. Carry out conceptual design of gas turbine engines for different applications.
5. Specify construction materials to withstand typical operating conditions.
6. Demonstrate professionalism in interactions with colleagues, faculty, and staff.

Program Objectives: This course covers the following program objectives:

1. demonstrate ability to solve differential equations
2. demonstrate familiarity with linear algebra
3. perform analysis of thermal/fluids components
4. perform analysis of thermal/fluids systems
5. work effectively on multidisciplinary teams
6. demonstrate ability to communicate effectively with the written word
7. demonstrate ability to communicate effectively in oral communications
8. demonstrate professionalism in interactions with colleagues, faculty, and staff

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: M E 320 or M E 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 405 Indoor Air Quality Engineering (3)** Prediction of the motion of contaminants (both gaseous particulate) in gas streams; analysis of ventilation systems and air pollution control systems; comparison of experimental sampling techniques.

### **M E 405 Indoor Air Quality Engineering (3)**

This course serves as an introduction to environmental health engineering, which presents the quantitative relationships describing generation, movement, and control of pollutants inside the workplace. Although some aspects of the course can be applied to outdoor air pollution, the course concentrates on applications related to indoor air quality. In particular, students are taught how to measure and predict concentrations of air pollutants, both gaseous and particulate, in rooms. In addition, they are taught how to design both local and general ventilation systems to maintain acceptable indoor air quality. In addition, the design of air pollution control systems that remove both gaseous and particulate contaminants from the air is discussed.

The relationships are described by mass and energy balances that relate pollutant generation and movement to process parameters. The course is designed for seniors and graduate students in Mechanical, Chemical, Environmental and Civil Engineering, and Meteorology.

To work effectively in environmental health engineering, students must be proficient in applying the thermal sciences. The course uses principles of mathematics and thermal sciences included in accredited programs of engineering. Most students will have mastered some of these principles, but few will have mastered them all. The course reviews all the necessary thermal science principles before using them, but some students will need to review this material in more detail than others.

This course is offered once per year.

Course Objectives:

- a. Demonstrate the ability to analyze and compare risks associated with various activities and with exposure to hazardous chemicals.
- b. Demonstrate a working knowledge of the physiology and function of the respiratory system, including diseases of the

lung.

- c. Demonstrate the ability to estimate pollutant emission rates using emission factors and fundamental mass balance techniques.
- d. Analyze practical problems of general and local ventilation requirements.
- e. Design local ventilation systems using standard guidelines from ACGIH and ASHRAE.
- f. Predict the motion of particles in air, and analyze pollution control devices which remove particles from the air.
- g. Demonstrate professionalism in interactions with colleagues, faculty, and staff.

Program Objectives:

- a. demonstrate knowledge of chemistry
- b. demonstrate ability to solve differential equations
- c. demonstrate familiarity with statistics
- d. perform analysis of thermal/fluids components and thermal/fluids systems
- e. demonstrate an appreciation of the economic, global, social, and ethical context of their work
- f. demonstrate professionalism in interactions with colleagues, faculty, and staff
- g. make effective use of spreadsheets as an analysis and design tool
- h. use software such as Matlab and MathCAD to solve engineering problems including ODE'S, systems of linear equations, and numerical integration

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 320 or equivalent

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 406** (NUC E 406) Introduction to Statistical Thermodynamics (3) Statistical description of systems composed of large numbers of particles in the context of classical and quantum mechanics; basic concepts of probability theory and thermodynamics as they relate to statistical mechanics.

**M E (NUC E) 406 Introduction to Statistical Thermodynamics (3)**

This course is an introduction to probabilistic and statistical concepts in the physical sciences, which we refer to as "statistical thermodynamics." In areas such as design and processing of electronic devices, materials engineering, chemical engineering, and combustion engineering, the science of statistical mechanics is a particularly necessary, powerful, and important tool for the engineer. The underlying foundation of statistical mechanics is developed by (1) reviewing the basic ideas from probability theory, (2) deriving the binomial, Poisson, and Gaussian probability distributions, and (3) using these models to analyze several examples taken from science and engineering. To make a connection between macroscopic quantities and the corresponding probabilistic representation, classical thermodynamics is reviewed using the internal energy, entropy, and free energy functions in the context of the first and second laws. Statistical mechanics for classical and quantum-mechanical systems is presented via the micro-canonical, canonical, and grand canonical ensembles using the associated partition functions. During the syntheses of ideas, applications from various branches of science are presented. Some examples of applications are the Einstein crystal, the Debye crystal, the ideal gas, and black body radiation.

This course covers the following program objectives:

- 1. Demonstrate knowledge of basic chemistry and physics.
- 2. Demonstrate a knowledge of atomic and nuclear physics.
- 3. Demonstrate a knowledge of thermodynamics, heat transfer, and fluid flow.
- 4. Understand and apply the basic concepts of particle transport.
- 5. Understand and apply thermodynamics and heat transfer principles to the analysis of nuclear power components and systems.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 300 or M E 201 or M E 302 or CH E 303; MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 408** Energy Systems (3) Theory, analysis, design, selection, and application of energy conversion systems.

**M E 408 Polymer Electrolyte Fuel Cells Engines (3)**

This course is intended for the engineering student interested in obtaining a fundamental background required for polymer electrolyte fuel cell (PEFC) modeling and diagnosis. Those students with interest in the basic design, operation, and characteristics of PEFC systems should also benefit.

This course serves as an introduction to the fundamental principles of electrochemistry, thermodynamics, heat and mass transfer, materials and manufacturing issues related to PEFC engines. The various types of PEFC components and technologies are dissected in detail, including direct inject alternative fuel systems. A survey of cutting-edge issues in fuel cell technology including the future direction of PEFC technology will be presented as time permits. The student will also

participate in an experimental lab study to aide in the understanding of these systems, a computer-based simulation project, and a group-based fuel cell system design project. Issues of specific interest to mechanical engineers, including water management and heat and mass transfer in thin film porous media, will be dealt with in depth. A brief survey of other fuel cell types is also presented.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: M E 320M E 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 410 Heat Transfer (3)** Thermal energy transfer mechanisms: conduction (steady, transient), convection (internal, external), radiation; lumped parameter method; heat exchangers; introduction to numerical methods.

### **M E 410 Heat Transfer (3)**

M E 410, Heat Transfer, is a required course for mechanical and nuclear engineering students. The course presents the three modes of heat transfer: conduction, convection, and radiation. One-dimensional steady and transient conduction is studied for planar, cylindrical, and spherical geometries. The lumped capacitance analysis is used for transient conduction when appropriate. Analytical and numerical methods are presented for two-dimensional conduction problems, including the analysis of extended surfaces. Convection heat transfer is studied in both internal and external geometries and under laminar and turbulent flow regimes. External flows include cooling on flat plates due to laminar and turbulent boundary layer flows, and cooling of cylinders due to cross flow. The convection heat transfer analysis in internal flows considers laminar and turbulent pipe flows. Free convection is also considered where heat transfer is due to flow induced by fluid buoyancy. Boiling and condensation considers the effect of two-phase flows on surface heat transfer. Radiation heat transfer is studied by considering both the general characteristics of radiation as well as the properties of radiating surfaces and radiation heat transfer between surfaces. Methods for solving multi-mode heat transfer are presented throughout the course. Heat exchangers and heat transfer from extended surfaces are two applications studied in the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: AERSP 308AERSP 311C E 360 orM E 320;CMPSC 200 orCMPSC 202;MATH 220 orNUC E 309;MATH 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 411 Heat-Exchanger Design (3)** Thermal design and application of different heat-exchanger types, including surface selection and design optimization.

### **Heat-Exchanger Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: M E 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 420 Compressible Flow I (3)** Introductory compressible flow (gas dynamics), mathematical background, and physical concepts of isentropic flow, shock waves, expansion waves, and applications.

### **Compressible Flow I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: M E 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 421 Viscous Flow Analysis and Computation (3)** Apply analytical and computational methods to solve the differential equations describing fluid flow. Incompressible external flows past objects and internal flows in pipes and ducts are some problems considered.

### **M E 421 Viscous Flow Analysis and Computation (3)**

M E 421 is an intermediate course in fluids mechanics that bridges between the required undergraduate fluid mechanics course and the graduate fluid mechanics courses. Steady and unsteady flows are considered past objects and in pipes,

ducts, and annuli. Analytical and numerical methods are used to solve the boundary layer and Navier-Stokes equations that describe fluid motion. Analytical methods include solutions for steady and unsteady internal flows with heat transfer. Similarity equations for boundary layer flows are derived and then solved numerically using the Runge-Kutta method. Finite difference methods for viscous flows are introduced and applied. Turbulence modeling is presented and applied in a boundary layer code. The stages of transition from laminar to turbulent flow and methods for the prediction of transition are introduced.

Topics in M E 421 include:

1. Analytical solutions for one-dimensional viscous flows in Cartesian and cylindrical coordinates with heat transfer.
2. Unsteady viscous flow solutions using Separation of Variables.
3. Boundary layer similarity solutions using the Runge-Kutta method.
4. Panel method for incompressible inviscid flows.
5. Finite-differenced equations for viscous flows and the accuracy and stability of the schemes.
6. Using a commercial CFD code for a simple geometry.
7. Algebraic turbulence models and the approximations of each.
8. Higher-order turbulence models and the approximations used.
9. Stages of transition from laminar to turbulent flow.
10. Methods to predict boundary layer stability and transition.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: M E 201 M E 320 AERSP 308 AERSP 311 or C E 361; CMPSC 200 or CMPSC 201 or CMPSC 202; MATH 220; MATH 250 or MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 422 Principles of Turbomachinery (3)** Application of Newton's laws of motion and basic laws of thermodynamics to analysis of fluid flow in turbomachinery.

### **Principles of Turbomachinery (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 427 Incompressible Aerodynamics (3)** Analysis of lift and drag using potential flow theory, effects of viscosity on potential flow calculations, wind tunnel testing.

### **M E 427 Incompressible Aerodynamics (3)**

The primary objective of this course is to teach students how to determine aerodynamic lift and drag using a variety of techniques, including potential flow theory, viscous flow analysis, and wind tunnel testing. Students also learn the limitations of each technique and how they can be used together to obtain better results. Fundamental concepts in aerodynamics are also discussed, including lift, drag, aerodynamic moment, induced drag, viscous drag, pressure drag, separation, stall, circulation, downwash, camber, thickness ratio, and lift distribution. Students should be able to use knowledge gained in this course to solve aerodynamic design problems.

Students will be evaluated through the use of written exams during the semester, a comprehensive written final, and weekly homework assignments. This course is a technical elective in the Mechanical Engineering program and allows students who have completed ME BD 240, Elementary Fluid Mechanics, to improve their understanding of fluids by covering the subject in more detail and applying it specifically to aerodynamics problems. It will usually be offered annually in the spring semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 428 Applied Computational Fluid Dynamics (3)** Introduction to theory and application of computational techniques for solving fluid flow and heat transfer.

### **M E 428 Applied Computational Fluid Dynamics (3)**

The purpose of this course is to teach students how to use a commercial CFD code to solve real-world engineering fluid flow problems. The definition of appropriate problem domain, set of governing equations, boundary conditions, and fluid properties is discussed. Sufficient theory of CFD is covered so that students are able to select appropriate elements or interpolation techniques and options, mesh size, pressure-correction technique and solution technique. Students are also

taught how to interpret the results of a CFD simulation, including determination that the solution is physically realistic, conforms to the governing equations, is converged and grid independent, and determination of important engineering quantities such as net force, pressure drop and flow rate. Students are evaluated through the use of written exams during the semester, a comprehensive written final, weekly homework assignments, and a semester project. This course is a technical elective in the Mechanical Engineering program and allows students who are interested in fluid mechanics and heat transfer to further their study. It is offered periodically.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: M E 320M E 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 430 (EGEE 430) Introduction to Combustion (3)** Concepts related to laminar and turbulent premixed and nonpremixed combustion with applications to propulsion and stationary systems.

### **M E (EGEE) 430 Introduction to Combustion (3)**

This course provides an introductory treatment of combustion science. The objectives of the course are to develop in the students an understanding of combustion kinetics, combustion thermochemistry, flame dynamics, flame stability, and pollutant formation. Coverage includes laminar and turbulent flames, premixed and diffusion flames, and detonations. Emphasis is placed on the role that Kinetics, heat transfer, mass transfer, and fluid dynamics have on flame structure and flame stability. The course includes some laboratory demonstrations of flat flame and diffusion flame burners, and incorporates numerical calculations of thermodynamic and kinetic combustion phenomena. The course begins with a review of transport phenomena, physical gas dynamics, and thermochemistry. Then, the concept of the laminar flame speed is introduced in the context of a one-dimensional flame and a propagating chemical wave. Issues of premixed flame structure and stability are presented along with a discussion of flammability limits. Next, laminar diffusion flames are presented via the Burke-Schumann analysis. From laminar flames, the emphasis shifts to turbulent premixed and diffusion flames, and the concepts of flame stretch and strain. Detonations are considered, with emphasis on thermodynamic analysis of the detonation and the structure of the detonation wave. Details of chemical kinetics for the hydrogen-oxygen and hydrocarbon-air reaction systems are presented, with linkage back to earlier topics such as flame stabilization and flammability limits. After kinetic phenomena, the course then considers pollutant formation focusing on soot and NO<sub>x</sub>. The fundamental aspects of combustion are applied to analysis of the combustion process and pollutant formation in internal combustion engines and catalytic combustors. The course wraps up with discussion of atmospheric chemistry, the fate of pollutants, and the formation of secondary pollutants.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: M E 201 or M E 300 or EME 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 431 Internal Combustion Engines (3)** Thermodynamic aspects of internal combustion engine design and performance; two- and four-stroke cycle, supercharged and non-supercharged, diesel and spark-ignition types.

### **M E 431 Thermodynamics of Propulsion and Power Systems (3)**

This course is specifically designed to take advantage of the senior level standing of the student by providing an integrative modeling and analysis approach to thermal-fluids systems. The course emphasizes the integration and application of fundamental principles of mass, momentum, and energy conservation to relatively complex systems. These systems include spark-ignition and diesel engines, gas-turbine engines for power production, and turbojet engines. The integration of the topics of combustion, compressible flow, and psychrometrics allow these systems to be analyzed in their totality. Emphasis is on creating engineering models of these systems. The course aims to integrate previous knowledge and develop skill in "thinking like an engineer."

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: M E 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 432 Rocket Propulsion (3)** Design and performance of rocket propulsion components and systems; thermodynamics, solid and liquid fuels, heat transfer, materials, controls, and instrumentation.

### **Rocket Propulsion (3)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: M E 320M E 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 433 Fundamentals of Air Pollution (3)** Natural and man-made sources of pollution; atmospheric dispersion; biological and health effects; control systems; legislation and regulations.

### **M E 433 Fundamentals of Air Pollution (3)**

In this course, students will learn basic techniques for modeling and analyzing linear multidegree-of-freedom (MDOF) mechanical systems, and will learn how to use these techniques for mechanical design. Students will learn to obtain equations of motion using energy methods (Lagrange's equations), with emphasis on the efficient formulation and reduction to the linear case. The basic theory of MDOF systems will be presented, including: eigenvalue problems; natural frequencies and normal modes; superposition and modal analysis; and frequency response. Numerical methods for solving static, dynamic and eigenvalue problems will be presented. Introductions to the theory of linear continuous systems and experimental methods of vibrations will be presented. A substantial portion of the course will be spent discussing design applications of the basic theory, such as: finite element numerical analysis and experimental modal analysis of beams and plates; vehicle suspension design; and vibration isolation and absorption.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: M E 201 or M E 300

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 440W Mechanical Systems Design Project (3)** Design and analysis of mechanical components and systems. Application of fundamental design and analysis methods to open ended engineering problems.

### **M E 440W Mechanical Systems Design Project (3)**

Students develop and practice skills and techniques for managing and executing engineering design projects. These skills are applied to an industry-sponsored project. Project teams perform all facets of product and process design. This includes problem identification, planning of the project, formulation of design specifications, the development and evaluation of alternative conceptual designs, the development of detailed designs, the specification of manufacturing processes, prototyping of manufacturing processes and parts, and analysis and documentation of results. Students will visit industrial sites to gain an understanding of existing processes and problems and to assess the customer's needs. Students will present their design process and final design in several formats: oral presentations, poster presentations, web pages, and reports.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: M E 340; M E 360; M E 370  
Concurrent: I E 312 ; ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 440W Mechanical Systems Design Project (3)** Design and analysis of mechanical components and systems. Application of fundamental design and analysis methods to open ended engineering problems.

### **M E 440W Mechanical Systems Design Project (3)**

Students develop and practice skills and techniques for managing and executing engineering design projects. These skills are applied to an industry-sponsored project. Project teams perform all facets of product and process design. This includes problem identification, planning of the project, formulation of design specifications, the development and evaluation of alternative conceptual designs, the development of detailed designs, the specification of manufacturing processes, prototyping of manufacturing processes and parts, and analysis and documentation of results. Students will visit industrial sites to gain an understanding of existing processes and problems and to assess the customer's needs. Students will present their design process and final design in several formats: oral presentations, poster presentations, web pages, and reports.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: M E 340;M E 360;M E 370  
Concurrent: I E 312 ; ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 441W Thermal Systems Design Project (3)** Design of thermal systems through component design and/or selection, system simulation and optimization. Assessment of system economics and energy efficiency.

### **M E 441W Thermal Systems Design Project (3)**

Students develop and practice skills and techniques for managing and executing engineering design projects related more to thermal design but not excluding mechanical design. These skills are applied to projects mostly sponsored by the industry. Project teams perform all facets of product and process design either on paper via use of computer models and/or as a physical product. This includes problem identification, planning of the project, formulation of design specifications, the development and evaluation of alternative conceptual designs, the development of detailed designs, the specification of manufacturing processes, prototyping of manufacturing processes and parts, design computations, drawings and performance via use of CFD and analysis and documentation of results. Students will visit industrial sites when possible to gain an understanding of existing processes and problems and to assess the customer's needs. Students will present their design process and final design in several formats: oral presentations, poster presentations, web pages and reports.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: M E 340;M E 410  
Concurrent: ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 441W Thermal Systems Design Project (3)** Design of thermal systems through component design and/or selection, system simulation and optimization. Assessment of system economics and energy efficiency.

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Students develop and practice skills and techniques for managing and executing engineering design projects related more to thermal design but not excluding mechanical design. These skills are applied to projects mostly sponsored by the industry. Project teams perform all facets of product and process design either on paper via use of computer models and/or as a physical product. This includes problem identification, planning of the project, formulation of design specifications, the development and evaluation of alternative conceptual designs, the development of detailed designs, the specification of manufacturing processes, prototyping of manufacturing processes and parts, design computations, drawings and performance via use of CFD and analysis and documentation of results. Students will visit industrial sites when possible to gain an understanding of existing processes and problems and to assess the customer's needs. Students will present their design process and final design in several formats: oral presentations, poster presentations, web pages and reports.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: M E 340;M E 410  
Concurrent: ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 442W Advanced Vehicle Design I (2)** Part one of a two course sequence; applications of design and analysis methods to open-ended advanced transportation vehicles. Two semester course; satisfies Senior Design or ME Technical Elective requirements (when combined with M E 443W).

### **M E 442W Advanced Vehicle Design I (2)**

Students develop and practice skills and techniques for managing and executing engineering design projects. This is done in the context of an international University-level engineering design competition that is sponsored by government agencies and/or by industry. The competitions are structured to span a full calendar year, with the competition itself

taking place in late Spring. For that reason, the course is spread over two semesters. In the Fall semester, there is approximately equal emphasis on classroom lectures and hands-on laboratory activities; in the Spring semester, the emphasis is on hands-on laboratory activities. The focus is advanced powertrain technology for personal transportation vehicles. Broader aspects of energy efficiency, security, and sustainability also will be discussed. The specific technologies that are targeted will evolve with time to remain ahead of what is available in current production vehicles. Project teams perform all facets of product and process design. This includes problem identification, planning of the project, formulation of design specifications, the development and evaluation of alternative conceptual designs, the development of detailed designs, the specification of manufacturing processes, prototyping of manufacturing processes and parts, and analysis and documentation of results. Students also will participate in broader aspects of the design competition. This may include securing sponsorship and funding, participating in outreach and public relations events, developing a business plan, developing a web site, and traveling to competition workshops and to the annual competition. Students will present their design process and final design in several formats: oral presentations, poster presentations, web pages, and reports.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: M E 340C; M E 360; M E 370

Concurrent: M E 410 ; I E 312 ; ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 442W Advanced Vehicle Design I (2)** Part one of a two course sequence; applications of design and analysis methods to open-ended advanced transportation vehicles. Two semester course; satisfies Senior Design or ME Technical Elective requirements (when combined with M E 443W).

### **M E 442W Advanced Vehicle Design I (2)**

Students develop and practice skills and techniques for managing and executing engineering design projects. This is done in the context of an international University-level engineering design competition that is sponsored by government agencies and/or by industry. The competitions are structured to span a full calendar year, with the competition itself taking place in late Spring. For that reason, the course is spread over two semesters. In the Fall semester, there is approximately equal emphasis on classroom lectures and hands-on laboratory activities; in the Spring semester, the emphasis is on hands-on laboratory activities. The focus is advanced powertrain technology for personal transportation vehicles. Broader aspects of energy efficiency, security, and sustainability also will be discussed. The specific technologies that are targeted will evolve with time to remain ahead of what is available in current production vehicles. Project teams perform all facets of product and process design. This includes problem identification, planning of the project, formulation of design specifications, the development and evaluation of alternative conceptual designs, the development of detailed designs, the specification of manufacturing processes, prototyping of manufacturing processes and parts, and analysis and documentation of results. Students also will participate in broader aspects of the design competition. This may include securing sponsorship and funding, participating in outreach and public relations events, developing a business plan, developing a web site, and traveling to competition workshops and to the annual competition. Students will present their design process and final design in several formats: oral presentations, poster presentations, web pages, and reports.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: M E 340C; M E 360; M E 370

Concurrent: M E 410 ; I E 312 ; ENGL 202C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 443W Advanced Vehicle Design II (1)** Part two of a two course sequence; applications of design and analysis methods to open-ended advanced transportation vehicles. Two semester course; satisfies Senior Design or ME Technical Elective requirements (when combined with M E 442W).

### **M E 443W Advanced Vehicle Design II (1)**

Students develop and practice skills and techniques for managing and executing engineering design projects. This is done in the context of an international University-level engineering design competition that is sponsored by government agencies and/or by industry. The competitions are structured to span a full calendar year, with the competition itself taking place in late Spring. For that reason, the course is spread over two semesters. In the Fall semester, there is approximately equal emphasis on classroom lectures and hands-on laboratory activities; in the Spring semester, the emphasis is on hands-on laboratory activities. The focus is advanced powertrain technology for personal transportation vehicles. Broader aspects of energy efficiency, security, and sustainability also will be discussed. The specific technologies that are targeted will evolve with time to remain ahead of what is available in current production vehicles. Project teams perform all facets of product and process design. This includes problem identification, planning of the project, formulation of design specifications, the development and evaluation of alternative conceptual designs, the development of detailed designs, the specification of manufacturing processes, prototyping of manufacturing processes and parts, and analysis and documentation of results. Students also will participate in broader aspects of the design competition. This may include securing sponsorship and funding, participating in outreach and public relations events, developing a



business plan, developing a web site, and traveling to competition workshops and to the annual competition. Students will present their design process and final design in several formats: oral presentations, poster presentations, web pages, and reports.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: M E 442W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 444 Engineering Optimization (3)** Problem formulation, algorithms and computer solution of various engineering optimization problems.

#### **M E 444 Engineering Optimization (3)**

Students will learn to formulate and solve a variety of engineering optimization problems. Basic concepts, problem formulation, scaling, use of different optimizers, effect of tuning parameters and starting points and solution interpretation will be taught. Example problems will be taken from mechanical, aerospace, nuclear, civil, chemical, electrical and other engineering disciplines. This course will complement other engineering design courses, such as capstone design. Students will learn how optimization can reduce product turnaround time, and to make decisions involving weight, stiffness, strength, performance, energy utilization, and other attributes. Pedagogy will focus on hands-on experience through computational problem-solving and graphical understanding. Technology classrooms and computer labs for instruction will be used. A by-product of this course is increased math and computer skills.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: MATH 220MATH 230 orMATH 231CMPSC 201 orCMPSC 202 orCMPSC 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 445 Microcomputer Interfacing for Mechanical Engineers (4)** Interfacing of electro-mechanical systems to microcomputers for data acquisition, data analysis and digital control.

#### **Microcomputer Interfacing for Mechanical Engineers (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: M E 345 and seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 446 (NUC E 446) Reliability and Risk Concepts in Design (3)** Introduction to reliability mathematics. Failure data collection and analysis. Components and systems reliability prediction. Effects of maintenance on reliability. Risk Analysis. Case studies in engineering applications.

#### **M E (NUC E) 446 Reliability and Risk Concepts in Design (3)**

The course covers materials reliability in design including mechanical, electrical and system aspects. Five main topics will be studied. The course starts by introducing engineering risk and reliability, highlighting its interdisciplinary nature and its significance in system design. The concept of reliability as a probability is introduced and the basic laws of probability are reviewed. The discussion centers on the mathematics needed to understand and analyze complex systems including components in series and parallel. The topics include the independence, mutual exclusivity, truth tables and Venn diagrams. These concepts are then applied to simple systems consisting of one, two and three components in various configurations. The equivalency of the various methods is discussed. The effect of maintenance on a system's reliability is presented along with discussions of various maintenance strategies. Then, the failure modes and effects analysis is introduced and examples discussed. The concept of fault trees and event trees and their application to reliability analysis are presented. Risk analysis is then introduced as a case study in the application of reliability analysis. A nuclear power plant system is analyzed to quantify the risk to the public from its operation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: MATH 250 orMATH 251;M E 345 orNUC E 309

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 448 Engineering Design Concepts (3)** Engineering design and modelling, engineering economic analysis techniques,

technical communication skills, project planning and design.

**M E 448 Engineering Design Concepts (3)**

This course is the first of a two-part sequence of courses that make up the capstone design experience in the ME BD major (the second course is M E 449, Mechanical Design Projects). In this course students study the engineering design process, begin working on their senior design project, and learn about professional topics related to industry. Topics in the engineering design process include customer needs identification, development of engineering specifications, concept generation, concept selection, costing, and project planning. Professional topics include communication, team work, ethics, safety, sustainability, globalization, and engineering economics. Students are evaluated on the design process and professional topics through assignments and quizzes. A major component of the course is to begin work on a capstone design project. Students work in teams of 3 to 4 on an industrially-sponsored project or other project approved by the faculty. The student teams work with the sponsor to develop specifications and a project plan, perform background research necessary to fully understand the project, begin to solve the problem, and make two presentations during the semester. The first presentation is a formal project proposal; the second presentation at the end of the semester is a progress report. Students are evaluated on both their technical and presentation skills, as well as their ability to function as a team. This course is required in the Behrend Mechanical Engineering (ME BD) program, and integrates material from a number of previous courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: M E 380 seventh-semester standing. Prerequisite or concurrent: M E 367 M E 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 449 Mechanical Design Projects (3)** Group or individual design projects in the areas of mechanical engineering.

**Mechanical Design Projects (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 448 eighth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 450 Modeling of Dynamic Systems (3)** Modeling and analysis of dynamic interactions in engineering systems. Classical and state variable methods; digital simulation; stability and dynamic response.

**Modeling of Dynamic Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 370 M E 345

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 452 Vehicle Road Dynamics (3)** Investigations of three-dimensional dynamics and design into the study of vehicle dynamics including tire forces, suspension, and stability.

**Vehicle Road Dynamics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: prerequisite or concurrent: M E 450

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 455 Automatic Control Systems (3)** Dynamic analysis of systems involving automatic control of position, speed, power, flow, pressure, temperature, and other physical quantities.

**Automatic Control Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 320 M E 450

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 456 (I E 456) Industrial Robot Applications (3)** Introduction to robotics, with emphasis on robot selection, programming, and economic justification for manufacturing applications.

**M E (I E) 456 Industrial Robot Applications (3)**

This course is a technical elective, and is normally taken by students in their Senior years. In this course, students learn about present and future status of robot applications, and are required to apply fundamental knowledge of physics and mathematics to develop software to analyze and control robots.

The course deals with mechanics and control of robot manipulators and wheeled mobile robots. First, students are taught to analyze 3-D kinematics, statics and dynamics of robot manipulators. Then, control algorithms for robot manipulators are presented. Sensors, actuators and softwares used in industrial robots are discussed. In the end, kinematics and control of wheeled mobile robots are presented. During this course, application of computer, particularly Matlab, is emphasized as much as possible.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: MATH 220;MATH 250 orMATH 251;I E 305 orM E 360;CMPSC 200 orCMPSC 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 460 Advanced Machine Design Problems (3)** Special machine design problems in unusual types of springs; gear problems and involutometry; cam design and application; multiple diameter shaft deflections and ball bearings.

**Advanced Machine Design Problems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 360M E 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 461 (E MCH 461) Finite Elements in Engineering (3)** Computer modeling and fundamental analysis of solid, fluid, and heat flow problems using existing computer codes.

**M E (E MCH) 461 Finite Elements in Engineering (3)**

This is an introductory course in the Finite Element Method. Through this course, students gain knowledge in finite element theory and problem modeling. The mathematical formulation of the method is presented and then applied to problems in elasticity and heat transfer. Projects are assigned to demonstrate the finite element method in simplified problems using hand- calculations and computer programs such as Matlab. The use of commercial FEA programs is introduced and problems of increased complexity are assigned to demonstrate their use in a computer lab. Finally, problems of realistic complexity are assigned such that students can practice solving, documenting and presenting their use of commercial FEA programs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: E MCH 213E MCH 210H orE MCH 210;CMPSC 200CMPSC 201 orCMPSC 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 462 Lubrication in Machine Design (3)** Lubricants and lubrication with applications to design aspects of machines and mechanisms including bearings, gears, cams, and automotive engines.

**M E 462 Lubrication in Machine Design (3)**

The course covers interdisciplinary materials on lubrication in machine design including mechanical, mechanics and chemistry aspects. Six main topics will be studied. The course starts by introducing engineering tribology, highlighting its interdisciplinary nature and its significance in machine design. Surfaces of machine components in contact are studied, including surface physiochemistry, surface topography, topographical measurements and characterization and classification of regimes of lubrication. Lubricants used in machine design are discussed in length, including types of industrial lubricants, properties of lubricating oils: compositions, viscosity and additives, synthetic lubricants and engine oils. The course will develop the theory of fluid-film lubrication, including the mechanisms of pressure generation, configuration of tribo-contacts and the Reynolds equation. Hydrodynamic lubrication is studied. The topics include the

machine components with hydrodynamic lubrication, thrust bearings, journal bearings and design considerations of these devices. The last topic to be covered is the theory and application of Elastohydrodynamic lubrication (EHL). First, the machine components with concentrated contacts are introduced. Then, the Hertz theory of contact is studied and the governing equations for EHL are derived. Thermal EHL and traction are studied, and design calculations for rolling bearings, cams and gears are developed in relation to the geometrical and kinematic features of these components.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: MATH 251M E 360

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 465** Introduction to Manufacturing Laboratory (1) A laboratory-based introduction to manufacturing processes including material removal, forming, casting and joining for metals and non-metals.

### **M E 465 Introduction to Manufacturing Laboratory (1)**

This laboratory course provides an integrated approach to Manufacturing Science and Engineering. The laboratory examines common techniques for fabricating parts; providing an introduction to several basic processes for creating both metallic and polymeric parts. As a part of this course, students will be exposed to compressive, tensile, sheet, bending, casting and powder metal processes. Using basic material science principles, students will examine concepts such as material flow, springback, and cold working. The course requires hands-on involvement by the students in the planning of experiments as well as data manipulation and analysis of results. The laboratory exercises are intended to provide students with a broad appreciation of the breadth of Manufacturing Science and Engineering. Students work in groups. Written reports and in-class exercises are the primary basis for grading.

This course is a technical elective.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: Prerequisite or concurrent: M E 468

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 467** Applied Finite Element Analysis (3) Review of matrix algebra; discretization; finite element formulation; application of finite element computer codes.

### **Applied Finite Element Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011  
Prerequisite: M E 410 and M E 349

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 468** Engineering for Manufacturing (3) Manufacturability, the selection of the most effective materials and processes, and quality assurance.

### **M E 468 Engineering for Manufacturing (3)**

This course will present an overview of the various manufacturing techniques that are currently used within industry. The advantages and disadvantages of each manufacturing technique will be discussed along with common defects that occur with each process. The start-up, operating, maintenance, and labor costs of each process will be presented along with general manufacturing economical concerns. Statistics and Quality assurance topics will also be covered, along with manufacturability and design for manufacturing concepts.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009  
Prerequisite: MATSE 259

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 469** Metallic Manufacturing Processes (3) Principles of metal working and introduction to current theories; analysis of deformation, joining, and metal removal processes.

**M E 469 Metallic Manufacturing Processes (3)**

In this integrated lecture/laboratory course students will learn a) metal deformations techniques such as: forging, rolling, extrusion and drawing, b) metal removal techniques for single, multi and infinite point cutting, and c) metal fastening techniques, including bolts, rivets and welds. As a part of the learning process, students will directly compare existing standards and theories to actual laboratory results. Students will learn how to assess the accuracy of both theoretical derivations and experimental procedures by first deriving theoretical equations in the classroom and then directly examining the ability of the equations to predict the given behavior by actually performing the manufacturing operation in the laboratory. Based on in-depth discussions regarding assumptions, approximations, and experimental error, students will assess the ability of the current state-of-the-art techniques to accurately predict the forces generated/required during various manufacturing metal working operations. In addition, students will derive their own theories by removing/improving some assumptions within the existing theories. For processes where multiple theories exist, students will compare and contrast the predictive abilities of the various techniques to those found through controlled laboratory experiments. Similar comparisons will also be made for processes where both engineering standards and theoretical techniques exist.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: M E 349 . Prerequisite or concurrent: M E 468

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 470 (E MCH 470) Analysis and Design in Vibration Engineering (3)** Application of Lagrange's equations to mechanical system modeling, multiple- degree-of-freedom systems, experimental and computer methods; some emphasis on design applications.

**M E 470 Analysis and Design in Vibration Engineering (3)**

In this course, students will learn basic techniques for modeling and analyzing linear multidegree-of-freedom (MDOF) mechanical systems, and will learn how to use these techniques for mechanical design. Students will learn to obtain equations of motion using energy methods (Lagrange's equations), with emphasis on the efficient formulation and reduction to the linear case. The basic theory of MDOF systems will be presented, including: eigenvalue problems; natural frequencies and normal modes; superposition and modal analysis; and frequency response. Numerical methods for solving static, dynamic and eigenvalue problems will be presented. Introductions to the theory of linear continuous systems and experimental methods of vibrations will be presented. A substantial portion of the course will be spent discussing design applications of the basic theory, such as: finite element numerical analysis and experimental modal analysis of beams and plates; vehicle suspension design; and vibration isolation and absorption

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 212 or E MCH 212H; M E 370 or E SC 407H

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 471 Noise Control in Machinery (3)** Nature of noise sources in machine elements and systems. Propagation and reduction of noise. Effects of noise on man.

**M E 471 Noise Control in Machinery (3)**

**Course Objectives:** This course prepares students to perform effectively as noise control engineers in industries with noise and vibration applications, e.g., during the early stages in product design or environmental noise control in industrial settings. Much of the material presented builds on second and third year courses covering such topics as dynamics, vibration, fluid mechanics and electrical components. Hands-on laboratory experiments (both programmed and open-ended) coordinated with focused lectures provide students with a working knowledge of the disciplines associated with noise and vibration and their practical applications for identifying, analyzing, and solving real world problems. The first part of the course centers on learning modules that cover the fundamentals of acoustics and noise control. Each module consists of two lectures followed with a laboratory experiment that demonstrates the relevant principles. These take place in small group settings (8 students maximum). Students are required to write individual reports based on the results of each of the laboratory experiments. The modules are followed with a laboratory project competition wherein each small group is given a noisy, small machine with the challenge to reduce its noise and vibration signatures. The course concludes with formal Power Point presentations of the results from each small group to an assessment team consisting of the industrial sponsors and selected professors and graduate students. This course is offered annually during the fall semester with an enrollment limited to 32 students (8/laboratory group).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 320M E 370

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 480 Mechanism Design and Analysis (3)** Design and analysis of mechanical linkages including kinematic synthesis and dynamic analysis. Linkages for a variety of applications are considered.

**M E 480 Mechanism Design and Analysis (3)**

The student who takes this course will develop a basic understanding of the analysis and synthesis of planar linkage mechanisms. Students will develop the ability to model real linkage mechanisms using kinematic diagrams, including identification of links and joints. They will also learn to use Gruebler's equation to calculate the mobility or number of degrees of freedom of linkages based on the kinematic diagram. Students will also become familiar with real mechanism applications in the context of mechanism synthesis, where they will learn to determine the required dimensions of a mechanism for a specific application. Students will apply these dimensional synthesis methods in a design project which includes building a simple linkage prototype. They will learn kinematic analysis methods, i.e., analysis of position, velocity, and acceleration of planar linkages. These methods consist of graphical, algebraic, and complex number approaches. Students will also learn to use commercial software packages, e.g. Working Model, to predict position, velocity, and acceleration of planar linkages, and will compare their predictions to those using analytical approaches. Finally, students will learn to do dynamic force analysis of planar linkages to predict joint forces and motor torques. They will use commercial software packages to predict joint forces and motor torques of planar linkages, and will compare their predictions to those using analytical approaches.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: E MCH 212 . Prerequisite or Concurrent:CMPS 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 481 Introduction to Computer-Aided Analysis of Machine Dynamics (3)** Techniques and formulations for computer based kinematic and dynamic analyses of machines.

**M E 481 Introduction to Computer-Aided Analysis of Machine Dynamics (3)**

This course addresses computer methods for kinematic and dynamic analyses of two-dimensional (2D) multi-body machines at the advanced undergraduate and introductory graduate level. The course introduces the formalism of kinematic mobility and topology to help students recognize constrained kinematic chains embedded in larger engineering systems. Classic kinematic and Newtonian dynamic methods are reformulated using modern matrix methods. The latter half of the course focuses on underlying algorithms and theory behind commercially available mechanism analysis software packages that employ differential-algebraic equation (DAE) solvers. Students program their own numerical integration methods for time domain simulation of forward dynamics of a simple system to reinforce the theory. The overall goals are for students to be able to identify forward versus inverse dynamic problems; and to be able to plan, implement and debug an appropriate computer-based design tool to analyze kinematics and dynamics of 2D constrained mechanisms.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: E MCH 212 ; Prerequisite or concurrent:CMPS 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 491 Bioengineering Applications of Mechanical Engineering (3)** Application of mechanical engineering knowledge in the context of life sciences.

**M E 491 Bioengineering Applications of Mechanical Engineering (3)**

The primary objective of this course is to teach students how to apply mechanical engineering knowledge in the context of life sciences. Fundamental mechanical engineering knowledge such as solid mechanics, fluid mechanics and system dynamics will be reviewed first. Then, different topics in bioengineering, such as motion biomechanics, physiological fluid mechanics, modeling of physiological systems, and rehabilitation engineering will be discussed. Throughout the semester, students also work in groups to solve several simplified real-life bioengineering projects. Students will be evaluated through these projects plus a final project presentation, an application presentation and several homework assignments. This course is a technical elective in the ME BD program and allows students who have completed their junior year to learn the application of mechanical engineering knowledge in the life science context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: E E 211M E 320M E 357E MCH 213M E 349 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 494H** Senior Thesis (1-9) Students must have approval of a thesis adviser before scheduling this course.

**M E 494H Senior Thesis (1-9)**

All Schreyer Scholars are required to complete an undergraduate honors thesis. This work represents the culmination of a student's honors experience. Through the thesis, the student demonstrates a command of relevant scholastic work and a personal contribution to that scholarship.

The thesis project can take many forms - from laboratory experiments all the way to artistic creations. The thesis document captures the relevant background, methods and techniques, as well as describing the details of the completion of the individual project. Two Penn State faculty members judge the merits of this Scholar's honors thesis, the student's self-selected thesis supervisor and the department-selected honors adviser in the student's area of honors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: Junior or senior status in the University Scholars Program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 496** Independent Studies (1-18) Creative projects, including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 497K** (NUC E 497K) Thermal-Hydraulics of Two-Phase Flow in Energy Systems (3) This course provides students with fundamental knowledge necessary for thermal-hydraulic analysis of single-phase and two-phase flow systems. The power reactor will be employed as a generic example of the thermal-hydraulic energy systems. In single-phase flow analysis, the one-dimensional thermal-hydraulic system analysis method, which is often employed by the industry's system analysis code, will be introduced for normal and off-normal plant operating conditions.

#### **Thermal-Hydraulics of Two-Phase Flow in Energy Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: M E 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**M E 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Mechanical Engineering Technology (MET)**

**MET 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 105** Mechanical Systems (3) Mechanical Systems with Laboratory is an introductory course for Engineering Technology major students to broadly introduce Mechanical Engineering Technology.

#### **MET 105 Mechanical Systems (3)**

MET105 includes mechanical engineering technology profession, United States Customary System and Metric System, communication skills; structures and mechanics including the resultant of a system of forces, moment of a force, and the requirements for equilibrium; Materials and Stress including a stress-strain curve, the material properties for metals and their alloys, ceramics, polymers, and composite materials, a factor of safety; Fluids Engineering including the application of fluids engineering, a fluid's density and viscosity properties, laminar and turbulent fluid flows, buoyancy, drag, and lift, the volumetric flow rate and pressure drop of fluids through pipes. Thermal and Energy system including various energy, heat, work, and power quantities in the SI and USCS, the principle of energy conversion, the basic operating principles of various engines; Motion and Power Transmission including the design and operation of power-transmission equipment, rotational velocity, work, power, belts, and gears.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 107** Computer Applications for Technologists (3) Programming spreadsheets, data bases and presentation software for solutions of technical problems; introduction to languages allowing creation of program macros.

#### **Computer Applications for Technologists (3)**



General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2010  
 Prerequisite: MATH 081 or MATH 022 or MATH 026  
 Concurrent: MATH 081 or MATH 022 or MATH 026

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 206 Dynamics (3)** Kinematics (particles and rigid bodies), kinetics, work-energy, impulse- momentum, and mechanisms.

### **MET 206 Dynamics (3)**

Instructional, Educational, and Course Objectives – To introduce students to the basic principles of dynamics as applied to practical problems which include such topics as friction, kinetics of particles and rigid bodies, laws of force and motion, using methods of work-energy and impulse-momentum. Further, students will consider mechanisms which are typical in manufacturing industries and mechanical design. These goals serve to satisfy the following course objectives:

- Students should be able to demonstrate proficiency in applied design, manufacturing processes, and mechanics.
- Students should be able to apply concepts of applied mathematics and science in solving technical problems.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: MCH T 111; MATH 082 or MATH 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 206 Dynamics (3)** Kinematics (particles and rigid bodies), kinetics, work-energy, impulse- momentum, and mechanisms.

### **MET 206 Dynamics (3)**

Instructional, Educational, and Course Objectives – To introduce students to the basic principles of dynamics as applied to practical problems which include such topics as friction, kinetics of particles and rigid bodies, laws of force and motion, using methods of work-energy and impulse-momentum. Further, students will consider mechanisms which are typical in manufacturing industries and mechanical design. These goals serve to satisfy the following course objectives:

- Students should be able to demonstrate proficiency in applied design, manufacturing processes, and mechanics.
- Students should be able to apply concepts of applied mathematics and science in solving technical problems.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: MCH T 111; MATH 082 or MATH 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 210W Machine Design (3)** Design machine elements including bearings, springs, levers, shafts, gears, belts, and small mechanical devices; writing skills and computer applications.

### **MET 210W Machine Design (3)**

ME T 210W is designed to provide students with the necessary concepts and procedures to properly design machine

elements in mechanical systems. The course starts with the study of the properties of various engineering materials, including various types of steel, aluminum, and plastics. Heat treating of steels is also covered. Machine design criteria are presented along with discussions of various types of stresses, concepts of principle stress, combined stresses, and methods of stress analysis. Failure theories and their application to brittle and ductile materials are covered along with the relationship of these concepts to design factors. The influence of dynamic loads on design and design margins is also covered. Welded and bolted connections and their design requirements are also studied, along with the application of buckling and beam deflection analysis to the design of support columns and beams. The course also examines the design of various types of springs and gears, the calculation of shaft stresses, and the design of clutches, brakes, belts, and chains.

The writing component of the ME T 210W course is satisfied by having students choose a design project which is completed over the course of the semester. Instructors introduce the design project early in the semester and discuss how writing exercises will be used to complete the project. Students write an initial proposal that is graded and returned. Subsequently, students prepare and present progress reports at various times through the semester. These are also graded. The project ends with students preparing a draft final project report, which is critiqued and returned. Based on the critique, a final design report is prepared and is a significant component of the final course grade. Both the progress reports and the final design report activities involve both written and oral exercises.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MET 206 or E MCH 212 or PHYS 150 or PHYS 250 or PHYS 211; MCH T 213 or E MCH 213 or ET 322 or EMET 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 210W Machine Design (3)** Design machine elements including bearings, springs, levers, shafts, gears, belts, and small mechanical devices; writing skills and computer applications.

### **MET 210W Machine Design (3)**

ME T 210W is designed to provide students with the necessary concepts and procedures to properly design machine elements in mechanical systems. The course starts with the study of the properties of various engineering materials, including various types of steel, aluminum, and plastics. Heat treating of steels is also covered. Machine design criteria are presented along with discussions of various types of stresses, concepts of principle stress, combined stresses, and methods of stress analysis. Failure theories and their application to brittle and ductile materials are covered along with the relationship of these concepts to design factors. The influence of dynamic loads on design and design margins is also covered. Welded and bolted connections and their design requirements are also studied, along with the application of buckling and beam deflection analysis to the design of support columns and beams. The course also examines the design of various types of springs and gears, the calculation of shaft stresses, and the design of clutches, brakes, belts, and chains.

The writing component of the ME T 210W course is satisfied by having students choose a design project which is completed over the course of the semester. Instructors introduce the design project early in the semester and discuss how writing exercises will be used to complete the project. Students write an initial proposal that is graded and returned. Subsequently, students prepare and present progress reports at various times through the semester. These are also graded. The project ends with students preparing a draft final project report, which is critiqued and returned. Based on the critique, a final design report is prepared and is a significant component of the final course grade. Both the progress reports and the final design report activities involve both written and oral exercises.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: MET 206 or E MCH 212 or PHYS 150 or PHYS 250 or PHYS 211; MCH T 213 or E MCH 213 or ET 322 or EMET 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 281 Elementary Thermo- and Fluid Dynamics (4)** Basic problems in compressible fluid flow. Laws of dynamics and thermodynamics, mechanical properties of fluids, elementary heat transfer.

### **Elementary Thermo- and Fluid Dynamics (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: or concurrent: MATH 083 PHYS 150 or PHYS 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 306 Computer-Aided Design (3)** Computer-aided drafting and design; computer software solutions to mechanical engineering technology design problems.

#### **MET 306 Computer-Aided Design (3)**

This course is designed to be the third CAD course in a Mechanical Engineering Technology program. Students will be exposed to modeling industry specific geometry using solid and surface modeling techniques. Sheet metal modeling, tool path generation and material removal simulation for CNC operations as well as mechanism analysis are taught. Automation and optimization techniques using CAD packages are also covered in lab assignments. Students are expected to document their designs by producing industrial quality working drawings. Lecture material is directly related to the laboratory assignments and topics in understanding hardware and CAD software bench marking as well as associated costs and their relationship to the engineering design process are also covered. Experience in basic CAD modeling is required as well as a working knowledge of Statics, Dynamics and Strength of Materials. Evaluation is based on laboratory assignments, homework assignments, quizzes and a final project.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: MET 107;EG T 121 orEG T 201 andEG T 205

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 308 Computer Aided Solid Modeling and Analysis (3)** Basic techniques necessary to perform Computer Aided Design and Analysis in three dimensions for machine components.

#### **MET 308 Computer Aided Solid Modeling and Analysis (3)**

To introduce students to the theory and practice of creating computer aided design files for mechanical components, drawings, layout of multiview drawings, detailing design projects, assemble parts, and create assembly drawings and sections. Although it is highly recommended that the students have basic knowledge of finite element analysis FEA theory, the very user friendly interfaces and CAD interactive modes available in the market together with appropriate introductory training will enable students to perform reasonable and reliable structural, thermal, and motion analysis. This analysis is at the core of every day assignments for design engineers working in modern industrial firms with concurrent engineering culture. With the advent of very powerful desktop workstations, FEA is now available at a practical cost to virtually all engineers and designers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 320 Strength of Materials II (3)** Principles of stress and strain in 3D, indeterminate structures, failure theory, and energy methods in solid mechanics.

#### **MET 320 Strength of Materials II (3)**

This course consists of three main subject areas; a study of statically indeterminate structures, a study of stresses and strains in three dimensions, and a study of energy methods in solid mechanics. Statically indeterminate structures are studied for stresses and deformations. The types of indeterminate structures studied are axially loaded members, including temperature changes; torsionally loaded members, including geared connections; and bending members. Stresses and strains are studied in three dimensions with Mohr's Circle to identify principal stresses and absolute maximum shear stress, to understand Hooke's Law and other material property relationships, and to apply various failure or yield theories. Energy methods are studied so that stresses and deformations from impact loading of structures can be analyzed and included in the design of axial, torsion, and bending structures. Energy methods are also used to determine the static deformation of complicated structures. Other miscellaneous topics may include unsymmetric bending, bending of multi-material beams including reinforced concrete, bending of curved beams, shear center, combined loadings, torsion of non-circular members, columns, and true stress and true strain.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: E MCH 213 or MCH T 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 321 Analytical Techniques (2)** A study of engineering methods of problem formulation and solution; includes differential methods, dimensional analysis, and graphical analysis.

### **Analytical Techniques (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 212 or ET 321 MATH 140

Concurrent: integral calculus

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 330 Thermodynamics (3)** Introduction for technologists to the basic concepts and applications of thermodynamics.

### **MET 330 Thermodynamics (3)**

This course is designed as the first thermal sciences course in a series of three. Students are introduced to the basic thermodynamic units and concepts, the properties of pure substances, first law of thermodynamics for open and closed systems, second law of thermodynamics, ideal cycles, performance and efficiency, entropy, power and refrigeration cycles. Evaluation is based on homework assignments, quizzes and examinations. Students need a background that includes inorganic chemistry and calculus to succeed in this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: PHYS 250 or PHYS 211 or PHYS 150 . Prerequisite or concurrent: CHEM 110; MATH 083 or MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 331W Heat Transfer (4)** Introduction for technologists to the basic concepts and applications of heat transfer. Includes a thermodynamics and heat transfer laboratory.

### **Heat Transfer (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 300 or MET 330 . Prerequisite or concurrent: MET 341

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 332 Thermal Engineering A (3)** Basic thermodynamic units, concepts, properties of ideal gases and vapors, first and second laws, gaseous mixtures, one-dimensional compressible flow.

### **Thermal Engineering A (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 110CHEM 111MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 336 Engineering Fluid Mechanics (3)** Thermal and dynamic principles applied to fluid behavior, ideal, viscous, and compressible fluids under internal and external flow conditions.

### **Engineering Fluid Mechanics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 211

Concurrent: Chemistry Physics Calculus

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 341 Mechanical Measurements and Instrumentation (3)** Measurement concepts, transducers, electronic-aided measurement, mechanical and electrical measurements. Intended for mechanical engineering technologists.

### **MET 341 Mechanical Measurements and Instrumentation (3)**

This course serves as an introduction to the fundamental principles of instrumentation and measurements. Subjects covered in this course may include the responses of first and second order systems, the concept of time constant and rise time, calibration, standards, design of experiment, and lectures on the design and function of different types of sensors and instruments. Topics may be added or removed, as needed to meet Program Outcomes. The course includes lectures alternating with hands-on laboratory where students apply the material learned in the lectures. For many students this is the first time they have actual hands-on experience with electronic and measurement equipment, such as oscilloscopes, breadboards, function generators, digital data acquisition systems, integrated circuits, strain gauges, displacement sensors, thermocouples, tachometers, force sensors, accelerometers, velocity meters, pressure transducers, flow measurements, etc. Students learn not only how to use these devices in the lab, but also the fundamental principles of their operation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: EET 105 orEET 100 orE E 211 orEET 320 andPHYS 151PHYS 211 orPHYS 250

Concurrent: PHYS 151 PHYS 212 or PHYS 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 342 Instrumentation (2)** Measuring system responses of first and second order instruments; fundamentals of mechanical measurements, including pressure, temperature, fluid flow, etc.

### **Instrumentation (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 358 Process Design Engineering (3)** Introduction to process design for production applications from job shop to world-class manufacturing environments.

### **MET 358 Process Design Engineering (3)**

Process design engineering includes the theory and application of principles and practices for economical tool design. Students will learn and demonstrate the use of basic engineering metrology tools. Students will learn and apply the principles of geometric dimensioning and tolerancing to datum systems. Students will learn the elements of process design for a variety of manufacturing processes currently used in industry with a focus on material removal methods including computer numerical control machining. Students will learn the fundamentals of process specification, planning, and fixture design for high-volume material removal operations. Students will participate in a team project to design and build a production machining fixture. The project teams will document and present their designs.

This course is the second of a three-course sequence with a focus on manufacturing. The first two courses, Introduction to Manufacturing Processes and Process Design Engineering, are required in the Mechanical Engineering Technology program at Penn State Capital College. The third course, Manufacturing Engineering, is a senior-level technical elective. The course in this proposal will be offered every spring semester with a projected enrollment of 30. All lab work will be done in the Engineering Lab Building.

Students are evaluated based on their individual performance as well as their participation as a team member. Evaluation opportunities are both lecture and lab-related. There are two exams and a couple of short projects that each student will complete. Student teams will conduct a machining experiment, which each student will analyze in a formal lab report. Project teams will document their fixture designs with drawings and supporting descriptions. Also, each team will prepare a formal presentation showcasing their fixtures and present it to the class.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: IET 321 or IET 215 and IET 216

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 365** Design of Machine Elements (3) Design of structural and mechanical elements with emphasis on theories of fatigue failure.

### **MET 365 Design of Machine Elements (3)**

Design of Machine Elements covers a wide array of mechanical engineering principles. The course draws heavily on the knowledge gained in the strength of materials lecture and laboratory courses. Failure Theory is covered for both static and dynamic loading conditions. The study of failure under "low stress" cyclic loading, also called fatigue, is a feature of failure theory study. Finally, the theories are applied to the design of machine and structural elements that include beams, columns, pressure vessels, shafts, keys, couplings, belt and chain drives, fasteners, springs, gears, brakes, and clutches. The effects of wear and lubrication on machine design are also examined.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: E MCH 213 or ET 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 403** Advanced Mechanical Design (3) Continuation of strength of materials and machine design, with emphasis on advanced methods of design and analysis of machine elements.

### **Advanced Mechanical Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: MET 365

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 415** Finite Element Analysis Applications I (3) Solutions of advanced engineering design problems using finite elements. Intended for engineering technologists.

### **MET 415 Finite Element Analysis Applications I (3)**

Finite Element Analysis Applications I is a required course for junior or senior-level students in the Mechanical Engineering Technology (METBD) baccalaureate degree program. Finite element analysis (FEA) is a computer-simulation tool which is frequently used in engineering practice. Students study fundamental topics in static, structural FEA with the goal of mastering the usage of this software tool to become efficient and effective users of FEA technology in their engineering careers. Emphasis is placed on appropriate modeling (symmetry, simplifying assumptions, etc.), clear communication of analysis findings, and verification of results.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: MET 320;EG T 121 orEG T 205

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 417** Finite Element Analysis (3) Formulation and computer implementation of finite element models for solving problems in heat transfer, fluid flow, and solid mechanics.

### **Finite Element Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: MET 365

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 418** Finite Element Analysis for Plastics Design (3) Solutions of advanced engineering problems using finite element and finite difference techniques; advanced topics in computer-aided manufacturing; problems in optimization and design.

### **Finite Element Analysis for Plastics Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: MCH T 213PL ET 232PL ET 235 . Prerequisite or concurrent:PL ET 350

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 425** Finite Element Analysis Applications II (3) Solutions of advanced engineering design problems using finite element methods.

### **MET 425 Finite Element Analysis Applications II (3)**

Students study advanced topics in finite element analysis (FEA), including CAD interfaces, non-linear behavior, heat transfer analysis, dynamic analysis, optimization and/or design of experiments (DOE), and design and analysis to code. Emphasis is placed on efficient models (symmetry, simplifying assumptions, etc.) and verification of results.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MET 415

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 425** Finite Element Analysis Applications II (3) Solutions of advanced engineering design problems using finite element methods.

### **MET 425 Finite Element Analysis Applications II (3)**

Students study advanced topics in finite element analysis (FEA), including CAD interfaces, non-linear behavior, heat transfer analysis, dynamic analysis, optimization and/or design of experiments (DOE), and design and analysis to code. Emphasis is placed on efficient models (symmetry, simplifying assumptions, etc.) and verification of results.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: MET 415

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 431** Heat Transfer (3) Basic principles of conduction, convection, and radiation with applications.

### **Heat Transfer (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: MET 332

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 432 Fluid Power (3)** Principles of fluid flow, hydraulic components, and hydraulic circuits having application to industry.

### **MET 432 Fluid Power (3)**

This course studies fluid motion, flow, and energy losses, as well as, fluid storage and distribution. Specific devices are examined, including hydraulic pumps and air compressors; hydraulic and pneumatic actuators such as motors and cylinders; and fluid power circuit valves and other ancillary devices. Heat transfer in fluid power circuits is evaluated. Fluid power circuit design is presented using electrical and electronic controls with ladder logic programming.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: M E 300 orMET 330 orMET 332 ; prerequisite or concurrent:MET 331W orMET 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 435 Building Energy Systems (3)** Analysis and design of components and systems for building heating and cooling; emphasis on applying the thermal sciences.

### **Building Energy Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: MET 332MET 336

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 436 Energy Conservation Systems (3)** Analysis of processes and systems for energy conversion, including power, refrigeration and air conditioning cycles, thermoelectric etc.

### **Energy Conservation Systems (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: M E 300 orMET 330 orMET 332

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 438 Thermal Engineering B (3)** Applied thermodynamics of power cycles; refrigeration and air conditioning cycles; combustion; psychometrics; and gas mixtures.

### **Thermal Engineering B (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: MET 332

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 440 Vibrations for Technologists (3:)** Principles of basic vibration theory, vibration measurement, data acquisition and analysis, and the effective presentation of vibration data.

### **MET 440 Vibrations for Technologists (3)**

This course will introduce students to basic vibration theory. The theoretical topics will include lumped parameter, single degree-of-freedom and multi degree-of-freedom systems with descriptions of damping models, transmissibility, and transient behavior. Simple continuous systems will also be described. The focus of the course will be on data acquisition



and data analysis and on practical vibration solutions. Students learn how to install various measurement devices and how to discriminatively process vibration signals. They also learn effective ways of presenting data to engineering and management. The practical vibration solutions presented will allow the student to understand and solve general problems typically encountered by a technologist in industry.

Student performance will be evaluated by exams, graded homework, assignments, and laboratory reports.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: MET 206 or E MCH 212; MATH 211 or MATH 250; MET 341 . Prerequisite or concurrent: MET 415

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 441** Vibration Analysis (4) Analysis of motion arising from lateral and torsional vibrations of systems; free and forced vibrations; damping; isolation; balancing.

#### **Vibration Analysis (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E MCH 212; MET 321

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 448** Mechanical Engineering Technology Laboratory B (2) Laboratory exercises in the areas of instrumentation, strength of materials, fluid flow, vibrations, thermodynamics, etc.

#### **Mechanical Engineering Technology Laboratory B (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MET 336; MET 342; ENGL 202C and senior standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 450** Manufacturing Engineering (3) Design, analysis and operational issues related to improved productivity and efficiency in modern manufacturing systems.

#### **MET 450 Manufacturing Engineering (3)**

Manufacturing engineering includes discussion and integration of the components of automated manufacturing systems. The basic components of those systems are computer numerical control (CNC) machines, robots, and programmable logic controllers. Students also consider the design, analysis, and operational issues related to improved productivity and efficiency in modern manufacturing systems. Students will learn and understand manufacturing systems and their related problems in planning, design, analysis, and implementation. Students will learn associated technology including computer numerical control, robotics, and material handling systems. Students will learn how the technology is integrated into flexible manufacturing systems. Students will learn the fundamentals of manufacturing systems including group technology, cell formation, and just-in-time manufacturing. This course is the third of a three-course sequence with a focus on manufacturing. The first two courses, Introduction to Manufacturing Processes and Process Design Engineering, are required in the Mechanical Engineering Technology program at Penn State Capital College. This course, Manufacturing Engineering, is a senior-level technical elective. The course in this proposal will be offered at least every other year with a projected enrollment of 25. All project work will be done in the Engineering Lab Building.

Students are evaluated based on their individual performance as well as their participation as a team member. Evaluation opportunities are both lecture and project-related. There are two individual exams and student project teams will document their manufacturing system design. Also, each team will prepare a formal presentation showcasing their systems and present it to the class.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MET 358

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 452** Rapid Prototyping (3) Introduction to the production of prototypes directly from computer models.

**Rapid Prototyping (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: IET 216MET 306

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 454 Automatic Controls (3)** An introduction to basic automatic control theory, practical applications of automatic controls to typical industrial machinery, HVAC equipment, etc.

**MET 454 Automatic Controls (3)**

This course is intended for mechanical engineering technology students. It provides the student with a spectrum of knowledge about process controls and control systems. The course will cover some of the theoretical and practical concepts that underline the analysis and response of linear control systems. A brief coverage of industrial and electronic components used in modern control engineering is also necessary. Examples include microprocessors, Operational amplifiers, Solid state switches, relays, filters, PLC's, motors, etc. Principles of closed-loop control systems and stability analysis using the Laplace transform are also discussed. Laboratory demonstration on PLC's and the use of computer simulation for modeling control systems are available.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: E MCH 212 orET 321 orMET 206 andMET 321

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 455 Mechatronics (3)** Integration of mechanical and electronic systems implemented using data acquisition systems, sensors, actuators, signal conditioning, feedback controls, and programmable logic controllers.

**MET 455 Mechatronics (3)**

Mechatronics is essential to the design and manufacture of modern products and processes. Mechatronics design is an approach where mechanical, electronic, computer, and control subsystems are designed simultaneously to function as an integrated system forcing the designer to be familiar with several disciplines. The course offers an integrated approach to engineering, incorporating product design, microprocessor-based control, manufacturing systems, modeling, and simulation.

Mechatronic systems depend for their unique functionality on computer software; whether PC or PLC. This course studies mechatronics at both the theoretical and practical level using in-class lectures with formal concepts and laboratory simulations to prove out design concepts. Emphasis in the course is placed on physical understanding of the system rather than on mathematical formalities.

Lecture topics include the fundamental aspects such as automation safety, logic functions, Boolean algebra, system input and output sources, flow charting, PLC programming and system design. Each of the lecture topics are reinforced using lab assignments based on software simulations or physical hardware configurations designed to stimulate the student's involvement and interest.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: EET 100 orEET 105 orEET 101 orE E 211;MET 210W orM E 367;MET 341 orM E 345W;MET 432 orM E 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 457 Lean Manufacturing (3)** Principles and methods of Lean Manufacturing currently used in modern industries.

**MET 457 Lean Manufacturing (3)**

This course introduces the students to the methods of Lean Manufacturing used currently in the manufacturing industry. The basic Lean Manufacturing topics covered in the lecture include its history, the commitment required by a company to start and sustain Lean Mfg, team building, and the training required by both management and the employees. To aid in the organization of the many Lean topics lectured on and to give the students a structured guideline for analyzing a process, the method of Value Stream Management is used. This method, when used on either a manufacturing or office environment, maps the manufacturing process and analyzes it for opportunities to reduce waste. Once the process mapping has been accomplished, the more advanced Lean topics are then covered which introduces the student to methods of reducing or eliminating waste in the manufacturing process. These topics include fast setup (SMED), plant floor organization (5S), improving equipment uptime (TPM), improving product quality, error proofing a process (Poka-Yoke), work balancing and cellular layout. Additionally, the most advanced topics of automation, just-in-time (JIT), flexible or agile manufacturing, and Kanban are covered. In order for the student to fully comprehend the material

presented, the students are placed into teams that are sponsored by local industries to work on a manufacturing process. The students are given the opportunity to explore a manufacturing process and develop ways to eliminate problems, issues, and waste in an actual situation rather than a simulation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: 7th semester standing; and IE T 215 or ME 468 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 461** Advanced Machine Design (3) Stress analysis, material selection, design of machine elements, design of connections, and computer-aided design.

### **Advanced Machine Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MET 210WMET 415

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 462** Internal Combustion Engine Design (3) The effect of operation requirements on design and construction of internal combustion engines; study of support systems and emissions control.

### **Internal Combustion Engine Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MET 332

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 470** Materials Engineering (3) Study of material selection, material properties, material test methods, and special topics.

### **Materials Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: CHEM 110CHEM 111 . Prerequisite or concurrent: MET 415

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 480** Senior Capstone (1) Career and professional topics; development of year-long senior project with industry.

### **MET 480 Senior Capstone (1)**

Senior Capstone is a required course for senior-level students in the Mechanical Engineering Technology (METBD) baccalaureate degree program. The purpose of the course is to introduce students to the practices associated with managing an industrial-based project. Student teams begin working on a capstone project. Project definition, specification development, scheduling, engineering constraints, and budgeting of both time and money are discussed. Other issues of career development are presented, such as interviewing, resume preparation, and career opportunities. Ethical issues related to the discipline are discussed. Engineering economy, OSHA, and safety are introduced.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: IE T 216MET 210WMET 306ME 300 or MET 330 . Prerequisite or concurrent: MET 415MET 470

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 480** Senior Capstone (1) Career and professional topics; development of year-long senior project with industry.

**MET 480 Senior Capstone (1)**

Senior Capstone is a required course for senior-level students in the Mechanical Engineering Technology (METBD) baccalaureate degree program. The purpose of the course is to introduce students to the practices associated with managing an industrial-based project. Student teams begin working on a capstone project. Project definition, specification development, scheduling, engineering constraints, and budgeting of both time and money are discussed. Other issues of career development are presented, such as interviewing, resume preparation, and career opportunities. Ethical issues related to the discipline are discussed. Engineering economy, OSHA, and safety are introduced.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: IE T 216MET 210WMET 306M E 300 orMET 330 . Prerequisite or concurrent:MET 415MET 470

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 481** Project Design (1) Design of system or machine, including decision making, engineering analysis, layout, detail drawings, specifications, construction.

**Project Design (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MET 365MET 431 and senior standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 485** Senior Industrial Project (3) Individual or group design projects in mechanical design or materials.

**Senior Industrial Project (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: MET 331WMET 470MET 480 . Prerequisite or concurrent:MET 425

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 486** Project Design (3) Design of system or machine, including decision making, engineering analysis, layout, detail drawings, specifications, construction.

**Project Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MET 365MET 431MET 481 and senior standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an

individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MET 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Mechanical Technology (MCH T)**

**MCH T 111** Mechanics for Technology: Statics (3) Forces; moments; resultants; two- and three-dimensional equilibrium of force systems; friction; centroids and moments of inertial of areas.

### **MCH T 111 Mechanics for Technology: Statics (3)**

MCH T 111 will provide practical and compressive coverage of elementary statics. In addition to the theoretical approach, the course will demonstrate the practical applications of statics concepts. Students entering this course should have basic knowledge of algebra as well as geometry and trigonometry. Course will introduce the definition of scalar and vector quantities. This will be followed by vector addition, vector subtraction, resolution of vectors, addition of systems of coplanar forces, rectangular components of a vector, etc. Course will also introduce the concept of moments and couples. This will be followed by introducing free-body diagrams as a tool for solving statics problems. Emphasis will be placed on equations of equilibrium for particles and rigid bodies. Students will be exposed to 2D and 3D equilibrium. Course will put emphasis on truss and frame analysis as well as pulleys. Distributed loads will also be discussed. Course will also introduce the concept of friction, angle of friction, wedges, etc. Belt friction and rolling resistance as well as friction in bearings will also be discussed. Course will also introduce the concept of centroids, center of gravity, and moment of inertia of an area. Emphasis will be put on calculating centroidal moment of inertia of composite areas. Polar moment of inertia and mass of moment of inertia will also be introduced. Student will learn not only problem solving strategy but also develop ability to present results in clear manner.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: MATH 026 or MATH 081

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MCH T 112** Statics Laboratory (1) Laboratory experimentation associated with basic engineering mechanics principles and concepts including forces, moments, equilibrium, trusses, frames, friction, and centroids.

### **MCH T 112 Statics Laboratory (1)**

MCH T 112 facilitates the basic understanding of certain principles and concepts of elementary engineering mechanics. The course provides the hands-on experience essential to learn the fundamental engineering mechanics topics including forces, moments, equilibrium, frames, trusses, friction, and centroids. Laboratory experiments will be supported by lectures presented in MCH T 111 (taken concurrently), demonstrations, and associated computer software utilization.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MATH 026 or MATH 081  
Concurrent: MCH T 111

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MCH T 212** Introduction to Dynamics (3) Absolute and relative motion related to particles and simple linkages. Force-mass-acceleration, work-energy, and impulse-momentum solution techniques.

### **Introduction to Dynamics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1996

Prerequisite: MCH T 111 . Prerequisite or concurrent:MATH 083

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MCH T 213** Strength and Properties of Materials (3) Axial stress and strain; shear; torsion; beam stresses and deflections; combined axial and bending stresses; columns, ductility, resilience, and toughness.

### **MCH T 213 Strength and Properties of Materials (3)**

MCH T 213 includes analysis and computations of axial stress and strain, shear and bearing stress; stress-strain diagrams, mechanical properties of materials including yield strength, ultimate strength, modulus of elasticity, percent elongation, poisson's ratio; stress concentration, axial deformations, statically-indeterminate axially loaded members, thermal stress and strain; torsion analysis including shear stress, angle of twist, power, rotational speed; beam bending analysis including shear force and bending moment diagrams, flexure stress, beam shear stress, , beam deflections; combined axial and bending stresses; columns.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: MCH T 111MATH 026 orMATH 081

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MCH T 214** Strength and Properties of Materials Laboratory (1) Measurement of mechanical properties of materials; structural testing, data acquisition and analysis; technical laboratory report writing.

### **Strength and Properties of Materials Laboratory (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: Prerequisite or concurrent:MCH T 213 orEMET 222

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MCH T 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Medieval Studies (MEDVL)**

**MEDVL 107** (GH;IL) (HIST 107) Medieval Europe (3) Rise and development of the civilization of medieval Europe from the decline of Rome to 1500.

**MEDVL (HIST) 107 Medieval Europe (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

MEDVL/HIST 107 is an introductory course on the history of Europe from the late classical period to the beginning of the

sixteenth century. There are three main areas of concentration in this course. First, the development of political, judicial and diplomatic institutions, from the collapse of central Roman authority through the rise of local chiefdoms to the centralized kingdom as ancestor of the modern state. The second theme is the role of Christianity in all its forms--orthodox, heretical, and popular--and its contribution to a distinctly medieval society. The third main theme is the development of society following changes in economic activity, cultural interest and the extended family.

Several forms of learning are used in this course. A textbook gives the student a broad overview of the period and gives a chronological structure to the material. This material provides a background to the instructor's lectures, which not only give factual information, but integrate the various trends, individuals and events. The assigned readings illustrate specific events or individuals; the discussion groups allow the student to explore these texts in a collaborative environment with the instructor and their fellow students. The research paper gives the student the opportunity to investigate a specific topic of interest, while training them in scholarly writing and analysis. Finally, the tests, all essay questions, let students demonstrate their comprehension of the material through problem solving.

The essay exams and discussion groups allow the student actively to address specific problems from the material. The research paper enables the student to gather information from traditional (library archives) and non-traditional (electronic) sources, then to present a conclusion in a comprehensive and coherent argument.

The class discussion promotes collaborate and cooperative learning, as the students expand on, and/or argue against, positions taken on the material by their instructor and fellow students. Internationalism and interculturalism is the essence of this course.

The research paper, essays and discussion allow for scholarly development through the investigation of communities in an important era of history.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 108** (GH;IL) Medieval Civilization (3) An interdisciplinary introduction to literature, art, and thought of the Middle Ages.

**MEDVL 108 Medieval Civilization (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Middle Ages, the period from roughly A.D. 400 to 1500, was an important era in the development of many of the institutions, ideas and technologies so familiar today. Our ideas of love, honor, town planning, literature and science have their origins in the medieval period. MEDVL 108 studies the culture and community of this time through lectures complemented by discussions based on the reading of stories from the Middle Ages and viewing of medieval works in art.

The course will begin with a brief look at the chronological progression of events in the Middle Ages, particularly the connection of political events with cultural ideals and scientific progress. Then, various broad topics will be studied. One topic will investigate the types of people found in the three orders of society: the labatores (workers), bellatores (warriors) and oratores (clergy). Other topics include the growth of art and literature (such as the legends of King Arthur), the development of Gothic cathedrals, the creation of fashion, life in a castle, magic, and the idea of faith.

Medieval Studies 108 integrates all five active learning elements:

- 1) The essay exams and discussion groups allow the student actively to address specific problems from the material.
- 2) The optional research paper enables the student to gather information from traditional (library archives) and non-traditional (electronic) sources, then to present a conclusion in a comprehensive and coherent argument.
- 3) The class discussion promotes collaborate and cooperative learning, as the students expand on, and/or argue against, positions taken on the material by their instructor and fellow students.
- 4) Internationalism and interculturalism is the essence of this course.
- 5) The optional research paper, essays and discussion allow for scholarly development through the investigation of communities in an important era of history.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 199** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 399** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 411** (IL) (HIST 411) Medieval Britain (3) Political, cultural, and economic history of Britain from circa 400 to 1485 with an emphasis on the kingdom of England.

**Medieval Britain (3)**

General Education: None  
Diversity: IL



Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: 6 credits in European history or medieval studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 413 (IL) (HIST 413) Medieval Celtic Studies (3)** Celtic civilization from antiquity to the end of the middle ages.

**Medieval Celtic Studies (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: 3 credits in medieval studies or in language literature or European history of the medieval period

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2002

Prerequisite: prior approval of proposed assignments by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MEDVL 499 (IL)** Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Meteorology (METEO)**

**METEO 002 (GN)** Our Changing Atmosphere: Personal and Societal Consequences (3) A survey of meteorology emphasizing how the nature of our lives, individually/societally, depends upon atmospheric structure, quality, and processes.

**METEO 002 Our Changing Atmosphere: Personal and Societal Consequences (3)  
(GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The primary objective is to provide the student with an understanding of the mechanisms that determine local and regional weather and climate patterns, with emphasis on how these factors impact individuals and society. We focus on the energy balance of the atmosphere and the forces that drive motion and that are ultimately responsible for surface properties such as precipitation and air quality. Cloud microphysical processes are discussed with emphasis on natural and man-made influences. The potential for inadvertent as well as planned modification of precipitation is discussed. Data sets are provided that enable the students to investigate climate change patterns and to assess the causes of these changes. Student teams are required to prepare reports of findings that are presented in class as well as in written form. Finally, we shall explore the governmental policy implications and responses to a variety of climate threats (including global warming, ozone depletion and urban pollution and heat islands). Students are asked to explore a variety of governmental policy initiatives and to assess the soundness of these initiatives. Course readings are selected from popular scientific literature as well as government documents. Students are evaluated on their comprehension of the physical process (as determined by written examinations) and the soundness of their individual and team efforts in a variety of projects. Because of the hands-on nature of this course, we envision an enrollment of no more than 30. The course will be offered every semester.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 003 (GN)** Introductory Meteorology (3) Nontechnical treatment of fundamentals of modern meteorology and the effects of weather and climate. A student who took METEO 002 may take the laboratory part of this course for 1 credit only

**METEO 003 Introductory Meteorology (3)  
(GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The objectives of the course are for students to gain a better understanding of atmospheric structure and processes so they can better apply the weather information they encounter. Students will learn to read the sky so they can make their own short-term forecasts and adjust their behavior accordingly. When presented with a weather forecast containing caveats, they will have a better feeling for what controls the evolution of a developing system so they can understand why a certain degree of hedging is necessary. Students will be better able to assess the validity of the commonly expressed concerns about climate change and deteriorating air quality. Each semester, the several sections of METEO 003 at University Park use material and exercises drawn from a common textbook such as A World of Weather: Fundamentals of Meteorology by J.M. Nese and L.M. Grenci. The lecture, taught by an instructor, is supported by weekly labs that are taught by different people, normally student teaching assistants.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METE0 004 (GN) Weather and Risk (3)** Non-technical introduction to the science and historical development of meteorology, and the role of weather forecasting as a tool for risk management by individuals, businesses, and societies.

**METE0 004 Weather and Risk (3)  
(GN)**

METE0 004 traces the development of weather forecasting as both a scientific discipline and as a tool for risk management. Beginning from the pre-modern history of weather forecasting as a diverse set of folkloric and ritualistic practices, the emergence of meteorology as a genuine science has enabled the development of powerful tools for managing risks faced by individuals, businesses and societies.

Students will learn about the fundamental principles that govern the global atmospheric circulation, and how this circulation shapes weather and climate. They will learn how this scientific understanding has served as the foundation of a global system of weather observation and forecasting, encompassing a worldwide network of atmospheric observing instruments, powerful computer modeling systems, and a highly elaborate system for disseminating information to diverse users. Demand for weather forecasts is driven by the need to manage weather risks confronting agriculture, transportation, the military, insurance, humanitarian relief, and virtually every other sector of society. Examples will be given of how forecasts are incorporated into the decision-making of businesses. This topic leads to a discussion of the economic value of weather information, and the role of public and private providers of information.

The treatment is organized around three themes. First, the possibility of generating a forecast of future conditions requires the adoption of the perspective that the natural world has an underlying regularity, and that this regularity can be discovered and organized through research. The second theme is the critical role of *instrumentation* in providing the quantitative basis for formal scientific forecasting models. Third, developments in weather forecasting have not proceeded solely from improvements in scientific knowledge: rather, society's *demand for risk management tools* has acted as a constant spur on efforts to improve forecasting techniques, as part of a feedback loop between the producers and consumers of forecasts.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METE0 005 (GN) Severe and Unusual Weather (3)** Non-technical introduction to the physical processes important in the formation of various severe and unusual weather phenomena.

**METE0 005 Severe and Unusual Weather (3)  
(GN)**

METE0 005 provides a current, relevant, and scientifically accurate discussion of a wide range of severe and unusual weather. Severe weather has made a major imprint on the world's cultures and economies throughout history (e.g., the drought of the 1930s led to westward migration and changes in agriculture practices in the U.S., utilities in East Coast cities were placed underground after the Blizzard of 1888, and the severe winter of 1941–1942 helped change the momentum of World War II), and also has been prominent in our literature and entertainment (e.g., The Wizard of Oz, The Grapes of Wrath, Twister, The Perfect Storm).

Students will learn about the fundamental principles that govern severe and unusual weather. Concepts are taught in a descriptive manner without relying heavily on mathematics; thus, the material is highly accessible to students with a wide variety of backgrounds. It is believed that learning about weather is enhanced by experiencing weather. For this reason, the class frequently draws upon examples of significant historical and recent severe weather events. Students will be able to apply what they have learned immediately to weather events occurring near their homes or around the world.

The course has four major themes. The unit on hazardous cold-season phenomena treats the formation of freezing and frozen precipitation, lake-effect snowstorms, and blizzards. The unit on hazardous warm-season weather treats thunderstorms and larger-scale conglomerations of thunderstorms known as convective systems, including hurricanes. Students also will learn about flash floods, lightning, tornadoes, downbursts, and hailstorms. The unit on hazardous weather triggered by mountainous terrain deals with topographically-forced gravity waves, downslope windstorms, and rotors. The final unit treats a wide variety of unusual atmospheric optical phenomena resulting from the interaction of light with raindrops or ice crystals, such as rainbows, glories, and haloes.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 101** (GN) Understanding Weather Forecasting (3) Fundamental principles of synoptic and physical meteorology, satellite and radar imagery, and data analysis in the setting of mid-latitude weather forecasting.

**METEO 101 Introduction to Weather Forecasting (3)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Never before has the quantity of available weather information so far exceeded the quality of the public's understanding of atmospheric science. Meteorology 101: Understanding Weather Forecasting aims to help correct this imbalance by helping students develop the knowledge and skills they need to become critical consumers of weather information. Students who successfully complete Meteorology 101 will be able to apply knowledge of fundamental concepts of atmospheric science to discriminate between reliable and unreliable weather forecasts, and to explain what makes one forecast better than another.

To ensure that students develop the knowledge and skills required to critically assess public weather forecasts, Meteorology 101 will provide an apprentice-training environment that will encourage students to learn forecast mid-latitude weather themselves. They will discover that weather forecasting involves sophisticated data analysis techniques, a thorough understanding of atmospheric science, and strong verbal and graphic communication skills. As it develops these competencies, METEO 101 will fulfill the goals established for Penn State General Education courses in the Natural Science knowledge domain.

The intended audience includes undergraduate students at University Park and other Penn State campuses, as well as adult learners in the weather information industry and weather hobbyists worldwide. To reach this diverse audience, METEO 101 will be offered through the University's World Campus in a Web-based, instructor-led format. Currently in development in collaboration between the Department of Meteorology, the EMS e-Education Institute, and the World Campus, METEO 101 will combine digital video, audio, simulation models, virtual field trips to on-line weather data resources, text, and interactive quizzes that provide instantaneous feedback. The course will provide unprecedented access to one of the world's most distinguished meteorology programs.

METEO 101 will be offered three times each year during the spring, summer, and fall semesters to an expected audience of about 300 annually.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 122** (GN) (AGECO 122) Atmospheric Environment: Growing in the Wind (3) Students will learn about the effect of weather on plants, animals, and humans.

**METEO 122 Atmospheric Environment: Growing in the Wind (3)  
(GN)**

Atmospheric Environment: Growing in the Wind is for first-year students who are interested in learning about the atmospheric environment and its influence on animals, plants, and humans. It is about how processes at the ground surface and in the air govern weather conditions on Earth. Growing in the Wind focuses on five major weather elements: energy, temperature, moisture, pressure, and wind and how these factors govern ecosystems and habitation of Earth. Emphasis is also given to human impacts on weather and climate. The lectures (2, one-hour lectures each week) are organized around the central theme that the unequal distribution of incoming solar energy (both spatially and temporally) produces temperature and pressure contrast at the Earth's surface and in the atmosphere that in turn cause storms and control the weather and climate. Computer lab exercises (1, two-hour lab each week) will reinforce concepts learned in

lecture. No prerequisites are required. A sincere interest in the environment helps. The course will be offered each fall semester.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 200A** Introduction to Weather Analysis I (1.5) Introduction to the collection, display, and application of weather observations used by the operational meteorologist. Students who have passed METEO 201 may not schedule this course for credit.

#### **Introduction to Weather Analysis I (1.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 200B** Introduction to Weather Analysis II (1.5) Introduction to the collection, display, and application of numerical weather forecasts used by the operational meteorologist. Students who have passed MET EO 201 may not schedule this course for credit.

#### **Introduction to Weather Analysis II (1.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1998  
Prerequisite: METEO 200A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 201** Introduction to Weather Analysis (3) Introduction to the collection, display, and application of weather observations and numerical forecasts used by the operational meteorologists. Students who have passed both METEO 200A and 200B may not schedule this course for credit.

#### **Introduction to Weather Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 215** Weather Forecast Preparation Laboratory (0.5 per semester/maximum of 4) Forecast methods/data discussed prior to nightly weather forecast entry. Satisfactory performance will be determined by attendance and forecast accuracy.

#### **METEO 215 Weather Forecast Preparation Laboratory (0.5 per semester/maximum of 4)**

Students will learn basic weather forecasting techniques and identify appropriate sources of weather information that will assist them in weather forecast preparation. Forecast accuracy will be judged against peer groups at Penn State and several other institutions of higher learning across the U.S. and Canada through WxChallenge (or a similarly run program), a national weather forecasting contest. The bulk of the class time will be spent preparing weather forecasts for five different U.S. cities, each for two consecutive weeks. Cities from different climate regimes will help familiarize students with forecasting challenges from across the country. In addition, the previous day's weather forecast difficulties and ways to improve forecast accuracy will be discussed. The remaining weeks of the semester will be devoted to in-depth analysis of forecast errors and ways to keep improving forecast quality. Satisfactory performance is determined through attendance records and weather forecast contest results. The course should be taken in BOTH the fall and spring semesters each year for maximum learning potential. METEO 215 may be repeated up to 8 times.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

Concurrent: METEO 101 METEO 200A and METEO 200B or METEO 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 241** Fundamentals of Tropical Forecasting (3) Applying atmospheric principles to the tropics, with an emphasis on the development, structure, prediction and destructive impact of hurricanes.

### **METEO 241 Fundamentals of Tropical Forecasting (3)**

Worldwide, approximately 80 tropical cyclones develop each year. This global annual average of tropical cyclones is small in comparison to the thousands of low-pressure systems that routinely parade across the middle latitudes each year. Yet tropical storms and hurricanes garner far greater attention from meteorologists and the media. The obvious reason for this lopsided focus is that tropical cyclones can inflict great devastation to life and property.

One of the primary goals of Meteorology 241: Fundamentals of Tropical Forecasting is to give students a working knowledge of hurricanes and tropical storms so that they can become critical weather consumers. For example, when a hurricane bears down on the coast of the United States, the media often portray the storm as a monster capable of laying waste to anything in its path. In METEO 241, students will understand that the initial fury of a land-falling hurricane is focused within a swath of coastal area approximately 30 miles long or less.

To ensure that students develop the knowledge and skills required to critically assess weather forecasts issued by the National Hurricane Center, METEO 241 will provide, like METEO 101, an apprentice-training environment. Under the tutelage of professional weather forecasters, students, in their role as apprentices, will also work toward the goal of creating their own tropical-weather forecasts.

In the process, students in METEO 241 will learn about the pitfalls of forecasting the tracks and intensities of tropical storms and hurricanes as they actively work with output from sophisticated numerical models available on the Internet. Moreover, successful students will apply their knowledge of the fundamental concepts of atmospheric science in order to competently evaluate forecasts issued by the National Hurricane Center in Miami and the Joint Typhoon Warning Center in Honolulu.

Students will also gain a broad perspective of the general weather and oceanic patterns in the tropics. For example, students will learn about El Nino and La Nina. In the process, they will discover that El Nino and La Nina are not to blame for every unusual weather event that occurs anywhere in the world.

It should be noted here that METEO 241 will be one of four courses required for students to earn a Certificate of achievement in Weather Forecasting, a unique online program offered through Penn State's World Campus. The three other courses that will comprise this online program are METEO 101: Understanding Weather Forecasting, METEO 361: Fundamentals of Mesoscale Weather Forecasting and METEO 410: Advanced Topics in Weather Forecasting.

To facilitate the learning objectives, METEO 241 will include the use of digital video, audio, simulation models, virtual field trips to on-line resources for weather data, text, and interactive quizzes that provide timely feedback.

To demonstrate their mastery of the learning objectives, students will complete automated online quizzes, actively engage in online discussion groups focusing on real-time weather, and publish, to a personal "e-portfolio", four comprehensive projects that will explore timely case studies related to weather forecasting. The e-portfolio will take the form of a Web site that students initially create during the second course of the program (METEO 241 or METEO 361). Students will augment their e-portfolio as part of the requirements for METEO 241, METEO 361 and METEO 410. They will also use the space to reflect on their learning.

At the end of the program, students will make a final e-portfolio entry that highlights their program accomplishments. In this way, the e-portfolio will serve both as a showcase of a student's work for the purpose of course assessment and as a chronicle of a student's achievements during the program. By using their Penn State personal Web space to host their e-portfolios, students will be able to share their work not only with program faculty and students, but also with external audiences, including potential employers. Upon successful completion of the program, graduates will receive a copy of their final e-portfolio on CD-ROM.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: METEO 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 297** Special Topics (1-6) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1989

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 300** Fundamentals of Atmospheric Science (4) An introduction to the fundamentals of atmospheric dynamics, physics, and chemistry.

**METEO 300 Fundamentals of Atmospheric Science (4)**

This course prepares students for their 400-level meteorology courses by laying a solid foundation in the application of physical, chemical, and mathematical principles to a broad range of atmospheric phenomena. Students are introduced to fundamental concepts and applications of atmospheric thermodynamics, radiative transfer, atmospheric chemistry, cloud microphysics, atmospheric dynamics, and the atmospheric boundary layer. These topics are covered broadly but in enough depth to introduce students to the methods atmospheric scientists use to describe and predict atmospheric phenomena. The course is designed to be taken by sophomore meteorology students as well as by students in related disciplines who have an adequate mathematical and physical background.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: CHEM 110PHYS 211  
Concurrent: MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 361** Fundamentals of Mesoscale Weather Forecasting (3) Applying atmospheric principles to small-scale weather systems, with an emphasis on the conceptual modeling and short-range prediction of severe thunderstorms.

**METEO 361 Fundamentals of Mesoscale Weather Forecasting (3)**

When outbreaks of severe weather occur, dire warnings for tornadoes, large hail or damaging straight-line winds urgently scroll across the bottoms of television screens. Simultaneously, television weathercasters warn viewers to "take cover immediately". Yet, because of the limited spatial and time scales of severe thunderstorms, the areas affected by tornadoes, large hail and damaging straight-line winds often turns out to be relatively small (sometimes as small a tenth of one percent of the original "watch area"). There is no doubt that people should be prepared to take definitive action to protect their lives and the lives of their families when outbreaks of severe weather occur. But the overall impression that entire counties or cities will be destroyed by severe weather can be, and frequently is, misleading.

One of the primary goals of Meteorology 361: Fundamentals of Mesoscale Weather Forecasting is to give students a scientifically grounded perspective of the spatial and time scales of typical outbreaks of severe weather. In the process, students will become better weather consumers. To gain such insights, students will learn conceptual models of the life cycles of severe thunderstorms and will then apply them in real-time outbreaks of severe weather. In the final analysis, students will be able to more accurately weigh the information being disseminated by the media and the Storm Prediction Center in Norman, Oklahoma.

To ensure that students develop the knowledge and skills required to critically assess public weather forecasts, METEO 361 will provide, like METEO 101, an apprentice-training environment that will guide students, under the tutelage of professional weather forecasters, to actively learn how to create their own mesoscale-weather forecasts. In the process, METEO 361 will reinforce the notion that weather forecasting involves sophisticated techniques of data analysis and a thorough understanding of atmospheric science. METEO 361 will also stress that the clear communication of the forecast requires strong verbal and graphic communication skills.

Using conceptual models and real-time radar and satellite imagery in concert with output from numerical models designed specifically for mesoscale forecasting, students will predict severe weather on time scales of a few hours to one day. For example, students will be given a litany of web-based tools and asked to place their own "watch box" for severe weather. Students will then be asked to verify and discuss the outcomes of their forecasts. For more general outlooks of severe weather (time scales of one to two days), students will use output from the numerical models that were introduced in METEO 101 to identify the areas likely to be at risk for severe weather.

It should be noted here that METEO 361 will be one of four courses required for students to earn a Certificate of Achievement in Weather Forecasting, a unique online program offered through Penn State's World Campus. The three other courses that will comprise this online program are METEO 101: Understanding Weather Forecasting, METEO 241: Fundamentals of Tropical Forecasting and METEO 410: Advanced Topics in Weather Forecasting.

To facilitate the learning objectives, METEO 361 will include the use of digital video, audio, simulation models, virtual field trips to on-line resources for weather data, text, and interactive quizzes that provide timely feedback.

To demonstrate their mastery of the learning objectives, students will complete automated online quizzes, actively engage in online discussion groups focusing on real-time weather, and publish, to a personal "e-portfolio", four comprehensive projects that will explore timely case studies related to weather forecasting. The e-portfolio will take the form of a Web site that students initially create during the second course of the program (METEO 241 or METEO 361). Students will augment their e-portfolio as part of the requirements for METEO 241, METEO 361 and METEO 410. They will also use the space to reflect on their learning.

At the end of the program, students will make a final e-portfolio entry that highlights their program accomplishments. In this way, the e-portfolio will serve both as a showcase of a student's work for the purpose of course assessment and as a chronicle of a student's achievements during the program. By using their Penn State personal Web space to host their e-portfolios, students will be able to share their work not only with program faculty and students, but also with external audiences, including potential employers. Upon successful completion of the program, graduates will receive a copy of their final e-portfolio on CD-ROM.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: METEO 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 395A** Internship in Meteorological Communication (3 per semester/maximum of 6) Meteorology internship focusing on communication of weather forecasts or other atmospheric information.

#### **METEO 395A Internship in Meteorological Communication (3 per semester/maximum of 6)**

A student participates for at least 100 hours in an internship with an agency or company that focuses on communication of weather forecasts or other atmospheric information. This internship is normally completed after the sophomore year. Given the focus of this internship and the paper requirement to relate the internship experience to meteorology coursework, students must have completed the first two required courses covering weather analysis or forecasting and fundamentals of atmospheric science. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: METEO 101 or METEO 200A and METEO 200B or METEO 201 and METEO 300

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 395B** Private Sector Meteorology Internship (3 per semester/maximum of 6) Private sector internship focusing on atmospheric problems and applications.

#### **METEO 395B Private Sector Meteorology Internship (3)**

A student participates for at least 100 hours in an internship with a private sector company that focuses on problems or applications that use meteorological information. This internship is normally completed after the sophomore year. Given the focus of this internship and the paper requirement to relate the internship experience to meteorology coursework, students must have completed the first two required courses covering weather analysis or forecasting and fundamentals of atmospheric science. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: METEO 101 or METEO 200A and METEO 200B or METEO 201 and METEO 300

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 395C** Internship in Meteorological Operations (3 per semester/maximum of 6) Internship focusing on time-sensitive operational meteorological applications such as weather or climate forecasts.

#### **METEO 395C Internship in Meteorological Operations (3 per semester/maximum of 6)**



A student participates for at least 100 hours in an internship in an operational setting that focuses on the creation of time-sensitive meteorological products such as weather or climate forecasts. This internship is normally completed after the sophomore year. Given the focus of this internship and the paper requirement to relate the internship experience to meteorology coursework, students must have completed the first two required courses covering weather analysis or forecasting and fundamentals of atmospheric science. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: METEO 101 or METEO 200A and METEO 200B or METEO 201 and METEO 300

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 395D** International Meteorological Internship (3 per semester/maximum of 6) An internship in an international setting that focuses on applying meteorological knowledge.

### **METEO 395D International Meteorological Internship (3)**

A student participates for at least 100 hours in an internship in an international setting that focuses on applying meteorological knowledge. This internship is normally completed after the sophomore year. Given the focus of this internship and the paper requirement to relate the internship experience to meteorology coursework, students must have completed the first two required courses covering weather analysis or forecasting and fundamentals of atmospheric science. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: METEO 101 or METEO 200A and METEO 200B or METEO 201 and METEO 300

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 395E** Off-Campus Meteorological Research Internship (3 per semester/maximum of 6) Meteorological internship focusing on an off-campus research project.

### **METEO 395E Off-Campus Meteorological Research Internship (3 per semester/maximum of 6)**

A student participates for at least 100 hours in an internship whose focus is a research project requiring applications of meteorological knowledge. This internship is normally completed after the sophomore year. Given the focus of this internship and the paper requirement to relate the internship experience to meteorology coursework, students must have completed the first two required courses covering weather analysis or forecasting and fundamentals of atmospheric science. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: METEO 101 METEO 200A and METEO 200B or METEO 201 and METEO 300

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 410** Advanced Topics in Weather Forecasting (3) Exploring highly specialized topics and techniques in weather forecasting that span from mesoscale to planetary spatial scales and short-term to long-range time scales.

### **METEO 410 Advanced Topics in Weather Forecasting (3)**

T.H. Huxley's passage from Biogenesis and Abiogenesis -- "The great tragedy of Science - the slaying of a beautiful hypothesis by an ugly fact" (1870) -- will serve as the springboard for learning in METEO 410. In the spirit of a "beautiful hypothesis," forecasters' diagnoses of the present state of the atmosphere and their prognoses for how the atmosphere will evolve with time may be scientifically sound. Yet, local weather can turn out dramatically different than the intent of the forecast (the ugly fact). To compound this "great tragedy of Science," weather forecasters routinely spend most of their preparation time on local details, particularly when the weather tends to get more interesting.

Nonetheless, there are "master forecasters" who regularly avoid great tragedies in weather forecasting. Master forecasters

will prudently weigh the length of the forecast time as well as interactions between weather features on the hemispheric, synoptic, meso and local scales while, at the same time, they will adroitly use an array of forecasting tools to arrive at a high-quality local forecast. With the prudent and seasoned approach of the master forecaster in mind, METEO 410 will provide students with a master apprenticeship in weather forecasting. As master apprentices, students will learn highly specialized tools and techniques that will help them to hone and expand their overall forecasting skills.

For example, students will learn a new technique for forecasting rare and extreme weather that is based on assessing departures of specific meteorological fields from climatological norms. In the process, students will study rare historic events, such as the great ice storm across northern New England and eastern Canada in 1998. Along the way, students will learn some basic statistics, including climatological means and standard deviations.

As master apprentices, students will also learn about medium-range forecasting (three to seven days into the future) and medium-range computer models. Students will learn how to implement modern prediction techniques, such as ensemble forecasts from computer models. Master forecasters increasingly take advantage of this avant-garde technique in short to medium-range forecasting.

Unique learning modules, which run the gamut from forecasting wildfires to learning about the influence of the North Atlantic Oscillation on long-range forecasts (seven days or more), will provide students with the tools to understand the bases for all the forecasts they see on television, hear on the radio, read in publications such as *Weatherwise*, or access on the World Wide Web. For example, students will learn about the forecasting products issued by the Climate Prediction Center, which include seasonal outlooks that focus on the seasonal impacts of La Nina and El Nino.

To facilitate the learning objectives, METEO 410 will include the use of digital video, audio, simulation models, virtual field trips to on-line resources for weather data, text, and interactive quizzes that provide timely feedback.

It should be noted here that METEO 410 will be one of four courses required for students to earn a Certificate of Achievement in Weather Forecasting, a unique online program offered through Penn State's World Campus. The three other courses that will comprise this online program are METEO 101: Understanding Weather Forecasting, METEO 241: Fundamentals of Tropical Forecasting and METEO 361: Fundamentals of Mesoscale Weather Forecasting.

To demonstrate their mastery of the learning objectives, students will complete automated online quizzes, actively engage in online discussion groups focusing on real-time weather, and publish, to a personal "e-portfolio", four comprehensive projects that will explore timely case studies related to weather forecasting. The e-portfolio will take the form of a Web site that students initially create during the second course of the program (METEO 241 or METEO 361). Students will augment their e-portfolio as part of the requirements for METEO 241, METEO 361 and METEO 410. They will also use the space to reflect on their learning.

At the end of the program, students will make a final e-portfolio entry that highlights their program accomplishments. In this way, the e-portfolio will serve both as a showcase of a student's work for the purpose of course assessment and as a chronicle of a student's achievements during the program. By using their Penn State personal Web space to host their e-portfolios, students will be able to share their work not only with program faculty and students, but also with external audiences, including potential employers. Upon successful completion of the program, graduates will receive a copy of their final e-portfolio on CD-ROM.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004

Prerequisite: METEO 101METEO 241METEO 361

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 411** Synoptic Meteorology Laboratory (4) Techniques of analyzing synoptic scale weather situations; introduction to weather forecasting.

#### **Synoptic Meteorology Laboratory (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2004

Prerequisite: METEO 101 orMETEO 200A andMETEO 200B orMETEO 201;MATH 230 orMATH 231 Prerequisite or concurrent:METEO 421 andMETEO 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 413** Map Analysis (3) Analysis of actual surface weather observations, with emphasis on the Norwegian cyclone model, missing or bad data, and mesoscale phenomena.

#### **METEO 413 Map Analysis (3)**

METEO 413, Map Analysis, is designed as a professional elective for Meteorology majors and as such it is primarily taken by fourth-year students. Third-year students who have completed METEO 411 may also register for Map Analysis. The course encourages students to tie together concepts learned in prior meteorology courses through analysis of numerous weather maps from across the northern hemisphere both at the surface and above. This is accomplished by improving the student's understanding of the cyclone model and applying that knowledge to "real-life" analyses where data quality may be compromised and topographic and other mesoscale factors may be important. Grades are based upon the best 13 of

14 lab assignments, 2 or more quizzes, and in-class assignments. Class participation is rewarded on an extra-credit basis. METEO 413 is offered each spring; enrollment is limited to 15 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2002

Prerequisite: METEO 411

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 414 Mesoscale Meteorology (4)** A survey of conceptual models and analysis techniques for mesoscale atmospheric features.

#### **Mesoscale Meteorology (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

Prerequisite: METEO 411

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 415 Forecasting Practicum (3)** Modern techniques in weather analysis and forecasting.

#### **Forecasting Practicum (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: METEO 411

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 416 Advanced Forecasting (3)** Competitive, simulated, operational, real-time forecasting is covered.

#### **Advanced Forecasting (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1998

Prerequisite: METEO 414

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 418W Topics in Mesoscale Meteorology (3)** Topics in mesoscale meteorology will be investigated in an independent study environment through computer-based modules, papers, and semester project.

#### **Topics in Mesoscale Meteorology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1995

Prerequisite: METEO 414

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 419 Air Quality Forecasting (3)** Issues relating to the prediction and dispersion of air pollutants as discussed.

#### **METEO 419 Air Quality Forecasting (3)**

Prediction of air quality is discussed from the perspective of operational weather forecasting. The chemical properties of pollutants for which public forecasts are currently made, fine-scale particulate matter and ozone, are summarized to provide the physical background for making forecasts. The impacts of weather on pollutant concentrations are discussed. Current techniques for forecasting air quality are presented and used by the students to create their own air quality forecasts. Students present air quality weather briefings and post-analysis of significant historical air quality events. To take this course, students must have the background provided in a basic course in chemistry and a basic course in meteorology that covers weather systems governing the transport of air pollution.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: CHEM 110 and METEO 003 or METEO 101 or METEO 200A and METEO 201B or METEO 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 421 Atmospheric Dynamics (4)** Balanced and unbalanced flows, vorticity, circulation and potential vorticity, an introduction to wave dynamics and stability analysis, and a quantitative discussion of the general circulation.

### **Meteo 421 Atmospheric Dynamics (4)**

This course builds on the foundation laid in METEO 300, Fundamentals of Atmospheric Science, by presenting applications of the equations of motion to the description of a variety of atmospheric motions. The dynamics of balanced flows (e.g., geostrophic winds) are reviewed and contrasted with unbalanced flows (e.g., inertial oscillations, isallobaric and convective isallobaric winds) that often help to maintain geostrophy (for examples, frontogenesis). The intrinsically rotational aspects of large-scale atmospheric motions are presented through a discussion of vorticity dynamics (including both relative and planetary vorticity) and the related circulation theorems of Kelvin and Bjerknes that culminate in potential vorticity thinking. An introduction to wave dynamics presents the perturbation method and the concepts of phase and group velocity with applications to gravity and Rossby waves, and to geostrophic adjustment. These techniques are then applied to the stability of convective, barotropic, and baroclinic motions. Finally, the general circulation (including zonally averaged circulation, longitudinally dependent features, the angular momentum budget, and the Lorenz energy cycle) is discussed quantitatively to provide a description of planetary-scale motions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: METEO 300; MATH 230 or MATH 231 and MATH 232

Concurrent: METEO 431 MATH 251 PHYS 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 422 Advanced Atmospheric Dynamics (3)** Survey of advanced dynamical topics including instabilities, numerical modeling, and others of current interest.

### **METEO 422 Advanced Atmospheric Dynamics (3)**

This course in atmospheric dynamics covers advanced topics, including instabilities that lead to the development of various atmospheric phenomena at the synoptic and smaller scales, numerical modeling principles and applications, topographic gravity and Rossby waves, understanding of the general circulation that can be used for extended-range forecasting, and frontal structure and frontogenesis. Some additional topics will vary at the discretion of the instructor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: METEO 421

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 431 Atmospheric Thermodynamics (3)** Classical thermodynamics applied to both the dry and the moist atmosphere.

### **Atmospheric Thermodynamics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: PHYS 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 434 Radar Meteorology (3)** Fundamental operating principles of radars, with application to observation of meteorological phenomena.

### **METEO 434 Radar Meteorology (3)**

Students will learn the basic operation principles of weather radar as it affects the taking and interpreting of measurements of weather phenomena. To achieve this ability, students must master concepts of radar design and operation, electromagnetic propagation through and scattering by atmospheric constituents, and the characteristics of atmospheric scatterers. With these tools in hand, the class will focus on interpreting weather phenomena. One-third of each lecture will be dedicated to the discussion and interpretation of student-provided radar images. Students will

actively participate in the class through bringing radar observations to class for discussion. They will be required to access data from the World Wide Web, organize it for a computer-based presentation, do an in-class presentation and lead the subsequent discussion. Students should have a basic background in electromagnetic theory, such as can be acquired in a physical meteorology course (METEO 437), as well as have either completed or be co-registered for a mesoscale meteorology class (METEO 414). Students will be evaluated based on class participation, homework and two exams.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: METEO 437  
Concurrent: METEO 414

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 436 Radiation and Climate (3)** Elements of earth-sun geometry, radiative transfer, photochemistry, remote sensing of the atmosphere, physical climatology, climate forcing.

### **METEO 436 Radiation and Climate (3)**

This course covers radiation and how it interacts with the atmosphere and earth's surface to drive motions in the atmosphere. The fundamentals of radiative transfer at the molecular level, including absorption, scattering, transmission, and emission of radiation by matter, are discussed and applied to help describe the earth's energy budget. Crucial to understanding these processes in the atmosphere are the interactions of radiation with water in the vapor, liquid, and solid states. Applications of radiative transfer to the understanding of seasons and of climate and climate change are presented as well.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: METEO 300  
Concurrent: METEO 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 437 Atmospheric Chemistry and Cloud Physics (3)** Properties of aerosols and clouds, cloud nucleation and precipitation processes, atmospheric electricity, cloud and precipitation chemistry, biogeochemical cycles.

### **METEO 437 Atmospheric Chemistry and Cloud Physics (3)**

This course develops an understanding of how the physical and chemical properties of the atmosphere influence cloud and precipitation formation, as well as how clouds in turn affect the properties of the atmosphere. The roles that chemistry and clouds play in modulating weather, climate, and atmospheric electricity are also treated.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: METEO 300 and METEO 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 440W Principles of Atmospheric Measurements (3)** Theory and practices used in measurement and analysis of meteorological variables.

### **METEO 440W Principles of Atmospheric Measurements (3)**

The standard theories and practices used in measurement and analysis of atmospheric variables are surveyed in the lecture portion of the course. The laboratory portion of the course provides students hands-on experience with using standard and self-produced instruments to make reliable measurements and with analyzing meteorological observations to determine their significance. In the laboratory reports, students learn the fundamentals of appropriate scientific writing to summarize the objectives of the lab exercise, to provide an analysis of the observations, and to critique the results. The initial drafts of these reports are evaluated critically by the instructors and teaching assistants and then are revised by the students based on these evaluations. Discussion of scientific writing and of proper report protocols are presented in the course as well.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010

Prerequisite: METEO 300METEO 431STAT 301 orSTAT 401 orE B F 472

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 446** Laboratory in Atmospheric Physics II (1) Experimental practices in cloud and aerosol physics, atmospheric electricity, atmospheric chemistry, radar meteorology.

### **Laboratory in Atmospheric Physics II (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1991

Prerequisite: or concurrent:METEO 437

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 451** Introduction to Physical Oceanography (3) Air-sea interaction, wind-driven and thermohaline circulations, upwelling, El Nino, waves, and tides.

### **METEO 451 Elements of Physical Oceanography (3)**

The primary objective of this course is to describe the circulation of the ocean and present a theoretical basis for understanding it. The focus is on the large-scale, basin-wide features of the ocean circulation, such as: 1) the subtropical ocean gyres that contain the wind-driven western boundary currents like the Gulf Stream, 2) the equatorial oceans that respond rapidly to external forcing to produce phenomena like El Nino, and 3) the thermohaline circulation that acts as a slow regulator of the earth's climate. A main goal is to demonstrate to meteorology students that the ocean is not a static, passive lower boundary to the atmosphere but a dynamic, evolving entity that is intimately coupled to the atmosphere through the exchange of heat, momentum, and water. Thus the oceans affect weather and climate. Students are evaluated on their comprehension of the relevant physical processes (as determined by written examinations) and by term papers and laboratory reports or a combination of the two. This course will be offered annually with an enrollment of about 12 students.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: METEO 421

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 452** Tropical Meteorology (3) Atmospheric processes in the tropics; mass, heat, energy, momentum, and water vapor budgets, cumulus convection, hurricanes and other disturbances.

### **Tropical Meteorology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: METEO 411METEO 421

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 454** Introduction to Micrometeorology (3) Physical processes and their measurement in the lowest layers of the atmosphere; application to hydrology, plant systems, and air pollution.

### **METEO 454 Introduction to Micrometeorology (3)**

Students will learn the basic fluid mechanics and thermodynamics of the atmospheric boundary layer (ABL), the lowest few hundred meters to few kilometers of the atmosphere. Specific topics covered include:

1. Introduction to micrometeorology
2. The surface energy budget
3. Radiation balance near the surface
4. Soil heat transfer
5. Air temperature and humidity in the boundary layer
6. Wind distribution in the boundary layer
7. Introduction to viscous flows
8. Introduction to turbulence in the boundary layer
9. Semi-empirical theories of turbulence

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2009  
Prerequisite: METEO 421 and METEO 431 or EME 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 455 Atmospheric Dispersion (3)** The basic principles of atmospheric flow, introduction to the modeling of turbulent diffusion, and the use of EPA dispersion models.

**METEO 455 Atmospheric Dispersion (3)**

Students will learn both the theory and current practice of numerical modeling of the turbulent dispersion of effluents from sources in the atmospheric boundary layer. Lab sessions involve hands-on experience with the numerical models used in the applied dispersion community. Classroom sessions cover the boundary-layer meteorology and dispersion theory on which these models are based. In laboratory sessions, students become acquainted with the present practice of short-range atmospheric dispersion modeling through:

- exploring the air-quality resources available on the World Wide Web
- examining the design of the air-quality models used today in permitting and hazardous-release applications
- discussing the input data needed by the models, the nature and reliability of their predictions and the advantages of improved models including AERMOD
- running the models SCREEN3 and ISC (the U.S. EPA's Industrial Source Complex model).

Lectures on boundary-layer meteorology include:

- the atmospheric boundary layer, turbulence, and the surface energy budget
- buoyancy, stability and their influence on the atmospheric boundary layer
- mass conservation in fluid motion, turbulent and molecular fluxes and their roles in atmospheric dispersion
- the contrast between instantaneous and average properties of turbulent flow, the convergence of averages and implications for dispersion models

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: EME 301C E 360M E 320METEO 454 or EGEE 470

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 460 Weather Risk and Financial Markets (3)** This course will introduce the role that weather plays as a source of financial and operational risk for businesses, market and other institutions.

**METEO 460 Weather Risk and Financial Markets (3)**

The course introduces students to the role that weather plays as a source of financial and operational risk for business, markets, and other institutions. It also introduces the tools and concepts for weather risk management-the insurance products, financial instruments, and decision tools that organizations use to manage, reduce, and transfer their weather-related risks. Major topics include: (i) The concept of risk and the role of weather as a driver of economic risk; (ii) Probabilistic approaches to weather forecasting; (iii) Techniques for valuation of weather derivatives; (iv) Links between weather and markets for energy and agricultural commodities; and (v) Management of catastrophic hurricane risks. Weekly assignments culminate in a major student project on weather risk management.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: METEO 411; E B F 472 or STAT 301 or STAT 401; E B F 301 or E B F 473

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 465 Middle Atmosphere Meteorology (3)** A topical survey of physical, chemical, and dynamical processes at work in the stratosphere and mesosphere (middle atmosphere).

**Middle Atmosphere Meteorology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1988  
Prerequisite: METEO 421METEO 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 466 Planetary Atmospheres (3)** A survey of planetary atmospheres and the chemical and physical processes by which they form and evolve.

**Planetary Atmospheres (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: MATH 141PHYS 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 469 From Meteorology to Mitigation: Understanding Global Warming (3)** Introduction to global warming and climate change: the basic, science, projected impacts, and approaches to mitigation.

**METEO 469 From Meteorology to Mitigation: Understanding Global Warming (3)**

Human-caused climate change represents one of the great environmental challenges of our time. As it is inextricably linked with issues of energy policy, a familiarity with the fundamentals of climate change is therefore critical for those looking to careers in the energy field. To appreciate the societal, environmental, and economic implications of policies governing greenhouse gas emissions, one must further understand the basic underlying science. METEO 469 serves to lay down the fundamental scientific principles behind climate change and global warming. A firm grounding in the science is then used as a launching point for exploring issues involving climate change impacts and mitigation. METEO 469 will introduce students to the basic information necessary for understanding Earth's climate, including the relevant atmospheric processes, and aspects of other key components of the climate system such as the cryosphere, hydrosphere, and biosphere. Students will learn how to do basic computations and to use theoretical models of the climate system of varying complexity to address questions regarding future climate change. Students, further, will explore the impacts of various alternative greenhouse gas emissions scenarios and investigate policies that would allow for appropriate stabilization of future greenhouse gas concentrations. The structure of the course roughly parallels the treatment of the subject matter by the reports of the Intergovernmental Panel on Climate Change (IPCC), focusing first on the basic science, then the future projections and their potential impacts, and finally issues involving adaptation, vulnerability, and mitigation. METEO 469 will combine digital video, audio, simulation models, virtual field trips to on-line data resources, text, and interactive quizzes that provide instantaneous feedback.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: MATH 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 470 Climate Dynamics (3)** The fundamental principles that govern Earth's climate and their relevance to past and future climate change.

**METEO 470 Climate Dynamics (3)**

Climate Dynamics delves into the fundamental processes that control the earth's climate of the past, present, and future. Fundamentals are developed from concepts of basic dynamic meteorology, radioactive transfer, and thermodynamics. Basic atmospheric radioactive transfer, the surface energy and hydrologic budgets, and the atmospheric and oceanic circulation are covered. A survey of the earth's climate through geologic history is also covered, including extinction events and the impacts on climate. The concepts developed in this course are applied to the topic of anthropogenic climate change and how various aspects of the system could be influenced by global warming.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: METEO 300METEO 421METEO 431

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 471W Observing Meteorological Phenomena (3)** Teaching the observational and interpretative skills needed to read the sky.

**Observing Meteorological Phenomena (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: METEO 421 . Prerequisite or concurrent:METEO 436

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**METEО 473** Application of Computers to Meteorology (3) Application of statistical and numerical methods to practical problems in meteorology.

**Application of Computers to Meteorology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 101CMPSC 201 orCMPSC 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEО 474** Computer Methods of Meteorological Analysis and Forecasting (3) Distribution of scalars and vectors; sampling; regression and correlation in two and three dimensions; time series, statistical forecasting; forecast verification.

**METEО 474 Computer Methods of Meteorological Analysis and Forecasting (3)**

Meteorology 474: Computer Methods of Meteorological Analysis and Forecasting explores the computationally intensive statistical methods used in the development of automated weather analysis and forecasting systems. The focus of the course is on learning to develop and use artificially intelligent automated systems to perform data quality control, quantitative analysis of large meteorological data sets, and weather forecasting. Coverage will include the relevant statistical, mathematical, and computational methods including matrix operations, data quality control, regression analysis, neural network construction, decision tree growth, and forecast system verification. Students will leave the course with an understanding of how to efficiently develop accurate and robust statistical weather analysis and prediction systems. Thus, the course serves as a professional elective for those students wishing to pursue careers in statistical weather forecasting, meteorological data analysis, and associated fields. Meteorology 474 uses a project oriented lecture/lab format to provide students with hands-on experience in developing and testing weather analysis and forecast systems. Students will both code their own forecast system development programs and use off-the-shelf software designed for rapid development and testing of forecast systems. To tackle these assignments, students will team up in pairs using the computer laboratory facilities of the Meteorology Department and meteorological data sets of current interest. A key element of the resulting project reports will be an investigation into the origin of the observed forecast system errors. One section of Meteorology 474 will be offered each year with a capacity of approximately 20 students. The class size is tailored to in-class training with the software tools and open discussion with the instructor and classmates. Grading will be based on the team assignments and on a mid-term and final examination.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: STAT 301 orSTAT 401 orE B F 472

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEО 477** (E E 477) Fundamentals of Remote Sensing Systems (3) The review of fundamental physical properties leads into discussions of various techniques, including imaging, spectroscopy, radiometry, and active sensing.

**Fundamentals of Remote Sensing Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 330 orMETEO 436

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEО 480M** Undergraduate Research (3) A research thesis will be prepared. A written and oral presentation required.

**Undergraduate Research (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: junior or senior standing as a Meteorology Major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEО 480W** Undergraduate Research (3) A research thesis will be prepared. A written and oral presentation required.

**Undergraduate Research (3)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Summer 1991  
Prerequisite: junior or senior standing as a Meteorology Major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 481** Weather Communications I (3) Multi-instructor weather communications survey including forecasting, science teaching and writing, television and radio broadcasting, climate studies, forensics, industrial applications.

**Weather Communications I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004  
Prerequisite: METEO 201 or METEO 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 482** Weather Communications II (3) Multi-instructor workshop designed to mimic real-life applications of weather communications in industry, broadcasting, the courtroom, and the classroom.

**Weather Communications II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: METEO 481

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 483** Weather Communications III (3) Individualized course designed for in-depth study of weather communications in industry, broadcasting, the courtroom and/or the classroom.

**Weather Communications III (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: METEO 411 METEO 482

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 486** Pennsylvania Climate Studies (1-2 per semester/maximum of 3) An overview of the Pennsylvania State Climate Office and an introduction to various aspects of its operations.

**METEO 486 Pennsylvania Climate Studies (1-2)**

Those interested in climate topics will become thoroughly acquainted with the important process of acquiring and assessing the quality of climate observations. Students will be introduced to the various observational networks and data formats. They will learn to manipulate large climate data fields using both flat and relational database management systems. Each student will contribute to the state climate web page and will conduct a research project during the second half of the semester. This course will be offered in fall and spring semesters.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: METEO 101 or METEO 200A and METEO 200B or METEO 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 495A** Meteorology Communications Internship (3 per semester/maximum of 6) Internship focusing on communication of weather forecasts or other meteorological information.

**METEO 495A Meteorology Communications Internship (3 per semester/maximum of 6)**

A student participates for at least 100 hours in an internship with an agency or company that focuses on communication of weather forecasts or other meteorological information. This internship is normally completed after the junior year. Given the focus of this internship and the paper requirement to relate the internship experience to a 400-level meteorology course, students must have completed the required course on synoptic meteorology. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: METEO 411

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 495B** Meteorology Private Sector Internship (3 per semester/maximum of 6) Internship focusing on meteorological problems and applications pursued by private sector companies.

**METEO 495B Meteorology Private Sector Internship (3 per semester/maximum of 6)**

A student participates for at least 100 hours in an internship with a private sector company that focuses on problems or applications that use meteorological information. This internship is normally completed after the junior year. Given the focus of this internship and the paper requirement to relate the internship experience to a 400-level meteorology course, students must have completed the required course on synoptic meteorology. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: METEO 411

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 495C** Meteorological Operations Internship (3 per semester/maximum of 6) Internship focusing on time-sensitive meteorological applications such as weather or climate forecasts that are produced.

**METEO 495C Meteorological Operations Internship (3 per semester/maximum of 6)**

A student participates for at least 100 hours in an internship in an operational setting that focuses on the creation of time-sensitive meteorological products such as weather or climate forecasts. This internship is normally completed after the junior year. Given the focus of this internship and the paper requirement to relate the internship experience to a 400-level meteorology course, students must have completed the required course on synoptic meteorology. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: METEO 411

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 495D** Meteorological International Internship (3 per semester/maximum of 6) Meteorological internship in an international setting.

**METEO 495D Meteorological International Internship (3 per semester/maximum of 6)**

A student participates for at least 100 hours in an internship in an international setting that focuses on applying

meteorological knowledge. This internship is normally completed after the junior year. Given the focus of this internship and the paper requirement to relate the internship experience to 400-level meteorology coursework, students must have completed at least six credits of Meteorology courses. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: 6 credits of 400-level Meteorology coursework

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 495E** Meteorological Off-Campus Research Internship (3 per semester/maximum of 6) Off-campus meteorological internship focusing on a research project.

**METEO 495E Meteorological Off-Campus Research Internship (3 per semester/maximum of 6)**

A student participates for at least 100 hours in an internship whose focus is a research project requiring applications of meteorological knowledge. This internship is normally completed after the junior year. To provide sufficient background for performing atmospheric research successfully, students must have completed at least nine credits of 400-level Meteorology courses. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: 9 credits of 400-level Meteorology coursework

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 497A** Professional Development in the Atmospheric Sciences (1) Geared towards rising juniors, this one-credit course will offer practical advice and ample opportunities for reflection about one's standing within the major of Meteorology. The course will help to develop students professionally for a career in the atmospheric sciences and help to put them in the best possible position for their next step after graduate, be it a treasured job or graduate school. Topics will include professionalism and ethics, the value of improving presentation and writing skills, applying to graduate schools, career counseling, developing professional reference, etc. There will be guest speakers, including successful alumni, university staff and others whose participation will enhance the value of the class.

**Professional Development in the Atmospheric Sciences (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 5th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**METEO 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Microbiology (MICRB)**

**MICRB 106** (GN) Elementary Microbiology (3) Importance of microorganisms in health and disease, agriculture, and industry; descriptive course for students not planning advanced study in microbiology. The combination of MICRB 106 GN and 107 GN must be taken to receive General Education credit in biology.

### **MICRB 106 Elementary Microbiology (3) (GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Microbiology 106 is an introductory lecture course intended for students who do not plan to pursue further study in microbiology. It is particularly appropriate for students in allied health fields, agriculture, environmental engineering, and restaurant and institutional food management. The course can be used to meet natural science (GN) General Education requirements. To receive GN credit, however, MICRB 106 must be taken with its companion laboratory course, MICRB 107.

Students taking this course will come to understand and appreciate the unique nature of microorganisms and their importance to life on earth. Microbes were the first form of life to evolve, and even though different in structure from other forms of living things, many similarities can be found in terms of genetics, metabolism, and the roles they play in nature. Bacteria, viruses, and other forms of microscopic life will be examined in some detail, as will their biological activities both beneficial and harmful.

Most people think of microbes in their negative roles: disease, food spoilage, and bio-deterioration. Indeed, we spend a lot of time and resources controlling microbes in our environment and treating diseases they cause. But microbes are found naturally on and within the human body with beneficial effect. They are also important in the production of food, vitamins, drugs, and other useful products. They are used extensively in biotechnology. They have important ecological roles and are essential to the continued existence of life on earth.

MICRB 106 uses a lecture format supplemented with contemporary videos to highlight the current challenges and benefits that microbiology brings to our society and our collective and individual health. Also included in the course are active learning activities that involve critical thinking and investigation of internet resources.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 107** (GN) Elementary Microbiology Laboratory (1) Selected techniques used to observe, identify and count bacteria; effects of chemical and physical agents on microorganisms. The combination of MICRB 106 GN and 107 GN must be taken to receive General Education credit in biology.

### **MICRB 107 Elementary Microbiology Laboratory (1) (GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Microbiology 107 is an introductory laboratory course designed for students who do not intend to pursue further study in the field. The course demonstrates the use and practice importance of microbes in everyday life. Instruction begins with the proper handling and visualization of microorganisms. Almost by definition, the vast majority of microorganisms are too small to be seen with the naked eye. Therefore, students must learn the correct use of the light microscope. Instruction in the proper care and maintenance of the microscope is provided. Students prepare and stain specimens using a number of methods designed to characterize microorganisms. The importance of working safely in a laboratory

setting is emphasized throughout the course.

Many skills are developed in this laboratory course. Aseptic (without contamination) technique is taught and is used to transfer organisms properly from one culture medium to another. A variety of media are used and the reasons for their use are explained. Students also learn how to calculate the number of bacteria in specimens such as water, soil or food. The course demonstrates ways to control microbial growth by means of temperature, osmotic pressure, pH, exposure to ultraviolet light and disinfectants. Students learn the importance of controlling microbial growth on their person and how failure to do so can lead to the spread of disease, especially in hospital settings. Other experiments illustrate methods used to preserve dairy products and test water for contamination.

While students learn to isolate and identify organisms from their own body, other common bacteria found in or on the human body are also studied. A variety of diagnostic cultural and physiological tests are employed to identify organisms students have isolated. This simulates in a very real way the process physicians depend on for diagnosis of infectious diseases. A related experiment demonstrates how antibiotics that are likely to be effective in treating an infection are selected. Taken together, most of the experiments conducted in MICRB 107 are designed to encourage students to investigate the many important roles microorganisms play in the living world.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2002

Prerequisite: or concurrent: MICRB 106

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 150** Introductory Medical Laboratory Technology (4) Introduction to basic principles and procedures of clinical laboratory work. Practicum emphasizes proper collection, handling, and preparation of biological samples.

#### **Introductory Medical Laboratory Technology (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

Prerequisite: admission to 2-MLT program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151A** Clinical Chemistry for Medical Laboratory Technicians (5) Basic principles and procedures for measuring chemical components of blood and other body fluids.

#### **MICRB 151A Clinical Chemistry for Medical Laboratory Technicians (5)**

This course is taken with (or before) Micrb 151D - Clinical Chemistry Practicum. Topics include: laboratory safety; phlebotomy; quality assurance; lab math; instrumentation in clinical chemistry; measurement of carbohydrates, proteins, electrolytes, lipids, hormones, enzymes, tests of kidney and liver function, and their clinical significance. Laboratory sessions focus on basic measurement techniques, using spectrophotometry.

Upon completion of Micrb 151A, the student will be able to:

1. Perform mathematical calculations necessary to prepare reagents, analyze data, calculate results, and analyze specimens in the clinical chemistry department.
2. Recognize pre-analytical errors related to specimen collection.
3. Describe methods and interpret the clinical significance of common chemical analyses.
4. Discuss the theory of operation of basic chemistry instruments and apply these principles to the use, maintenance, and troubleshooting of these instruments.
5. Perform common chemical analyses in student lab.
6. Assess the validity of patient results by correlating laboratory data with quality control results.
7. Demonstrate methods of maintaining a safe working environment in the chemistry laboratory.
8. Relate the clinical significance of chemistry assay results to case study presentations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151A** Clinical Chemistry for Medical Laboratory Technicians (5) Basic principles and procedures for measuring chemical components of blood and other body fluids.

#### **MICRB 151A Clinical Chemistry for Medical Laboratory Technicians (5)**

This course is taken with (or before) Micrb 151D - Clinical Chemistry Practicum. Topics include: laboratory safety; phlebotomy; quality assurance; lab math; instrumentation in clinical chemistry; measurement of carbohydrates, proteins, electrolytes, lipids, hormones, enzymes, tests of kidney and liver function, and their clinical significance. Laboratory sessions focus on basic measurement techniques, using spectrophotometry.

Upon completion of Micrb 151A, the student will be able to:

1. Perform mathematical calculations necessary to prepare reagents, analyze data, calculate results, and analyze specimens in the clinical chemistry department.
2. Recognize pre-analytical errors related to specimen collection.
3. Describe methods and interpret the clinical significance of common chemical analyses.
4. Discuss the theory of operation of basic chemistry instruments and apply these principles to the use, maintenance, and troubleshooting of these instruments.
5. Perform common chemical analyses in student lab.
6. Assess the validity of patient results by correlating laboratory data with quality control results.
7. Demonstrate methods of maintaining a safe working environment in the chemistry laboratory.
8. Relate the clinical significance of chemistry assay results to case study presentations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151B Hematology for Medical Laboratory Technicians (5)** Blood cell identification and analysis. Related procedures for diagnosing normal or disease states of blood cells and coagulation.

#### **MICRB 151B Hematology for Medical Laboratory Technicians (5)**

This course is taken with (or before) Micrb 151E - Hematology Practicum. Topics include: hematopoiesis; measurement of red cells, white blood cells, and platelets; significance of hematology results in the diagnosis of hematological diseases; principles of coagulation and related disease states, with emphasis on common factor deficiencies and platelet abnormalities. Laboratory sessions focus on manual techniques, and microscopic identification of blood cells. A capstone project requires the student to research and present a patient case study to the class.

Upon completion of Micrb 151B, the student will be able to:

1. Discuss the importance of proper collection of blood for hematology studies.
2. Discuss hematopoiesis in terms of normal and abnormal cell differentiation and proliferation.
3. Describe methods and interpret the clinical significance of common hematology and coagulation tests.
4. Perform basic manual hematology procedures in student laboratory.
5. Assess the validity of patient results by correlating laboratory data with quality control results.
6. Demonstrate methods of maintaining a safe working environment in student laboratory.
7. Relate the clinical significance of hematology assay results to patient case studies.
8. Recognize and identify abnormal red and white cell morphology in peripheral blood smears.
9. Discuss the theory of operation of hematology instruments.
10. Present a patient case study to the class, discuss lab results and symptoms in context of pathological mechanisms.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151C Immunohematology and Serology for Medical Laboratory Technicians (4)** Antigen-antibody interactions of diagnostic importance. Immunologic principles and procedures necessary for the transfusion of blood products.

#### **MICRB 151C Immunohematology and Serology for Medical Laboratory Technicians (4)**

This course is taken with (or before) Micrb 151D - Clinical Chemistry Practicum. Topics include: laboratory safety; phlebotomy; quality assurance; lab math; instrumentation in clinical chemistry; measurement of carbohydrates, proteins, electrolytes, lipids, hormones, enzymes, tests of kidney and liver function, and their clinical significance. Laboratory sessions focus on basic measurement techniques, using spectrophotometry.

Upon completion of Micrb 151A, the student will be able to:

1. Perform mathematical calculations necessary to prepare reagents, analyze data, calculate results, and analyze specimens in the clinical chemistry department.
2. Recognize pre-analytical errors related to specimen collection.

3. Describe methods and interpret the clinical significance of common chemical analyses.
4. Discuss the theory of operation of basic chemistry instruments and apply these principles to the use, maintenance, and troubleshooting of these instruments.
5. Perform common chemical analyses in student lab.
6. Assess the validity of patient results by correlating laboratory data with quality control results.
7. Demonstrate methods of maintaining a safe working environment in the chemistry laboratory.
8. Relate the clinical significance of chemistry assay results to case study presentations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151C** Immunohematology and Serology for Medical Laboratory Technicians (4) Antigen-antibody interactions of diagnostic importance. Immunologic principles and procedures necessary for the transfusion of blood products.

#### **MICRB 151C Immunohematology and Serology for Medical Laboratory Technicians (4)**

This course is taken with (or before) Micrb 151D - Clinical Chemistry Practicum. Topics include: laboratory safety; phlebotomy; quality assurance; lab math; instrumentation in clinical chemistry; measurement of carbohydrates, proteins, electrolytes, lipids, hormones, enzymes, tests of kidney and liver function, and their clinical significance. Laboratory sessions focus on basic measurement techniques, using spectrophotometry.

Upon completion of Micrb 151A, the student will be able to:

1. Perform mathematical calculations necessary to prepare reagents, analyze data, calculate results, and analyze specimens in the clinical chemistry department.
2. Recognize pre-analytical errors related to specimen collection.
3. Describe methods and interpret the clinical significance of common chemical analyses.
4. Discuss the theory of operation of basic chemistry instruments and apply these principles to the use, maintenance, and troubleshooting of these instruments.
5. Perform common chemical analyses in student lab.
6. Assess the validity of patient results by correlating laboratory data with quality control results.
7. Demonstrate methods of maintaining a safe working environment in the chemistry laboratory.
8. Relate the clinical significance of chemistry assay results to case study presentations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151D** Clinical Chemistry Practicum (2) Supervised experience at affiliated clinical laboratory. Focus is on the practical application of clinical chemistry procedures. Phlebotomy.

#### **MICRB 151D Clinical Chemistry Practicum (2)**

This clinical practicum enables the 2MLT student to gain experience in clinical chemistry, and includes approx. 110 hours of supervised experience in an affiliated clinical laboratory. The course is taken concurrently or after the lecture course Micrb 151A - Clinical Chemistry for Medical Laboratory Technicians. Topics include: specimen handling; common chemical analyses of blood and other body fluids; principles of operation, use, maintenance, and troubleshooting of clinical chemistry analyzers; quality control; safety; phlebotomy.

Upon completion of Micrb 151D, the student will be able to:

1. Demonstrate mathematical calculations necessary to prepare reagents, gather data, calculate results, and analyze specimens in the clinical chemistry department.
2. Recognize errors in the collection of specimens for chemical analysis.
3. Demonstrate the use of basic chemistry instruments; participate in the maintenance, and troubleshooting of these instruments.
4. Interpret the clinical significance of common chemical analyses.
5. Assess the validity of patient results by correlating laboratory data with quality control results.
6. Perform phlebotomy and routine chemistry procedures at appropriate mastery levels.
7. Demonstrate methods of maintaining a safe working environment in the chemistry department of the clinical laboratory.
8. Achieve specific standards of attitude and work habits at the clinical bench.



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Prerequisite or concurrent: MICRB 151A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151D Clinical Chemistry Practicum (2)** Supervised experience at affiliated clinical laboratory. Focus is on the practical application of clinical chemistry procedures. Phlebotomy.

#### **MICRB 151D Clinical Chemistry Practicum (2)**

This clinical practicum enables the 2MLT student to gain experience in clinical chemistry, and includes approx. 110 hours of supervised experience in an affiliated clinical laboratory. The course is taken concurrently or after the lecture course Micrb 151A - Clinical Chemistry for Medical Laboratory Technicians. Topics include: specimen handling; common chemical analyses of blood and other body fluids; principles of operation, use, maintenance, and troubleshooting of clinical chemistry analyzers; quality control; safety; phlebotomy.

Upon completion of Micrb 151D, the student will be able to:

1. Demonstrate mathematical calculations necessary to prepare reagents, gather data, calculate results, and analyze specimens in the clinical chemistry department.
2. Recognize errors in the collection of specimens for chemical analysis.
3. Demonstrate the use of basic chemistry instruments; participate in the maintenance, and troubleshooting of these instruments.
4. Interpret the clinical significance of common chemical analyses.
5. Assess the validity of patient results by correlating laboratory data with quality control results.
6. Perform phlebotomy and routine chemistry procedures at appropriate mastery levels.
7. Demonstrate methods of maintaining a safe working environment in the chemistry department of the clinical laboratory.
8. Achieve specific standards of attitude and work habits at the clinical bench.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Prerequisite or concurrent: MICRB 151A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151E Hematology Practicum (2)** Supervised experience at affiliated clinical laboratory. Focus is on the practical application of hematology and coagulation procedures.

#### **MICRB 151E Hematology Practicum (2)**

This clinical practicum enables the 2MLT student to gain experience in hematology and coagulation, and includes approx. 120 hours of supervised experience in an affiliated clinical laboratory. The course is taken concurrently or after the lecture course Micrb 151B - Hematology for Medical Laboratory Technicians. Topics include: hematopoiesis; hemostasis; common hematology and coagulation methods; the principles of operation, use, maintenance, and troubleshooting of hematology analyzers; microscopic examination of blood smears; quality control.

Upon completion of Micrb 151E, the student will be able to:

1. Recognize pre-analytical factors affecting hematology and coagulation results.
2. Perform routine hematology and coagulation procedures at specific mastery levels.
3. Demonstrate the use of common hematology and coagulation analyzers, and participate in the maintenance and troubleshooting of these instruments.
4. Interpret the clinical significance of hematology and coagulation results.
5. Demonstrate methods of maintaining a safe working environment in the hematology department of the clinical laboratory.
6. Identify normal and abnormal red cell, white cell, and platelet morphology in peripheral blood smears.
7. Follow protocol when reporting patient results.
8. Assess the validity of patient results by correlating laboratory data with quality control results.
9. Achieve specified standards of attitude and work habits at the clinical bench.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Prerequisite or concurrent: MICRB 151B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151E Hematology Practicum (2)** Supervised experience at affiliated clinical laboratory. Focus is on the practical application of hematology and coagulation procedures.

### **MICRB 151E Hematology Practicum (2)**

This clinical practicum enables the 2MLT student to gain experience in hematology and coagulation, and includes approx. 120 hours of supervised experience in an affiliated clinical laboratory. The course is taken concurrently or after the lecture course Micrb 151B - Hematology for Medical Laboratory Technicians. Topics include: hematopoiesis; hemostasis; common hematology and coagulation methods; the principles of operation, use, maintenance, and troubleshooting of hematology analyzers; microscopic examination of blood smears; quality control.

Upon completion of Micrb 151E, the student will be able to:

1. Recognize pre-analytical factors affecting hematology and coagulation results.
2. Perform routine hematology and coagulation procedures at specific mastery levels.
3. Demonstrate the use of common hematology and coagulation analyzers, and participate in the maintenance and troubleshooting of these instruments.
4. Interpret the clinical significance of hematology and coagulation results.
5. Demonstrate methods of maintaining a safe working environment in the hematology department of the clinical laboratory.
6. Identify normal and abnormal red cell, white cell, and platelet morphology in peripheral blood smears.
7. Follow protocol when reporting patient results.
8. Assess the validity of patient results by correlating laboratory data with quality control results.
9. Achieve specified standards of attitude and work habits at the clinical bench.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Prerequisite or concurrent: MICRB 151B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151F Immunohematology Practicum (2)** Supervised experience at affiliated clinical laboratory. Focus is on the practical application of immunohematology procedures.

### **MICRB 151F Immunohematology Practicum (2)**

This clinical practicum enables the 2MLT student to gain experience in pre-transfusion testing and serology, and includes approx. 110 hours of supervised experience in an affiliated clinical laboratory. The course is taken concurrently or after the lecture course Micrb 151C - Immunohematology and Serology for Medical Laboratory Technicians. Topics include: routine procedures for determining ABO and Rh blood type; antibody identification; crossmatching techniques; handling and storage of donor products; common serology tests; quality control.

Upon completion of Micrb 151F, the student will be able to:

1. Perform routine immunohematology and serology procedures at specific mastery levels.
2. Follow protocol required for the handling, storage and the issue of blood products.
3. Interpret the clinical significance of common serology and immunology tests.
4. Maintain a safe working environment in the immunohematology and serology departments in the clinical laboratory.
5. Assess the validity of patient results by correlating laboratory data with quality control results.
6. Achieve specified standards of attitude and work habits at the clinical bench.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Prerequisite or concurrent: MICRB 151C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151F Immunohematology Practicum (2)** Supervised experience at affiliated clinical laboratory. Focus is on the practical application of immunohematology procedures.

### **MICRB 151F Immunohematology Practicum (2)**

This clinical practicum enables the 2MLT student to gain experience in pre-transfusion testing and serology, and includes approx. 110 hours of supervised experience in an affiliated clinical laboratory. The course is taken concurrently or after the lecture course Micrb 151C - Immunohematology and Serology for Medical Laboratory Technicians. Topics include:

routine procedures for determining ABO and Rh blood type; antibody identification; crossmatching techniques; handling and storage of donor products; common serology tests; quality control.

Upon completion of Micrb 151F, the student will be able to:

1. Perform routine immunohematology and serology procedures at specific mastery levels.
2. Follow protocol required for the handling, storage and the issue of blood products.
3. Interpret the clinical significance of common serology and immunology tests.
4. Maintain a safe working environment in the immunohematology and serology departments in the clinical laboratory.
5. Assess the validity of patient results by correlating laboratory data with quality control results.
6. Achieve specified standards of attitude and work habits at the clinical bench.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Prerequisite or concurrent: MICRB 151C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151G Clinical Microbiology and Body Fluids Practicum (2)** Supervised experience at affiliated clinical laboratory. Focus is on the practical application of microbiology procedures and body fluid analysis.

### **MICRB 151G Clinical Microbiology and Body Fluids Practicum (2)**

This clinical practicum enables the 2MLT student to gain experience in clinical microbiology and body fluid analysis, and includes approx. 150 hours of supervised experience in an affiliated clinical laboratory. The course is taken concurrently or after the lecture course Micrb 151W. Topics include: specimen handling; cultivation and identification of bacteria with a minor emphasis on parasitology and mycology; antibiotic sensitivity techniques; chemical and microscopic analysis of urine and body fluids; toxicology and therapeutic drug monitoring.

Upon completion of Micrb 151G, the student will be able to:

1. Demonstrate methods of maintaining a safe working environment in the microbiology and urinalysis departments of the clinical laboratory.
2. Select and inoculate appropriate media for the culture of patient specimens.
3. Perform common biochemical, microscopic, serological, and molecular-based methods to identify microorganisms, at specified mastery levels.
4. Identify normal and abnormal physical properties of urine and other body fluids.
5. Recognize discrepant results when reviewing urinalysis findings.
6. Perform routine urinalysis and body fluid analysis at specified mastery levels.
7. Perform therapeutic drug monitoring and common tests for drugs of abuse.
8. Assess the validity of patient results by correlating laboratory data with quality control results.
9. Achieve specified standards of attitude and work habits in the clinical laboratory.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: Prerequisite or concurrent: MICRB 151W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151W Clinical Microbiology and Body Fluid Analysis for Medical Laboratory Technicians (5)** Properties of normal and abnormal microbial flora and procedures for their identification. Analysis of urine and other body fluids.

### **MICRB 151W Clinical Microbiology and Body Fluids Analysis for Medical Laboratory Technicians (5)**

This course is taken with (or before) Micrb 151G - Clinical Microbiology and Body Fluids Practicum. Topics include: collection of patient specimens; cultivation, identification and clinical significance of bacteria, with a minor emphasis on parasitology, mycology and virology; techniques to determine antibiotic susceptibility; analysis of urine and body fluids; tests of renal function; clinical toxicology. Laboratory sessions include specimen collection, manual identification of common pathogenic and non-pathogenic bacteria, and concentration of ova and parasites. The student prepares a research paper on a topic related to clinical microbiology; this semester-long process includes instruction on library research techniques, and the writing of several documents in preparation for writing the research paper. This course is writing intensive.

Upon completion of Micrb 151W, the student will be able to:

1. Discuss the proper collection, handling, and culture of patient specimens.
2. Discuss the clinical significance of pathogenic microorganisms by relating their presence to disease processes.
3. Demonstrate and explain the basis of common biochemical, microscopic, serological, and molecular-based methods used to identify microorganisms.

4. Discuss the proper collection and handling of urine and other body fluids, paying special attention to the prevention of pre-analytical errors.
5. Identify and describe normal and abnormal physical properties of urine and other body fluids.
6. Assess the validity of patient results by correlating laboratory data with quality control results.
7. Correlate the significance of laboratory tests to assigned case studies.
8. Demonstrate methods of maintaining a safe working environment in the microbiology laboratory.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 151W** Clinical Microbiology and Body Fluid Analysis for Medical Laboratory Technicians (5) Properties of normal and abnormal microbial flora and procedures for their identification. Analysis of urine and other body fluids.

### **MICRB 151W Clinical Microbiology and Body Fluids Analysis for Medical Laboratory Technicians (5)**

This course is taken with (or before) Micrb 151G - Clinical Microbiology and Body Fluids Practicum. Topics include: collection of patient specimens; cultivation, identification and clinical significance of bacteria, with a minor emphasis on parasitology, mycology and virology; techniques to determine antibiotic susceptibility; analysis of urine and body fluids; tests of renal function; clinical toxicology. Laboratory sessions include specimen collection, manual identification of common pathogenic and non-pathogenic bacteria, and concentration of ova and parasites. The student prepares a research paper on a topic related to clinical microbiology; this semester-long process includes instruction on library research techniques, and the writing of several documents in preparation for writing the research paper. This course is writing intensive.

Upon completion of Micrb 151W, the student will be able to:

1. Discuss the proper collection, handling, and culture of patient specimens.
2. Discuss the clinical significance of pathogenic microorganisms by relating their presence to disease processes.
3. Demonstrate and explain the basis of common biochemical, microscopic, serological, and molecular-based methods used to identify microorganisms.
4. Discuss the proper collection and handling of urine and other body fluids, paying special attention to the prevention of pre-analytical errors.
5. Identify and describe normal and abnormal physical properties of urine and other body fluids.
6. Assess the validity of patient results by correlating laboratory data with quality control results.
7. Correlate the significance of laboratory tests to assigned case studies.
8. Demonstrate methods of maintaining a safe working environment in the microbiology laboratory.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 141CHEM 202MICRB 150MICRB 201MICRB 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 199 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 201** Introductory Microbiology (3) Elementary principles of microbial and viral structure, reproduction, genetics and physiology; relationship to food, water, soil, industrial and disease processes.

### **MICRB 201 Introductory Microbiology (3)**

MICRB 201, Introductory Microbiology, is a survey course that touches on the full range of topics generally considered to fall within the scope of microbiology. After a short overview of the origins of microbiology and the ways in which forms of life too small to be seen with the naked eye can be studied, the course launches into the following basic topics:

- 1) structure and function of the bacterial cell as compared with plant and animal cells
- 2) care, feeding, and controlling the growth of bacteria
- 3) how bacteria acquire and use energy
- 4) how energy and nutrients are used to make cell components and carry out life processes
- 5) how bacteria organize, replicate and control the expression of genetic information
- 6) how viruses differ organizationally and reproductively from bacteria, and finally
- 7) how bacteria are classified and why various classification schemes are important

The remainder of the course is concerned with specific roles bacteria and viruses play in nature. Issues addressed include:

- 1) role of bacteria in the cycling of elements in the terrestrial environment
- 2) importance of bacteria in aquatic environments, including the safety of drinking water and treatment of waste water
- 3) the role of bacteria and viruses in human health and disease

Bacteria existed long before higher life forms, so animals, including humans, evolved means to protect themselves from harmful bacteria while forming relationships with bacteria that are beneficial. These harmful and beneficial relationships are intimately connected to immunology, a field that has long been included in the study of microbiology. The study of disease-causing microbes includes the topics of how these organisms are spread and how they can be controlled using anti-bacterial and anti-viral agents. Selected diseases are used to explain the various mechanisms by which microbes are able to cause illness.

Finally, the course also covers the role microorganisms play in the spoilage of foods and, more importantly, the myriad ways in which bacteria, yeast and fungi are used to manufacture such popular foods as breads, cheeses, wines, beers and many other fermented food and dairy products. At some point in the course, there is discussion of how microbes are used in the rapidly-expanding area of biotechnology. Bacteria have, by far, the greatest genetic diversity of all living things, so their potential for yielding products of benefit to agriculture and humankind is enormous. This topic also treats the controversial issues connected with biotechnology, including ethical, theoretical and practical issues that are or will eventually need to be addressed by society.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 201H** Introductory Microbiology (3) Elementary principles of microbial and viral structure, reproduction, genetics and physiology; relationship to food, water, soil, industrial and disease processes.

### **MICRB 201H Introductory Microbiology (3)**

MICRB 201H, Introductory Honors Microbiology, is a survey course that touches on the full range of topics generally considered to fall within the scope of microbiology. After a short overview of the origins of microbiology as a science and the ways in which forms of life too small to be seen with the naked eye can be studied, the course covers the following basic topics: 1) the tree of life and the position of microbes in the biological world, 2) structure and function of the bacterial cell as compared with plant and animal cells, 3) microbial nutrition and growth, 4) molecular biology and gene regulation in microbes, 5) microbial genetics, 6) an overview of microbial classification and diversity, and 7) the principles of how microbes interact with their environment.

Unlike the standard sections of MICRB 201, the honors course then moves on to an integrated description of microbial diversity and ecology in association with topics such as carbon metabolism, energy acquisition and utilization including photosynthesis, and the environmental impacts of microbial utilization of inorganic chemicals. This is followed by a section concerning eukaryotic or non-bacterial microbes, a section concerning the use of microbes in industry, and then a basic overview of viruses and how they work.

The last part of the course deals with microbial interactions with other organisms with an emphasis on their interactions with man. This starts with a discussion of how microbial growth can be controlled, and then the various kinds of relationships that can exist between microbes and other organisms are covered. This is followed by a section on immunology or the mechanisms animals possess to defend themselves against potentially harmful microbes. The final section concerning a broad range of microbially-caused diseases is preceded by a description of microbial analysis in the clinical or medical laboratory as well as a discussion of how disease-causing microbes are spread in animal populations.

MICRB 201H is taught so as to emphasize the impact of microbes on our everyday lives. One way this is accomplished is by class presentations made by small groups of students on topics of current interest in the community at large. Students also write a term paper that can involve any aspect of microbiology using an article from the popular press as their starting point. All students are also required to make a short in-class presentation in which they provide an overview of their term paper. While much of the instruction involves the standard lecture format, classroom discussion is encouraged at all times.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 202** Introductory Microbiology Laboratory (2) Qualitative and quantitative techniques with regard to recognition of bacteria and their processes on a microscopic, colonial, and physiological basis.

**Introductory Microbiology Laboratory (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 110 . Prerequisite or concurrent: MICRB 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 251** (B M B 251) Molecular and Cell Biology I (3) Biomolecules, genetic mechanisms, organization of cells and their organelles, DNA replication, protein synthesis, membranes, the cell nucleus, energy conversion.

**Molecular and Cell Biology I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 252** (B M B 252) Molecular and Cell Biology II (3) Continuation of BIOCH/B M B/MICRB 251: cytoskeleton, cell growth, division, adhesion, signalling, germ cells, differentiation, immune system, nervous system, plant cells.

**Molecular and Cell Biology II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995  
Prerequisite: MICRB 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 398** Special Topics (1-9) Formal courses give infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2009

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**MICRB 401** Microbial Physiology and Structure (3) Physiology and structure of bacteria important in microbiological research. Designed for science majors.

**Microbial Physiology and Structure (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 202 or CHEM 210; MICRB 201 MICRB 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 405A** Seminar and Practicum in Medical Technology (8) Chemistry. Fundamental principles and the quantitative measurement of chemical components in the blood and other body fluids.

**Seminar and Practicum in Medical Technology (8)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1987

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 405B** Seminar and Practicum in Medical Technology (1) Urinalysis. Identification of cellular and noncellular urinary sediments. Qualitative chemical analysis of urine.

**Seminar and Practicum in Medical Technology (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1988

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 405C** Seminar and Practicum in Medical Technology (6) Hematology. Principles of red and white blood cell development. Identification of normal and pathological conditions.

**Seminar and Practicum in Medical Technology (6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1988

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 405D** Seminar and Practicum in Medical Technology (5) Immunohematology. Immunologic and genetic principles governing the transfusion of blood and blood products.

**Seminar and Practicum in Medical Technology (5)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1987

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 405E** Seminar and Practicum in Medical Technology (7) Microbiology. Identification of normal and abnormal microbial flora from various locations on and within the human body.

**Seminar and Practicum in Medical Technology (7)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1987

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 405F** Seminar and Practicum in Medical Technology (3) Serology-Immunology. Immunological principles and their application in the identification of present or past disease states of the human.

**Seminar and Practicum in Medical Technology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1987

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 408** Laboratory Instructional Practice (1-2) Participation in the instruction of undergraduate laboratory courses, including classroom preparation; discussion of principles and objectives of each exercise.

**Laboratory Instructional Practice (1-2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994  
Prerequisite: 8 credits in microbiology and permission of department head

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 410** Principles of Immunology (3) Theories of immunity; focuses on the basis for the acquired immune response at the organ, cell, and molecular levels.

**Principles of Immunology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998  
Prerequisite: B M B 251MICRB 201 orMICRB 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 411** Survey of Microbiology Literature (1 per semester) An introduction to readings and oral presentations in microbiology.

**Survey of Microbiology Literature (1 per semester)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994  
Prerequisite: 8 credits in microbiology courses

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 412** Medical Microbiology (3) Characteristics, methods of identification, and pathogenesis of bacteria that cause human disease; principles of disease dynamics and control.

**Medical Microbiology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1993  
Prerequisite: MICRB 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 413** Microbial Diversity (2) survey of microorganisms having special adaptive mechanisms for life in common and unique environments; topics include ecology, evolution, and bioremediation.

**Microbial Diversity (2)**

General Education: None  
Diversity: None



Bachelor of Arts: None  
Effective: Spring 1997  
Prerequisite: MICRB 201MICRB 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 415 General Virology: Bacterial and Animal Viruses (3)** The interaction of different types of viruses with bacterial and animal cells, including mechanisms of infection and viral synthesis.

**MICRB 415 General Virology: Bacterial and Animal Viruses (3)**

General Virology: Bacterial and Animal Viruses covers the interactions of different types of viruses with animal and bacterial cells, emphasizing molecular and genetic concepts of viral infection and viral replication. Students are expected to apply basic concepts of microbiology as well as molecular and cell biology to understanding selected viral life cycles, particularly at the molecular level. Lectures are augmented by in-class discussion and homework assignments. Typically, students are evaluated by two hourly exams and a final exam that assess their knowledge of virology and their ability to apply basic concepts of gene expression and cell biology to explaining viral life cycles. This course builds on the common requirements of MICRB 201 and B M B(MICRB) 251/252. The instruction expands into the cellular and molecular bases of viral life cycles with regular reference to and comparison with cellular and molecular biology of uninfected cells. The content of this course complements those on the basic mechanisms of gene expression (B M B 400) and prepares the student for understanding the molecular basis of viral pathogenesis covered in B M B/MICRB/V SC 435.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2000  
Prerequisite: B M B 251B M B 252 orBIOL 110BIOL 230W;MICRB 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 416 (BIOTC 416) Microbial Biotechnology (2)** Fundamentals of applied biotechnology; the use of microorganisms in the synthesis of biologically-important and industrially-useful products.

**Microbial Biotechnology (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: MICRB 201MICRB 202;B M B 442

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 421W Laboratory of General and Applied Microbiology (3)** Laboratory exercises demonstrating fundamental techniques and principles of experimentation of general and applied microbiology.

**Laboratory of General and Applied Microbiology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: MICRB 201MICRB 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 422 Medical Microbiology Laboratory (2)** Laboratory exercises demonstrating properties and classification of medically important microorganisms and techniques used in their identification.

**Medical Microbiology Laboratory (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1993  
Prerequisite: MICRB 202  
Concurrent: MICRB 412

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 432 (B M B 432, VB SC 432) Advanced Immunology: Signaling in the Immune System (3)** The study of signaling pathways that regulate the immune response.

**MICRB (B M B/V SC) 432 Advanced Immunology: Signaling in the Immune System (3)**

This course will use the immune system as a model in which to study how cells communicate in order to coordinate an

immune response. We will focus on signaling mechanisms that regulate such immune responses as T cell activation, Th1/Th2 differentiation, macrophage activation and migration of immune cells to sites of inflammation. All lectures are based on recent reviews by key investigators in each field, as well as primary articles to present students with the most recent advances as well as techniques and approaches used. The goal of the course will be to convey a basic understanding of intracellular signaling mechanisms that will pertain to all areas of biology, an appreciation for current questions and future directions in the field, and an in depth understanding of the signals that govern immune responses. The material presented will build on the basic concepts learned in B M B 400 and MICRB 410, and will lay the foundation for more advanced courses at the graduate level, such as Molecular Immunology, Special Topics in Immunology, and Readings in Immunology.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: B M B 400/MICRB 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 435 (B M B 435, VB SC 435) Viral Pathogenesis (2)** A study of the molecular, immunological and pathological aspects of viral diseases as well as laboratory methods of diagnosis.

### **MICRB (B M B/V SC) 435 Viral Pathogenesis (2)**

In Viral Pathogenesis, a multifaceted approach that includes lectures, in-class discussion, and outside assignments is used to introduce students to molecular mechanisms of viral pathogenesis. Emphasis is placed on human viruses. In some instances, traditional animal virus model systems are also discussed to address important concepts in detail. The course is divided into three parts: (1) general concepts in virology (20%); (2) general concepts in viral pathogenesis (40%); and (3) specific examples of viral pathogenesis (40%). Students are typically evaluated on in-class participation, outside assignments, quizzes and exams. Exams emphasize students' knowledge of concepts more than specific, factual information and are comprised of a combination of multiple-choice, short-answer and/or essay questions. To fully understand concepts/mechanisms of viral pathogenesis, a working knowledge of viruses, molecular biology, cell biology and immunology is beneficial. Hence, MICRB 201 is a prerequisite for this course as is the combination of either BIOL 110/230 or B M B (MICRB) 251/252. While MICRB 415 is not a prerequisite for the course, some material covered in MICRB 415 is addressed, albeit rapidly, during the initial lectures.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: MICRB 201; B M B 251 and B M B 252 or BIOL 110 and BIOL 230W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 447 Laboratory in Molecular Immunology (1)** Laboratory in molecular techniques to assay antigens, antibodies, and receptor sites.

### **Laboratory in Molecular Immunology (1)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 1995  
 Prerequisite: MICRB 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 450 (B M B 450) Microbial/Molecular Genetics (2)** Genetic phenomena, with emphasis on molecular mechanisms: gene transfer, recombination, gene conversion, gene fusion, suppression, transposons.

### **Microbial/Molecular Genetics (2)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2010  
 Prerequisite: BIOL 222 or BIOL 322/MICRB 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 460 (B M B 460) Cell Growth and Differentiation (3)** Mechanisms and regulation of protein trafficking, organelle biosynthesis, cell development, signaling and cell cycle control. Emphasizes experimental design and analysis.

### **MICRB (B M B) 460 Cell Growth and Differentiation (3)**

Cell Growth and Differentiation is a unique course that uses the primary literature to teach significant content in advanced cell biology while simultaneously exposing students to the scientific craft of experimental design and analysis. In addition to exploring historical and current cell biology research articles, students will develop two vital scientific skills; critical thinking as applied to experimental data and creative thinking about solving unresolved questions in cell biology.

There is no course textbook. As an alternative, we read from journals to explore questions about cell biology and how cell biologists decipher cell functions. Instead of a general survey of cell biology, we delve into specific issues, often looking at "classic" papers describing how a specific phenomenon was first investigated to place current questions in context before progressing to the latest publications exploring how innovative techniques have been applied to deciphering cell function.

The course is divided into four units, each of which emphasizes content in a different area. Actual content may vary from year to year as the course is updated to reflect progress in a field of research. We have previously explored the general areas of cell membrane dynamics, intracellular protein trafficking, cell cycle regulation, cell signaling pathways and cancer cell biology. Finally, the course ends with a unit on stem cells and therapeutic cloning technology. A portion of the final unit is also devoted to discussing the ethical implications of stem cell research with an emphasis on how to make personal decisions about how our society should approach these issues.

Reading guides are provided for each assignment to help students find and understand important points in reading assignments. Class periods are devoted to explanations and instructor-led discussions about the readings with an emphasis on understanding the questions, the methods used to approach the questions, the experimental results and the interpretations of the results. Furthermore, periodic class periods are dedicated to experimental approach exercises where students work in groups to practice posing new questions as suggested by our readings and proposing experiments to answer these questions. These skills are vital part of what cell biologists do daily, and these exercises provide practice in thinking like a scientist. Students have previously reported that by taking this course they acquired the ability to read and understand the primary literature and have gained an in-depth understanding about how to use various experimental techniques.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: B M B 252

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 480** (B M B 480) Tumor Viruses and Oncogenes (3) Oncogenes, DNA and RNA tumor viruses, and relevant experimental techniques with emphasis on molecular basis of carcinogenesis and gene regulation.

### **Tumor Viruses and Oncogenes (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: or concurrent: MICRB 415 MICRB 435 or MICRB 460

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 496** Independent Studies (1-18) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 497H** Challenging Dogmas: How Major Discoveries in Microbiology Revolutionized Biology (3) Formal courses given

infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Challenging Dogmas: How Major Discoveries in Microbiology Revolutionized Biology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MICRB 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Mineral Engineering (MIN E)

**MIN E 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIN E 415** Management in the Mineral Industries for Environmental, Legal, and Health and Safety Problems (3) Mineral industries management and labor structure analyzed, with emphasis on environmental, health and safety, and legal aspects.

**Management in the Mineral Industries for Environmental, Legal, and Health and Safety Problems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

Prerequisite: sixth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIN E 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MIN E 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Mineral Processing (MN PR)**

**MN PR 301** Elements of Mineral Processing (3) Introduction to mineral process engineering. Sampling, sizing, comminution, physical and chemical processes, applications to industrial practice. Pollution control.

### **Elements of Mineral Processing (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2007

Prerequisite: CHEM 110 orCHEM 106;MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MN PR 401** Mineral Process Engineering (3) Unit operations for processing particulate materials: comminution, screening, classification, slurry pumping, thickening, filtration, etc.; application to mineral processing plant design.

### **Mineral Process Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: MN PR 301MATH 250 orMATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MN PR 413** Mineral Processing Laboratory (1) A laboratory study of the chemical and physical principles involved in practical mineral processing operations.

### **Mineral Processing Laboratory (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

Prerequisite: or concurrent:MN PR 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MN PR 424** Coal Preparation (3) Unit operations, flowsheets, and testing methods used in preparation of coal.

### **Coal Preparation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

Prerequisite: MN PR 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MN PR 425** Interfacial Phenomena and Flotation (3) Surface and interfacial phenomena related to flotation agglomeration, flocculation, and dispersion of particles. Application to mineral separation and related processes.

**Interfacial Phenomena and Flotation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: EME 301;MATH 250 orMATH 251;MN PR 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MN PR 426 (MATSE 426) Aqueous Processing (3)** A study of the chemical and engineering principles pertinent to metal processing in aqueous systems: hydrometallurgical extraction, plating, materials preparation.

**MN PR (MATSE) 426 Aqueous Processing (3)**

This 3-credit course deals with the chemical and engineering principles underlying the aqueous processing of metals: metal extraction from primary and secondary sources, electroplating, and metal finishing, powder synthesis, energy storage and conversion, and treatment of recycling of metal-containing toxic wastes.

1. Physico-Chemical Principles - Thermodynamic, chemical kinetic and transport factors which control hydrochemical processes (leaching; precipitation; adsorption; solvent extraction; ion exchange; electrowinning, electrorefining and electroplating; membrane processes; energy storage and conversion); graphical representation of homogeneous and solid/solution equilibria; chemical reagents.

2. Engineering Principles - Reactor design and staged operations; ideal batch, continuous stirred-tank and plug-flow reactors; fluidized bed reactors; electrochemical reactors; multistage separation processes (solid-liquid, liquid-liquid, and gas-liquid systems).

3. Process Synthesis - Design of metal separation (extraction, refining, waste treatment) materials synthesis, metal finishing, and energy storage/conversion processes and system-integration of unit operations, industrial practice. Emphasis on closing circuits to minimize or eliminate waste effluents.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: EME 301 orMATSE 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MN PR 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MN PR 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Mining (MNG)**

**MNG 223 Mineral Land and Mine Surveying (2)** Surveying theory and practice applied to mineral lands and mines, traversing, leveling, mapping, underground surveying, microcomputer drafting and graphics.

**MNG 223 Mineral Land and Mine Surveying (2)**

The objective of this course is to introduce students to mine surveying principles, techniques, and products. Topics covered include a brief history of surveying; a brief review of trigonometry and related math needed in applications; review and application of AutoCAD needed for completing assignments; review of coordinate systems in the U.S.; discussion of types of measurements, units, and conversions that will be done; methods for doing the different types of measurements; introduction of surveying equipment and how to operate them; and use of GPS, laser scanning, 3-D imaging and photogrammetric systems. Laboratory assignments emphasize learning by doing, where students perform basic surveying functions by performing field surveying on campus and at a nearby mine, and then perform necessary calculations and plotting. Students will learn about various measurement methods and devices, error calculations, performing field surveying for topographic mapping, construction control, and volume/area measurement in surface and underground environment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: 2nd semester standing; 1/2 unit of secondary school trigonometry

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 223 Mineral Land and Mine Surveying (2)** Surveying theory and practice applied to mineral lands and mines, traversing, leveling, mapping, underground surveying, microcomputer drafting and graphics.

### **MNG 223 Mineral Land and Mine Surveying (2)**

The objective of this course is to introduce students to mine surveying principles, techniques, and products. Topics covered include a brief history of surveying; a brief review of trigonometry and related math needed in applications; review and application of AutoCAD needed for completing assignments; review of coordinate systems in the U.S.; discussion of types of measurements, units, and conversions that will be done; methods for doing the different types of measurements; introduction of surveying equipment and how to operate them; and use of GPS, laser scanning, 3-D imaging and photogrammetric systems. Laboratory assignments emphasize learning by doing, where students perform basic surveying functions by performing field surveying on campus and at a nearby mine, and then perform necessary calculations and plotting. Students will learn about various measurement methods and devices, error calculations, performing field surveying for topographic mapping, construction control, and volume/area measurement in surface and underground environment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: 2nd semester standing; 1/2 unit of secondary school trigonometry

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 230 Introduction to Mining Engineering (3)** Examination, development, and exploitation of mineral deposits; mining methods; unit operations; mining equipment; fundamentals of explosives.

### **Introduction to Mining Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 331 Rock Mechanics (3)** Ground stresses, laboratory rock properties, laboratory and field instrumentation, rock mass characteristics, subsidence, slope stability, design of mine workings.

### **MNG 331 Rock Mechanics (3)**

This course was designed to introduce the student to the subject of rock mechanics. It includes an introduction to experimental stress analysis, the physical properties of rock, underground stresses, laboratory and field instrumentation, model studies, rock mass properties, and the discussion of a number of rock mechanics field applications associated with mining, petroleum and civil engineering, and geoscience. A technical paper written on some field related to the laboratory and/or theoretical aspect of rock mechanics is required. A series of eight laboratory sessions are included. These give the students hands-on experience relative to the concepts and instrumentation problems discussed in lectures.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: E MCH 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 401** Introduction to Mining Operations (1) An introduction to underground and surface mining methods; selection of extraction equipment; relevant auxiliary operations. Not intended for Mining Engineering majors.

### **Introduction to Mining Operations (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: E MCH 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 404** Mine Materials Handling Systems (2) Analysis and design of materials-handling systems in mining, such as belt conveyors, locomotives, and hoisting.

### **Mine Materials Handling Systems (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 410** Underground Mining (3) Underground mine design; extraction techniques; description of auxiliary operations as they relate to the mining methods.

### **MNG 410 Underground Mining (3)**

The purpose of this course is to describe the logic and discuss the steps taken in the planning and design of an underground mine. Since every underground mine incorporates a unique combination of technological, economic, legal, social, and environmental factors, the course will stress the auxiliary operations (ventilation, ground control, etc.) which must be accommodated, as well as the unit operations and equipment dealing with resource extraction.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2012  
Prerequisite: MNG 404MNG 422MNG 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 411** Mine Systems Engineering (2) Applied operations research and systems methods for decision making in mine operations; time and systems studies to improve productivity.

### **Mine Systems Engineering (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: MNG 404

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 412** Mineral Property Evaluation (3) Ore reserve estimation using statistics and geostatistics, mine cost estimation, engineering economy concepts applied to mineral deposits.

### **Mineral Property Evaluation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: MNG 030



**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 422** Mine Ventilation and Air Conditioning (3) Quality, quantity, and temperature-humidity control of the mine atmosphere; general mine environmental control.

**Mine Ventilation and Air Conditioning (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: C E 360MNG 030 . Prerequisite or concurrent:M E 300

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 441** Surface Mining Systems and Design (3) Design of surface mining for noncoal and coal minerals; emphasis on quarry and strip mining planning parameters: unit operations, systems, haulroads, draglines, spoil stability, reclamation, legal requirements, and health and safety.

**Surface Mining Systems and Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

Prerequisite: MN PR 301MNG 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 451W** Mining Engineering Project (1-5) Independent and integrative design and report of specific mine evaluation, layout, equipment selection, environmental control, permitting, and financial analysis.

**Mining Engineering Project (1-5)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

Prerequisite: seventh-semester standing in mining engineering plus six months of mining work experience

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 460** Mine Maintenance Engineering (3) Mine maintenance system design; maintenance planning and management; safety and cost analysis of maintenance programs.

**Mine Maintenance Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 470** Mining and Geologic Structures (3) Study of geologic structures and their impacts on mining operations.

**MNG 470 Mining and Geologic Structures (3)**

The objective of this course is to introduce students to geologic structures that can impact mining operations and how to represent them for mine planning. A fundamental understanding of geologic processes that lead to various structures is covered.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2009

Prerequisite: GEOSC 001GEOSC 201

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG 497** Special Topics (1-9) Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or term.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Mining Technology (MNG T)**

**MNG T 030** Introduction to Mining Technology (2) Examination, development, exploitation of mineral deposits; history of mining, common mining methods, operation methods, equipment types, explosives fundamentals.

**MNG T 030 Introduction to Mining Technology (2)**

"Introduction to Mining Technology" is a second semester course to introduce students to the subject of mining engineering so they understand the bituminous coal mining industry and the challenges that it faces – economic, environmental, political, societal, ethical, as well as technological. Emphasis is placed on encouraging students to learn mining engineering by observing and doing: conducting case studies, solving problems, and designing basic mining systems. Principles of beneficiation and processing will be injected at a continuous pace, as with the disciplines of mining engineering: rock mechanics, ventilation, production, auxiliary operations planning, and management. This technical foundation will serve as a prerequisite for MNGT 203, MNGT 209 and MNGT 205.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 100** Mining Technology Orientation (1) Introduction to the underground mining industry including history, terminology, current mining equipment and methods, regulations, organization.

**MNG T 100 Mining Technology Orientation (1)**

"Mining Technology Orientation" is a first semester introduction to the underground mining industry from past to present. The student will be introduced to basic mining systems and their evolution over the last century. Mining terminology and its unique application will be discussed. The impact of mining regulations will be reviewed. Possible career paths and the organization of mining companies will be included in this orientation. Visits producing coal mines will be required.

Students who successfully complete this course will be able to:

- Discuss changes in mining methods over the years.
- Demonstrate knowledge of terminology used in mining industry.
- Explain how state and federal regulations impact mine operation.
- List several career options in mining, and the skills required by each.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 110** Mining Administration and Law (3) Introduction to mine organization and management structure, and government regulations regarding permitting, reporting and recordkeeping.

**MNG T 110 Mining Administration and Law (3)**

"Mining Administration and Law" is a second semester course that provides a framework for the student to understand the mine organization and management structure and organization. It will also introduce the student to the state and federal regulations regarding permitting, and reporting, and record keeping. This course provides a background for and is a prerequisite for MNG T 216. Students who successfully complete this course will be able to:

- Explain the basic organization of a mining operation from the general superintendent to the laborer.
- Know and understand the basic concepts of a safety program.
- Use and apply accident analysis statistics to further improve a safety program.
- Discuss the development of rules and regulations with focus on those that impact the first line supervisor.
- Understand the process for promulgating new rules and regulations.
- Demonstrate basic management techniques that a first line supervisor will use in performance of his/her job.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 202 Mining Ventilation (3)** Introduction to mine ventilation systems at mine face, mine gases and use of gas detection equipment, state and federal regulations.

### **MNG T 202 Mining Ventilation (3)**

"Mining Ventilation" is an introduction course in mine ventilation systems, equipment and mine gases for students in the productions emphasis only. The course will emphasize ventilation systems used in mining sections at the mine faces. Gas detection devices will be demonstrated and students will become proficient in their uses. The requirements of both state and federal regulations will be discussed and reviewed. General complete mine ventilation will be discussed. CHEM 011 provides a background in combustion and gas reactions, while PHYS 150 provides a background on the static and dynamic forces of moving air. This course requires MNG T 030 as a prerequisite to ensure that students have a basic understanding of background mining methods and equipment. Students who successfully complete this course will be able to:

- a. Explain role of ventilation in the mining environment.
- b. Explain and understand section ventilation and long-wall ventilation systems.
- c. Demonstrate proper use of instruments to measure air pressure, flow rate and air quality, and interpret measured results.
- d. Describe and interpret federal and state regulations related to mine ventilation.
- e. Understand ventilation mapping and explain how flow is affected by various mining methods.
- f. Explain ventilation flow through a mine complex.
- g. Know all of the mine gases.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 101PHYS 150MNG T 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 203 Introduction to Strata Control (1)** Review basic concepts of geology and impact of geologic features on mining conditions; introduce strata control theory and methods. (Nominal first 5 weeks of spring semester)

### **MNG T 203 Introduction to Strata Control (1)**

"Introduction to Strata Control" will be offered in the first five weeks of the third semester to provide students in both options with a basic background in the geological forces and structure in the roof and walls of a mine environment. It requires MNG T 030 as a prerequisite so students have a basic understanding of mine operation, and serves as a prerequisite to MNG T 213, where the students in the production emphasis learn how to control these strata. Students who successfully complete this course will be able to:

- a. Explain where and how coal deposits are formed.
- b. Explain structural geology features related to mining and their causes.
- c. Explain the impact of coal depositional and structural geology features on mining conditions.
- d. Review basic strata control theories and applications.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: MNG T 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 204 Mine Plant Technology (3)** Electrical, transportation, ventilation, and other systems required to operate underground coal mine, and to transport and process coal.

### **Mine Plant Technology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: PHYS 150

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 205W Mining Systems Technology (3)** Comparison of mining methods with focus on preventative maintenance, coal transport, and estimating production and manpower needs.

### **MNG T 205W Mining Systems Technology (3)**

Review of the impact of various methods of room & pillar and longwall mining on the mining operation, the systems required to transport coal from the mine, and the needs for preventative maintenance for each. Quantitative methods for evaluating the production capabilities and manpower requirements of each will also be explored.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: MNG T 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 207 Electric Mine Machine Circuits (3)** Application of electric power and safety issues related to the installation and maintenance of circuits and various power control devices.

### **MNG T 207 Electric Mine Machine Circuits (3)**

"Electric Mine Machine Circuits" is a fourth semester course for students in the maintenance emphasis only and provides a basic foundation in the application of electric power and safety issues related to the installation and maintenance of circuits and various power control devices from the transformer to the mine face. MNG T 204 is a prerequisite to ensure students have a basic understanding of mine plant equipment. Students who successfully complete this course will be able to:

- Explain the application of AC and DC power in mining, their effect on motors, and the advantages and disadvantages of each.
- Use electrical equations to determine AC and DC power requirements, voltage, amperage, and power factor.
- Understand and use of electrical cables and battery power in the mining industry, the maintenance requirements of each, and the advantages and disadvantages of each.
- Read electrical wiring schematics and identify symbols. Be able to identify differences between schematic and actual wiring.
- Determine the maintenance and record keeping required for electrical face equipment to maintain permissible condition and regulatory compliance.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: MNG T 204

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 208 Mine Power Distribution (3)** Topics of high voltage circuits, underground transmission, power stations, power conversion, safety regulations and power devices.

### **MNG T 208 Mine Power Distribution (3)**

"Mine Power Distribution" is a fourth semester course for students in the maintenance emphasis only and provides a background into how to distribute and adequately protect the high voltage electricity supply throughout the mining environment to serve the underground transformer for distribution to the variety of electrical systems used. MNG T 204 is a prerequisite to ensure students have a basic understanding of mine plant equipment. Students who successfully complete this course will be able to:

- Explain state and federal safety requirements in relation to high-voltage mine power systems.
- Calculate total power requirements for given section of connected equipment, including recommended sectionalizing equipment and overload settings.
- Demonstrate knowledge of typical mine power distribution systems, identify the key components and how they function.
- Examine the requirements for splicing and terminating high-voltage mine power cables, and effects of improperly made repairs.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: MNG T 204

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 209** Mine Machinery Control Methods (2) Basic principles and applications of solid state, variable frequency, PLC, electro hydraulic and networked controls in mine machinery.

**MNG T 209 Mine Machinery Control Methods (2)**

"Mine Machinery Control Methods" is a third semester course for students in the Maintenance emphasis and provides information on the current methods used to operate and control the various driven functions of speed in rotating mining equipment. The interface between motors and computer controls, including the safety and automated interlocks will be covered. MNG T 030 is a required prerequisite to provide a technical functional understanding of the operation of the equipment being controlled. MATH 082 and PHYS 150 are required prerequisites to ensure that the students can perform the required performance calculations. Students who successfully complete this course will be able to:

- Investigate various types of networked controls, their function and capability, and list the advantages and disadvantages of each.
- Explain the applicable state and federal regulations related to low, medium, and high voltage systems.
- Troubleshoot various types of control circuits to identify faulty wiring, components, or software.
- Demonstrate ability to install software, set operating parameters, default values, and recommend adjustments to optimize system reliability.
- Investigate the ramification of automated systems in the underground environment, both positive and negative.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: PHYS 150MNG T 030MATH 082

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 210** Mine Machine Dynamics (3) Operation and interaction of mechanized equipment used at the coal face including common electrical, hydraulic and mechanical systems.

**Mine Machine Dynamics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: PHYS 150

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 211** Practicum in Mining Technology (3) Field and shop techniques in procedures of electrical, mechanical and ventilation phases of mine maintenance

**MNG T 211 Practicum in Mining Technology (3)**

"Practicum in Mining Technology" is a fourth semester course that provides students with the practical application of modern equipment and techniques used during the installation, relocation, and repair of complex mining equipment and systems as they are applied in the underground environment. MNG T 204 is a prerequisite to ensure students have a basic understanding of mine plant equipment. Students who successfully complete this course will be able to:

- Plan the installation of all equipment required to successfully install a complete continuous miner section.
- Plan the successful relocation of a modern long-wall mining section from a completed panel to a new panel.
- Demonstrate an ability to conduct or supervise the safe repair of low, medium, and high-voltage equipment in compliance with all regulatory requirements.
- Explain and demonstrate how to safely troubleshoot and/or repair high-pressure mine hydraulic systems.
- Discuss and demonstrate the steps required to conduct ox-acetylene and electric arc-welding repair of equipment in compliance with regulatory requirements.
- Practice the application and safe operation of manual lifting aides and devices used to facilitate the repair of large mining components.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: MNG T 204

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 213** Strata Control Methods (3) Introduce pillar-design parameters, roof control planning, roof bolting, standing supports, rib stability, floor condition problems, and longwall strata control.

**MNG T 213 Strata Control Methods (3)**

Strata Control Methods is designed to introduce pillar-design parameters, roof control planning, roof bolting, standing supports, rib stability, floor condition problems, and longwall strata control in the Mining Environment.

Pillar-design parameters, take into account the structural geology features related to mining. The impact of Geologic Data being extremely useful in assessing mining conditions and aiding in indicating necessary control measures to be taken with increased width, destructive stresses resulting in failure may be produced in the mine roof, bottom, and pillars causing serious limitations on pillar width. The effects of pillar design by incorporating Pillar Collapse through Failure Characteristics, Failure Mechanisms, and Failure Prevention, and the impact that may be contributed to Coal Bumps and Gas Outbursts. A review of the basic strata control theories and applications which incorporates Environmental Impacts of both Subsidence and Reclamation.

Roof Control Planning reviews the strata control theories and applications by introducing the inter-related system of the mines roof, ribs and floor. The introduction of roof control theory and fundamentals with emphasis placed on ground control being a three part process of proper sizing of openings, proper sizing of pillars and selection of proper artificial supports. Also, within the element of roof control planning, MSHA requirements are introduced and incorporated.

Roof Bolting and Standing Supports are brought to the forefront while maintaining an understanding of the three mechanisms of roof bolting which are: Beam Building, Suspension and Keying. Depending on conditions and applications, bolting may range from resin-anchored combination bolts, tensioned rebar, mechanically-anchored resin-assisted systems, cable bolts, and other specialty supplemental supports. The applications of standing supports are discussed in roof support planning as they are used either as remedial measures or throughout gate roads where bolting systems must be coupled with roof-to-floor supports.

Rib Stability and Floor Condition Problems are addressed through rib stabilization methods and proper support installation along with floor condition problems, prevention and control. With the sources of Roof/Rib Hazards in Underground coal mines being associated with the two broad categories being Natural and Mining Related, Geologic hazards and high stresses associated with deep cover are addressed allowing for appropriate action to be identified and proper supports to be utilized.

Longwall Strata Control theories and methods are discussed as they require special precautions to be taken in response to the elevated stress levels encountered. This is done through properly designed gate entry chain pillars to achieve roof/floor stability and mitigate bumps. Also, included are shields as roof support mechanisms and guarding installation on longwall equipment.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: GEOSC 020

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 214 Mining Management I (3)** Leadership skill development for supervisors, managing change, tools to plan, organize, control, communicate and monitor effectively.

### **MNG T 214 Mining Management I (3)**

"Mine Management I" will provide students with the introductory skills for individual, group and one-on-one leadership skills to keep up with evolving management roles and responsibilities. This course will explore how supervisors can maintain technical expertise while demonstrating effective leadership. This process includes the tools supervisors use to plan, organize, control communicate and monitor effectively. This course serves as a prerequisite to MNG T 215. Students who successfully complete this course will be able to:

- a. Succeed in a rapidly changing environment
- b. Plan, organize, communicate and monitor
- c. Apply the most appropriate supervisory style to individuals and situations
- d. Apply appropriate motivational techniques
- e. Use delegation for effective employee performance and development, time management and motivation
- f. Create an action plan
- g. Develop interpersonal skills that help communicate, listen, and handle conflicts
- h. Analyze their own behavior style and recognize strengths and weaknesses
- i. Given a labor situation, describe a plan of action toward resolution
- j. Identify the characteristics of A & B personalities and explain how they might be managed differently
- k. Explain a given organizational chart and the focus and function at different management levels
- l. Given an emergency situation at a mining operation, recommend a hypothetical course of action to avoid loss of life and personal injury, and minimize impact on production capability and reserves

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 215 Mining Management II (3)** Financial management, effective meeting management, critical thinking, project

management and cost and risk control.

### **MNG T 215 Mining Management II (3)**

"Mine Management II" is a follow-up to Mine Management I (Mining Technology 214) for students in production emphasis only. The primary goals of the course are to further explore and develop management skills to be an effective leader in an ever-changing industry. This process includes financial management, effective meeting management, critical thinking, project management and cost and risk control. Students who successfully complete this course will be able to:

- a. Get a firm grasp of the financial side of the job.
- b. Understand the business dynamics of dollars and cents.
- c. Set and meet goals for your projects.
- d. Understand the principles of process management.
- e. Apply process management to process issues and customer satisfaction.
- f. Reduce the need for crisis supplies.
- g. Identify the actions/approaches you can take to avoid or mitigate risk.
- h. Build the trust and rapport necessary for effective coaching.
- i. Effectively conduct meetings.
- j. Interpret typical income and expense balance sheets.
- k. Produce preliminary cost estimate (+/- 10%) for given application.
- l. Demonstrate appropriate oral and written communication skills.
- m. Prepare hypothetical request for capital improvements required to maintain or improve productivity, complete with financial justification.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: MNG T 214

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MNG T 216 Mine Regulations and Laws (3)** State and federal mining regulations and application to underground coal mines. Relationship with company policies and consequences of non-compliance.

### **MNG T 216 "Mine Regulations and Laws" (3)**

"Mine Regulations and Laws" is a fourth semester course that builds on the knowledge gained in the prerequisite, MNG T 110, by providing more advanced study into state and federal regulations and company policies regarding equipment and electrical inspection, personnel safety and egress, and measurement of related environmental conditions within the mine. This class includes discussions on the interaction of state and federal regulation and the conflicts created by applying each. The consequences of non-compliance are also discussed. Students who successfully complete this course will be able to:

- a. This course is designed to familiarize the student with the applicable underground coal mining regulations and how they are interpreted and enforced.
- b. For a specified situation, find and interpret appropriate sections of PA Bituminous Coal Mining Act.
- c. Develop and evaluate alternative solutions to a proposed regulatory issue.
- d. Conduct a discussion with a mining inspector, in regards to a violation and potential monetary penalty.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: MNG T 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Music (MUSIC)**

**MUSIC 004 (GA)** Film Music (3) An introductory examination of music's role in Hollywood narrative film from the classic era (1930s and 1940s) to the present.

### **MUSIC 004 Film Music (3) (GA)**

The course examines the role of music in narrative film, the premier art form of the twentieth century. The popularity, significance, and value of film art would not be what it is today if music had not become an integral--indeed, indispensable--part of motion pictures from the outset.

Preliminary objectives will include basic musical information (the fundamental elements of music; the broad stylistic eras of western music and their associated characteristics; the culturally encoded language of tonal music and associated musical meaning) and the main techniques of narrative film. The main objectives of the course are: to identify and recognize the principles of nondiegetic music in narrative film; to identify and recognize the purpose and functions of

music in narrative film; to recognize some of the historic eras/genres/trends in Hollywood film making; to identify and recognize selected films, directors and composers; to analyze and articulate the role of music in a given scene and in a given film; and to recognize underlying assumptions and values of the culture conveyed through the diegesis.

These objectives will be met by addressing such questions as: What are the underlying principles of music in film? What are the functions of music/sound within a particular scene and how does it achieve those functions? What do we see of what we hear, and what do we hear of what we see--and why? What secrets does music tell? To what extent does music influence--even control--our interpretation of a film? More broadly, to what extent do films reflect our culture, past and present--our interests, our values?

Evaluation methods will include quizzes, exams, discussion boards, and a final paper. The course will be available for GA credit. It will not satisfy any requirements for the major or minor in music. The films and film excerpts will be made available to the students online.

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 005 (GA)** An Introduction to Western Music (3) A general survey of art music in western society, highlighting important composers and stylistic developments.

**MUSIC 005 An Introduction to Western Music (3)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

MUSIC 005 is a course on listening, with emphasis on the relationship between musical style and historical context. The course begins with an introduction to the elements of music. The goal of this section is to give all students, whether they have previous experience as performers, the basic skills necessary to approach any musical work as intelligent listeners. This activity takes four weeks. The remaining portion of the course is spent surveying the history of Western art music, with that history treated as a series of case studies: particular works are considered stylistically with regard to the historical circumstances of their production and consumption. From this activity students gain experience considering artworks in discipline-specific terms, even as they learn to relate particular artistic features to nonmusical factors of culture and society. Three methods of evaluation are used. Four examinations test the students' mastery of the course material. Four concert reports give students the opportunity to apply that knowledge to the act of listening in an authentic performance setting. An analytical paper presents a more detailed challenge, asking students to evaluate a relatively complicated work (such as a Mozart symphony), which they come to know intimately through repeated listening, using the basic technical tools of a music theorist. This requirement also includes a historical-research component. The course requires a technology classroom (typically it is taught in the Forum). It is offered fall and spring semesters, with an enrollment of 300 each semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 005S (GA)** An Introduction to Western Music (3) A general survey of art music in western society, highlighting important composers and stylistic developments.

**An Introduction to Western Music (3)**

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 007 (GA;US)** Evolution of Jazz (3) Study of the origins and development of jazz as an art form.

**MUSIC 007 Evolution of Jazz (3)  
(GA;US)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Evolution of Jazz is a course designed to examine the historical and sociological of the American art form - jazz. This general education course is for non-majors. The material covered in this course begins with the precursors to jazz



emphasizes the African musical traditions and white American (initially European) influences that have shaped jazz as an American art form. This is followed by period studies of the various jazz styles: New Orleans Dixie, Chicago Style Dixieland, Swing, Be-Bop, Cool, Hard Bop, Free Jazz, Fusion Jazz, Neo Bop, Latin Jazz, and New Age. The various jazz styles are examined from musical, sociological and economical perspectives. The major innovators and performers are identified and studied. As new styles are presented, a careful comparison to the previous style is done to help with classification. The primary objectives of the course are to create a greater appreciation for jazz music by providing knowledge about the intercultural development of jazz in America, by developing critical listening skills, and exposing students to the music representing various eras and performers of this music. A major component of the course is listening. Early in the course listening skills are taught. Students learn how to recognize certain instruments, hear the various sections within a group, and identify forms. Several written reviews of recorded and live jazz performances are required. Listening is also a part of each examination. This course is offered each fall, spring, and summer (one section each session) with an average enrollment of 40 each session.

General Education: GA  
Diversity: US  
Bachelor of Arts: Arts  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 008 (GA)** Rudiments of Music (3) Introduction to the elements of music: notation, scales, meter, rhythm, intervals; basic chord structure.

**MUSIC 008 Rudiments of Music (3)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Learning the rudiments of music can be compared to the learning of a language. Students must learn to hear melodic, harmonic, and rhythmic patterns (audiation) before they sing, play or write in notation. In this introductory class, students are introduced to melodic, harmonic and rhythmic patterns by imitating the instructor who establishes these patterns at the piano, or by singing or as in the case of rhythm by striking a drum head. Eventually students will take turns "tossing" these patterns to teach other. Basic skills of improvisation can also be taught at this level of audiation by having students expand upon the basic patterns.

As a result of these creative and aesthetic experiences, students will be able to translate the audiation of patterns into musical notation - moving from the smallest unit of a rhythmic motive towards the creation of a coherent rhythmic phrase. Similarly, at the melodic level, the student will begin with intervallic patterns and move towards the creation of a coherent melodic phrase. Intervals are then combined vertically to form harmonies. At the next stage of learning, students will learn to identify and to write that which they are hearing in dictation.

This course in "musical literacy" enables students:

- (1) to deepen their appreciation of music
- (2) to begin studying a musical instrument and
- (3) to enter the rigorous study of music theory required of music majors

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 009 (GA;IL)** Introduction to World Musics (3) An overview of the music of India, China, Japan, Indonesia, Africa, and the Middle East.

**MUSIC 009 Introduction to World Musics (3)**  
**(GA;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

MUSIC 009 is a course that explores world cultures through their music. The course begins with an overview of ways to examine world music as a cultural phenomenon. The goal of this section is to help students move beyond their preconceived understanding of music in order to open their minds and ears to a wide variety of music through a selection of case studies, including, but not limited to, the music of the Celtic nations, the African continent, West Asia (the Middle East), India, Indonesia, Japan, and the Native American culture groups. The music of these cultures is explored both as a product and reflection of culture and as an aesthetic art form. Through this approach students not only develop a basic fluency in the characteristics of selected world musics, but also gain a broader understanding of the general classifications and geographical divisions of world music and the ways in which music relates to and is a part of all world cultures. Two primary methods of evaluation are used. Four examinations test the students' understanding of the material. Two assigned reaction/research papers provide students with the opportunity to explore particular types of music in greater depth, examining both the music itself and the social context in which it is found. These papers require students a) to think actively about contemporary musical developments around the world, including how they are affected by current socio-political events and cultural trends; and b) to utilize resources available in the university library as a way

of exploring these developments. World musics are best understood when students engage in the music and in discussions of the music and culture; thus there is also a class participation/discussion component for the purposes of evaluation. The course requires a technology classroom equipped with a sound system, television/VCR, and piano.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 011 (GA)** Under the Hood: How Classical Music Works (3) An introductory examination of classical music, drawing together aspects of theory and repertoire to understand how the music works.

**Under the Hood: How Classical Music Works (3)**

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 040S** First-Year Seminar in Music Education (1) Introduction to the University, the School of Music, the music education degree program, and the music teaching profession.

**MUSIC 040S First-Year Seminar in Music Education (1)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course is offered to music majors during their first semester who are intending to apply to the Teacher Certification Degree Program in Music Education. It provides prospective music teachers with an opportunity to:

- learn about aspects of and opportunities available at the University in general.
- learn about aspects of and opportunities available specifically at the PSU School of Music.
- learn about the PSU music education curriculum and program.
- gain a general understanding of the music teaching profession.
- begin and develop a professional relationship with his/her advisor.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 050 (GA)** Beginning Piano: Non-Music Major (1) Introduction to the keyboard, notation, chord progressions, transposition, improvisation, and simple accompanying techniques for the non-music major. An additional fee is required for this course.

**MUSIC 050 Beginning Piano: Non-Music Major (1)**  
**(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

MUSIC 050 is a course designed to provide the beginning non-music major student with strategies for developing some of the basic skills required for playing the piano. No knowledge of music or piano is assumed and there are no prerequisites for the course. The course emphasizes strategies for learning to read and interpret musical notation from two clefs and musically realize the notation in real time with a healthy physical approach to the keyboard. Practice of these strategies outside the class is expected and checked. Objectives include learning to accurately sight-play a single voice divided between the hands with some extensions and shifts beyond a five-finger position. Special facilities required to teach the course include a 17-keyboard Midi piano lab with visual displays for teacher demonstrations. The course is offered every semester, including summers, often with multiple sections.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 051** (GA) Intermediate Class Piano: Non-Music Major (1) Instruction in harmonizing melodies, accompanying techniques, improvisation, and repertoire.

**MUSIC 051 Intermediate Class Piano: Non-Music Major (1)**  
(GA)

**(BA) This course meets the Bachelor of Arts degree requirements.**

MUSIC 051 is course designed to provide the intermediate non-music major student with strategies for developing some of the advanced skills required for playing the piano. Some knowledge of music or piano is assumed and MUSIC 050 or a placement audition is a prerequisite for this course. The course emphasizes strategies for learning to read and interpret musical notation from two clefs and musically realize the notation in real time with a healthy physical approach to the keyboard. Practice of these strategies outside the class is expected and checked. Objectives include learning to accurately sight-play a multiple voice musical texture with many extensions and shifts beyond a five-finger position. Special facilities required to teach the course include a 17-keyboard midi piano lab with visual displays for teacher demonstrations. The course is offered every semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: MUSIC 050 or placement audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 052** (GA) Voice CLass: Non-Music Major (1) Group study emphasizing development of rudimentary skills and their recreational use in a range of popular and art music.

**MUSIC 052 Voice Class: Non-Music Major (1)**  
(GA)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to present and apply basic principles of singing. Students learn songs, and address topics such as posture, breathing, tone production, expressiveness, and vocal health. Objectives are proficiency of breath management, a resonant vocal timbre, and effective communication in song. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible writing or listening assignments, and possible written quizzes. The course is offered every spring semester. The maximum enrollment is fifteen.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 053** (GA) Class Voice Practicum (1) Voice study in group and individual formats, supervised by in-class lessons and discussions, enhanced by additional individual instruction with pedagogy students.

**MUSIC 053 Class Voice Practicum (1)**  
(GA)

**(BA) This course meets the Bachelor of Arts degree requirements.**

MUSIC 053 is a voice class experience that affords the pupil instruction in a class setting and in individual lessons. The weekly class meetings feature either demonstration lessons with his or her teacher (from the voice pedagogy curriculum). These lessons give the instructor the opportunity to monitor the progress of the pupils, supervise and evaluate the teaching of the pedagogy students, and make suggestions for further growth. Pupils and pedagogy students also have the opportunity to learn by observing the demonstration lessons of others in the class. Lesson evaluation forms are completed and turned in at the end of each meeting. Class concerts typically occur at mid-term and at the end of the semester. These performances give the pupils the opportunity to display their vocal and musical progress. The individual lessons that pupils receive out-of-class give them an occasion for concentrated work in a more relaxed atmosphere. It may be of interest that this is the only course offering individual voice instruction in the School of Music that does not carry an additional applied music fee. In addition to the vocal and musical advancement for pupils in MUSIC 053, this course also serves as a progressive training ground in teaching for advanced voice students. They gain important teaching experience in a closely supervised forum.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**MUSIC 054 (GA)** Beginning Class Guitar: Non-Music Major (1) Class instruction in guitar for non-music majors.

**MUSIC 054 Beginning Class Guitar: Non-Music Major (1)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course provides opportunity to explore the structure of various styles of folk music while developing basic skills for playing guitar and reading guitar tablature. Meter, tonality, harmonic progressions, texture, and form as well as stylistic features of various strumming techniques comprise the core knowledge that is developed through the process of playing guitar. The course assumes no previous formal study of music. Assessments are performance-based with students demonstrating knowledge and skill acquired through individual "playing tests" scheduled throughout the semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 076** Chamber Orchestra (1 per semester, maximum of 8) Chamber orchestra rehearsal and performance.

**Chamber Orchestra (1 per semester, maximum of 8)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2001  
Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 077 (GA)** Philharmonic Orchestra (1 per semester/maximum of 8) Orchestra rehearsal and performance.

**MUSIC 077 Philharmonic Orchestra (1 per semester/maximum of 8)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The goals of this course are to develop the instrumental performing skills, music reading abilities, and interpretive capabilities of the class members within a large symphonic orchestra context. The repertoire includes the standard literature from the 19th and 20th centuries as well as new music written for symphony orchestra. Students will be assessed by the use of performance evaluation and assessment of participation and contribution to established goals of the ensemble. The course is for students who have advanced performance skills on standard orchestral string, wind, and percussion instruments. An audition is required.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 078 (GA)** Symphonic Wind Ensemble (1 per semester/maximum of 8) Rehearsal and performance of wind repertoire and concert band literature.

**MUSIC 078 Symphonic Wind Ensemble (1 per semester/maximum of 8)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The goals of this course are to develop the instrumental performance skills, music reading abilities, and interpretive capabilities of the class members within a wind ensemble (one player per part) concert band setting. The repertoire includes original concert band literature, transcriptions, and concert marches. The available literature covers a range of historical time periods from pre-Baroque to the present. Students are assessed by the use of performance evaluations and assessment of participation and contribution to established goals of the ensemble. The course is designed for those students who have advanced performance skills on standard wind and percussion instruments. An audition is required.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004

Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 079** Pep Band (1 per semester/maximum of 4) A band to perform at selected athletic events.

**Pep Band (1 per semester/maximum of 4)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2001

Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 080** (GA) Symphonic Band (1 per semester/maximum of 8) Rehearsal and performance of symphonic band literature. A select group using standard instrumentation.

**MUSIC 080 Symphonic Band (1 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to develop the instrumental performance skills, music reading abilities, and interpretive capabilities of the class members within an advanced large (multiple players per part) concert band setting. The repertoire includes original concert band literature, transcriptions, and concert marches. The available literature covers a range of historical time periods from pre-Baroque to the present. Students are assessed by the use of performance evaluations and assessment of participation and contribution to established goals of the ensemble. The course is designed for those students who have advanced performance skills on standard wind and percussion instruments. An audition is required.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2004

Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 081** (GA) Marching Blue Band (1 per semester/maximum of 4) Rehearsal and performance of appropriate music and maneuvers for football games and related events.

**MUSIC 081 Marching Blue Band (1 per semester/maximum of 4)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course develops the instrumental performance skills and marching skills of class members within the marching band setting. Objectives are to combine high level musical and visual performance with uniform marching style to create interesting and entertaining maneuvers suitable for parades, football games, and other athletic/outdoor venues. This course is open to students in all majors. Evaluation is based upon participation, achievement of individual music and marching performance requirements, and contribution to group performance goals. An audition is required for participation. Class meetings occur in an outdoor setting and require a facility with a fully lined football field. This course is offered every fall semester with an enrollment of 275.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2004

Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 082** (GA) Concert Band (1 per semester/maximum of 8) Rehearsal and performance of concert band literature.

**MUSIC 082 Concert Band (1 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of the course are to develop the instrumental performance skills, music reading abilities, and interpretive capabilities of the class members within a moderately advanced large concert band setting. The repertoire includes original concert band literature, transcriptions, and concert marches. The available literature covers a range of historical time periods from pre-Baroque to the present. Students are assessed by the use of performance evaluations and assessment of participation and contribution to established goals of the ensemble. The course is designed for those

students who have moderate performance skills on standard wind and percussion instruments. An audition is required.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: audition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 083 (GA) Campus Band (1 per semester/maximum of 8)** Rehearsal and performance of concert band literature.

**MUSIC 083 Campus Band (1 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to develop skills in the performance of instrumental music. The class will enhance sight-reading skills, sensitivity to tone and ensemble blending, and rhythmic articulation. The repertoire of the ensembles includes the standard literature from the 19th and 20th centuries written for both marching band and concert band. Students are given seating assignments throughout each section of the ensemble according to their ability and experience. Students will be assessed by periodic performance evaluations. The course is designed for students who have had only modest experience in instrumental music but who have had previous instruction in their instruments. No audition is necessary, although basic music literacy is required.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2002  
Prerequisite: audition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 084 (GA) Jazz Ensemble (1 per semester/maximum of 8)** Survey and performance of historic and contemporary big band styles.

**MUSIC 084 Jazz Ensemble (1 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

MUSIC 084, Jazz Ensemble, includes three sections - Centre Dimensions (001), Inner Dimensions (002), and Outer Dimension (003). These are performance groups of 1619 members each. Admission to the groups is by audition. Students are placed by ability level.

The course consists of the study and performance of big band jazz from the mid 1920s to the present. Important composers of the idiom are routinely represented as well as newer contributors. There is a focus on ensemble group sound as well as individual solo improvisation.

Part of the learning process includes working on the fundamentals of jazz playing, rhythm, articulation, and harmony. Each learning segment, or unit, is concluded with public performance of the music studied and learned.

Section one, Centre Dimensions, represents the School of Music at collegiate jazz festivals as an advanced enhancement of the learning experience.

Members are expected to learn their individual parts, attend sections and rehearsals, and participate in the performances. These courses are offered each fall and spring semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: audition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 086 (GA) Percussion Ensemble (1 per semester/maximum of 8)** Study and performance of percussion chamber music in various instrumental combinations, focusing on the classical and contemporary repertoire.

**MUSIC 086 Percussion Ensemble (1 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Percussion Ensemble involves the rehearsal and performance of works for various combinations of percussion instruments in a chamber music setting. It also involves the group study of the various percussion instruments and techniques as

described by or demonstrated by the conductor of the ensemble (percussion faculty member). The objectives of the course are to teach the art of ensemble performing (i.e., performing music well in a collaborative sense rather than just individually), to augment the understanding of the role of percussion within the discipline of music, and to foster the skills of organization and cooperation through rehearsal and performance of music requiring (generally) three to twelve players. Due to the nature of this type of musical organization and given the wide variety and large number of instruments which may be involved at any given time, there is also an inherent study of logistics involved when setting up or moving the instruments from one venue to another. Students performing in Percussion Ensemble are generally also involved in performing in other larger heterogeneous instrumental performing groups such as the bands and orchestras. Skills learned in the Percussion Ensemble setting directly affect the ability of these students to contribute a highly developed sense of musical unity in the larger performing groups. They also learn specific skills which are necessary for successful entry and acceptance into professional music performance circles. The course is offered each semester and the enrollment is generally between eight and fifteen performers.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 087 Mallet Ensemble (1)** Study and performance of music for keyboard percussion instruments.

**Mallet Ensemble (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2001  
Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 088 (GA)** Campus Choir (1 per semester/maximum of 8) Building skills needed for successful choral singing including vocal production, sight singing, ear training, and music fundamentals.

**MUSIC 088 Campus Choir (1)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The goals of this course are to develop the vocal skills and sight-reading abilities of the class members within a choral context. The choral repertoire will include standard vocal and choral selections. Students will be assessed by the use of periodic quizzes and vocal performance examinations. The course is designed for those students who have an interest in choral singing but who have limited background. There is no audition necessary.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 089 (GA)** University Choir (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of 100-150 voices.

**MUSIC 089 University Choir (1 per semester/maximum of 8)  
(GA)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The University Choir is the largest mixed-voiced ensemble on the University Park campus. The choir participates in two campus performances per semester and has toured Europe, Canada, and the eastern region of the United States. Membership is determined by audition and is open to both undergraduate and graduate students. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

General Education: GA  
Diversity: None

Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: audition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 090 (GA)** Glee Club (1 per semester/maximum of 8) Rehearsal and performance of music composed for male voices from the sixteenth to the twentieth centuries, including sacred and secular compositions.

**MUSIC 090 Glee Club (1 per semester/maximum of 8)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Penn State Glee Club is a large auditioned ensemble of 60-75 male voices music from the Renaissance through the twentieth-century, as well as traditional folksongs, spirituals, and choruses from opera and musical theatre. Penn State Glee Club performs twice per semester including the annual Homecoming Concert and the Blue and White concert. The ensemble tours yearly and has performed throughout Pennsylvania, the eastern United States and Europe. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: audition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 091 (GA)** Oriana Singers (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire for treble voices from the sixteenth to twentieth centuries, including sacred and secular compositions.

**MUSIC 091 Oriana Singers (1.0 per semester/maximum of 8)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Oriana Singers was founded in 1994 to serve the musical needs of highly talented undergraduate and graduate women. The 65-voice ensemble performs repertoire representing every musical period, genre and style in its two campus concerts per semester. The choir has been invited to perform at prestigious regional and national music conferences and has participated in tours within the state of Pennsylvania. Membership is determined by audition. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: audition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 092 (GA)** Chamber Music for Voices (1 per semester/maximum of 8) Select groups of singers performing choral chamber music.

**MUSIC 092 Chamber Music for Voices (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Chamber Music for Voices is a course which includes four small auditioned chamber choirs comprising of members of four large ensembles. The repertoire of these 9-16 member ensembles is selected from a wide range of choral literature. Membership in Section 1 is open to Oriana Singers members; Section 2 is open to Glee Club members; Section 3 is open to University Choir members; and Section 4 is open to Women's Chorale members. The goal of the ensembles is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, discovery of new means of



artistic expression, and the specific skills necessary to sing in a small ensemble with only two or three singers per voice part. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 093 (GA;US;IL)** Essence of Joy (1 per semester, maximum of 8) Rehearsal and performance of choral repertoire from the African/American tradition.

**MUSIC 093 Essence of Joy (3)**  
**(GA;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Essence of Joy is a highly selective mixed choral ensemble that specializes in repertoire written by African-Americans. The repertoire of the 45-voiced ensemble includes all art, folk, and sacred genres within this large field of study. Essence of Joy has performed at numerous prestigious national and regional meetings of music educators and choral conductors. In addition, the choir tours extensively and has presented performances throughout Pennsylvania, the eastern region, the southern region, and eastern Europe. Membership is open to undergraduate and graduate students. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances of African-American choral music. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Spring 2006  
Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 094 (GA)** Women's Chorale (1 per semester, maximum of 8) Rehearsal and performance of treble choral literature.

**MUSIC 094 Women's Chorale (1.0 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Women's Chorale is the largest treble ensemble on the University Park campus. Membership is determined by audition and is open to both undergraduate and graduate students. The choir participates in two campus performances per semester. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessment (both written and aural) and attendance at rehearsals and performances.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 100 (GA)** Campus Orchestra (1 per semester/maximum of 10) Rehearsal and performance orchestral literature.

**MUSIC 100 Campus Orchestra (1-10)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to develop the instrumental performing skills, music reading abilities, and interpretive capabilities of the class members within a large symphonic orchestra context. The repertoire includes the standard

literature from the 18th through 21st centuries as well as new music written for symphony orchestra. Students will be assessed by the use of performance evaluation and assessment of participation and contribution to established goals of the ensemble. The course is for students who have performance skills on standard orchestral string, wind, and percussion instruments. An audition is required.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2012  
Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 101** Music Common Hour (1) Student and faculty recitals, master classes, lectures by faculty and guests, and Common Hour attendance.

**Music Common Hour (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1985

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 103** (GA) Concert Choir (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of approximately sixty voices.

**MUSIC 103 Concert Choir (1 per semester/maximum of 8)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Concert Choir is the premier mixed choir at the University. The repertoire of the 14-voiced ensemble is selected from a wide range of choral literature from medieval commissioned twenty-first century choral works. The choir has performed numerous major works with orchestra and tours yearly. Recent tours have included performances in New Orleans, LA and Toronto, Canada. The choir has performed at prestigious regional and national music conferences. Membership is open to undergraduate and graduate students. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 104** (GA) Chamber Singers (1 per semester/maximum of 8) Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of approximately twenty-four voices.

**MUSIC 104 Chamber Singers (1 per semester/maximum of 8)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Chamber Singers is a premier chamber choir at the University. The repertoire of the 14-voiced ensemble is selected from a wide range of choral literature from medieval chant to commissioned twenty-first century choral works. Membership is open to undergraduate and graduate students. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: audition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 106 (GA)** Early Music Ensemble (1 per semester/maximum of 8) Ensemble for the performance and study of Baroque or early music on instruments of the era.

**MUSIC 106 Early Music Ensemble (1 per semester/maximum of 8)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Early Music Ensemble will meet for a single two-hour rehearsal each week. Extra rehearsals may be scheduled when circumstances warrant them, i.e., when visiting ensembles come to Penn State. Membership of the ensemble will remain essentially constant from one semester to the next. Vacancies arising when a student leaves or graduates will be filled as needed. It is integral to the ensemble's activities that faculty and students perform along side each other; thereby providing a unique learning opportunity for the students. A constant membership encourages performers' understanding of early music performance practice. The ensemble will give concerts on campus. Off-campus performances may be considered outreach opportunities and as valuable experiences for the students.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: audition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 109 (GA)** The Music of the Beatles (3) This course will consider the music of the Beatles by examining how John Lennon, Paul McCartney, and George Harrison developed as songwriters.

**The Music of the Beatles (3)**

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 110** Keyboard Skills I: Music Major (1) Introduction to the keyboard, chord progressions, transposition, improvisation, and simple accompanying techniques.

**Keyboard Skills I: Music Major (1)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1985

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 112** Guitar Techniques I (0.5) Performance and teaching techniques for guitar.

**MUSIC 112 Guitar Techniques I (.5)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

MUSIC 112 is offered for students who are tracking acceptance into the Teacher Education Degree Program in Music. The focus of the course is learning to play the guitar in order to accompany and learning techniques on how to teach the guitar in classroom settings. Topics include: beginning level guitar pedagogy, instrument care and maintenance, classroom structure and materials. The instructional format includes: performance, lecture, large and small group discussion, readings, and musical and teaching examples. Students complete several practical assignments, and present summations of small group discussions. Two practice performances and a final playing and written exam are given.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**MUSIC 113** Music Theatre--Class Voice I (1) Group study emphasizing development of sound vocal and musicianship skills fundamental for music theatre.

**Music Theatre--Class Voice I (1)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2001

Prerequisite: admission into the School of Theatre with intent to major in Music Theatre

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 114** Music Theatre--Class Voice II (1) Group study emphasizing development of sound vocal and musicianship skills fundamental for music theatre.

**Music Theatre--Class Voice II (1)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2001

Prerequisite: MUSIC 113

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 115** Beginning Voice Class (1) Class voice emphasizing the fundamentals of healthy singing technique. For Music Majors only.

**MUSIC 115 Beginning Voice Class (1)**

Intended for instrumental music education majors. Introduces instrumental music education majors to the basic skills of singing in preparation for MUSIC 116. Focus will be on intonation, tone production, breathing and posture, as well as rudimentary presentation and interpretation skills. Enrollment dependant upon the results of the voice proficiency exam and the recommendation of the music education and voice area faculties. Strongly suggested for the first semester of the music education degree.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 116** Intermediate Voice Class (1 per semester/maximum of 4) Class voice, emphasizing pedagogical experiences and techniques for public school music classrooms. For Music Majors only.

**Intermediate Voice Class (1 per semester/maximum of 4)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 119S** First-Year Music Seminar (2) Individual applied instruction and group activities; orientation, area recitals, and studio classes as required by instructor.

**First-Year Music Seminar (2)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 1999

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 121** Basic Musicianship I (1) Elementary sight singing and dictation.

**Basic Musicianship I (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1989  
Prerequisite: ability to reproduce simple rhythm and tonal patterns  
Concurrent: MUSIC 131

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 122** Basic Musicianship II (1) Continuation of Music 121.

**Basic Musicianship II (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1989  
Prerequisite: MUSIC 121  
Concurrent: MUSIC 132

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 129S** First-Year Performance Seminar (3) Individual applied instruction and group activities; orientation, area recitals, and studio classes as required by instructor.

**First-Year Performance Seminar (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1999  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 131** Music Theory I (2) Review of rudiments; introduction to the fundamental linear and vertical features of tonal music, integration of written and aural skills.

**Music Theory I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1989  
Prerequisite: ability to read musical notation; knowledge of musical rudiments.  
Concurrent: MUSIC 121

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 132** Music Theory II (2) Continuation of Music 131.

**Music Theory II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1989  
Prerequisite: MUSIC 131  
Concurrent: MUSIC 122

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 151** Brass Techniques I (1) Introduction to basic performance techniques on brass instruments; teaching strategies and materials for use in a heterogeneous instrument setting.

**MUSIC 151 Brass Techniques I (1)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Introduction to basic brass instrument performance techniques taught in a heterogeneous (mixed group of brass instruments) class setting. The course will provide students with basic introduction to embouchure formation, tone production, and executive skills on two brass instruments. Instructor and student modeled teaching strategies and methods for use in elementary school mixed instrument classes will be demonstrated. Published heterogeneous method books will be investigated and procedures for applying research-based tonal and rhythmic development activities to

beginning instrumental instruction will be applied.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 152 Percussion Techniques I (1)** Introduction to basic performance techniques on percussion instruments; teaching strategies and materials for use in a heterogeneous instrument setting.

**MUSIC 152 Percussion Techniques I (1)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Introduction to basic percussion instrument performance techniques. The course will provide students with a basic introduction to playing techniques for a variety of percussion instruments. Instructor and student modeled teaching strategies and methods for use in elementary and secondary school mixed instrument classes will be demonstrated. Published method books will be investigated.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 153 String Techniques I (1)** Performance techniques on stringed instruments for music education majors.

**MUSIC 153 String Techniques I (1)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is required for students working toward entrance to the Bachelor of Music Education degree program. The purpose of the course is to allow students to develop proper performance techniques on two of the four orchestral bowed stringed instruments (violin, viola, cello, and double bass) at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based on students' musical achievement on the instruments. There will be two performance assessments (one midterm and one final) for each instrument during the course. Required repertoire lists and evaluation tools will be provided prior to all assessments. Students must receive a passing grade for both instruments in order to receive an overall passing grade for the course.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 154 Woodwind Techniques I (1)** Performance and teaching techniques for woodwind instruments.

**MUSIC 154 Woodwind Techniques I (1)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed for students pursuing a degree in music education. Principles of teaching public school students to begin to play woodwind instruments will be covered and applied to the five woodwind instruments. Students will have the opportunity to perform on each instrument, and teach their peers using the principles of woodwind pedagogy and instrument-specific techniques. This course is part of a block of courses covering all band and orchestra instruments traditionally offered in public school music programs. Students can elect to take more courses with more in-depth instruction on each instrument in order to further prepare them to teach the instruments in the public schools. Students will be advised to take such courses if their career goals include teaching band and/or orchestra in the public schools.

Students will observe teaching techniques for teaching instrument-specific pedagogy through being students themselves. They will keep a journal of observed teaching techniques and instrument resources for future reference as a teacher. They will perform playing tests on their instrument to demonstrate proficiency on the instrument, and engage in peer-teaching activities to demonstrate understanding of pedagogical techniques.

Music education majors will take this course as part of a sequence of music education courses. This course is offered as one of the early music education courses, and serves as a model and introduction for the pedagogical techniques and concepts the students will master in future courses.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 162** (IL) Introduction to Music History (2) An introduction to Western music history and world music of selected cultures through the study of representative works.

**MUSIC 162 Introduction to Music History (2)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an introduction to music history and world music. The course has four objectives: 1. to provide an overview of the different types of music that have prevailed in the West during the past 1500 years; 2. to introduce music from other parts of the world; 3. to examine the many ways that music has functioned in society; 4. to "stretch the students' ears" through exposure to a wide range of technical musical materials. The course serves as the first in a sequence of three music history courses taken by all music majors. Evaluation methods include written tests, listening tests, and class participation.

General Education: None  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2006

Concurrent: MUSIC 132

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 170** Keyboard Skills II: Music Major (1) Instruction in secondary chord progressions, transposition, improvisation, accompanying techniques, simple score reading.

**Keyboard Skills II: Music Major (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1985  
Prerequisite: MUSIC 050MUSIC 110 or placement audition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 173S** First-Year Composition Seminar (2) Individual composition instruction for freshman composition majors (Fall semester) and group activities.

**First-Year Composition Seminar (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1999  
Prerequisite: admission to the BM degree in Composition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 174J** Composition II (2) Composition instruction for first-year composition majors.

**Composition II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 181** Jazz Improvisation I (2) A study of the fundamentals of jazz theory, harmonic functions, and their applications to jazz improvisation.

**Jazz Improvisation I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1991  
Prerequisite: MUSIC 132

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 182 Jazz Improvisation II (2)** A study of advanced harmonic concepts and their application to jazz improvisation.

**Jazz Improvisation II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1986  
Prerequisite: MUSIC 181

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 190 (GA) Chamber Music for Strings (1 per semester/maximum of 8)** Preparation for performance of advanced chamber music literature involving primarily string instruments--string quartets, piano trios, clarinet quintets.

**MUSIC 190 Chamber Music for Strings (1 per semester/maximum of 8)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Chamber Music for Strings meets at least two hours per week - once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 191 (GA) Chamber Music for Woodwinds (1 per semester/maximum of 8)** Preparation for performance of advanced chamber music literature involving primarily woodwind instruments--woodwind quintets and quartets.

**MUSIC 191 Chamber Music for Woodwinds (1 per semester/maximum of 8)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Chamber Music for Woodwinds meets at least two hours per week - once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 192 (GA) Chamber Music for Brass (1 per semester/maximum of 8)** Preparation for performance of advanced chamber music literature involving primarily brass instruments--brass quartets and quintets.



**MUSIC 192 Chamber Music for Brass (1 per semester/maximum of 8)  
(GA)****(BA) This course meets the Bachelor of Arts degree requirements.**

Chamber Music for Brass meets at least two hours per week - once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 193 Sonata Duos (1 per semester/maximum of 8)** Preparation for performance of advanced sonata literature for various individual instruments with keyboard.

**Sonata Duos (1 per semester/maximum of 8)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1983

Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 194 Studio and Recital Accompanying (1 per semester/maximum of 8)** Keyboard accompaniment of student soloists in the studio and in public performance under faculty supervision.

**Studio and Recital Accompanying (1 per semester/maximum of 8)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1983

Prerequisite: KEYBD 120J or KEYBD 130J or consent of supervising faculty member

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 199 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 210 Keyboard Skills III: Music Major (1)** Playing accompaniments from chord symbols and full notation, transposition, improvisation, modulation, score-reading, and standard literature.

**Keyboard Skills III: Music Major (1)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1985

Prerequisite: MUSIC 170 or placement audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 212 Guitar Techniques II (1)** Intermediate performance and teaching techniques for guitar.

**MUSIC 212 Guitar Techniques II (1)**

MUSIC 212 is offered as an Individual Emphasis course for students who have been accepted into the Teacher Education Degree Program in Music. The focus of the course is on learning to play the guitar in a group class setting in order to accompany oneself and learning techniques for how to teach the guitar in classroom settings. Topics include: intermediate level guitar pedagogy, instrument care and maintenance, classroom structure and materials. The instructional format includes: performance, lecture, large and small group discussion, readings, and musical and teaching examples. Students complete several practical assignments and present summations of small group discussions. Two practice performances, a final playing and written exam are given, and a formal concert is performed.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: MUSIC 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 216** Care and Nuture of Young Singing Voices (0.5) The nature of singing voices in children from birth through adolescence; strategies for helping all children become successful singers.

### **MUSIC 216 Care and Nurture of Young Singing Voices (.5)**

The focus of this course is the nature of child and adolescent singing voices and strategies for assisting all children in learning to sing. Aural identification of various stages of vocal development of children and adolescents will be highlighted as well as strategies for nurturing the young singing voice in a classroom and rehearsal setting. Observations of teachers working with children will be included in the course experiences. This course is for music majors intending to apply to the Teacher Education Degree Program in Music and must be taken prior to entrance to the Degree program, typically during the sophomore year.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 221** Basic Musicianship III (1) Intermediate sight singing and dictation.

### **Basic Musicianship III (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1991  
Prerequisite: MUSIC 122 Prerequisite or concurrent: MUSIC 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 222** Basic Musicianship IV (1) Continuation of Music 221.

### **Basic Musicianship IV (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1997  
Prerequisite: MUSIC 221 . Prerequisite or concurrent:

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 231** Music Theory III (2) Intermediate concepts of tonal theory.

### **Music Theory III (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1989  
Prerequisite: MUSIC 132

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 241** Music for Classroom Teachers (3) Development of competencies for guiding musical experiences of children in

the elementary classroom.

### **Music for Classroom Teachers (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2001

Prerequisite: for students in the K-6 Teacher Certification Program only

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 251A Brass Techniques II: Trumpet (0.5)** A class setting in which trumpet performance techniques, teaching/diagnostic strategies, instructional materials, and literature are taught, practiced, and developed.

### **MUSIC 251A Brass Techniques II: Trumpet (.5)**

This course develops proper performance techniques on the trumpet in a class setting. Teaching techniques and materials specific to the trumpet are demonstrated and applied. Students will develop a performance level that will enable them to provide a desirable aural model for intermediate and advanced trumpet students. Students are introduced to appropriate trumpet teaching techniques; standard trumpet teaching materials including method books, etudes, and solo literature; effective strategies for diagnosing problems in student performances; and recommended instruments and equipment for all levels of trumpet study. Class meetings will occur twice per week for 1/2 semester. Students will be expected to practice outside of class meeting times. Grades will be based on students' musical achievement on the trumpet and understanding of material presented. There will be multiple performance assessments throughout the course. This course is recommended for students working toward entrance to the Teacher Education Program in Music and the Bachelor of Music Education degree.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: MUSIC 151

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 251B Brass Techniques II: Horn (0.5)** A class setting in which horn performance techniques, teaching/diagnostic strategies, instructional materials, and literature are taught, practiced, and developed.

### **MUSIC 251B Brass Techniques II: Horn (.5)**

This course develops proper performance techniques on the horn in a class setting. Teaching techniques and materials specific to the horn are demonstrated and applied. Students will develop a performance level that will enable them to provide a desirable aural model for intermediate and advanced horn students. Students are introduced to appropriate horn teaching techniques; standard horn teaching materials including method books, etudes, and solo literature; effective strategies for diagnosing problems in student performances; and recommended instruments and equipment for all levels of horn study. Class meetings will occur twice per week for 1/2 semester. Students will be expected to practice outside of class meeting times. Grades will be based on students' musical achievement on the horn and understanding of material presented. There will be multiple performance assessments throughout the course. This course is recommended for students working toward entrance to the Teacher Education Program in Music and the Bachelor of Music Education degree.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: MUSIC 151

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 251C Brass Techniques II: Trombone (0.5)** A class setting in which trombone performance techniques, teaching/diagnostic strategies, instructional materials, and literature are taught, practiced, and developed.

### **MUSIC 251C Brass Techniques II: Trombone (.5)**

This course develops proper performance techniques on the trombone in a class setting. Teaching techniques and materials specific to the trombone are demonstrated and applied. Students will develop a performance level that will enable them to provide a desirable aural model for intermediate and advanced trombone students. Students are introduced to appropriate trombone teaching techniques; standard trombone teaching materials including method books, etudes, and solo literature; effective strategies for diagnosing problems in student performances; and recommended instruments and equipment for all levels of trombone study. Class meetings will occur twice per week for 1/2 semester. Students will be expected to practice outside of class meeting times. Grades will be based on students' musical achievement on the trombone and understanding of material presented. There will be multiple performance assessments throughout the course. This course is recommended for students working toward entrance to the Teacher Education

Program in Music and the Bachelor of Music Education degree.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: MUSIC 151

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 251D Brass Techniques II: Euphonium/Tuba (0.5)** A class setting in which euphonium and tuba performance techniques, teaching/ diagnostic strategies, instructional materials, and literature are taught, practiced, and developed.

#### **MUSIC 251D Brass Techniques II: Euphonium/Tuba (.5)**

This course develops proper performance techniques on the euphonium and tuba in a class setting. Teaching techniques and materials specific to the euphonium and tuba are demonstrated and applied. Students will develop a performance level that will enable them to provide a desirable aural model for intermediate and advanced euphonium and tuba students. Students are introduced to appropriate euphonium and tuba teaching techniques; standard euphonium and tuba teaching materials including method books, etudes, and solo literature; effective strategies for diagnosing problems in student performances; and recommended instruments and equipment for all levels of euphonium and tuba study. Class meetings will occur twice per week for 1/2 semester. Students will be expected to practice outside of class meeting times. Grades will be based on students' musical achievement on the euphonium and/or tuba and understanding of material presented. There will be multiple performance assessments throughout the course. This course is recommended for students working toward entrance to the Teacher Education Program in Music and the Bachelor of Music Education degree.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: MUSIC 151

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 253 String Techniques II (0.5-1 per semester/maximum of 2)** Performance techniques on violin, viola, cello or string bass for music education majors.

#### **MUSIC 253 String Techniques II (0.5 - 1 per semester/maximum of 2)**

This course is recommended for students working toward the Bachelor of Music Education degree program, and who hope to teach string/orchestra classes. The purpose of the course is to allow students to develop proper performance techniques on the violin, viola, cello, or string bass at a sufficient level so that they can provide a desirable aural model for intermediate and advanced string students. Grades will be based on students' musical achievement on the instrument(s). There will be multiple performance assessments throughout the course. Required repertoire lists and evaluation tools will be provided prior to all assessments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: MUSIC 153

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 254A Woodwind Techniques II: Flute (0.5)** Performance and teaching techniques and materials selection for flute.

#### **MUSIC 254A Woodwind Techniques II: Flute (.5)**

This course is intended for music majors working toward the Teacher Education Degree Program in Music. This course may serve as a music education elective, and is best taken during the junior year. It should only be taken following successful completion of MUSIC 154 Woodwind Techniques I. The purpose of the course is to allow students to develop proper performance techniques in order to produce a characteristic sound on the flute at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based largely on the performance achievement on the flute, in addition to development of resources for flute pedagogy and demonstration of appropriate diagnosis and prescription for flute performance problems. There will be two performance assessments during the course. There will be one midterm and one final assessment, weighted as listed:

Midterm Assessment (performance and diagnosis) 30%  
Final Assessment (performance and diagnosis) 50%  
Resource journal 10%

The required repertoire list will be provided approximately two weeks prior to each assessment. Students will also be

provided with a copy of the measurement tool to be used in evaluating their performance. Students must receive a passing grade for both assessments in order to receive an overall passing grade for the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: MUSIC 154

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 254B** Woodwind Techniques II: Oboe (0.5) Performance and teaching techniques and materials selection for oboe.

**MUSIC 254B Woodwind Techniques II: Oboe (.5)**

This course is intended for music majors working toward the Teacher Education Degree Program in Music. This course may serve as a music education elective, and is best taken during the junior year. It should only be taken following successful completion of MUSIC 154 Woodwind Techniques I. The purpose of the course is to allow students to develop proper performance techniques in order to produce a characteristic sound on the oboe at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based largely on the performance achievement on the oboe, in addition to development of resources for oboe pedagogy and demonstration of appropriate diagnosis and prescription for oboe performance problems. There will be two performance assessments during the course. There will be one midterm and one final assessment, weighted as listed:

Midterm Assessment (performance and diagnosis) 30%  
Final Assessment (performance and diagnosis) 50%  
Resource journal 10%

The required repertoire list will be provided approximately two weeks prior to each assessment. Students will also be provided with a copy of the measurement tool to be used in evaluating their performance. Students must receive a passing grade for both assessments in order to receive an overall passing grade for the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: MUSIC 154

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 254C** Woodwind Techniques II: Clarinet (0.5) Performance and teaching techniques and materials selection for clarinet.

**MUSIC 254C Woodwind Techniques II: Clarinet (.5)**

This course is intended for music majors working toward the Teacher Education Degree Program in Music. This course may serve as a music education elective, and is best taken during the junior year. It should only be taken following successful completion of MUSIC 154 Woodwind Techniques I. The purpose of the course is to allow students to develop proper performance techniques in order to produce a characteristic sound on the clarinet at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based largely on the performance achievement on the clarinet, in addition to development of resources for clarinet pedagogy and demonstration of appropriate diagnosis and prescription for clarinet performance problems. There will be two performance assessments during the course. There will be one midterm and one final assessment, weighted as listed:

Midterm Assessment (performance and diagnosis) 30%  
Final Assessment (performance and diagnosis) 50%  
Resource journal 10%

The required repertoire list will be provided approximately two weeks prior to each assessment. Students will also be provided with a copy of the measurement tool to be used in evaluating their performance. Students must receive a passing grade for both assessments in order to receive an overall passing grade for the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: MUSIC 154

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 254D** Woodwind Techniques II: Saxophone (0.5) Performance and teaching techniques and materials selection for saxophone.

**MUSIC 254D Woodwind Techniques II: Saxophone (.5)**

This course is intended for music majors working toward the Teacher Education Degree Program in Music. This course may serve as a music education elective, and is best taken during the junior year. It should only be taken following successful completion of MUSIC 154 Woodwind Techniques I. The purpose of the course is to allow students to develop proper performance techniques in order to produce a characteristic sound on the saxophone at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based largely on the performance achievement on the saxophone, in addition to development of resources for saxophone pedagogy and demonstration of appropriate diagnosis and prescription for saxophone performance problems. There will be two performance assessments during the course. There will be one midterm and one final assessment, weighted as listed:

Midterm Assessment (performance and diagnosis) 30%  
 Final Assessment (performance and diagnosis) 50%  
 Resource journal 10%

The required repertoire list will be provided approximately two weeks prior to each assessment. Students will also be provided with a copy of the measurement tool to be used in evaluating their performance. Students must receive a passing grade for both assessments in order to receive an overall passing grade for the course.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2006  
 Prerequisite: MUSIC 154

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 254E** Woodwind Techniques II: Bassoon (0.5) Performance and teaching techniques and materials selection for bassoon.

#### **MUSIC 254E Woodwind Techniques II: Bassoon (.5)**

This course is intended for music majors working toward the Teacher Education Degree Program in Music. This course may serve as a music education elective, and is best taken during the junior year. It should only be taken following successful completion of MUSIC 154 Woodwind Techniques I. The purpose of the course is to allow students to develop proper performance techniques in order to produce a characteristic sound on the bassoon at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based largely on the performance achievement on the bassoon, in addition to development of resources for bassoon pedagogy and demonstration of appropriate diagnosis and prescription for bassoon performance problems. There will be two performance assessments during the course. There will be one midterm and one final assessment, weighted as listed:

Midterm Assessment (performance) 33%  
 Final Assessment (performance and written exam) 66%

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2006  
 Prerequisite: MUSIC 154

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 261** (GA;IL) Survey of Music History I (3) A survey of music history to 1750, with readings, listening, and lecture.

**MUSIC 261 Survey of Music History I (3)**  
 (GA; IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course is a survey of music history from antiquity to 1750, with readings, listening, and lecture. The principal objectives are: to acquaint students with important musical works from this period of European history; to place these works in their larger social, cultural, economic, and intellectual contexts; and to introduce analytical methods useful for describing technical musical features and relating those features to extra-musical concerns. As the second course in the music history sequence designed for music majors and minors, Music 261 forms a part of the core music curriculum required for advanced (400-level) study in the discipline.

Assignments and evaluation methods are designed to help students develop their critical faculties and communication skills, through listening, reading, in-class discussion, examinations, and writing. There is significant emphasis on intercultural and international competence through study of music from a range of European countries. Musical analysis is integrated with consideration of the historical, social, cultural, religious, and economic circumstances of the works' production. The course stresses development of criteria of aesthetic judgment, with respect to musical style (deployment of the various musical elements: melody, harmony, rhythm, texture, timbre) and the relationship of style to non-musical historical factors.

The course is normally offered in the fall semester. It requires a piano and audio equipment.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2012  
Prerequisite: MUSIC 131MUSIC 162

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 262 (GA;IL)** Survey of Music History II (3) A survey of music history from 1750 to the present, with readings, listening, and lecture.

**MUSIC 262 Survey of Music History II (3)  
(GA;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course is a survey of music history from 1750 to the present, with readings, listening, and lecture. The principal objectives are: to acquaint students with important musical works from this period of European and American history; to place these works in their larger social, cultural, economic, and intellectual contexts; and to introduce analytical methods useful for describing technical musical features and relating those features to extra-musical concerns. As the third course in the music history sequence designed for music majors and minors, Music 262 forms a part of the core music curriculum required for advanced (400-level) study in the discipline.

Assignments and evaluation methods are designed to help students develop their critical faculties and communication skills, through listening, reading, in-class discussion, examinations, and writing. There is significant emphasis on intercultural and international competence through study of music from a range of European countries and the United States. Musical analysis is integrated with consideration of the historical, social, cultural, religious, and economic circumstances of the works' production. The course stresses development of criteria of aesthetic judgment, with respect to musical style (deployment of the various musical elements: melody, harmony, rhythm, texture, timbre) and the relationship of style to non-musical historical factors.

The course is normally offered in the spring semester. It requires a piano and audio equipment.

General Education: GA  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2012  
Prerequisite: MUSIC 132MUSIC 162

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 266** Basic Conducting (1) Basic instruction and practicum in conducting, both choral and instrumental.

**Basic Conducting (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1993  
Prerequisite: MUSIC 221MUSIC 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 267** Techniques of Composition (2) Basic instruction in the techniques of composition in all idioms.

**Techniques of Composition (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1993  
Prerequisite: or concurrent:MUSIC 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 270** Keyboard Skills IV: Music Major (1) Instruction in secondary chord progressions, transposition, improvisation, accompanying techniques, score reading.

**Keyboard Skills IV: Music Major (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1987  
Prerequisite: MUSIC 210 or placement audition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**MUSIC 273J** Composition III (2) Composition instruction for second-year composition majors.

**Composition III (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2012  
Prerequisite: MUSIC 174J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 274J** Composition IV (2) Composition instruction for second-year composition majors.

**Composition IV (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2012  
Prerequisite: MUSIC 273J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 295A** Early Field Experience in Music Education (1) Observation of music learning and teaching processes, development of basic teaching skills and reflective behaviors.

**MUSIC 295A Early Field Experience in Music Education (1)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is offered to music majors during their fourth semester who are intending to apply to the Teacher Education Degree Program in Music. It provides prospective music teachers with an opportunity to observe various components involved in the music teaching process; develop basic music teaching skills; identify behaviors of effective music teachers; identify their own strengths and weaknesses as a teacher, set goals based on those traits, and apply strategies to improve; develop their ability to reflect on their own teaching; observe and interact with children of varying races, religious beliefs, national origins and socioeconomic backgrounds, particularly children for whom English is a second language and who are considered in need of early intervention; continue developing their own sight-singing and piano skills.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2008  
Prerequisite: fourth semester standingMUSIC 115MUSIC 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**MUSIC 297A** Choral Conducting Practicum (1) For undergraduates who create their own choirs from the membership of Penn State ensembles.

**Choral Conducting Practicum (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 297B** Choral Conducting Project (1) For students who serve as assistants and interns with non-Penn State ensembles.

**Choral Conducting Project (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 297E** (PSYCH 297E) Introduction to Music Therapy (3) Introductory course in music therapy to study the populations served by this form of therapy and its basic techniques.

**Introduction to Music Therapy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 312** Performance of Diverse Musical Styles (1) Exploration of world instruments and singing through performance and study.

**MUSIC 312 Performance of Diverse Musical Styles (1)**

The focus of the course is participation in a non-Western based music ensemble to gain knowledge of global music traditions and how to apply world music ensemble practices into K-12 teaching. Topics include: cultural knowledge and significance, playing technique and pedagogy, and applications for teaching. The instructional format includes: performance, lecture, small group discussion, readings, and musical examples. Students complete several practical assignments and present summations of small group discussions. A final playing and written exam are given, and a formal concert is performed.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 331** Tonal Analysis (2) Introduction to standard procedures of tonal analysis, including concepts of form and structure.

**Tonal Analysis (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1997  
Prerequisite: MUSIC 221MUSIC 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 332** Analysis of Twentieth Century Music (2) Application of analytical techniques and compositional theories to music of the twentieth century.

**Analysis of Twentieth Century Music (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1996  
Prerequisite: MUSIC 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 336** Orchestration (2) Scoring for the orchestra.

**Orchestration (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1988  
Prerequisite: MUSIC 222MUSIC 232

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 340** Music Learning and Development (2) Application of psychological principles to teaching of music, including curriculum design and contemporary practices in music education.

**MUSIC 340 Music Learning and Development (2)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

MUSIC 340 is offered every fall semester for students who have just been accepted into the Teacher Certification program in Music Education. The focus of the course is music learning and development and their application to curriculum design for school music settings. Topics include: philosophical frameworks for music education, skill and content learning sequences in music, writing instructional objectives, and the process for developing music curricula. The instructional format includes: lecture, large and small group discussion, readings, and musical and teaching examples. Students complete several practical assignments, present summations of small group discussions, and prepare two drafts of a philosophical statement.

A midterm and final exam are typically given. Students in MUSIC 340 also enroll concurrently in MUSIC 341 and MUSIC 395A, a practicum course focusing on teacher delivery skills and application of content from MUSIC 340 and MUSIC 341.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008  
Prerequisite: acceptance into Teacher Education Degree Program in Music  
Concurrent: MUSIC 341 MUSIC 395A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 341** Instructional Materials in Music (2) Exploration of instructional materials and repertoire for use in K-12 music

settings. Limited to Music Education majors who have been accepted into the Teacher Education Degree Program in Music.

### **MUSIC 341 Instructional Materials in Music (2)**

MUSIC 341 is offered to students who have been accepted into the Teacher Education Degree Program in Music. The focus of this course is to gain knowledge through exploration of the process for selecting instructional materials and repertoire for K-12 music across all settings, choral, general, and instrumental settings. Topics include: the exploration of instructional materials, the criteria for selection of materials, and strategies for arranging musical materials to meet the needs of students. The instructional format includes: lecture, large and small group discussion, readings, and musical examples. Students complete several practical assignments and present summations of small group discussions. A written midterm and final evaluation will be given to assess student learning.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006

Concurrent: MUSIC 340 MUSIC 395A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 345** Instructional Practices in Music (2) For music education students to learn about instructional techniques and practices for music performance and general music classes.

### **MUSIC 345 Instructional Practices in Music (2)**

This course is designed to cover general principles in planning and delivery of instruction for, and assessment of the learning of, students in public school K-12 music rehearsals and classrooms. Further, this course will focus on application and implementation of strategies to specific settings in which students will be certified to teach. Course objectives enable students to develop an understanding of the interaction of planning and delivery of instruction and the assessment of student learning; develop an understanding of principles of presenting and leading students in music activities and performance experiences; develop strategies for planning music lessons and rehearsals; and develop strategies for assessing student learning.

Students in the course will select appropriate instructional strategies reflecting technical and musical objectives and needs of the students; plan music lessons and rehearsals reflecting technical and musical objectives and needs of the students; and develop valid tools and procedures for assessing students' music learning. The students in this course will be evaluated on their effectiveness in writing task analyses, lesson and rehearsal plans, designing assessment tools, and implementing plans and assessments in a variety of music settings in peer-teaching situations.

Music education majors will take this course as part of a sequence of music education courses. This course is preceded by courses concerning musical development, teaching experiences, and courses in selection and design of instructional materials, and this course precedes a capstone course (MUSIC 441W, MUSIC 442W, MUSIC 443W, MUSIC 444W, MUSIC 445W, or MUSIC 446W) in which students study one instructional setting and curriculum level (choral, band, orchestra, general music; elementary middle school, high school) in greater depth, depending on their future career goals. Approximately 25 students will be enrolled.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: MUSIC 340MUSIC 341MUSIC 395A piano and voice proficiencies passed.  
Concurrent: MUSIC 395B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 366** Intermediate Conducting (1) Intermediate instruction in conducting; conducting techniques specific to instrumental or choral music; introduction to rehearsal technique.

### **MUSIC 366 Intermediate Conducting (1)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

MUSIC 366 focuses on the development of more advanced physical skills and gestures appropriate for conducting expressive performances and rehearsals of music ensembles. The instructional format includes instructor demonstrations, student conducting of the class ensemble, and active participation as a performer and observer for peer conductors. Outside of class, students are expected to practice conducting gestures and use basic score study skills as preparation for conducting assigned music. Students prepare several music scores and conduct the class ensemble in practice episodes and instructor-evaluated performances. Students receive feedback and peer feedback on their performances in both practice and evaluated conducting episodes. Students are graded through instructor evaluation of conducting performances, completion of self-assessments involving review of a video of their performances, and participation in providing feedback for peers.

General Education: None

Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2008  
Prerequisite: MUSIC 266MUSIC 270MUSIC 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 373J** Composition V (3) Composition instruction for third-year position majors.

**Composition V (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2012  
Prerequisite: MUSIC 274J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 374J** Composition VI (3) Composition instruction for third-year composition majors.

**Composition VI (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2012  
Prerequisite: MUSIC 373J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 387** Language Diction for Singers: Italian and English (1) Intensive drill in the pronunciation, phonetic transcription, and singing of Italian and English.

**Language Diction for Singers: Italian and English (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1991  
Prerequisite: VOICE 170J orVOICE 180J or 2 semesters ofVOICE 100J orVOICE 110J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 388** Language Diction for Singers: French (1) Intensive drill in the pronunciation, phonetic transcription, and singing of French.

**Language Diction for Singers: French (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1987  
Prerequisite: VOICE 170J orVOICE 180J or two semesters ofVOICE 100J orVOICE 110J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 389** Language Diction for Singers: German (1) Intensive drill in the pronunciation, phonetic transcription, and singing of German.

**Language Diction for Singers: German (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1987  
Prerequisite: VOICE 170J orVOICE 180J or two semesters ofVOICE 100J orVOICE 110J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 395A** Cohort Practicum I (1) Observation and pre-service experience in the schools. Limited to Music Education Majors.

**MUSIC 395A Cohort Practicum I (1)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

MUSIC 395A is offered for students who are tracking acceptance into the Teacher Education Degree Program in Music. Students will enroll concurrently with the proposed course MUSIC 341 and the revised course MUSIC 340. The focus of the course is to provide students with opportunity to explore instructional materials and repertoire through interviews and observation of K-12 teachers. Topics include: the design and implementation of observational tools, and the leading and teaching of songs in a variety of settings. The instructional format includes: large and small group discussion, readings, and musical and teaching examples and experiences. Students complete several practical assignments including off campus observations, and present summations of small group discussions.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2008

Prerequisite: Acceptance into Teacher Education Degree Program in Music

Concurrent: MUSIC 340 MUSIC 341

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 395B Cohort Practicum II (1)** Observation and teaching experiences in a variety of musical instruction settings.

**MUSIC 395B Cohort Practicum II (1)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed for students to implement the general principles in planning and delivery of instruction for, and assessment of the learning of, students in public schools K-12 music rehearsals and classrooms, as learned in MUSIC 345. Further, this course will focus on application and implementation of strategies to specific settings in which students will be certified to teach. Course objectives are for students to lead activities with K-12 students in a general, lesson, and ensemble settings; interview teachers in K-12 settings with regard to their approach to planning lessons and rehearsals; identify qualities and behaviors of effective music teachers; identify their own strengths and weaknesses as a teacher, set goals based on those traits, and apply strategies to improve; develop their ability to reflect on their own teaching; and assess students' learning.

Students in the course will observe teachers the K-12 schools teaching students and reflect on their techniques and attributes for successful teaching. Students will implement activities and assessment tools with students in K-12 public school settings, develop their skill in identifying their own techniques and attributes for successful teaching, and become comfortable in a variety of musical settings.

Music education majors will take this course as part of a sequence of music education courses. This course is preceded by courses concerning musical development, teaching experiences, and courses in selection and design of instructional materials, and this course precedes a capstone course (MUSIC 441W, MUSIC 442W, MUSIC 443W, MUSIC 444W, MUSIC 445W, or MUSIC 446W) in which students study one instructional setting and one curricular level (choral, band, orchestra, general music; elementary, middle school, high school) in greater depth, depending on their future career goals. Approximately 25 students will be enrolled.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2009

Prerequisite: MUSIC 341MUSIC 395A piano proficiency passed

Concurrent: MUSIC 345

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 395C Practicum in Music Teaching (1 per semester/maximum of 5)** Field experiences in music teaching for undergraduate music education majors.

**Practicum in Music Teaching (1 per semester/maximum of 5)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2013

Prerequisite: acceptance into the School of Music

Concurrent: MUSIC 344

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 399 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 400J Solo Recital (1)** Required recital for Performer's Certificate.

**Solo Recital (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2012  
Prerequisite: permission of the director of the school of music

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 412 Jazz Pedagogy (2)** The development of advanced skills in pedagogy for teaching jazz bands.

**Jazz Pedagogy (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1994  
Prerequisite: admission to the Music Education program or certification

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 414 String Pedagogy (1-2)** The development of skills in pedagogy for teaching strings.

**String Pedagogy (1-2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1992  
Prerequisite: completion of 300-level strings course

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 415 Woodwind Pedagogy (1-2)** The development of skills in pedagogy for teaching woodwinds.

**Woodwind Pedagogy (1-2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1992  
Prerequisite: completion of 300-level woodwind course

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 416 Brass Pedagogy (1-2)** The development of skills in pedagogy for teaching brass.

**Brass Pedagogy (1-2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1992  
Prerequisite: completion of 300-level brass course

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 417 Percussion Pedagogy (1-2)** The development of advanced skills in pedagogy for teaching percussion.

**Percussion Pedagogy (1-2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1992  
Prerequisite: MUSIC 152;PERCN 320J orPERCN 330J or permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 418** Voice Pedagogy (2) Analysis of techniques of teaching voice and studies of related music literature and pedagogical writings.

**Voice Pedagogy (2)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: VOICE 270J or VOICE 280J ; or four semesters of VOICE 100J or VOICE 110J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 419** Piano Pedagogy I (2) Analysis of beginning teaching methods and teaching strategies for children.

**Piano Pedagogy I (2)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 1997

Prerequisite: KEYBD 270 or KEYBD 280; MUSIC 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 420** Song Writing and Recording (3) Song composition, arranging and recording in a variety of style genres.

**MUSIC 420 Song Writing and Recording (3)**

This course will take the student through the process of composing and producing a recorded song. The class will consist of a combination of class meetings and individual instruction. Topics will include form, lyric writing, arranging, audio/MIDI recording and sequencing. Familiarity with basic audio sequencing software and music theory concepts is essential. The focus of the class is vernacular song as opposed to classical art song, but all the basic concepts discussed in the class apply to either genre. The course requires the composition of original songs and the creation of high-quality recordings of them and their conversion to MP3 format. The student are expected to enter the class with a basic knowledge of digital audio and MIDI (MUSIC/INART 258 or equivalent).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: INART 258; MUSIC 232

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 421** Jazz Combo Class (1 per semester/maximum of 8) Study and performance of small group jazz.

**Jazz Combo Class (1 per semester/maximum of 8)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2013

Prerequisite: MUSIC 181

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 422** Jazz Harmony and Arranging (3) Analysis and composition of jazz tunes and chord progressions; instrumental and vocal arranging in the jazz idiom.

**Jazz Harmony and Arranging (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1983

Prerequisite: MUSIC 222; MUSIC 232

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 424** Piano Pedagogy II (2) Analysis of techniques of teaching intermediate-early advanced level piano and studies of music literature and pedagogical writings.

**Piano Pedagogy II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1997  
Prerequisite: KEYBD 270 or KEYBD 280; MUSIC 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 425** Advanced Voice Pedagogy (2) Analysis of techniques of teaching voice, supervised teaching, studies of studio materials and related topics.

**Advanced Voice Pedagogy (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: MUSIC 418

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 429** Aural Review for Graduate Students (1) An intensive review of the aural skills required for a theoretical understanding of 18th- and 19th-century music.

**Aural Review for Graduate Students (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1994  
Prerequisite: MUSIC 221 or undergraduate core in music theory at an accredited university

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 431** ADVANCED TONAL ANALYSIS (2-3) Advanced techniques of musical analysis.

**ADVANCED TONAL ANALYSIS (2-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1996  
Prerequisite: MUSIC 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 432** Graduate Review of Twentieth-Century Analysis (2-3) The theory and analysis of style in music of the twentieth century.

**Graduate Review of Twentieth-Century Analysis (2-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1997  
Prerequisite: MUSIC 262; MUSIC 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 433** Advanced Analysis of Twentieth Century Music (2-3) In-depth studies of selected twentieth-century repertoires and/or analytical models.

**Advanced Analysis of Twentieth Century Music (2-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1996  
Prerequisite: MUSIC 262; MUSIC 332

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 435** Score Reading (1) Introduction in score reading at the keyboard.



**Score Reading (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1991  
Prerequisite: MUSIC 232 ; piano proficiency passed

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 441W** Emphasis in Elementary General and Choral Music (3) Selection and application of materials, methods, teaching and assessment strategies for elementary general and choral music settings.

**MUSIC 441W Capstone Experiences in Elementary General and Choral Music (3)**

This course is intended for Music Education majors in their senior year who have particular interest in working with elementary school children in a general music or choral setting. Students will apply all previous Music Education course work to this teaching setting. They will learn how to construct a course of study, including assessment strategies. Students will then apply that course of study by working with one elementary music class in the local schools. Teacher delivery issues, reflective practice, and assessment of student achievement will become a major component of this experience. A review of traditional approaches to elementary music teaching will also be presented and critically discussed. In addition, students will prepare two drafts of a philosophical statement justifying the inclusion of music in every child's curriculum as well as four drafts of a paper reviewing and summarizing articles on a topic of interest related to elementary music teaching.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: MUSIC 345MUSIC 395B

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 442W** Emphasis in Secondary General Music (3) Emphasis in teaching in secondary general music settings.

**MUSIC 442W Emphasis in Secondary General Music (3)**

MUSIC 442W is offered to students who have been accepted into the Teacher Certification program in Music Education. The focus of this course is to provide students with opportunity to explore secondary general music settings under the close supervision of a faculty member. Topics include: the design and implementation of curriculum in secondary general music, the leading and teaching of songs in these settings, and specific grade-level appropriate pedagogy. The instructional format includes: lecture, small group discussion, readings, musical and teaching examples, and off campus observation and teaching in middle and high school classrooms. Students complete several practical assignments including off campus observations, presentation of the summations of small group discussions, curriculum planning and models, and teaching within public schools in grades 5-12. This is a writing intensive course with focus on a detailed, multi-drafted topic paper relating to specific elements of teaching choral and general music at the secondary level.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2013  
Prerequisite: Limited to Music Education Majors.MUSIC 345MUSIC 395B

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 444W** Emphasis in Elementary and Intermediate Band (3) Examination and application of teaching strategies and materials for students planning to teach band in the elementary and middle schools.

**MUSIC 444W Capstone Experiences in Elementary and Intermediate Band (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course is intended to prepare pre-service teachers to teach beginning through intermediate instrumental (band) music. Preparation will include observation of current public school teachers and teaching techniques and methods, preparation and implementation of appropriate lessons including assessments, in-depth analysis (case study) of a student currently in the public schools, development of a written philosophy of music education and band instruction, and consideration of practical matters associated with teaching in the public schools such as scheduling, recruitment and parent interaction.

The course serves as a capstone to the prior courses in the music education curriculum. Previous courses in instructional planning, instructional materials, instrument techniques, conducting piano and voice use will have developed necessary prior skills. Skills and concepts from these classes will be applied in this authentic context in the collegiate and public school classrooms.

The students will be assessed according to their effectiveness in observation, teaching preparation, teaching and research. Evaluation will be in the form of written and verbal feedback, and completion of rubrics by the instructor and the students themselves (self- and peer-evaluation). Enrollment will likely be approximately 5 students each time the course is offered.

The students will be spending considerable class time in local elementary and middle schools for field work.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: MUSIC 345MUSIC 395AMUSIC 366 piano proficiency passes

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 445W** Emphasis in High School Band (3) Examination and application of teaching strategies and materials for students planning to teach high school bands.

### **MUSIC 445W Capstone Experiences in High School Band (3)**

This course is intended to prepare pre-service teachers to teach high school band. Students will observe, analyze, and discuss the teaching techniques, methods, and materials used by public school teachers in high school band instructional settings. Students will prepare and implement rehearsal plans including assessments, in-depth investigation of appropriate repertoire for use in high school bands and concert programming. Students will develop score analysis skills necessary to plan and guide music making and learning in the band rehearsal. Students will develop materials and strategies that strengthen the connection of instrumental performance to the public school curriculum. Students will develop a written philosophy of music education and the role instrumental performance in band within the music education of high school students. Students will consider practical matters associated with teaching in the public schools such as: scheduling, interaction with parents/teachers/administrators, parental support organizations (music boosters), advocacy, community/school support, and long-range instrumental music program development plans.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: MUSIC 345MUSIC 395B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 446W** Emphasis in Strings and Orchestra (3) Development of teaching techniques for instructing elementary and secondary string/orchestra student musicians for music education majors.

### **MUSIC 446W Capstone Experiences in Strings and Orchestra (3)**

This course is intended to prepare pre-service teachers to teach elementary and secondary string instrumental (orchestra) music. Preparation will include observation of current public school teachers and teaching techniques and methods, preparation and implementation of appropriate lessons including assessments, in-depth analysis (case study) of a student currently in the public schools, development of a written philosophy of music education and string/orchestra instruction, and consideration of practical matters associated with teaching in the public schools such as scheduling, recruitment and parent interaction.

The course serves as a capstone to the prior courses in the music education curriculum. Previous courses in instructional planning, instructional materials, instrument techniques, conducting, piano and voice use will have developed necessary prior skills. Skills and concepts from these classes will be applied in this authentic context in the collegiate and public school classrooms.

The students will be assessed according to their effectiveness in observation, teaching preparation, teaching, and research. Evaluation will be in the form of written and verbal feedback, and completion of rubrics by the instructor and the students themselves (self- and peer-evaluation). Enrollment will likely be approximately 5 students each fall semester. Students will spend considerable class time in local public schools for fieldwork.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: MUSIC 345MUSIC 395B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 450** Teaching Marching Band (2) Traditional and contemporary drill design principles, show development strategies, instructional techniques, and organizational procedures involved in teaching marching band.

### **MUSIC 450 Teaching Marching Band (2)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

MUSIC 450 is a marching band technique course for music education majors, band directors, and experienced marching band members. This course develops knowledge and skills required to organize and teach marching band with an emphasis on traditional and contemporary drill design and charting. Students are taught an eclectic understanding of drill systems, contemporary drill design, and visual design theory with opportunities to apply drill design computer software (Pyware Java 3D) in developing effective movements for marching units. Course topics include philosophy and role of marching band in the music program, historical perspectives, marching band styles, administration and organization of the marching band and auxiliary units and teaching techniques.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2007

Prerequisite: MUSIC 345 or three years collegiate marching band experience or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 451** Computer Programming for Musicians (3 per semester/maximum of 12) In-depth study of music programming techniques.

**MUSIC 451 Computer Programming for Musicians (3 per semester/maximum of 12)**

This is an in-depth study of a given music programming language or environment. The language/environment will vary from semester to semester, to include languages such as SuperCollider and Max/MSP. Students will be expected to work independently on a series of projects that require increasing levels of difficulty in programming methodology. The course may be repeated for credit.

Students will be acquainted with the basics of how the programming environment treats fundamental matters such as signal flow, defining functions, variables and arguments, and music synthesis techniques.

These principles will be expanded, with added layers of complexity to the types of problems presented. More complex instruments, processing, and filtering will be covered, along with real-time capabilities (ability of the program to respond to input from audio input or data from an external controller) and the creation of graphical user interfaces (GUIs).

Advanced topics will include algorithmic composition and the creation of plug-ins that may be used by other programs.

As this is an upper division class, students will be expected to be self-motivated and work independently. Assignments will present problems that may be approached in a number of ways - there is no single right answer; putting it another way, the correct answer is the one that works.

Students pursuing the minor in Music Technology (MUTEC) are required to complete two elective courses, one of them upper division. This course will serve those students wishing to apply the minor to areas of software development.

Along with MUSIC 455 Technology in Music, this course may also serve as the second part of an elective music technology cognate for students in the graduate and IUG programs in music theory.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: INART 258A/MUSIC 455 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 452** Computer Music Synthesis (3) Use of sound synthesis software for music creation.

**Computer Music Synthesis (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2013

Prerequisite: INART 258A and INART 050

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 453** Recording Studio Training (1) Training in how to use a professional multi-track recording studio.

**MUSIC 453 Recording Studio Training (1)****(BA) This course meets the Bachelor of Arts degree requirements.**

This is a course in recording studio engineering, directed at students who wish to learn how to operate a professional level multi-track recording studio. Topics include microphone theory, signal flow, audio mixing and mastering, and

maintenance issues.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: permission of program and successful completion of two of the following: INART 050 THEA 484 MUSIC 420 MUSIC 458

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 455** Technology in Music (1-3:1.5:1.5) Survey of how musical information is stored and processed in computer systems.

### **MUSIC 455 Technology in Music (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides a survey of how musical information is stored and transmitted in digital devices. It will be divided into three sections.

Weeks 1 and 2 are an introduction to acoustical principles such as the nature of sound transmission and measurements of frequency, sound power level, phase, timbre, and localization. Computer basics will also be covered, with topics to include binary number representation and basic computer operation.

Weeks 3 through 8 cover the MIDI transmission protocol that enables musical information to be stored and transmitted efficiently. Topics include the nature of the MIDI data structure, the types of messages that may be passed, and the suitability of MIDI for expressive performance. MIDI software is discussed, including notation software, editor/librarian software, and sequencers. The bulk of the course's project component involves working with sequencing programs. Students are also exposed to using MIDI on the web, downloading files and importing them into various applications.

Weeks 9 through 15 cover digital audio so that students may understand how instruments capable of understanding MIDI messages are able to translate the instructions into audio signals. Topics include sampling theory, digital vs. analog recording, filters, signal processing, and editing sound files. Projects involving digital audio also use a sequencing program that is able to combine MIDI and audio data.

The students are expected to work independently to complete reading assignments according to the schedule outlined in the course syllabus. While due attention will be given to discussion of this material in class, the primary focus of class sessions will be hands-on application, to ensure that students master a set of skills on the computer.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: CMPSC 100 CMPSC 101 CMPSC 121 or MUSIC 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 458** Electronic Music Composition (3) An introduction to the art of composition in the electronic audio medium.

### **MUSIC 458 Electronic Music Composition (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Music 458 will focus on the creative craft of musical composition in the medium of electronic audio. Topics covered will include but not be limited to: recording, MIDI and digital audio techniques, study of literature and the investigation of the creative process in musical composition. Students are expected to enter the class with strong fundamentals in both music theory and MIDI and digital audio. The student will be expected to complete several projects that demonstrate both their creativity and their technical competence in the medium.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2011

Prerequisite: INART 258A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 460** Teaching Musical Cultures (2) Exploration of the world's musical cultures and the implication of and procedures for teaching multicultural music. Limited to upper division music majors or permission of program.

### **Teaching Musical Cultures (2)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: MUSIC 262 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 461W** Studies in Music History: Antiquity to 1600 (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from antiquity to 1600, with emphasis on writing and research.

**Studies in Music History: Antiquity to 1600 (3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2010  
Prerequisite: MUSIC 261MUSIC 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 462W** Studies in Music History: 1550-1750 (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1550-1750, with emphasis on writing and research.

**Studies in Music History: 1550-1750 (3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2010  
Prerequisite: MUSIC 261MUSIC 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 463W** Studies in Music History: 1700-1900 (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1700-1900, with emphasis on writing and research.

**Studies in Music History: 1700-1900 (3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2010  
Prerequisite: MUSIC 262MUSIC 331

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 464W** Studies in Music History: 1850-Present (3 per semester/maximum of 6) In-depth study of selected aspects of music and culture from 1850 to the present, with emphasis on writing and research.

**Studies in Music History: 1850-Present (3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2010  
Prerequisite: MUSIC 262MUSIC 332

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 465** Advanced Conducting I (3) Advanced instruction in conducting; conducting techniques specific to instrumental or choral music; emphasis on score study and rehearsal technique.

**Advanced Conducting I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1994  
Prerequisite: MUSIC 366

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 466** Advanced Conducting II (2 per semester/maximum of 8) Standard scores of symphonies, tone poems, operas, oratorios, and shorter vocal and instrumental works studied from the viewpoint of the conductor.

**Advanced Conducting II (2 per semester/maximum of 8)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1995  
Prerequisite: MUSIC 465

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 467** Opera Workshop (1-3 per semester/maximum of 6) History, analysis, and production of operas from sixteenth century to present.

**Opera Workshop (1-3 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2001  
Prerequisite: audition

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 468** Acting for Singers (2 per semester/maximum of 4) To help students develop authentic and specific characters/portrayals on stage through physical and emotional awareness.

**MUSIC 468 Acting for Singers (2)**

This is a course teaching singers the fundamentals of acting. All types of stage work related to vocal music will be explored from performing in recitals and concerts to the opera and excerpted scenes. The objective of the course is to make singers more comfortable on stage and more realistic/believable in their performances/presentations. This course differs from acting courses offered in other areas because the singer has restrictions placed upon him due to the requirements of the music, especially in regard to timing and the sense of time, and the use of texts which are often in foreign languages. The course will be offered to music majors currently studying voice at an advanced level (V220J or higher) so that vocal technique will not be the main issue; this includes students enrolled in the BM, BMA, BA, and BME programs. Exceptions can be made by permission of the instructor. The course is an elective 2 credit course which students may repeat for a maximum of 4 credits. An accompanist will be present to accompany students in their song/aria presentations. Every class meeting will begin with warm-up exercises and then continue with further exercises focusing on helping students develop a sense of timing and enabling them to explore the "beats" (or central topic) of a scene. Emphasis will be placed on learning how to prepare for a scene, analyze it, and determining the goal(s) of the character. The students will be encouraged to learn how to be specific in their acting and to learn what will "read" to an audience while accurately reflecting the portrayed emotion. Some work will be solo work, but there will also be opportunities to work with partners. Improvisation will also be incorporated.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

Prerequisite: Must be currently enrolled for voice jury track at the level of V220J or higher or register with permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 471** Structural and Sixteenth-Century Counterpoint (2) Advanced species counterpoint and its application to the sixteenth-century style.

**Structural and Sixteenth-Century Counterpoint (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983  
Prerequisite: MUSIC 222MUSIC 232

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 472** Eighteenth-Century Counterpoint (2) Imitative and nonimitative counterpoint in the style of Bach.

**Eighteenth-Century Counterpoint (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983  
Prerequisite: MUSIC 222MUSIC 232

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 473J** Composition VII (3) Composition instruction for fourth-year composition majors.

**Composition VII (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2012  
Prerequisite: MUSIC 374J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 474J** Composition VIII (3) Composition instruction for fourth-year composition majors.

**Composition VIII (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2012  
Prerequisite: MUSIC 473J

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 476W** B.A. Senior Project (3) A semester project appropriate to student's option in B.A. program (e.g., research paper, performance with program notes, or related paper).

**B.A. Senior Project (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1992  
Prerequisite: seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 478** Vocal Literature (3) Introduction to the literature for solo voice in opera, oratorio, cantata, art song, and chamber music from the baroque to the present.

**Vocal Literature (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1997  
Prerequisite: MUSIC 262MUSIC 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 480** Opera Literature (3) Studies in the development of the opera from 1600 to the present, treating both libretto and music.

**Opera Literature (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1997  
Prerequisite: MUSIC 262MUSIC 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 481** Keyboard Literature (3) Studies in the development of keyboard music and instruments; a survey of all eras using listening, analysis, and performance.

**Keyboard Literature (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1997  
Prerequisite: MUSIC 262MUSIC 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 483 Seminar in Voice Pedagogy (2)** Survey of literature relevant to the teaching of voice from historical sources through recent pedagogical scholarship.

**Seminar in Voice Pedagogy (2)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: MUSIC 418

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 485 Chamber Music Literature (3)** Survey of chamber music for strings, winds, and brass instruments from the mid-16th century to the present day.

**Chamber Music Literature (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 1997

Prerequisite: MUSIC 262MUSIC 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 487 Orchestral Literature (3)** Survey of orchestral literature.

**Orchestral Literature (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 1997

Prerequisite: MUSIC 262MUSIC 331

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 488 Studies in the Major Performance Area (1-2)** Selected studies in music literature specific to the student's major performance area. Will include research, analysis and performance.

**MUSIC 488 Studies in the Major Performance Area (1-2)**

The objective of Music 488 is to create a thorough knowledge of the literature and resources in the students' major performance area. The course will be taught in a seminar format. Students will be grouped according by general performance area: i.e., keyboard, strings, woodwinds, brass, percussion, voice. The course will include lectures, research, class presentations and performance. The course will be offered for variable credit in order to meet varying conditions of scheduling and credit requirements. Specific evaluation methods will be determined by the instructor, to include class presentations, class participation, exams and/or written work.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 489 Studio and Recital Accompaniment (1 per semester/maximum of 4)** Advanced keyboard accompaniment of student soloists in the studio and in public performance under faculty supervision.

**Studio and Recital Accompaniment (1 per semester/maximum of 4)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1983

Prerequisite: MUSIC 194 or permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 491 Advanced Chamber Ensemble (1 per semester/maximum of 4)** Preparation and performance of advanced chamber music.



**MUSIC 491 Advanced Chamber Ensemble (1 per semester/maximum of 4)**

Advanced Chamber Ensemble meets at least two hours per week - once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: MUSIC 190MUSIC 191 or equivalent and permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 493 Sonata Duos (1 per semester/maximum of 4)** Preparation for performance of advanced sonata literature for various individual instruments with keyboard.

**Sonata Duos (1 per semester/maximum of 4)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1983

Prerequisite: MUSIC 193 or equivalent; permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 494 Research Topics (1-3 per semester/maximum of 6)** Supervised research leading to senior thesis or project.

**Research Topics (1-3 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 494H Research Topics (1-3 per semester/maximum of 6)** Supervised research leading to senior thesis or project.

**Research Topics (1-3 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 495A Student Teaching: General Music (5-7)** Observation and teaching under supervision.

**MUSIC 495A Student Teaching: General Music (6-8)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

As required by the Pennsylvania Department of Education, all music education students seeking certification must enroll in a culminating student teaching experience which closely approximates a full-time working experience in the public schools of Pennsylvania. The objective of this course is to offer a transition between student life and professional life directly prior to graduation. This total immersion in the field of GENERAL MUSIC allows the student to learn from and work with a mentor teacher in an off-campus setting. During the semester prior to the course, cooperating music teachers and school districts are contacted requesting their participation and music education students interview with the teachers. The students then move to the community in which they will be student teaching and adopt the practices of that mentor teacher within that specific school district.

Students are evaluated by both the mentor teacher and a Penn State supervisor who visits a minimum of four times per semester. This course is offered every semester.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2001

Prerequisite: completion of all courses in the major with a grade of "C" or better

Concurrent: MUSIC 442

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 495B** Student Teaching: Choral Music (5-7) Observation and teaching under supervision.

**MUSIC 495B Student Teaching: Choral Music (5-7)****(BA) This course meets the Bachelor of Arts degree requirements.**

As required by the Pennsylvania Department of Education, all music education students seeking certification must enroll in a culminating student teaching experience which closely approximates a full-time working experience in the public schools of Pennsylvania. The objective of this course is to offer a transition between student life and professional life directly prior to graduation. This total immersion in the field of CHORAL MUSIC allows the student to learn from and work with a mentor teacher in an off-campus setting. During the semester prior to the course, cooperating music teachers and school districts are contacted requesting their participation and music education students interview with the teachers. The students then move to the community in which they will be student teaching and adopt the practices of that mentor teacher within that specific school district.

Students are evaluated by both the mentor teacher and a Penn State supervisor who visits a minimum of four times per semester. This course is offered every semester.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2001

Prerequisite: completion of all courses in the major with a grade of "C" or better

Concurrent: MUSIC 443

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 495C** Student Teaching: Instrumental Music (5-7) Observation and teaching under supervision.

**MUSIC 495C Student Teaching: Instrumental Music (5-7)****(BA) This course meets the Bachelor of Arts degree requirements.**

As required by the Pennsylvania Department of Education, all music education students seeking certification must enroll in a culminating student teaching experience which closely approximates a full-time working experience in the public schools of Pennsylvania. The objective of this course is to offer a transition between student life and professional life directly prior to graduation. This total immersion in the field of INSTRUMENTAL MUSIC allows the student to learn from and work with a mentor teacher in an off-campus setting. During the semester prior to the course, cooperating music teachers and school districts are contacted requesting their participation and music education students interview with the teachers. The students then move to the community in which they will be student teaching and adopt the practices of that mentor teacher within that specific school district.

Students are evaluated by both the mentor teacher and a Penn State supervisor who visits a minimum of four times per semester. This course is offered every semester.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2001

Prerequisite: completion of all courses in the major with a grade of "C" or better

Concurrent: MUSIC 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 496H** Independent Studies - Honors (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies - Honors (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 497A** Survey Music History (3) For graduate students who need remedial work in music history.

**Survey Music History (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 497A** Survey Music History (3) For graduate students who need remedial work in music history.

**Survey Music History (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 497B** Double Bass Excerpts (1) This course is designed to study in depth a series of double bass excerpts from standard orchestral and opera repertoire. We will look at how to prepare a mock audition behind a screen at the end of the semester.

**Double Bass Excerpts (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 497B** Double Bass Excerpts (1) This course is designed to study in depth a series of double bass excerpts from standard orchestral and opera repertoire. We will look at how to prepare a mock audition behind a screen at the end of the semester.

**Double Bass Excerpts (1)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 497C** Viola Orchestral Excerpts (1) An introduction to excerpts from the viola parts of standard orchestral literature required for professional orchestral auditions.

**Viola Orchestral Excerpts (1)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 497C** Viola Orchestral Excerpts (1) An introduction to excerpts from the viola parts of standard orchestral literature required for professional orchestral auditions.

**Viola Orchestral Excerpts (1)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 497D** History of Electroacoustic Music (3) A history of electroacoustic music as a consequence of developments in culture and technology from 1880 to present.

**History of Electroacoustic Music (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 497D** History of Electroacoustic Music (3) A history of electroacoustic music as a consequence of developments in culture and technology from 1880 to present.

**History of Electroacoustic Music (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**MUSIC 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Music - Brass (BRASS)**

**BRASS 100J** (GA) Trumpet: Secondary (1 per semester, maximum of 8) Individual instruction in trumpet one-half hour per week.

**BRASS 100J Trumpet: Secondary (1 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to introduce, define, and develop the musical and technical skills required to play the trumpet well in a variety of musical settings. The instrument is active in orchestral, band, jazz, chamber, and solo settings. Therefore, the basic goal for serious trumpet students as well as amateur trumpet students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-half hour lesson per week, presuming at least 5 hours of practice. Enrollment can range from 10-12 per semester depending on the availability of staffing.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 101J** (GA) French Horn: Secondary (1 per semester, maximum of 8) Individual instruction in French horn one-half hour per week. For students who qualify.

**BRASS 101J French Horn: Secondary (1 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to introduce, define, and develop the musical and technical skills required to play the French horn well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, the basic goal for serious horn students as well as amateur horn students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-half hour lesson per week, assuming at least 5 hours of practice. Enrollment can range from 5-8 per semester depending on the availability of staffing.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**BRASS 102J (GA) Trombone: Secondary (1 per semester, maximum of 8)** Individual instruction in trombone one-half hour per week.

**BRASS 102J Trombone: Secondary (1 per semester/maximum of 8) (GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to introduce, define, and develop the musical and technical skills required to play the trombone well in a variety of musical settings. The instrument is active in orchestral, band, jazz, chamber, and solo settings. Therefore, the basic goal for serious trombonists as well as amateur trombonists is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-half hour lesson per week, presuming at least 5 hours of practice. Enrollment can range from 10-15 per semester depending on the availability of staffing.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2004

Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 103J (GA) Euphonium: Secondary (1 per semester, maximum of 8)** Individual instruction in euphonium/baritone one-half hour per week.

**BRASS 103J Euphonium: Secondary (1 per semester/maximum of 8) (GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to introduce, define, and develop the musical and technical skills required to play the euphonium well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, the basic goal for serious euphonium students as well as amateur euphonium students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-half hour lesson per week, presuming at least 5 hours of practice. Enrollment can range from 12-15 per semester depending on the availability of staffing.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2004

Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 104J (GA) Tuba: Secondary (1 per semester, maximum of 8)** Individual instruction in tuba one-half hour per week.

**BRASS 104J Tuba: Secondary (1 per semester/maximum of 8) (GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to introduce, define, and develop the musical and technical skills required to play the tuba well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, the basic goal for serious tuba students as well as amateur tuba students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-half hour lesson per week, presuming at least 5 hours of practice per week. Enrollment can range from 8-10 per semester depending on the availability of staffing.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 110J (GA) Trumpet: Secondary (2 per semester, maximum of 16)** Individual instruction in trumpet one hour per week.

**BRASS 110J Trumpet: Secondary (2 per semester/maximum of 16)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to introduce, define, and develop the musical and technical skills required to play the trumpet well in a variety of musical settings. The instrument is active in orchestral, band, jazz, chamber, and solo settings. Therefore, the basic goal for serious trumpet students as well as amateur trumpet students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-hour lesson per week, presuming at least 10 hours of practice. Enrollment can range from 10-12 per semester depending on the availability of staffing.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 111J (GA) French Horn: Secondary (2 per semester, maximum of 16)** Individual instruction in French horn one hour per week. For students who qualify.

**BRASS 111J French Horn: Secondary (2 per semester/maximum of 16)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to introduce, define, and develop the musical and technical skills required to play the horn well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, the basic goal for serious horn students as well as amateur horn students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-hour lesson per week, presuming at least 10 hours of practice. Enrollment can range from 5-8 per semester depending on the availability of staffing.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 112J (GA) Trombone: Secondary (2 per semester, maximum of 16)** Individual instruction in trombone one hour per week.

**BRASS 112J Trombone: Secondary (2 per semester/maximum of 16)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to introduce, define, and develop the musical and technical skills required to play the trombone well in a variety of musical settings. The instrument is active in orchestral, band, jazz, chamber, and solo settings. Therefore, the basic goal for serious trombonists as well as amateur trombonists is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-hour lesson per week, presuming at least 10 hours of practice. Enrollment can range from 10-15 per semester depending on the availability of staffing.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 113J (GA) Euphonium: Secondary (2 per semester, maximum of 16)** Individual instruction in euphonium/baritone one hour per week.

**BRASS 113J Euphonium: Secondary (2 per semester/maximum of 16)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to introduce, define, and develop the musical and I skills required to play the euphonium well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, goal for serious euphonium students as well as amateur euphonium students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-hour lesson per week, presuming at least 10 hours of practice. Enrollment can range from 12-15 per semester depending on the availability of staffing.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 114J (GA) Tuba: Secondary (2 per semester, maximum of 16)** Individual instruction in tuba one hour per week.

**BRASS 114J Tuba: Secondary (2 per semester/maximum of 16)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goals of this course are to introduce, define, and develop the musical and technical skills required to play the tuba well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, the basic goal for serious tuba students as well as amateur tuba students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-hour lesson per week, presuming at least 10 hours of practice. Enrollment can range from 8-10 per semester depending on the availability of staffing.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 120J Trumpet: Primary I (2)** Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Trumpet: Primary I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 121J French Horn: Primary I (2)** Individual instruction in French horn one hour per week. For School of Music B.A.



and B.S. majors; other qualified students.

**French Horn: Primary I (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 122J** Trombone: Primary I (2) Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Trombone: Primary I (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 123J** Euphonium: Primary I (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Euphonium: Primary I (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 124J** Tuba: Primary I (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Tuba: Primary I (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 130J** Trumpet: Performance I (3) Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

**Trumpet: Performance I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 131J** French Horn: Performance I (3) Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

**French Horn: Performance I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**BRASS 132J Trombone: Performance I (3)** Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

**Trombone: Performance I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 133J Euphonium: Performance I (3)** Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

**Euphonium: Performance I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 134J Tuba: Performance I (3)** Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

**Tuba: Performance I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 170J Trumpet: Primary II (2)** Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Trumpet: Primary II (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 120J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 171J French Horn: Primary II (2)** Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**French Horn: Primary II (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 121J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 172J Trombone: Primary II (2)** Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Trombone: Primary II (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 122J and permission of jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 173J** Euphonium: Primary II (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Euphonium: Primary II (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 123J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 174J** Tuba: Primary II (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Tuba: Primary II (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 124J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 180J** Trumpet: Performance II (3) Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

**Trumpet: Performance II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 130J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 181J** French Horn: Performance II (3) Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

**French Horn: Performance II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 131J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 182J** Trombone: Performance II (3) Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

**Trombone: Performance II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 132J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 183J** Euphonium: Performance II (3) Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

**Euphonium: Performance II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 133J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 184J** Tuba: Performance II (3) Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

**Tuba: Performance II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 134J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 220J** Trumpet: Primary III (2) Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

**Trumpet: Primary III (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 170J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 221J** French Horn: Primary III (2) Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors.

**French Horn: Primary III (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 171J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 222J** Trombone: Primary III (2) Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors.

**Trombone: Primary III (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 172J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 223J** Euphonium: Primary III (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors.

**Euphonium: Primary III (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 173J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 224J** Tuba: Primary III (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B. S. majors.

**Tuba: Primary III (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 174J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 230J** Trumpet: Performance III (3) Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

**Trumpet: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 180J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 231J** French Horn: Performance III (3) Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

**French Horn: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 181J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 232J** Trombone: Performance III (3) Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

**Trombone: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 182J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 233J** Euphonium: Performance III (3) Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

**Euphonium: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 183J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 234J** Tuba: Performance III (3) Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

**Tuba: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 184J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 270J** Trumpet: Primary IV (2) Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Trumpet: Primary IV (2)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 220J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 271J** French Horn: Primary IV (2) Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**French Horn: Primary IV (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 221J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 272J** Trombone: Primary IV (2) Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Trombone: Primary IV (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 222J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 273J** Euphonium: Primary IV (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Euphonium: Primary IV (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 223J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 274J** Tuba: Primary IV (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors.

**Tuba: Primary IV (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 224J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 280J** Trumpet: Performance IV (3) individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

**Trumpet: Performance IV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 230J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 281J** French Horn: Performance IV (3) Individual instruction in French Horn one hour per week. For B.Mus. French Horn performance majors.

**French Horn: Performance IV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 231J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 282J Trombone: Performance IV (3)** Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

**Trombone: Performance IV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 232J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 283J Euphonium: Performance IV (3)** Individual instruction in euphonium/baritone one hour per week. For B.Mus euphonium/baritone majors.

**Euphonium: Performance IV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 233J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 284J Tuba: Performance IV (3)** Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

**Tuba: Performance IV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 234J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 320J Trumpet: Primary V (2)** Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

**Trumpet: Primary V (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 270J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 321J French Horn: Primary V (2)** Individual instruction in French Horn one hour per week. For School of Music B.A. and B.S. majors.

**French Horn: Primary V (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 271J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 322J Trombone: Primary V (2)** Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors.

**Trombone: Primary V (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 272J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 323J** Euphonium: Primary V (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors.

**Euphonium: Primary V (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 273J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 324J** Tuba: Primary V (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Tuba: Primary V (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 274J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 330J** Trumpet: Performance V (3) Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

**Trumpet: Performance V (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 280J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 331J** French Horn: Performance V (3) Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

**French Horn: Performance V (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 281J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 332J** Trombone: Performance V (3) Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

**Trombone: Performance V (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: BRASS 282J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 333J** Euphonium: Performance V (3) Individual instruction in euphonium/baritone one hour per week. For B.Mus.



euphonium/baritone majors.

**Euphonium: Performance V (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 283J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 334J** Tuba: Performance V (3) Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

**Tuba: Performance V (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 284J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 370J** Trumpet: Primary VI (2) Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Trumpet: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 320J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 371J** French Horn: Primary VI (2) Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**French Horn: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 321J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 372J** Trombone: Primary VI (2) Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Trombone: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 322J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 373J** Euphonium: Primary VI (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Euphonium: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 323J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 374J** Tuba: Primary VI (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors.

**Tuba: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 324J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 380J** Trumpet: Performance VI (3) Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

**Trumpet: Performance VI (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 330J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 381J** French Horn: Performance VI (3) Individual instruction of French horn one hour per week. For B.Mus. French horn performance majors.

**French Horn: Performance VI (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 331J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 382J** Trombone: Performance VI (3) Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

**Trombone: Performance VI (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 332J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 383J** Euphonium: Performance VI (3) Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

**Euphonium: Performance VI (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 333J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 384J** Tuba: Performance VI (3) Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

**Tuba: Performance VI (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 334J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 420J** Trumpet: Primary VII (2) Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

**Trumpet: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 370J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 421J** French Horn: Primary VII (2) Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors.

**French Horn: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 321J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 422J** Trombone: Primary VII (2) Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors.

**Trombone: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 372J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 423J** Euphonium: Primary VII (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Euphonium: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 373J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 424J** Tuba: Primary VII (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Tuba: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 374J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 430J** Trumpet: Performance VII (3) Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

**Trumpet: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 380J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 431J** French Horn: Performance VII (3) Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

**French Horn: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 381J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 432J** Trombone: Performance VII (3) Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

**Trombone: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 382J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 433J** Euphonium: Performance VII (3) Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

**Euphonium: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 383J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 434J** Tuba: Performance VII (3) Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

**Tuba: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 384J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 470J** Trumpet: Primary VIII (2) Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

**Trumpet: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 420J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 471J** French Horn: Primary VIII (2) Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors.

**French Horn: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 421J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 472J** Trombone: Primary VIII (2) Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors.

**Trombone: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 422J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 473J** Euphonium: Primary VIII (2) Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors.

**Euphonium: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 423J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 474J** Tuba: Primary VIII (2) Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors.

**Tuba: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 424J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 480J** Trumpet: Performance VIII (3) Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

**Trumpet: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 430J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 481J** French Horn: Performance VIII (3) Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

**French Horn: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 431J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 482J** Trombone: Performance VIII (3) Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

**Trombone: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 432J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 483J Euphonium: Performance VIII (3)** Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

### **Euphonium: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 433J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**BRASS 484J Tuba: Performance VIII (3)** Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

### **Tuba: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: BRASS 434J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Music - Keyboard (KEYBD)**

**KEYBD 100J (GA)** Piano: Secondary (1 per semester, maximum of 8) Individual instruction in piano one-half hour per week.

**KEYBD 100J Piano: Secondary (1 per semester/maximum of 8) (GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Keyboard 100J is designed to provide the intermediate non-music major and/or music major student with strategies for developing some of the advanced skills required for playing the piano. Some knowledge of music or piano is assumed. Admission to the course is controlled by the piano faculty. Music 050, 051 (for non-music majors), completion of the piano proficiency (for music majors), or permission of the instructor is a prerequisite for this course. Students learn repertoire, sight-playing, score analysis, interpretive techniques, how to practice to the fullest possible communication of the composer's intent, scales, and a proper and healthy physical approach to the keyboard. Practice of these elements outside the class is expected. Objectives include learning score analysis and interpretive rendering of great masterworks of the piano. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible listening assignments, attendance at studio class and specific concerts. Special facilities required to teach the course are two well-maintained grand pianos for student performance and teacher demonstration. The course is offered every semester.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 101J (GA)** Organ: Secondary (1 per semester, maximum of 8) Individual instruction in pipe organ one-half hour per week.

**KEYBD 101J Organ: Secondary (1 per semester/maximum of 8) (GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Keyboard 101J is designed to provide the intermediate non-music major and/or music major student with strategies for developing some of the advanced skills required for playing the organ. Some knowledge of music or piano is assumed. Admission to the course is controlled by the keyboard faculty. Students learn repertoire, sight-playing, score analysis, interpretive techniques, how to practice to the fullest possible communication of the composer's intent, scales, and a proper and healthy physical approach to the keyboard and pedals. Practice of these elements outside the class is

expected. Objectives include learning score analysis and interpretive rendering of great masterworks of the organ. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible listening assignments, attendance at studio class and specific concerts. Special facilities required to teach the course is a well-maintained pipe organ for student performance and teacher demonstration. The course is offered every semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 110J (GA) Piano: Secondary (2 per semester, maximum of 16)** Individual instruction in piano one hour per week.

**KEYBD 110J Piano: Secondary (2 per semester/maximum of 16)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Keyboard 110J is designed to provide the intermediate non-music major and/or music major student with strategies for developing some of the advanced skills required for playing the piano. Some knowledge of music or piano is assumed. Admission to the course is controlled by the piano faculty through interview and/or audition. Music 050, 051 (for non-music majors), completion of the piano proficiency (for music majors), or permission of the instructor is a prerequisite for this course. Students learn repertoire, sight-playing, score analysis, interpretive techniques, how to practice for the fullest possible communication of the composer's intent, scales, a proper and healthy physical approach to the keyboard. Practice of these elements outside the class is expected. Objectives include learning score analysis and interpretive rendering of great masterworks of the piano. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible listening assignments, attendance at studio class and specific concerts. Special facilities required to teach the course are two well-maintained grand pianos for student performance and teacher demonstration. The course is offered every semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 111J (GA) Organ: Secondary (2 per semester, maximum of 16)** Individual instruction in pipe organ one hour per week.

**KEYBD 111J Organ: Secondary (2 per semester/maximum of 16)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Keyboard 111J is designed to provide the intermediate non-music major and/or music major student with strategies for developing some of the advanced skills required for playing the organ. Some knowledge of music or piano is assumed. Admission to the course is controlled by the keyboard faculty. Students learn repertoire, sight-playing, score analysis, interpretive techniques, how to practice to the fullest possible communication of the composer's intent, scales, a proper and healthy physical approach to the keyboard and pedals. Practice of these elements outside the class is expected. Objectives include learning score analysis and interpretive rendering of great masterworks of the organ. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible listening assignments, attendance at studio class and specific concerts. Special facilities required to teach the course is a well-maintained pipe organ for student performance and teacher demonstration. The course is offered every semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2004  
Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 120J Piano: Primary I (2)** Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

**Piano: Primary I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 121J** Organ: Primary I (2) Individual instruction in pipe organ one hour per week. For School of Music B.A. and B.S. majors.

**Organ: Primary I (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 130J** Piano: Performance I (3) Individual instruction in piano one hour per week. For B.Mus. performance majors.

**Piano: Performance I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 170J** Piano: Primary II (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

**Piano: Primary II (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: KEYBD 120J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 180J** Piano: Performance II (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

**Piano: Performance II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: KEYBD 130J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 220J** Piano: Primary III (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

**Piano: Primary III (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: KEYBD 170J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 230J** Piano: Performance III (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

**Piano: Performance III (3)**

General Education: None

Diversity: None



Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: KEYBD 180J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 270J** Piano: Primary IV (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

**Piano: Primary IV (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: KEYBD 220J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 280J** Piano: Performance IV (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

**Piano: Performance IV (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: KEYBD 230J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 320J** Piano: Primary V (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

**Piano: Primary V (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: KEYBD 270J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 330J** Piano: Performance V (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

**Piano: Performance V (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: KEYBD 280J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 370J** Piano: Primary VI (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

**Piano: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: KEYBD 320J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 380J** Piano: Performance VI (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

**Piano: Performance VI (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: KEYBD 330J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 420J** Piano: Primary VII (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

**Piano: Primary VII (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: KEYBD 370J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 430J** Piano: Performance VII (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

**Piano: Performance VII (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: KEYBD 380J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 470J** Piano: Primary VIII (2) Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

**Piano: Primary VIII (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: KEYBD 420J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**KEYBD 480J** Piano: Performance VIII (3) Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

**Piano: Performance VIII (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: KEYBD 430J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Music - Percussion (PERCN)

**PERCN 100J** (GA) Percussion: Secondary (1 per semester, maximum of 8) Individual instruction in percussion one-half hour per week. For both music and non-music majors.

**PERCN 100J Percussion: Secondary (1 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course consists of private instruction in selected areas of percussion performance. Individualized instruction will guide the student toward competence playing the instrument(s), the study of appropriate repertoire, developing interpretive insights, acquisition of music reading skills, and acquiring both tonal and technical command. Skill building

will enable the student to be active as a performer, participating in Penn State music ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned material (music, etude books, etc.), essential accessories (metronome, practice pad, etc.), and appropriate instrumental needs (sticks, mallets, small instruments, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 110J** (GA) Percussion: Secondary (2 per semester, maximum of 16) Individual instruction in percussion one hour per week. For both music and non-music majors.

**PERCN 110J Percussion: Secondary (2 per semester/maximum of 16)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Individualized instruction will guide the student toward competence playing the instrument, the study of appropriate repertoire, developing interpretive insights, acquisition of music reading skills, and acquiring both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State music ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned material (music, etude books, etc.), essential accessories (metronome, practice pad, etc.), and appropriate instrumental needs (sticks, mallets, small instruments, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 120J** Percussion: Primary I (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Percussion: Primary I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: Acceptance into program by faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 130J** Percussion: Performance I (3) Individual instruction in percussion one hour per week. For B.Mus percussion majors.

**Percussion: Performance I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 170J** Percussion: Primary II (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

**Percussion: Primary II (2)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 120J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 180J** Percussion: Performance II (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

**Percussion: Performance II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 130J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 220J** Percussion: Primary III (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

**Percussion: Primary III (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 170J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 230J** Percussion: Performance III (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

**Percussion: Performance III (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 180J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 270J** Percussion: Primary IV (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

**Percussion: Primary IV (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 220J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 280J** Percussion: Performance IV (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

**Percussion: Performance IV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 230J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 320J** Percussion: Primary V (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

**Percussion: Primary V (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 270J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 330J** Percussion: Performance V (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

**Percussion: Performance V (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 280J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 370J** Percussion: Primary VI (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

**Percussion: Primary VI (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 320J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 380J** Percussion: Performance VI (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

**Percussion: Performance VI (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 330J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 420J** Percussion: Primary VII (2) Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

**Percussion: Primary VII (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 370J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 430J** Percussion: Performance VII (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

**Percussion: Performance VII (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: PERCN 380J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 470J** Percussion: Primary VIII (2) Individual instruction in percussion one hour per week. For School of Music B.A.

and B.S. majors.

**Percussion: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: PERCN 420J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PERCN 480J** Percussion: Performance VIII (3) Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

**Percussion: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: PERCN 430J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Music - String (STRNG)

**STRNG 100J** (GA) Violin: Secondary (1 per semester, maximum of 8) Individual instruction in violin one-half hour per week.

**STRNG 100J Violin: Secondary (1 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce, define, and develop the musical and technical skills required to play the violin in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. Students receive one-half hour of private instruction per week. The course is open to Music majors and nonmajors and is offered every semester. Enrollment can range from 10-20 students per semester.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 101J** (GA) Viola: Secondary (1 per semester, maximum of 8) Individual instruction in viola one-half hour per week.

**STRNG 101J Viola: Secondary (1 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce, define, and develop the musical and technical skills required to play the viola in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. Students receive one-half hour of private instruction per week. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 5-8 students per semester.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 102J** (GA) Violoncello: Secondary (1 per semester, maximum of 8) Individual instruction in violoncello one-half hour per week.

**STRNG 102J Violoncello: Secondary (1 per semester/maximum of 8)  
(GA)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce, define, and develop the musical and technical skills required to play the violoncello in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. Students receive one-half hour of private instruction per week. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 8-10 students per semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 103J (GA) Double Bass: Secondary (1 per semester, maximum of 8)** Individual instruction in double bass one-half hour per week.

**STRNG 103J Double Bass: Secondary (1 per semester/maximum of 8)  
(GA)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce, define, and develop the musical and technical skills required to play the double bass in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. Students receive one-half hour of private instruction per week. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 3-5 students per semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 110J (GA) Violin: Secondary (2 per semester, maximum of 16)** Individual instruction in violin one hour per week.

**STRNG 110J Violin: Secondary (2 per semester/maximum of 16)  
(GA)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce, define, and develop the musical and technical skills required to play the violin in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. The course is open to Music majors and nonmajors and is offered every semester. Enrollment can range from 4-6 students per semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 111J (GA) Viola: Secondary (2 per semester, maximum of 16)** Individual instruction in viola one hour per week.

**STRNG 111J Viola: Secondary (2 per semester/maximum of 16)  
(GA)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce, define, and develop the musical and technical skills required to play the viola in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 3-5 students

per semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 112J (GA) Violoncello: Secondary (2 per semester, maximum of 16)** Individual instruction in violoncello one hour per week.

**STRNG 112J Violoncello: Secondary (2 per semester/maximum of 16)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce, define, and develop the musical and technical skills required to play the violoncello in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 3-5 students per semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 113J (GA) Double Bass: Secondary (2 per semester, maximum of 16)** Individual instruction in double bass one hour per week.

**STRNG 113J Double Bass: Secondary (2 per semester/maximum of 16)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce, define, and develop the musical and technical skills required to play the double bass in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 3-5 students per semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 120J Violin: Primary I (2)** Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violin: Primary I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 121J Viola: Primary I (2)** Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Viola: Primary I (2)**

General Education: None  
Diversity: None



Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 122J** Violoncello: Primary I (2) Individualized instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violoncello: Primary I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 123J** Double Bass: Primary I (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Double Bass: Primary I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 130J** Violin: Performance I (3) Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

**Violin: Performance I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 131J** Viola: Performance I (3) Individual instruction in viola one hour per week. For B.Mus. guitar performance majors.

**Viola: Performance I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 132J** Violoncello: Performance I (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

**Violoncello: Performance I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 133J** Double Bass: Performance I (3) Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

**Double Bass: Performance I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 170J** Violin: Primary II (2) Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violin: Primary II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 120J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 171J** Viola: Primary II (2) Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Viola: Primary II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 121J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 172J** Violoncello: Primary II (2) Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violoncello: Primary II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 122J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 173J** Double Bass: Primary II (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Double Bass: Primary II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 123J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 180J** Violin: Performance II (3) Individual instruction in violin one hour per week. For B.Mus. violin performance major.

**Violin: Performance II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 130J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 181J** Viola: Performance II (3) Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

**Viola: Performance II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 131J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 182J** Violoncello: Performance II (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

**Violoncello: Performance II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 132J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 183J** Double Bass: Performance II (3) Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

**Double Bass: Performance II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 133J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 220J** Violin: Primary III (2) Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violin: Primary III (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 170J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 221J** Viola: Primary III (2) Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Viola: Primary III (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 171J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 222J** Violoncello: Primary III (2) Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violoncello: Primary III (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 172J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 223J** Double Bass: Primary III (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Double Bass: Primary III (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 173J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 230J** Violin: Performance III (3) Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

**Violin: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 180J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 231J** Viola: Performance III (3) Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

**Viola: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 181J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 232J** Violoncello: Performance III (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

**Violoncello: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 182J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 233J** Double Bass: Performance III (3) Individual instruction in double bass one hour per week. For B.Mus. double bass majors.

**Double Bass: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 183J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 270J** Violin: Primary IV (2) Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students .

**Violin: Primary IV (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 220J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 271J** Viola: Primary IV (2) Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Viola: Primary IV (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 221J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 272J** Violoncello: Primary IV (2) Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violoncello: Primary IV (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 222J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 273J** Double Bass: Primary IV (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Double Bass: Primary IV (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 223J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 280J** Violin: Performance IV (3) Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

**Violin: Performance IV (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 230J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 281J** Viola: Performance IV (3) Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

**Viola: Performance IV (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 231J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 282J** Violoncello: Performance IV (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

**Violoncello: Performance IV (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 232J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 283J** Double Bass: Performance IV (3) Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

**Double Bass: Performance IV (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 233J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 320J** Violin: Primary V (2) Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violin: Primary V (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 270J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 321J** Viola: Primary V (2) Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Viola: Primary V (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 271J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 322J** Violoncello: Primary V (2) Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violoncello: Primary V (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 272J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 323J** Double Bass: Primary V (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Double Bass: Primary V (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 273J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 330J** Violin: Performance V (3) Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

**Violin: Performance V (3)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 280J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 331J** Viola: Performance V (3) Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

**Viola: Performance V (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 281J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 332J** Violoncello: Performance V (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

**Violoncello: Performance V (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 282J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 333J** Double Bass: Performance V (3) Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

**Double Bass: Performance V (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 283J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 370J** Violin: Primary VI (2) Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violin: Primary VI (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 320J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 371J** Viola: Primary VI (2) Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Viola: Primary VI (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 322J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 372J** Violoncello: Primary VI (2) Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violoncello: Primary VI (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 322J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 373J** Double Bass: Primary VI (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Double Bass: Primary VI (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 323J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 380J** Violin: Performance VI (3) Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

**Violin: Performance VI (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 330J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 381J** Viola: Performance VI (3) Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

**Viola: Performance VI (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 331J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 382J** Violoncello: Performance VI (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

**Violoncello: Performance VI (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 332J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 383J** Double Bass: Performance VI (3) Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

**Double Bass: Performance VI (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: STRNG 333J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 420J** Violin: Primary VII (2) Individual instruction in violin one hour per week. For School of Music B.A. and B.S.



majors; other qualified students.

**Violin: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 370J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 421J** Viola: Primary VII (2) Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Viola: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 371J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 422J** Violoncello: Primary VII (2) Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violoncello: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 372J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 423J** Double Bass: Primary VII (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Double Bass: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 373J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 430J** Violin: Performance VII (3) Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

**Violin: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 380J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 431J** Viola: Performance VII (3) Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

**Viola: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 381J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**STRNG 432J** Violoncello: Performance VII (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

**Violoncello: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 382J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 433J** Double Bass: Performance VII (3) Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

**Double Bass: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 383J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 470J** Violin: Primary VIII (2) Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violin: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 420J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 471J** Viola: Primary VIII (2) Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Viola: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 421J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 472J** Violoncello: Primary VIII (2) Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Violoncello: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 422J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 473J** Double Bass: Primary VIII (2) Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

**Double Bass: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 423J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 480J** Violin: Performance VIII (3) Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

**Violin: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 430J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 481J** Viola: Performance VIII (3) Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

**Viola: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 431J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 482J** Violoncello: Performance VIII (3) Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

**Violoncello: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 432J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STRNG 483J** Double Bass: Performance VIII (3) Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

**Double Bass: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: STRNG 433J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Music - Voice (VOICE)**

**VOICE 100J** (GA) Voice: Secondary (1 per semester, maximum of 8) Individual instruction in voice one-half hour per week.

**VOICE 100J Voice: Secondary (1 per semester/maximum of 8)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to present and apply basic principles of singing. Students learn songs, and address topics such as posture, breathing, tone production, expressiveness, and vocal health. Objectives are proficiency of breath management, a resonant vocal timbre, and effective communication in song. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible writing or listening assignments, and a possible studio recital. The course is offered every semester. The maximum enrollment is 30 per semester.

General Education: GA

Diversity: None

Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 110J (GA)** Voice: Secondary (2 per semester, maximum of 16) Individual instruction in voice one hour per week.

**VOICE 110J Voice: Secondary (2 per semester/maximum of 16)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to present and apply basic principles of singing. Students learn songs, and address topics such as posture, breathing, tone production, expressiveness, and vocal health. Objectives are proficiency of breath management, a resonant vocal timbre, and effective communication in song. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible writing or listening assignments, and a possible studio recital. The course is offered every semester. The maximum enrollment is 3 per semester.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 120J** Voice: Primary I (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

**Voice: Primary I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 130J** Voice: Performance I (3) Individual instruction in voice one hour per week. For B.Mus voice performance majors.

**Voice: Performance I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury permission

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 170J** Voice: Primary II (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

**Voice: Primary II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: VOICE 120J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 180J** Voice: Performance II (3) Individual instruction in voice one hour per week. For B.Mus voice performance majors.

**Voice: Performance II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: VOICE 130J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 212J** Music Theatre Voice I (1) Individual instruction in voice. Intended for Theatre Arts BFA-Music Theatre Option students.

**Music Theatre Voice I (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

Prerequisite: acceptance into program by faculty jury and successful completion of MUSIC 113-114

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 220J** Voice: Primary III (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

**Voice: Primary III (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: VOICE 170J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 230J** Voice: Performance III (3) Individual instruction in voice one hour per week. For B.Music voice performance majors.

**Voice: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: VOICE 180J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 262J** Music Theatre Voice II (1) Individual instruction in voice. Intended for Theatre Arts BFA-Music Theatre Option students.

**Music Theatre Voice II (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

Prerequisite: acceptance into program by faculty jury and successful completion of MUSIC 113-114

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 270J** Voice: Primary IV (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

**Voice: Primary IV (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: VOICE 220J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 280J** Voice: Performance IV (3) Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

**Voice: Performance IV (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: VOICE 230J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 312J** Music Theatre Voice III (1) Individual instruction in voice. Intended for Theatre Arts BFA-Music Theatre Option students.

**Music Theatre Voice III (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

Prerequisite: acceptance into program by faculty jury and successful completion of MUSIC 113-114

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 320J** Voice: Primary V (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

**Voice: Primary V (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: VOICE 270J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 330J** Voice: Performance V (3) Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

**Voice: Performance V (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: VOICE 280J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 362J** Music Theatre Voice IV (1) Individual instruction in voice. Intended for Theatre Arts BFA-Music Theatre Option students.

**Music Theatre Voice IV (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1995

Prerequisite: acceptance into program by faculty jury and successful completion of MUSIC 113-114

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 370J** Voice: Primary VI (2) Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

**Voice: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: VOICE 320J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 380J** Voice: Performance VI (3) Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

**Voice: Performance VI (3)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: VOICE 330J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 412J Musical Theatre Voice V (2)** Individual instruction in voice. Intended for Theatre BFA in Music Theatre students.

**VOICE 412J Musical Theatre Voice V (2)**

VOICE 412J continues to develop a vocal approach and technique to musical theatre repertoire. It is required of fourth-year musical theatre students. All aspects of vocal production are explored. The voice sequence is a required element of the B.F.A. musical theatre training program. Grading will be based on attendance, preparation, and attitude. These are all critical factors for entering the profession and for successfully completing this course. Deadlines and appointments must be kept. Students must do adequate outside preparation. VOICE 412J is a requirement for the B.F.A. in musical theatre. It is offered every fall semester with an enrollment of approximately 15 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2006  
Prerequisite: admission into Theatre BFA in Musical Theatre

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 420J Voice: Primary VII (2)** Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

**Voice: Primary VII (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: VOICE 370J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 430J Voice: Performance VII (3)** Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

**Voice: Performance VII (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: VOICE 380J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 462J Musical Theatre Voice VI (2)** Individual instruction in voice. Intended for Theatre BFA in Music Theatre students.

**VOICE 462J Musical Theatre Voice VI (2)**

VOICE 462J continues to develop a vocal approach and technique to musical theatre repertoire studied in Musical Theatre Voice V. It is required of fourth-year musical theatre students. All aspects of vocal production are explored. The voice sequence is a required element of the B.F.A. musical theatre training program. Grading will be based on attendance, preparation, and attitude. These are all critical factors for entering the profession and for successfully completing this course. Deadlines and appointments must be kept. Students must do adequate outside preparation. This course is a requirement for the B.F.A. in musical theatre. It is offered every spring semester with an enrollment of approximately 15.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2006  
Prerequisite: Admission into Theatre BFA in Musical Theatre

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 470J Voice: Primary VIII (2)** Individual instruction in voice one hour per week. For School of Music B.A. and B.S.

majors.

**Voice: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: VOICE 420J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VOICE 480J** Voice: Performance VIII (3) Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

**Voice: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: VOICE 430J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Music - Woodwinds (WWNDS)

**WWNDS 100J** (GA) Flute: Secondary (1 per semester, maximum of 8) Individual instruction in flute one-half hour per week. For both music and non-music majors.

**WWNDS 100J Flute: Secondary (1 per semester/maximum of 8)**  
(GA)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, the development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 101J** (GA) Oboe: Secondary (1 per semester, maximum of 8) Individual instruction in oboe one-half hour per week. For both music and non-music students.

**WWNDS 101J OBOE: Secondary (1 per semester/maximum of 8)**  
(GA)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

General Education: GA

Diversity: None

Bachelor of Arts: Arts



Effective: Spring 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 102J (GA) Clarinet: Secondary (1 per semester, maximum of 8)** Individual instruction in clarinet one-half hour per week. For both music and non-music students.

**WWNDS 102J Clarinet: Secondary (1 per semester/maximum of 8)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 103J (GA) Bassoon: Secondary (1 per semester, maximum of 8)** Individual instruction in bassoon one-half hour per week. For both music and non-music majors.

**WWNDS 103J Bassoon: Secondary (1 per semester/maximum of 8)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 104J (GA) Saxophone: Secondary (1 per semester, maximum of 8)** Individual instruction in saxophone one-half hour per week. For both music and non-music majors.

**WWNDS 104J Saxophone: Secondary (1 per semester/maximum of 8)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 110J (GA) Flute: Secondary (2 per semester, maximum of 16)** Individual instruction in flute one hour per week. For both music and non-music majors.

**WWNDS 110J Flute: Secondary (2 per semester/maximum of 16)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 111J (GA) Oboe: Secondary (2 per semester, maximum of 16)** Individual instruction in oboe one hour per week. For both music and non-music students.

**WWNDS 111J OBOE: Secondary (2 per semester/maximum of 16)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Individualized instruction will guide the student toward the mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

General Education: GA

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2004

Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 112J (GA) Clarinet: Secondary (2 per semester, maximum of 16)** Individual instruction in clarinet one hour per week. For both music and non-music students.

**WWNDS 112J Clarinet: Secondary (2 per semester/maximum of 16)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

General Education: GA

Diversity: None

Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 113J (GA) Bassoon: Secondary (2 per semester, maximum of 16)** Individual instruction in bassoon one hour per week. For both music and non-music majors.

**WWNDS 113J Bassoon: Secondary (2 per semester/maximum of 16)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 114J (GA) Saxophone: Secondary (2 per semester, maximum of 16)** Individual instruction in saxophone one hour per week. For both music and non-music majors.

**WWNDS 114J Saxophone: Secondary (2 per semester/maximum of 16)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004  
Prerequisite: permission of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 120J Flute: Primary I (2)** Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

**Flute: Primary I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 121J Oboe: Primary I (2)** Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

**Oboe: Primary I (2)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 122J** Clarinet: Primary I (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

**Clarinet: Primary I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 123J** Bassoon: Primary I (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

**Bassoon: Primary I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 124J** Saxophone Primary I (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

**Saxophone Primary I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 130J** Flute: Performance I (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

**Flute: Performance I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 131J** Oboe: Performance I (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

**Oboe: Performance I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 132J** Clarinet: Performance I (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

**Clarinet: Performance I (3)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 133J** Bassoon: Performance I (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

**Bassoon: Performance I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 134J** Saxophone: Performance I (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

**Saxophone: Performance I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: acceptance into program by faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 170J** Flute: Primary II (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

**Flute: Primary II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 120J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 171J** Oboe: Primary II (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

**Oboe: Primary II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 121J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 172J** Clarinet: Primary II (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

**Clarinet: Primary II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 122J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 173J** Bassoon: Primary II (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

**Bassoon: Primary II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 123J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 174J Saxophone: Primary II (2)** Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

**Saxophone: Primary II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 124J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 180J Flute: Performance II (3)** Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

**Flute: Performance II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 130J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 181J Oboe: Performance II (3)** Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

**Oboe: Performance II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 131J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 182J Clarinet: Performance II (3)** Individual instruction in clarinet one hour per week. For B.Mus. clarinetmajors.

**Clarinet: Performance II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 132J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 183J Bassoon: Performance II (3)** Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

**Bassoon: Performance II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 133J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 184J Saxophone: Performance II (3)** Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

**Saxophone: Performance II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 134J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 220J** Flute: Primary III (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

**Flute: Primary III (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 170J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 221J** Oboe: Primary III (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

**Oboe: Primary III (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 171J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 222J** Clarinet: Primary III (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

**Clarinet: Primary III (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 172J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 223J** Bassoon: Primary III (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

**Bassoon: Primary III (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 173J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 224J** Saxophone: Primary III (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

**Saxophone: Primary III (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 174J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 230J** Flute: Performance III (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

**Flute: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 180J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 231J** Oboe: Performance III (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

**Oboe: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 181J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 232J** Clarinet: Performance III (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

**Clarinet: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 182J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 233J** Bassoon: Performance III (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

**Bassoon: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 183J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 234J** Saxophone: Performance III (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

**Saxophone: Performance III (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 184J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 270J** Flute: Primary IV (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

**Flute: Primary IV (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 220J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 271J** Oboe: Primary IV (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.



**Oboe: Primary IV (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 221J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 272J** Clarinet: Primary IV (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

**Clarinet: Primary IV (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 222J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 273J** Bassoon: Primary IV (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

**Bassoon: Primary IV (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 223J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 274J** Saxophone: Primary IV (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

**Saxophone: Primary IV (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 224J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 280J** Flute: Performance IV (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

**Flute: Performance IV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 230J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 281J** Oboe: Performance IV (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

**Oboe: Performance IV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 231J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 282J** Clarinet: Performance IV (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

**Clarinet: Performance IV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 232J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 283J** Bassoon: Performance IV (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

**Bassoon: Performance IV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 233J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 284J** Saxophone: Performance IV (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

**Saxophone: Performance IV (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 234J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 320J** Flute: Primary V (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

**Flute: Primary V (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 270J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 321J** Oboe: Primary V (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

**Oboe: Primary V (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 271J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 322J** Clarinet: Primary V (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

**Clarinet: Primary V (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: WWNDS 272J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 323J** Bassoon: Primary V (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

**Bassoon: Primary V (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 273J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 324J** Saxophone: Primary V (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

**Saxophone: Primary V (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 274J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 330J** Flute: Performance V (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

**Flute: Performance V (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 280J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 331J** Oboe: Performance V (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

**Oboe: Performance V (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 281J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 332J** Clarinet: Performance V (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinetmajors.

**Clarinet: Performance V (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 282J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 333J** Bassoon: Performance V (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

**Bassoon: Performance V (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 283J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 334J** Saxophone: Performance V (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

**Saxophone: Performance V (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 284J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 370J** Flute: Primary VI (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

**Flute: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 320J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 371J** Oboe: Primary VI (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

**Oboe: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 321J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 372J** Clarinet: Primary VI (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

**Clarinet: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 322J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 373J** Bassoon: Primary VI (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

**Bassoon: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 323J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 374J** Saxophone: Primary VI (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

**Saxophone: Primary VI (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 324J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 380J** Flute: Performance VI (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

**Flute: Performance VI (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 330J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 381J** Oboe: Performance VI (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

**Oboe: Performance VI (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 331J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 382J** Clarinet: Performance VI (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

**Clarinet: Performance VI (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 332J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 383J** Bassoon: Performance VI (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

**Bassoon: Performance VI (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 333J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 384J** Saxophone: Performance VI (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

**Saxophone: Performance VI (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 334J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 420J** Flute: Primary VII (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

**Flute: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 370J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 421J** Oboe: Primary VII (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

**Oboe: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 371J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 422J** Clarinet: Primary VII (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

**Clarinet: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 372J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 423J** Bassoon: Primary VII (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

**Bassoon: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 373J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 424J** Saxophone: Primary VII (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

**Saxophone: Primary VII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 374J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 430J** Flute: Performance VII (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

**Flute: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 380J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 431J** Oboe: Performance VII (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

**Oboe: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 381J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 432J** Clarinet: Performance VII (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

**Clarinet: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 382J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 433J** Bassoon: Performance VII (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

**Bassoon: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 383J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 434J** Saxophone: Performance VII (3) Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

**Saxophone: Performance VII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 384J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 470J** Flute: Primary VIII (2) Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

**Flute: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 420J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 471J** Oboe: Primary VIII (2) Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

**Oboe: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 421J and permission of faculty jury

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 472J** Clarinet: Primary VIII (2) Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

**Clarinet: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 422J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 473J** Bassoon: Primary VIII (2) Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

**Bassoon: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 423J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 474J** Saxophone: Primary VIII (2) Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

**Saxophone: Primary VIII (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 424J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 480J** Flute: Performance VIII (3) Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

**Flute: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 430J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 481J** Oboe: Performance VIII (3) Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

**Oboe: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 431J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 482J** Clarinet: Performance VIII (3) Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

**Clarinet: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 432J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 483J** Bassoon: Performance VIII (3) Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

**Bassoon: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None



Effective: Fall 1983

Prerequisite: WWNDS 433J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WWNDS 484J Saxophone: Performance VIII (3)** Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

### **Saxophone: Performance VIII (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: WWNDS 434J and permission of faculty jury

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Music Education (MU ED)**

**MU ED 440 Music Learning and Development (2)** Psychological principles related to music learning processes and applications of those to teaching music.

### **Music Learning and Development (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Nanofabrication Manufacturing Technology (NMT)**

**NMT 210W Introduction to Nanofabrication Manufacturing Technology (3)** This course provides an overview of basic Nanofabrication Manufacturing Technology for Engineering and Technology students. The course will give the student an overview of atomic physics and the use of atoms to build devices and machines.

### **NMT 210W Introduction to Nanofabrication Manufacturing Technology (3)**

This course provides an overview of basic Nanofabrication Manufacturing Technology (NMT) for Engineering and Technology students. The course will give the students an overview of atomic physics and the use of atoms to build devices and machines. Students will study the NMT industry and learn about applications in MEMS, bionanofab technology, and nanochemical applications. Internet resources will be used extensively in this course to aid in instruction. Semiconductors will be introduced and the student will learn about PN junctions, bipolar-, and field effect transistor applications. Included in the course are three project papers and eight hands-on lab experiments. Each lab experiment will require a formal written report. Computer usage will be stressed in both the lectures and labs. Students will look at transistors using PSPICE models and will use LASI to design a simple CMOS inverter.

The student will keep an Engineering Notebook for historical reference and documentation validating the steps and procedures used during the labs. In addition, the student will write seven engineering lab reports (six of these will be written as individual reports, one will be written as a team report). A research paper on the topic of nanofabrication technology is also required.

Maximum enrollment for NMT 210W is set at 25 students per section. In most cases, the number of sections at each location will be one per semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2003

Prerequisite: E E T 101

Concurrent: STAT 200 CHEM 012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NMT 250 Introduction to Nanotechnology Quality Control and Quality Assurance (1)** Overview of basic quality control and quality assurance methods used by the Nanotechnology industry.

**NMT 250 Introduction to Nanotechnology Quality Control and Quality Assurance (1)**

This course provides an overview of basic quality control and quality assurance for Nanomanufacturing Technology students. Students will obtain fundamental understanding of modern statistical quality control methods used by industry. The last four weeks of the course will cover the concepts, principles, procedures, statistical tools, and computations used to analyze and maintain statistical control of nanofabrication manufacturing and production processes and systems.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: STAT 200NMT 210W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Navy (NAVSC)**

**NAVSC 101** Introduction to Naval Science (3) Introduction to naval organization, customs, military law, ships, aircraft, and Marine Corps and Navy career paths.

**NAVSC 101 Introduction to Naval Science (3)**

The curriculum for Introduction to Naval Science is designed to provide midshipmen and interested university students a broad overview of the United States Navy and Marine Corps, their missions, organization, customs, traditions and the duties required of today's junior officers. It also provides each student with basic information concerning shipboard procedures, safety, damage control and organization. In addition, this course teaches Department of Defense and Navy policies providing students the start-point to succeed as future naval officers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 101** Introduction to Naval Science (3) Introduction to naval organization, customs, military law, ships, aircraft, and Marine Corps and Navy career paths.

**NAVSC 101 Introduction to Naval Science (3)**

The curriculum for Introduction to Naval Science is designed to provide midshipmen and interested university students a broad overview of the United States Navy and Marine Corps, their missions, organization, customs, traditions and the duties required of today's junior officers. It also provides each student with basic information concerning shipboard procedures, safety, damage control and organization. In addition, this course teaches Department of Defense and Navy policies providing students the start-point to succeed as future naval officers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 102** Sea Power and Maritime Affairs (3) Historical evolution of sea power and its effects on world history; current U.S. maritime strategy for employment of naval forces.

**NAVSC 102 Sea Power and Maritime Affairs (3)**

The curriculum for Sea Power and Maritime Affairs provides a U.S. Naval history survey emphasizing major developments in strategy, tactics, technology and the effects of political climate thereon. Primary topics include: significant naval engagements and milestones, prominent leaders and their contributions, the role of sea power in national policy and diplomacy in both peacetime and war through the present day. The course also studies Mahan's naval strategy along with the effects of maritime policy on global stability and the importance of Joint Warfare and power projection.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 204 Leadership and Management (3)** Managerial thought and behavioral theories, with emphasis on how they apply to the naval organization.

### **NAVSC 204 Leadership and Management (3)**

The curriculum for Leadership and Management provides the basis for the development of effective leadership and managerial competence. Underscoring interactive learning and designed to be taught by experienced, commissioned officers of the U.S. Navy and Marine Corps in order to provide Fleet-based examples, this course examines fundamental tenets of leadership and management in the context of the theories and principles of individual and group leadership with emphasis on how they apply to naval forces. Topics include self-leadership, self-management and team leadership while students refine and further develop their understanding of personal strengths, values and growth opportunities in the context of team, group and organizational leadership, as well as through the creation of a leadership vision and professional development plan. Students will develop knowledge, abilities and skills that will assist them as future officers to successfully operate in the context of complex military environments around the globe.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 204 Leadership and Management (3)** Managerial thought and behavioral theories, with emphasis on how they apply to the naval organization.

### **NAVSC 204 Leadership and Management (3)**

The curriculum for Leadership and Management provides the basis for the development of effective leadership and managerial competence. Underscoring interactive learning and designed to be taught by experienced, commissioned officers of the U.S. Navy and Marine Corps in order to provide Fleet-based examples, this course examines fundamental tenets of leadership and management in the context of the theories and principles of individual and group leadership with emphasis on how they apply to naval forces. Topics include self-leadership, self-management and team leadership while students refine and further develop their understanding of personal strengths, values and growth opportunities in the context of team, group and organizational leadership, as well as through the creation of a leadership vision and professional development plan. Students will develop knowledge, abilities and skills that will assist them as future officers to successfully operate in the context of complex military environments around the globe.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 205 Navigation (3)** Theory and principles of all types of piloting and navigation, including a practicum emphasizing correct documentation and plotting.

### **NAVSC 205 Navigation (3)**

The curriculum for Navigation provides the basis for maritime focused ship piloting. Designed to be taught by a commissioned officer in the U.S. Navy with a Surface Warfare background, the course focuses on the theory and principles of various types of piloting and navigation while employing numerous practical exercises and case studies to aid learning. Primary topics of study include: Precision visual and electronic piloting, tides and currents, maneuvering boards and relative motion theory, international piloting laws and best practices.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 311 Evolution of Warfare (3)** Survey of development of military strategy, tactics, principles of war, and weaponry through the ages and recent U.S. applications.

**NAVSC 311 Evolution of Warfare (3)**

The curriculum for Evolution of Warfare provides students with an in-depth understanding of the art, science and concepts of warfare throughout history. The historical studies not only encompass notable progressions and innovations in warfare, but also illustrate failures which led to major paradoxical transformations in the military culture, tactics, techniques and procedures. Students will be able to garner an appreciation for critical analysis of challenges military organizations have faced in the past, present and will face in future environments. The conclusion of the course explores emerging threats, such as irregular and cyber warfare, which challenge our Nation today.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 311 Evolution of Warfare (3)** Survey of development of military strategy, tactics, principles of war, and weaponry through the ages and recent U.S. applications.

**NAVSC 311 Evolution of Warfare (3)**

The curriculum for Evolution of Warfare provides students with an in-depth understanding of the art, science and concepts of warfare throughout history. The historical studies not only encompass notable progressions and innovations in warfare, but also illustrate failures which led to major paradoxical transformations in the military culture, tactics, techniques and procedures. Students will be able to garner an appreciation for critical analysis of challenges military organizations have faced in the past, present and will face in future environments. The conclusion of the course explores emerging threats, such as irregular and cyber warfare, which challenge our Nation today.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 313 Marine Corps Leadership Theory and Techniques (3)** Introduction to Marine Corps leadership theory and techniques and their application to military-related practical skills and subject matter.

**NAVSC 313 Marine Corps Leadership Theory and Techniques (3)**

The curriculum for Marine Corps Leadership Theory and Techniques provides students with an in-depth understanding of the physical and mental rigors Marine Corps Officers face while leading Marines in the contemporary operating environment. Student's professional development as future Marine Corps leaders is enhanced through the examination of military-related skills, decision-making and management processes, organizational structures and associated micro-cultures within the military framework. Underlying concepts focus on a historical perspective of fundamentals of leadership, team building, establishing command, organizational safety (to include sexual assault prevention/response and suicide prevention) and equal opportunity coupled with humanistic functions leading to successful organizations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 313 Marine Corps Leadership Theory and Techniques (3)** Introduction to Marine Corps leadership theory and techniques and their application to military-related practical skills and subject matter.

**NAVSC 313 Marine Corps Leadership Theory and Techniques (3)**

The curriculum for Marine Corps Leadership Theory and Techniques provides students with an in-depth understanding of the physical and mental rigors Marine Corps Officers face while leading Marines in the contemporary operating environment. Student's professional development as future Marine Corps leaders is enhanced through the examination of military-related skills, decision-making and management processes, organizational structures and associated micro-cultures within the military framework. Underlying concepts focus on a historical perspective of fundamentals of leadership, team building, establishing command, organizational safety (to include sexual assault prevention/response and suicide prevention) and equal opportunity coupled with humanistic functions leading to successful organizations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 322 Naval Ships Systems I--Naval Engineering (3)** Principles and applications of engineering concepts to ship construction, stability, and propulsion and auxiliary systems.

### **NAVSC 322 Naval Ships Systems I-Naval Engineering (3)**

The Naval Ships Systems I: Naval Engineering curriculum educates students on the construction and operation of naval ships, submarines, and aircraft exploring and discussing principles and applications of engineering concepts with regards to construction, stability, propulsion and auxiliary systems. Taught by an experienced naval officer, this course is designed to assist in the professional development of future leaders in the U.S. Navy. A background in calculus and physics is recommended as the student will perform various assignments in thermodynamics, fluid dynamics and nuclear fundamentals. Emphasis on theory-to-practice will be demonstrated throughout the curriculum and students will receive live demonstrations of engineering examples.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 323 Naval Ships Systems II--Weapons (3)** An analysis of electromagnetic wave theory, principles of underwater sound propagation, electro-optic theory, and weapons control systems.

### **NAVSC 323 Naval Ships Systems II-Weapons (3)**

A continuation of Naval Ships Systems I: Naval Engineering, Naval Ships Systems II: Weapons educates students on the employment and basic operation of military weaponry and fire control technology. An analysis of electromagnetic wave theory, principles of underwater sound propagation, electro-optic theory and weapons control systems establishes the student's basic understanding and prepares them for a future career as a naval officer. Students will routinely participate in small group discussions over practical application of weapon technology and trends in future design. The course will culminate with a final project of the student's choosing over a germane topic.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: NAVSC 322

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 401 Naval Operations and Seamanship (3)** Introduction to naval operations; the theory and principles of the rules of the road; use of the maneuvering board.

### **NAVSC 401 Naval Operations and Seamanship (3)**

The curriculum for Naval Operations and Seamanship provides for an in-depth study of shipboard procedures in the United States Navy. Designed to be taught by a warfare qualified commissioned officer in the U.S. Navy, the course focuses on advanced navigational practices, communications, naval warfare doctrine, joint operations and advanced shipboard evolutions. The course is primarily lecture based, but also employs practical laboratories and case studies to reinforce advanced topics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: NAVSC 205

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 402 Leadership and Ethics (3)** The Navy's Resource Management Program (personnel management), counseling techniques, military justice, prevention of substance abuse, and naval correspondence and publications.

### **NAVSC 402 Leadership and Management II (3)**

NAVSCI 402 Leadership and Ethics (3) – A capstone course building upon the foundation of previous Naval Science courses, Leadership and Ethics ensures students have a solid understanding of and an appreciation for ethical standards and decision making. It provides midshipmen with the ethical foundation and basic leadership tools needed to be effective junior officers and provide the high quality leadership our country and Department of Defense will need in the 21st Century. The curriculum is divided into two distinct but overlapping sections; the first focused on ethical theory and major Western ethical philosophy followed by the practical application of leadership as it pertains to a junior officer's duties and responsibilities. Ethical theory is introduced in an academic, discussion-oriented format in order to provide midshipmen with a solid foundation and understanding of various moral, ethical and leadership philosophies. This serves to guide, refine and strengthen a junior officer's character and increase one's awareness of different ethical decision-making tools. The latter portion of the course challenges the midshipmen to apply the first part of the course (i.e. ethical leadership theory) in discussions and practical application exercises of their future duties, responsibilities and expectations of a junior officer in the United States Navy or Marine Corps. Extensive use of case studies throughout the curriculum reinforces the importance of ethical decision-making by naval leaders.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: NAVSC 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 402 Leadership and Ethics (3)** The Navy's Resource Management Program (personnel management), counseling techniques, military justice, prevention of substance abuse, and naval correspondence and publications.

### **NAVSC 402 Leadership and Management II (3)**

NAVSCI 402 Leadership and Ethics (3) – A capstone course building upon the foundation of previous Naval Science courses, Leadership and Ethics ensures students have a solid understanding of and an appreciation for ethical standards and decision making. It provides midshipmen with the ethical foundation and basic leadership tools needed to be effective junior officers and provide the high quality leadership our country and Department of Defense will need in the 21st Century. The curriculum is divided into two distinct but overlapping sections; the first focused on ethical theory and major Western ethical philosophy followed by the practical application of leadership as it pertains to a junior officer's duties and responsibilities. Ethical theory is introduced in an academic, discussion-oriented format in order to provide midshipmen with a solid foundation and understanding of various moral, ethical and leadership philosophies. This serves to guide, refine and strengthen a junior officer's character and increase one's awareness of different ethical decision-making tools. The latter portion of the course challenges the midshipmen to apply the first part of the course (i.e. ethical leadership theory) in discussions and practical application exercises of their future duties, responsibilities and expectations of a junior officer in the United States Navy or Marine Corps. Extensive use of case studies throughout the curriculum reinforces the importance of ethical decision-making by naval leaders.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: NAVSC 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 411 Amphibious Warfare (3)** A historical survey and evaluation of twentieth-century amphibious warfare operations.

### **NAVSC 411 Amphibious Warfare (3)**

NAVSCI 411 Amphibious Warfare (3) – The curriculum for Amphibious Warfare provides students with an in-depth historical basis of the progressive development of military amphibious operations from the early 400 B.C. period to present day military operations. Integral to the course is the understanding of the evolution of military tactics, techniques and procedures in relation to technological advances throughout history and the role of time, space and logistics in military operations. Students conduct detailed research projects of current amphibious operations ranging from amphibious operations in the littorals, humanitarian assistance/disaster relief and non-combatant evacuation operations

around the world. The conclusion of the course explores emerging threats which challenge future amphibious operations and the continuance of developing advanced technology, tactics, techniques and procedures currently in the research and development phase within the U.S. Marine Corps.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: 6 credits of Navy ROTC courses

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NAVSC 411 Amphibious Warfare (3)** A historical survey and evaluation of twentieth-century amphibious warfare operations.

### **NAVSC 411 Amphibious Warfare (3)**

NAVSCI 411 Amphibious Warfare (3) – The curriculum for Amphibious Warfare provides students with an in-depth historical basis of the progressive development of military amphibious operations from the early 400 B.C. period to present day military operations. Integral to the course is the understanding of the evolution of military tactics, techniques and procedures in relation to technological advances throughout history and the role of time, space and logistics in military operations. Students conduct detailed research projects of current amphibious operations ranging from amphibious operations in the littorals, humanitarian assistance/disaster relief and non-combatant evacuation operations around the world. The conclusion of the course explores emerging threats which challenge future amphibious operations and the continuance of developing advanced technology, tactics, techniques and procedures currently in the research and development phase within the U.S. Marine Corps.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: 6 credits of Navy ROTC courses

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Nuclear Engineering (NUC E)**

**NUC E 001S Atomic Adventures: First-Year Seminar (1)** First-year seminar exploring the interesting and exciting world of nuclear science and its applications.

### **NUC E 001S Atomic Adventures: First-Year Seminar (1) (FYS)**

The overall objectives of Engineering First-Year Seminars are to engage students in learning about engineering and orient them to the scholarly community in a way that will bridge to, and enhance their benefit from, later experiences in the College and the University.

Seminars adhere to the two specific goals identified below by including one or more of the strategies following each goal:

1. Introduce students to a specific field, or encourage their exploration of a number of fields, of study in engineering; familiarization with the engineering majors and career options and with the objectives of general education and other components of the curriculum  
 development of a particular topic, contemporary issue, emerging or interdisciplinary field of concentration, or professional responsibilities in engineering  
 plant tours or demonstrations of engineering facilities
2. Acquaint students with tools, resources and opportunities available to them in the Department(s), College and University  
 exposure to learning support services and career development resources

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 097 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject

which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 301** Fundamentals of Reactor Physics (4) Nuclear reactions and interactions relevant to nuclear engineering including fission, cross-sections, reaction rate calculations, energy depositions rates, and radioactive decay.

**Fundamentals of Reactor Physics (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: MATH 230MATH 251PHYS 214

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 302** Introduction to Reactor Design (4) Static and dynamic reactor theory applied to basic reactor design problems.



**Introduction to Reactor Design (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: NUC E 301NUC E 309

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 309** Analytical Techniques for Nuclear Concept (3) This course is an introduction to many of the analytical techniques used in the nuclear engineering discipline.

**Analytical Techniques for Nuclear Concept (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1993  
Prerequisite: MATH 230MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 310W** Issues in Nuclear Engineering (2) Societal and technical issues facing nuclear engineers, including safety, operations, waste, regulation, public acceptance, economics, ethics, and radiation.

**Issues in Nuclear Engineering (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: fifth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 401** Introduction to Nuclear Engineering (3) Fundamental concepts of nuclear engineering, including fission, reactor theory, shielding, and radioisotopes; intended for other than nuclear engineering students.

**Introduction to Nuclear Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: MATH 250 or MATH 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 403** Advanced Reactor Design (3) Physical principles and computational methods for reactor analysis and design.

Multigroup diffusion theory; determination of fast and thermal group constants; cell calculations for heterogeneous core lattices.

**Advanced Reactor Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: NUC E 302

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 405** (CHEM 406) Nuclear and Radiochemistry (3) Theory of radioactive decay processes, nuclear properties and structure, nuclear reactions, interactions of radiation with matter, biological effects of radiation.

**Nuclear and Radiochemistry (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: CHEM 452 or PHYS 237 or NUC E 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 406** (M E 406) Introduction to Statistical Thermodynamics (3) Statistical description of systems composed of large numbers of particles in the context of classical and quantum mechanics; basic concepts of probability theory and thermodynamics as they relate to statistical mechanics.

**NUC E (M E) 406 Introduction to Statistical Thermodynamics (3)**

This course is an introduction to probabilistic and statistical concepts in the physical sciences, which we refer to as "statistical thermodynamics." In areas such as design and processing of electronic devices, materials engineering, chemical engineering, and combustion engineering, the science of statistical mechanics is a particularly necessary, powerful, and important tool for the engineer. The underlying foundation of statistical mechanics is developed by (1) reviewing the basic ideas from probability theory, (2) deriving the binomial, Poisson, and Gaussian probability distributions, and (3) using these models to analyze several examples taken from science and engineering. To make a connection between macroscopic quantities and the corresponding probabilistic representation, classical thermodynamics is reviewed using the internal energy, entropy, and free energy functions in the context of the first and second laws. Statistical mechanics for classical and quantum-mechanical systems is presented via the micro-canonical, canonical, and grand canonical ensembles using the associated partition functions. During the syntheses of ideas, applications from various branches of science are presented. Some examples of applications are the Einstein crystal, the Debye crystal, the ideal gas, and black body radiation.

This course covers the following program objectives:

1. Demonstrate knowledge of basic chemistry and physics.
2. Demonstrate a knowledge of atomic and nuclear physics.
3. Demonstrate a knowledge of thermodynamics, heat transfer, and fluid flow.
4. Understand and apply the basic concepts of particle transport.
5. Understand and apply thermodynamics and heat transfer principles to the analysis of nuclear power components and systems.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: M E 300 or M E 201 or M E 202 or CH E 303; MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 408** Radiation Shielding (3) Radiation sources in reactor systems; attenuation of gamma rays and neutrons; point kernel methods; deep penetration theories; Monte Carlo methods.

**Radiation Shielding (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1985  
Prerequisite: NUC E 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 409** (MATSE 409) Nuclear Materials (3) Nuclear reactor materials: relationship between changes in material

properties and microstructural evolution of nuclear cladding and fuel under irradiation.

**NUC E (MATSE) 409 Nuclear Materials (3)**

NUC E/MATSE 409 provides a background on the types of materials used in nuclear reactors and their response to neutron irradiation. Most of the materials problems encountered in the operation of nuclear power reactors for energy production are discussed here. The objective of the course is to give nuclear engineering students a background in materials, so they understand the limitations put on reactor operations and reactor design by materials performance. In the first part of the course, we review basic concepts of physical metallurgy, to develop a mechanistic and microstructurally based view of material properties. In the second part of the course, we present the methods to calculate displacement damage to the material produced by exposure to neutron irradiation. The microstructural evolution that results from the reactor exposure (including radiation damage and defect cluster evolution, and changes) is described. The aim is to create a linkage between these changes at the atomistic level and the changes in macroscopic behavior of the material. Special attention is given to property changes that affect fuel performance and operational safety. Both mathematical methods and experimental techniques are emphasized so that theoretical modeling is instructed by experimental data. Students use the TRIM and SPECTER codes to quantitatively evaluate neutron damage, as well as learn simple analytical models that describe microstructural evolution and property changes under irradiation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: PHYS 214

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 420 Radiological Safety (3)** Ionizing radiation, biological effects, radiation measurement, dose computational techniques, local and federal regulations, exposure control.

**Radiological Safety (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1997

Prerequisite: NUC E 301 or NUC E 405

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 428 Radioactive Waste Control (3)** Nature, sources, and control of radioactive wastes; theory and practice of disposal processes.

**Radioactive Waste Control (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1997

Prerequisite: NUC E 301 or NUC E 405

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 430 Design Principles of Reactor Systems (3)** Nuclear power cycles; heat removal problems; kinetic behavior of nuclear systems; material and structural design problems.

**Design Principles of Reactor Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 410; NUC E 301 or NUC E 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 431W Nuclear Reactor Core Design Synthesis (4)** Technical and economic optimization of nuclear systems.

**Nuclear Reactor Core Design Synthesis (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1994

Prerequisite: ENGL 202C; NUC E 403; NUC E 430

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**NUC E 446 (M E 446) Reliability and Risk Concepts in Design (3)** Introduction to reliability mathematics. Failure data collection and analysis. Components and systems reliability prediction. Effects of maintenance on reliability. Risk Analysis. Case studies in engineering applications.

**NUC E (M E) 446 Reliability and Risk Concepts in Design (3)**

The course covers materials reliability in design including mechanical, electrical and system aspects. Five main topics will be studied. The course starts by introducing engineering risk and reliability, highlighting its interdisciplinary nature and its significance in system design. The concept of reliability as a probability is introduced and the basic laws of probability are reviewed. The discussion centers on the mathematics needed to understand and analyze complex systems including components in series and parallel. The topics include the independence, mutual exclusivity, truth tables and Venn diagrams. These concepts are then applied to simple systems consisting of one, two and three components in various configurations. The equivalency of the various methods is discussed. The effect of maintenance on a system's reliability is presented along with discussions of various maintenance strategies. Then, the failure modes and effects analysis is introduced and examples discussed. The concept of fault trees and event trees and their application to reliability analysis are presented. Risk analysis is then introduced as a case study in the application of reliability analysis. A nuclear power plant system is analyzed to quantify the risk to the public from its operation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: MATH 250 or MATH 251; M E 345 or NUC E 309

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 450 Radiation Detection and Measurement (3)** Theory and laboratory applications of radiation detectors, including proton, neutron, charged particle detectors, NIM devices, and pulse-height analysis.

**Radiation Detection and Measurement (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: NUC E 301 or NUC E 405; NUC E 309

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 451 Experiments in Reactor Physics (3)** Acquisition and processing of nuclear and atomic data; application to nucleonic phenomena of importance in nuclear engineering.

**Experiments in Reactor Physics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 212 NUC E 450

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 470 Power Plant Simulation (3)** Basic knowledge necessary for intelligent simulation and interpretation of simulations of transients in nuclear power plants.

**Power Plant Simulation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: M E 320 MATH 251 NUC E 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 490 (AERSP 490, E E 471) Introduction to Plasmas (3)** Plasma oscillations; collisional phenomena; transport properties; orbit theory; typical electric discharge phenomena.

**Introduction to Plasmas (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: E E 361 or PHYS 467

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 494H Senior Thesis (1-9)** Students must have approval of a thesis adviser before scheduling this course.

### **NUC E 494H Senior Thesis (1-9)**

All Schreyer Scholars are required to complete an undergraduate honors thesis. This work represents the culmination of a student's honors experience. Through the thesis, the student demonstrates a command of relevant scholastic work and a personal contribution to that scholarship.

The thesis project can take many forms - from laboratory experiments all the way to artistic creations. The thesis document captures the relevant background, methods and techniques, as well as describing the details of the completion of the individual project. Two Penn State faculty members judge the merits of this Scholar's honors thesis, the student's self-selected thesis supervisor and the department-selected honors adviser in the student's area of honors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: Junior or senior status in the University Scholars Program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 496 Independent studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 497A Fundamentals of Nuclear Engineering (3)** An intensive course providing introduction to Nuclear Engineering to undergraduate co-op students, non-NucE graduate students, and returning students.

### **Fundamentals of Nuclear Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 497A Fundamentals of Nuclear Engineering (3)** An intensive course providing introduction to Nuclear Engineering to undergraduate co-op students, non-NucE graduate students, and returning students.

### **Fundamentals of Nuclear Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 497D** Radiation Detection Measurement Lab (1) Theory and laboratory applications of radiation detectors, including proton, neutron, charged particle detectors, NIM devices, and pulse-height analysis.

#### **Radiation Detection Measurement Lab (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 497K** (M E 497K) Thermal-Hydraulics of Two-Phase Flow in Energy Systems (3) This course provides students with fundamental knowledge necessary for thermal-hydraulic analysis of single-phase and two-phase flow systems. The power reactor will be employed as a generic example of the thermal-hydraulic energy systems. In single-phase flow analysis, the one-dimensional thermal-hydraulic system analysis method, which is often employed by the industry's systems analysis code, will be introduced for normal and off-normal plant operating conditions.

#### **Thermal-Hydraulics of Two-Phase Flow in Energy Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: M E 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUC E 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Nursing (NURS)**

**NURS 111S** (US;IL) Nursing Roles (4) Introduction to nursing roles/process with emphasis on societal norms and multicultural influences on health care needs.

#### **NURS 111S Nursing Roles (4) (US;IL)**

NURS 111S US;IL is an introduction to associate degree nursing roles and nursing process with an emphasis on societal norms and the multicultural influences on health care needs. It focuses on professional development which includes an introduction to associate degree nursing roles and nursing process and the need to appreciate the differences that exist among culturally diverse patient populations. This course provides the student with in-depth study of health patterns, cultural diversity, health perception, management, and self perception across the life span while utilizing the nursing process and clinical judgment. Upon completion of the course students will be able to meet the following objectives: identify the following basic concepts related to the individual: adaptation, basic development, basic needs, communication, diversity, life span development, and relationships; identify the individuals' unique physical and personal factors that contribute to a safe, therapeutic environment; describe basic concepts related to the role of the associate degree nurse as provider of care, manager of care, and member within the discipline of nursing; provides basic care to clients applying the nursing process and is sensitive to different cultural values, traditions, beliefs and customs; and recognize research as a theoretical basis for the use of the nursing process. Teaching strategies include lecture, discussion, simulation laboratory and clinical experiences. The course is limited to 2NURS majors, is taught one time per academic year and clinical sections are limited to 8-10 students.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: admission to 2NURS major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 112 Health Patterns/Nursing Interventions (4)** Emphasis on individual health patterns and selected nursing interventions.

**NURS 112 Health Patterns/Nursing Interventions (4)**

NURS 112 focuses on the study of individual health patterns and selected nursing interventions. This course provides the student with in-depth study of emphasized health patterns which include activity-exercise, nutritional-metabolic, pharmacological, interventions, elimination, and perioperative interventions. Students will be able to utilize the nursing process based on the client's individual health patterns and formulate appropriate nursing interventions. Teaching strategies include lecture, discussion and simulation laboratory and clinical experiences. This course builds and expands on the basic concepts of nursing practice that are introduced in NURS 111S US;IL. The course is limited to 2NURS majors, is taught one time per academic year and clinical sections are limited to 8-10 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 111S

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 113 Nursing Care During Childbearing Years (3)** Emphasis on childbearing family through prenatal, intrapartal, postpartal and neonatal periods.

**NURS 113 Nursing Care During Childbearing Years (3)**

NURS 113 focuses on the care of the childbearing family including prenatal, antepartal, postpartal, and neonatal periods. Upon completion of the course students will be able to meet the following objectives: describe concepts related to childbearing families: life span development, basic health needs, communications, relationships, adaptation and diversity; evaluate physical and personal factors as they contribute to a safe, therapeutic environment for childbearing families; describe common health patterns, and alterations in function for select childbearing families; apply concepts related to the role of the associate degree nurse as provider of care, manager of care, and member within the discipline of nursing while providing care to the childbearing family; use interpreted research related to specific client situations; and apply the nursing process in developing a plan of care for the childbearing family. Students will utilize the nursing process based on the client's individual health patterns and formulate appropriate nursing interventions. Teaching strategies include lecture, discussion, laboratory simulation and clinical experiences. The course is limited to 2NURS majors, is taught one time per academic year and clinical sections are limited to 8-10 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: NURS 112;HD FS 129 orPSYCH 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 114 Nursing Care During Childrearing Years (3)** Emphasis on infancy through young adulthood with common and well- defined health problems, with integrated nursing content.

**NURS 114 Nursing Care During Childrearing Years (3)**

NURS 114 focuses on nursing care of the childrearing family with emphasis on child wellness and common health problems affecting children with a variety of health maintenance and/or acute and chronic health needs from infancy to young adulthood. Students will provide basic nursing care to children with basic and complex health care needs, apply concepts related to children's growth and development, learn communication skills appropriate to the development of the child, begin to develop effective interpersonal relationships with the family, identify norms and deviations in the health status of children, and function peripherally as a member of the multidisciplinary team. Upon completion of the course the student will be able to meet the following course objectives: evaluate physical and personal factors as they contribute to a safe, therapeutic environment for select pediatric clients and their families; describe common health patterns and alterations in function for select pediatric clients and families; apply concepts related to the role of the associate degree nurse as provider of care, manager of care, and member within the discipline of nursing while providing care to the childrearing family; use interpreted research related to specific pediatric client situations; and apply the nursing process in developing a plan of care for select pediatric clients and families. Teaching strategies include lecture, discussion, and laboratory simulation and clinical experiences. The course is limited to 2NURS majors; is taught one time per academic year; and clinical sections are limited to 8-10 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: NURS 112; HD FS 129 or PSYCH 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 115** Medications and the Elderly Client (1) Nursing implications of medication therapy with the elderly client.

### **Medications and the Elderly Client (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 116** Clinical Immersion I: Introduction to Concepts of Illness (2) Clinical immersion course that utilizes clinical experiences and seminars to develop clinical competency.

### **NURS 116 Clinical Immersion I: Introduction to Concepts of Illness (2)**

NURS 116 is designed to further develop the nursing students' skills in the delivery of direct patient care. Students will be placed in clinical settings where they will practice and develop their ability to utilize the nursing process through the use of assessment skills, clinical judgment, nursing interventions, medication administration, patient safety and patient education, and perioperative care of the surgical patient. In addition, students will explore introductory concepts of illness and pathophysiology that will lay a foundation of knowledge and skills necessary for nursing courses taken in the second level of the nursing major. These include processes of illness – cell injury, inflammation, pain, fever and healing; processes for illness prevention, protection, and homeostasis – immunity, fluid and electrolytes, acid-base balance; and concepts of disease manifestation – poor tissue oxygenation, circulatory perfusion and hemorrhagic shock, and altered glucose metabolism. The course is limited to 2NURS majors, is taught one time per academic year and has clinical sections of 8-10 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010  
Prerequisite: NURS 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 200M** Understanding and Applying Nursing Research (3) Introduction to methods and philosophy of empirical inquiry as applied to research in nursing and application to practice.

### **Understanding and Applying Nursing Research (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: STAT 200 or STAT 250 NURS 225 ; or STAT 250 and NURS 390 for NURN major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 200W** Understanding and Applying Nursing Research (3) Introduction to methods and philosophy of empirical inquiry as applied to research in nursing and application to practice.

### **NURS 200W NURS 200W Understanding and Applying Nursing Research (3)**

NURS 200W is the introduction to methods and philosophy of empirical inquiry as applied to research in nursing. The course is a writing intensive course with the goal to help the student write clearly and effectively while learning the basics of nursing research and its application to developing evidence based practice. Upon completion of this course the student will be able to: discuss the roles and responsibilities of the nurse as researcher in the clinical setting; identify criteria for



the evaluation of research for applicability to evidence based clinical practice and optimum client care outcomes; introduce basic content relevant to the research process in nursing; identify similarities between the research process and the nursing process; identify the process by which a researchable problem is formulated.; provide an opportunity to formulate a problem for study; appraise current issues relevant to nursing research (including cultural diversity issues and ethics of conducting research); write directional hypotheses, null hypotheses, and questions that relate to a given research problem and demonstrate critical thinking; and conduct a research critique and evidence-based practice project on a given topic. Teaching strategies include lecture, selected readings, discussion, writing exercises, study guide exercises, audio visuals, internet/computer lab, group activities, active learning modules, interactive CD modules and research presentation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: STAT 200 or STAT 250 NURS 225 ; or STAT 250 and NURS 390 for NURN major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 203 (GHA) First Aid and CPR (3)** An introductory first aid course designed to provide the basic knowledge and skills to provide assistance to someone injured/ill.

### **NURS 203 First Aid and CPR (3) (GHA)**

NURS 203 is an introductory first aid and safety course meeting the general education credit requirements for primarily non-nursing majors, such as Education and Special Education. It provides the basic knowledge and skills to provide the immediate care necessary to treat someone injured or suddenly ill until professional help arrives on the scene. NURS 203 incorporates discussion of infectious disease and the standard precautions needed by rescuers to prevent disease transmission. Students are evaluated through written testing and also practical skill testing. A card is issued to the student for First Aid and One-person CPR (not the Professional CPR or Healthcare Provider CPR) upon successful completion of the course. NURS 203 is offered in the fall, spring, and/or summer semester. The course objectives are as follows:

Upon completion of this course, students will be able to:

1. Explain how the EMS system works and how the professional rescuer's role in the EMS system differs from a citizen responder's role.
2. Identify guidelines to follow to ensure personal safety and the safety of others at the scene of an emergency.
3. Describe basic safety precautions to prevent disease transmission when providing first aid and CPR services.
4. Describe four emergency action principles.
5. Recognize breathing emergencies, such as a choking, and demonstrate the correct first aid care.
6. Identify the major risk factors for cardiovascular and cerebrovascular disease.
7. State the signs and symptoms of a heart attack and stroke.
8. Demonstrate the correct technique for providing cardiopulmonary resuscitation (CPR) to an adult.
9. Demonstrate how life-threatening bleeding can be controlled.
10. Demonstrate the correct care for various common injuries, including sprains and fractures.
11. State the signs and symptoms of common medical emergencies, including poisoning, seizures, and heat and cold emergencies.
12. Describe the first aid care for common medical emergencies.
13. Describe when and how to move a person in an emergency situation.

General Education: GHA

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 211 Pathophysiology I - Nursing Interventions (5)** Caring for middle-aged adult with acute/chronic alterations in resp/cardio and musculoskeletal dysfunction.

### **NURS 211 Pathophysiology I - Nursing Interventions (5)**

NURS 211 focuses on nursing care of clients through the adult life span with acute or chronic dysfunctional health patterns involving respiratory, cardiac, and musculoskeletal impairment in need of medical and/or surgical intervention.

Nursing strategies developed by the student consider the developmental stage, psychosocial needs and cultural sensitivity. Students develop and implement a plan of care that integrates nursing strategies and health teaching during the acute and rehabilitative period and evaluate care making appropriate recommendations and referrals to members of the healthcare team. Upon completion of the course, the student will be able to describe wellness-illness concepts of the individual, family and groups within the community related to life-span development, basic medical-surgical health needs, communications, relationship adaptation and diversity to clients with respiratory, cardiovascular, and musculoskeletal dysfunction; analyze the impact of physical, personal, social and group factors that contribute to safe, therapeutic care for select clients, families, and groups within the community who experience respiratory, cardiovascular, and musculoskeletal dysfunction; analyze health needs and the actual and potential impact of these needs on the individual, family, and groups within the community for clients with respiratory, cardiovascular, and musculoskeletal dysfunction; apply concepts related to the role of the associate degree nurse as provider of care, manager of care, and member within the discipline of nursing for clients with respiratory, cardiovascular, and musculoskeletal dysfunction; demonstrate the application of interpreted research findings as a theoretical basis for the use of the nursing process in the care of the clients with respiratory, cardiovascular, and musculoskeletal dysfunction; integrate the nursing process to provide comprehensive care for select clients, families, and groups within the community for clients with respiratory, cardiovascular, and musculoskeletal dysfunction.

Teaching strategies include lecture, discussion and simulation laboratory and clinical experiences. The course is limited to 2NURS majors, is taught one time per academic year and clinical sections are limited to 8-10 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: all 100-level required NURS courses must be completed;BIOL 129;BIOL 141 andBIOL 142

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 212 Pathophysiology II - Nursing Interventions (4)** Caring for middle-aged adults with acute/chronic alterations in metabolism, reproduction, oncology and immunology.

#### **NURS 212 Pathophysiology II - Nursing Interventions (4)**

NURS 212 focuses on nursing care of clients through the adult life span with acute or chronic dysfunctional health patterns involving nutritional, metabolic, reproductive, oncological and immunological impairment in need of medical and/or surgical intervention. Nursing strategies developed by the student consider the developmental stage, psychosocial needs and cultural sensitivity. Students develop and implement a plan of care that integrates nursing strategies and health teaching during the acute and rehabilitative period and evaluate care making appropriate recommendations and referrals to members of the healthcare team. Upon completion of the course, the student will be able to meet the following course objectives: describe wellness-illness concepts of the individual, family and groups within the community related to life-span development, basic medical-surgical health needs, communications, relationships, adaptation and diversity to clients with nutritional, metabolic, reproductive, oncological, and immunological impairment; analyze the impact of physical, personal, social and group factors that contribute to safe, therapeutic care for select clients, families, and groups within the community who experience nutritional/metabolic reproductive, oncological, and immunological impairment; analyze health needs and the actual and potential impact of these needs on the individual, family, and groups within the community for clients with nutritional, metabolic, reproductive, oncological or immunological impairment; apply concepts related to the role of the associate degree nurse as provider of care, manager of care, and member within the discipline of nursing for clients with nutritional, metabolic, reproductive, oncological or immunological impairment; demonstrate the application of interpreted research findings as a theoretical basis for the use of the nursing process in the care of clients with nutritional, metabolic, reproductive, oncological and immunological impairment integrate the nursing process to provide comprehensive care for select clients, families, and groups with nutritional, metabolic, reproductive, oncological or immunological impairment within the community. The course is limited to 2NURS majors, is taught one time per academic year and clinical sections are limited to 8-10 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: all 100-level required NURS courses must be completed;BIOL 129;BIOL 141 andBIOL 142 ; prerequisite or concurrent:NURS 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 213 Pathophysiology III - Nursing Interventions (5)** Care for adults with complex physical and dysfunctional health patterns.

#### **NURS 213 Pathophysiology III - Nursing Interventions (5)**

NURS 213 focuses on nursing care of adults with acute and complex health problems related to sensory perceptual and neurological alterations, activity, exercise patterns, nutritional metabolic patterns, urinary patterns, and skin integrity. The emphasis is on enhancing critical thinking skills necessary for making sound nursing judgments for clients with complex health problems. Nursing strategies developed by the student consider the developmental stage, psychosocial needs, cultural sensitivity, and the environment. Upon completion of the course, the student will be able to meet the following course objectives: evaluate the wellness-illness status of the individual, family, and groups within the community; modify physical, personal, social and group factors that contribute to safe, therapeutic care for select clients, families, and groups

within the community; support optimal levels of wellness of individuals, families, and groups within the community in relationship to sensory perceptual alterations, activity – exercise patterns, nutritional metabolic patterns, urinary patterns, and skin integrity; integrate concepts related to the role of the associate degree nurse as provider of care, manager of care, and member within the discipline of nursing in relationship to sensory perceptual alterations, activity – exercise patterns, nutritional metabolic patterns, urinary patterns, and skin integrity; relate interpreted research findings to nursing practice situations in relation to alterations in sensory perceptual patterns, activity – exercise patterns, nutritional metabolic patterns, urinary patterns, and skin integrity; value the nursing process as a means of providing a comprehensive plan of care for select clients, families, and groups within the community in relation to alterations in sensory perceptual patterns, activity – exercise patterns, nutritional metabolic patterns, urinary patterns, and skin integrity. The course is limited to 2NURS majors, is taught one time per academic year and clinical sections are limited to 8-10 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: NURS 211NURS 212MICRB 106 andMICRB 107

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 214W** Nursing Care of Clients with Psychiatric/Mental Health Disorders (3) Emphasis on care of adults with emotional or dysfunctional mental health patterns.

### **NURS 214W Nursing Care of Clients with Psychiatric/Mental Health Disorders (3)**

NURS 214W focuses on applying the principles and concepts of nursing in the care of adults with emotional and dysfunctional mental health patterns. Students will explore the social, cultural and legal issues that influence the care of the mentally ill. Emphasis is placed on exploring acute and chronic mental health disorders and interventions that apply use of therapeutic relationships and selected interventions for mental health crisis. Upon completion of the course, the student will be able to meet the following course objectives: evaluate the wellness-illness status of the individual, family, and groups within the community, in relationship to life-span development, complex medical-surgical and mental health needs, communications, relationships, adaptation and diversity in relation to psychiatric nursing; modify physical, personal, social and group factors that contribute to safe, therapeutic care for select clients, families, and groups within the community in relation to psychiatric nursing; support optimal levels of wellness of individuals, families, and groups within the community in relation to psychiatric nursing; integrate concepts related to the role of the associate degree nurse as provider of care, manager of care, and member within the discipline of nursing; relate interpreted research findings in relation to psychiatric nursing practice situations; value the nursing process as a means of providing a comprehensive plan of care for select clients, families, and groups within the community in relation to psychiatric nursing. Teaching strategies include lecture, discussion and laboratory simulations and clinical experiences. The course is limited to 2NURS majors, is taught one time per academic year and has clinical sections of 8-10 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: NURS 211NURS 212PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 216** Clinical Immersion II: Introduction to Concepts of Leadership (2) Clinical immersion course focusing on patient care and clinical seminars to develop leadership and clinical competencies.

### **NURS 216 Clinical Immersion II: Introduction to Concepts of Leadership (2)**

NURS 216 is designed as a capstone clinical course to develop the nursing students' skills in leadership and the management of the delivery of patient care. Students will be placed in clinical settings where they will practice and develop their assessment skills, clinical judgment, and nursing interventions for multiple patient assignments. In addition, students will explore introductory concepts of leadership and management of patient care that will develop their clinical practice in the professional role of the registered nurse. Concepts that will be explored include – advocacy, nursing code of ethics, standards of practice; patient safety, prioritization, managing time, delegation, and supervising care; communication, collaboration, conflict; disaster management, disease management, patient rights and advanced directives; and professional nursing as a career. Teaching strategies include laboratory simulation and clinical immersion. The course is limited to 2NURS majors; is taught one time per academic year; and has clinical sections limited to 8-10 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: NURS 211NURS 212MICRB 106 andMICRB 107

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 225** Pathophysiology (3) Designed to explore the illness component of health with emphasis on the pathophysiological and psychosocial aspects.

### **NURS 225 Pathophysiology (3)**

NURS 225 is designed to explore the illness component of health, with emphasis on the pathophysiological and psychosocial aspects. The required 3-credit course is a foundational course for all succeeding nursing courses. Upon completion of this course, the student will be able to identify knowledge from nursing and contributing disciplines as a foundation for the understanding of illness; describe selected theories of stress and adaptation; identify basic pathophysiological and psychosocial aspects of illness; relate common manifestations of illness to the underlying pathophysiological and psychosocial processes; identify physical environmental factors associated with the development of illness; recognize the significance of research to the evidence base of nursing practice related to illness; recognize the different pathological changes related to human variation and lifespan. Teaching strategies include lecture, audiovisual, case studies/discussion. Enrollment is limited to sophomore level nursing students. The course is offered each spring semester and successful completion is required prior to advancing to the Junior level nursing courses.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 250NURS 251BIOL 129BIOL 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 230** Introduction to the Fundamentals of Nursing (4) Introduction to the nursing process, clinical competencies and psychosocial skills.

### **NURS 230 Introduction to Fundamentals of Nursing (4)**

NURS 230 incorporates the analysis of the nursing process and introduction to clinical competencies and psychosocial skills. Students demonstrate beginning skills in utilizing the nursing process in the clinical setting to meet basic physical and psychosocial individual client needs. Upon completion of the course, students will be able to describe the characteristics of each step of the nursing process; demonstrate beginning skills in utilizing the nursing process in the clinical setting to meet basic physical and psychosocial individual client needs; demonstrate safe and competent performance of basic psychomotor nursing skills; demonstrate the ability to practice the principles of health and safety; perform basic interviewing techniques in collecting health status data; demonstrate communication skills that enable the student to establish appropriate interpersonal relationships; recognize variables influencing health status; recognize the psychosocial needs of individuals including basic needs related to loss, grief and the death experience; demonstrate a personal professional philosophy which addresses the individuality, dignity, values, beliefs, and culture of all clients; recognize the significance of evidence based practice as the basis for the use of the nursing process; recognize the importance of health teaching and health promotion across the life span; identify purposes and functions of appropriate community resources. Teaching strategies include lecture, discussion, audiovisuals, clinical experience, simulation laboratory demonstration and practice, self-learning medication and math mathematics packet. The course is offered each spring semester with an enrollment of approximately 120 nursing students divided into clinical sections limited to 10 students each.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 250NURS 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 245** (GS) Violence and the Impact on Society (3) Interdisciplinary discussion of violence, its perpetrators, victims and its impact on society as well as possible solutions for violence reduction.

### **Violence and the Impact on Society (3)**

General Education: GS

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 250** (US) Professional Role Dev I: Intro to Professional Issues in Nursing Practice and Nursing Informatics (2) Introduction to professional nursing practice and health-related issues emphasizing application of nursing informatics.

### **NURS 250 Professional Role Dev I: Intro to Professional Issues in Nursing Practice and Nursing Informatics (2) (US)**

NURS 250US is the first course in the baccalaureate nursing program and introduces the students to the profession of

nursing, the science of nursing and the use of information technology in health care. Designed to explore the wellness component of health and the role that informatics plays in the planning and delivery of health care. Upon completion of the course, the student will be able to meet the following course objectives: identify concepts of health and wellness that contribute to a foundation for nursing practice; discuss the influence of diversity on health care delivery systems and utilization of services; identify the roles of the professional nurse in the delivery of health care to patients, families, communities and populations; define elements that contribute to professional, evidence-based nursing practice; describe nursing theory and its relationship to the implementation of the nursing process; describe nursing informatics and its applications in the planning and delivery of health care; demonstrate beginning competency in utilizing information technology/nursing informatics in selected areas of nursing practice (e.g. research, patient care); apply concepts of ethical and legal considerations to the use of information technology/nursing informatics in health care. The concepts of diversity and cultural competence are emphasized and integrated within each major topic discussed. Teaching strategies emphasize inquiry-based learning, competency in informatics and promote critical thinking and include lecture, selected readings, exploration of internet sites on health and nursing, case studies, small group activities, group discussions, audiovisuals, role playing, journaling, self-reflection, and field trips. Enrollment is limited to sophomore-level nursing students. The course is offered fall semester.

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Spring 2011  
 Prerequisite: BIOL 129BIOL 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 251 Health Assessment (3)** Designed to broaden the student's knowledge and skills in health assessment and physical examination across the lifespan.

### **NURS 251 Health Assessment (3)**

NURS 251 is designed to broaden the student's knowledge and skills in health assessment. The course enables the student to learn the methods of interviewing patients for completing a health history and the tools and techniques necessary to conduct a physical examination. Upon completion of this course, the student will be able to identify psychosocial, cultural and developmental factors affecting the health assessment process; demonstrate appropriate communication and interviewing techniques (including the use of new technology) with clients of all ages to facilitate the health assessment; demonstrate the ability to obtain a holistic, systematic and comprehensive health history and assessment; promote an environment of safety and caring to maximize client care outcomes; participate in education and activities that would promote cultural competency in nursing assessment; document the health history and current health status and the physical exam according to accepted standards; demonstrate competency in the use of inspection, palpation, percussion and auscultation when performing physical examination; demonstrate the ability to recognize and interpret signs of normal and abnormal health assessment findings; demonstrate critical thinking in the analysis of physical findings; demonstrate the ability to assess risk and promote security and safety in the clinical environment; recognize and document health assessment variations in clients throughout the life span. Teaching strategies include lecture, discussion, demonstration, hands-on practice, audiovisuals, simulation laboratory experiences. NURS 251 is the first required clinical course; is offered each fall semester; and is limited to nursing students. Clinical experience with sections of 14 students is conducted in the Simulation Laboratory where students receive the individualized attention to facilitate learning the techniques of physical assessment. Annual enrollment is approximately 120 students who must successfully complete the course to progress in the nursing program.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2011  
 Prerequisite: BIOL 129BIOL 141 ; orNURS 111S andNURS 112 for Associate Degree Majors; or eligibility for NURN major for RNs.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 300H** Honors Seminar in Nursing (3-12) Seminar activities on selected topics in nursing.

**NURS 300H Honors Seminar in Nursing (3-12)**

NURS 300H is an honors seminar course designed to follow the introduction to nursing research course for honor students only. Each class session focuses on a different element of the honors thesis proposal. Objectives for the course include: discussion of the role of health care research in the development of disciplinary knowledge; evaluation of researchable problems generated from clinical practice and existing literature; critiquing proposals for clinical studies; describing the ethical issues involved in clinical research, with emphasis on investigator responsibilities and participant's rights; discussing selected research designs used for clinical research; analyzing opportunities for replication of clinical studies; critiquing sampling techniques used in clinical research; and analyzing strengths and weaknesses of data collection techniques commonly used in clinical research. The course is taught in the spring semester only and is open only to nursing honor students. Teaching strategies include lecture, student presentations, handouts, individual conferences, and written research consent forms and proposals. Evaluation criteria of the course include a critique, protection of human subject packet preparation, class participation, and at the end of this course, students will be expected to have a fully developed honors thesis proposal. Proposals will be evaluated on how convincing the argument is for the proposed research (literature review and identified knowledge gaps), the logical procession of the thinking, the clarity of the writing, and the significance of the proposed research to nursing.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: NURS 250NURS 225NURS 230NURS 251 admission to the Honors Program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 301** Nursing Care of the Adult Client Requiring Medical-Surgical Intervention (4) Therapeutic nursing care of the adult client in a variety of primarily medical-surgical settings.

**NURS 301 Nursing Care of the Adult Client Requiring Medical-Surgical Intervention (4)**

NURS 301 focuses on nursing care of adult client requiring medical-surgical intervention including. The course is placed in the junior year and is considered a beginning level medical-surgical course. Upon completion of this course, the student will be able to assess risks and promote the health and safety of the adult client throughout the lifespan; formulate nursing actions that are based on scientific principles and concepts from contributing disciplines in caring for the adult client to maximize outcomes; recognize pathophysiological and pharmacological aspects related to the nursing care of the adult medical surgical client; recognize the impact of stress on the adult client to incorporate health promotional and health educational activities; demonstrate the ability to communicate effectively across the health care delivery system; promote factors that create a culture of safety and caring for the adult medical-surgical client; utilize assessment data and technology to plan, implement and evaluate interventions specific to the health of the adult client; practice legal, ethical and professional accountability in the delivery of care to the adult client; demonstrate the ability to practice in a holistic, culturally competent and caring manner; demonstrate the ability to utilize evidence based practice and technology to assess and critically respond to the needs of the adult client; demonstrate with guidance the role of the professional nurse in caring for the adult client. Teaching strategies include lectures, discussions, audiovisuals, clinical experiences, and simulation laboratory. Clinical sections of 8-10 students spend 90 hours (2 credits) caring for medical surgical adult clients. Enrollment is approximately 120 nursing students split between University Park and Hershey Medical Center Campus and is offered fall semester of the junior year.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 225NURS 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 303 Clinical Application of Laboratory Tests (1)** A study of the background, meaning, and nursing implications of laboratory test results.

**NURS 303 Clinical Application of Laboratory Tests (1)**

NURS 303 is a study of the background, meaning, and nursing implications of laboratory test results. It is designed to assist the nursing student in comprehending the patient's laboratory results in a clinical setting. Lab values are correlated to patient's condition and physiology of the disease process. Physical assessment data are compared to the various blood and urine lab test results also. Students are evaluated through written examination and the interpretation of case study scenarios. The course is offered in the spring semester and is open to all nursing students who have completed the introductory nursing course at the 200 level. Enrollment is not limited. The course objectives follow.

Upon completion of this course, the student will be able to:

- a. Identify important clinical implications associated with a wide variety of blood and urine tests.
- b. Correlate lab data with physical assessment findings and other indicators of patient status.
- c. Recognize constellations of changes that may precede deterioration in clinical status.
- d. Discriminate between changes in lab values that require immediate reporting to the physician and those changes that do not require immediate reporting.
- e. Synthesize laboratory test results with assessment findings and pathophysiology and identify appropriate nursing actions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 250NURS 225NURS 230NURS 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 305 Introduction to Pharmacological Concepts (3)** Study of basic concepts of pharmacology and relevant nursing implications.

**NURS 305 Introduction to Pharmacological Concepts (3)**

NURS 305 is the introduction to pharmacological concepts and identifies the pharmacodynamics of major classifications of drugs. Prototypes or original drug models from which subsequent types arise are summarized. This course is closely linked to pathophysiology (a prerequisite) as most medications are administered based on a pathophysiologic condition. Pharmacologic principles covered in the course have practical application for students administering medications to clients in the clinical setting during the junior and senior years. Upon completion of this course, the student will be able to identify the measures taken in the United States to ensure drug safety; describe the process of drug development and evaluation; describe the methods of drug standardization; differentiate official and unofficial drug information sources; recognize the legal aspects and nursing responsibilities relative to the administration of drugs to ensure client safety; identify the pharmacodynamics of major classifications of drugs; recognize characteristics and nursing implications of the various types of pharmaceutical preparations and identify research related to pharmacology which influences nursing practice. Teaching strategies include videos, lectures, handouts and power point slides. Enrollment is limited to junior level nursing students or special permission from the instructor for non-nursing majors. The course is offered yearly during the fall semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 225NURS 230 ; or approval of program

Concurrent: NURS 301 NURS 310

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 306 Nursing Care of Children and Adolescents (3)** Common health problems and nursing intervention for children and adolescents.

**NURS 306 Nursing Care of Children and Adolescents (3)**

NURS 306 focuses on common health problems and nursing intervention for children and adolescents. Upon completion of this course, the student will be able to formulate nursing actions that are based on scientific principles and concepts from contributing disciplines in caring for children and adolescents to maximize client care outcomes; develop interpersonal skills in responding in a humanistic manner to the unique needs of children, adolescents, and their families; recognize pathophysiological and pharmacological aspects related to the nursing care of the adult medical surgical client; assess the health needs of diverse populations of children and adolescents based on an understanding of the developmental, psychosocial, environmental, and cultural variables with an emphasis on health promotion; evaluate nursing care in a variety of settings to meet the health needs of children of various ages; utilize assessment data and technology to plan,

implement, and evaluate interventions specific to the health care needs relevant to the characteristics of the child and adolescent client in interaction with the personal and suprapersonal environments; evaluate nursing care in a variety of settings to meet the health needs of children of various ages and promote healthy lifestyles; collaborate with colleagues in nursing and other health professions to promote the well being of children and adolescents in a variety of settings including the community; relate relevant research findings to child health nursing practice; practice legal, ethical and professional accountability in the delivery of child health care; participate in activities that advance personal and professional development, cultural competency, and the professional specialty of pediatric nursing and promote factors that create a culture of safety and caring for children and adolescents. Teaching strategies include lecture, discussion, audiovisuals, hands-on clinical care, laboratory simulation experiences. Emphasis is placed on delivery of safe and competent nursing care. Clinical sections of 8-10 students spend 45 hours caring for child/adolescent clients in a variety of settings (clinics, day care centers, elementary schools, and hospitals). Enrollment is approximately 120 nursing students (split between UP and HMC) and the course is offered each spring semester of the junior year.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 225NURS 230NURS 305

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 310** Therapeutic Nursing Care of the Older Adult Client in a Variety of Settings (3) Nursing concerns and intervention in promoting the health of the older adult.

### **NURS 310NURS 310 Therapeutic Nursing Care of the Older Adult Client in a Variety of Settings (3)**

NURS 310 focuses on nursing concerns and interventions in promoting the health of older clients. Upon completion of the course, the student will be able to utilize knowledge about aging from nursing and contributing disciplines as a foundation for nursing practice with the older adult client; recognize pathophysiological and pharmacological aspects related to the nursing care of the older adult client; demonstrate progressive development of communication skills including technology which supports the health care needs of the older adult client; promote factors that create a culture of safety and caring for the older adult client; utilize assessment data and technology to plan, implement, and evaluate interventions specific to the health of the older adult client; evaluate nursing care in a variety of settings to meet the health needs of the older adult client and promote healthy lifestyles; communicate pertinent client information, plan of care, and evaluation of goals to staff, instructors and other members of the health team; apply evidence based practice to maximize client outcomes in health promotional and educational activities for the older adult client; demonstrate with guidance the role of the professional nurse in caring for the older adult client; participate in activities that advance the personal and professional development, cultural competency in the professional specialty of gerontological nursing; practice legal, ethical and professional accountability in the delivery of care to the older adult client; recognize the importance of interdisciplinary care in meeting the bio-psycho-social needs of patients and families receiving end-of-life care. Teaching strategies include lecture, discussion, hands-on clinical care and simulation laboratory experiences. Clinical sections of 8-10 students spend 45 hours caring for clients in nursing homes and community settings with the focus on environmental assessment, individual health teaching and group health teaching. The course is offered fall semester and enrollment is approximately 120 nursing student (60 at UP and 60 at HMC).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 225NURS 230

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 320** Nursing Care of the Childbearing Family and Gynecological Client (3) Therapeutic nursing care of the childbearing family and gynecological client.

### **NURS 320NURS 320 Nursing Care of the Child Bearing Family and Gynecological Client (3)**

NURS 320 focuses on providing therapeutic nursing care of child-bearing family and gynecological client. Upon completion of this course, the student will be able to utilize knowledge from nursing and contributing disciplines related to reproductive health concerns, life events and health alterations of the child bearing family and gynecological client to maximize client care outcomes; recognize pathophysiological and pharmacological aspects related to the nursing care of the child bearing and gynecological client; demonstrate progressive development of communication skills including technology which supports the child bearing family and gynecological client; promote factors that create a culture of safety and caring for the child bearing family and gynecological client; assess the reproductive health of the child bearing family and gynecological client within the context of the developmental process and the personal and suprapersonal environments; utilize assessment data and technology to plan, implement, and evaluate interventions specific to the health of the child bearing family and gynecological client; evaluate nursing care in a variety of settings to meet the health needs of the child bearing family and promote healthy lifestyles; communicate pertinent client information, plan of care, and evaluation of goals to staff, instructors and other members of the health team; apply evidence based practice to maximize client outcomes in health promotional and educational activities for the child bearing family and gynecological client; demonstrate with guidance the role of the professional nurse in caring for child bearing families and gynecological client; participate in activities that advance the personal and professional development and cultural competency in the professional specialty of obstetric and gynecological nursing; practice legal, ethical and professional accountability in the



delivery of care to the child bearing family and gynecological patient. Teaching strategies include lecture, clinical experiences and laboratory simulation, discussion, post clinical conferences, audiovisuals-slides and case studies. The course is offered spring semester of the junior year with an approximate enrollment of 120 nursing students (split between UP and HMC) and with clinical sections limited to 10 students per section.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 225NURS 230NURS 305

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 350 Professional Role Development II: Ethics, Legal and Genetic Issues (2)** The study of the interaction of ethical, legal, and genetic concepts as they apply to current health care practice.

### **NURS 350 Professional Role Development II: Ethics, Legal and Genetic Issues (2)**

NURS 350 is the second of three professional role development courses and addresses the interaction of ethical, legal and genetic concepts as they apply to current health care practice. Upon completion of the course the student will be able to define the fundamental ethical theories; define and integrate into evidence based practice the basic ethical concepts as they relate to nursing; state the American Nurses' Association Code of Ethics for Nurses; demonstrate ethical behaviors such as honesty, integrity, responsibility, and dependability in clinical practice and everyday life; define and describe the concepts of standards of care and scope of practice; analyze nurse practice acts as they pertain to licensure and scope of practice; define the concepts of negligence verses malpractice; define and distinguish between the concepts of informed consent, patient self-determination, right of refusal, and advance directives (such as living wills, durable power of attorney, and do not resuscitate orders); analyze the role of advocacy from an ethical and legal perspective; communicate effectively (including the use of new technologies) with patients and families regarding legal, ethical, and genetic issues; describe the concept of confidentiality from ethical and legal perspectives; identify the impact genetics has played in the practice of health care; describe the historical to current research findings in genetics that have or may change health care practice guidelines; identify the role ethics, legal issues, and genetics plays in providing health care to culturally sensitive populations; analyze and discuss historical and current biomedical dilemmas utilizing various ethical, legal and genetic perspectives. Teaching strategies include lecture, discussion, audiovisuals, small group activities, role- playing and group presentations. The course is offered spring semester and enrollment is limited to nursing majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: NURS 305

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 357 Introduction to Nursing Informatics (3)** An introduction to nursing informatics focusing on technology applications to the nursing profession.

### **Introduction to Nursing Informatics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 301NURS 306NURS 310NURS 320 ; or eligibility for NURN major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 390 (US) Transition and the Professional Nursing Role (3)** Transition to baccalaureate education and professional nursing practice, emphasizing leadership, management, and issues influencing nursing education and practice.

### **NURS 390 Transition and the Professional Nursing Role (3) (US)**

NURS 390 is the first nursing course that the registered nurse (RN) student completes. The course's intent is to set the groundwork for transition of the RN to baccalaureate education and professional nursing practice. With the emphasis being on leadership, management, and issues influencing nursing education and practice, the RN has the foundation on which to build nursing expertise as nursing courses progress. The course prerequisite is a current and valid RN license. Teaching strategies include: lecture, discussion, audiovisuals, self-assessment, reflective analysis, critical thinking/problem solving, computer assignments and active/collaborative learning. Evaluation of the course is by grading of written assignments, presentations, and testing. The course is offered in fall, spring or summer semesters of the junior year with a projected enrollment of 10 - 15 students, and is a prerequisite to other nursing courses. Upon completion of this course, the student will be able to: 1. Explain the processes inherent in successful transition to the role of the baccalaureate prepared nurse. 2. Analyze the influences that impact role development and nursing practice, especially self-regulation and accountability. 3. Appraise the health care environment as it relates to nursing roles and nursing

practice. 4. Measure the impact of nursing theory and research on baccalaureate level nursing practice. 5. Evaluate the importance of nursing research to nursing practice and the legislative arena. 6. Critically analyze issues that influence nursing education and practice today and in the future.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: eligibility for NURN major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 401** (IL) Concepts of Health (3) Exploration of current and ancient concepts of health and their respective modes of intervention.

### **Concepts of Health (3)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: PSYCH 100 or SOC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 402** (US;IL) Holistic Health (3) Examination of emerging conceptualizations of health and therapy based on a holistic view of human beings.

### **Holistic Health (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: NURS 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 403** School Health and Emergency Care of Children and Adolescents (3) Techniques for higher-level care for school health and emergency situations and application-based education.

### **NURS 403 School Health and Emergency Care of Children and Adolescents (3)**

This course is a part of the school nurse series and will provide participants with advanced techniques for school health professionals that respond to health and emergency situations. The topics covered will include abdominal, genitourinary, head, musculoskeletal, and sports-related injuries. Students also will review shock, respiratory, neurologic, psychological and behavioral emergencies, and a wide array of issues facing students with special needs. Additionally, the participant will review disaster planning, preparation, and response activities. The course will review major medical and accidental situations facing the school nurse including the inter-agency coordination with emergency response systems and

community entities. Students will learn what to include in a report for the communication center and emergency medical services. Skills stations for orthopedic injuries, trauma, and medical situations will allow students to practice skills and receive immediate feedback. Students will participate in application based education that utilizes case studies to pull the concepts together. Students will be asked to provide return demonstration for skills reviewed in this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: BIOL 129BIOL 141HD FS 129

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 404** Cardiac Dysrhythmias: Interpretation, Treatment, and Nursing Management (1) An introductory course with a focus on dysrhythmia recognition and interpretation of abnormal 12-lead electrocardiograms (EKG, ECG).

**NURS 404 Cardiac Dysrhythmias: Interpretation, Treatment, and Nursing Management**

NURS 404 (Cardiac Dysrhythmias: Interpretation, Treatment, and Nursing Management) is an introductory course in dysrhythmia recognition and interpretation of normal and abnormal rhythm strips and 12-lead electrocardiograms. The course involves integration of electrophysiology principles, anatomy, physiology, and arrhythmogenesis in interpretation of dysrhythmias. The diagnosis, medical treatment, and nursing management will be incorporated through case study analysis. Evaluation of course content will be done through exams, in class worksheets, and case study analysis. The class is open to nursing and non-nursing majors desiring introductory understanding of cardiac dysrhythmias. NURS 404 is a good course for nursing majors interested in critical care and non-nursing majors interested in emergency medical services associated with any major (e.g., Kinesiology). The class is offered fall and/or spring semester with enrollment limited (20 students) to allow interactive hands-on interpretation of dysrhythmias.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: BIOL 141BIOL 129 or equivalent or approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 405A** Nursing Care of the Adult Client with Complex Health Problems: Part A (4) In-depth study of care of patients with acute and complex health problems, utilizing evidence based practice.

**NURS 405A - Nursing Care of the Adult Client with Complex Health Problems: Part A (4)**

NURS 405A focuses on nursing care of adult clients with acute and complex health problems related to all major systems of the body. Upon completion of this course, the student will be able to synthesize knowledge from nursing and contributing discipline to maximize client care outcomes; recognize pathophysiological and pharmacological aspects related to the nursing care of the adult client; demonstrate the ability to communicate effectively including the use of technology with patients, families and the health care team; promote factors that create a culture of safety and caring for the adult client; demonstrate the ability to perform a comprehensive and systematic assessment and take appropriate nursing actions for the client with complex health problems; collaborate with colleagues from nursing and related disciplines using empirical and theoretical resources when defining nursing care priorities and determining nursing actions; utilize assessment data and technology to plan, implement, and evaluate interventions specific to the complex health problems of the adult client; participate in activities that advance the personal and professional developmental and cultural competency in the professional specialty of adult medical-surgical nursing; practice legal, ethical and professional accountability in the delivery of care to the adult medical-surgical client; apply evidence based practice to maximize client outcomes in health promotional and educational activities for the complex health needs of the adult client; demonstrate current and relevant knowledge of the social, health, behavioral and psychological sciences that can be applied to nursing practice for the adult client; demonstrate increasing self direction and confidence in providing nursing care for the adult client with complex health needs; demonstrate the role of professional nurse as a client advocate; demonstrate the ability to assess risk and actively promote the well being, safety, and security (patients and coworkers) in the work environment; demonstrate the ability with guidance to lead and coordinate a team, delegating care appropriately and safely; demonstrate the ability to respond appropriately to the emotional, psychological and spiritual needs of the adult client with complex care needs.

Teaching strategies include lecture, discussion, laboratory simulation and clinical experiences. Evaluation methods include examinations, scholarly papers, simulation laboratory experiences, preclinical preparatory written work, and mid-course and final clinical performance evaluations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 405B** Nursing Care of the Adult Client with Complex Health Problems: Part B (4) In-depth study of care of patients

with acute and complex health problems, utilizing evidence based practice.

**NURS 405B - Nursing Care of the Adult Client with Complex Health Problems: Part B (4)**

NURS 405B focuses on nursing care of adult clients with acute and complex health problems related to all major systems of the body. The emphasis is on enhancing critical thinking skills necessary for making sound nursing judgments and the demonstration of self-direction in providing nursing care for clients with complex medical surgical problems. Upon completion of this course, the student will be able to: Synthesize knowledge from nursing and contributing discipline to maximize client care outcomes; Recognize pathophysiological and pharmacological aspects related to the nursing care of the adult client; Demonstrate the ability to communicate effectively including the use of technology with patients, families and the health care team; Promote factors that create a culture of safety and caring for the adult client; Demonstrate the ability to perform a comprehensive and systematic assessment and take appropriate nursing actions for the client with complex health problems; Collaborate with colleagues from nursing and related disciplines using empirical and theoretical resources when defining nursing care priorities and determining nursing actions; Utilize assessment data and technology to plan, implement, and evaluate interventions specific to the complex health problems of the adult client; Participate in activities that advance the personal aim the professional specialty of adult medical-surgical nursing; Practice legal, ethical and professional accountability in the delivery of care to the adult medical-surgical client; Apply evidence based practice to maximize client outcomes in health promotional and educational activities for the complex health needs of the adult client; Demonstrate current and relevant knowledge of the social, health, behavioral and psychological sciences that can be applied to nursing practice for the adult client; Demonstrate increasing self direction and confidence in providing nursing care for the adult client with complex health needs; Demonstrate the role of professional nurse as a client advocate; Demonstrate the ability to assess risk and actively promote the well being, safety, and security (patients and coworkers) in the work environment; Demonstrate the ability with guidance to lead and coordinate a team, delegating care appropriately and safely; Demonstrate the ability to respond appropriately to the emotional, psychological and spiritual needs of the adult client with complex care needs. Teaching strategies include lecture, discussion, laboratory simulation and clinical experiences. The course is offered fall semester with approximately 120 students enrolled (60 at UP and 60 at HMC) with clinical sections limited to 10 students per section.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 407** Drugs of Abuse and Mental Health Issues (3) Examines the health care needs across the lifespan of clients who have an alcohol or other drug disorder.

**NURS 407 Drugs of Abuse and Mental Health Issues (3)**

NURS 407 is an elective course which examines the issue of substance abuse in today's society. It looks closely into the health care needs across the lifespan of clients who have an alcohol or other drug disorder in combination with a psychiatric disorder. Pharmacological, behavioral, biological, and sociocultural characteristics, along with factors and patterns of addiction, are discussed and then how these factors and characteristics relate to mental illnesses are further explored. The different classes of habit-forming drugs are covered and various treatment options are examined. The student is evaluated by written examination, research project, and/or community focus logs. This is an elective course placed in the spring semester and available to both nursing and non-nursing students in related fields. The course objectives follow.

Upon completion of this course, the student will be able to:

- a. Know the difference between pharmacological and behavioral definitions of addiction.
- b. Understand the biological basis of drug action and addiction.
- c. Understand the co-morbidity of major mental disorders and drug abuse issues.
- d. Understand the sociocultural factors of drug use and abuse.
- e. Describe and discuss the main characteristics of alcohol abuse, treatment, and recovery.
- f. Describe and discuss the main characteristics of stimulant abuse, treatment and recovery.
- g. Describe and discuss the main characteristics of marijuana and nicotine abuse and treatment.
- h. Describe and discuss the main characteristics of hallucinogen and inhalant abuse and treatment.
- i. Describe and discuss the use and abuse of prescription drugs.
- j. Understand the concept of Dual Diagnoses-the simultaneous existence of an alcohol and other drug disorder with a psychiatric disorder.
- k. Analyze how the use of drugs by an individual with a mental illness complicates treatment and recovery.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: BB H 143 or PSYCH 100 or approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 408** Clinical Application of Pharmacological Concepts (1) Study of the application of pharmacological concepts to the clinical setting.

**NURS 408 Clinical Application of Pharmacological Concepts (1)**

NURS 408 is an elective course designed to provide the interested student an in-depth review of pharmacology. The application of pharmacological concepts in relation to the clinical setting is a primary focus of the course. The various drug classes are discussed with emphasis placed on care of the patient while administering different types of medications. Discussion of pharmacological principles and patient care requires knowledge and integration of anatomy, physiology, pathophysiology, and medical and nursing treatments for various disorders. NURS 408 provides an excellent review of medication classes as related to medical condition in preparation of the nursing student taking the NCLEX licensure examination upon graduation. The student is evaluated by written examination and/or case study interpretation. NURS 408 is placed in the spring semester and is open to all nursing students who have successfully completed administering medications in the 300 level nursing courses and are concurrently enrolled in the 400 level nursing courses. Enrollment is not limited in numbers. Course objectives are as follows.

Upon completion of this course, the student will be able to:

- a. Categorize commonly used medications by major classifications of drugs.
- b. Predict classifications of medications given to specific clinical conditions.
- c. Develop patient teaching plans relevant to medication administration.
- d. Discuss research related to pharmacology which influences nursing practice.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 305NURS 301NURS 310NURS 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 409 Introduction to Forensic Nursing (3)** Provides an introduction to the forensic health sciences, forensic nursing, and the nursing role in the scientific investigation of violence.

**NURS 409 Introduction to Forensic Nursing (3)**

NURS 409 is an elective course describing the role of the nurse in the forensic sciences. It is designed to provide the interested student an in-depth study of nursing forensics and provides an introduction to the forensic health sciences, clinical forensic nursing, and the nursing role in the scientific investigation of violence. NURS 409 describes the principles and philosophy of forensic nursing in acute care and community settings and the roles of the forensic science professional and advanced practice forensic nurse are explored. The students are evaluated through case study interpretation, papers, and written examination. The topics included in NURS 409 require the student to have a basic understanding of nursing skills and the professional role of the nurse, therefore, NURS 409 is placed in the spring semester and all Junior-Senior level nursing students are eligible to enroll for it. Course enrollment is not limited. The course also provides an excellent opportunity for the nursing student to collaborate with Sociology/ Criminal Justice in order to obtain a minor in forensics. The course objectives follow.

Upon completion of this course, the student will be able to:

- a. Describe the scope of the practice of the advanced practice forensic health professional.
- b. Identify and analyze current forensic science and nursing issues and trends.
- c. Identify the role of the advanced practice forensic health professional/ forensic nurse in the holistic care of victims of trauma, perpetrators of human violence, and families of both.
- d. Describe the role of the advanced practice forensic nurse in the development of protocols and standards for professional practice.
- e. Verbalize the connection between advanced practice theories with forensic nursing content while integrating forensic roles into various advanced practice arenas.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 250NURS 225NURS 230

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 410 Forensic Evidence Collection and Preservation (3)** Examines forensic nurse's role recognizing injuries/patterns of injury. Evidence collection procedures are examined from collection to courtroom presentation.

**Forensic Evidence Collection and Preservation (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: Prerequisite or concurrent:NURS 245 andNURS 409

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 411 Seminar in Forensic Nursing (3)** Seminar to discuss current topics, trends and research related to forensic

nursing.

### **Seminar in Forensic Nursing (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: Current and Valid RN License; Prerequisite or concurrent: NURS 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 415 (US;IL) Community and Family Health Nursing (4)** Therapeutic nursing care and health promotion concepts to families, groups and populations in the community.

### **NURS 415 Community and Family Health Nursing--Concepts and Applications (4) (US;IL)**

NURS 415 US;IL focuses on nursing care of clients in the community and the family. This course allows students to work independently providing and improving health care of population groups within a diverse society. Upon completion of this course, the student will be able to synthesize knowledge from nursing, public health, family, and community theory as a foundation for culturally congruent community health nursing practice; utilize the nursing process and principles of primary, secondary, and tertiary prevention that are culturally appropriate in the care of community based clients who differ in terms of age, developmental stage, health beliefs values and practices; demonstrate interpersonal skills necessary for collaboration with and among culturally diverse consumers, community agencies, health professionals, and health related resources in the community; demonstrate the management and safety of client, family, and community care through appropriate use of concepts of leadership, case management, and group process; demonstrate understanding of epidemiological methods in gathering, analyzing, and utilizing data and be able to apply to diverse populations in the community; use coherent comprehensive, culturally sensitive and age appropriate communication in oral and written form; analyze biostatistical/epidemiological data and nursing evidence-based research findings to improve/enhance the delivery of nursing care to diverse populations in the community; identify recommended health screenings and immunizations and health promotional strategies throughout the life span; analyze the impact of culture as a significant influence on the health perceptions, interpretations, and behaviors of diverse groups; demonstrate the ability to perform comprehensive and risk assessments, to make critical decisions, and to take appropriate nursing actions in the area of community health; demonstrates the ability to practice the principles of health and safety in a caring manner to maximize client care outcomes across the lifespan.

Teaching strategies include lecture, audiovisuals, student presentations, discussion, clinical experiences, guest speakers, laboratory simulation and clinical experiences in varied clinical settings where the students are responsible for assessing, planning, implementing, and evaluating the care of families within the context of a community. Students have the opportunity to analyze the impact of culture on health perceptions, interpretations, and behaviors of diverse groups. The course is offered fall and spring semester of the senior year with approximately 120 students (60 at UP and 60 at HMC enrolled in clinical sections limited to 10 students per section).

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 417 (US;IL) Family and Community Health Concepts (4)** Study of the concepts of family and community based nursing care emphasizing multicultural influences on health practices.

### **NURS 417 Family and Community Health Concepts (4) (US;IL)**

Upon completion of the course the student will be able to (a) Synthesize knowledge from nursing, public health, family, and community theory as a foundation for culturally congruent community health nursing practice that is sensitive to race, religion, gender, disability and sexual orientation; (b) Utilize the nursing process and principles of primary, secondary and tertiary prevention that are culturally appropriate in the care of community based clients who differ in terms of health beliefs, values, and practices; (c) Develop skill in the use of independent/interdependent nursing actions to deliver care to clients across the life span; (d) Demonstrate the management of client, family, and community care through appropriate use of concepts of leadership, case management and group process; (e) Describe collaboration at the collegial level with nurses and other members of the health care team to provide continuity of care through culturally appropriate communication, consultation, and referral; (f) Use coherent, comprehensive and culturally sensitive communication in oral and written form; (g) Analyze biostatistical/epidemiological data and nursing research findings to improve/enhance the delivery of nursing care to diverse populations in the community; (h) Analyze the impact of culture as a significant influence on the health perceptions, interpretations, and behaviors of diverse groups.

Students will spend 40 hours practicing in a clinical setting. In that setting they will be responsible for assessing, planning, implementing and evaluating the care of families within the context of a community. Students will have the opportunity to analyze the impact of culture on health perceptions, interpretations, and behaviors of diverse groups.

Evaluation methods: Students will be evaluated both theoretically and clinically by use of the following: (a) Guided study of complex family and community health patterns using collaboration case analysis; (b) Case findings and analysis; (c)

Direct care to culturally diverse families in the community setting.

Relationship/linkage of course to other courses: This course applies and integrates family and community nursing concepts to culturally diverse clients in the community. It is offered at the senior level and incorporates previously learned theoretical and clinical nursing knowledge with an appreciation for how diversity influences the health care behaviors of families and communities as they relate to the health care system.

Relationship of course to major: This senior level nursing course is one of the components of the Advanced Standing Option. It is a required course that provides students with the opportunity to develop skill in delivery of health services to globally diverse populations across the life span. It is also designed to increase the student's knowledge base related to the community based client including relationships, lifestyle and kinship patterns. Lastly, it provides an arena for community health planning for diverse populations.

Special facilities required to teach the course: The clinical arena which will be used to teach this course includes but is not limited to high risk populations in the community, senior or special housing projects, prisons and missions.

Frequency of offering an enrollment: The course will be offered every semester and enrollment varies from 10 to 20 students.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: NURS 390 and current and valid RN license; Prerequisite or concurrent: NURS 357

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 420 Mental Health Nursing (4)** Emphasizes clinical application of mental health theory in nursing care of patients with acute and chronic mental health problems.

#### **NURS 420 Mental Health Nursing (4)**

NURS 420 focuses on care of clients experiencing mental health problems and emphasizes the clinical application of mental health theory in nursing care of patients with acute and chronic mental health problems. Upon completion of this course, the student will be able to synthesize knowledge from nursing and the social, health and behavioral sciences to describe the nature of mental adaptations throughout the lifespan; demonstrate effective therapeutic communication skills when dealing with clients, groups and families experiencing maladaptive responses to stress; assess the strengths and weaknesses of the client and family in the context of a group and community environment; demonstrate the ability to perform comprehensive and risk assessments, to make critical decisions, and to take appropriate nursing actions in the area of psychiatric mental health; utilize the nursing process as related to the Standards of Psychiatric and Mental Health Nursing practice; collaborate with nursing colleagues, mental health professionals and consumers in the practice of psychiatric mental health nursing; analyze individual and societal forces that effect nursing research and evidence based practice in the area of psychiatric mental health nursing; demonstrate the knowledge of self needed to be an effective therapeutic agent and a client advocate; demonstrate culturally competency and the ability to provide holistic psychiatric mental health nursing care; perform the principles of psychiatric mental health and safety in a caring, nonjudgmental manner; demonstrate a current and relevant knowledge base of legal and ethical issues that can be applied to psychiatric mental health nursing; identify and support mental health promotion and mental health educational activities to maximize client care outcomes and evaluate psychiatric mental health nursing as a professional specialty. Teaching Strategies include lecture, process recordings, discussion, selected readings, audiovisuals, laboratory simulation and clinical experiences. NURS 420 is offered fall and spring semesters with an annual enrollment of approximately 120 students (60 at UP and 60 at HMC) with clinical sections limited to 10 students each.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 430 Organization and Administration for the Nurse Manager (3)** Introduction to organizational theory and principles of practice in the administration of nursing services and patient care.

#### **NURS 430 Organization and Administration for the Nurse Manager (3)**

NURS 430 is the first of four courses included in the nursing management series, which focuses on leadership and management in nursing. NURS 430 includes a study of the history of American management and the influences on management styles and approaches. Topics covered in the course includes: Leadership theory, Change theory, Health care organizational structure and functions, Legal and Ethical issues, Nursing Management structure, function, and roles, Power and politics; Communication; and Nursing care delivery systems. The course is offered in traditional classroom instruction, on-line through ANGEL at selected campus sites and through World Campus. Course evaluation criteria may include examination, case studies, and student projects or presentations as assigned by the faculty. Upon completion of all 4 courses, students receive a certificate of completion of the Nursing Management Series from the school of nursing.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: RN license or eligible for NURN major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 431** Data Management for Nurse Managers (3) Analysis of information systems to manage nursing service organizations; includes financial management, the budgeting processes, and productivity measurement.

### **NURS 431 Data Management for Nurse Managers (3)**

NURS 431 is the second of four courses included in the nursing management series, which focuses on leadership and management in nursing. NURS 431 includes a study of information systems and financial aspects of managing health care organizations and patient care delivery. Topics covered in the course include: Information systems in health care, Electronic medical record, Security and portability of health care information. Topics related to budget and finance include, operating and capital budget management, nurse staffing systems and productivity. Lab activities enable students to develop proficiencies with spreadsheet software. The course is offered in traditional classroom instruction, on-line through ANGEL at selected campus sites and through World Campus. Course evaluation criteria may include examination, case studies, and student projects or presentations as assigned by the faculty. Upon completion of all 4 courses, students receive a certificate of completion of the Nursing Management Series from the school of nursing.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: Prerequisite or concurrent: NURS 430 and permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 432** Nursing Management of Human Resources (3) Human resource management and related factors in nursing service organizations.

### **NURS 432 Nursing Management of Human Resources (3)**

NURS 432 is the third of four courses included in the nursing management series, which focuses on leadership and management in nursing. NURS 432 includes a study of human resource management with an emphasis on application to nursing and health care organizations. Topics covered in the course include: Employment laws, hiring, termination and managing staff turnover, conflict management, staff development and productivity, organized labor and unions, the impaired nurse, and discussion of nursing standards, ethics, delegation and the nursing shortage. The course is offered in traditional classroom instruction, on-line through ANGEL at selected campus sites and through World Campus. Course evaluation criteria may include examinations, case studies, and student projects or presentations as assigned by the faculty. Upon completion of all 4 courses, students receive a certificate of completion of the Nursing Management Series from the school of nursing.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: Prerequisite or concurrent: NURS 430 and permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 433** Seminar for Nurse Managers (3) Course focuses on the application of management principles in the role of the nurse manager.

### **NURS 433 Seminar for Nurse Managers (3)**

NURS 433 is the fourth of four courses included in the nursing management series, which focuses on leadership and management in nursing. NURS 433 is designed to allow the student to explore issues that challenges individuals in the nurse manager role. Designed with a seminar approach the student will study the following topics: The future of nursing leadership, mentoring, networking, stress management for the nurse manager and avoiding burnout, managing patient care quality and regulatory compliance, and implementing change. Students also complete a field observational study with a nurse manager or nurse executive in a health care organization. It is recommended that students complete at least one of the previous nursing management (NURS 430, NURS 431, NURS 432) courses prior to enrolling in this course. The course is offered in traditional classroom instruction, on-line through ANGEL at selected campus sites and through World Campus. Course evaluation criteria may include examinations, case studies, and student projects or presentations as assigned by the faculty. Upon completion of all 4 courses, students receive a certificate of completion of the Nursing Management Series from the school of nursing.

General Education: None  
Diversity: None



Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: Prerequisite or concurrent: NURS 430 and permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 440 Trauma/Critical Care Nursing (3)** Focuses on the impact of and the nursing care of persons experiencing acute trauma and/or critical illness.

### **NURS 440 Trauma/Critical Care Nursing (3)**

NURS 440 is designed as an introductory study of the impact of life-threatening physical problems across the life-span utilizing the nursing process. The course focuses on problems encountered in the hospital critical care setting and is a nursing elective. Upon completion of this course, the student will be able to meet the following objectives: Integrate knowledge from nursing and related disciplines into case study format for persons with life-threatening illnesses; Explore practice, ethical, legal and interpersonal dimensions within the critical care setting. Identify problems for nursing critical care research. Study the most common illnesses in the critical care setting for the neurological, respiratory, cardiac, renal, gastro-intestinal, trauma and multiple system organ failure systems. Students incorporate academic learning with some case study review to simulate the critical care setting. Success in the course is evaluated by in-class examinations, assigned research readings, and written critiques. NURS 440 is offered in the spring semester only, with an average enrollment of 40 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 301NURS 310NURS 320 or approval of nursing program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 450A Professional Role Development III: Leadership and Management (2)** Study of leadership roles and various styles of nursing management and their implications for the professional nurse.

### **NURS 450A - Professional Role Development III: Leadership and Management (2)**

NURS 450A is the senior level professional role development course that focuses on delegation of care, leadership and management. Upon completion of the course, the student will be able to analyze influences which impact on role development and nursing practice; recognize the significance of professional, ethical, regulatory and legal codes within the context of nursing practice; recognize nursing skills necessary to respond to the client's needs throughout the life span including end of life issues; recognize current and relevant knowledge of leadership and management theory as it relates to the health care environment; recognize current and relevant knowledge of ethical, legal, national and international policies as it relates to the health care environment; demonstrates current knowledge of nursing research and modern technologies to recognize nursing care that is rigorous and evidence based; assess the nursing profession's responsibility for self-regulation and accountability in order to maximize client care outcomes; demonstrates the ability to promote, support, and facilitate the health, well being, and comfort of vulnerable populations as to enhance the quality of service delivery; recognize the principles of leadership, accountability and delegation that promote the well being, safety and security of patients and coworkers; recognize and promote the ability to communicate effectively (including the use of technology) with patients, families, social groups and the health care team; demonstrates increased awareness of the nurse generalist role and the value of life-long learning. Teaching strategies include lecture, audiovisuals, student presentations, discussion, guest speakers, simulation and role-playing. The course is offered each fall semester with approximately 120 students enrolled.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 450B Professional Role Development III: Clinical Capstone (3)** Senior level clinical capstone course that emphasizes the integration and application of theory and evidence based practice.

### **NURS 450B Professional Role Development III: Clinical Capstone (3)**

NURS 450B is the clinical capstone course for the Nursing Program. Students will spend 135 hours practicing in a clinical setting, where they will be responsible for assessing, planning, implementing and evaluating the care of clients. Students will have the opportunity to employ management and delegation skills in the care of clients. Upon completion of this course, the student will be able to demonstrate the ability to practice in a holistic, culturally competent and caring manner; demonstrate the ability to practice within the context of professional, ethical, regulatory and legal codes of nursing practice; demonstrate the ability to promote, support, and facilitate the health, well being, and comfort of vulnerable populations so as to enhance the quality of service delivery; demonstrate the ability to perform comprehensive and systematic assessments and take appropriate actions; demonstrate the ability to utilize evidence based practice and modern technologies to assess and respond appropriately to patient needs; utilize nursing skills to provide optimum care

and to practice principles of health and safety in a caring, nonjudgmental manner; utilize nursing skills to respond to a person's needs throughout the life span, i.e. life choices, disability, and end of life issues; demonstrate current and relevant knowledge of the social, health, and behavioral sciences that can be applied to nursing practice; demonstrate current and relevant knowledge of ethical, legal, national, and international policies that can be applied to nursing practice; demonstrate current knowledge of nursing research to provide nursing care that is rigorous and evidence based; demonstrate the ability to communicate effectively (including the use of technology) with patients, families, social groups and the health care team; identify, manages and support health promotion and health educational activities to optimize patient safety and well being; demonstrate the ability to lead and coordinate a team, delegating care appropriately; demonstrate the ability to assess risk and actively promote the well being, safety, and security (patients and coworkers) in the work environment; demonstrate increased confidence in the nurse generalist role and in the value of life-long learning.

Teaching strategies include laboratory simulation and clinical experiences and pre and post clinical seminars. The course is offered each spring semester and is a one on one preceptor based clinical experience.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: all 300-level required NURS courses must be completed

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 452 (US) (BB H 452, WMNST 452) Women's Health Issues (3)** Exploration of major health issues concerning women today, with an emphasis on social, cultural, and medical influences.

### **Women's Health Issues (3)**

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: BIOL 141 or PSYCH 100 or WMNST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 458 Ethical Challenges in Healthcare Informatics (3)** A case based collaborative designed for the exploration and analysis of the ethical dilemmas facing healthcare informatics practitioners.

### **Ethical Challenges in Healthcare Informatics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 459 Legal and Professional Issues in School Nursing (3)** Legal and professional issues of school nurses and delivery impact of health care in school environment.

## **NURS 459 Legal and Professional Issues in School Nursing (3)**

This course is part of the school nurse series. This course encompasses the synthesis and analysis of the legal and professional issues faced by school nurses and other professionals in the school setting. Strategies on the legal and professional delivery of health care in the school environment are integral to the course. Objectives include: explore legal and ethical issues influencing school nursing practice; analyze attributes of the legal and professional issues faced by school nurses and other professionals; develop strategies for addressing school nursing, interdisciplinary or health care issues; analyze issues that impact the resolution of special problems in school-age populations; identify resources and management strategies available to the school nurse and

## other professionals in meeting the needs of at risk school-aged populations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2010  
Prerequisite: PSYCH 100 or SOC 001 or HD FS 129

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 460** Advanced Concepts in Clinical Nursing Informatics (3) An exploration of clinical informatics tools to support informatics practice.

### **NURS 460 Advanced Concepts in Clinical Nursing Informatics (3)**

Advanced Concepts in Clinical Nursing Informatics prepares nurses to support, promote, and assist in the implementation and efficient and safe use of informatics tools in the fast-paced, technology rich clinical healthcare environment. Students will explore electronic health records, clinical decision support tools, database management and data mining, patient safety technologies, and the clinical workflow implications and meaningful use of each. Students will learn principles of health care organizational culture, change theory, and the System Development Life Cycle (SDLC) to prepare them to assist with project management as informatics tools are introduced in the clinical environment. The use of informatics tools to support knowledge management in an organization is also emphasized. Students will discover the benefits and barriers of Health Information Exchange (HIE) in the promotion of public health. Finally, students will discover the competencies, skills, roles, and standards of informatics nursing practice.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: NURS 357 and NURS 458  
Concurrent: NURS 458

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 461** Perioperative Nursing (4) Comprehensive introduction regarding fundamental principles and practices of the Operating Room Nurse when managing the care of the surgical patient.

### **NURS 461 Perioperative Nursing (4)**

Comprehensive introduction regarding fundamental principles and practices of the Operating Room Nurse, when managing the care of the surgical patient. Upon completion of this course, the student will be able to define the roles and responsibilities of the circulating and scrub nurse and the other members of the surgical team; practice aseptic technique as related to the roles of the Perioperative Nurse; integrate knowledge from the sciences to function in a Perioperative setting with the specialized environment, procedures and equipment; discuss types of anesthesia and medications used in the Perioperative period; utilize the nursing process in meeting the physical, psychological, and educational care of the surgical client; discuss the various methods of sterilization related to the care of the surgical patient; recognize the complexity of the Operating Room environment related to patient safety; identify the legal and ethical responsibilities of the professional nurse related to the rights of the surgical patient.

Course topics will specifically cover the roles and responsibilities of the perioperative nurses and the Operating Room team, aseptic technique, specialized environment, procedures and equipment, communication, documentation and legal issues, safety, medications and anesthesia, and specialty areas of the Operating Room. Since the course is a clinical preparation course for RNs, the clinical takes place in the Operating Room. Teaching strategies may include seminar/discussion, films/videos, guest speakers, student presentation. The course may be offered spring, summer or fall semesters.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: RN license required

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 462** Psychotropic Drugs and Children/Adolescents (1) Study of psychotropic medications used to treat children and adolescents, including indications, actions, adverse reactions and implications for school nurses.

### **NURS 462 Psychotropic Drugs and Children/Adolescents (1)**

Study of psychotropic drugs that are used to treat children and adolescents. The major drug classifications of psychotropic drugs including stimulants, selective norepinephrine reuptake inhibitors, antidepressants, antipsychotics, alpha 2 Adrenergic Agents, anti-anxiety agents, lithium and antiepileptic agents will be reviewed. Upon completion of this

course, the student will be able to explain the mechanism of action of the major psychotropic drug classes; list the indications for the use of psychotropic drugs in children and adolescents; recognize the possible adverse reactions that may occur in children/adolescents who are taking psychotropic drugs; and explain the role of the school nurse in monitoring the effectiveness and side effects of psychotropic drugs.

Teaching strategies may include lecture, discussion, audiovisuals, selected readings. This course may be offered in the Spring, Summer or Fall semesters.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: Rn license or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 463** Compassionate Counseling for Children/Adolescents Dealing with Dying, Death, Other Life Crises (3) Explores issues involving dying, death and life crises which occur in today's world and affect school communities.

### **NURS 463 Compassionate Counseling for Children/Adolescents Dealing with Dying, Death, Other Life Crises (3)**

This course is part of the school nurse series. The school nurse series is anticipated to be offered in the summers throughout PA by Penn State Outreach: Professional and Organizational Development and the School of Nursing as an outreach mission. This course explores the complex issues involving death in today's world as faced by children and adolescents. Content includes: counseling skills for nurses; child and adolescent development in the understanding of dying, death, and other life crises; exploring dying, death, and crises that are present in the lives of children and adolescents in the modern world; discussions of risks of death in the modern world including suicide, accidents, disasters, violence, war, and communicable diseases; description of death rituals and how societies cope with dying and death; identifying effective strategies to assist children and adolescents in coping with dying, death, and other life crises. The societal and school issues that affect not only an individual student but the milieu of the school and other students, parents, teachers, advisers, and administrators are inherent in the content. This course expands knowledge and interventions for those working with children and adolescents in the school setting. Presentations and examinations compose the evaluative methods.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: PSYCH 100 orSOC 001 orHD FS 129

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 464** (US;IL) Dying and Death (3) Explores attitudes toward death and dying; concept of grief; responsibilities to the dying person and the family.

### **Dying and Death (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: PSYCH 100 orSOC 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 465** Health Concepts for Adults with Complex Health Care Needs (3) In-depth study and application of the theoretical principles and roles of adult clients and families with complex healthcare needs.

### **NURS 465 Health Concepts for Adults with Complex Health Care Needs (3)**

NURS 465 focuses on the application of those concepts that relate to the adult high-risk client, family, or significant other in a complex health care setting. Course prerequisites include Introduction to Computing and Nursing Informatics and Transition and The Professional Nursing Role. The student selects a clinical nursing practice experience related to complex health care of the adult high-risk client and, based on course objectives, develops clinical practice objectives in collaboration with the course faculty. Evaluation of the course is by grading of written assignments and achievement of clinical nursing practice objectives. The course is offered in fall and/or spring semesters of the senior year. Upon completion of this course, the student will be able to: 1. Integrate theory and knowledge of nursing and related disciplines as a basis for professional nursing practice with adult high-risk clients. 2. Demonstrate interpersonal skills to support and guide clients/families/significant others in the selection of appropriate health patterns. 3. Utilize the nursing process to analyze complex adult high-risk situations occurring in acute care, transitional care, and/or community settings. 4. Apply critical thinking skills to clinical nursing practice situations involving the high-risk client/families/significant others. 5. Collaborate with colleagues in the design, implementation, and evaluation of nursing interventions. 6. Demonstrate in the clinical nursing practice setting the role of the professional nurse as case manager, change agent, advocate and researcher with the adult high-risk client/families/ significant others. 7. Demonstrate a

comprehensive understanding of opportunities for clinical nursing research with the adult high-risk client/families/significant others. 8. Demonstrate nursing practice within the legal and ethical guidelines for professional nursing practice with the adult high-risk client.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 390 and current and valid RN license; Prerequisite or concurrent: NURS 357

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 467 Medication Update and Health Teaching Interventions for School Nurses (1)** Study of current pharmacologic concepts, including health teaching, prescribed for acute and chronic conditions commonly encountered in school nursing.

**NURS 467 Medication Update and Health Teaching Interventions for School Nurses (1)**

The course addresses the current pharmacologic therapies and related health teaching that school nurses commonly encounter in the student population. The most commonly used medications in the school-age student include the following categories: the Respiratory System, the Central Nervous System, the Cardiovascular System, the Digestive System, the Endocrine System, the Dermatologic System, and medications used to treat and prevent infections/infestations. Upon completion of this course, the student will be able to identify the classifications of commonly used medications; discuss the pharmacologic treatment of specific ambulatory pediatric health problems; develop patient teaching plans for students taking medications.

Teaching strategies may include lecture, discussion, audiovisuals, and selected readings

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: RN license or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 468 Client Education Strategies for Nurses and Other Health Care Providers (3)** Explores current and emerging roles of client education in the knowledge era.

**NURS 468 Client Education Strategies for Nurses and Other Health Care Providers (3)**

This course explores current and emerging roles of client education in the knowledge era. Emphasis is placed on the application of teaching and learning strategies that deliver empowering and engaging health education to promote wellness, prevent health problems, and manage chronic illness. Upon completion of this course, the student will be able to:

assess the challenges and issues facing nurses and health care providers enacting the role of client educator in the knowledge era; explore the promotion of client health at all levels of prevention: primary, secondary, tertiary; integrate the client education process for individuals, families, groups, and communities; assess learner motivation, readiness, and situational impacts such as psychosocial factors and cultural beliefs that affect the client education process; implement sound, effective teaching and learning strategies in selected clinical settings with special populations; develop teaching plans using taxonomies of educational objectives; select specific teaching strategies and delivery systems, including technology, appropriate for the developmental stage and needs of the learner; describe methods for evaluation of teaching; identify appropriate communication and documentation of the process and outcomes; and list topics in client education which can be further explored through research.

This course may be used as a nursing elective or by nurses or other health care workers to increase knowledge and promote successful health teaching to clients. Continuing education has been the delivery mode, plus it has been offered at other campuses through the school of nursing. The course could be with approximately 20 – 30 students. This course has been run through continuing education last semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129 300-level standing or approval of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 470 Autism Spectrum Disorders: Care Overview (1)** Overview of autism spectrum disorders including resources related to children with autism spectrum disorders.

**Autism Spectrum Disorders: Care Overview (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129 or program approval

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 471 Issues in Bullying for Health Professionals (1)** Explores the impact of bullying on individuals, schools, teachers, families, of the target and the bully.

#### **NURS 471 Issues in Bullying for Health Professionals (1)**

In this course, Bullying: Identification and Intervention, students will explore the impact of bullying on individuals, schools, teachers, and families of the target and the bully. Details of cyber-bullying are included. Students will review current research findings on bullying including witnesses/bystander behavior and factors contributing to the behaviors. The use of screening and assessment tools for prevention along with early identification will be emphasized to help students understand the steps a professional may take in these situations. Students will learn methods of prevention and intervention. Finally, the reporting of bullying and legal and ethical issues will be analyzed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129 or approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 472 Relational Aggression in the Healthcare Setting (3)** An exploration of research and interventions for relational aggression in the healthcare setting.

#### **Relational Aggression in the Healthcare Setting (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: enrolled NURN majors; completion or concurrent enrollment in NURS 350 or NURS 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 475 Integrated Concepts in Nursing Practice (3)** Project-based capstone course for application of nursing concepts to health promotion/disease prevention in populations.

#### **NURS 475 Integrated Concepts in Nursing Practice (3)**

NURS 475 is a project-based capstone clinical course with a focus on the application of nursing concepts. The course is designed to provide opportunity for students to synthesize and apply the art and science of nursing to health promotion and disease prevention in culturally diverse populations in varied clinical settings of the global community. Upon completion of this course, the student will be able to synthesize knowledge from nursing and related sciences for application to evidence based nursing practice; interpret legislative and regulatory processes relevant to the capstone project; collaborate with members of the health team to provide continuity of care through appropriate communication, consultation, and referral; communicate effectively using written, verbal, nonverbal and emerging technology methods; apply biostatistical, epidemiological, and research findings to enhance the delivery of evidence based nursing care; provide evidence based nursing care that contributes to safe and high quality patient outcomes within healthcare Microsystems; participate in the development and implementation of theory-based and a population-focused health promotion project; facilitate change in the healthcare microsystems affecting the provision of nursing care to diverse populations throughout the lifespan; demonstrate accountability in the delivery of professional nursing care; and integrate the concept of life-long learning into professional nursing practice. Teaching strategies include: seminar discussions, population-based nursing practice project and preceptored nursing practicum. NURS 475 is the final nursing course and contrives to craft future nursing career goals for RN to BS students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: NURS 417 ; and current and valid RN license

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 492 Emergency Care and Safety (3)** A comprehensive first aid course designed to provide knowledge of prehospital emergency care at the First Responder level.

#### **NURS 492 Emergency Care and Safety (3)**

NURS 492 is a comprehensive emergency care and safety course that incorporates basic first aid skills and knowledge and advanced topics such as oxygen therapy, hazardous materials, farm/rural incidents, disaster planning, incident command,

triage, and mass casualty incidents. The course includes discussion of infectious diseases and the standard precautions utilized by rescuers to prevent the transmission of disease. Critical thinking and decision-making skills are utilized throughout NURS 492 in practical exercises using various scenarios to enhance the rescuers response in emergency situations. Students are evaluated by written examination and practical skill testing. Cards in First Aid/Emergency Care and CPR for the Healthcare Provider/Professional CPR will be issued to the student upon successful completion of the course. NURS 492 is a complimentary course to NURS 203, which is a basic first aid/community CPR general education elective course designed for the non-nursing major who is required to have first aid/CPR certification for their course of study. NURS 492 provides the student an alternative to NURS 203 by providing emergency care at a higher level of training. NURS 492 is an excellent course for nursing students with advanced health care knowledge, community health care providers (i.e., school nurses), and any non-nursing major interested in emergency medical services (i.e., Kinesiology). NURS 492 is offered fall and/or spring semesters and enrollment is limited to 30 students. The course objectives follow.

Upon completion of this course, the student will be able to:

- a. Recognize and state signs and symptoms of both non-urgent and life-threatening illnesses and injuries.
- b. Demonstrate an ability to treat injuries and illness until Emergency Medical Service (EMS) help arrives by utilizing critical thinking skills to make correct decisions, integrate knowledge and improvise materials as necessary.
- c. Demonstrate the correct procedure of CPR for the Adult, Child, and Infant victim of cardiac arrest, including Obstructed Airway.
- d. Recognize the special cultural and technical barriers of providing first aid in a rural setting and a farm environment.
- e. Demonstrate an awareness of hazardous materials at a first responder level of competency.
- f. Demonstrate appropriate triage decisions in single or multiple person accidents.
- g. Demonstrate an awareness of primary and secondary prevention of trauma, especially with farming incidents.
- h. Demonstrate an awareness of safety by conducting a safety inspection of the home or work place.
- i. Design and plan a shelter for victims in the event of a man-made or natural disaster.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: BIOL 141/BIOL 129 or equivalent or approval of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 494H** Honors Thesis (1-6 per semester/maximum of 6) Independent honors research project related to student's interests directed by faculty supervisor and culminating in production of thesis.

#### **Honors Thesis (1-6 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: approval of honors thesis adviser

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 495** Nursing Study in Specialized Setting (1-12) Designed to provide student with in-depth study and practice in clinical specialty area of choice.

#### **Nursing Study in Specialized Setting (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 496A** NURS 496A Graduate Nurse Residency 1 (1) This course is designed to support newly graduated nurses in their development as professional nurses and members of the health care team. This course covers a portion of the

content from the UHC/ANCC Nurse Residency program through monthly seminars on: critical thinking skills, leadership development, communication strategies and patient safety. Sessions will be 2.5 hours in length.

**NURS 496A Graduate Nurse Residency 1 (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: Associate degree in Nursing or a diploma from an accredited Hospital sponsored School of Nursing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 497A** Business of Nursing (3) Teaches students basic business principles as they apply to nursing and health related entrepreneur.

**Business of Nursing (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 497B** Complexity Science, Health, and Education (3) Provides an introduction to Complexity Science; its interdisciplinary presence in basic science, social science, education, management, and healthcare professions; and its specific relevance for transformation in nursing.

**Complexity Science, Health, and Education (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 497C** Human Diversity Among School-Aged Youth (2) Overview of human diversity among school-aged youth: including strategies for improving the health and well-being of young people through comprehensive school health programs.

**Human Diversity Among School-Aged Youth (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129 or permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 497D** Development of Personality Disorder Traits: School Youth Through Young Adult (1) Overview of development of personality disorder traits and psychosocial problems of school-aged youth; includes prevention and treatment strategies.

**Development of Personality Disorder Traits: School Youth Through Young Adult (1)**

General Education: None

Diversity: None

Bachelor of Arts: None



Effective: Summer 2014 Ending: Summer 2014

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129 or permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 497E** Neurological Assessment Skills for the School Nurse (1) This course offers a basic review of the neurological system. Additionally, the course offers specific information on seizures and concussion injuries related to the school age child. Students will examine various neurological assessment scales. Resources for families, staff, and community will be offered. Strategies and interventions for the prevention of head injuries will also be explored.

#### **Neurological Assessment Skills for the School Nurse (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014 Ending: Summer 2014

Prerequisite: PSYCH 100 or SOC 001 or HD FS 129

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NURS 499** (IL) Foreign Study--Nursing (1-9) Study of nursing issues in a foreign country.

#### **Foreign Study--Nursing (1-9)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Nutrition (NUTR)**

**NUTR 100** (GHA) Contemporary Nutrition Concerns (1.5) Interpretation of nutrition principles in relation to contemporary problems in selecting a diet to promote a healthy lifestyle. Students who have received credit for NUTR 151 or NUTR 251 may not schedule this course.

#### **NUTR 100 Contemporary Nutrition Concerns (1) (GHA)**

This course will present the basic principles of nutrition so that students may be better prepared to evaluate nutrition related issues in the media and to make informed choices about dietary intake in order to promote a healthful lifestyle. Information about the several classes of nutrients (proteins, carbohydrates, fat, vitamins, and minerals) and the physiological processes used to digest, absorb, and utilize them is presented and related to such topics as maintenance of ideal body weight, improvement in physical performance, and the role of nutrients in various disease states such as heart-disease, cancer, and osteoporosis. Students are instructed in ways to obtain information about food and nutrition through training in reading foods labels and accessing quality information from electronic and print media. In order to provide relevance to the individual, each student will collect information about his or her diet by keeping a diet record and will use a software program to compare intakes with dietary recommendations. Several other assignments will allow students to use this information to compare their diets to recommendations for fiber intake, to plan a program to accomplish weight gain or loss, to estimate their energy expenditure and to consider ways they might modify their diet to accomplish some stated goal (e.g. increase iron status or decrease salt intake). Students will be evaluated based on two midterm examinations and a final examination and on the quality of the diet project and the other assignments. Percentage distribution of the grades would likely be: 20% for each of the midterms, 30% for the final, and 30% for the various projects. This course is intended for non-nutrition major students and will fulfill 1.5 credits of the Health and Physical Activity (GHA) requirement of general education. The course is offered each semester, including summer sessions, at University Park. Typical enrollment would be approximately 200 students in each of three sections per semester during regular sessions.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 111** (GH;US) (HIST 111) American Food System: History, Technology and Culture (3) A cultural analysis of the evolution of U.S. agricultural production and food consumption patterns, the food industry and food marketing.

**American Food System: History, Technology and Culture (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 115** Theory of Exercise and Nutrition for Weight Control (1) Nutrition application for responsible weight control.

**Theory of Exercise and Nutrition for Weight Control (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

Concurrent: ESACT 115

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 119** Elementary Foods (3) Basic principles and fundamental processes underlying food preparation. For non-nutrition majors only.

**Elementary Foods (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 120** Food Preparation (3) Scientific principles of basic food preparation, with an emphasis on the physical and chemical aspects.

**Food Preparation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 170** Careers in Nutrition (1) Nutrition professionals describe career paths and opportunities for graduates in applied and science options; strategies for making effective career decisions.

**Careers in Nutrition (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 251 (GHA)** Introductory Principles of Nutrition (3) The nutrients: food sources and physiological functions as related to human growth and well-being throughout life; current nutrition issues. Students who have passed NUTR 151 may not schedule this course.

**NUTR 251 Introductory Principles of Nutrition (3)  
(GHA)**

Introductory Principles of Nutrition is a 3-credit course offered on the University Park campus every semester plus summers in multiple sections ranging in size from 100 to 300 students, at locations other than University Park, enrollments are typically less. This course is designed for nutrition majors and non-majors to provide a broad understanding of general principles of nutrition. Concepts covered on most essential nutrients include: digestion, absorption, transport, function, and food sources. Additionally, major health issues related to some nutrients which are of public health concern in the U. S. are discussed in more detail giving insight into cause, treatment and prevention. Of major importance to students' lives are health and nutrition implication of overweight, heart disease, bone health, and energy balance as affected by diet and physical activity. Lastly, understanding of nutritional needs throughout the life span is introduced, with emphasis on pregnancy, lactation, and infant nutrition. All of these concepts at this introductory level are important for students in the major so that they are prepared for upper division courses. Application of knowledge to personal health is accomplished through a series of 5 to 8 assignments and activities. Students record and analyze their own food intake for three days by using software that is purchased with the text. Students then assess these records using dietary guidelines, nutrition standards, and the food guide pyramid. Students work individually and sometimes in small groups to critically evaluate their food behaviors; then they make decisions to formulate dietary plans which may reduce their risks for chronic diseases later in life. For another assignment, students perform a short assessment of their own weight status as compared to national standards profiling healthy weights'. The last assignment has them design a nutritionally sound diet with their particular food preferences and habits in mind. The course is evaluated through multiple choice exams, having some questions designed as, case studies and involving problem solving. Assignments include the diet and weight status self-assessment process described above, which includes some short essays. An additional assignment on the use of internet sites for reliable nutrition information gathering is required. These assignments promote active learning, analyzing and evaluating, making critical judgments, and using current technologies. Approximately 75-80% of the points are associated with the examinations; the balance of the points are from the various projects.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 252** Diet Therapy and Nutrition Care in Disease (4) Principles of nutrition care to meet therapeutic needs, inpatient care, and rehabilitation.

**Diet Therapy and Nutrition Care in Disease (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: NUTR 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 358** Assessment of Nutritional Status (2) Introduction to purpose, methods, and scientific basis for assessment of nutritional status in total health care for individuals and groups.

**Assessment of Nutritional Status (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2002  
Prerequisite: NUTR 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 359** Nutrition Assessment Theory and Practice (2) Introduction to purpose, methods, and scientific basis for assessment of nutritional status and use of tools in a practice setting.

**Nutrition Assessment Theory and Practice (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1993  
Prerequisite: NUTR 151 or NUTR 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 360** Disseminating Nutrition Information (3) Theory and practice of providing nutrition information across the lifespan. Open only to Health and Human Development majors.

**Disseminating Nutrition Information (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2002  
Prerequisite: NUTR 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**NUTR 370** Profession of Dietetics (1) Introduction to the profession of dietetics including laws, regulations and standards affecting practice, and preparation for post-baccalaureate degree training.

**Profession of Dietetics (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1992

Prerequisite: senior standing in Nutrition or Hotel Restaurant and Institutional Management

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 371** Dietetic Internship Application Development (1) Provides Dietetic Option majors with techniques and information to specify and implement post-graduation educational and career plans in dietetics.

**NUTR 371 Dietetic Internship Application Development (1)**

This course is designed to assist students with the critical thinking skills required to prepare and implement post-graduate educational plans required to progress in the field of nutrition and dietetics. Students wishing to become dietitians must apply to and be selected for a professional practice experience also known as a dietetic internship following graduation. The process is competitive, complex and requires self awareness of professional strengths and weaknesses as well as knowledge of the individual characteristics and objectives of specific dietetic internships. Through group lecture and discussion, this course will introduce students to this process and help them with the research skills needed to clarify their goals. Students will then meet individually with faculty to discuss their goals and objectives and the internships they would like to apply to. Students will complete an internship application for at least one of the internships they plan to apply to. They will develop a professional portfolio to assist them in presenting their skills and expertise to potential employers or internship directors. These portfolios are expected by most internship directors during interviews for internship positions. Students will develop a personal statement or letter of intent appropriate for at least one of the internships the student is planning to apply to. Through individual meetings with faculty the student will clarify the message of professional accomplishments and goals in the statement. The student will be assisted with preparation for the interview process. Students will also become familiar with alternative career options should they not receive a match as anticipated.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: senior standing in Nutritional Sciences or Hotel Restaurant and Institutional Management

Concurrent: NUTR 370

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 375** Nutrition Peer Education Training (2) To train students accepted into the HealthWorks Peer Education Program, to provide reliable nutrition information to their peers.

**NUTR 375 Nutrition Peer Education Training (2)**

This course has been designed to prepare students, who have been accepted in the nutrition component of the HealthWorks peer education program, for nutrition outreach and education opportunities on the Penn State Campus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

Prerequisite: NUTR 251 . Prerequisite or concurrent: NUTR 360

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 380** Leadership Principles in Nutrition Services (3) Issues impacting delivery of nutrition services in health care environments, including, health care systems, management theories, decisions making, and leadership.

**NUTR 380 Leadership Principles in Nutrition Services (3)**

Leadership Principles in Nutrition Services is a 3-credit course offered fall semesters with enrollment of up to 60 students. The course is designed to provide students with the conceptual foundation of how nutrition services are provided in today's health care environment and the skills necessary to manage them effectively. The educational objectives are that students will be able to: 1) identify trends in the world that could impact health care generally and nutrition services specifically; 2) identify and explain common theories of management, including quality management; 3) compare and contrast different health care delivery systems and how they influence nutrition services; 4) understand the rationale of evidence based medicine and its influence on the development of practice guidelines for nutrition services; 5) explain how credentials and licenses are developed, their role in health care systems, and those associated with nutrition services; 6)

understand how reimbursement of nutrition services is determined and methods used to enhance funding; 7) develop a basic knowledge of the principles, roles, and skills necessary to be an effective leader, such as motivation, managing change and time management. Students fulfill the educational requirement of the course by attending class, completing readings, participating in class discussions, writing assignments and a group presentation. Student evaluation will be based on examination, class participation, and the completion of writing and presentation assignments. Examinations may include information from lecture notes, reading assignments, and class assignments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: NUTR 100 or NUTR 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 386** Managing Quality in Food and Nutrition Services (3) Application and integration of management theory to quality attainment in food and nutrition services.

### **NUTR 386 Managing Quality in Food and Nutrition Services (3)**

This course is designed to foster the integration of management principles in the profession of dietetics. Emphasis is placed on quality attainment, fiscal decision making/problem solving, strategic planning, and marketing of dietetic services. The three domains necessary for dietetic students to master include clinical nutrition, community nutrition, as well as management. Although each of these domains have very unique characteristics skills learned in this course are transferrable to all areas of dietetics. In this capstone management course students will be able to:

- Apply quality attainment and control principles in food and nutrition services
- Develop personal and professional perceptions of effective leadership in dietetics services.
- Determine costs of services and operations
- Interpret financial data with emphasis on identifying and correcting problematic areas in health care settings.
- Develop several types of budgets, including operating, capital, and flexible.
- Demonstrated the importance of the strategic planning process, including vision and mission statement writing.
- Develop a basic knowledge of principles and skills necessary in human resource management and their unique application in food and nutrition services.
- Acquire an understanding of the service marketing concepts applied in a variety of nutrition and food settings.
- Demonstrate an appreciation of the importance of kitchen equipment layout and design and their relationship to efficient production and service in delivery of nutrition services.
- Develop a business plan for a business or service in the nutrition field incorporating key operating indicators for marketing and financial objectives

Students are prepared to take this course after completing quantity food courses and Serv Safe training. Skills learned in the prerequisite courses will assist student in understanding the intricacies of managing quality in food service facilities. Due to the application aspect of the course, problem based learning will be the major method of evaluating the students' critical thinking skills. Students will work in groups of 3-4 over the course of the semester. Individually, students will write a business plan for a business or service in the nutrition field as their final evaluation of mastery of the material. This course will be offered fall and spring semesters at the University Park Campus of Penn State with a class enrollment of 40-60 students. A computer lab will be utilized approximately 10-12 times during the semester for problem based learning activities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 329

Concurrent: HRIM 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

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- Interpret financial data with emphasis on identifying and correcting problematic areas in health care settings.
- Develop several types of budgets, including operating, capital, and flexible.
- Demonstrated the importance of the strategic planning process, including vision and mission statement writing.
- Develop a basic knowledge of principles and skills necessary in human resource management and their unique application in food and nutrition services.

- Acquire an understanding of the service marketing concepts applied in a variety of nutrition and food settings.
- Demonstrate an appreciation of the importance of kitchen equipment layout and design and their relationship to efficient production and service in delivery of nutrition services.
- Develop a business plan for a business or service in the nutrition field incorporating key operating indicators for marketing and financial objectives

Students are prepared to take this course after completing quantity food courses and Serv Safe training. Skills learned in the prerequisite courses will assist student in understanding the intricacies of managing quality in food service facilities. Due to the application aspect of the course, problem based learning will be the major method of evaluating the students' critical thinking skills. Students will work in groups of 3-4 over the course of the semester. Individually, students will write a business plan for a business or service in the nutrition field as their final evaluation of mastery of the material. This course will be offered fall and spring semesters at the University Park Campus of Penn State with a class enrollment of 40-60 students. A computer lab will be utilized approximately 10-12 times during the semester for problem based learning activities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: HM 329

Concurrent: HRIM 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 391** Introduction to Professional Nutrition Experience (1) Provides dietetics students with an introduction to the skills necessary to obtain and complete an advanced field experience in nutrition.

#### **NUTR 391 Introduction to Professional Nutrition Experience (1)**

This course is designed to assist Nutritional Science students in the dietetics option with the development and procurement of a 400 hour professional experience in the field of nutrition and dietetics. To facilitate this process, students will develop a job specific resume, research various appropriate organizations, and develop a detailed organization research report. Students will write professional cover letters. Students will then conduct an occupational interview with a potential preceptor from the organization to ascertain whether this is an appropriate learning environment for their goals. When a field experience site is identified they will complete all of the required agreement documents needed to begin the experience for NUTR 495 credits the following summer or semester. Students in the dietetics option of Nutritional Sciences must also fulfill specific competencies required by the professional accrediting agency ACEND (the Accreditation Council for Education in Nutrition and Dietetics). In addition to preparing for a field experience, students completing NUTR 391 will fulfill three specific learning outcomes: demonstrate assertiveness, advocacy and negotiation skills appropriate to the situation; locate, understand and apply established guidelines to a professional practice setting; and identify and describe the roles of others with whom the Registered Dietitian (or nutrition professional) collaborates in the delivery of food and nutrition services.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: sophomore or junior standing in Nutritional Sciences Dietetics option

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 395** Nutrition Field Experience (1-6) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity is required.

#### **Nutrition Field Experience (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1992

Prerequisite: NUTR 251 ; fourth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 399 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**NUTR 400** Introduction to Nutrition Counseling (1) No description.

**Introduction to Nutrition Counseling (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1998

Prerequisite: NUTR 358 . Prerequisite or concurrent:NUTR 446

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 401** Nutrition Clinic Practicum (1-3) To provide qualified nutrition students with the opportunity to practically apply nutrition counseling skills in a supervised environment.

**NUTR 401 Nutrition Clinic Practicum (1-3)**

This course is designed to provide qualified nutrition students with the practical application of nutrition counseling skills, in an outpatient setting, under the supervision of a registered dietitian. The Nutrition Clinic offers counseling services to university students, faculty and staff with health concerns such as: cardiovascular disease, diabetes, weight control, vegetarianism, fitness, and eating disorders.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2002

Prerequisite: NUTR 400

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 407** Nutrition for Exercise and Sports (3) Interactions between nutrition, food selection, and timing of eating as they apply to exercise training and recreational physical activity.

**Nutrition for Exercise and Sports (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: NUTR 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 421** (US;IL) Food Culture and Health Trends (3) Social-political, historic, and geographic roots of food patterns, featuring specific cuisine areas and nutritional disease patterns; includes foods laboratory.

**NUTR 421 Food, Culture, and Health Trends (3)  
(US;IL)**

Food, Culture, and Health Trends is a survey of the development of cuisine, and of ethnicity and health patterns as they are expressed through food and cuisine. This is also a laboratory course, where each week representative foods from diverse cultures are experienced, prepared by the students into dishes representative of the cuisine, and then consumed. The first third of the course follows the development of food patterns from hunter gathering and agricultural development through trade, conquest, and the globalization of foods. The second two thirds examines particular cuisine clusters as they have affected US food patterns. The course focuses on the physical, historical, social-political, and cultural factors that affect food choice in a specific area, such as geography, colonization, trade, migration, slavery, and religion. The nutritional outcomes of today's cultural food patterns, specifically the epidemiology of nutrition-related diseases, is another focus, particularly how cultural groups adjust to the US diet. The objectives of the course are to create an appreciation and understanding of the diverse origins, changing nature, and strengths of traditional cuisines, the nutritional problems arising from cuisine transitions, and a respect for the role of food in cultural expression. This course provides the cultural awareness needed by dietitians and any student of food and culture to participate in dietary exploration and change. Evaluation methods include weekly essay quizzes, laboratory participation and performance, 5 group activities, 2 essay tests, and a group library, web and informant based evaluation of one culture's cuisine. Two sections are offered each Spring Semester. Enrollment is limited to 36 students per section.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: NUTR 119 orNUTR 120;NUTR 151 orNUTR 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**NUTR 425** (IL) Global Nutrition Problems: Health, Science, and Ethics (3) Examines causes of malnutrition and health problems in low-income countries; explores international cultures and ethical issues related to hunger.

**Global Nutrition Problems: Health, Science, and Ethics (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: NUTR 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 430** (IL) (S T S 430) Global Food Strategies: Problems and Prospects for Reducing World Hunger (3) Technological, social, and political solutions to providing basic food needs; food resources, population, and the environment; current issues.

**NUTR (S T S) 430 Global Food Strategies: Problems and Prospects for Reducing World Hunger (3) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Global Food Strategies examines opportunities for the world's poor to improve their health, nutrition, and physical environment by focusing on their own cultural strengths and organization, reassessing the opportunities within their environment, evaluating the appropriateness of new and old technologies, and gaining a renewed respect for their own abilities. Measures of appropriateness used throughout the course are ecological sustainability and cultural sensitivity. Approximately one third of the course focuses on the historical basis of underdevelopment up to and including the post-modern era. Topics include economic colonization, the industrialization of agriculture, the impacts of globalization, trade priorities and debt loads on the poor, population and ecological issues; and a critique of the economics of scarcity. The second two thirds focuses on micro-strategies for poverty alleviation. Topics include culturally-appropriate people centered development women's empowerment needs including microlending (small loans), the prospects and rationales for biological agriculture vs. industrialized agriculture, successful models of health and population control, the impact of American consumerism, and ecological footprint analysis. The goals of the course are to 1) awaken the student's interest in hunger and poverty issues and the cultural dimensions of poverty, 2) acquaint the student with viable and sustainable strategies for hunger and poverty alleviation for the very poor, and 3) enable the student to understand enough about globalism that he/she can critically analyze and evaluate international affairs articles in national newspapers. The classes integrate lecture information with films that help with the visualization of poverty problems and prospects, readings, current events, and small group discussion around issues and case studies. Readings are drawn from development classics and from a wide range of recent literature on poverty and change. Evaluation includes student responses to three essay tests posed by the instructor over the semester, and journal keeping. The class project is designed to promote citizenship/leadership skills. Students will make a contract to perform a particular citizen action relating to hunger and poverty alleviation, which they will describe in an oral report and written format. Participation is evaluated. The class is offered fall semester only. Enrollment is limited to 60 students.

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 445** Nutrient Metabolism I (3) Nutrients, their sources, metabolism, interrelationships and requirements with focus on carbohydrates, lipids, and proteins.

**Nutrient Metabolism I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: B M B 211BIOL 141NUTR 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 446** Nutrient Metabolism II (3) Continuation of NUTR 445; nutrients, their sources, metabolism, inter- relationships and requirements with focus on vitamins and minerals.

**Nutrient Metabolism II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994  
Prerequisite: NUTR 445

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 451** Nutrition throughout the Life Cycle (3) Application of basic principles of nutrition to nutritional and physiological needs throughout the life cycle from prenatal to aging.

**Nutrition throughout the Life Cycle (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: NUTR 358NUTR 445 . Prerequisite or concurrent:NUTR 446

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 452** Nutritional Aspects of Disease (3) Disturbances in metabolism related to human disease processes; principles of nutrition in therapy.

**Nutritional Aspects of Disease (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

Prerequisite: NUTR 446

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 453** Diet in Disease (3) Nutrient and energy controlled diet programs. Implications for nutrition counseling and education.

**Diet in Disease (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

Prerequisite: or concurrent:NUTR 452

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 456** (US) Community Nutrition (3) Programs and policies of nutrition-related activities of community agencies; factors pertinent to nutrition education; relationship of cultural and social identity to foods and nutrition.

**NUTR 456 Community Nutrition (3)  
(US)**

Programs and policies of nutrition-related activities of community agencies; factors pertinent to nutrition education; theory and practice of community nutrition within the dietetics, nutritional sciences, and public health nutrition professions; emphasis on differences in United States values, traditions, attitudes, beliefs and customs and United States social identities in relation to one another within a community-based framework.

This course provides knowledge in the content area of community nutrition which is tested on the national registration examination for registered dietitians.

Students are evaluated based assessments designed to increase personal cultural awareness and sensitivity, literacy level of nutrition education materials, credible resources for nutrition information, community needs assessment and community nutrition intervention programming and assessment. In particular, the assessment of a community's nutritional needs and the design of a nutrition intervention serve to highlight the cultural diversity within the United States and increase the student's ability to locate and evaluate information about nutrition and food practices of diverse groups living in the United States. Students will focus on immigrant groups, ethnically- or racially-diverse groups, Native American tribes or loosely affiliated groups of people who have common socioeconomic status or food practices or food patterns (e.g., poverty, food insecure with/without hunger, vegans, vegetarians, Kosher).

Community nutritional needs assessment and interventions assignments also serve to assess whether the United States cultures objectives of this course are successfully met. In addition, each assignment requires that students consider cultural and socioeconomic factors as determinants of diet, nutritional status and health status.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: NUTR 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**NUTR 490W** Nutrition Seminar (3) Use of selected materials from the scientific literature to prepare a term paper and an oral report.

**Nutrition Seminar (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

Prerequisite: or concurrent: NUTR 452

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 494H** Senior Honors Thesis (1-6) Independent study related to a student's interests directed by a faculty supervisor and culminating in the production of a thesis.

**Senior Honors Thesis (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: approval of honors thesis advisor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 495** Advanced Field Experience in Nutrition (1-6) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity is required.

**Advanced Field Experience in Nutrition (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: NUTR 456

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 497A** Eating and Weight Disorders (3) This course will discuss theories and controversies in the literature on eating and weight disorders. Part of the course will be lecture based and will provide background on the diagnosis, causes, consequences, and treatment of eating and weight-related disorders. Part of the course will be reading and discussion-based where you will be required to read classic, historical, and scientific research papers and participate in critical discussions about these papers in class. Eating and weight disorders that will be covered include both classic disorders (e.g. anorexia nervosa and bulimia nervosa) as well as more recently identified disorders (e.g. binge eating disorder, night eating syndrome). We will also discuss obesity and its relationship to disordered eating. Students will be evaluated by exams, quizzes, assignments, and class participation. The assessments will include a critical interview with an individual who has struggled with eating and weight-related disorders.

### **Eating and Weight Disorders (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: NUTR 251 and NUTR 358

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**NUTR 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Occupational Therapy (O T)**

**O T 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 100S** Structural Foundations of Occupational Therapy (1) An overview of the structural foundations of the occupational therapy profession.

#### **Structural Foundations of Occupational Therapy (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 101** Conceptual Foundations of Occupational Therapy Practice (2) An overview of the conceptual foundations of occupational therapy practice. Observation of therapists in treatment settings.

### **O T 101 Conceptual Foundations of Occupational Therapy Practice (3)**

The focus of the course is to provide students with the conceptual foundations of occupational therapy. These foundations form the basis for subsequent occupational therapy courses and are expanded upon in those courses. Topics will include: clinical reasoning, diversity issues, ethics and conflict management, occupation, models of O T, the Practice Framework, principles of management, and occupational therapy literature.

Upon successful completion of OT 101 the student will be able to:

1. Describe occupation from the perspective of an occupational therapy practitioner.
2. Identify the critical differences between the models of OT theory: cognitive, biomechanical, Person Environment Occupation, and sensory integration.
3. Identify cultural, contextual, and diversity issues which impact the practice of occupational therapy in a variety of practice settings and describe their impact.
4. Identify and define types of clinical reasoning utilized in occupational therapy.
5. Identify professional literature appropriate to the practice of occupational therapy; read and summarize selected articles.
6. Demonstrate knowledge of liability issues related to OT and the AOTA Code of Ethics and apply the code to given situations which present ethical dilemmas.
7. Identify issues common to the management of occupational therapy departments and the role of the OTA in these issues.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: O T 100S or current

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 103 (US)** Occupational Performance Across the Life Span (3) Analysis of occupations from birth to death including descriptions of occupational performance and factors which influence performance.

### **O T 103 Occupational Performance Across the Life Span (3)**

The focus of this course is an in-depth understanding of occupations across the life span. Students engage in an analysis of occupations including: activities of daily living, instrumental activities of daily living, education, work, play, leisure, and social participation. Specific descriptors are used to discuss occupational performance from the perspective of the Occupational Therapy Practice Framework. Areas which influence performance skills and patterns are studied and applied. Topics include: areas of occupations engaged in by individuals from birth to death; performance skills and patterns, context, activity demands, and client factors which impact occupational performance, definitions of grading, adapting, and analyzing occupational performance to support meaningful and socially relevant participation in day-to-day occupations. This course is required in the accredited 20T major and provides the foundation for understanding and applying the concepts related to occupations within the occupational therapy assistant intervention courses which follow. Evaluation methods include: written examination, and graded written/oral assignments. Enrollment is limited to students admitted to the 20T major.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: O T 100SO T 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 105W** Group Process Across The Lifespan (3) Group dynamics and interactions analyzed across the lifespan and practice settings. Interventions designed and facilitated by students.

### **Group Process Across The Lifespan (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: O T 103

Concurrent: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 107** Activity Analysis: Assistive Technologies and Methods of Adaptation (3) Assistive technologies and methods of adaptation analyzed; selection criteria, methodologies, proper use, and precautions presented.

**Activity Analysis: Assistive Technologies and Methods of Adaptation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: O T 103

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 107H** Activity Analysis: Assistive Technologies and Methods of Adaptation (3) Assistive technologies and methods of adaptation analyzed; selection criteria, methodologies, proper use, and precautions presented.

**Activity Analysis: Assistive Technologies and Methods of Adaptation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: O T 103

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 109** Management and Ethics in Occupational Therapy (3) Consideration of basic management, ethics, and support tasks significant to the role of the occupational therapy assistant.

**Management and Ethics in Occupational Therapy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: O T 103

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 195A** Level I Fieldwork Experience (1) Practicum related to 100 level occupational therapy assistant coursework.

**Level I Fieldwork Experience (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 195B** Level I Fieldwork Experience (1) Practicum related to 200 level occupational therapy assistant coursework.

**Level I Fieldwork Experience (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: O T 195A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 198 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 201 Clinical Reasoning and Documentation in Occupational Therapy (3)** Clinical reasoning strategies in occupational therapy practice. Practical application will include case-based reasoning, multi-faceted strategies, and selected formats of documentation.

### **O T 201 Clinical Reasoning and Documentation in Occupational Therapy (3)**

The objective of this course is to provide intense instruction in clinical reasoning strategies and documentation related to the practice of occupational therapy in a variety of settings.

The student will be engaged in clinical reasoning and problem solving throughout the course via case-based scenarios and virtual examples. The process will address the student's understanding of and documentation of how to relate textbook material to clinical data, client-centered practice, and professional judgment and knowledge.

Course objectives include demonstrating the ability to utilize medical terminology and approved abbreviations in documentation reports, identify parts of a SOAP note, utilize narrative or SOAP (relates a form of documentation subjective, objective, assessment, plan) format, understand and utilize digital/electronic documentation methodologies, and write a concise note to document occupational therapy intervention, progress or discharge of a client. Student learning will take place in a classroom setting as well as through written assignments, peer critique, research of documentation requirements in specific contexts, and individual writing critique sessions with the course instructor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: O T 105WO T 107 or consent of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 202 Occupational Therapy for Developmental Disabilities (3)** Occupational therapy evaluation, intervention, and documentation for pediatric/developmental disability practice.

### **Occupational Therapy for Developmental Disabilities (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: BIOL 129BIOL 141BIOL 142HD FS 129O T 105WO T 107

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 204 Occupational Therapy for Behavioral Health (3)** Occupational therapy evaluation, intervention, documentation, and the importance of engagement in occupations with a focus on behavioral health and well-being.

### **Occupational Therapy for Behavioral Health (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: BIOL 129BIOL 141BIOL 142HD FS 129O T 105WO T 107

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 206 Occupational Therapy for Physical Disabilities (4)** Occupational therapy evaluation, intervention, documentation methods for physical disability practice.

### **Occupational Therapy for Physical Disabilities (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: BIOL 129BIOL 141BIOL 142HD FS 129O T 105WO T 107

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 295A** Field Experience in Occupational Therapy I (1-6 per semester/maximum of 6) Part I of supervised experience in select occupational therapy settings in the role of an occupational therapy assistant; seminars included.

**Field Experience in Occupational Therapy I (1-6 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: satisfactory completion of all didactic course work

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 295B** Field Experience in Occupational Therapy II (1-6 per semester/maximum of 6) Part II of supervised experience in select occupational therapy settings in the role of an occupational therapy assistant; seminars included.

**Field Experience in Occupational Therapy II (1-6 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: successful completion of all didactic course work and successful completion of OT 295A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 401** Conceptual Foundations of Occupational Therapy and Occupational Adaptations (2) Analysis of philosophies and



frames of reference for occupational therapy practice, emphasizing occupational functioning, the adaptation process, and occupational environments. Occupational Therapy majors only.

**Conceptual Foundations of Occupational Therapy and Occupational Adaptations (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 410** Environmental and Technological Influences on Occupational Adaptation and Performance (3) Impact of occupational environments on functioning and technological adaptation for mastery over the environment.

**Environmental and Technological Influences on Occupational Adaptation and Performance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 411** Occupational Therapy Management and Professional Ethics (3) Ethical, managerial, fiscal, and legal responsibilities of program administration, supervision, practice, delivery, and professional development.

**Occupational Therapy Management and Professional Ethics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000  
Prerequisite: O T 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 412W** Introduction to Research (3) Introduction to quantitative and qualitative research process relative to occupational therapy.

**Introduction to Research (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: STAT 200 or STAT 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 495A** Level I Fieldwork Experience (1 per semester, maximum of 3) Practicum in 3 of 5 areas: occupational therapy evaluation procedures; environmental and technological adaptation; program design; management issues; selected topics.

**Level I Fieldwork Experience (1 per semester, maximum of 3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000  
Prerequisite: concurrent with occupational therapy didactic course work

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 495B** Fieldwork Level II Part 1 (6) Three month practical educational experience facilitating clinical reasoning and application of professional knowledge, behaviors, values, and skills.

**Fieldwork Level II Part 1 (6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000  
Prerequisite: completion of O T 495A and all didactic course work

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 495C** Fieldwork Level II Part 2 (6) Three month practical educational experience facilitating clinical reasoning and application of professional knowledge, behaviors, values, and skills.

**Fieldwork Level II Part 2 (6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

Prerequisite: successful completing of O T 495B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**O T 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Organiz Leadership (OLEAD)**

**OLEAD 100** (GS) Introduction to Leadership (3) This course introduces key leadership concepts and practices based on current theory and research. It is designed to help students to discover the knowledge and skills that are characteristic of effective leaders.

**Introduction to Leadership (3)**

General Education: GS

Diversity: None

Bachelor of Arts: Humanities and Social and Behavioral Sciences

Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**OLEAD 409** Leadership Development: A Life-Long Learning Perspective (3) The course examines the continuing influence of social and environmental factors in shaping leadership and leadership development.

**Leadership Development: A Life-Long Learning Perspective (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2012

Prerequisite: 6th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**OLEAD 464** (LER 464) Communication Skills for Leaders in Groups and Organizations (3) Theory-and research-based communication skills for leaders dealing with work-related problems in contemporary groups and organizations.

**Communication Skills for Leaders in Groups and Organizations (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**OLEAD 465** (LER 465) Collective Decision Making (3) Application of theories of decision making to work-related issues in groups and organizations requiring collective resolution action.

**Collective Decision Making (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**OLEAD 495** OLEAD Internship (1-12) Supervised practicum in organizational leadership.

**OLEAD Internship (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**OLEAD 496** Independent Study (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Study (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: OLEAD 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**OLEAD 497** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: OLEAD 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**OLEAD 497A** Women in Leadership (3) Skills and competencies needed for effective leadership may change/vary from one era to another, one culture to another and one industry to another. Researchers and leaders themselves do not agree on a definition or "leader" of the skills/competencies that establish an effective leader. One might say that "what it takes to be an effective leader" is relative to the situation. Through the review of literature and research on leadership in general; review of literature and research on women in leadership; problem-solving in leadership scenarios; and self-assessment, students will develop a working definition of leadership and identify and develop leadership traits/ competencies to encourage more women to be successful, future leaders.

**Women in Leadership (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**OLEAD 497A Women in Leadership (3)** Skills and competencies needed for effective leadership may change/vary from one era to another, one culture to another and one industry to another. Researchers and leaders themselves do not agree on a definition or "leader" of the skills/competencies that establish an effective leader. One might say that "what it takes to be an effective leader" is relative to the situation. Through the review of literature and research on leadership in general; review of literature and research on women in leadership; problem-solving in leadership scenarios; and self-assessment, students will develop a working definition of leadership and identify and develop leadership traits/ competencies to encourage more women to be successful, future leaders.

#### **Women in Leadership (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**OLEAD 497B Leadership in a Global Context (3)** This course will explore the science and practice of leadership across the globe. In particular cross-cultural differences in leadership styles and methods from around the planet will be examined. An emphasis will be made on gaining knowledge of various cultural perspectives from around the world. That knowledge will then be used to examine successful leadership interactions between diverse cultures.

#### **Leadership in a Global Context (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**OLEAD 497B Leadership in a Global Context (3)** This course will explore the science and practice of leadership across the globe. In particular cross-cultural differences in leadership styles and methods from around the planet will be examined. An emphasis will be made on gaining knowledge of various cultural perspectives from around the world. That knowledge will then be used to examine successful leadership interactions between diverse cultures.

#### **Leadership in a Global Context (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Penn State First-Year Seminar (PSU)**

**PSU 001 First-Year Seminar Abington (1)** Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

#### **First-Year Seminar Abington (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 002 First-Year Seminar Agricultural Science (1)** Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

#### **First-Year Seminar Agricultural Science (1)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 003** First-Year Seminar Altoona (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**First-Year Seminar Altoona (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 005** First-Year Seminar Berks (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**First-Year Seminar Berks (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 006** First-Year Seminar Business (1-3) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**PSU 006 First Year Seminar in Business Administration (1-3 credits)**

This course is designed to assist students in examining several areas of the college transition: awareness of self and others; career exploration; majors offered in the Smeal College; and current issues in business. The skills learned in this course will be presented as life-long skills, applicable in the university setting and the corporate environment. The nature of the course requires cooperation, participation, and interaction. This course facilitates learning through experience, lectures and class discussion.

The course contains assignments dealing with:

- 1). Leadership
- 2). Ethics
- 3). Celebrating Diversity
- 4). Diversity in the Workplace
- 5). Community Service
- 6). Major and Career Exploration
- 7). Time Management and Goal Setting
- 8). Business Case Study

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 006T** First-Year Seminar Business (1-3) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**First-Year Seminar Business (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 007** First-Year Seminar Behrend (1) Facilitate student's adjustment to the high expectations, demanding workload,

increased academic liberties, and other aspects of the transition to college life.

**First-Year Seminar Behrend (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 008 First-Year Seminar University College (1-3)** Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**PSU 008 First-Year Seminar University College (1-3)**

From a practical perspective this course will provide an advanced introduction to university life at Penn State, highlighting the many resources available to help students succeed. Topics covered will include the challenges of balancing life and school, academic success strategies, dealing with financial aid, choosing a major, as well as understanding academic discourse and university policy and procedure. In addition, we will read and discuss some of the latest research on the experiences of first year college students. We will think about the particular challenges first year students face, and consider what steps could be taken to address those challenges at the level of university and governmental policy. This is a student-led, discussion-oriented course where we talk about a range of issues in a small, informal setting, and our goal will be to create a collaborative environment in which everyone is comfortable participating. In addition to discussions, we will explore university resources and the pragmatic issues of college through lectures, guest speakers, and hands-on practice.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 008 First-Year Seminar University College (1-3)** Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**PSU 008 First-Year Seminar University College (1-3)**

From a practical perspective this course will provide an advanced introduction to university life at Penn State, highlighting the many resources available to help students succeed. Topics covered will include the challenges of balancing life and school, academic success strategies, dealing with financial aid, choosing a major, as well as understanding academic discourse and university policy and procedure. In addition, we will read and discuss some of the latest research on the experiences of first year college students. We will think about the particular challenges first year students face, and consider what steps could be taken to address those challenges at the level of university and governmental policy. This is a student-led, discussion-oriented course where we talk about a range of issues in a small, informal setting, and our goal will be to create a collaborative environment in which everyone is comfortable participating. In addition to discussions, we will explore university resources and the pragmatic issues of college through lectures, guest speakers, and hands-on practice.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 008S First-Year Seminar University College (1-3)** Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**PSU 008S First-Year Seminar University College (1-3)**

From a practical perspective this course will provide an advanced introduction to university life at Penn State, highlighting the many resources available to help students succeed. Topics covered will include the challenges of balancing life and school, academic success strategies, dealing with financial aid, choosing a major, as well as understanding academic discourse and university policy and procedure. In addition, we will read and discuss some of the latest research on the experiences of first year college students. We will think about the particular challenges first year students face, and consider what steps could be taken to address those challenges at the level of university and governmental policy. This is

a student-led, discussion-oriented course where we talk about a range of issues in a small, informal setting, and our goal will be to create a collaborative environment in which everyone is comfortable participating. In addition to discussions, we will explore university resources and the pragmatic issues of college through lectures, guest speakers, and hands-on practice.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 008S** First-Year Seminar University College (1-3) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

#### **PSU 008S First-Year Seminar University College (1-3)**

From a practical perspective this course will provide an advanced introduction to university life at Penn State, highlighting the many resources available to help students succeed. Topics covered will include the challenges of balancing life and school, academic success strategies, dealing with financial aid, choosing a major, as well as understanding academic discourse and university policy and procedure. In addition, we will read and discuss some of the latest research on the experiences of first year college students. We will think about the particular challenges first year students face, and consider what steps could be taken to address those challenges at the level of university and governmental policy. This is a student-led, discussion-oriented course where we talk about a range of issues in a small, informal setting, and our goal will be to create a collaborative environment in which everyone is comfortable participating. In addition to discussions, we will explore university resources and the pragmatic issues of college through lectures, guest speakers, and hands-on practice.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 008T** First-Year Seminar University College (1-3) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

#### **PSU 008T First-Year Seminar University College (1-3)**

Proposed PSU 008 as variable 1-3 credit course is designed to introduce the entering college student to the academic side of college life for honors students, and to help prepare students to negotiate the academic environment from their standpoint. In addition, its purpose is for honor students to look beyond college life to wider communities, gear up skills to focus on Honors level students, societal issues, and toward a considered discernment of one's potential contribution in our complex global society.

Accordingly, this course emphasizes academic proficiency; the mission and the values of Penn State University; the application of acquired knowledge; higher level thinking; and social awareness. This is a personal development course focusing on strategies of academic success and the development of related living skills, which go beyond the academic environment.

From a practical perspective this course will provide a major focus on in-depth career exploration, also an advanced introduction to university life at Penn State, highlighting the many resources available to help honor students succeed. Topics covered will include the challenges of balancing life and school, academic success strategies, dealing with financial aid, choosing a major, as well as understanding academic discourse and university policy and procedure. Furthermore, we will read and discuss some of the latest research on the experiences of first year honors college students. We will think about the particular challenges first year honors students face, and consider what steps could be taken to address those challenges at the level of university and governmental policy. This is a student-led, discussion-oriented course where we talk about a range of issues in a small, informal setting, and our goal will be to create a collaborative environment in which everyone is comfortable participating. In addition to discussions, we will explore university resources and the pragmatic issues of college through lectures, guest speakers, and hands-on practices.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 008T** First-Year Seminar University College (1-3) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**PSU 008T First-Year Seminar University College (1-3)**

Proposed PSU 008 as variable 1-3 credit course is designed to introduce the entering college student to the academic side of college life for honors students, and to help prepare students to negotiate the academic environment from their standpoint. In addition, its purpose is for honor students to look beyond college life to wider communities, gear up skills to focus on Honors level students, societal issues, and toward a considered discernment of one's potential contribution in our complex global society.

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From a practical perspective this course will provide a major focus on in-depth career exploration, also an advanced introduction to university life at Penn State, highlighting the many resources available to help honor students succeed. Topics covered will include the challenges of balancing life and school, academic success strategies, dealing with financial aid, choosing a major, as well as understanding academic discourse and university policy and procedure.

Furthermore, we will read and discuss some of the latest research on the experiences of first year honors college students. We will think about the particular challenges first year honors students face, and consider what steps could be taken to address those challenges at the level of university and governmental policy. This is a student-led, discussion-oriented course where we talk about a range of issues in a small, informal setting, and our goal will be to create a collaborative environment in which everyone is comfortable participating. In addition to discussions, we will explore university resources and the pragmatic issues of college through lectures, guest speakers, and hands-on practices.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 009** First-Year Seminar Communications (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**First-Year Seminar Communications (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 009T** First-Year Seminar Communications (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**PSU 009T First-Year Seminar Communications (1)**

PSU 009T is a theme-based seminar, which satisfies the University's First-Year Seminar requirement and introduces Scholars to University life and the resources at Penn State.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 011** First-Year Seminar Education (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**First-Year Seminar Education (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 012** First-Year Seminar Engineering (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**First-Year Seminar Engineering (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 014** First-Year Seminar Health and Human Development (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**First-Year Seminar Health and Human Development (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 015** First-Year Seminar Liberal Arts (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**First-Year Seminar Liberal Arts (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 016** First-Year Seminar Science (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**First-Year Seminar Science (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSU 017** First-Year Seminar College of Information Sciences and Technology (1) Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

**PSU 017 First-Year Seminar College of Information Sciences and Technology (1)**

This course will help students be successful in the College of Information Sciences and Technology (IST) at Penn State University. It involves two elements: how to be a successful learner in general; and how to explore the academic challenges of the information sciences and related technologies. Through lectures, class discussions, assignments, and guest presentations students learn what it takes to be successful in college. Through a group project they learn what IST is about, the majors in the College, the learning formats that they will encounter, and what is expected of them as students and citizens in the College. More broadly, this course is centered on learning: learning about learning and learning about what it means to be a student in IST.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

## Petroleum and Natural Gas Engineering (P N G)

**P N G 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 405** Rock and Fluid Properties (3) Reservoir rock properties, rock and fluid properties (interaction between rock and fluids), flow behavior in reservoir, and fluid properties.

### P N G 405 Rock and Fluid Properties (3)

The objective of this course is to introduce students to basic reservoir rock and fluid properties. The course is divided into three sections: rock properties, rock and fluid properties (interaction between rock and fluids), and fluid properties. In the rock properties, Lithology of Reservoirs, Porosity and Permeability of Rocks, Darcy's Law, and Distribution of Rock Properties are discussed. In Rock and Fluid Properties Section, Existence of Multi-phases, Saturation, Wettability, Capillary Pressure, Effective and Relative Permeability, concepts are covered. Fluid properties topics include Phase Behavior of Single and Multi Component Systems, Compositional and Black-Oil models, Solution Gas-Oil Ratios, Formation Volume Factor, Compressibility, Density, Viscosity, and Interfacial Tension. This is also the first course that Petroleum and Natural Gas Engineering students take in the major. Therefore, an introduction to petroleum and natural gas engineering is also made.

This course is a pre-requisite for most of the Petroleum and Natural Gas Engineering major courses. It is an elective course for majors such as Environmental Systems Engineering. It is offered every Fall semester.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: PHYS 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 406** Rock and Fluid Laboratory (1) Systematic study of oil reservoir rocks and fluids; their interrelation applied to petroleum engineering.

### Rock and Fluid Laboratory (1)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: PHYS 211  
Concurrent: P N G 405

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 410** Applied Reservoir Engineering (3) Analysis and prediction of reservoir performance by use of material balance and steady and nonsteady state flow equations.

### Applied Reservoir Engineering (3)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: P N G 405P N G 406PHYS 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 411** Introduction to Petroleum and Natural Gas Extraction (1) Introduction to the design and implementation of the systems used in the extraction of oil and gas. Not intended for petroleum and natural gas engineering majors.

#### **Introduction to Petroleum and Natural Gas Extraction (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: PHYS 211

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 420** Applied Reservoir Analysis and Secondary Recovery (4) Application of material balance equations/transient flow solutions to water influx problems; displacement theory as it applies to design/behavior of flooding.

#### **P N G 420 Applied Reservoir Analysis and Secondary Recovery (4)**

This course addresses two major issues in petroleum engineering: water influx and water flooding. The displacement of oil or gas by water is a complicated physical process that has a great impact on recovery efficiencies. The first objective of the course is to merge the material balance method and transient flow solutions for the aquifer into one analysis tool for understanding and predicting water influx cases. Several analytical and numerical methods are presented including: linear and radial diffusion equation solutions, super position, Hurst simplified, Schilthuis and Hurst modified. The material is followed by an analysis and design project that focuses on a field in the Gulf of Mexico.

The second objective of the course is to understand the fundamentals of displacement theory and practice. The extension of the Buckley and Leverett water flooding theory is presented for three-phase flow. Three-phase relative permeabilities are determined from experimental data. Several geometrical patterns are discussed in the course including: five spots, staggered line drive, direct line drive, four spots, seven spots, and nine spots. The efficiency of each pattern is determined. Strategies for selecting a pattern for special cases are presented. The behavior of each pattern with time, including oil recover, is an integral part of the course.

The students use our computational facility throughout the course. They write material balance models and use large reservoir simulators for studying water influx cases.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: P N G 410;CMPSC 201 orCMPSC 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 425** Principles of Well Testing and Evaluation (3) Mathematical basis for pressure analysis. Theory and practice of pressure testing techniques.

#### **Principles of Well Testing and Evaluation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: MATH 251P N G 420

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 430** Reservoir Modeling (3) The numerical simulation of petroleum reservoir processes by the use of models; scaling criteria and network flow.

#### **Reservoir Modeling (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: MATH 251P N G 410;CMPSC 201 orCMPSC 202

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 440W** Formation Evaluation (3) Study of those methods used to evaluate the engineering properties of oil and gas bearing reservoir formations.

### **Formation Evaluation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: P N G 405P N G 406

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 450** Drilling Design and Production Engineering (3) Design and analysis of oil-field drilling operations and equipment.

### **Drilling Design and Production Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: C E 360E MCH 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 451** Drilling Laboratory (1) Practice in well-control procedures. Measurement of drilling fluid properties.

### **P N G 451 Drilling Laboratory (1)**

This course is serves as the laboratory component for PNG 450. Students will apply the concepts and skills gained from lectures and discussions in PNG 450. The aim is for student to become familiar with drilling fluids and with how to quantify the fluid properties analytically. Students will also receive practical experience with drilling equipment, and will practice solving practical well-control problems in the laboratory. Students in this course will gain experience using our state-of-the-art rig floor simulator and drilling fluid and cement laboratory, which are equipped with the advanced facilities currently used in the oil and gas industry.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: EME 303E MCH 210  
Concurrent: P N G 450

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 475** Petroleum Engineering Design (3) Design and selection of mechanical components used in the production of fluids from subsurface reservoirs.

### **Petroleum Engineering Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: E MCH 210

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 480** Production Process Engineering (3) Analysis and evaluation of surface production processes, fluid separation, storage, measurement, treating, custody transfer, transmission, disposal, corrosion, and other operations.

### **P N G 480 Production Process Engineering (3)**

Surface production engineering involves the extraction of reservoir fluids, their treatment at the surface and movement to a commercial market via a common carrier. It is the primary objective of this course to provide the fundamentals of surface production operations and underlying operational principles and design criteria for equipment utilized in the surface handling of petroleum production fluids. Surface production facilities are described in detailed as systems in charge of the separation of the wellstream fluids into three single-phase components (oil, gas, water) and of their transport and processing into marketable products or their disposal in an environmentally acceptable manner. A detailed

overview of hydrocarbon fluid behavior, analysis of hydrocarbon and water separation processes, analysis and design of surface transportation systems and flow assurance problems is provided along with a comprehensive look at the engineering aspects involved in surface production operations. Topics include purpose and description of onshore and offshore surface production facilities and the function of the equipment used in these processes, including wellheads and Christmas trees, gathering systems, production manifolds, field processing of crude oil, field processing of natural gas, phase separation of gas, oil and water, water-in-crude oil emulsification, heater-treaters and dehydration of crude oil, natural gas dehydration, stock tank batteries and transportation. Discussion includes oil and gas quality checks, oil and gas metering, typical contractual hydrocarbon sales specifications, and typical specifications for produced waters and other by-products. Hydrocarbon fluid behavior topics includes an overview of hydrocarbon thermodynamics, hydrocarbon PVT behavior, thermodynamics of liquid and vapor separation, and fluid behavior prediction models including modern cubic equations of state. In the context of surface facility design, a process simulation or compositional simulation is implemented to predict how the components the make up the well fluids react to changes in pressure and temperature as they are processed through the facility through a succession of phase changes where liquids flash to vapor or vapors condense into liquid. Equipment design topics comprise design of 2-phase and 3-phase vertical and horizontal separators, derivation of design equations, design of crude and condensate stabilization trains, design and operation of glycol dehydrator towers, and flow assurance topics such as hydrate, corrosion, and wax prevention. The ultimate purpose of surface equipment design is to recommend the most suitable and cost-effective equipment type and size that meets the specified service and system condition, contractual obligations, and industrial health and safety and environmental regulations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: EME 301EME 303

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 482** Production Engineering Laboratory (1) Measurement and analyses of the physical and chemical properties of hydrocarbon fluid systems in a production environment.

#### **P N G 482 Production Engineering Laboratory (1)**

The task of production engineers is to optimize the extraction, treatment and delivery rate of hydrocarbons. For this optimization to be realistic, quantitative values of some relevant parameters and properties that characterize the system should be known preferably by way of measurements. It is the primary objective of this laboratory course to give the student an understanding of the available measurement techniques; an opportunity to gain hands-on experience in carrying out the experiments as well as operating the apparatus and some practice in the art of technical report writing. The Production Engineering Laboratory has been designed to expose the student to the principles and procedures of production engineering for oil and gas analysis (physicochemical characterization and quality control) and the transport of fluids in pipes and conduits. The main objective is to familiarize students with the basic measurements that must be taken in production monitoring and control, as well as basic production engineering principles. It is also aimed to enhance the error analysis, critical evaluation and technical report writing skills of the student. Major pieces of equipment in this laboratory include: viscosimeters, oxygen bomb calorimeters, gas chromatograph, densitometers, centrifuges, dead weight testers, dew point testers, and a meter run setup. Laboratory experiences include, but are not limited to, the determination of density of clear organic substances and petroleum distillates that can be handled as liquids at test temperatures between 10 and 40 °C using digital density meters, the determination of the API gravity (or specific gravity) of crude oil, petroleum products normally handled as liquids (e.g. stabilized crude oil, stabilized gasoline, naphthane, kerosene, gas oils, lubricating oils, and non-waxy fuel oils) and alcohols using hydrometer and pycnometer methods, the calibration of Bourdon type pressure gauges by means of a dead weight testers and constructing of calibration charts for gauges that are not adjustable, the determination of water and sediment in crude oils by means of the centrifuge procedure, the determination of the heat of combustion of organic substances ranging in volatility including oil samples with volatiles ranging from that of distillates to that of residuals, the measurement of viscosity of crude oil and liquid petroleum products by means of measuring the time for a volume of liquid to flow under gravity through a calibrated glass capillary viscosimeter, the determination of water vapor content of gases by measurement of the dew point temperature and the calculation there from of the water vapor content, and the determination of a gas flow rates in pipelines by means of orifice plates and axial full-flow turbine meters.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: EME 301EME 303  
Concurrent: P N G 480

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 489** Engineering Evaluation of Oil and Gas Properties (3) Application of present worth and rate-of-return analysis; reserve calculations; decline curve analysis; uncertainty and risk analysis to engineering project design and evaluation.

#### **P N G 489 Engineering Evaluation of Oil and Gas Properties (3)**

The objective of this course is to introduce to students the application of present worth and rate-of-return analysis to problems peculiar to oil and gas evaluation. The course is divided into four sections: introduction to present worth and rate-of-return analysis; the calculation of oil and gas reserves; the analysis of decline curves; and the application of uncertainty and risk analysis to engineering project design and evaluation. This course is the first course of a four-course sequence (P N G 489, 490, 491, 492) that culminates in a capstone engineering design project and is intended to be taken during the first semester of the junior year. As such the application of these principles elucidated above to engineering design will be emphasized.

This course is a pre-requisite for most of the Petroleum and Natural Gas Engineering Major Courses. It is an elective course for majors such as Environmental Systems Engineering. It will be offered every Fall semester.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: ECON 102

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 490** Introduction to Petroleum Engineering Design (1) Introduction to the concepts of engineering design as applied to petroleum and natural gas projects.

### **P N G 490 Introduction to Petroleum Engineering Design (1)**

The objective of this course is to introduce to the students the principles of engineering design as applied to petroleum and natural gas projects. The course focuses on the analysis of physical data with respect to error and use of this data in design. Other topics to be visited include a definition of what is a project deliverable and establishment of timelines for their implementation. The salient points of the course are as follows: (1) This course is the first capstone engineering design course in the sequence of three courses. In this portion of the course students' principal goal is to characterize the reservoir. In this process necessary basic sciences and engineering skills are utilized. (2) In reservoir characterization, students typically collect and analyze the data available in the literature and other related data provided by the operators. (3) In making a preliminary assessment towards field development students consider factors involving economic, environmental, social, ethical, health and safety considerations. (4) In this course, students work in teams. In each team, team members assume responsibilities as petrophysicist, drilling engineer, geologist, geophysicist production engineer, reservoir engineer and implement the necessary technical skill to fulfill their obligations. (5) This project starts from the ground level and ends with a complete field development plan. Within the context of the project (reservoir characterization) students have the opportunity to use the necessary skills to identify and formulate and solve the engineering problems and challenges that are faced. (6) In selecting the lease area the potential impact of project on the social and physical environments is considered and all the ethical responsibilities are studied in depth. (7) During every phase of the project the impact of decisions are considered within the framework of global, economic, environmental and societal context. (8) In this course the main contemporary issue the need for unconventional energy resources is the driving force behind the project. (9) In every phase of the project students are exposed to contemporary methodologies and engineering tools including forecasting, scenario planning and reservoir simulation. Also, whenever applicable the necessary engineering software is also incorporated in the development of the project.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: ECON 102P N G 405EME 460

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 491** Reservoir Engineering Design (1) Application of the concepts of reservoir and drilling engineering to petroleum engineering design projects.

### **P N G 491 Reservoir Engineering Design (1)**

Engineering design by definition is the integration of knowledge and skills acquired through experience, reading and formal instruction into a final product, the design. To that end, this course is the second course of a 3-course, 3-semester, sequence that will result in a comprehensive capstone-engineering project. As such, P N G 491 will utilize the knowledge gained from P N G 405, 410, 450 and 489 to the project design initiated in P N G 490. Course materials will include introduction to the simulator, development of the computer model, and the use of history match in design.

The class will be divided into teams and students will be evaluated on the basis of their contribution to the team effort. All reports and presentations will be presented to the class as a product of the team.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: ECON 102P N G 410P N G 450P N G 490

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 492** Petroleum Engineering Capstone Design (1) Integration of petroleum and natural gas engineering concepts to project design.

**P N G 492 Petroleum Engineering Capstone Design (1)**

Engineering design by definition is the integration of knowledge and skills acquired through experience, reading and formal instruction into a final product, the design. To that end, this course is the third course of a 3-course, 3-semester, sequence that will result in a comprehensive capstone-engineering project. As such, P N G 492 will utilize the knowledge gained from three semesters of formal instruction to the project design initiated in P N G 490 and continued on in P N G 491. Course material will include the application of spreadsheet programming to petroleum and natural gas project design and its use in project economic analysis and risk analysis.

The class will be divided into teams and students will be evaluated on the basis of their contribution to the team effort. All reports and presentations will be presented to the class as a product of the team.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: P N G 491

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 494** Thesis (1-6) A problem in petroleum engineering involving review of the literature and experimental data obtained in the field or laboratory.

**Thesis (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 494H** Thesis (1-6) A problem in petroleum engineering involving review of the literature and experimental data obtained in the field or laboratory.

**Thesis (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**P N G 497A** SPE Petrobowl Preparation (1) To learn the general knowledge and history of the petroleum engineering, geosciences, and petroleum industry; to get familiar with the SPE petrobowl competition format.

**SPE Petrobowl Preparation (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 497A** SPE Petrobowl Preparation (1) To learn the general knowledge and history of the petroleum engineering, geosciences, and petroleum industry; to get familiar with the SPE petrobowl competition format.

**SPE Petrobowl Preparation (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P N G 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Philosophy (PHIL)

**PHIL 001** (GH) Basic Problems of Philosophy (3) Introduction to central philosophical themes, including the mind/body problem, the existence of God, ethical problems, the nature of reality.

**PHIL 001 Basic Problems of Philosophy (3)**  
(GH)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides a critical introduction to, and overview of, fundamental philosophical problems. It includes an examination of historical and contemporary thought through in-class presentation, readings, discussions, and student writings. In this way, students will gain an understanding of diverse and often competing perspectives on basic human problems. These perspectives have shaped cultures and continue to influence thought and practice around the world today. Students will examine diverse viewpoints that will allow them to understand a wide range of views and challenge them to defend their own positions. This course involves active use of writing, speaking, and group projects. It provides opportunities for gathering information, analyzing problems, and synthesizing diverse perspectives. Finally, PHIL 001 allows students to link theory to their own lives and daily practice.

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2000

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 002** (GH) Philosophy, Politics, and Social Theory (3) Examines relations between political and social organizations, the justification and limits of the state, and issues concerning individuality and community.

**PHIL 002 Philosophy, Politics, and Social Theory (3)**  
(GH)



**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides an introduction to central political and social theories as well as assumptions which underlie contemporary political and social structures and which shape the contemporary cultural environment. The course will discuss the ideas of central social and political philosophers, the broader historical and cultural context in which they work and worked, and the nature of the relations and influences between the two. Students will develop an appreciation of the nature of political and social values in the context of conflicting political visions as well as the critical skills with which to examine them. They will be graded on a collaborative annotated bibliography project, a collaborative position paper, evaluations of peer papers, and a comprehensive final exam. PHIL 002 satisfies the GH requirement and is geared towards non-Philosophy majors. It may be used to fulfill minor requirements in philosophy. This course is offered once a year with an enrollment of 150 to 200 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 003 (GH)** Persons, Moral Values and the Good Life (3) Major ethical positions and assumptions regarding questions of freedom, choice, obligation, and conflicts in contemporary moral conduct, values, and reasoning.

**PHIL 003 Persons, Moral Values and the Good Life (3)**  
**(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course offers students a broad, coherent overview of moral issues, moral reasoning, and, questions concerning a good life. It emphasizes the thought of major, influential figures and their works. The course also allows students to apply to contemporary ethical issues the theories espoused by these figures. Students will compare, contrast, and critically assess competing theories of persons and goodness, their assumptions and background world views, and their implications for practice. Students will be graded on the basis of tests, papers and a comprehensive final exam. PHIL 003 satisfies the GH requirement and is geared towards non-Philosophy majors. It may be used to fulfill minor requirements in philosophy. This course will be offered once a year with an enrollment of 25 to 240 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 005 (GH)** Philosophy, Art, and Film (3) Explores relations between images and reality, representation and culture, and beauty and politics through film, artworks, and aesthetic theories.

**PHIL 005 Philosophy, Art, and Film (3)**  
**(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

PHIL 005 provides a critical introduction to fundamental issues concerning the nature of art in general and film in particular, the nature of aesthetic experience, and the role of art and film in cultural criticism. This course has no prerequisites and assumes no background in philosophy; it would make an excellent introduction to philosophy for students interested in art, film, representation, and creativity. It includes an examination of historical and contemporary thought through films and videos, in-class presentations, readings, discussions, and student writings. These activities will allow students to gain an understanding of diverse, often competing, perspectives on basic human problems and the great influence of film and images in contemporary life. Students will examine diverse viewpoints that will allow them to understand a wide range of views and challenge them to defend their own positions. This course involves active use of writing, speaking, and group projects. It provides opportunities for gathering information, analyzing problems, synthesizing diverse perspectives, and developing one's own thought and the reasons for it by linking theory to practice.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 006 (GH;IL)** (CMLIT 006) Philosophy and Literature in Western Culture (3) Explores fundamental issues of human existence through the traditions of western literature and philosophy.

**PHIL (CMLIT) 006 Philosophy and Literature in Western Culture (3)  
(GH;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce students to the various interpretive approaches to literature and philosophy. The class will explore key philosophic themes as these are exhibited in imaginative literature, and in doing so will practice both philosophical interpretation of literature and literary treatment of philosophy. The central themes of this course could include, for example, self-knowledge and self-deception; self-isolation, alienation and community; conflict of moral responsibilities; the use and abuse of language; the meaning of art; the ideal of a "simple life;" normalcy and madness. The class will ask such questions as what counts as literature, what purpose it serves, what is the relationship between literature and ideology, and whether a text can be considered independently from what the author wanted to say in it. Students may be graded by a variety of methods, including exams, papers, and individual and group projects. One example might be a collaborative annotated bibliography project, a collaborative position paper, individual evaluations of position papers, and a comprehensive final exam. This course is a non-major General Education Humanities course. It may be used to fulfill minor requirements in philosophy. This course may be used to fulfill an additional-course requirement in either the minor or the major in Comparative Literature, although it is geared primarily towards non-majors. This course will be offered once a year with an enrollment of 25-200 students depending on location. This course deals with literature and philosophy in the western tradition, and thus helps to complete the range of our other courses on western literature, such as Comparative Literature 001 and 002 (survey courses of Western Literature to the Renaissance, and Western Literature since the Renaissance), and Comparative Literature 401W and 402W (upper level chronological courses on Western Literature). This course differs from those however, by its strong emphasis on philosophical texts.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 007 (GH;IL) Asian Philosophy (3)** Introduction to philosophical, moral, and aesthetic teachings of Asian traditions such as Hinduism, Buddhism (including Zen), Taoism, Confucianism, and Shintoism.

**PHIL 007 Asian Philosophies (3)  
(GH;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This class is an introduction to the major intellectual philosophical traditions of Asia: Hinduism, Buddhism and Zen Buddhism, Jainism, Confucianism and Neo-Confucianism, Taoism, and Korean thought. The course introduces students to Asian thought through careful study of major, representative texts and authors of each of these traditions. In addition, the course seeks to identify parallels and differences between Asian thought and Western philosophy, and also seeks to explore the intercultural and interdisciplinary vitality of Asian thought today.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 008 (GH) (WMNST 008) Philosophy and Feminism (3)** Explores diverse feminist philosophies of culture and knowledge, and examines gender's role in accounts of reality, truth, morality, and justice.

**PHIL (WMNST) 008 Philosophy and Feminism (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course familiarizes students with concepts and problems of feminist philosophies. It seeks to examine the feminist critique of theories of knowledge and power, as well as the cultural, political, and linguistic implications of this critique. Students will be expected to evaluate existing epistemological assumptions, social organization, the character of power, and language from the vantage of contemporary feminism and its historical context. Students will be graded on participation, case study analyses, a group presentation and response, and a final paper. WMST/PHIL 008 satisfies the GH requirement and is geared towards non-Philosophy majors. It may be used to fulfill the minor requirement in philosophy. This course is offered once a year with an enrollment of 25-200 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 009** (GH;US) Philosophy, Race, and Diversity (3) Critically examines the significance of race and cultural diversity for, and in, understandings of reality, knowledge, truth, morality, and justice.

**PHIL 009 Philosophy, Race, and Diversity (3)**  
(GH;US)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course explores the diverse philosophical concepts and problems regarding race. It covers writings dealing specifically with critiques of the dominant theories and definitions of racial identity, thereby providing an introduction to the diversity of ethical and social approaches to questions concerning race. This course is designed to satisfy the criteria for a humanities course with a focus on diversity (General Education Humanities and Diversity Focused). In particular, it is designed to be an offering in the humanities insofar as it: (1) develops a broad, coherent overview of the meaning of cultural diversity itself (including a clarification of the conceptions of culture, race, gender, nationality, and pluralism); (2) stresses the writings of major theorists from both the traditional canon of Western thought and diverse traditions, most prominently African-American, Latin-American, Asian American, and Native American traditions; (3) helps students develop the skills to interpret and to assess the nature, forms, and place of human values in our multi-cultural world; (4) fosters a deeper appreciation of and more critical attitude toward the ultimate ends of human action; (5) offers ample opportunities to engage in comparative philosophy and, allied with these, numerous challenges to communicate clearly, think logically, and evaluate critically the positions and perspectives being compared; (6) meets fully the stated objectives of general humanities education by providing students with texts occupying a central place in one or more human cultures and, then, by working through these texts in a careful and critical manner (such a process of working through these texts being also one of thinking critically and imaginatively about the questions posed by the texts, moreover one of being invited or even forced to integrate various perspectives). As a diversity focused course, PHIL 009 will carefully treat the philosophical issues of pluralism, universalism, diversity, and community. It will also pay careful attention to the diverse philosophies of different cultural communities. The conflicts between cultural localism and global economics will receive critical attention. In particular, this course will: (1) focus initially on ethnicity and race, then on gender and globalism; (2) encourage students to develop an understanding of the intellectual and ethical backgrounds and assumptions of other traditions and peoples; (3) help students develop a truly global, pluralistic, and multi-cultural viewpoint; and (4) explore the intellectual history of groups identified by ethnicity, race, gender, and religion. Students will be graded on a collaborative annotated bibliography project, a collaborative position paper, individual evaluations of position papers, and a comprehensive final exam. The course is intended as a General Education Humanities and Intercultural/International competency course and as such may serve as an historical overview of race and diversity in philosophy as well as an introduction to critical thinking about topical issues. This course may provide introductory material for courses in anthropology, political science, sociology, philosophy, and so on. More importantly, it may encourage students to think more carefully and critically about the questions raised in this course and their manifestation in social and political life. The course is a non-major General Education Humanities and Intercultural course intended for non-philosophy majors. It may be used to fulfill minor requirements in philosophy. PHIL 009 will be offered once per year with 150-200 seats per offering.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 009U** (GH;US) Philosophy, Race, and Diversity (3) Critically examines the significance of race and cultural diversity for, and in, understandings of reality, knowledge, truth, morality, and justice.

**Philosophy, Race, and Diversity (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 010** (GH) Critical Thinking (3) Discussion of the validity, soundness, and fallacies of everyday language use and reasoning; informal logic; and manipulative arguments and propaganda.

**PHIL 010 Critical Thinking (3)**  
(GH)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to bring students to a critical awareness of the function of argumentation in the various forms it takes, both in the academic realm of logic, as well as the everyday world of television, newspapers, and other forms of

communication. Students will examine how arguments are constructed and the means that are used to make an argument convincing. They will learn to critically analyze arguments in order to detect careless language use and fallacies. They will also learn various types of arguments. Students will be graded on weekly problem-solving homework assignments and re-writes, collaborative fallacy presentations, a mid-term exam, and a comprehensive final exam. PHIL 010 satisfies the GH requirement and it may be used to fulfill minor requirements in philosophy. This course is offered once a year with an enrollment of 25-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 010S (GH) Critical Thinking (3)** Discussion of the validity, soundness, and fallacies of everyday language use and reasoning; informal logic; and manipulative arguments and propaganda.

### **Critical Thinking (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 011 (GH) Philosophy, Science, and Truth (3)** Examines the philosophical foundations of natural scientific inquiry, knowledge, objectivity, and the relation of scientific truth to common sense.

### **PHIL 011 Philosophy, Science, and Truth (3) (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course familiarizes students with concepts and problems in the philosophy of science and scientific method, with a view towards problems of truth and the philosophical foundations of scientific inquiry. The course develops students' abilities to reason inductively as well as deductively and to examine the nature of reasoning and its role in scientific inquiry. Students will be graded on participation, case study analyses, a group presentation and response, and a final paper. PHIL 011 satisfies the GH requirement and is geared towards non-Philosophy majors. It may be used to fulfill the minor requirements in philosophy. This course is offered once a year with an enrollment of 25-200 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 012 (GQ) Symbolic Logic (3)** Formal logical structures of propositions and arguments; mechanical tests and proof techniques for logically necessary truth and deductive validity.

### **Symbolic Logic (3)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 013 (GH) Philosophy, Nature, and the Environment (3)** Studies competing historical and contemporary conceptions of nature, their philosophical foundations, and their implications for environmental problems and public policy.

### **PHIL 013 Philosophy, Nature, and the Environment (3) (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course familiarizes students with concepts regarding the central and very old philosophical problem of describing and understanding nature and the place of human beings in it. This philosophical discourse has evolved in the past 25

years into a firm sub-discipline of philosophy itself, usually under the title of "Environmental Philosophy" or "Philosophy of nature." The discipline addresses a complex of crucial problems of contemporary society, politics, and ethics revolving around the relation of human beings and the environment. Students will learn the various and conflicting views on nature and the environment, and they will develop the ability to critically navigate these various positions as well as the assumptions underlying the contemporary environmental debate. Students will be graded on participation, case study analyses, a group presentation and response, and a final paper. PHIL 013 satisfies the GH requirement and is geared towards non-Philosophy majors. It may be used to fulfill minor requirements in philosophy. This course is offered once a year with an enrollment of 50-200 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 014** (GH;US) Philosophy of Love and Sex (3) Explores Western theories and attitudes concerning intimacy and examines various ethical issues involving love and sex.

**PHIL 014 Philosophy of Love and Sex (3)**  
(GH;US)

**(BA) This course meets the Bachelor of Arts degree requirements.**

An examination of theories and attitudes concerning love and sexuality that have been prevalent in the Western world. Course topics will include philosophical and theological conceptions of sex and love and ethical issues related to these topics, including monogamy, same-sex marriage, cultural differences, pornography, and consent. The course will focus on contemporary US beliefs and practices examined through the lens of the different beliefs and practices concerning intimacy within the cultures of the US. The lens of gender, race/ethnicity, and sexual orientation will be ongoing themes of the class and included in all topics. The course has no prerequisites and assumes no background in philosophy. It is an excellent introductory course for students interested in learning the skills of doing philosophy. The course will focus on linked ethical issues that will be investigated through readings, essays, and group projects and are designed to encourage students to cultivate ethical awareness and inquiry by understanding and investigating diverse viewpoints and developing a richer understanding of their own positions. The course will provide opportunities for gathering information, analyzing arguments, synthesizing diverse viewpoints, and developing a richer understanding of and support for one's own beliefs and practices. Students will be evaluated based on class participation, short essays, examinations, and group presentations. The course will serve as a GH and GI requirement and it may be used to fulfill minor requirements in philosophy. The course will be offered once a year with 25-250 seats per offering.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 083S** (GH) First-Year Seminar in Philosophy (3) Critical introduction to philosophical issues in ethics, social and political theory, religion, art, metaphysics, and epistemology.

**PHIL 083S First-Year Seminar in Philosophy (3)**  
(GH;FYS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

First-Year Seminars in Philosophy provide critical introductions to fundamental philosophical issues and problems. Each first-year seminar develops a broad overview of historical and contemporary thought through readings, discussions, and student writings. In this way, students will gain an understanding of important figures, ideas, problems, and theories that have shaped and have continued to influence thought and practice around the world. Students will examine diverse viewpoints that will allow them to understand a wide range of views and challenge them to defend their own positions. First-year seminars involve active use of writing, speaking, and group projects. They provide opportunities for gathering information, analyzing problems, and synthesizing diverse perspectives. Finally, each first year seminar in philosophy allows students to link theory to their own lives.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 098** Special topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that

may be topical or of special interest.

### **Special topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 100 (GH)** The Meaning of Human Existence (3) Explores differing views of the significance of human life, the meaning of freedom, and the way to a meaningful life.

### **PHIL 100 The Meaning of Human Existence (3) (GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The course is primarily for non-Philosophy majors and for students considering a major in Philosophy. It is designed to evoke disciplined reflection on basic philosophical questions which are often raised in an unmethodical and uninformed way. It will attempt to approach philosophical thinking from the perspective of everyday concerns, rather than from the various readings which will be done for the course. The general question of the meaning of human existence will furnish a rubric under which philosophical ideas and evaluations enter into ordinary life. The course will offer the opportunity to look at a variety of ways in which human beings have addressed the issues involved in the question of the meaning of life. The philosophical figures whose works will be examined include de Beauvoir, Freud, Marcel, Marcuse, Jaspers, and Sartre. Students will be graded on participation, comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL100 satisfies the GH requirement and it may be used to fulfill the major and/or minor requirements in philosophy. This course is offered once a year with an enrollment of 35-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 101 (GH)** Pragmatism and American Philosophy (3) An introduction to American thought and its relation to American culture, with a focus on the development of pragmatism.

### **PHIL 101 Pragmatism and American Philosophy (3) (GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for philosophy majors. (The analogous course for majors is PHIL 401.) Phil 101 is designed to familiarize students with introductory concepts, problems, and history of the American philosophical tradition. The course will explore basic themes in American thought such as nature, God, experience, democracy, progress and process, truth and meaning, focusing especially on the pragmatist philosophers. The course will examine the ways in which American philosophy develops its unique paths as distinct from the European tradition and what this legacy means today. Students will be expected to critically evaluate the problems raised by these philosophers as well as their influences on American society, politics, and culture. One of the principal goals is to enable students to understand better this rich philosophical tradition - for many students, their own heritage - and its place as both formative of and critical of the contemporary American philosophical, social, moral, religious, and aesthetic landscape. Students will be graded on participation, comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL 101 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in philosophy. This course will be offered once a year with an enrollment of 35 to 50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 102 (GH)** Existentialism and European Philosophy (3) Introduction to European philosophy and issues of life, death, meaning, and absurdity, with a focus on existentialism and its development.

### **PHIL 102 Existentialism and European Philosophy (3) (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for philosophy majors. (The analogous course for majors is PHIL 402.) PHIL 102 introduces students to European philosophy over the past two hundred years. The course begins with the overview of major philosophical themes and developments, and then examines these developments in existentialism, philosophical literature, and postmodernism. The course will focus on metaphysical, moral, and social issues concerning the nature of reality, the nature of the self, the basis of values, and the relations between individuality and community. Students will critically consider these issues in required comparison/contrast papers, a position paper, a collaborative project, and a comprehensive final exam. This course serves as an introduction to the discipline and prepares students for further study in the history of philosophy. PHIL 102 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in philosophy. It is offered once a year with an enrollment of 35-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 102H** (GH) Existentialism and European Philosophy (3) Introduction to European philosophy and issues of life, death, meaning, and absurdity, with a focus on existentialism and its development.

**Existentialism and European Philosophy (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 103** (GH) Introduction to Ethics (3) Ethical theory about virtue, duty, autonomy, and life quality applied to moral problems, including character, violence, oppression, abortion, and suicide.

**PHIL 103 Introduction to Ethics (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for philosophy majors. (The analogous course for majors is PHIL 418: Ethics.) PHIL 103 introduces students to the major aspects of ethics: the natures of ethical reasoning, the major ethical traditions and their similarities and contrasts, as well as enduring ethical issues that link theory to practice in critical ways. This is an introductory course and addresses issues that any student, no matter what major, will face. Students will be graded on quizzes, re-writing and expanding quizzes, a collaborative project, and a comprehensive final exam. PHIL 103 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in philosophy. This course is offered once a year with an enrollment of 25-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 103W** (GH) Introduction to Ethics (3) Ethical theory about virtue, duty, autonomy, and life quality applied to moral problems, including character, violence, oppression, abortion, and suicide.

**Introduction to Ethics (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1998  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 105** (GH) Introduction to Philosophy of Law and Legal Ethics (3) Historical and contemporary philosophies of law; concepts of responsibility, property, rights, and justice; and ethical issues in legal practice.

**PHIL 105 Introduction to Philosophy of Law and Legal Ethics (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for philosophy majors. (The analogous course for majors is PHIL 405: Philosophy of Law.) PHIL 105 will provide students with a critical overview of central positions and figures in philosophy of law and teach students interpretative and critically evaluative methods for distinguishing and attempting to resolve philosophical problems within these positions. This course will investigate the history of philosophy of law and the diverse views of human nature inherent to central philosophical positions. The course will examine the relations between human values, ethics, and law as well as how these relations affect the organization of broader social, political, and religious institutions. Students will be graded on participation, case study analyses, a group presentation and response, and a final paper. PHIL 105 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in philosophy. This course is offered once a year with an enrollment of 25 to 100 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 106 (GH) Introduction to Business Ethics (3)** Studies ethical foundations of business and ethical problems in business practices such as advertising, international trade, labor relations, and marketing.

**PHIL 106 Introduction to Business Ethics (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for philosophy majors. (The analogous course for majors is PHIL 406: Business Ethics). PHIL 106 will teach students central philosophical and ethical problems in the history of business practices. It will investigate the nature of business and business practices, their relation to the human condition more generally, and their relation to and effect on human values. The course will develop a student's critical skills in evaluating both the assumptions and the philosophical foundations and justifications for business and economic systems, the relation between morality and specific business practices, and central positions and figures in the history of philosophical analysis of these questions. Historical figures will include Aristotle, Hume, Adam Smith, Mill, Marx, Hayek, and Keynes. The course will investigate business as a central feature of modern society and culture, how it evolved, and the philosophical implications for contemporary society and human values. Students will be graded on participation, case study analyses, a group presentation and response, and a final paper. PHIL 106 satisfies the GH requirement and it may be used to fulfill the major and/or minor requirements in Philosophy. This course is offered once a year with an enrollment of 35-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 107 (GH) (S T S 107) Introduction to Philosophy of Technology (3)** The character of technology; its relation to human values; philosophical assumptions in its development; and how it transforms the world.

**PHIL (S T S) 107 Introduction to Philosophy of Technology (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

"Introduction to the Philosophy of Technology" surveys a number of recent thinkers on the meaning of technology, its role in our and other societies, and critiques of its effects. Through readings of classic works on philosophy of technology as well as investigations of contemporary media reports and representations of technology, the course will engage your thought about what technology "means" to you and the values embedded in it. This course meets the broad general education needs of students from the humanities, social sciences, engineering, agriculture, as well as professional tracks such as business and pre-law. As technology is increasingly fundamental to our modern way of life in all its aspects, this course gets students asking question about why we do what we do with technology and how it affects us, others around us, and the environment. Required readings typically include collections of essays ranging in reading level from popular journalism to mass-market fiction to historical analyses of technological change and in-depth philosophical investigations of the concept of technology. Classroom time will be organized around lecture, regular classroom discussion, and a number of student-led debates. Evaluation will be based upon short writings, a small research paper, a midterm, and a final. The course meets the requirement for General Education in the Humanities (GH). Crosslisted with both S T S and



PHIL it compliments other S T S courses (notably, S T S 101 and 233) and is a pre-requisite for S T S/ Phil 407. The course is offered biannually and is capped at 40 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 108 (GH)** Introduction to Social and Political Philosophy (3) Critical introduction to political authority, rights, justice, community, inequality, power, pluralism, and other contemporary, social, and political issues.

**PHIL 108 Introduction to Social and Political Philosophy (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for Philosophy majors. (The analogous course for majors is PHIL 408: Social and Political Philosophy.) PHIL 108 will critically examine central philosophical positions, ideologies, and figures in the history of social and political philosophy, their relation to contemporary society, politics, and culture, and the significance of social and political philosophy for human values. The course will investigate the nature of political and social philosophies and systems of social and political practice towards providing students with a greater critical understanding of the nature of social and political organization, their effects on human values, and the traditional philosophical problem of what constitutes the good society. Students will be graded on participation, comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL 108 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in Philosophy. This course will be offered once a year with an enrollment of 35 to 50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 108W (GH)** Introduction to Social and Political Philosophy (3) Critical introduction to political authority, rights, justice, community, inequality, power, pluralism, and other contemporary, social, and political issues.

**Introduction to Social and Political Philosophy (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1998  
Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 109 (GH)** Introduction to Aesthetics (3) Examines the nature of art and aesthetic experience, art's relation to beauty and truth, and the nature of creativity.

**PHIL 109 Introduction to Aesthetics (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for Philosophy majors. (The analogous course for majors is PHIL 409: Aesthetics). Phil 109 is designed to introduce students to the various problems surrounding the philosophical treatment of the various arts. Aesthetics, or the philosophy of art, is a systematic exploration of aesthetic experience, creativity, various theories of beauty, and principles on which criticism of the arts (including literature) can be based. This is a special field of philosophy which focuses on the arts and the creative process, but which, for some thinkers, involves many links to other aspects of human existence, including the political and various metaphysical questions about being and human being. The objective will be to give students a good grounding in these various problems and to expose them to important perspectives and approaches to these problems and to the question of the place of art (as the arts generally) in human existence. Emphasis will be placed on both historical and perspectival sweep in the course and, as a result, the students should leave the course with an enriched understanding of the nature of the arts, of the creative process itself, and of the place both play in being human. Students will be graded on participation, comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL 109 satisfies the GH requirement and it may be used to fulfill the major and/or minor requirements in Philosophy. This course is offered once a year with an enrollment of 35-50

students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 109H (GH)** Introduction to Aesthetics (3) Examines the nature of art and aesthetic experience, art's relation to beauty and truth, and the nature of creativity.

**Introduction to Aesthetics (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 110 (GH)** Introduction to Philosophy of Science (3) Examines science's assumptions about knowledge and reality, the relation between science and culture, and the nature of scientific progress.

**PHIL 110 Introduction to Philosophy of Science (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors (and in this case for Science majors as well), as well as for others likely to take philosophy courses rather than for Philosophy majors. (The analogous course for majors is PHIL 410: Philosophy of Science). PHIL 110 is designed to give students a coherent presentation of science's assumptions about knowledge and reality, the relation between science and culture, and the nature of scientific progress. Historical foundations of science will be addressed as well as contemporary theories and issues, as the class examines the following topics: the relation between physics, mathematics, and philosophy; the nature of reality; the nature of knowledge; the nature of causality; the nature of scientific progress, and the nature of hypothesis in natural science. Students will be required to critically examine and evaluate the positions, relations, and theories addressed in class. They will be graded on class discussion, exams, a collaborative web project, and a final paper. PHIL 110 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in Philosophy. This course is offered once a year with an enrollment of 35-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 113 (GH)** Introduction to Philosophy of Literature (3) Examines philosophical ideas in literature, literary forms in philosophies, style and genre, and relation of philosophy, literature, writing, and culture.

**PHIL 113 Introduction to Philosophy of Literature (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for Philosophy majors. (The analogous course for majors is PHIL 413.) PHIL 113 will provide a critical overview of the relation between philosophy and literature, philosophical literature, and literary philosophy, discussing specific historical figures, movements, and theories on the topic. The course will seek to provide students with an understanding of the nature of philosophical aesthetic values in literary expression, as well as ideological expressions within literature. It will investigate the nature of philosophical writing and of literary writing in order to critically interpret and assess their differences and similarities as representative of the nature of the human values and the human condition. Students will be graded on participation, comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL 113 satisfies the GH requirement and it may be used to fulfill the major and/or minor requirements. This course will be offered once a year with an enrollment of 35 to 50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 115 (GH)** Introduction to Philosophy and Education (3) Examines the nature and goals of education, the philosophical foundations of educational theories, and their economic, political, and cultural implications.

**PHIL 115 Introduction to Philosophy and Education (3)  
(GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for Philosophy majors. (The analogous course for majors is PHIL 415: Philosophy of Education.) PHIL 115 provides students with a critical survey of philosophies of education and philosophical conceptions of the relations between knowledge, truth, experience, and human values. The course will consider the historical contexts from which philosophical theories about education have arisen and their ideological political, social, and economic implications. In addition, it will develop a student's critical skills regarding self-education and the development of education in contemporary society towards a greater understanding of the philosophical problems that underlie differing philosophical views of education. Students will be graded on a collaborative annotated bibliography project, a collaborative position paper, evaluations of peer papers, and a comprehensive final exam. PHIL 115 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in Philosophy. This course is offered once a year with an enrollment of 35-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 118 (GH)** Introduction to Environmental Philosophy (3) Considers the moral status of the environment and applies ethical theory to issues such as preservation, hunger, pollution, and sustainability.

**PHIL 118 Introduction to Environmental Philosophy (3)  
(GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for Philosophy majors. (The analogous course for majors is PHIL 418: Environmental Ethics.) PHIL 118 will provide an historical and contemporary survey of differing views of the relation of humans and nature, and of environmental problems and human development. The course will provide a critical examination of differing conceptions of value in regard to nature and differing conceptions of human values and the human condition more generally. The course will investigate how different social, economic, and political ideologies and systems affect the human relation to nature, and how the ethical problems that arise from such systems may be critically evaluated and potentially resolved. Students will be graded on participation, case study analyses, a group presentation and response, and a final paper. PHIL 118 satisfies the GH requirement and it may be used to fulfill the major and/or minor requirements in Philosophy. This course will be offered every other year with an enrollment of 25-100 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 119 (GH)** Ethical Leadership (3) Introduction to philosophical theories of ethics and leadership. Uses literary and biographical texts in developing skills of application.

**Ethical Leadership (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 122 (GH)** Introduction to Philosophy of History (3) Examines methodological foundations and interpretations of history, the objectivity of history, and the issue of history as design or chance.

**PHIL 122 Introduction to Philosophy of History (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for Philosophy majors. (The analogous course for majors is PHIL 422.) PHIL 122 will provide a critical survey of key problems, concepts, ideologies, and figures in the history of philosophy of history, and encourage and develop the student's analytical and critical interpretation and evaluation of the theses presented. The course will study key questions regarding the human past and the potentiality of the human future as reflective of the human condition more broadly. It develops a broad, coherent overview of the nature and philosophical status of history and the philosophical assumptions and issues in the practice of history. It also emphasizes the thought of major, influential figures and their works, such as Hume, Vico, Hegel, Marx, Mill, Rickert, Dilthey, Croce, Collingwood, Mandelbaum, Hempel, and Randall. Students will be graded on participation, comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL 122 satisfies the GH requirement and it may be used to fulfill the major and/or minor requirements in Philosophy. This course is offered every other year with an enrollment of 35-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 123 (GH) Introduction to Ethics in Media and Journalism (3)** Studies ethical problems, human values, and politics in differing media forms and the ways media shape such problems and values.

**PHIL 123 Introduction to Ethics in Media and Journalism (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for Philosophy majors. (The analogous course for majors is PHIL 423.) PHIL 123 will provide a critical survey of media and journalism ethics and media philosophy towards developing the student's critical media literacy and understanding of central ethical problems in the media and journalism. The course will develop an analytical comprehension of the complex relations between society and culture, the media, and philosophical and ethical problems. It will consider philosophical questions of truth, knowledge, interpretation and evaluation, and the role media culture plays in the formation of truth and knowledge in addition to specific ethical case studies. The thought of major, influential figures and their works will be emphasized, such as Hobbes, Hegel, Marx, Jefferson, Dewey, Habermas, Adorno, McLuhan, and Beauchamp. Additionally, the course shall develop the student's understanding of the relation between contemporary technological society and changing human values. Students will be graded on participation, case study analyses, a group presentation and response, and a final paper. PHIL 123 satisfies the GH requirement and it may be used to fulfill the major and/or minor requirements in Philosophy. This course is offered every other year with an enrollment of 35-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 124 (GH) Introduction to Philosophy of Religion (3)** Explores the meaning of religious belief and experience, the existence of God, ideas of spirituality, and the question of immortality.

**PHIL 124 Introduction to Philosophy of Religion (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses. (The analogous course for majors is PHIL 424: Philosophy of Religion). PHIL 124 is designed to give students a coherent overview of the various dimensions of religion elucidated when religion is examined from a philosophical perspective. Topics explored in class will include religious belief, religious experience and spirituality, arguments for the existence of God, contemporary philosophical problems in their relation to religion, religion and science, as well as religion and the future. The class will also examine the differences between Western, Eastern, and other conceptions of religion and spirituality. Major historical authors and their works will be examined, including Anselm, Aquinas, Confucius, Descartes, Lao Tse, and Peirce. Students will be required to compare and contrast differing perspectives towards religion, as well as to critically evaluate these positions. The class will also be oriented towards making relevant connections between historical and contemporary views and issues. Students will be graded on

participation, comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL 124 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in Philosophy. This course is offered every other year with an enrollment of 35-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003  
Prerequisite: third-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 125 (GH)** Introduction to Theories of Knowledge (3) Historical and contemporary views on the foundations and conditions of knowledge, belief, justification, and truth, conception, perception, and interpretation.

**PHIL 125 Introduction to Theories of Knowledge (3)  
(GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for Philosophy majors. (The analogous course for majors is PHIL 425) PHIL 125 will provide a critical survey of key concepts, problems, and figures in the history of epistemology and in contemporary studies in theory of knowledge. The course will develop the student's analytical and critical skills through studying the foundations and justifications of knowledge, knowledge claims, and the very nature of knowledge and belief fundamental to all human endeavor. This class develops a broad, coherent overview of fundamental issues of belief, knowledge, truth, justification, and inquiry. It emphasizes the thought of major, influential figures and their works, such as Plato, Aristotle, Descartes, Spinoza, Locke, Kant, Kierkegaard, Wittgenstein, Peirce, and Heidegger. Students will be graded on quizzes, re-writing and expanding quizzes, a collaborative research project and paper, and a comprehensive final exam. PHIL 125 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in Philosophy. This course is offered once a year with an enrollment of 35-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 125W (GH)** Introduction to Theories of Knowledge (3) Historical and contemporary views on the foundations and conditions of knowledge, belief, justification, and truth, conception, perception, and interpretation.

**Introduction to Theories of Knowledge (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1998  
Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 126 (GH)** Introduction to Metaphysics (3) Explores the nature of being and reality, the problem of free will and the mind/body problem, identity, and causality.

**PHIL 126 Introduction to Metaphysics (3)  
(GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for Philosophy majors. [The analogous course for majors is PHIL 426]. PHIL 126 will provide a critical survey of key concepts, problems, and figures in the history of metaphysics and in contemporary studies in metaphysics and anti-metaphysical views. The course will develop the student's analytical and critical skills through studying the foundations of accepted belief regarding the nature of reality, being, life, mind, and God, and different philosophical arguments regarding the nature of these metaphysical questions. The thought of major, influential figures and their works will be emphasized, such as Plato, Aristotle, Aquinas, Ockham, Descartes, Locke, Kant, Hegel, Kierkegaard, Jams, Husserl, and Merleau-Ponty. Students will be encouraged to articulate their own views in response to diverse metaphysical positions as well as life itself. Students will be graded on quizzes, re-writing and expanding quizzes, a collaborative research project and paper, and a comprehensive final exam. PHIL 126 fulfills the GH requirement and it may be used to fulfill major and/or minor requirements in Philosophy. This course is offered once a year with an enrollment of 35-50 students.

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 126W (GH)** Introduction to Metaphysics (3) Explores the nature of being and reality, the problem of free will and the mind/body problem, identity, and causality.

**Introduction to Metaphysics (3)**

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 1998  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 127 (GH)** Introduction to Philosophy of Mind (3) Problems and concepts of mind and consciousness including mind-brain identification, the nature of subjectivity, identity, and artificial intelligence.

**PHIL 127 Introduction to Philosophy of Mind (3)  
 (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course will provide a critical survey of key concepts, problems, and figures in the history of philosophy of mind and in contemporary studies in philosophy of mind. The course will develop analytical and critical skills through study of basic principles and logical evaluation of arguments in philosophy of mind. As a general education humanities course, this class develops a broad, coherent overview of the nature of mind, the relation of the mental to the physical, and the relations between scientific and philosophical approaches to the nature of mind; emphasizes the thought of major, influential figures and their works, such as Descartes, Locke, Kant, Hegel, Dewey, Heidegger, Wittgenstein, Ryle, Searle, Armstrong, and Dennett; develops competence in interpretation and critical assessment of human values and their place in human subjectivity, self-identity, and intentional experience, and considers the relation of these values to cognitive experience and structures. Students will be graded on participation, three comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL 127 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in Philosophy. This course is offered once a year with an enrollment of 35-50 students.

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 129 (GH)** Introduction to Philosophy of Language (3) Studies the nature of meaning in language, how we acquire language, communication, signs, and language as descriptive of reality.

**PHIL 129 Introduction to Philosophy of Language (3)  
 (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course, as with other 100-level philosophy department courses, is intended for Liberal Arts majors and others likely to take philosophy courses rather than for Philosophy majors. (The analogous course for majors is PHIL 429.) PHIL 129 will provide a critical survey of key concepts, problems, and figures in the history of philosophy of language and in contemporary studies in linguistic philosophy. The course will develop the student's analytical and critical skills through study of the philosophical and logical foundations of language systems and the role of language problems in relation to philosophical problems. Students will be encouraged to use the linguistic and logical tools they study in the course in evaluating the content of the arguments presented. As a general education humanities course, this class develops a broad, coherent overview of the nature of language, the philosophical assumptions and methodological commitments involved in theories of language, and the relation of language to reality. The class emphasizes the thought of major, influential figures and their works, such as Plato, Aristotle, Locke, Berkeley, Herder, Cassirer, Peirce, Carnap, Wittgenstein, Austin, Searle, and Rorty. Students will be graded on participation, three comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL 129 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in Philosophy. This course is offered every other year with an enrollment of 35-50 students.

General Education: GH

Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 132 (GH) (RL ST 131)** Introduction to Bioethics (3) Studies questions of ethics in relation to biotechnology research and implementation, genetic engineering, medicine, animal and human rights.

**PHIL 132 (RL ST 131) Introduction to Bioethics (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course, as other 100-level Religious Studies Program and Philosophy courses, is intended for Liberal Arts majors and others likely to take Religious Studies and Philosophy courses rather than for Religious Studies majors. This course will provide a critical survey of key concepts, problems, and figures in the short history of bioethics and in contemporary studies and possible future directions. The course will develop the student's analytical and critical skills through study of different views on the nature of life and what experimentation with life-forms morally entails. The course will examine the increasingly techno-scientific definition of the nature of life and the human condition and evaluate such arguments and positions of practice in regard to opposing views of life as inherently sacred. It will investigate the extent and breadth of moral arguments in regard to differing life forms and consider the rights of humans and non-human animals. Students will be graded on participation, case study analyses, a group presentation, and a final paper. PHIL 132/RL ST 131 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in Philosophy and Religious Studies. This course is offered every other year with an enrollment of 35-50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 197** Special topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 198** Special topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 199 (IL)** Foreign Study--Philosophy (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Study--Philosophy (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 200 (GH) (CAMS 200)** Ancient Philosophy (3) Examines the thought and influence of major Western thinkers from the pre-Socratics to the neo-Platonists, emphasizing Plato and Aristotle.

**PHIL (CAMS) 200 Ancient Philosophy (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

PHIL (CAMS) 200 satisfies the GH requirement. As part of the history of philosophy sequence required of undergraduate philosophy majors, this course is designed to present students with a survey of ancient Western Philosophy beginning with the pre-Socratics, continuing with Plato (Socrates), Aristotle, and the post-Aristotelians, and concluding with neo-Platonists and early Christians. Emphasis will be placed on Plato and Aristotle. The class will examine the historical and cultural foundations from which ancient Western philosophy grew, and will explore issues which were focal points of ancient philosophy, such as the nature of reality, change, permanence, truth, form, and matter. Students will critically consider these issues in required comparison/contrast papers, a position paper, a collaborative project, and a comprehensive final exam. Students will also be evaluated on class participation. The course is prerequisite to Philosophy 400-level courses and it will be offered once a year with an enrollment of 35 students. For students studying ancient languages, particularly Greek, this course will offer an important exposure to the interpretation of philosophical text. For Classical and Ancient Mediterranean Studies majors, PHIL/CAMS fulfills the requirement under Supporting Courses for three credits in Greek or Roman literature and language, civilization, or archaeology; and it also fulfills the requirement for six credits for study at any level from an approved list in the general field of Classics and Ancient Mediterranean Studies.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 201 (GH) Medieval Philosophy (3)** Examines the thought and influence of major Western thinkers from the fourth to the fifteenth centuries, emphasizing Augustine and Aquinas.

**PHIL 201 Medieval Philosophy (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

As part of the history of philosophy sequence required of undergraduate Philosophy majors, this course is designed to examine the movements of thought and major thinkers from the fourth to the fifteenth centuries. The course will begin by studying the historical and philosophical foundations of Medieval thought through an examination of philosophical problems from Ancient Philosophy. It will proceed to a study of Augustine, Islamic Philosophy, Jewish Philosophy, Aquinas, Ockham, and Duns Scotus. Students will be required to critically analyze the texts of the philosophers studied in class, as well as to compare, contrast, and critically evaluate the ideas of these thinkers. They will be graded on participation, comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL 201 satisfies the GH requirement, it may be used to fulfill the minor requirements in Philosophy, and it is a prerequisite to the 400-level courses. It will be offered once a year with an enrollment of 35 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 202 (GH) Modern Philosophy (3)** Examines the thought and influence of major Western thinkers from Descartes to Kant, emphasizing rationalism and empiricism, and critical philosophy.

**PHIL 202 Modern Philosophy (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

As part of the history of philosophy sequence required of undergraduate philosophy majors, this course is designed to examine the thought and influence of the major Western thinkers of Modern Philosophy: Hobbes, Descartes, Leibniz, Spinoza, Locke, Hume, and Kant. The historical, philosophical, and political foundations of this philosophical era will be examined, as well as topics that were prominent intellectually during this time, such as causality, the relation between mind and body, how we come to know things and the degree of certainty we can attribute to our knowledge, and whether or not we can prove God's existence. Students will be required to critically analyze the texts of the philosophers studied in class, as well as to compare, contrast, and critically evaluate the ideas of these thinkers. They will be graded on participation, comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL 202 satisfies the GH requirement, it may be used to fulfill the minor requirements in Philosophy, and it is a prerequisite to the 400-level courses. This course will be offered once a year with an enrollment of 35 students.



General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 203 (GH)** Nineteenth Century Philosophy (3) Examines the thought and influence of major Western thinkers from Hegel to Nietzsche, including Marx, Kierkegaard, and Schopenhauer.

**Phil 203 19th Century Philosophy (3)  
 (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

As part of the history of philosophy sequence required of undergraduate philosophy majors, this course provides an overview of the central currents of 19th-century philosophy. This course in combination with the others of the sequence allows a consistent approach to history of philosophy. This historical sequence will comprise the core of all philosophy major options. As a general education humanities course, this class: 1) develops a broad, coherent overview of the historical development of western philosophy in the 19th century, and the philosophical problems, methods, and results of this development; 2) emphasizes the thought of major influential figures and their works, such as Hegel, Marx, Kierkegaard, Schopenhauer, Nietzsche, Mill, and Bergson; 3) develops competence in interpretation and critical assessment of human values and their place in theory and practice as set both in philosophically and historically central views that span all areas of philosophical thought; 4) leads the students to appreciate and think critically about the ends of human action and final, non-instrumental, aesthetic values in moral, political, and aesthetic experience (including attention to the metaphysical and epistemological foundations of this experience) as set both in the work of major philosophers of the 19th century; 5) teaches students how to communicate clearly, think logically, and evaluate critically by providing them a critical survey of philosophical theories that are both important in the historical development of western thought and important for understanding continuing and contemporary philosophical issues today; and 6) meets fully all its stated humanities general education objectives by providing students with texts that occupy a central role in the humanities, requiring careful oral and written analysis of these texts, developing abilities to think critically and imaginatively about the issues in these texts, and leading students to integrate course material with other humanities subjects such as literature, foreign languages, history, religion, social and political theory, philosophy of science. Students will be graded on participation, three comparison/contrast papers, one position paper, one collaborative presentation, and a comprehensive final exam. PHIL 203 satisfies the GH requirement, it may be used to fulfill the minor requirements in Philosophy and it is a prerequisite to the 400-level courses. This course will be offered once a year with an enrollment of 35 students.

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 204 (GH)** Twentieth Century Philosophy (3) Examines the thought and influence of major Western thinkers of the century, including pragmatists, phenomenologists, existentialists, critical theorists, and feminists.

**PHIL 204 20th Century Philosophy (3)  
 (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

As part of the history of philosophy sequence required of undergraduate philosophy majors, this course provides an overview of the central currents of 20th-century philosophy. This course in combination with the others of the sequence allows a consistent approach to history of philosophy. This historical sequence will comprise the core, of all philosophy major options. As a general education humanities course, this class: 1) develops a broad, coherent overview of the historical development of western philosophy in the 20th century, and the philosophical problems, methods, and results of this developments; 2) emphasizes the thought of major, influential figures and their works, such as Peirce, James, Dewey, Frege, Moore, Russell, Carney, Wittgenstein, Husserl, Heidegger, Sartre, Merleau-Ponty, de Beauvoir, Addams, Stanton, Rich, Chodorow, MacKinnon, Irigaray, Horikeimer, Adorno, Habermas; 3) develops competence in interpretation and critical assessment of human values and their place in theory and practice as set forth in philosophically and historically central views that span all areas of philosophical thought; 4) leads the students to appreciate and think critically about the ends of human action and final, non-instrumental, aesthetic values in moral, political, and aesthetic experience (including attention to the metaphysical and epistemological foundations of this experience) as set forth in the work of major philosophers of the 19th century; 5) teaches students how to communicate clearly, think logically, and evaluate critically by providing them a critical survey of philosophical theories that are both important in the historical development of western thought and important for understanding continuing and contemporary philosophical issues today; and, 6) meets fully all its stated humanities general education objectives by providing students with texts that occupy a central role in the humanities, requiring careful oral and written analysis of these texts, developing abilities to think critically and imaginatively about the issues in these texts, and leading students to integrate course material with other humanities subjects such as literature, foreign languages, history religion, social and political theory, philosophy of science. Students will be graded on participation, three comparison/contrast papers, one position paper, one collaborative

project, an a comprehensive final exam. PHIL 204 satisfies the GH requirement, it may be used to fulfill the minor requirements in Philosophy, and it is a prerequisite to the 400-level courses. This course will be offered once a year with an enrollment of 35 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 208 (GH) Contemporary Philosophy (3)** Recent trends in philosophical thought and culture, hybrid philosophies, and the philosophical landscape of the future.

**PHIL 208 Contemporary Philosophy (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

As part of the history of philosophy sequence required of undergraduate philosophy majors, this course is designed to examine recent trends in philosophical thought and culture, hybrid philosophies, and the philosophical landscape of the future. The class will be divided according to the following areas of contemporary thought: Postmodernism, Analytic Thought (the realism/anti-realism debate), neo-Pragmatism, Beyond Postmodernism, Feminism and Science. Students will be required to critically analyze the texts of the philosophers studied in class, as well as to compare, contrast, and critically evaluate the ideas of these thinkers. They will be graded on participation, comparison/contrast papers, a position paper, a collaborative presentation, and a comprehensive final exam. PHIL 208 satisfies the GH requirement, it may be used to fulfill the minor requirements in Philosophy, and it is a prerequisite to the 400-level courses. This course will be offered every other year with an enrollment of 35 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 221 (GH) Philosophy of Science (3)** An inquiry into the form and function of concepts, laws, theories, and into the character of scientific explanation and prediction.

**PHIL 221 Philosophy of Science (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

PHIL 221 provides an introduction to the modern and contemporary theories of space, time, matter, and to scientific methodology more broadly. The course presents these concepts via their historical development. An awareness of the historical background forms the basis for a critical and philosophical understanding of mathematical physics and, again, scientific methodology. The main texts may include: Galileo, *On the World Systems*, A. Einstein, *Relativity: The Special and the General Theory*, and B. Hoffmann, *The Strange Story of the Quantum*. Students will be evaluated on participation, case study analysis, case study group presentation and response, and final paper. PHIL 221 satisfies the GH requirement, and may be used to fulfill major and minor requirements in Philosophy. It will be offered once a year with an enrollment of 50 students.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 233 (GH) (S T S 233) Ethics and the Design of Technology (3)** Ethics and individual and group decision-making in the design of technology including design projects and specific attention to institutional ethics.

**PHIL (S T S) 233 Ethics and The Design of Technology (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Technology has been around nearly as long as humans have been around. Humans have always created artifacts and artificial environments to aid us in our survival and to help fulfill our needs and desires. Moreover, today technology is all pervasive, transforming and conditioning our social and political relations, our cultural understanding of ourselves, and

our relationship with other animals and the natural environment. Yet not much thought has been expended upon the meaning of technology, particularly in its moral dimensions. This course takes several steps to correct this deficiency. Because technologies can have far reaching effects well beyond the domain of their immediate application, the role of designers is crucial in deciding whether we take an intelligent or unintelligent approach to technology. All technologies exist to serve one human need or another. Designers make important choices concerning the creation, development, and deployment of many if not most technological innovations. Consequently, the task of the designer is an ethical one. Our goal is twofold: First, we will try to broaden our moral imaginations by taking into account the wider ranging effects that technologies have in order to reveal the moral significance of design choices. Second, we will examine the process of design itself, particularly in the way that the design process is similar to ethical reasoning in general. It is hoped that by accomplishing these two tasks, we will be empowered as designers, customers, citizens, and future employers to make choices that better fulfill the moral task of technological innovation. Two means will be used to achieve our course goals. Much of the time will be spent thinking about and discussing the various impacts that particular technologies have upon the social, cultural, and political lives of human beings and upon the natural environment. To facilitate thoughtful discussion, we will read a number of authors, writing short papers in preparation for critical discussion in class. In this way we will be better prepared to discuss and think about the issues at hand by having had the chance to organize our thoughts in advance. The second means is aimed at putting our ideas into practice by working in teams on several design projects. These design projects will require the integration of readings, discussion, and research and their synthesis to solve a design problem. Student teams will work cooperatively on these projects and make oral progress reports as well as final written and oral reports.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 280H** (GH) (FD SC 280H) Food, Values, and Health (3) The perceived relationship between food and health, emphasizing the conceptual nature of both; and how values contribute to the relationship.

#### **Food, Values, and Health (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 298** Special topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 398** Special topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 399** (IL) Foreign Study--Philosophy (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Study--Philosophy (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 401** (AM ST 421) American Philosophy (3) Survey of key figures and movements in American thought including the Transcendentalists, the Pragmatists, and contemporary developments.

**American Philosophy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: 9 credits of philosophy or 6 credits of philosophy at the 200-level or 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 402** European Philosophy (3 per semester, maximum of 6) Survey of key figures and movements of Europe, including phenomenology, existentialism, structuralism and post-structuralism, and critical theory.

**European Philosophy (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: PHIL 102 6 credits of philosophy at the 200 level or 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 403** Environmental Ethics (3) Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

**Environmental Ethics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level or 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 403H** Environmental Ethics (3) Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

**Environmental Ethics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level or 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 405** Philosophy of Law (3) Examines philosophical views of the nature of law, legal ethics, law and society through questions regarding definition, interpretation, and institutions.

**Philosophy of Law (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 105 or 6 credits of philosophy at the 200 level or 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 406** Business Ethics (3) Examines the moral justification of business practices and economic systems through critical analyses of case studies and applied ethical theories.

**Business Ethics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: fifth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 407** (S T S 407) Technology and Human Values (3) Interrelationships of twentieth-century technological change and human values. Emphasis on the social and ethical aspects of technological progress.

**Technology and Human Values (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1999

Prerequisite: 9 credits of philosophy including PHIL 107 or 6 credits of philosophy at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 408W** Social and Political Philosophy (3) Historical and philosophical foundations of political organization, authority, and justice, and contemporary issues of rights, community, and culture.

**Social and Political Philosophy (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1998

Prerequisite: 9 credits in philosophy including PHIL 108 or 6 credits at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 409** Aesthetics (3) Studies concepts of beauty, truth, value, representation, production and reproduction, and reality through philosophical theory and works of art.

**Aesthetics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 109 or 6 credits of philosophy at the 200 level or 3 credits of art or 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 410** Philosophy of Science (3) Historical and contemporary foundational and methodological issues such as causality, relativity and epistemological relativism, teleology, and the nature of reality.

**Philosophy of Science (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 110 or 6 credits of philosophy at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 413** Philosophy of Literature (3) Discusses truth, belief, illusion, imagination and creativity through philosophical literature, as well as problems of philosophical writing.

**Philosophy of Literature (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 113 or 6 credits of philosophy at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 416** Philosophy of Social Science (3) Examines the philosophical nature and foundations of methodology, structures and objects, value-neutrality and objectivity in the social sciences.

**Philosophy of Social Science (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2013

Prerequisite: 9 credits of philosophy including or 6 credits of philosophy at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 418 Ethics (3)** Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

**Ethics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level or 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 418W Ethics (3)** Examines ethical theories, justice, rights, community, and human values revolving around such issues as preservation, conservation, pollution, sustainability, and population.

**Ethics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 103 or 6 credits of philosophy at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 424 Philosophy of Religion (3)** Examines the relation between faith and reason, the nature of religious experience, the problem of evil, the existence of God.

**Philosophy of Religion (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 124 or 6 credits of philosophy at the 200 level or 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 425W Epistemology (3)** The nature of cognition and perception, the conditions of experience, and the justification and truth of belief.

**Epistemology (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 125 or 6 credits of philosophy at the 200 level; in addition to ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 426W Metaphysics (3)** Examines the nature of reality, the existence of freedom, and the nature of matter, mind, and values.

**Metaphysics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: 9 credits in philosophy including PHIL 126 or 6 credits of philosophy at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 427 Philosophy of Mind (3)** Investigates problems of mind from the standpoint of traditional metaphysical views, modern scientific psychology, neuroscience, and artificial intelligence.

**Philosophy of Mind (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1999

Prerequisite: 9 credits of philosophy including PHIL 127 or 6 credits of philosophy at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 432 (S T S 432) Medical and Health Care Ethics (3)** Examines ethical, political, and social issues in the research, implementation, and practice of medicine, medical technologies, and healthcare.

**Medical and Health Care Ethics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1998

Prerequisite: fifth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 433 (S T S 433) Ethics in Science and Engineering (3)** Ethical issues arising in the practice of science and engineering and their philosophical analysis.

**Ethics in Science and Engineering (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 435 (S T S 435) The Interrelation of Science, Philosophy, and Religion (3)** The historical and transformative interactions between science and Western philosophical and religious views of nature, humanity, and God.

**The Interrelation of Science, Philosophy, and Religion (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 437 (IL) World Philosophies and Cultures (3)** Philosophical traditions, problems, and authors in African, Asian, Middle- Eastern, Native American, or other non-Western cultures and intellectual traditions.

**World Philosophies and Cultures (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including 6 credits of philosophy at the 200 level or 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 438 (WMNST 438) Feminist Philosophy (3)** Examines the central currents of feminist philosophy, selected problems and concepts regarding difference, gender and sex, identity, and political culture.

**Feminist Philosophy (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including 6 credits of philosophy at the 200-level or 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 439 (IL) Asian Philosophies and Issues (3)** Exploration of the traditions, problems, and authors of one or more of the philosophical systems of Buddhism, Hinduism, Taoism, and Confucianism.

**Asian Philosophies and Issues (3)**



General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: PHIL 007 9 credits in philosophy including PHIL 007 or 5th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 441** Capstone Course in Philosophy (3) This course is intended as the Capstone Course for Philosophy majors and is to be taken during their senior year or during the last semester of their junior year.

### **Capstone Course in Philosophy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: 6th semester standing and up

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 453** Topics in Ancient Philosophy (3 per semester, maximum of 6) Examines the philosophy of central figures in ancient philosophy from the pre-Socratics to the post-Aristotelians and Neoplatonists.

### **Topics in Ancient Philosophy (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 200 or 6 credits of philosophy at the 200 level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 455** Topics in Modern Philosophy (3 per semester, maximum of 6) Descartes to Kant, including mind and reality, space and time, God and nature, morality and autonomy.

### **Topics in Modern Philosophy (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 202 or 6 credits of philosophy at the 200 level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 456** Topics in Nineteenth Century Philosophy (3 per semester, maximum of 6) Hegel to Nietzsche, including nature and spirit, history and human nature, ideology and morality.

### **Topics in Nineteenth Century Philosophy (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 203 or 6 credits of philosophy at the 200 level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 457** Topics in Twentieth Century Philosophy (3 per semester, maximum of 6) Topics in the philosophy of figures such as Husserl, James, Russell, Wittgenstein, Heidegger, Merleau-Ponty, and Dewey.

### **Topics in Twentieth Century Philosophy (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including PHIL 204 or 6 credits of philosophy at the 200 level or 5th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 458** Topics in Contemporary Philosophy (3 per semester, maximum of 6) Topics in the philosophy of contemporary

figures such as Foucault, Habermas, Rorty, Derrida, Rawls, Davidson, and MacIntyre.

### **Topics in Contemporary Philosophy (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 208 or 6 credits of philosophy at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 460 (US;IL) (AF AM 460) African American Philosophy (3)** Major works by African American Philosophers, on topics of race, freedom, citizenship, nationhood, law and society.

### **PHIL (AAA S) 460 African American Philosophy (3) (US;IL)**

African American philosophers and social activists have produced important texts that both take their place in the philosophical canon and revise the canon and indeed how we understand the practice of philosophy. This course surveys twentieth century African American philosophy, from Du Bois's *Souls of Black Folk* and *Dusk of Dawn*, to King's *Why We Can't Wait*, to Davis's *Women, Race and Class*, to Boxill's *Blacks and Social Justice*. The books refer back to both liberal democratic and socialist philosophical treatises, as well as theological and jurisprudential writings, in order to construct new conceptions of race, citizenship, freedom, the rule of law. Moreover, they are all grounded in the concrete, problematic situation of African Americans in twentieth century America, so that they raise with special urgency the question of how philosophical reflection can address social change. In classroom debate, students will rediscover and critically examine how the history of racial strife and reconciliation affects local, national and international civic life. One constant feature of this course is that white students and students of color become aware of differing perspectives that are hard to reconcile; this helps them to re-examine their own social identities and those of their classmates. When the course is team-taught (with one white faculty member and one faculty member of color) the same dynamic occurs between the instructor: watching them reconcile their views in discussion and pedagogy helps the students as well. It is hoped that this course will often or always be team-taught.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: AF AM 100 or PHIL 009 and 5th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 461 Plato (3 per semester, maximum of 6)** Examines the metaphysics, epistemology, politics, aesthetics, and moral theory of this central figure in the history of philosophy.

### **Plato (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1999

Prerequisite: 9 credits of philosophy including PHIL 200 or 6 credits of philosophy at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 473 German Idealism (3 per semester, maximum of 6)** Critically examines the philosophy of central German idealists, including Kant, Fichte, Schelling, and Hegel, and its impact on later philosophy.

### **German Idealism (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including either PHIL 202 or PHIL 203 or 6 credits of philosophy at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 474 Kant (3 per semester, maximum of 6)** Critical examination of the metaphysics, epistemology, aesthetics, legal and moral philosophy, and influence of Immanuel Kant.

### **Kant (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1998

Prerequisite: 9 credits in philosophy including PHIL 202 or 6 credits of philosophy at the 200 level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 476** Hegel (3 per semester, maximum of 6) Critical examination of the metaphysics, moral theory, epistemology, and philosophy of history of this central figure of 19th-century philosophy.

**Hegel (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 203 or 6 credits of philosophy at the 200 level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 479** Critical Theory (3 per semester, maximum of 6) Examines the ontology, political and social thought of the Frankfurt School from Horkheimer and Adorno to Marcuse and Habermas.

**Critical Theory (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including either PHIL 203 or 6 credits of philosophy at the 200 level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 485** Heidegger (3 per semester, maximum of 6) Studies Heidegger's metaphysical thought from his early to later works regarding being, history, subjectivity, aesthetics, language, and his influence.

**Heidegger (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 402 or 6 credits of philosophy at the 200 level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 486** Wittgenstein (3 per semester, maximum of 6) Examines Wittgenstein's early and late work, including logical atomism, meaning, language games, forms of life, and the private-language argument.

**Wittgenstein (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 204 or 6 credits of philosophy at the 200 level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 487** Analytic Philosophy (3 per semester, maximum of 6) Analytic philosophy's founding by Frege, Russell, Moore, Wittgenstein; and its contemporary development by Quine, Kripke, Dummett, and Davidson.

**Analytic Philosophy (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1998

Prerequisite: 9 credits of philosophy including PHIL 202 or PHIL 204 along with 3 credits of philosophy at the 200 level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 490** Dewey (3 per semester, maximum of 6) Critically examines the metaphysics, epistemology, ethics, logic, aesthetics, education theory, and social and political philosophy of this major American pragmatist.

**Dewey (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 401 or 6 credits of philosophy at the 200-level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 491** Merleau-Ponty (3 per semester, maximum of 6) Merleau-Ponty's phenomenological anti-dualism through his studies on the body and the flesh, aesthetics, political philosophy, and late ontology.

**Merleau-Ponty (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 402 or 6 credits of philosophy at the 200-level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 493** Phenomenology and Hermeneutics (3 per semester, maximum of 6) Studies major figures and issues in phenomenology and hermeneutics, focussing on the work of Husserl, Gadamer, Heidegger, Merleau-Ponty, and Levinas.

**Phenomenology and Hermeneutics (3 per semester, maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1998

Prerequisite: 9 credits of philosophy including PHIL 202 and PHIL 204

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 498** Special topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHIL 499** (IL) Foreign Study--Philosophy (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Study--Philosophy (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Photography (PHOTO)**

**PHOTO 099** (IL) Foreign Studies--Photo (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies--Photo (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 100** (GA) Introduction to Photography (3) An introduction to the aesthetics, history, and science of photography including practical and critical approaches to the art of photography.

#### **PHOTO 100 Introduction to Photography (3) (GA)**

PHOTO 100 is an introduction to the aesthetics, history, and science of photography including practical and critical approaches to the art of photography for beginning students.

The course will introduce students to photography as an art form and as an important medium in commercial applications, news and journalism, science, and industry. The course will look at photography in a social/historical context and showcase the work of important photographers. The course will examine the impact of technological, economic, and cultural forces on photography and, in turn, the role that it plays in our daily life, culture, and society.

The course will also expose students to the various styles and techniques used in making photographs and give them the opportunity to gain experience and practical know-how in creating their own photographs. Through the process of assembling and critically examining "galleries" of their own work and the work of others, they will be encouraged to develop a more informed critical point of view about photography as an art and important form of human expression.

Grading will be based on three photographic assignments that will account for 50% of the semester grade. In addition, there will be four exams (on photographic history, aesthetics, technical aspects of photography, and image manipulation) that will account for 40% of the semester grade. The remaining 10% of the semester grade will be based on participation in class critiques.

Students will be required to have access to a digital camera and the internet.

PHOTO 100 will be offered in the fall and spring semesters each year.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 199 (IL) Foreign Studies--Photo (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies--Photo (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 200 Photo Studio I (3)** A beginning level course that explores the fundamentals of photography.

**PHOTO 200 Photo Studio I (3)**

PHOTO 200 is a beginning level course focused on the aesthetics and practical application of photography. Employing lectures, demonstrations and hands-on photographic assignments, it concentrates on teaching basic photographic techniques. Digital and film camera use, imaging software, basic digital scanning, digital printing methods, and basic darkroom practice are covered. A digital camera and access to a 35mm film camera is required.

Grading is based on the quality of work in required creative projects (70%) and tests/quizzes (30%).

PHOTO 200 will be offered fall and spring semesters.

PHOTO 100 is the prerequisite for PHOTO 200.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: PHOTO 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 201 (ART H 250) A Chronological Survey of Photography (3)** A survey of photography's place and influence in a social, cultural, and historical context.

**PHOTO 201 A Chronological Survey of Photography (3)**

PHOTO 201 explores the role played by photography over time in providing understanding and insight in a social, cultural, and historical context of the impact of the development of the photographic medium and its effect on social, political, cultural and technological events. Emphasis will be given to understanding the context that surrounds the scientific and aesthetic development of photography. This is a survey of the chronology of events in western culture that transpires from the inception of photography until the year 2000. It includes the influences and outcomes of photographers and those associated with the medium on our culture. Emphasis will be placed on the influence of photography on the world around it, and significant events and individuals in the development of the medium as a vital art form. The structure of the course will consist of research and discussion of events and individuals that characterized years selected for examination. Each week one or two decades of western culture will be highlighted. Although the thrust of research will relate to photographic subject matter, the events studied will span the culture. We will explore the development of art, literature, music, and photography, as well as, historic landmarks, and the events that have shaped present society. Each week a selection of visual material will be presented highlighting selected events, students will read literature from the period of discussion, significant pieces of music will be introduced, and accounts of periodic events will be surveyed.

Each week, a group of students will be assigned to research at least one decade. Each student will gather information about a significant figure or event that occurred in the course of a given period. The student will be expected to prepare a short paper and give a five-minute oral presentation about his/her assigned year, historical figure or event. As each student presents, the chronology of events becomes clear and the multiple threads of history weaves a brilliant tapestry of our culture. For the final presentation the student will prepare a ten-page research paper about a historical figure or event.

Students will be graded on the quality of the weekly oral presentations and the demonstrated level of commitment to research. Another significant part of their grade will be derived from the length of committed scholarship given to the ten-page term paper. Students must exhibit a level of originality, clarity, and insight. The student must demonstrate the capacity for the assimilation of facts and events relative to their subject and demonstrate how their subject relates to other events that occurred around the same time of their event. Toward this end students will be encouraged to work together

to illustrate the interconnection of the chronology. Assessments will be rendered as follows: PHOTO 201 will be offered fall and spring semesters.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 210** Introduction to Architectural Photography (2) Exploration of approaches to photographing architectural interiors, exteriors, and architectural models.

#### **Introduction to Architectural Photography (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: Students in Architecture or by permission of the program.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 299** (IL) Foreign Studies--Photo (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies--Photo (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 300** Photo Studio II (4) An intermediate course that explores advanced processes and applications in digital photography, digital image processing, and photographic inkjet printing.

**PHOTO 300 Photo Studio II (4)**

PHOTO 300 is an intermediate course in the aesthetics, processes, and practical applications of digital photography, digital image processing, and photographic inkjet printing.

A digital camera is required.

Students will employ digital photographic applications and techniques to create images and expand their personal photographic vision. The course will help students to:

1. Gain a deeper understanding of the medium of digital photography artistically, critically, and as a technical process.
2. Explore the potential of the medium's ability to express ideas in new ways.
3. Understand advanced digital camera methods.
4. Learn advanced skills in the use and application of Adobe Photoshop.
5. Learn high quality film and object scanning procedures.
6. Learn to make photographic quality color archival inkjet prints and develop critical color awareness.

Grading is based on the quality of work in required creative projects (80%) and presentations / participation in formal critique sessions / tests-quizzes (20%).

The final course grade will be dropped one full grade for each absence or late submission beginning with the second late submission or absence.

The prerequisite for PHOTO 300 is PHOTO 200.

PHOTO 300 will be offered fall and spring semesters.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006  
Prerequisite: PHOTO 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 399** (IL) Foreign Studies--Photo (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies--Photo (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 400** Digital Photography in the Studio (4) Concepts and technology of the digital photography studio; large format digital cameras, electronic studio lighting and digital printing.

**PHOTO 400 Digital Photography in the Studio (4)**

PHOTO 400 is a wholly digital, in-depth course in photography that explores the visual, technical, and creative application of digital photographic technologies in a studio setting.

Students will employ digital photographic applications and techniques to create images and expand their personal photographic vision. The course will help students to:

1. Gain a deeper understanding of the medium of digital photography artistically, critically, and as a technical process.
2. Explore the potential of the medium's ability to express ideas in new ways
3. Master the fundamental studio practices and technologies of digital photography
  - o Professional large format digital view cameras



- o Professional electronic studio lighting
- o Adobe Photoshop
- o Digital printing
- o DVD-CD-Rom storage
- o Presentation and distribution utilizing the World Wide Web

PHOTO 400 follows a workshop/critique format. A collaborative team approach is utilized to enhance students' abilities in working together to solve creative problems. Students will have to think critically, develop strategies to solve problems, and engage in class critiques as a normal expectation of the course.

Grading is based on the quality of work in required creative projects (80%) and participation in formal critique sessions (20%). The final course grade will be dropped one full grade for each absence or late submission beginning with the second late submission or absence.

PHOTO 400 will be offered spring semesters.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2006  
Prerequisite: PHOTO 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 402** Photographic Narratives (4 per semester/maximum of 8) The development of a photographic project that leads to the creation of a handmade book.

#### **PHOTO 402 Photographic Narratives (4 per semester/maximum of 8)**

PHOTO 402 is a project course in photography focused on the construction of a handmade book that features a student's photographs as the central content of that book. The course gives the student the opportunity to choose a subject and explore it through photographic means over an extended period of time, in this case, an entire semester. Emphasis is placed on the quality of photography and the organization of those photographs in a book for their display.

Students will be evaluated on their abilities to understand the medium through classroom instruction. Evaluation will also be determined by a student's imaginative capabilities through visualization and through the completion of a series of finished pieces.

The prerequisite to PHOTO 402 is PHOTO 200.

PHOTO 402 will be offered fall and spring semesters.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2006  
Prerequisite: PHOTO 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 403** Photo Assemblage (4) Collage making through collecting and assembling found materials, including photography; origins of photographic manipulation and contemporary uses.

#### **PHOTO 403 Photo Assemblage (4)**

PHOTO 403 focuses on collage making through collecting and assembling found materials, including photographs. The course will cover the origins of photographic manipulation and contemporary uses.

Students will be evaluated on their abilities to understand the medium through classroom instruction. Evaluation will also be determined by a student's imaginative capabilities through visualization, and through the pleasure of craft completing a series of finished pieces.

PHOTO 403 will be offered spring semester.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 405** Creative Projects in Photography (4 per semester/maximum of 8) Special individual problems related to photographic vision.

**PHOTO 405 Creative Projects in Photography (4 per semester/maximum of 8)**

PHOTO 405 is a project course in photography designed to challenge students and engage them in photographic assignments that expand their personal and individual vision.

Projects may be developed using either digital or photochemical process (or a combination of the two) and may be organized as either group or individual assignments.

PHOTO 405 will be offered fall and spring semesters.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2006

Prerequisite: PHOTO 201PHOTO 300

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 406 Product Photography (2)** This advanced level course will explore the practices of photographing products for print and product advertising.

**PHOTO 406 Product Photography (2)**

This advanced level course will introduce the practice of photographing products with a focus on advertising. The development of the photographers' problem solving abilities, when lighting varied surfaces, will be considered. The importance of lighting for scale will be examined along with how or when to contribute to the context of a product by introducing appropriate set propping. Aesthetic and intellectual concepts of rendering of products for specific end uses will be explored. Theory will be applied and practiced by the student in a studio environment.

As a practical course, lectures and studio demonstrations are major elements of the instruction. The lecture time will modify throughout the course to allow each student the flexibility to practice learned skills. Students will be responsible for scheduling individual studio time with the Integrative Arts Photo Services unit.

A digital camera and a laptop computer with a copy of Adobe Photoshop installed are required.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: PHOTO 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 407 Portrait Photography (2)** This advanced level course investigates contemporary portrait photography and traditional and modern styles of photographic lighting.

**PHOTO 407 Portrait Photography (2)**

This advanced level course will investigate what portrait photography is and how portrait lighting evolved from the influences of early painting. Throughout the course there will be an ongoing investigation of the successes of historic, contemporary & influential photographers. Styles of photographic lighting will be explored as well as natural and artificial light sources. Why posing is important to portrait photography will be considered as well as how or when to suggest or direct a subject to acquire a pleasing pose will be examined and practiced. Theory will be applied and practiced by the student in environmental and studio locations. Through the study of character and expression, the student Portrait Photographer will introduce their style to portrait making. The course will enable the student to make intellectual and aesthetic choices when choosing appropriate equipment and technique, command the application of skillful lighting, develop sensitivities of interaction in prelude to the direction of the photo session and understand the incorporation of space or environment and it's relationship to the individual subject.

A digital camera and a laptop computer with a copy of Adobe Photoshop installed are required.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: PHOTO 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 410 Photographing Motion and Athletic Events (2)** A practicum course in photographing sports and athletic events.

**Photographing Motion and Athletic Events (2)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: PHOTO 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 497A** Photography Fact + Fiction (4) Photography's association with truth and accuracy alongside its history of manipulation and fakery are creatively questioned and explored.

#### **Photography Fact + Fiction (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHOTO 499** (IL) Foreign Studies--Photo (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies--Photo (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Physical Science (PH SC)**

**PH SC 440** Applied Solid State and Optical Processes (3) This course covers the solid state physics and material science

prerequisite to understand today microelectronic and optoelectronic devices.

### **PH SC 440 Applied Solid State of Optical Processes (3)**

Solid state materials and devices underlie much of the technological advances of the past several decades. A fundamental understanding of the principles of the solid state (both electronic and optic) has become prerequisite to any full participation in these contemporary technologies. Emphasis will be placed on developing a physical intuition over mathematical elegance, although a reasonable level of mathematical rigor is required. A second course in the sequence, PH SC 450, will build on the material developed in this course by applying the gained to the understanding of specific micro- and nano-devices. The course will build upon basic, solid state material science, including aspects of the crystalline state, amorphous semiconductors, glasses and solid state solutions. Electrical and thermal conduction in solids and associated phenomenology will be included. Knowledge of elementary quantum mechanics is expected for understanding the particle wave states of the electron, prerequisite to the discussions on bonding and band theory in solids. The section on semiconductors details the evolution from Bloch states to band structures and energy gaps as applied to various devices. Both group IV and III/V semiconductors are discussed in considerable detail, providing balanced emphasis on electronic and optoelectronic aspects. Optical processes are included after a discussion of the pn junction and carrier generation mechanisms have been discussed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: PHYS 237/PHYS 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Physical Therapy (P T)**

**P T 100 Physical Therapist Assistant--Introduction (3)** Orientation to the field of physical therapy, historical background of the profession, professional ethics, medical terminology, and patient care techniques.

### **P T 100 Physical Therapist Assistant - Introduction (3)**

This course is a general introduction into the field of physical therapy. The definition, role and function of the physical therapist, physical therapist assistant, and other health care providers as members of the health care team will be covered. The history of physical therapy and the physical therapist assistant will be reviewed. The organization of the physical therapy department and the health care team will be detailed. Each student will be expected to recognize and understand the professional code of ethics and standards that apply to the practice of a physical therapist assistant. *The Guide to Physical Therapist Practice* will be introduced. Documentation, medical vocabulary and abbreviations commonly used in physical therapy will be studied. The health professional as a student, clinician, and person will be examined. Laboratory topics include an introduction to body mechanics, gait and transfer training, vital signs, aseptic and positioning techniques. Cognitive and psychomotor skills will be assessed through written examination as well as practical examinations and competencies.

This course is a prerequisite for P T 150, P T 160, P T 202, P T 203, P T 205, P T 270, and P T 384. The course is offered once per calendar year. Expected enrollment is 20 - 45 students, with a limit of 15 students in a given lab section.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better in BIOL 129

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 100S Physical Therapist Assistant-Introduction (3)** Orientation to the field of physical therapy, historical background of the profession, professional ethics, medical terminology, and patient care techniques with First Year Seminar requirements.

### **P T 100S Physical Therapist Assistant-Introduction (3)**

This course is a general introduction into the field of physical therapy. The definition, role, and function of the physical therapist, physical therapist assistant, and other health care providers, as members of the health care team will be covered. The history of physical therapy and the physical therapist assistant will be reviewed. The organization of the physical therapy department and the health care team will be detailed. Each student will be expected to recognize and understand the professional code of ethics and standards that apply to the practice of a physical therapist assistant. *The Guide to Physical Therapist Practice* will be introduced. Documentation, medical vocabulary and abbreviations commonly used in physical therapy will be studied. The student as a health professional will be examined including stress

management, teaching and learning techniques. Laboratory topics include an introduction to body mechanics, vital signs, infection control techniques, draping and positioning techniques, transfers, gait training and wheelchair mobility.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2012  
 Prerequisite: a grade of C or better in BIOL 129

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 101S** Introduction to Computer Skills for the PTA (1) Introduction to basic computer skills for the physical therapist assistant.

#### **Introduction to Computer Skills for the PTA (1)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 150** Physical Therapist Assistant Procedures I (2) General considerations for basic physical therapy modalities including their indications, contraindications, skill development and practical application.

#### **P T 150 Physical Therapist Assistant Procedures I (2)**

This course is an introductory study of the general principles for applying and treating with the use of massage, radiant heat, conductive heat, hydrotherapy, cryotherapy, and intermittent compression. The course is designed to give the PTA student a working knowledge in the application and theory of physical agents, in order to enhance the rehabilitation process. These treatment methods will be discussed and practiced in relation to the overall clinical management of patients and their specific disorders. Cognitive and psychomotor skills will be assessed through written examination, as well as practical examinations and competencies. At some campuses, traction, ultrasound, continuous passive motion, ultraviolet, diathermy, aquatic therapy, and other physical agents will also be studied and practiced.

This course is the first course of the Procedures series and is a prerequisite for P T 250, P T 260, P T 395E and P T 280W. Prerequisites for this course are a C or better in the P T 100, BIOL 141, BIOL 142 and P T 384 courses. The course is offered once per calendar year at each campus. Expected enrollment is 20-45 students, with a limit of 15 students in a given lab section.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2004  
 Prerequisite: a grade of C or better in P T 100 BIOL 141 BIOL 142 P T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 160** Therapeutic Exercise I (3) Introduction to the principles of exercise in the treatment of disease and injury.

#### **P T 160 Therapeutic Exercise I (3)**

This course provides an introduction to the principles of exercise and measurement for the interventions utilized in the management of disease and injury. Each student will be expected to understand their role in the implementation of various therapeutic exercise programs and tests and measures. The course may include, but is not limited to, some or all of the following topics: goniometry, manual muscle testing, arthrokinematics, osteokinematics, aerobic/anaerobic exercise, proprioceptive neuromuscular facilitation, muscle stretching techniques, and/or cardiopulmonary treatment. Indications and contraindications for the various forms of range of motion exercises and equipment will be incorporated in the protocols presented in this course. Cognitive and psychomotor skills will be assessed through written examination as well as practical examinations and competencies. Prerequisites for this course include a grade of C or better in: BIOL 129, BIOL 141, BIOL 142, P T 100, P T 384. This course should prepare students for higher level courses within the PTA curriculum and is a prerequisite for P T 250, P T 260, P T 280W, and P T 395E. P T 160 will be offered once per calendar year and expected enrollment is 20-45 students (PTA), with a maximum of 15 students per lab.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better inBIOL 129BIOL 141BIOL 142P T 100P T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 201** Licensure Preparation for the PTA (1) Preparation for the national PTA licensure examination.

### **P T 201 Licensure Preparation for the PTA (1)**

This course is an elective course for PTA students, in preparation for the national licensure examination. The course will consist of a review of the entire PTA curriculum through the use of licensure examination practice tests. The course will also include practice sessions with the computerized licensure tests. A review of strategies for succeeding on multiple choice tests will be presented. Prerequisites for this course are a C or better in the P T 100 and P T 384 courses.

Class size, frequency of offering, and evaluation methods will vary by location and instructor, For these details, check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better inP T 100 andP T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 202** Pediatric PT (1) A study of physical therapy as it applies to pediatric patients.

### **P T 202 Pediatric PT (1)**

This course is an elective course for those Physical Therapists Assistant students interested in further study in pediatric physical therapy. The course will focus on various conditions affecting children, which may include cerebral palsy, spina bifida, and Down syndrome. The students will be given the opportunity to learn about pediatric physical therapy in lecture/discussion sessions and/or laboratory settings, some of which will take place at PSMA and some which may take place at other locations where they will observe children with various disabilities.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

Prerequisite: P T 100P T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 203** The Rehabilitation of the Lower Extremity Amputee (1) Students will be introduced to the rehabilitation process involved with a patient who has a lower extremity amputation.

### **P T 203 The Rehabilitation of the Lower Extremity Amputee (1)**

The students will be introduced to the rehabilitation process involved with a patient who has a lower extremity amputation. Course objectives include identifying the reasons for lower extremity amputations, understanding pre and post - operative care of the amputee, being familiar with various feet, sockets, knees and suspensions of a prosthesis, explaining the different characteristics between various levels of lower extremity amputations, understanding the importance of skin care and proper footwear for contralateral limb, and demonstrating an understanding of an appropriate therapeutic exercise program for a patient with a lower extremity amputation. To achieve these objectives, students will be involved in lectures, small group discussions, and laboratory experiences with amputee patients, and utilization of information/research from the library and Internet resources. Students will obtain "hands-on" laboratory experiences with people who have lower extremity amputations. Evaluation of the student's performance will be based on class attendance, class participation and class project/presentation. The course will expand on the general amputee information presented in the current Physical Therapists Assistant curriculum. Frequency of offering will depend on student interest, faculty availability and campus preference, but can be up to once an academic year. Frequency is at the discretion of each individual campus. Enrollment will vary due to the above stated circumstances.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

Prerequisite: P T 100P T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 204 Seminar in Physical Therapy (1)** Specialized physical therapy topics investigated in the framework of clinic visitations and presentations by clinical experts.

#### **P T 204 Seminar in Physical Therapy (1)**

The purpose of P T 204 is to provide Physical Therapist Assistant students with an opportunity to explore special topics in physical therapy. The format of the course will be seminar based. The course will consist of a series of presentations led by faculty or outside lecturers and may involve travel to hospitals and clinics. Evaluation of student performance will be based on attendance, completion of all criterion and assignments. This course will typically be offered in the last semester of classroom instruction, before the students begin their final clinical affiliations. This class will be limited to 12-16 students per section. This is an optional PTA course, which may be taken to satisfy the elective requirements of the PTA program. Prerequisites for this course are a C or better in the P T 100 and P T 384 courses.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better in P T 100 and P T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 205 Human Musculature (1-2)** Comprehensive review of Human Musculature.

#### **P T 205 Human Musculature (1)**

This course is an elective course for those PTA students interested in a review of human musculature. The course is designed to provide advanced students with a comprehensive review of the human muscles including identification of the muscles, their actions, insertions, origins, and innervations. Students will be graded on preparation, participation, class attendance, and completion of self-assessments. Prerequisites for this course are a C or better in the P T 100, P T 384 and BIOL 129 courses.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better in P T 100 P T 384 and BIOL 129

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 250 Physical Therapist Assistant--Procedures II (4)** General considerations for advanced physical therapy modalities including their indications, contraindications, skill development and practical application.

#### **P T 250 Physical Therapist Assistant Procedures II (4)**

This course is a comprehensive study of electrical modalities in Physical Therapy. Concepts of nociception and neuromuscular excitation will be discussed and introduced to the student. The course is designed to give the PTA student a working knowledge in the application and theory of electrical modalities and physical properties to enhance the rehabilitation process. These treatment methods will be discussed and practiced in relation to the overall clinical management of patients and their specific disorders. Cognitive and psychomotor skills will be assessed through written examination, as well as practical examinations/competencies. At some campuses, ultraviolet and other physical agents will also be studied and practiced.

This course is the second course in Procedures and covers the more advanced modalities and principles. Prerequisites for this course include a grade of C or better in: P T 150, P T 160, P T 270, P T 384, P T 395E, and P T 395W are required prerequisites. This course is a prerequisite for: P T 395E, P T 395F, and P T 395G. The course is offered once per calendar year at each campus. Expected enrollment is 20-45 students, with a limit of 15 students in a given lab section.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better in P T 150P T 160P T 270P T 384P T 395EP T 395W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 260 Therapeutic Exercise--II (3)** Advanced principles of exercise in the treatment of disease and injury.

### **P T 260 Therapeutic Exercise II (3)**

Advanced principles and application of exercise in the treatment of disease and injury will be explored. Verbal and non-verbal communication and their role in patient education approaches will be addressed. Students will learn concepts and skills necessary to promote healing through exercise and will be able to apply these skills appropriately for a variety of populations. Topics of instruction may include but are not limited to: pre/post-surgical interventions, orthopedics, women's health, cardiopulmonary, postural dysfunction, pediatrics, geriatrics, occupational medicine, muscle stretching and strengthening, and other specific topics. Integration of all techniques and didactic material presented in other courses is required. Cognitive and psychomotor skills will be assessed through written examination as well as practical examinations and competencies. Prerequisites: a grade of C or better in BIOL 141, BIOL 142, P T 150, P T 160, P T 270, P T 384, P T 395E, and P T 395W. This course should prepare students for higher level courses within the PTA curriculum and is a prerequisite for P T 395F and 395G. P T 260 will be offered once per calendar year and expected enrollment is 20-45 PTA students, with a maximum of 15 students per lab.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check with the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better in BIOL 141BIOL 142P T 150P T 160P T 270P T 384P T 395EP T 395W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 270 Pathophysiology (3)** Introduction to medical and post-operative conditions and/or disease states most frequently treated by physical therapy modalities.

### **P T 270 Pathophysiology (3)**

This course is an introduction to the study of diseases and those conditions most often treated by Physical Therapy methods. Basic signs, symptoms, causes, and processes of disease and conditions will be covered. The course is designed to give the PTA student a working knowledge of the physiology of disease states in order to prepare the student to think and speak intelligently with patients and other health professionals regarding diseases and conditions commonly seen in physical therapy and their diagnoses, progression, and treatments. Areas of study in the course may include, but are not limited to, the history of pathophysiology, diagnostic methods, infection and healing, metaplasia, mental health, genetic and congenital disorders, and disorders of the following systems: cardiovascular, respiratory, musculoskeletal, nervous, integumentary, endocrine, blood and lymphatics. The student's knowledge of pathophysiology will be assessed in the course using any or all of the following tools: written examination, student presentations, written term papers, special projects and assignments. This course is a prerequisite for P T 250, P T 260, P T 280, P T 280W, and P T 395E. Prerequisites for this course are a C or better grade in the BIOL 141, BIOL 142 and P T 100 and P T 384 courses. The course is offered once per calendar year at each campus. Expected enrollment is 20-45 students.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better in BIOL 141BIOL 142P T 100P T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 270A (IL) Pathophysiology (3)** Introduction to medical and post-operative conditions and/or disease states most frequently treated by physical therapy modalities.

### **Pathophysiology (3)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2005



Prerequisite: a grade of C or better in BIOL 141 BIOL 142 P T 100P T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 270W Pathophysiology (3)** Introduction to the study of disease and those conditions most often treated by physical therapy methods; basic signs, symptoms, and causes of disease and conditions will be covered.

### **P T 270W Pathophysiology (3)**

This course is an introduction to the study of diseases and those conditions most often treated by Physical Therapy methods. Basic signs, symptoms, causes, and processes of disease and conditions will be covered. The course is designed to give the PTA student a working knowledge of the physiology of disease states in order to prepare the student to think and speak intelligently with patients and other health professionals regarding diseases and conditions commonly seen in physical therapy and their diagnoses, progression, and treatments. Areas of study in the course may include, but are not limited to, the history of pathophysiology, diagnostic methods, infection and healing, metaplasia, mental health, genetic and congenital disorders, and disorders of the following systems: cardiovascular, respiratory, musculoskeletal, nervous, integumentary, endocrine, blood and lymphatics. The student's knowledge of pathophysiology will be assessed in the course using any or all of the following tools: written examination, student presentations, written term papers, special projects and assignments. This course is a prerequisite for P T 250, P T 260, P T 280, P T 280W, and P T 395E. Prerequisites for this course are a grade of C or better in BIOL 141, BIOL 142 and P T 100 and P T 384 courses. The course is offered once per calendar year at each campus. Expected enrollment is 20-45 students.

This is a writing intensive course that will include instructor written evaluation and feedback of student's writing. The student writing will be specific to the Physical Therapy discipline and include multiple and varied assignments. Writing will be a factor in the final grade for this course.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better in BIOL 141 BIOL 142 P T 100P T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 280 Rehabilitation (4)** Examination of techniques and laboratory experiences in rehabilitation techniques for the physically challenged.

### **P T 280 Rehabilitation (4)**

Students will learn and develop skills in the rehabilitation treatment of patients with diseases or conditions frequently seen in physical therapy. Students are expected to be able to recognize normal and abnormal gait patterns of patients diagnosed with the diseases/ conditions studied. In the laboratory sessions, students practice mobility skills as they related to the pathologies studied. Students learn to treat patients in the orthopedic, neurological and pediatric populations. To achieve these objectives, students will be involved in lectures, laboratory activities, audiovisual material, and utilization of information from professional literature. Attainment of educational objectives will be determined via written exams and laboratory practical exams. Basic principles utilized in this course have been learned in P T 100. The anatomical and neurological foundations have been presented in BIOL 129 and P T 270. Instruction of patients in and the performance of rehabilitation activities are a foundation in physical therapy.

Prerequisites for this course are a C or better grade in BIOL 141, BIOL 142, P T 150, P T 160, P T 270 and P T 384. This course is a prerequisite for P T 395F and P T 395G. This course is offered once per calendar year and may be offered in two parts over the course of two semesters. Expected enrollment is 20-45 students, with a limit of 15 students in a given lab section.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better in BIOL 141 BIOL 142 P T 150P T 160P T 270P T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 280W Rehabilitation (4)** Examination of techniques and laboratory experiences in rehabilitation techniques for the physically challenged.

**P T 280W Rehabilitation (4)**

Students will learn and develop skills in the rehabilitation treatment of patients with diseases or conditions frequently seen in physical therapy. Students are expected to be able to recognize normal and abnormal gait patterns of patients diagnosed with the diseases/conditions studied. In the laboratory sessions, students practice mobility skills as they related to the pathologies studied. Students learn to treat patients in the orthopedic and neurological populations. To achieve these objectives, students will be involved in lectures, laboratory activities, audiovisual material, and utilization of information from professional literature. Attainment of educational objectives will be determined via written exams and laboratory practical exams. Basic principles utilized in this course have been learned in P T 100. The anatomical and neurological foundations have been presented in BIOL 129 and P T 270. Instruction of patients in and the performance of rehabilitation activities are a foundation in physical therapy.

This is a writing intensive course that will include instructor written evaluation and feedback of student's writing. The student writing will be specific to the Physical Therapy discipline and include multiple and varied assignments. Writing will be a factor in the final grade for this course.

Prerequisites for this course are a grade of C or better in BIOL 141, BIOL 142, P T 150, P T 160, P T 270, P T 384, and P T 395. This course is a prerequisite for P T 395F and P T 395G. This course is offered once per calendar year and may be offered in two parts over the course of two semesters. Expected enrollment is 20-45 students, with a limit of 15 students in a given lab section.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better in BIOL 141 BIOL 142 P T 150 P T 160 P T 270 P T 384 P T 395E

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 290 Professional Issues in Clinical Practice (1)** Introduction of professional issues related to the physical therapist assistant's role in practice, including documentation, billing, communication, and professionalism.

**P T 290 Professional Issues in Clinical Practice (1)**

This course is an introduction to the professional issues related to the physical therapist assistant's role in the current health care environment. The course is designed to foster professional development of the physical therapist assistant student and to prepare the student to complete essential competencies and behaviors of health care related to the field of physical therapy. The course will guide the student in preparing the necessary documents for clinical practicum. Areas of study in the course may include but are not limited to, the role of the physical therapist assistant as defined by the American Physical Therapy Association and state practice acts, Values-Based Behaviors for the Physical Therapist Assistant, Standards of Ethical Conduct for the Physical Therapist Assistant, ethical problem solving in healthcare including recognizing and discussing legal and ethical issues in physical therapy, cultural diversity and cultural competence, lifelong learning and continuing competence, professional communication in clinical situations including HIPAA , billing and reimbursement in physical therapy, and medical documentation including the value and necessity of thorough documentation, recognition of the PTA role in documentation, completion of appropriate medical documentation and appropriate use of medical abbreviations. The student's knowledge of professional issues will be assessed in the course using any or all of the following tools: written examination, student presentations, written term papers, special projects, quizzes, homework, in-class and out-of-class assignments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: a grade of C or better in BIOL 141 BIOL 142 P T 100 and P T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 296 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that

may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 384 Applied Kinesiology (4)** Study of anatomical structure, body movement. Characteristic muscle action and motion will be analyzed in relation to physical therapy context.

### P T 384 Applied Kinesiology (4)

The focus of P T 384, Applied Kinesiology, is to incorporate anatomical structure of the human body, principles of biomechanics, kinetics, and kinematics with the study of human motion and mobility. Areas of instruction may include but are not limited to: origins, insertions, actions, and innervations of muscles of the upper extremity, lower extremity, head, neck, and trunk; examination and assessment of the muscles of the extremities and axial skeleton; concentric, eccentric, and isometric muscle contractions- closed and open kinetic chains; active and passive insufficiency of muscles, arthro- and osteokinematics; normal gait and posture; manual muscle testing; and the forces involved in moving the human body. To achieve these objectives, students will be involved in lectures, small group discussions, laboratory experiences, and the utilization of information/research from the library and Internet resources. Students will obtain "hands-on" laboratory experiences including surface anatomy and examination and assessment techniques in the Physical Therapy Lab. Evaluation of student performance will be based on a combination of all or some of the following: written examinations, laboratory practical examinations/competencies, in-class and/or on-line quizzes, student projects and presentations, and written assignments. The prerequisite courses for P T 384 are a grade of C or better in BIOL 129, BIOL 141, BIOL 142, and P T 100. Students are expected to enter P T 384 with a basic knowledge of human anatomy and the basic principles of physical therapy. The course should prepare students for any higher-level PT course offered in the PTA curriculum. P T 384 is a prerequisite for P T 150, P T 160, P T 202, P T 203, P T 205, P T 250, P T 260, P T 270, P T 270W, P T 280, P T 280W, P T 395E, P T 395F, P T 395G, and 395W. P T 384 will be offered once per calendar year and expected enrollment is 20-45 PTA students, with maximum of 15 students per lab section.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2004  
Prerequisite: a grade of C or better in BIOL 129 BIOL 141 BIOL 142 P T 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 395E Physical Therapist Assistant--Practicum I (3)** The practice of physical therapist assistant skills in a clinical setting under the direct supervision of a physical therapist.

### P T 395E Physical Therapist Assistant -- Practicum I (3)

P T 395E is the practice of physical therapist assistant skills in a clinical setting under the direction and supervision of a licensed physical therapist and/or physical therapist assistant. Course expectations include, but are not limited to: understanding and adhering to the Standards of Ethical Conduct for the Physical Therapist Assistant, following departmental policies, presenting with appropriate dress and appearance, being punctual and reliable, respecting patient confidentiality, treating all personnel with respect, showing positive attitude and enthusiasm towards the profession and exhibiting adaptability. Course objectives include, but are not limited to: demonstrate appropriate verbal, non-verbal and written communication, implement treatment programs as outlined in the plan of care, and demonstrate appropriate treatment techniques as learned in the classroom. To achieve these objectives students will be in a clinical setting under the direction and supervision of a licensed physical therapist and/or physical therapist assistant.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Future: Spring 2015  
Prerequisite: a grade of C or better in BIOL 141 BIOL 142 P T 100 P T 150 P T 160 P T 270 or P T 270W or P T 270A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 395E** Physical Therapist Assistant--Practicum I (3) The practice of physical therapist assistant skills in a clinical setting under the direct supervision of a physical therapist.

**P T 395E Physical Therapist Assistant -- Practicum I (3)**

P T 395E is the practice of physical therapist assistant skills in a clinical setting under the direction and supervision of a licensed physical therapist and/or physical therapist assistant. Course expectations include, but are not limited to: understanding and adhering to the Standards of Ethical Conduct for the Physical Therapist Assistant, following departmental policies, presenting with appropriate dress and appearance, being punctual and reliable, respecting patient confidentiality, treating all personnel with respect, showing positive attitude and enthusiasm towards the profession and exhibiting adaptability. Course objectives include, but are not limited to: demonstrate appropriate verbal, non-verbal and written communication, implement treatment programs as outlined in the plan of care, and demonstrate appropriate treatment techniques as learned in the classroom. To achieve these objectives students will be in a clinical setting under the direction and supervision of a licensed physical therapist and/or physical therapist assistant.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: a grade of C or better in BIOL 141BIOL 142P T 100P T 150P T 160P T 270 orP T 270W orP T 270A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 395F** Physical Therapist Assistant--Practicum II (4) The practice of physical therapist assistant skills in a clinical setting under the direct supervision of a registered physical therapist.

**P T 395F Physical Therapist Assistant - Practicum II (4)**

P T 395F is the practice of physical therapist assistant skills in a clinical setting under the direct supervision of a physical therapist. Course expectations include, but are not limited to: understanding and adhering to the Code of Ethics, following departmental policies, presenting with appropriate dress and appearance, being punctual and reliable, respecting patient confidentiality, treating all personnel with respect, showing positive attitude and enthusiasm towards the profession and exhibiting adaptability. Course objectives include, but are not limited to: demonstrate appropriate verbal, non-verbal and written communication, implement treatment programs as outlined in the plan of care, and demonstrate appropriate treatment techniques as learned in the classroom. To achieve these objectives students will be in a clinical setting under the direct supervision of a physical therapist. Evaluation of student performance will be based on a combination of the clinical instructor's evaluation and the Academic Coordinator of Clinical Education's evaluation. Prerequisites for this course are a grade of C or better in P T 250, P T 260, P T 280 or P T 280W, P T 395E or P T 395W.

This course is offered once per calendar year at each campus. Expected enrollment is 20-45 students.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better inP T 250P T 260P T 280P T 280WP T 395E orP T 395W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 395G** Physical Therapist Assistant--Practicum III (4) The practice of physical therapist assistant skills in a clinical setting under the direct supervision of a registered physical therapist.

**P T 395G Physical Therapist Assistant - Practicum III (4)**

P T 395G is the practice of physical therapist assistant skills in a clinical setting under the direct supervision of a physical therapist. Course expectations include, but are not limited to: understanding and adhering to the Code of Ethics, following departmental policies, presenting with appropriate dress and appearance, being punctual and reliable, respecting patient confidentiality, treating all personnel with respect, showing positive attitude and enthusiasm towards the profession and exhibiting adaptability. Course objectives include, but are not limited to: demonstrate appropriate verbal, non-verbal and written communication, implement treatment programs as outlined in the plan of care, and demonstrate appropriate treatment techniques as learned in the classroom. To achieve these objectives students will be in a clinical setting under the direct supervision of a physical therapist. Evaluation of student performance will be based on a combination of the clinical instructor's evaluation and the Academic Coordinator of Clinical Education's evaluation. Prerequisites for this course are a grade of C or better in P T 250, P T 260, P T 280 or P T 280W, P T 395E or P T 395W.

This course is offered once per calendar year at each campus. Expected enrollment is 20-45 students.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004

Prerequisite: a grade of C or better in P T 250P T 260P T 280P T 280WP T 395E or P T 395W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P T 395W Physical Therapist Assistant--Practicum I (4)** The practice of physical therapist assistant skills in a clinical setting under the direct supervision of a physical therapist.

#### **P T 395W Physical Therapist Assistant - Practicum I (4)**

P T 395W is the practice of physical therapist assistant skills in a clinical setting under the direct supervision of a physical therapist. Course expectations include, but are not limited to: understanding and adhering to the Code of Ethics, following departmental policies, presenting with appropriate dress and appearance, being punctual and reliable, respecting patient confidentiality, treating all personnel with respect, showing positive attitude and enthusiasm towards the profession and exhibiting adaptability. Course objectives include, but are not limited to: demonstrate appropriate verbal, non-verbal and written communication, implement treatment programs as outlined in the plan of care, and demonstrate appropriate treatment techniques as learned in the classroom. To achieve these objectives students will be in a clinical setting under the direct supervision of a physical therapist. Evaluation of student's performance will be based on a combination of the clinical instructor's evaluation and the Academic Coordinator of Clinical Education's evaluation. Prerequisites for this course are a grade of C or better in BIOL 141, BIOL 142, P T 384. This course is required for P T 250, P T 260, P 395F, P T 395G. This course is offered once per calendar year at each campus. Expected enrollment is 20-45 students.

This is a writing intensive course that will include instructor written evaluation and feedback of student's writing. The student writing will be specific to the Physical Therapy discipline and include multiple and varied assignments. Writing will be a factor in the final grade for this course.

Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2004 Ending: Fall 2014

Prerequisite: a grade of C or better in BIOL 141BIOL 142P T 384

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Physics (PHYS)**

**PHYS 001 (GN)** The Science of Physics (3) Historical development and significance of major concepts, with emphasis on the nature of physics and its role in modern life. (For students in non-mathematical fields.)

### **PHYS 001 The Science of Physics (3) (GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Introduction to the basic concepts of physics at a conceptual level for students in non-technical majors. Provides a broad survey of the history, concepts, and applications of physics including topics such as classical mechanics in one- and two-dimensions, Newton's laws of motion, work and energy, momentum, rotational motion, vibration, sound, and waves, heat and the laws of thermodynamics, electricity and magnetism, including simple electrical circuits, and topics in 20th century physics, including relativity and quantum mechanics. Course objectives include the development of an understanding of the scientific method, its application to physics problems of historical interest, as well as to modern applications; providing an appreciation of the historical role played by physics in the development of modern science, its role in important cultural and societal issues, and in understanding the basic laws of nature, as applied to everyday experience, natural phenomena, or applications technologies (old and new); the development of scientific literacy, to help motivate the many connections of physics to other fundamental scientific fields and applications disciplines; providing experience in problem solving and the conceptual understanding of physics, and emphasizing the recurring role of a few important concepts, cutting across many scientific disciplines, such as the fundamental laws of classical mechanics, the basic laws of thermodynamics (including conservation of energy), as well as applications of modern quantum theory.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 001H (GN)** The Science of Physics (3) Historical development and significance of major concepts, with emphasis on the nature of physics and its role in modern life. (For students in non-mathematical fields.)

### **The Science of Physics (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 010 (GN)** Physics Behind the Headlines (3) Select topics in modern physics with emphasis on understanding science related articles in the news (For students in non-mathematical fields.)

### **PHYS 010 Physics Behind the Headlines (3) (GN)**

Introduction for non-science majors to select topics in the modern physics of quantum mechanics and relativity with the goal of understanding recent technological advances, scientific breakthroughs and social events related to science as they appear in the news. These range from the discovery of the Higgs boson and dark energy to developments in lasers or superconductors. Social events in the news where science played a large role such as the Roswell "UFO" event in 1947 or the Fukushima nuclear crisis in 2011 will also be discussed. Course objectives include the understanding of the scientific method and scientific reporting; learning the conceptual aspects of the structure of matter from atoms to quarks, waves, energy and light; quantum mechanics and its applications to high tech such as computers and lasers; relativity  $E=mc^2$ , nuclear forces, gravity and the Big-Bang theory. Particular emphasis will be put on learning the scientific standards for a hypothesis to be truly established as a working theory and how the simple laws of physics apply broadly to many different systems. This class will emphasize conceptual aspects and there is no mathematics prerequisite.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 097 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 097A Concepts in Mechanics (3)** This is a 9-week remedial course for students who have struggled during the first five weeks of PHYS 211. PHYS 097 will concentrate on basic skills in physics (including kinematic analysis and vector operations) as well as associated mathematics (including algebra, trigonometry, and calculus). If the student has demonstrated a reasonable effort to learn the material in PHYS 211, then the current instructor of PHYS 211 will sign the student into PHYS 097.

### **Concepts in Mechanics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**PHYS 150 (GN) Technical Physics I (3)** Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.

**PHYS 150 Technical Physics I (3)  
(GN)**

PHYS 150, Technical Physics I, provides an algebra-based introduction to mechanics, heat, wave motion, and sound exemplifying scientific method and leading toward an understanding of technical applications. It is the first course in a two-course sequence with PHYS 151 surveying all of physics. It includes topics such as measurement, dimensional analysis, systems of units, describing motion in one dimension, scalars and vectors, describing motion in two and three dimensions, projectile motion, circular motion, particle dynamics via Newton's Laws of Motion, forces, work and energy, momentum, systems of particles, collisions, rotational motion of rigid bodies, torque, moment of inertia, static equilibrium, mechanical advantage, mechanical properties of materials, fluids, vibrations, wave motion, sound, temperature, heat, thermodynamics, and heat transfer.

Students attend two lecture/recitation classes and one two-hour laboratory/activity period per week. Classes emphasize conceptualizing the basic ideas, terminology, and principles of the physical phenomena of nature; their quantitative expression through algebra and trigonometry; their relation to applications in science and technology; and their use in quantitative problem solving. Both computer-based and traditional lab exercises and activities illustrate class material and scientific method while giving students experience with a variety of measuring tools and the general principles of measurement, including the analysis of error. Students work collaboratively in small groups to plan their measurements, collect and analyze data (often using modern computer hardware and software), make judgments based on their results, and communicate their efforts and conclusions in a written lab/activity report.

The prerequisite for this course is 1 1/2 units of algebra. Prerequisite or Concurrent: MATH 021, 081. It is a prerequisite for PHYS 151 and is a required course for many engineering technology programs. It is offered at least once per academic year at all Penn State locations with engineering technology programs. Class size varies up to about 40 students per lecture section and 21 to 24 students per lab/activity section.

Course evaluation is based on a combination of regular homework assignments and/or quizzes, written lab/activity reports, two or three exams, and a final exam.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2007

Prerequisite: 1 1/2 units of algebra. Prerequisite or concurrent: MATH 021 or MATH 081

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 150L (GN) Technical Physics I (3)** Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.

**PHYS 150L Technical Physics I (3)  
(GN)**

PHYS 150L, Technical Physics I, provides an algebra-based introduction to mechanics, heat, wave motion, and sound exemplifying scientific method and leading toward an understanding of technical applications. It is the first course in a two-course sequence with PHYS 151 surveying all of physics. It includes topics such as measurement, dimensional analysis, systems of units, describing motion in one dimension, scalars and vectors, describing motion in two and three dimensions, projectile motion, circular motion, particle dynamics via Newton's Laws of Motion, forces, work and energy, momentum, systems of particles, collisions, rotational motion of rigid bodies, torque, moment of inertia, static equilibrium, mechanical advantage, mechanical properties of materials, fluids, vibrations, wave motion, sound, temperature, heat, thermodynamics, and heat transfer.

Students attend two lecture/recitation classes and one two-hour laboratory/activity period per week. Classes emphasize conceptualizing the basic ideas, terminology, and principles of the physical phenomena of nature; their quantitative expression through algebra and trigonometry; their relation to applications in science and technology; and their use in quantitative problem solving. Both computer-based and traditional lab exercises and activities illustrate class material and scientific method while giving students experience with a variety of measuring tools and the general principles of measurement, including the analysis of error. Students work collaboratively in small groups to plan their measurements, collect and analyze data (often using modern computer hardware and software), make judgments based on their results, and communicate their efforts and conclusions in a written lab/activity report.

The prerequisite for this course is 1 1/2 units of algebra. Prerequisite or Concurrent: MATH 021, 081. It is a prerequisite for PHYS 151 and is a required course for many engineering technology programs. It is offered at least once per academic year at all Penn State locations with engineering technology programs. Class size varies up to about 40 students per lecture section and 21 to 24 students per lab/activity section.

Course evaluation is based on a combination of regular homework assignments and/or quizzes, written lab/activity reports, two or three exams, and a final exam.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 150P (GN) Technical Physics I (3)** Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications.

**PHYS 150P Technical Physics I (3)  
(GN)**

PHYS 150P, Technical Physics I, provides an algebra-based introduction to mechanics, heat, wave motion, and sound exemplifying scientific method and leading toward an understanding of technical applications. It is the first course in a two-course sequence with PHYS 151 surveying all of physics. It includes topics such as measurement, dimensional analysis, systems of units, describing motion in one dimension, scalars and vectors, describing motion in two and three dimensions, projectile motion, circular motion, particle dynamics via Newton's Laws of Motion, forces, work and energy, momentum, systems of particles, collisions, rotational motion of rigid bodies, torque, moment of inertia, static equilibrium, mechanical advantage, mechanical properties of materials, fluids, vibrations, wave motion, sound, temperature, heat, thermodynamics, and heat transfer.

Students attend two lecture/recitation classes and one two-hour laboratory/activity period per week. Classes emphasize conceptualizing the basic ideas, terminology, and principles of the physical phenomena of nature; their quantitative expression through algebra and trigonometry; their relation to applications in science and technology; and their use in quantitative problem solving. Both computer-based and traditional lab exercises and activities illustrate class material and scientific method while giving students experience with a variety of measuring tools and the general principles of measurement, including the analysis of error. Students work collaboratively in small groups to plan their measurements, collect and analyze data (often using modern computer hardware and software), make judgments based on their results, and communicate their efforts and conclusions in a written lab/activity report.

The prerequisite for this course is 1 1/2 units of algebra. Prerequisite or Concurrent: MATH 021, 081. It is a prerequisite for PHYS 151 and is a required course for many engineering technology programs. It is offered at least once per academic year at all Penn State locations with engineering technology programs. Class size varies up to about 40 students per lecture section and 21 to 24 students per lab/activity section.

Course evaluation is based on a combination of regular homework assignments and/or quizzes, written lab/activity reports, two or three exams, and a final exam.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 151 (GN) Technical Physics II (3)** Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.

**PHYS 151 Technical Physics II (3)  
(GN)**

PHYS 151, Technical Physics, provides an algebra-based introduction to electricity, light, and modern physics exemplifying scientific method and leading toward an understanding of technical applications. It is the second course in a two-course sequence with PHYS 150 surveying all of physics. It includes topics such as electric charge, electric force, electric field, electric potential difference, capacitance, cathode-ray tube, electric current, Ohm's Law, batteries, direct current circuits, resistors, ammeters, voltmeters, magnetic force, magnetic field, electromagnetic induction, motors, generators, transformers, inductors, alternating current circuits, electromagnetic waves, light, reflection, refraction, interference, diffraction, atomic physics, atoms in combination, and the nucleus.

Students attend two lecture/recitation classes and one two-hour laboratory/activity period per week. Classes emphasize conceptualizing the basic ideas, terminology, and principles of the physical phenomena of nature; their quantitative expression through algebra and trigonometry; their relation to applications in science and technology; and their use in quantitative problem solving. Both computer-based and traditional lab exercises and activities illustrate class material and scientific method while giving students experience with a variety of measuring tools and the general principles of measurement, including the analysis of error. Students work collaboratively in small groups to plan their measurements, collect and analyze data (often using modern computer hardware and software), make judgments based on their results, and communicate their efforts and conclusions in a written lab/activity report.

The prerequisite for this course is PHYS 150. It is a required course for many engineering technology programs. It is offered at least once per academic year at all Penn State locations with engineering technology programs. Class size varies up to about 80 students per lecture section and 24 students per lab/activity section.

Course evaluation is based on a combination of regular homework assignments and/or quizzes, written lab/activity reports, two or three exams, and a final exam.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences



Effective: Fall 2001

Prerequisite: PHYS 150

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 151H (GN) Technical Physics II (3)** Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.

### **Technical Physics II (3)**

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: PHYS 150

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 151L (GN) Technical Physics II (3)** Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.

### **PHYS 151L Technical Physics II (3) (GN)**

PHYS 151, Technical Physics, provides an algebra-based introduction to electricity, light, and modern physics exemplifying scientific method and leading toward an understanding of technical applications. It is the second course in a two-course sequence with PHYS 150 surveying all of physics. It includes topics such as electric charge, electric force, electric field, electric potential difference, capacitance, cathode-ray tube, electric current, Ohm's Law, batteries, direct current circuits, resistors, ammeters, voltmeters, magnetic force, magnetic field, electromagnetic induction, motors, generators, transformers, inductors, alternating current circuits, electromagnetic waves, light, reflection, refraction, interference, diffraction, atomic physics, atoms in combination, and the nucleus.

Students attend two lecture/recitation classes and one two-hour laboratory/activity period per week. Classes emphasize conceptualizing the basic ideas, terminology, and principles of the physical phenomena of nature; their quantitative expression through algebra and trigonometry; their relation to applications in science and technology; and their use in quantitative problem solving. Both computer-based and traditional lab exercises and activities illustrate class material and scientific method while giving students experience with a variety of measuring tools and the general principles of measurement, including the analysis of error. Students work collaboratively in small groups to plan their measurements, collect and analyze data (often using modern computer hardware and software), make judgments based on their results, and communicate their efforts and conclusions in a written lab/activity report.

The prerequisite for this course is PHYS 150. It is a required course for many engineering technology programs. It is offered at least once per academic year at all Penn State locations with engineering technology programs. Class size varies up to about 80 students per lecture section and 24 students per lab/activity section.

Course evaluation is based on a combination of regular homework assignments and/or quizzes, written lab/activity reports, two or three exams, and a final exam.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2001

Prerequisite: PHYS 150

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 151P Technical Physics II (3)** Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.

### **PHYS 151P Technical Physics II (3) (GN)**

PHYS 151, Technical Physics, provides an algebra-based introduction to electricity, light, and modern physics exemplifying scientific method and leading toward an understanding of technical applications. It is the second course in a two-course sequence with PHYS 150 surveying all of physics. It includes topics such as electric charge, electric force, electric field, electric potential difference, capacitance, cathode-ray tube, electric current, Ohm's Law, batteries, direct current circuits, resistors, ammeters, voltmeters, magnetic force, magnetic field, electromagnetic induction, motors, generators, transformers, inductors, alternating current circuits, electromagnetic waves, light, reflection, refraction, interference, diffraction, atomic physics, atoms in combination, and the nucleus.

Students attend two lecture/recitation classes and one two-hour laboratory/activity period per week. Classes emphasize conceptualizing the basic ideas, terminology, and principles of the physical phenomena of nature; their quantitative expression through algebra and trigonometry; their relation to applications in science and technology; and their use in quantitative problem solving. Both computer-based and traditional lab exercises and activities illustrate class material and scientific method while giving students experience with a variety of measuring tools and the general principles of measurement, including the analysis of error. Students work collaboratively in small groups to plan their measurements, collect and analyze data (often using modern computer hardware and software), make judgments based on their results,

and communicate their efforts and conclusions in a written lab/activity report.

The prerequisite for this course is PHYS 150. It is a required course for many engineering technology programs. It is offered at least once per academic year at all Penn State locations with engineering technology programs. Class size varies up to about 80 students per lecture section and 24 students per lab/activity section.

Course evaluation is based on a combination of regular homework assignments and/or quizzes, written lab/activity reports, two or three exams, and a final exam.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: PHYS 150

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 199 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 211 (GN) General Physics: Mechanics (4)** Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation.

PHYS 211

### **PHYS 211 General Physics: Mechanics (4) (GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Calculus-based introduction to classical mechanics, including such topics as: measurement, dimensional analysis, motion in one-dimension, vectors, motion in 2 and 3 dimensions, relative and circular motion, force and dynamics, Newton's Laws, friction, kinetic energy, work, potential energy, energy conservation, systems of particles, center of mass and momentum, elastic and inelastic collisions, rotation (moments of inertia), rolling motion, torque, angular momentum, static equilibrium, gravitational force and Kepler's laws, gravitational potential energy, oscillations, waves (transverse and longitudinal, superposition of waves).

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend two lectures, one recitation session, and one two-hour lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools. The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 1999

Concurrent: MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 211H (GN) General Physics: Mechanics (4)** Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, rotation, and oscillations.

**PHYS 211H General Physics: Mechanics (4)  
(GN)**

Calculus-based introduction to classical mechanics, including such topics as: measurement, dimensional analysis, motion in one-dimension, vectors, motion in 2 and 3 dimensions, relative and circular motion, force and dynamics, Newton's Laws, friction, kinetic energy, work, potential energy, energy conservation, systems of particles, center of mass and momentum, elastic and inelastic collisions, rotation (moments of inertia), rolling motion, torque, angular momentum, static equilibrium, gravitational force and Kepler's laws, gravitational potential energy, oscillations, waves (transverse and longitudinal, superposition of waves).

In contrast to the non-honors version, PHYS 211H typically makes more frequent use of higher level mathematical concepts and involves the solution of more sophisticated problems. A number of topics are considered in more depth, and these often focus on connections of the material to real-life science or engineering applications.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2012

Concurrent: MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 211L (GN) General Physics: Mechanics (0-4)** Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation. NOTE: UP offers for 0 credits; Altoona offers for 4 credits.

PHYS 211

**PHYS 211L General Physics: Mechanics (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Calculus-based introduction to classical mechanics, including such topics as: measurement, dimensional analysis, motion in one-dimension, vectors, motion in 2 and 3 dimensions, relative and circular motion, force and dynamics, Newton's Laws, friction, kinetic energy, work, potential energy, energy conservation, systems of particles, center of mass and momentum, elastic and inelastic collisions, rotation (moments of inertia), rolling motion, torque, angular momentum, static equilibrium, gravitational force and Kepler's laws, gravitational potential energy, oscillations, waves (transverse and longitudinal, superposition of waves).

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend two lectures, one recitation session, and one two-hour lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools. The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2000

Concurrent: MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 211P General Physics: Mechanics (0)** Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation.

**PHYS 211 PHYS 211P General Physics: Mechanics (4)  
(GN)**

Calculus-based introduction to classical mechanics, including such topics as: measurement, dimensional analysis, motion in one-dimension, vectors, motion in 2 and 3 dimensions, relative and circular motion, force and dynamics, Newton's Laws, friction, kinetic energy, work, potential energy, energy conservation, systems of particles, center of mass and momentum, elastic and inelastic collisions, rotation (moments of inertia), rolling motion, torque, angular momentum, static equilibrium, gravitational force and Kepler's laws, gravitational potential energy, oscillations, waves (transverse and

longitudinal, superposition of waves).

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend two lectures, one recitation session, and one two-hour lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools. The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1999

Concurrent: MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 211R (GN)** General Physics: Mechanics (4) Calculus-based study of the basic concepts of mechanics: motion, force, Newton's laws, energy, collisions, and rotation.

PHYS 211

**PHYS 211R General Physics: Mechanics (4)  
(GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Calculus-based introduction to classical mechanics, including such topics as: measurement, dimensional analysis, motion in one-dimension, vectors, motion in 2 and 3 dimensions, relative and circular motion, force and dynamics, Newton's Laws, friction, kinetic energy, work, potential energy, energy conservation, systems of particles, center of mass and momentum, elastic and inelastic collisions, rotation (moments of inertia), rolling motion, torque, angular momentum, static equilibrium, gravitational force and Kepler's laws, gravitational potential energy, oscillations, waves (transverse and longitudinal, superposition of waves).

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend two lectures, one recitation session, and one two-hour lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools. The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 1999

Concurrent: MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 212 (GN)** General Physics: Electricity and Magnetism (4) Calculus-based study of the basic concepts of electricity and magnetism.

PHYS 212

**PHYS 212 General Physics: Electricity and Magnetism (4)  
(GN)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Calculus-based introduction to classical electricity and magnetism, including such topics as, electric charge and electric fields, Gauss's law, electric potential, capacitance, current, resistance, and circuits, magnetic fields, and fields due to currents, induction and inductance, magnetism of matter, Maxwell's equations, and electromagnetic oscillations.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend two lectures, one recitation session, and one two-hour lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be

stressed in the laboratory/activity period.

Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools.

The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 1999

Prerequisite: MATH 140PHYS 211

Concurrent: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 212H (GN)** General Physics: Electricity and Magnetism (4) Calculus-based study of the basic concepts of electricity and magnetism.

**PHYS 212H General Physics: Electricity and Magnetism (4)  
(GN)**

Calculus-based introduction to classical electricity and magnetism, including such topics as, electric charge and electric fields, Gauss's law, electric potential, capacitance, current, resistance, and circuits, magnetic fields, and fields due to currents, induction and inductance, magnetism of matter, Maxwell's equations, and electromagnetic oscillations.

In contrast to the non-honors version, PHYS 212H typically makes more frequent use of higher level mathematical concepts and involves the solution of more sophisticated problems. A number of topics are considered in more depth, and these often focus on connections of the material to real-life science or engineering applications.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Summer 2012

Prerequisite: MATH 140PHYS 211

Concurrent: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 212L (GN)** General Physics: Electricity and Magnetism (0-4) Calculus-based study of the basic concepts of electricity and magnetism. NOTE: UP offers for 0 credits; Altoona offers for 4 credits.

PHYS 212

**PHYS 212L General Physics: Electricity and Magnetism (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Calculus-based introduction to classical electricity and magnetism, including such topics as, electric charge and electric fields, Gauss's law, electric potential, capacitance, current, resistance, and circuits, magnetic fields, and fields due to currents, induction and inductance, magnetism of matter, Maxwell's equations, and electromagnetic oscillations.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend two lectures, one recitation session, and one two-hour lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period.

Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools.

The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2000

Prerequisite: MATH 140PHYS 211

Concurrent: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 212P** General Physics: Electricity and Magnetism (0) Calculus-based study of the basic concepts of electricity and magnetism.

**PHYS 212 PHYS 212P General Physics: Electricity and Magnetism (4)  
(GN)**

Calculus-based introduction to classical electricity and magnetism, including such topics as, electric charge and electric fields, Gauss's law, electric potential, capacitance, current, resistance, and circuits, magnetic fields, and fields due to currents, induction and inductance, magnetism of matter, Maxwell's equations, and electromagnetic oscillations.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend two lectures, one recitation session, and one two-hour lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period.

Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools.

The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: MATH 140PHYS 211  
Concurrent: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 212R (GN) General Physics: Electricity and Magnetism (4)** Calculus-based study of the basic concepts of electricity and magnetism.

PHYS 212

**PHYS 212R General Physics: Electricity and Magnetism (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Calculus-based introduction to classical electricity and magnetism, including such topics as, electric charge and electric fields, Gauss's law, electric potential, capacitance, current, resistance, and circuits, magnetic fields, and fields due to currents, induction and inductance, magnetism of matter, Maxwell's equations, and electromagnetic oscillations.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend two lectures, one recitation session, and one two-hour lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period.

Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools.

The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2000  
Prerequisite: MATH 140PHYS 211  
Concurrent: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 213 (GN) General Physics: Fluids and Thermal Physics (2)** Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

PHYS 213

**PHYS 213 General Physics: Fluids and Thermal Physics (2)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Calculus-based introduction to the basic concepts of fluids and sound, heat, kinetic theory, and entropy, including such topics as: fluid mechanics and motion, sound Waves: speed, harmonic waves, intensity, temperature and heat: thermal expansion, heat capacity, conduction and radiation, kinetic theory of gases: First Law of Thermodynamics, internal energy of a gas, heat capacities, adiabatic expansion, entropy and the Second Law: concept of equilibrium and entropy, heat engines, efficiency of heat engines and refrigerators, introduction to statistical mechanics.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend one lecture and one two-hour recitation/lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools.

The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 1999

Prerequisite: MATH 140PHYS 211

Concurrent: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 213L (GN) General Physics: Fluids and Thermal Physics (0)** Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

PHYS 213

**PHYS 213L General Physics: Fluids and Thermal Physics (2)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Calculus-based introduction to the basic concepts of fluids and sound, heat, kinetic theory, and entropy, including such topics as: fluid mechanics and motion, sound Waves: speed, harmonic waves, intensity, temperature and heat: thermal expansion, heat capacity, conduction and radiation, kinetic theory of gases: First Law of Thermodynamics, internal energy of a gas, heat capacities, adiabatic expansion, entropy and the Second Law: concept of equilibrium and entropy, heat engines, efficiency of heat engines and refrigerators, introduction to statistical mechanics.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend one lecture and one two-hour recitation/lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools.

The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 1999

Prerequisite: MATH 140PHYS 211

Concurrent: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 213R (GN) General Physics: Fluids and Thermal Physics (2)** Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy.

PHYS 213

**PHYS 213R General Physics: Fluids and Thermal Physics (2)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Calculus-based introduction to the basic concepts of fluids and sound, heat, kinetic theory, and entropy, including such topics as: fluid mechanics and motion, sound Waves: speed, harmonic waves, intensity, temperature and heat: thermal expansion, heat capacity, conduction and radiation, kinetic theory of gases: First Law of Thermodynamics, internal energy of a gas, heat capacities, adiabatic expansion, entropy and the Second Law: concept of equilibrium and entropy, heat engines, efficiency of heat engines and refrigerators, introduction to statistical mechanics.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend one lecture and one two-hour recitation/lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools.

The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 1999  
Prerequisite: MATH 140PHYS 211  
Concurrent: MATH 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 214 (GN)** General Physics: Wave Motion and Quantum Physics (2) Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

PHYS 214

**PHYS 214 General Physics: Wave Motion and Quantum Physics (2)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Calculus-based introduction to the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter, including such topics as: electromagnetic waves: Poynting Vector, polarization and reflection, geometrical optics: mirrors, refraction, lenses, optical instruments, interference and diffraction, photons and matter waves, energy quantization, structure of matter: hydrogen atom, conduction of electrons in solids, and nuclear physics and nuclear energy.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend one lecture and one two-hour recitation/lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period.

Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools.

The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Spring 2004  
Prerequisite: MATH 141PHYS 211 and PHYS 212

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 214L (GN)** General Physics: Wave Motion and Quantum Physics (0) Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

PHYS 214

**PHYS 214L General Physics: Wave Motion and Quantum Physics (2)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Calculus-based introduction to the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter, including such topics as: electromagnetic waves: Poynting Vector, polarization and reflection, geometrical optics: mirrors, refraction, lenses, optical instruments, interference and diffraction, photons and matter waves, energy quantization, structure of matter: hydrogen atom, conduction of electrons in solids, and nuclear physics and nuclear energy.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend one lecture and one two-hour recitation/lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period.

Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools.

The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN  
Diversity: None



Bachelor of Arts: Natural Sciences  
 Effective: Spring 2004  
 Prerequisite: MATH 141PHYS 211 andPHYS 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 214R (GN)** General Physics: Wave Motion and Quantum Physics (2) Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter.

PHYS 214

**PHYS 214R General Physics: Wave Motion and Quantum Physics (2) (GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Calculus-based introduction to the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter, including such topics as: electromagnetic waves: Poynting Vector, polarization and reflection, geometrical optics: mirrors, refraction, lenses, optical instruments, interference and diffraction, photons and matter waves, energy quantization, structure of matter: hydrogen atom, conduction of electrons in solids, and nuclear physics and nuclear energy.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend one lecture and one two-hour recitation/lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period.

Course evaluation is based on a combination of regular homework sets and/or quizzes, reports from the lab/activity period, midterm and final exams and other evaluative tools.

The course is an important prerequisite for later work in many science and engineering disciplines.

General Education: GN  
 Diversity: None  
 Bachelor of Arts: Natural Sciences  
 Effective: Spring 2004  
 Prerequisite: MATH 141PHYS 211 andPHYS 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 230** Introduction to Relativity (3) Introduction to special and general relativity including space-time diagrams and relativistic kinematics, length contraction, time dilation, equivalence principles, curved space and cosmology.

**PHYS 230 Introduction to Relativity (3)**

This course is designed for science or engineering students who have successfully completed calculus-based physics courses through electricity and magnetism (PHYS 212), and differential and integral calculus (MATH 140 and 141). Co-requisites of linear algebra (MATH 220) and vector calculus (MATH 230 or 231) are required. This course should provide the student with a mathematical and physical understanding of relativity theory beyond that which one encounters in semi-popular treatments of the subject. The mathematical skills which this course will develop, e.g. tensors and tensor analysis, should be especially useful to students in a wide range of science and engineering fields from computer science to physics and electrical engineering.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2006  
 Prerequisite: PHYS 212MATH 141 . Prerequisite or concurrent:MATH 220MATH 230 orMATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 237** Introduction to Modern Physics (3) Relativity and quantum theory applied to selected topics in atomic, molecular, solid state, and nuclear physics.

**PHYS 237 Introduction to Modern Physics (3)**

A broad survey of post-classical physics, taken by physics and other science and engineering students. Required of all physics majors, it is typically taken in the fourth-semester. The course covers much of the modern physics curriculum including topics such as special relativity, the concepts and mathematical formalism of quantum mechanics, both in one- and three-dimensional model systems, and the applications of quantum theory to topics ranging from atomic/molecular, nuclear, particle, and condensed matter physics to astrophysics.

The course is a prerequisite for a junior-senior course in quantum mechanics.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: PHYS 212  
Concurrent: PHYS 214

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 237H** Introduction to Modern Physics (3) Relativity and quantum theory applied to selected topics in atomic, molecular, solid state, and nuclear physics.

**PHYS 237H Introduction to Modern Physics (3)**

The course covers much of the modern physics curriculum including topics such as special relativity, the concepts and mathematical formalism of quantum mechanics, both in one- and three-dimensional model systems, and the applications of quantum theory to topics ranging from atomic/molecular, nuclear, particle, and condensed matter physics to astrophysics.

In contrast to the non-honors version, PHYS 237H typically makes more frequent use of higher level mathematical concepts and involves the solution of more sophisticated problems. A number of topics are considered in more depth, and these often focus on connections of the material to real-life science research applications.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: PHYS 212  
Concurrent: PHYS 214

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 250** (GN) Introductory Physics I (4) Selected topics in mechanics, heat, and sound.

**PHYS 250 Introductory Physics I (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Algebra-based introduction to classical mechanics, including such topics as one- and two-dimensional motion, vectors, relative and circular motion, force and dynamics, Newton's laws of motion, work and kinetic energy, potential energy and energy conservation, momentum, rotational motion and angular velocity, static equilibrium and properties of materials, static and moving fluids, vibrations, simple harmonic motion, general properties of waves, sound and human hearing, temperature and kinetic theory, heat and calorimetry, and the basic laws of thermodynamics.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities especially as applied to physical systems. The mathematical prerequisites for this course (and the subsequent PHYS 251) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework or demonstration of satisfactory performance on the mathematical proficiency exam. Students attend two lectures, one recitation session, and a two-hour lab/activity per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports. Course evaluation is based on a combination of homework, quizzes, lab reports, midterm and final exams, and other evaluative tools. The course is a prerequisite for the second semester continuation, PHYS 251.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2002  
Prerequisite: MATH 022MATH 026 ; orMATH 040 ; orMATH 041 or satisfactory performance on the mathematics proficiency examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 250L** (GN) Introductory Physics I (0-4) Selected topics in mechanics, heat, and sound.

**PHYS 250L Introductory Physics I (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Algebra-based introduction to classical mechanics, including such topics as one- and two-dimensional motion, vectors, relative and circular motion, force and dynamics, Newton's laws of motion, work and kinetic energy, potential energy and

energy conservation, momentum, rotational motion and angular velocity, static equilibrium and properties of materials, static and moving fluids, vibrations, simple harmonic motion, general properties of waves, sound and human hearing, temperature and kinetic theory, heat and calorimetry, and the basic laws of thermodynamics.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities especially as applied to physical systems. The mathematical prerequisites for this course (and the subsequent PHYS 251) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework or demonstration of satisfactory performance on the mathematical proficiency exam. Students attend two lectures, one recitation session, and a two-hour lab/activity per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports. Course evaluation is based on a combination of homework, quizzes, lab reports, midterm and final exams, and other evaluative tools. The course is a prerequisite for the second semester continuation, PHYS 251.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Spring 2010

Prerequisite: MATH 022MATH 026 ; orMATH 040 ; orMATH 041 or satisfactory performance on the mathematics proficiency examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 250P** (GN) Introductory Physics I (0) Selected topics in mechanics, heat, and sound.

**PHYS 250P Introductory Physics I (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Algebra-based introduction to classical mechanics, including such topics as one- and two-dimensional motion, vectors, relative and circular motion, force and dynamics, Newton's laws of motion, work and kinetic energy, potential energy and energy conservation, momentum, rotational motion and angular velocity, static equilibrium and properties of materials, static and moving fluids, vibrations, simple harmonic motion, general properties of waves, sound and human hearing, temperature and kinetic theory, heat and calorimetry, and the basic laws of thermodynamics.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities especially as applied to physical systems. The mathematical prerequisites for this course (and the subsequent PHYS 251) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework or demonstration of satisfactory performance on the mathematical proficiency exam. Students attend two lectures, one recitation session, and a two-hour lab/activity per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports. Course evaluation is based on a combination of homework, quizzes, lab reports, midterm and final exams, and other evaluative tools. The course is a prerequisite for the second semester continuation, PHYS 251.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2002

Prerequisite: MATH 022MATH 026 ; orMATH 040 ; orMATH 041 or satisfactory performance on the mathematics proficiency examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 250R** (GN) Introductory Physics I (4) Selected topics in mechanics, heat, and sound.

**PHYS 250R Introductory Physics I (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Algebra-based introduction to classical mechanics, including such topics as one- and two-dimensional motion, vectors, relative and circular motion, force and dynamics, Newton's laws of motion, work and kinetic energy, potential energy and energy conservation, momentum, rotational motion and angular velocity, static equilibrium and properties of materials, static and moving fluids, vibrations, simple harmonic motion, general properties of waves, sound and human hearing, temperature and kinetic theory, heat and calorimetry, and the basic laws of thermodynamics.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities especially as applied to physical systems. The mathematical prerequisites for this course (and the subsequent PHYS 251) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework or demonstration of satisfactory performance on the mathematical proficiency exam. Students attend two lectures, one recitation session, and a two-hour lab/activity per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports.

Course evaluation is based on a combination of homework, quizzes, lab reports, midterm and final exams, and other evaluative tools. The course is a prerequisite for the second semester continuation, PHYS 251.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2002

Prerequisite: MATH 022MATH 026 ; orMATH 040 ; orMATH 041 or satisfactory performance on the mathematics proficiency examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 251** (GN) Introductory Physics II (4) Selected topics in light, electricity, and magnetism.

**PHYS 251 Introductory Physics II (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Algebra-based introduction to classical electricity and magnetism, optics, and areas of modern physics, including such topics electric charge and fields, electrical potential and energy, electric currents and resistance, direct current (DC) circuits, magnetism, electromagnetic induction and applications to devices, electromagnetic waves, light and geometrical optics, wave nature of light, basic optical instruments (microscopes, telescopes, etc.), basics of quantum mechanics, applications of quantum theory to atoms, molecules, and solids, nuclear physics and radioactivity, applications of nuclear energy and radiation.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities, especially as applied to physical systems. The mathematical prerequisites for this course (and the prerequisite PHYS 250) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework or demonstration of satisfactory performance on the mathematical proficiency exam. Students attend two lectures, one recitation session, and a two-hour lab/activity per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports. Course evaluation is based on a combination of homework, quizzes, lab reports, midterm and final exams, and other evaluative tools. The course is a continuation of the first-semester course, the newly renumbered PHYS 250.

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2002

Prerequisite: PHYS 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 251H** (GN) Introductory Physics II (4) Selected topics in light, electricity, and magnetism.

**Introductory Physics II (4)**

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: PHYS 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 251L** (GN) Introductory Physics II (0-4) Selected topics in light, electricity, and magnetism.

**PHYS 251L Introductory Physics II (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Algebra-based introduction to classical electricity and magnetism, optics, and areas of modern physics, including such topics electric charge and fields, electrical potential and energy, electric currents and resistance, direct current (DC) circuits, magnetism, electromagnetic induction and applications to devices, electromagnetic waves, light and geometrical optics, wave nature of light, basic optical instruments (microscopes, telescopes, etc.), basics of quantum mechanics, applications of quantum theory to atoms, molecules, and solids, nuclear physics and radioactivity, applications of nuclear energy and radiation.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities, especially as applied to physical systems. The mathematical prerequisites for this course (and the prerequisites PHYS 250) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework or demonstration of satisfactory performance on the

mathematical proficiency exam. Students attend two lectures, one recitation session, and a two-hour lab/activity per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports. Course evaluation is based on a combination of homework, quizzes, lab reports, midterm and final exams, and other evaluative tools. The course is a continuation of the first-semester course (PHYS 250).

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2010

Prerequisite: PHYS 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 251P** (GN) Introductory Physics II (0) Selected topics in light, electricity, and magnetism.

**PHYS 251P Introductory Physics II (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Algebra-based introduction to classical electricity and magnetism, optics, and areas of modern physics, including such topics electric charge and fields, electrical potential and energy, electric currents and resistance, direct current (DC) circuits, magnetism, electromagnetic induction and applications to devices, electromagnetic waves, light and geometrical optics, wave nature of light, basic optical instruments (microscopes, telescopes, etc.), basics of quantum mechanics, applications of quantum theory to atoms, molecules, and solids, nuclear physics and radioactivity, applications of nuclear energy and radiation.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities, especially as applied to physical systems. The mathematical prerequisites for this course (and the prerequisites PHYS 250) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework or demonstration of satisfactory performance on the mathematical proficiency exam. Students attend two lectures, one recitation session, and a two-hour lab/activity per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports. Course evaluation is based on a combination of homework, quizzes, lab reports, midterm and final exams, and other evaluative tools. The course is a continuation of the first-semester course (PHYS 250).

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2002

Prerequisite: PHYS 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 251R** (GN) Introductory Physics II (4) Selected topics in light, electricity, and magnetism.

**PHYS 251R Introductory Physics II (4)  
(GN)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Algebra-based introduction to classical electricity and magnetism, optics, and areas of modern physics, including such topics electric charge and fields, electrical potential and energy, electric currents and resistance, direct current (DC) circuits, magnetism, electromagnetic induction and applications to devices, electromagnetic waves, light and geometrical optics, wave nature of light, basic optical instruments (microscopes, telescopes, etc.), basics of quantum mechanics, applications of quantum theory to atoms, molecules, and solids, nuclear physics and radioactivity, applications of nuclear energy and radiation.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities, especially as applied to physical systems. The mathematical prerequisites for this course (and the prerequisites PHYS 250) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework or demonstration of satisfactory performance on the mathematical proficiency exam. Students attend two lectures, one recitation session, and a two-hour lab/activity per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports. Course evaluation is based on a combination of homework, quizzes, lab reports, midterm and final exams, and other evaluative tools. The course is a continuation of the first-semester course (PHYS 250).

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences

Effective: Fall 2002

Prerequisite: PHYS 250

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 400** Intermediate Electricity and Magnetism (3-4) Electrostatics and magnetostatics in vacuum; electrical and magnetic properties of matter; electrodynamics, Maxwell's equations, conservation laws, electromagnetic waves and radiation.

**PHYS 400 Intermediate Electricity and Magnetism I (3-4)**

A second undergraduate course in electricity and magnetism, required of all physics majors who typically take it in their fifth or sixth semester. The course includes a review of vector calculus, and in-depth discussions of electrostatics, magnetostatics, in vacuum and in matter, time-varying electric and magnetic fields and electrodynamics, leading to Maxwell's equations. Discussions of conservation laws for charge, energy, and momentum, electromagnetic waves (in vacuum and in matter and at boundaries), electromagnetic vector and scalar potentials and fields, and an introduction to radiation are included.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: PHYS 212PHYS 213 andPHYS 214;MATH 250 orMATH 251;MATH 231 orMATH 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**PHYS 400** Intermediate Electricity and Magnetism (3-4) Electrostatics and magnetostatics in vacuum; electrical and magnetic properties of matter; electrodynamics, Maxwell's equations, conservation laws, electromagnetic waves and radiation.

**PHYS 400 Intermediate Electricity and Magnetism I (3-4)**

A second undergraduate course in electricity and magnetism, required of all physics majors who typically take it in their fifth or sixth semester. The course includes a review of vector calculus, and in-depth discussions of electrostatics, magnetostatics, in vacuum and in matter, time-varying electric and magnetic fields and electrodynamics, leading to Maxwell's equations. Discussions of conservation laws for charge, energy, and momentum, electromagnetic waves (in vacuum and in matter and at boundaries), electromagnetic vector and scalar potentials and fields, and an introduction to radiation are included.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: PHYS 212PHYS 213 andPHYS 214;MATH 250 orMATH 251;MATH 231 orMATH 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 402** Electronics for Scientists (4) Circuit and network theory; active devices; amplifiers; introduction to digital electronics; noise theory.

**PHYS 402 Electronics for Scientists (4)**

A junior-senior theory/laboratory course providing a survey of modern electronics from a data acquisition and analysis point of view. One of several possible lab-based courses taken by physics majors in several options to satisfy a lab requirement, typically taken by physics majors in their senior year. This course is very useful for students interested in experimental research work and includes examples such as digital data acquisition, the lab study of various electronic devices, fast Fourier transform methods and other topics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MATH 250 orMATH 251;PHYS 212PHYS 213 andPHYS 214

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 406** Subatomic Physics (3) Introductory treatment of elementary particles, fundamental strong and electroweak interactions, nuclear structure, accelerators, particle detection, nuclear astrophysics.

**Subatomic Physics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

Prerequisite: PHYS 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 410** Introduction to Quantum Mechanics I (3-4) Basic postulates; Schrodinger wave equation; stationary states; variational method; scattering in one dimension; orbital angular momentum; hydrogen atom; numerical methods.

**Introduction to Quantum Mechanics I (3-4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MATH 250 orMATH 251;MATH 230 orMATH 231;PHYS 237

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 411** Introduction to Quantum Mechanics II (3) General theory of angular momentum; approximation methods; scattering theory; radiation theory; applications to atomic, molecular, condensed matter, nuclear and particle physics.

**Introduction to Quantum Mechanics II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994  
Prerequisite: PHYS 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 412** Solid State Physics I (3) Crystal symmetry, x-ray structure analysis, lattice vibrations, thermal properties, free electron transport theory, elementary one-electron quantum theory of solids.

### **Solid State Physics I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1986  
Prerequisite: MATH 230 or MATH 231  
Concurrent: PHYS 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 413** Solid State Physics II (3) Quantum theory of electronic and optical properties of solids, semiconductors, dielectrics, magnetic properties, crystal imperfections, low- temperature effects, and superconductivity.

### **Solid State Physics II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1986  
Prerequisite: PHYS 412

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 414** Solid State Physics (3) Crystal structure; reciprocal lattice; X-ray diffraction; lattice vibrations; thermal properties; free electron gas model; energy bands; semiconductors; magnetism.

### **Solid State Physics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: MATH 230PHYS 237

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 419** (MATH 419) Theoretical Mechanics (3) Principles of Newtonian, Lagrangian, and Hamiltonian mechanics of particles with applications to vibrations, rotations, orbital motion, and collisions.

### **PHYS (MATH) 419 Theoretical Mechanics (3)**

A second course in classical mechanics, required of all physics majors who typically take it in their 5th or 6th semester. The course includes a review of relevant mathematics, detailed discussions of advanced topics in Newtonian mechanics, introductions to Lagrangian and Hamiltonian dynamics, and applications to such forced oscillations, orbital motion, vibrational motion and normal modes, rigid body motion, and collisions.

It is a prerequisite for Physics 461, which is a second semester extension. It is also a valuable background for most 400-level physics courses, especially Physics 410.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: MATH 230 or MATH 231; MATH 250 or MATH 251; PHYS 212PHYS 213 and PHYS 214

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 420** Thermal Physics (3) Basic postulates of statistical mechanics and thermodynamics, microscopic quantum states and macroscopic parameters; partition functions; Maxwell- Boltzmann and quantum statistics.

### **Thermal Physics (3)**

General Education: None  
Diversity: None



Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MATH 230 or MATH 231; MATH 250 or MATH 251; PHYS 237

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 421W** Research Methods in Physics (3) Methodology focusing on the theory of measurement and experiment design.

### **Research Methods in Physics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PHYS 237

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 443** Intermediate Acoustics (3) Vibration and simple vibrating systems, sound wave propagation, acoustic instruments, recent developments.

### **PHYS 443 Intermediate Acoustics (3)**

An intermediate acoustics course, used as an elective by Physics majors in many options and used as a requirement by Physics majors in the Acoustics option. Building on classical wave theory learned in the 200-level introductory sequence, this course discusses such topics as the mathematical foundations of wave equations, basic acoustic systems, acoustics in fluids, attenuation and the fluctuation-dissipation theorem, and acoustical radiation and scattering. The emphasis is on the basics of mathematical and physical acoustics rather than applied acoustics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1999

Prerequisite: MATH 251; PHYS 212; PHYS 213 and PHYS 214 ; or PHYS 203 or PHYS 204

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 444** Topics in Contemporary Physics (2) Modern research topics and career opportunities in physics; employment, graduate education, and tailoring the physics curriculum to meet career goals.

### **PHYS 444 Topics in Contemporary Physics (2)**

A course required of all Physics majors, designed to be taken in the Spring semester of the junior year. Introduces students to modern research areas in physics at Penn State and elsewhere. Provides background on career choices available with an undergraduate physics degree, including employment opportunities, planning for graduate study, and tailoring the physics curriculum to meet career goals. The course structure is typically comprised of talks by Penn State faculty, outside visitors, students panels, and other information speakers, with students writing short and long reports using the class presentations discussions, and research from outside sources (research journals, internet, etc.) as background material.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PHYS 237 and 3 credits of physics at the 400 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 446** The Year in Physics: A Seminar on the Latest Research (1) Discussion recent research in physics.

### **The Year in Physics: A Seminar on the Latest Research (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PHYS 211

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 457** Experimental Physics (1-3) Selected experiments in various fields of physics.

### **PHYS 457 Experimental Physics (1-3)**

An intermediate laboratory course, required of all Physics majors and taken by other students, typically in their

junior/senior years, this course provides an introduction to modern laboratory techniques and instrumentation used in research labs. Typical 'short' experiments include X-ray diffraction, Compton scattering, velocity of light determination, high-temperature superconductors, Raman scattering, Hall effect, scanning tunneling microscopy (STM), and many others, as well as long experiments. This three-credit course also serves as the writing intensive course at the 400-level for most physics majors. One- and two-credit versions of 457 (without the writing-intensive component) are taken by science and education students outside of physics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PHYS 212 rPHYS 213PHYS 214 andPHYS 237

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 457W** Experimental Physics (3) Selected experiments in various fields in physics.

### **PHYS 457W Experimental Physics (3)**

An intermediate laboratory course, required of all Physics majors and taken by other students, typically in their junior/senior years, this course provides an introduction to modern laboratory techniques and instrumentation used in research labs. Typical 'short' experiments include X-ray diffraction, Compton scattering, velocity of light determination, high-temperature superconductors, Raman scattering, Hall effect, scanning tunneling microscopy (STM), and many others, as well as long experiments. This three-credit course also serves as the writing-intensive course at the 400-level for most Physics majors. One- and two-credit versions of Physics 457 (without the writing-intensive component) are taken by science and education students outside of Physics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PHYS 212PHYS 213PHYS 214 andPHYS 237

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 458** Intermediate Optics (4) Geometrical and physical optics: theory of lens systems, aberrations, apertures, interference, diffraction, polarization.

### **PHYS 458 Intermediate Optics (4)**

An intermediate optics course which builds on the wave and optics used in the 200-level introductory course, this course (which includes a lab component) focuses on physical and geometrical optics, propagation of light and its interaction with matter, polarization, interference, and diffraction. Optical components such as lenses, mirrors, prisms, fiber optics, spectrometers, and interferometers are discussed and employed. The laboratory component includes a number of 1-2 period experiments designed to illustrate the principles of applied geometrical and physical optics. Longer (5 period) experiments are also included which utilize modern, computer-controlled multi-channel detection systems and are applied to such systems as thin-film optics and the optics of semi-conductors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PHYS 212PHYS 213PHYS 214;MATH 250 orMATH 251;MATH 230 orMATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 461** (MATH 461) Theoretical Mechanics (3) Continuation of Math.(Phys.) 419. Theoretical treatment of dynamics of a rigid body, theory of elasticity, aggregates of particles, wave motion, mechanics of fluids.

### **Theoretical Mechanics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1986

Prerequisite: MATH 419

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 462** Applications of Physics in Medicine (3) Applications of physics in human physiology and in instrumentation for medical diagnosis and treatment.

### **PHYS 462 Applications of Physics in Medicine (3)**

This course is a general survey of applications of physics in understanding the physiology of the human body--for

example, the function of the eye, ear, and electrical conduction. Physical principles behind diagnostic medical measurement are covered, including imaging modalities: X-ray, nuclear, magnetic resonance, and ultrasound. Treatment applications such as laser surgery and radiation therapy are also covered. The course is appropriate for students intending work in a health profession.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2002

Prerequisite: PHYS 211PHYS 212PHYS 213 andPHYS 214 ; orPHYS 250PHYS 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 472** Elements of Nuclear Physics and its Applications to Medical Imaging and Treatments (3) Introduction to the theory of nuclei, interactions with fast particles, and applications to medical imaging and radiation oncology.

### **PHYS 472 Elements of Nuclear Physics and its Applications to Medical Imaging and Treatments (3)**

Modern physics tools are used now in numerous medical diagnostic methods, for various treatments of tumors, and so on. The class will focus several aspects of modern physics relevant to medical applications: (i) mechanisms of interaction of high energy particles, i.e. photons, electrons, protons, neutrons, and nuclei, with materials and methods of generating beams of such particles, (ii) applications of such beams for obtaining images of the body, (iii) radioactive decays of nuclei and use of the nuclear decays for imaging of dynamical processes in the body, (iv) shell structure of nuclei and applications of nuclear magnetic resonance in imaging. The course will allow students to understand the physics underlying the medical application of modern physics and physics of a wide range of new tools used in medicine, including computer tomography, positron emission tomography, and magnetic resonance imaging, as well as use of photon, proton and nuclear beams for tumor treatments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: PHYS 211PHYS 212PHYS 213PHYS 214 andPHYS 237

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 479** (MATH 479) Special and General Relativity (3) Mathematical description, physical concepts, and experimental tests of special and general relativity.

### **PHYS (MATH) 479 Special and General Relativity (3)**

This course is intended as an elective course (within the undergraduate Physics program) for Physics majors to be taken in their senior year. Intended to be cross-listed with MATH, it can also be used in support of a Mathematics minor and, in some options, within the Math program as a program elective as well. The course significantly expands upon the introduction to Special Relativity (SR) seen in PHYS 237, including discussions of experimental tests of SR and applications to relativistic mechanics. It then introduces students to the mathematical machinery required to understand General Relativity (GR), starting with the description of curved spacetimes and geodesics. It discusses solutions to the Einstein equations and surveys the classic tests which established the validity of General Relativity. It concludes with applications of GR in such areas as black hole physics, the generation and detection of gravitational waves, other topics (such as cosmology, relativistic astrophysics, etc.).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PHYS 237PHYS 400PHYS 419;MATH 250 orMATH 251;MATH 230 orMATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 494** Physics Research Project (1-12) Investigation of an original research problem, including a literature search. Preparation of a formal thesis is optional.

### **Physics Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 494H** Physics Research Project (1-12) Investigation of an original research problem, including a literature search.

Preparation of a formal thesis is optional.

**Physics Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 496H** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PHYS 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Plant (PLANT)

**PLANT 461** Emerging Issues in Plant Sciences (3) A discussion-based capstone course that elucidates the current and up-and-coming issues in the plant sciences.

### **PLANT 461 Emerging Issues in Plant Sciences (3)**

Emerging Issues in Plant Sciences is a capstone course designed for the Plant Sciences, and is also available to students from other majors. This highly participatory course emphasizes many of the interdisciplinary topics in the plant sciences today, with a focus on balancing plant production with environmental conservation. Topics include: conservation cropping systems and tillage, soil health; transgenic crops; managing landscapes for ecosystem services, climate change, pest and nutrient management alternatives; biofuels; urbanization and regional food systems. It is a team taught course with guest lectures by experts on specific topics and includes student analysis and discussion with the guidance of the instructors. Students will read and write about publications from the peer reviewed literature and research and present about an emerging issue.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: AGRO 028 or HORT 101 AGECO 201 or BIOL 127 or HORT 202 ENT 313 and SOILS 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Plastics Engineering Technology (PL ET)

**PL ET 050** Computer Applications for Plastics Engineering Technology (2) Programming, spreadsheets for the solution of technical problems, internet access for background and support information, formatting professional reports, creating presentations.

### **PL ET 050 Computer Applications for Plastics Engineering Technology (3)**

This course will acquaint first semester students with a variety of computer software programs that will be used in upper level classes. Extensive hands-on laboratory problems are designed to reinforce the lecture. After completing this course, the students should be able to access plastic related information on the Internet, prepare a formal report complete with footnotes or endnotes, create a computer generated technical presentation, import and export data between different software packages, and program technical spreadsheets for solving engineering problems. Student competency will be assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 097** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 098** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 197** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 198** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 205** Introduction to Plastics (3) Introduction to the plastics industry including fundamental aspects of plastic materials and processing; introduces the chemical influence on mechanical and flow properties of plastic materials.

**Introduction to Plastics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: MATH 040MATH 082MATH 140 . Prerequisite or concurrent:CHEM 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 206W** Plastic Materials and Properties (3) Coverage of the most common commercial plastics including their additives, fillers, and fibers; includes common physical tests used to determine material characteristics; writing intensive.

**Plastic Materials and Properties (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: PL ET 205

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 222** Introduction to Plastics Processing (4) Introduction to plastic processing methods, materials, tooling, design, and equipment. Safe operation and practices are emphasized.

**PL ET 222 Introduction to Plastics Processing (4)**

This course provides an introduction to plastics processing and is intended to provide broad foundational knowledge of the different types of plastics processing methods, equipment, and materials. The educational objectives are to develop competency in the determination of potential methods for manufacturing various component designs and the determination of cost effectiveness for the possible process alternatives selected. After completing this course, the student should have a basic understanding of a multitude of plastic processing methods and have knowledge of the interrelationship of part and tool design as it impacts manufacturing. The student should also understand materials and material flow phenomena as it affects processing and should understand the processing and troubleshooting techniques typically found in the industry. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 225 Instrumentation, Control, & Automation for Plastics (2)** Instrumentation, control and automation basics & strategies for plastics processing.

**PL ET 225 Instrumentation, Control, & Automation for Plastics (2)**

This course provides basic foundational knowledge in the circuits, instrumentation and control systems used in plastics processing. The educational objectives are to create a basic understanding of electric circuits, transducers, automation, control systems, and control strategies encountered for a variety of processes. After completing this course, the student should demonstrate a basic understanding of the operation of temperature, force, pressure, position, and flow transducers along with the operation of different types of hard automation and robots used in typical plastics processing applications. The student should also demonstrate an understanding of issues related to interfacing instrumentation and automation systems with processing and monitoring equipment. Finally, the student should demonstrate understanding of basic control strategies such as OPEN LOOP, CLOSED LOOP, ADAPTIVE CONTROL, and PID. Lectures will be reinforced through laboratory exercises. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: MATH 081 ; Prerequisite or concurrent:PL ET 222

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 227 Plastics Processing & Statistical Methods (4)** Study of advanced issues in plastics processing, such as design of experiments and SPC/SQC will be covered.

**PL ET 227 Plastics Processing & Statistical Methods (4)**

The course is intended to give the students the basic tools needed to identify and troubleshoot plastic processing problems. Injection molding will be the primary focus. The course objectives are: to introduce the student to the root cause of injection molding problems both at the start-up of a new mold and during production runs, to identify when a process has changed and to monitor the effects of attempts to improve the process using statistical process control and other statistical methods, to identify and minimize the sources of process variation; to ascertain the capability of measurement systems, and to gain understanding in the use of designed experiments techniques for developing cause and effect information. During the course, students will build upon knowledge gained in earlier courses in plastics materials and plastics processing. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: PL ET 205PL ET 222 ; Prerequisite or concurrent:PL ET 225

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 232 Introduction to Part and Tool Design (3)** CAD techniques for designing plastic products and related tooling.

**PL ET 232 Introduction to Part and Tool Design (3)**

This is the introductory course for designing plastic parts using CAD solids modeling techniques. This course builds upon fundamental CAD modeling skills developed during earlier courses and initially focuses on the fundamental techniques needed to construct solids models for thin walled plastic parts. Focus then shifts toward using similar solids and surface modeling techniques for designing molds for plastic parts. The course objective is to provide the basic knowledge to construct solid models of plastic parts and related tooling and to lay the foundation for more advanced plastic part and mold design courses. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: EG T 121 Prerequisite or concurrent:PL ET 222

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 235 Tool Design & Machining (2)** Study of the methods used to create the tooling used in plastics fabrication and the methods of maintaining tooling.

**PL ET 235 Tool Design & Machining (2)**

This course will provide the students with an understanding of the construction methods and materials used in the creation of plastics tooling. Various methods of mold manufacture are introduced along with the fabrication practices needed to permit successful mold operation. The course concludes with a study of the materials used in mold construction and plastics tooling preventative maintenance practices. The course objective is to provide the knowledge needed to properly design parts for manufacturability. Students will also learn how to set up a system to maintain tooling to reduce catastrophic failures. Through the lab portion of this class, the students will obtain hands-on experience in the actual construction methods. This course uses knowledge gained in earlier plastics materials and processing courses to guide tooling design and fabrication decisions. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: PL ET 222 ; Prerequisite or concurrent: PL ET 232

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 297 Special Topics (1-9)** Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 304 Plastic Material Properties and Applications (3)** Synthesis, polymerization, and characterization of thermoplastic and thermoset polymeric materials.

**PL ET 304 Plastic Material Properties and Applications (3)**

This course studies the fabrication of polymers and macromolecules. Current commercial techniques are covered in detail and encompass the reactions and processes currently being used in the plastics industry today. Also covered is the technology for creating different grades of polymers by using various fillers, additives, and blends to create variations within the known polymers. This is supplemented by laboratory exercises that draw together theory and practice.

Polymer synthesis is a key link between the atoms present before they become a part of a polymer molecule and the molded article, the end produce of the molding operation. The course objective is to establish a basic knowledge of these processes to enable a deeper understanding of the capabilities of molding, designing, and the performance of polymer articles. Students will be able to start with a handful of carbon atoms, a synthesis procedure, and an injection molding machine, and understand what affects the polymer at each stage, rather than being limited to understanding a given molding process. It will allow students to adapt to industrial needs and the push towards a scientific approach to problem solving, rather than acting as traditional molding machine processors. Students will also be able to correlate the polymerization process to the performance derived in plastics processes and molded articles. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005



Prerequisite: PL ET 206W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 323 Packaging Processes (3)** In-depth studies and laboratory experiments will be conducted on processes such as blow molding, thermoforming, extrusion and other packaging processes.

### **PL ET 323 Packaging Processes (3)**

In this course the student will learn about plastic packaging processes of blow molding, thermoforming, extrusion. Other minor processes will be presented. The course objectives are to develop student proficiencies in identifying the polymer material requirements for each process, in identifying the mold design and construction techniques for each process, and knowing how plastic packaging processes differ from injection molding. The laboratory will include experiments that show the advantages of each process and to develop student competency in running equipment for each process explored. The students shall also develop competency in conducting elementary process troubleshooting for each process. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: PL ET 225PL ET 227PL ET 304

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 330 Advanced Tooling & Rheology (4)** Tooling design strategies are developed considering a material's physical and rheological influences on processing and part formation.

### **PL ET 330 Advanced Tooling & Rheology (4)**

This course is intended to allow the student to develop an understanding of the critical relationship between the physical and rheological properties of plastic materials and their influence upon processing and part formation. The course objective is to establish this relationship since it is the basis of establishing tooling design strategies for optimizing part quality, moldability, and productivity. Upon completing the course, the student will have proficiency in the use of injection molding analysis software (Moldflow) and be able to develop strategies for its efficient and effective application. The software is used as a means to accelerate and enhance the students understanding of the injection molding process. Students will learn how software usage can be interwoven with knowledge of polymer melt rheology, shrinkage, warpage, residual stresses and their relationship to tooling to enable proper process and molded part design. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: PL ET 206WPL ET 227PL ET 232PL ET 235PHYS 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 345 Heat Transfer (2)** Fundamentals of heat transfer including conduction, convection, and radiation.

### **PL ET 345 Heat Transfer (2)**

The course is intended to allow the student to develop the ability to conceptually evaluate heat transfer problems, and solve practical problems that might be encountered in the plastics industry including those that relate to energy management in plastic materials or processes. The course objectives are accomplished by establishing the concepts of the three principle mechanisms of heat transfer, solving plastics related problems illustrative of each mechanism, and reinforcing theoretical concepts learned through the use of simulation software and hands-on laboratory experiments. During this course students will build upon the knowledge gained in an earlier course in the thermal and fluid sciences. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: PL ET 366

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 350 Design of Plastic Parts (4)** Designing plastic parts utilizing CAD, FEA, and CAE technologies for the design and

for structural, dimensional, and process evaluation and optimization.

**PL ET 350 Design of Plastic Parts (4)**

The educational object of this course is to develop knowledge in the process of designing plastic parts and products. The course focuses on the critical relationship between the part design and the plastic material, tooling and the specific manufacturing methods used to produce the part. Use of CAE technologies are used for enhancing concurrent engineering strategies and evaluating manufacturability of a design. The course develops special design guidelines to accommodate plastic material characteristics and production requirements. The course also addresses issues of assembly and decoration of plastic parts. Upon completing the course students will demonstrate competency in relating how engineering properties of plastic materials and their unique characteristics relate to product design. This includes understanding viscoelasticity and the effects of time, strain, rate, temperature and environment on plastic materials and the product. During this course students will build upon the knowledge gained in previous courses on strength of materials, plastic materials, part and tool design and finite element methods. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40-50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: MCH T 213PL ET 232PL ET 304PL ET 330 . Prerequisite or concurrent:MET 418

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 366 Fluid and Thermal Sciences (3)** Fundamentals of thermodynamic principles, fluid statics, and fluid dynamics.

**PL ET 366 Fluid and Thermal Sciences (3)**

This course is intended to develop the student's ability to conceptually evaluate thermal or fluid problems, and solve practical problems that might be encountered in the plastics industry. The course objectives are: to introduce the fundamentals of thermodynamic behavior by defining pertinent material properties that define an equilibrium state based on temperature and pressure, to study internal energy, enthalpy, and the specific heats of liquids, solids, and gases, including ideal gas behavior and changes in energy level as a result of phase changes, and to introduce mechanical and electrical work leading to applications of the First Law of Thermodynamics. Other objectives are to study fluid static principles involving submerged body behavior by investigating topics of buoyancy and centers of pressure. Fluid dynamics studies explore the Bernoulli and Energy equations, head losses, and calculation of pump requirements from pressure drop and volumetric flow data. Criteria for determining laminar and turbulent flow are established. Viscosity of fluids and fluid rheology topics are also introduced. Students will apply the lessons learned in a subsequent course on heat transfer. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: MATH 083PHYS 250PL ET 222PL ET 227 . Prerequisite or concurrent:PL ET 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 380 Introduction to Plastic Medical Devices (1)** Introduction to plastic medical devices and their manufacture. Also covers the regulatory requirements of plastic medical devices.

**PL ET 380 Introduction to Plastic Medical Devices (1)**

This course serves as the introductory course required for the new Certificate in Medical Plastics. It will provide students with an overview of the medical plastics industry. This will be accomplished by providing students with an understanding of the medical device regulatory environment and its impact on medical plastics design, manufacture and material selection.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: PL ET 205PL ET 222

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 397 Special Topics (1-9)** Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 425** Automation for Plastics Processes (2) Control methods, sensors, and other hardware used in the manufacture of plastic products.

#### **Automation for Plastics Processes (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 430** Packaging Design & Materials (2) Study of design and materials for plastic packaging including blow molded, thermoformed and extruded products.

#### **PL ET 430 Packaging Design & Materials (2)**

This course is intended to acquaint the student with issues related to plastic packaging material selection and packaging design. The course objectives are to establish knowledge in the primary materials used in packaging and how each is used in the design of various packaging systems, to identify how to select materials based on the requirements of the product, to identify the benefits and limitations for each process, to identify key materials and processes for a given type of package, to design robust packaging, and to optimize the product for each process. During the course students will build upon knowledge gained in earlier courses related to plastics packaging processes and plastics part design. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: Prerequisite or concurrent: PL ET 304 PL ET 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 460** Advanced Computer Applications in Plastics Design (3) Advanced applications of computer-aided design, computer-aided manufacturing, computer-aided engineering, and finite element analysis to plastic product development.

#### **Advanced Computer Applications in Plastics Design (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: PL ET 350

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 462** Advanced Injection Molding (3) New and advanced injection molding technologies, implementing statistical methods such as design of experiments.

#### **PL ET 462 Advanced Injection Molding (3)**

This course continues studies in advanced processing and is intended primarily for students with career interests as a process engineer in an injection molding facility. The course objectives are to: establish how to use data collected from a molding process for new machine evaluation, expand knowledge in process monitoring & troubleshooting, perform advanced process modeling, and develop an awareness of computer integrated manufacturing. The student will study new developments in process control and advanced injection molding technologies (such as gas assist, powder injection molding, & microcellular molding). During the course students will build upon knowledge gained in earlier courses in instrumentation and controls, plastics processing, and advanced tooling and rheology. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year as a technical elective with an enrollment of 15 to 20 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: PL ET 225PL ET 227PL ET 330

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 464** Plastics Failure Analysis (3) Fundamentals of Plastics Materials Process and Design Failure Analysis.

### **PL ET 464 Plastics Failure Analysis (3)**

This course is intended to give the student an introduction to failure analysis for plastic articles. Course objectives are to: provide methods for the identification of common failure problems associated with modern molded plastic parts, perform a causal analysis for each failure type, provide an introduction, instruction, and allow operation of several analytical tools used to establish failure mechanisms, and review the relevant polymer physics and chemistry concepts involved in failure analysis. During the course students will be using concepts studied earlier in plastic material properties and applications. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year as a technical elective with an enrollment of 15 to 20 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: PL ET 304

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 465** Advanced CAE for Plastics II (3) Advanced Computer-Aided Engineering techniques for plastic part design.

### **PL ET 465 Advanced CAE for Plastics II (3)**

This course focuses on advanced applications of computer-aided design (CAD), computer-aided engineering (CAE), and finite element analysis (FEA) to plastic product development and plastic processes. The course objectives are to: analyze gas-assist injection molding from a design, simulation, and processing perspective; conduct data exchange techniques that reflect industry trends for moving geometry between native CAD systems, use finite element preprocessors, and analytical software packages; conduct an in-depth cooling analysis using mold cooling software and finite element heat transfer techniques; use CAE in the analysis of shrinkage and warpage; and study design optimization software approaches to maximize strength and minimize material investment. Extensive lab time is allotted for hands-on application of material present in the class, and is tied closely to lecture concepts. During the course students will build upon knowledge gained in earlier courses in plastics part design, heat transfer, and finite element methods. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year as a technical elective with an enrollment of 15 to 20 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PL ET 345PL ET 350MET 418

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 467** Secondary Operations (3) Fundamentals of decoration and assembly methods used in the plastics industry.

### **Secondary Operations (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: Seventh semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 468** Rapid Commercialization (3) Techniques to help get plastic products to market quicker and to build solids and surface modeling skills.

### **PL ET 468 Rapid Commercialization (3)**

The educational objective of this course is to develop the student's ability in using techniques to reduce the time to design a product and get it into production. The course objectives are to enable students to understand how to evaluate the differing points of view of each group during the concurrent engineering of plastic products and to analyze various rapid prototyping and tooling methods to determine their applicability to plastic products. Several simulations packages will be used to show their use in the preliminary design stages. During the course students will be using concepts studied earlier in plastic part design. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year as a technical elective with an enrollment of 15 to 20 students.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: PL ET 350

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 477 Novel and Emerging Technologies (2)** Study of novel and emerging technology in plastics.

**Novel and Emerging Technologies (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: PL ET 323PL ET 350

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 481 Plastic Product Development (3)** This course provides students with an in-depth overview of the integrated new product development process.

**PL ET 481 Plastic Product Development (3)**

Current product development trends have moved toward an integrated and interdisciplinary development process that includes team members from all aspects of the corporation. This course serves as an overview of that integrated product development process. Prior to this course, students will have studied methods and processes for the detailed and structural design requirements for plastic components. In this course, the students will be taught how their detailed design process fits into the remainder of the overall product development process. This will be accomplished by traditional lectures on the process and is underscored by a semester long project in which the students will form teams, invent a product idea, and develop that idea to a prototype state.

Among the topics addressed are:

- Concept development and selection
- Working in a interdisciplinary team environment
- Gathering and organizing customer needs
- Translating customer needs into product specifications
- Product development economics
- Prototyping methods and purpose
- Industrial design
- Intellectual property

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: PL ET 350

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 482 Medical Product Development (1)** This course provides students with medical device development requirements and processes. The course is to be taken in conjunction with PL ET 481 as both courses will utilize a semester project to invent and design a new product. Over the course of the semester students will review the FDA classifications, filing requirements, and recommended practices for medical device development. This knowledge will be applied and practiced through the semester projects. Students will learn techniques for Failure Modes and Effects Analysis and how to properly document and manage product change through the development process.

**PL ET 482 Medical Product Development (1)**

This course provides students with medical device development requirements and processes. The course is to be taken in conjunction with PL ET 481 as both courses will utilize a semester project to invent and design a new product. Over the course of the semester students will review the FDA classifications, filing requirements, and recommended practices for medical device development. This knowledge will be applied and practiced through the semester project. Students will learn techniques for Failure Modes and Effects Analysis and how to properly document and manage product change through the development process.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: PL ET 380PL ET 350  
Concurrent: PL ET 481

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 483** Plastics in Medical Applications (3) This course focuses on plastics materials and properties and how they meet the unique medical application and device requirements.

**PL ET 483 Plastics in Medical Applications (3)**

This course studies plastics materials in medical applications and devices. The course focuses on the properties that are important to medical devices such as chemical resistance, sterilization and biocompatibility. A broad range of polymers will be reviewed including commodity resins, such as polyolefins, engineering resins such as polycarbonates, acrylics, nylons and advanced polymers including polysulfones, polyetherether ketones and aramids. The synthesis, production and structure property relationships will be studied with particular emphasis on the effect on sterilization, biocompatibility and FDA regulatory requirements. The effect of additives, stabilizers, fillers and blends will also be reviewed.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: PL ET 304PL ET 380

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 484** Medical Manufacturing Methods (3) This course provides instruction in the methods and practices used in the manufacturing of plastic devices in the medical industry.

**PL ET 484 Medical Manufacturing Methods (3)**

This course provides instruction in the methods and practices used in the manufacturing of plastic devices in the medical industry. The course includes both manufacturing and regulatory requirements. A large portion of the class will involve a simulated process validation exercise. The concepts will be introduced in lecture, parts will be manufactured and measured in the processing lab, and data analysis will be completed in a computer lab. Injection molding will be emphasized as the major plastic part production method, but other processes will be used as needed. Clean room requirements, sterilization and material handling, and common assembly methods will also be covered.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: PL ET 380

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 494A** Plastics Projects (1-12) Supervised student activities on research and/or design projects identified on an individual or small group basis. A specific title may be used in each instance and will be entered on the student's transcript.

**Plastics Projects (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: or concurrent: MET 418PL ET 350PL ET 323

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1992  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 497** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL ET 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Plnt Path&Envi Micro (PPEM)**

**PPEM 120** (GN) The Fungal Jungle: A Mycological Safari From Truffles to Slime Molds (3) This course is an introduction to the world of fungi and their impact on humans and the environment around us.

**PPEM 120 The Fungal Jungle: A Mycological Safari From Truffles to Slime Molds (3)**

Fungi are a fascinating group of organisms that we encounter in everyday life. Apart from the mushrooms on our pizza or mold in our bathtub, fungi are important plant pathogens that severely interfere with agricultural production, cause diseases in humans and insects, and have a major role in ecosystems. The aim of this course is to introduce students to the world of fungi and review the important functions of fungi in human society, to educate students in basic concepts of fungal biology that are scientifically interesting and important to human society, and to train students to understand both basic and current topics in science. Topics to be covered include the structure and classification of fungi, the ways in which fungi interact with other organisms as pathogens or beneficial partners, the contributions fungi make to ecosystem functioning, and the ways in which humans use fungi and products derived from them. We will discuss examples that students are familiar with and encounter in their everyday life. The course also has an informal lab section that includes several class activities and visits. Class activities are designed to be done in small teams and promote team-work learning, problem solving and critical thinking skills. Students will learn how to isolate, grow and identify fungi, among other activities, culminating in a fungal feast. For example, students will could keep a journal on fungi, take quizzes, and deliver a presentation of their favorite fungus, among other assignments. This course is intended to be an introductory science course to non-science majors and will provide important general science knowledge as well as specific details about fungal biology.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 297A** Mushroom Cultivation (3) Two hours of lecture and one 2-hour laboratory per week. The course will review the history of US mushroom production as well as describe current US and global cultivation. The biology and cultivation requirements will be discussed for the most commonly produced mushrooms (i.e. Agaricus, Pleurotus, Lentinula Maitake, Hericium). Laboratories will consist of producing edible mushrooms following current industrial, large scale practices as well as introducing students to the more traditional cultivation methodologies. Students will be involved with substrate preparation, spawning, crop incubation, watering and harvesting during the class. A trip to visit several commercial Pennsylvania mushroom farms will be encouraged.

### **Mushroom Cultivation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 300** (GN) Horticultural Crop Diseases (3) Diseases of horticultural crops are examined stressing their cause, diagnosis, management and national and international importance.

### **PPEM 300 Horticultural Crop Diseases (3)**

Diseases of horticultural crops are examined stressing their cause, diagnosis, management and understanding the roles they play in national and international trade and bio-security concerns. The biology of plant diseases involving a broad range of biotic and abiotic plant pathogens will be discussed. The objectives are that the student completing the course will 1) be able to describe the causes of plant diseases in general and horticultural crop diseases in particular; 2) be able to explain the interactions that occur among the plant, the environment, and biotic and abiotic agents during disease development; 3) have the ability to diagnose and explain the management of key diseases of horticultural crops; and 4) be able to describe the economic and social impact that plant diseases have on horticultural crops, including how the world trade of these crops can result in the global spread of pathogens important to other agricultural crops and native plants in the environment. A once-a-week, 2 hour laboratory will stress practical aspects of identifying diseases and plant pathogens and gaining experience in selecting appropriate disease control practices. The course is recommended for majors in horticulture and urban forestry but is appropriate for everyone interested in growing plants for enjoyment or profit or in maintaining the health of horticultural crops. This course provides an introduction to plant pathology in general and can be followed by more in-depth courses in plant-microbe interactions, mycology, nematology, phytobacteriology, air pollution impacts on terrestrial ecology, or forest pathology.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: 3 credits in a biological science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 318** Diseases of Forest and Shade Trees (2) Introduction to diagnosis and management of forest and shade tree diseases.

### **PPEM 318 Diseases of Forest and Shade Trees (2)**

Diseases of Forest and Shade Trees, is a practical, hands-on, lab and lecture course designed primarily for forestry and



landscape-contracting students. However, the course is also appropriate for any student interested in tree diseases, or for any student who simply wants to know "What is wrong with my tree?" The course content covers the important tree diseases of Pennsylvania, with emphasis on tree diseases that also have national and international implications. New and emerging tree diseases are discussed during the last two weeks of the semester.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 405 Microbe-Plant Interactions: Plant Disease and Biological Control (3)** Survey of microbe-plant interactions causing plant disease, mechanisms of pathogenesis, disease management, and microbial and molecular biological control strategies.

#### **PPEM 405 Microbe-Plant Interactions: Plant Disease and Biological Control (3)**

Plant health in both natural and agricultural ecosystems is essential for sustaining human society and all other life forms on Earth. Plant disease epidemics are common and diverse and can have devastating effects on our population and economy by debilitating the ecosystems on which we depend. This course focuses on biological and environmental factors that influence microbe-plant interactions which in turn determine plant health and initiate plant disease epidemics. Developing strategies for maintaining healthy plants in both natural and agricultural ecosystems requires an understanding of pathogen and host biology, as well as the role of the environment in disease epidemiology. Students will learn about the survival and spread of important plant-infecting fungi, bacteria, phytoplasma, and viruses and how mechanisms for microbial pathogenicity are influenced by the environment. The final section of the course will focus on the use of beneficial microorganisms to maintain and improve plant health. Grades will be based on student performance on a wide variety of activities including labs, quizzes, seminar reports, and exams.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: BIOL 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 412 Turfgrass Disease Management (3)** Introduction to biology of turfgrass pathogens and management of cool- and warm-season turfgrass disease.

#### **PPEM 412 Turfgrass Disease Management (3)**

This course will provide an introduction to concepts of disease processes in plants and biology of plant pathogens, principles of turfgrass disease diagnosis based on symptom development, recognition of signs and microscopic structures of the pathogens, environmental and cultural management factors influencing disease development, significance of pathogen life cycle in disease epidemic development, and integrated turfgrass disease management practices for root and foliar disease. Disease of various turf types for golf courses, residential lawns, landscapes, and athletic fields will be discussed. Disease topics will include diseases that commonly occur in winter, disease that develop in spring and persist into summer, and disease that initiate in summer and remain active until late fall in most regions of North America. A number of non-infectious disorders of turf caused by extreme environmental conditions and improper cultural practices will also be discussed.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: TURF 230TURF 235CHEM 101 orCHEM 110BIOL 127

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 416 Plant Virology: Molecules to Populations (3)** An exploration of the molecular biology and population dynamics of the virus-plant interaction.

**PPEM 416 Plant Virology: Molecules to Populations (3)**

This will be the departmental foundation course for plant viruses, one of the four major pathogen groups. The course will entail an exploration of the history, nature, cause, socioeconomics, symptomatology, physiology, diagnosis, ecology, epidemiology, and control of viral diseases on plants. Special emphases will be placed on replication, and evolution of plant viruses, molecular biology of the virus-plant interaction, replication, virus-like agents (viroids & prions), natural and genetically engineered disease resistance, virus-vector relationship, and population dynamics.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BIOL 110BIOL 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 417 Phytobacteriology (3)** How bacterial pathogens infect plants and evade plant immune responses.

**PPEM 417 Phytobacteriology (3)**

This lecture and lab course covers the genetic, molecular, physical, and physiological mechanisms of bacterial pathogenesis in plants. We will examine how the tools of microbiology are used to deduce the pathogenic mechanisms behind various plant diseases caused by bacteria. Topics include: motility; attachment; evasion of host defense; toxins; enzymes and proteins; biofilms; and bacterial communication. Readings include research and review articles. The course includes weekly hands-on laboratory activities that cover handling bacteria, isolating bacteria from plants, monitoring bacterial growth in plants, monitoring plant symptoms development, and the genetic control of bacterial and plant interactions.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BIOL 110;BIOL 222 orBIOL 322;B M B 211 orMICRB 201 orMICRB 251 orB M B 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 419 Plant Nematology (2)** The biology of plant pathogenic nematodes, the diseases they cause, and their control.

**PPEM 419 Plant Nematology (2)**

The course provides a comprehensive overview of important plant-parasitic nematodes causing economic damage to food, fiber and ornamental crops. Major topics include: identification, taxonomy, biology, ecology, plant-nematode interactions, symptomology and nematode management. The laboratory portion of the course provides hands-on experience extracting nematodes from soil and plants and preparing them for microscopic examination. The course will provide students with sufficient background information to make a preliminary nematode disease diagnosis and control recommendations. The course will also present a broad overview of other important nematode groups found in the soil including free-living, predatory and entomopathogenic forms. Throughout the course, students will be introduced to important scientific literature on nematodes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BIOL 110BIOL 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 425 (BIOL 425) Biology of Fungi (4)** A survey of the biological diversity of fungi, stressing evolution, ecology, disease, morphology, life histories, and importance to humans.

**Biology of Fungi (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: fifth-semester or graduate standing in a biological sciences major with six credits completed in the major

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 427 Mycotoxins: Effects of Fungal Toxins on Human and Animal Health (3)** Description and history of mycotoxicoses. Mycotoxin formation, occurrence, control, economic and social impacts, and regulatory issues.

### **PPEM 427 Mycotoxins: Effects of Fungal Toxins on Human and Animal Health (3)**

This course will provide a comprehensive overview of the multi-disciplinary subject of mycotoxicology. Mycotoxins are chemicals produced by fungi that are toxic to humans and animals. Students will become familiar with the history and description of mycotoxins and mycotoxicoses, formation of mycotoxins, biology of mycotoxigenic fungi, methods of mycotoxin analysis, fate of mycotoxins in food processing, management and prevention of mycotoxins, regulations, and economic and social impacts. This course is appropriate for students who wish to learn more about fungi beyond the introductory level, as well as for those with interests in animal science and husbandry. The subject of mycotoxicology involves most aspects of the agriculture-food system so students of food science, crop and soil science, entomology and plant pathology will find relevant topics in mycotoxicology. Biology and microbiology students especially those with interests in plant-associated microbes and ecology will also benefit from this course. Course format will be two lectures per week and one period of discussion that will include laboratory activities, field trips, case study discussions, and student presentations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BIOL 110 or BIOL 011 and BIOL 012; CHEM 112; CHEM 113

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 430 (E R M 430) Air Pollution Impacts to Terrestrial Ecosystems (3)** An overview of direct and indirect effects of air pollution on terrestrial plants and ecosystems.

### **Air Pollution Impacts to Terrestrial Ecosystems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: BIOL 220WFOR 308

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 454 Virus Ecology (3)** Virus ecology describes how viruses interact with their hosts, and how those interactions modulate the hosts' interactions with their environment.

### **PPEM 454 Virus Ecology (3)**

In this course students will learn about the interplay among viruses, hosts and the environment. The diversity of viruses, which infect all known life forms, will be explored. The important role viruses play in the ecology of the planet, including carbon cycles, host adaptation to extreme environments, host health or disease, and host evolution will be discussed in depth using specific examples. Students also will learn to critically read the scientific literature. Learning will be assessed through a combination of written and oral assignments and exams.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: BIOL 110 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PPEM 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Polish (POL)**

**POL 197** Special topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**POL 199** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**POL 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**POL 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**POL 399** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**POL 499** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Political Science (PL SC)

**PL SC 001** (GS) Introduction to American National Government (3) Introduction to development and nature of American political culture, constitutional/structural arrangements, electoral/policy processes; sources of conflict and consensus.

**PL SC 001 Introduction to American National Government (3)  
(GS)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course takes a broad look at American national government and American politics. It begins with a discussion of founding principles and documents and concludes by looking at how government uses its power. Readings and discussions cover the governing institutions-Congress, Executive, and Courts-and the institutions that link the American people to these-political parties, interest groups, and the media. Throughout, contemporary political events are placed in the context of theories, concepts, and arguments presented in class. By the end of the course students should have an understanding of how American national government is organized; a sense of what political scientists do, the types of questions they ask and the methods they employ; and the ability to make more informed choices in the political arena.

Class meets for two lectures and one discussion section each week. The recitation is led by a graduate teaching assistant and is used to review lecture material, do exercises based on the lectures and reading, and discuss current events and course materials. Grading is based upon multiple choice (or identifications) and essay exams, short papers (some based on applying course concepts to New York Times articles), and participation in section. The course is a prerequisite for most upper level American Politics courses. It fulfills a lower level requirement for Political Science majors, and may be used by non-majors to fulfill General Education and Social/Behavioral requirements. It is generally taught every semester.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 001H** (GS) Introduction to American National Government (3) Introduction to development and nature of American political culture, constitutional/structural arrangements, electoral/policy processes; sources of conflict and consensus.

**Introduction to American National Government (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 001S** (GS) Introduction to American National Government (3) Introduction to development and nature of American political culture, constitutional/structural arrangements, electoral/policy processes; sources of conflict and consensus.

**Introduction to American National Government (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 002** American Public Policy (3) Examination of selected areas of public policy in America. Analysis of policy content, alternatives, and impact.

**American Public Policy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983  
Prerequisite: PL SC 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 003** (GS;IL) Introduction to Comparative Politics (3) Introduction to study of comparative government and politics: normative/ empirical theories; government functions in modern societies; representative structures and processes.

**PL SC 003 Introduction to Comparative Politics (3)**  
**(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

In this course, you will be introduced to the major types of governments in existence today. We will examine several democratic nations, and several dictatorships. We will learn how power is exercised in each major type of government and how different governments grant authority and seek the acceptance and legitimacy of their citizens.

In doing so, we will learn about the variety of ways to organize legislatures and executive branches, the difference between presidential and parliamentary systems, and the varying roles played by the courts and other legal institutions. We will also compare the different ways of holding elections and the different functions of political parties.

In addition, students will gain a better understanding of the history and politics of a small number of nations that will serve as examples throughout the semester. The countries used as examples will vary from semester to semester; however, these will usually include a mix of advanced industrial democracies, developing nations, and communist and former communist governments.

Students will take examinations that include multiple choice, short answer essays, and longer essays. Short projects or a major paper supplement exams. Students are also graded on attendance, participation and oral presentations in weekly recitation sections. The course fulfills one of the lower-division requirements for majors in Political Science and International Politics. For non majors this course may be used to fulfill a general education or Bachelor of Arts social/behavioral science requirement. It will be offered once a year with an enrollment limit of 180.

General Education: GS  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 003U** (GS;IL) Introduction to Comparative Politics (3) Introduction to study of comparative government and politics: normative/ empirical theories; government functions in modern societies; representative structures and processes.

**PL SC 003U Introduction to Comparative Politics (3)**  
**(IL)**

This course provides an introduction to comparative politics. The course has three primary objectives: (i) to introduce students to the major questions in comparative politics, (ii) to acquaint them with the field's best answers, and (iii) to give them the tools necessary to think critically about those answers. The course views comparative politics as a subfield of political science, which, like all of science, is about comparison. In the course, students make many comparisons across disparate contexts and attempt to use such comparisons to test claims made about the political world. In doing so, they learn about the similarities and differences among countries, both democratic and authoritarian. They also learn about the conditions under which some claims about the political world apply or do not apply.

The course is organized around a set of questions that comparative scholars have asked repeatedly over the past several decades: What is the state and where did it come from? What is democracy? Why are some countries democracies whereas others are dictatorships? How might we explain transitions to democracy? Does the kind of regime a country has affect the material well-being of its citizens? Why are ethnic groups politicized in some countries but not in others? Why do some countries have many parties whereas some have only a few? What are the material and normative implications associated with these different types of government? How does the type of democracy in a country affect the survival of that regime?

Using the latest research in the field of comparative politics, students examine competing answers to substantively important questions such as these and evaluate the proposed arguments for their logical consistency and empirical accuracy.

In addressing the substantive questions that comprise this course, students are introduced to a variety of methods that have become central to the study of comparative politics. For example, students are exposed to tools such as decision theory, social choice theory, game theory, and statistical analysis. Throughout the semester, students will have homework assignments to better familiarize themselves with the concepts, theories, and methods that they encounter.

There will be three exams to evaluate the extent to which students have learned the requisite material. There will also be a short final paper in which students must pull together the theoretical insights and empirical evidence that they gained throughout the semester.

General Education: GS  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 007 (GS) Contemporary Political Ideologies (3)** Critical analysis of contemporary political ideologies such as liberalism, conservatism, socialism, anarchism, fascism, feminism, and environmentalism.

**PL SC 007 Contemporary Political Ideologies (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Liberalism, conservatism, socialism, anarchism, fascism, feminism, and environmentalism are ideologies which have inspired political movements. Understanding their meaning is an essential aspect of the study of contemporary politics. In this course, we examine the basic principles of these ideologies and assess their power to mobilize people for political action. In the process, we also explore the role of ideology in America today, including the responsibility of democratic citizens to understand how ideology shapes their politics. This course serves as a prerequisite for all 400-level political theory courses. This course fulfills one of the lower division requirements for majors in Political Science. It is taken by nearly all Political Science majors. For non-majors this course will be used to fulfill general education social/behavioral science requirement and bachelor of arts social science requirement. Students will take examinations which include short answer and essay questions. They also trace a basic concept, e.g., equality, liberty, democracy, across the political ideologies studied. Their final take-home exam compares contrasting meanings of their chosen concept. Participation and group exercises in discussion sections are also graded. PL SC 117 will be offered twice a year with 90 seats per offering.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 014 (GS;IL) International Relations (3)** Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200.

**PL SC 014 International Relations (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course has three major goals. First, you should come away from this course with an idea of what the scientific study of Political Science is all about. Second, you should come away from the course knowing some general theories (explanations) for international behavior that you should use when you think about international politics in the future. Third, you will be introduced to a number of important topics in international politics. These include the end of the Cold War, nuclear weapons, international economics, and international development.

Students will take examinations that include short answer and essay questions. Short projects or papers will supplement exams. Students are also graded on attendance, participation and oral presentations in weekly recitation sections. The course fulfills one of the lower-division requirements for majors in political science and international politics. For non-majors this course may be used to fulfill a general education or bachelor of arts social/behavioral science requirement.

It will be offered at least once per academic year with an enrollment limit of 180.

General Education: GS  
Diversity: IL

Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 014U** (GS;IL) International Relations (3) Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200.

### **International Relations (3)**

General Education: GS  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 014U** (GS;IL) International Relations (3) Characteristics of modern nation-states and forces governing their international relations; nationalism; imperialism; diplomacy; current problems of war and peace. Credit will not be given for both this course and INT U 200.

### **International Relations (3)**

General Education: GS  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 017** (GS) Introduction to Political Theory (3) Introduction to basic issues in political theory through analysis of selected major political thinkers.

### **PL SC 017 Introduction to Political Theory (3) (GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines how the ideas of selected political theorists have been -- and continue to be--crucial for understanding how best to conduct our political lives. Following an introductory exploration of how political theorists think and write about politics, we will read selected theorists from three historical periods: ancient, modern, and contemporary. Our focus will be how these theorists respond to important questions about politics, including how their answers (and even their questions) change over time. Possible questions include: What are the rights of citizens? What are the purposes of states? When is a regime just? How should we organize authority? How should we participate in politics? What counts as political knowledge? How do knowledge and power interact in politics? Most important, what constitutes a good society and a good life? How can we work toward these? So these questions do not remain abstractions we also consider theoretically informed empirical research. By the end of the course, students have a better understanding of selected political theorists and the normative foundations of contemporary politics. This course serves as a prerequisite for all upper level Political Theory courses. This course fulfills one of the lower division requirements for majors in Political Science. Many Political Science majors and minors take it. For non-majors, this course may be used to fulfill general education requirements or the Bachelor of Arts social--behavioral science requirement. Grading is based on analytical papers and--or journal assignments, essay exams, occasional quizzes, group presentations, and class participation. PL SC 017 is offered once a year with 60 seats per offering.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 017W** (GS) Introduction to Political Theory (3) Introduction to basic issues in political theory through analysis of selected major political thinkers.

### **Introduction to Political Theory (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 020 (GS;IL) Comparative Politics--Western Europe (3)** Comparative analysis of political cultures, interest groups, parties, and decision-making processes in principal Western European political systems.

**PL SC 020 Comparative Politics--Western Europe (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The goal of this class is to learn how to compare democratic processes. Therefore, this course is organized by components of political systems rather than individual countries. We will begin with basic information and an overview of organizing principles of modern democracy. Then we will examine the institutional structures of democracies: legislatures, executives, bureaucracies, and federal structures. We will then cover societal interests and social cleavages and the way in which they are organized to influence government. The third section of the course focuses on elections, political parties, party systems, and government formation. Finally, we will examine the effects the rise of the EU on West European governments and their capacity to represent citizens' interests.

Readings in this class will focus on seven countries: France, Britain, Germany, Italy, and Sweden, Netherlands, and Spain. Working in groups students will choose one additional country to study over the course of the semester. Students will use their detailed knowledge of different political systems, from their own study and the readings in the textbook and the web, to assess the larger arguments about how citizens' interests are represented in democratic systems. Evaluation in this course will be based on class participation, quizzes, group projects, and exams. Evaluation methods will vary with instructors. PL SC 20 satisfies the Comparative Politics component of the International Politics Major and the Comparative Politics distribution requirement for the Political Science major. It is recommended for study abroad in Europe. PL SC 20 is a prerequisite for several PL SC 400- level courses. PL SC 20 will be offered once a year with 35 seats per offering.

General Education: GS

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 022 (GS;IL) Politics of the Developing Areas (3)** The impact of colonialism, nationalism, and development policy on the political culture, structure, and transformation of post-colonial regimes.

**PL SC 022 Politics of the Developing Areas (3)  
(GS;IL)**

**BA - This course meets the Bachelor of Arts degree requirements.**

This course will introduce students to the political and economic development of countries in "developing world." Upon gaining an exposure to definitional issues, such as the distinction between the developed and developing world, we'll discuss the theoretical lenses that structure our discussion throughout the semester. The course will then turn to the processes and institutions involved with development assistance, the legacy of colonialism, and state building. By the conclusion of the course students should have a stronger understanding of how political and economic dynamics fuel the nexus between domestic and international institutions and how this affects economic and political development. Evaluation will be primarily through examinations. This course is appropriate for potential majors in Political Science and International Politics seeking to satisfy comparative politics requirements and non-majors satisfying general education requirements.

General Education: GS

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 060 (GS;IL) (ANTH 060, J ST 060, SOC 060) Society and Cultures in Modern Israel (3)** An introduction to the society and cultures of the State of Israel from 1948 to the present.

**PL SC (ANTH/J ST/SOC) 060 Society and Cultures in Modern Israel (3)  
(GS;IL)**

This course will review the social, cultural, and political systems in the State of Israel as they have developed and changed since its inception in 1948. The role of immigration, ethnicity, and religion on Israeli society and cultures will be explored along with the non-Israeli cultures that have helped to shape conditions there. The course will look into the diverse social and political institutions of contemporary Israel, examine the borders and geographic features of the region, and discuss who lives there, where they reside, and for which portions of this period. It will examine the wars and tensions between

Israel and neighboring Arab states; the status of the Arab/Palestinian minority in Israel; and the growth of Palestinian nationalism. Social conditions in the State of Israel are the result of a unique history. Israelis have absorbed large numbers of immigrants from many parts of the world while engaged in ongoing political and military conflicts. Jewish settlers in Israel/Palestine revitalized a language (Hebrew) and developed unusual collectivistic institutions (e.g., the kibbutz). Israeli nationalism is founded both on secular and religious ideologies. It includes notions of a return from Diaspora and the desire for personal and collective redemption. The study of social processes such as these will provide an opportunity to consider the foundations and functions of nation-states and social systems generally. Materials will include selections from primary texts, official documents, novels, films, and ethnographic materials along with scholarly reviews and essays. Students will be exposed to materials produced from a variety of disciplinary and political perspectives. Through writing assignments, projects, and essay examinations, students will integrate, compare, and analyze these materials. The course complements offerings in Jewish Studies, Sociology, Anthropology, Political Science, and Middle East Studies and will satisfy the IL requirement. It enables those in Jewish Studies to examine the roughly 30% of Jews who reside in Israel, builds upon a current course on Zionism, and provides context for the study of modern Hebrew. It offers an additional international alternative for students in Sociology and Political Studies and a topical area in cultural Anthropology. Students in Middle East Studies will find it worthwhile to study a nation with a significant impact on the region. The course will be offered approximately once a year, and enrollment will be limited to 50 students in order to promote active, engaged learning. Evaluations will be based on papers, a project, short quizzes, and essay examinations.

General Education: GS

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 083S** (GS) First-Year Seminar in Political Science (3) Exploration of current topics of interest in political science, international relations, and/or political theory.

**PL SC 083S First-Year Seminar in Political Science (3)**  
(GS;FYS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Every first-year seminar in Political Science focuses on several of the major questions of the field. Many of these questions concern the constitutional arrangements of governments:

What is it that we want governments to do, and what is the ideal government arrangement? Why does every nation (and every state and city) have somewhat different constitutional provisions for legislation, judicial, military and executive functions of government? What can we learn from careful comparisons of different types of government? What is unique to the American system and what are the consequences of this uniqueness?

Other questions concern power: To what extent do wealthy individuals and wealthy organizations have disproportionate power in society? Is this appropriate or not? What is the impact of governmental attempts to limit the influence of the wealthy?

We are also very much interested in the international system: What types of foreign policies and diplomatic strategies reduce the likelihood of war? What is the role of international organizations (such as the UN or World Bank) and multinational corporations in shaping conflicts between nations?

Finally, we are interested in ordinary citizens: Do citizens know enough to formulate rational opinions on public issues? Why are many citizens apathetic? What motivates citizens to support one candidate over another or to favor particular policies and philosophies?

Each first-year seminar will select a special topic of interest and use that topic to explore a subset of these questions in order to provide a challenging introduction to political science. In the course of doing so, each first-year seminar in political science will also introduce students to specialized materials (such as government documents), library resources, and appropriate electronic media. In addition, each seminar will emphasize the standards of evidence, logic, and critical thinking required to develop effective and persuasive reports and oral presentations. Students will write essay exams and one or more written reports on the relevant topic of their own choices. Class participation is required. The course fulfills both a first-year seminar and a general education or Bachelor of Arts social/behavioral science requirement. The course will be offered three times per year with a maximum of 20 seats per offering.

In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 091** Introduction to Peace and Conflict Studies (3) Introduction to theory and practice concerning major

contemporary issues of peace and conflict; includes anthropological, technological, psychological, and economic perspectives.

### **Introduction to Peace and Conflict Studies (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 110 (GS;US) Rights in America (3)** This course explores the historical and contemporary struggles of particular groups within American society to expand their rights.

### **PL SC 110 Rights in America (3) (GS;US)**

The American political system established in 1787 promised several fundamental things: (1) a social order not based upon aristocracy; (2) the rule of law; and (3) basic unalienable liberty. But some groups were excluded from these. This course explores the historical and contemporary struggles of particular groups within American society to expand their rights. We will explore the efforts of African-Americans, women and other marginalized groups to obtain basic liberty, equal protection and civil rights. As we discuss these groups, political institutions, and American politics we will focus on four overarching questions: (1) what is liberty; (2) why do some groups need to fight for rights; (3) how did the expansion of rights—or "rights creation"—come about; (4) and what is the role of courts in expanding, or not expanding, rights? Our exploration of rights in American will proceed one group at a time (i.e., African-Americans, women). We will look first at the history of how rights developed for each group and then discuss the implications of this more generally for the state of equal protection and discrimination in the country. At the end of the course, issues that "push" equality claims into a new dimension are considered. These include movements for separatism in race and gender; the debate over reverse discrimination; speech codes; native Americans and peyote; giving personhood status to the fetus; polygamy; and animal rights.

General Education: GS

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 111 (GH) Debating the Purpose of Government (3)** Students will become acquainted with a variety of political theories and debate their usefulness in considering contemporary political controversies.

### **PL SC 111 Debating the Purpose of Government (3) (GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Although governments must always attend to urgent matters that cannot be put off, government attention is, and perhaps should be, directed as well toward matters that are of fundamental importance. However, there is substantial disagreement about what those matters are. In this course, through brief summarizing readings and through lectures, students will encounter the arguments of various political philosophers making the case that one or another purpose is most essential to government. Among the candidates for the status of primary purpose of government will be civic and moral education, the defense of life and property, the dismantling of the economic foundations of inequality, and the institution of justice in accordance with universal moral principles. The compatibility of the various conceptions of the purpose of government with the experiences and aspirations of women will receive special attention.

After a brief exposure to each perspective, teams of two students each will research and debate the pro's and con's of each perspective in light of what it can contribute to our understanding of contemporary political events and controversies (if there are more than twenty- six students enrolled, some time will be taken from lectures to accommodate debates). Each student will take a turn as debater and a turn at researching, composing, and organizing the content of the team's opening statement. Approximately twenty minutes after each debate will be allocated to questions and comments from students who were not part of either team that day. At the midpoint of the course and after its conclusion, there will be essay exams in which students will be required to demonstrate basic familiarity with summaries of the various political theories and apply those theories to contemporary political controversies.

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**PL SC 112 (GS) Ethics in Citizenship, Politics, and Government (3)** An examination of choices we make as citizens, elected officials or people who carry out the work of government.

**PL SC 112 Ethics in Citizenship, Politics, and Government (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

It is often said that politics is a dirty business, meaning that unethical behavior is prevalent in politics. But this is often said with a twinge of disappointment, sometimes with bitterness or anger. We wish that it were not so. One part of an effort to improve the ethical character of politics is to strive for a clear understanding of what ethical political action is. This course endeavors to arrive at that understanding by dividing the question of ethics in politics into three parts, ethical political action for citizens, ethical political action for elected officials, and ethical political action for persons responsible for carrying out the work of government. In democratic republics the political functions of citizens include choices as members of juries, as people subject to laws, and as voters. In the latter role, they decide, among other things, how much to help the less fortunate, and how much weight to assign to universal principles as opposed to love of one's country solely because it is one's own. Additional questions arise when we consider the problems of defining and achieving ethical action for elected officials. One question is whether we can separate private and public lives to the extent that unethical behavior in one's private life is irrelevant to one's ethical obligations as an elected official. Another is whether claims that some choices are more ethical than others can ever be more than a way to mobilize the resentful. Still another is whether the pursuit of power, honor, and wealth by those in public office is a symptom of a sickness that can be cured through inquiry into what a happy life consists of. In the last part of the course, we will examine the ethical questions facing those who carry out the work of government – by building roads, fighting wars, delivering mail, inspecting meat, or any of the tasks that governments do. What sort of pressures might induce government workers to act in ways that are unethical? How can those pressures be seen for what they are and resisted? Each week, we will pose these and related questions as clearly as possible, and then see how to answer them in real-life cases that have confronted citizens, elected politicians, or government workers. In this way, we will strive to attain an understanding that is a necessary, though not sufficient condition of ethical political action.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 123 (GS;US;IL) Ethnic and Racial Politics (3)** Political movements among United States ethnic and racial groups; government policies on race and ethnicity; comparison to other culturally diverse countries.

**PL SC 123 Ethnic and Racial Politics (3)  
(GS;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Despite many historical predictions that ethnic and racial distinctions would decline over time, recent events in the United States and around the world indicate that ethnic and racial identity remain strongly significant in politics. An analysis of the role race and ethnicity play in politics and government is of major relevance not only in the field of political science, but in several other fields, such as anthropology, sociology, economics, history, linguistics, and religious studies.

By studying ethnic and racial politics, students will learn the various methods by which social groups organize to achieve political goals, how and why opposition usually arises to those goals, and what policies governments can pursue to defuse social tensions. Students will also learn the historical and cultural basis of ethnic identities and the resulting political disputes that result when social groups differentiate themselves from other social groups.

Important to the course will be the use of comparative case studies of the United States to ethnic and racial politics in other countries, such as Canada, Indonesia, and South Africa. Examination of relevant political movements and government policies in these countries will help to determine whether the United States can learn from others or whether others can learn from the United States. The course will also include an international component through the comparative case studies as well as discussion of immigration policy and the role of ethnic groups in U.S. foreign policy.

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007  
Prerequisite: PL SC 001 or PL SC 003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 125 Pennsylvania Government and Politics (3)** Pennsylvania political processes; executive, legislative, judicial decision-making, and electoral behavior; selected public policies.

**Pennsylvania Government and Politics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1984

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 130** (GS;US) American Political Campaigns and Elections (3) Methods and strategies of American political campaigns: polls, political consultants, parties, and the media.

**American Political Campaigns and Elections (3)**

General Education: GS  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 132** (GS;IL) The Politics of International Intolerance (3) Introductory course emphasizing psychological, historical, and political aspects of global intolerance towards minorities.

**PL SC 132 The Politics of International Intolerance (3)**  
**(GS;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

PL SC 132 is an introductory survey concerning the social phenomenon of "intolerance" i. e., attitudes or behaviors that seek to exclude or eliminate groups perceived to be different. Here "difference" encompasses such features as nationality, belief, race, gender, or sexual orientation. Often these aspects of the human condition are the targets of majority discrimination or collective violence.

The course presumes the following assumptions:

- (1) Intolerant attitudes are not just "another point of view" but also an utterly destructive form of behavior inimical to civilized values.
- (2) Few, if any, societies have existed without some forms of intolerance.
- (3) The causes of intolerance are usually multi-causal (economic, political, and psychological) and are understood through social science.
- (4) "Politics" implies both the ideology and organization of intolerant movements and the relation of such movements to public authorities.

Students should expect fairly extensive readings involving primary source material, analyses of intolerant behavior drawn from different disciplines, and comparison of intolerance phenomena from a global perspective. All examinations are in an essay format and may require synthesis of sources to address specific questions. Each student should be prepared to research an example of intolerance through print and electronic sources. A short paper based on the research should emphasize comparison, analysis, and consequences. The finding may be presented to the class for discussion.

General Education: GS  
Diversity: IL  
Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 135** (GS) (S T S 135) The Politics of the Ecological Crisis (3) The political implications of the increasing scarcity of many of the world's resources.

**PL SC (S T S) 135 The Politics of the Ecological Crisis (3)**  
**(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

"The Politics of Scarcity" examines some "big" questions about the prospects for humans in general and democracy in the United States in particular. Much of the reading assumes that our civilization faces the twin problems of increasingly serious shortages of resources and a growing ecological crisis that threatens the basis of life. Further, it argues that these "twin crises" feed upon each other, and that together they pose serious short and long run challenges to survival. Some readings attribute these problems to the dominant values that characterize modern Western society. The course does consider some dissents from this perspective, arguments that things will be just fine. However, it concentrates on problems and predictions of trouble. Thus, the class does not claim to present an evenly balanced assessment. Rather, it recognizes that most of what we learn, read, and see supports the status quo and assumes our civilization and energy-dependent way of life will continue. Consequently it makes sense to emphasize the less frequently argued position

that we may be headed for disaster.

The class aspires to appeal to students regardless of major or college -- to scientists, engineers, students of the humanities, and even economists and political scientists. It fulfills the University-wide general education requirement in Social Science. Although it discusses the role of politics in general and the role of the American political system in particular in discussing the "twin crises," it mostly grapples with fundamental questions of value that underlie and guide the play of power in our political system and with how the massive changes now taking place globally both affect and are affected by politics.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 137** United States Intelligence and Policy Making (3) The policy making process in the United States foreign intelligence and security policy; emphasis on the period following World War II.

#### **United States Intelligence and Policy Making (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 140** (GS) Contemporary Controversies in International Relations (3) Contemporary issues of international security presented rigorously using analytical tools of international relations and political science.

#### **PL SC 140 Contemporary Controversies in International Relations (3) (GS)**

PL SC 140 investigates international security in the post-Cold War world. It does so by focusing on critical, ongoing, international conflicts and problems. These include the rise of China, resurgence of Russia, and international terrorism. After a brief introduction to key theories and tools of International Relations and some historical context, we will focus on the division of the post-Cold War world into zones of peace (characterized by liberal, free market democracies) and turmoil (characterized by ethno-nationalist, religious, and territorial conflict). The course will also cover a range of related security topics including terrorism, the proliferation of weapons of mass destruction, and instability in the developing world.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 155** Understanding Tyranny (3) Exploration of the rationales, methods, and consequences of highly repressive political regimes through novels, films, and memoirs.

#### **Understanding Tyranny (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 177** (GS) Politics and Government in Washington DC (1-3) The course centers on a Spring Break trip to Washington DC, with students meeting on campus before and after the trip.

#### **PL SC 177 Politics and Government in Washington DC (1-3)**

This course centers on a Spring Break trip to Washington DC, where students will meet with their members of Congress, get briefings at foreign embassies and international organizations, meet with leaders of federal government agencies, participate in seminars led by interest groups and political party officials and consultants, and tour government offices and

facilities. The class will meet before the trip to discuss the history, culture, and context of politics and government in the capital city of the United States and will continue to meet after the trip so that students can analyze what they have learned about politics and government in Washington as a result of their experiences during the trip. The course is open to and appropriate for students in all majors.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 178** Organized Crime, Law, and Politics (3) This course will address laws, politics, and policies related to organized crime issues.

### **PL SC 178 Organized Crime, Law, and Politics (3)**

This course addresses the role and impact of organized crime in US laws, politics, and policies over the past century, with particular attention to modern organized crime groups. The course will look at how organized crime syndicates influenced and often cooperated with some political leaders and law enforcement agencies in the twentieth century, while other political leaders became famous for prosecutions of organized crime figures. Modern legal tools in the fight against organized crime will be discussed, such as RICO and witness protection programs. And the course will look at many examples of modern organized crime groups that originated in Europe, Asia, or Latin America, but which now have an impact on US society, and the policies that attempt to limit the influence of modern organized crime. Included in the examination of modern organized crime will be the connection to modern terrorist activities.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 197** Special topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 199** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 300H** Introduction to Independent Thesis Research (3) Introduction to research design, principles of social science research, and development on honors theses research proposal.

**Introduction to Independent Thesis Research (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 306H** Senior Thesis Writing Workshop (1 per semester, maximum of 3) This seminar supports the writing and editing of senior honors theses.

**PL SC 306H Senior Thesis Writing Workshop (1-3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is a workshop for honors students in their senior year writing their thesis in political science. There are no assigned readings or written assignments outside of those necessary for the completion of your thesis. Participants are expected to make progress on their own thesis and to contribute to the collaborative enterprise of discussing thesis progress and problems while critiquing one another's work. Each participant is expected to make progress on their thesis, to collectively discuss and consider the research process during workshop sessions, and come prepared to offer useful feedback and criticism on other participants' research.

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 308** Introduction to Political Research (3) Introduction to conceptualization, research design, and measurement in



political research.

**PL SC 308 Introduction to Political Research (3)**

This course introduces students to the research process in political science. The course can be taken by itself or as the first in a two course sequence with PL SC 309. It is intended to give political science majors the skills needed to conduct research in political science, or in related fields such as public policy. The course introduces students to the scientific approach to accumulating knowledge, it examines conceptual and theoretical thinking about politics (e.g. understanding what concepts, variables and hypotheses are), it covers different methods of collecting social science data (interviews, surveys, observation, experiments, analysis of documents, etc.) and it provides an introduction to the interpretation of that data. Ethical issues in research are discussed, and students are also introduced to basic statistical concepts. The course typically includes multiple take home and/or in-class assignments that require students to utilize different data collection methods and practice the generation and interpretation of those data.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2009

Prerequisite: any 3 credits in Political Science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 309** Quantitative Political Analysis (3) Data analysis and statistical applications in political research, including data processing; inferential statistics; contingency analysis; correlation and regression; multivariate analysis.

**PL SC 309 Quantitative Political Analysis (3)**

This course introduces students to the basic statistical techniques used to study politics quantitatively. It can be taken by itself or as the second course in a two course sequence with PL SC 308. It is required for all Liberal Arts Fellows. Students in 309 learn about developing questions suited to empirical research; constructing hypotheses; measuring political concepts; and conducting basic univariate and multivariate analyses. The course includes sections on the basic principles of probability, sampling, and statistical inference so that students can understand and implement statistical techniques for describing and explaining political phenomena. There is also extensive coverage of the use and application of various statistical techniques. Exercises both in and out of class will require students to engage with and apply various social science concepts, and to undertake quantitative analyses of political and policy-relevant data.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2009

Prerequisite: any 3 credits in political science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 399** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 403** The Legislative Process (3) Analysis of the policy process within the legislative system; the effects of environmental factors on policy alternatives and legislative decision making.

### **The Legislative Process (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2001  
 Prerequisite: PL SC 001 or PL SC 003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 405** The American Presidency (3) An examination of the selection methods for, and powers of, the American presidency, as well as other chief executives.

### **The American Presidency (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 1983  
 Prerequisite: PL SC 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 409** (CAS 409) Democratic Deliberation (3) Explores the theory and practice of democratic deliberation in elections, town meetings, juries, legislatures, and other public institutions.

### **PL SC (CAS) 409 Democratic Deliberation (3)**

Many modern democracies have made strides to become more deliberative in how they make decisions. This course looks closely at the most promising innovations in self-government while also reviewing the persistent anti-deliberative and undemocratic features of modern societies and governments. Topics covered in the course include deliberative democratic theory, political conversation, common forms of public meetings, mediated deliberation, campaigns and elections, the jury system, and deliberative democracy on larger social scales.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2014  
 Prerequisite: CAS 137CAS 175CAS 201CAS 202CAS 216CAS 250CAS 272 or PL SC 001PL SC 017PL SC 112PL SC 130

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 410** Strategy and Politics (3) This course examines political behavior using social choice theory and game theory.

### **PL SC 410 Strategy and Politics (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Strategic behavior is central to politics. It is common for political outcomes to be determined by the interaction of individuals seeking goals in an environment in which goal attainment is complicated by the choices of other actors. This course introduces various methods for analyzing strategic behavior using social choice and game theories. We will employ these approaches to better understand a wide range of political phenomena in international politics, comparative politics, and American politics, such as war, terrorism, voting, electoral competition, government formation, and democratic transitions. By the end of the course, students will, among other things, have experience using games to analyze a range of political behaviors and institutions. The course assumes no prior knowledge of social choice theory or game theory.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2013

Prerequisite: PL SC 001PL SC 003 orPL SC 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 411W Principles of International Cooperation (3)** An exploration of the forces that make conflict, or cooperation, more likely in international relations.

**PL SC 411W Principles of International Cooperation (3)**

This course explores the forces and conditions that make conflict, or cooperation, more likely in international relations. Since international anarchy prevents actors from trusting one another cooperation should be rare or nonexistent. In spite of the logic and prevalence of such arguments, international cooperation does exist. While there is no definitive explanation for the persistence of cooperation in a world without central authority, we will pursue several arguments about how and why it does emerge. These arguments are based upon characteristics of the international system along with concepts developed principally from game theoretic approaches to the study of politics. By the end of the course students should have a basic grasp of game theory in international relations as well as examples of cooperation and conflict around the world. The game theoretic approach will enable students to understand why countries with often common interests and good intentions nevertheless fail to cooperate. Students will be expected to write essays that demonstrate their mastery of these theoretical constructs and ability to apply them to real world situations about which they have done independent research.

Political Science 411W fulfills the related course requirements for the revised International Politics Major and International Relations and 400 level course requirement for the Political Science major.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2006

Prerequisite: PL SC 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 412 International Political Economy (3)** The transnational politics of trade, investment, aid, raw materials, and the environment; nation-states, multinational corporations, and the U.N.

**PL SC 412 International Political Economy (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an introduction to the scientific study of international political economy (IPE), an interdisciplinary field related to international politics and international economics. Some exemplary issues IPE addresses include the collective action problem among nation states, the management and openness of international economy, the determinants of foreign economic policies, and the causes and consequences of economic globalization. IPE examines the interaction between politics and economics at the international level as well as between the international and domestic levels, involving various political and economic actors (governments, MNSs, interest groups, as well as individuals). The course aims to develop the analytical skills of students in explaining theoretically international political and economic events.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2011

Prerequisite: ECON 102ECON 104ECON 014I B 303 orBUS 364

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 413 The Rise and Fall of the Soviet Union (3)** Background, organization, and operation of the Communist Party and the government of the Soviet Union.

**The Rise and Fall of the Soviet Union (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: 3 credits from:PL SC 003PL SC 014PL SC 155 orRUS 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 414 Dictators and Their Demise (3)** Dictators and Their Demise examines the political economy of authoritarian rule.

**PL SC 414 Dictators and Their Demise (3)**

Dictators and Their Demise provides a broad exploration about how non-democratic governments throughout the world rule. We examine: the conditions that give rise to authoritarianism; the variety of authoritarian regimes; the strategies

authoritarian leaders use to stay in power; the consequences of different types of authoritarianism for outcomes such as economic growth and human development; and the domestic and international sources of authoritarian demise. The course covers cases of authoritarian rule in: Chile, the Dominican Republic, Egypt, Malaysia, Mexico, and the former Zaire (now the Democratic Republic of the Congo or DRC).

The course builds knowledge about the governments under which most people in the Global South lived during the 20th century. Even today, roughly half of the world's population lives under some form of non-democratic government. Yet almost all courses currently in the curriculum, particularly in the field of comparative politics, focus exclusively on democratic forms of government. This course therefore examines a new topic not currently offered in the curriculum.

In addition to learning about different types of authoritarian rule, students form an understanding of how common foreign policy tools, such as economic sanctions, foreign aid, and human rights shaming, are likely to affect domestic politics in these countries. This knowledge helps students critically evaluate foreign policy relationships between democracies, such as the United States, and dictatorships.

Course materials cover theoretical approaches to the study of authoritarian rule, in-depth case studies (including novels, biographies, and documentary), and empirical research. This course requires student presentations, weekly reading assignments, descriptive analysis of quantitative data in graphs, multiple written assignments, and a final take-home essay exam. Students develop analytic skills through the weekly written homework assignments in which they apply the broad theoretical concepts to analyze counterfactual situations from specific cases of authoritarian rule. Oral presentations develop inter-personal skills and require students to research specific cases of authoritarian rule currently in the news. This helps students critically evaluate current events.

Finally, the written assignments require students to develop skills working with real data. Students collect and graphically present basic descriptive data about economic and human development in non-democratic countries: economic data, infant mortality, literacy, and indicators of women's well-being. Using real world data to make international comparisons helps students develop skills to form and articulate complex arguments, and teaches them the basics of research design.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2011

Prerequisite: PL SC 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 415** International Organization: Political and Security Functions (3) Theory and evolution of international organization; political and security functions of the United Nations and regional organizations.

#### **International Organization: Political and Security Functions (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2003

Prerequisite: PL SC 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 417** American Local Government and Administration (3) Organization, powers, functions, and problems of American cities and metropolitan areas; modern trends and developments.

#### **American Local Government and Administration (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Winter 1978

Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 418** International Relations Theory (3) A survey of traditional and contemporary conceptual frameworks and theoretical approaches for the analysis of international relations.

#### **International Relations Theory (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Winter 1978

Prerequisite: PL SC 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 418W** International Relations Theory (3) A survey of traditional and contemporary conceptual frameworks and theoretical approaches for the analysis of international relations.

**International Relations Theory (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1999  
Prerequisite: PL SC 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 419** The Bureaucratic State (3) Overview of structural, technological, decision-making, behavioral, and political subsystems of bureaucracy; emphasis on bureaucratic dynamics within larger environmental, interorganizational contexts.

**The Bureaucratic State (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007  
Prerequisite: PL SC 001PL SC 002 orPUBPL 304W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 420** State Making (3) Students learn about how national states arise, expand the territory and population they control, and persist or fail.

**State Making (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: PL SC 003 orPL SC 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 422** Comparative Urban Politics (3) Relationships between structure and evolution of city systems and patterns of political behavior.

**Comparative Urban Politics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001  
Prerequisite: PL SC 003PL SC 020PL SC 022 orPL SC 417

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 423** Post-Soviet Politics (3) Aspects of political transition and institutions of the fifteen Soviet successor republics; emphasis on Russia and republican confederation.

**Post-Soviet Politics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007  
Prerequisite: PL SC 003PL SC 155 orRUS 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 424** Topics in Comparative Government and Institutions (3) Topics in the comparative analysis of representative contemporary Western and non-Western governmental institutions.

**Topics in Comparative Government and Institutions (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007  
Prerequisite: 3 credits fromPL SC 003PL SC 020PL SC 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 425** Government and Politics of the American States (3) Comparative analysis of political processes; executive, legislative, and judicial decision making and behavior; examination of systems functioning; selected public policies.

**Government and Politics of the American States (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Winter 1978  
Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 426** Political Parties and Interest Groups (3) Interest group basis of American politics, analysis of party and group behavior in electoral politics and the policy process.

**Political Parties and Interest Groups (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983  
Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 427** Political Opinion (3) Nature and development of mass attitudes and opinions; political socialization; voting behavior; relation between opinions and public policy.

**Political Opinion (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001  
Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 428 (US;IL) (WMNST 428)** Gender and Politics (3) Gender in politics in the United States and around the world; major areas of women and politics research.

**PL SC (WMNST) 428 Gender and Politics (3)  
(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed as an overview to the field of women and politics. It examines the role that women play in politics in the United States and around the world. Students will begin by examining how women are socialized differently from men and how that socialization effects women's political attitudes and participation. Then students will focus on women in different political offices and how their behavior compares to that of their male counterparts. Students will then analyze the women's movement in the United States. Finally, students will turn to different theories of the ideal position of women and men in politics and use those theories to explore the issue of pornography. Students will be evaluated on a final exam, short essays ( 4 3-5 page essays), class participation, and a research paper (15 pages). This is an advanced course with 6 credits prerequisite in Women's Studies or Political Science. This course fulfills the American Politics and Comparative Politics distribution as well as the advanced course requirement for the Political Science major. It is an elective for a Women's Studies major. It also fulfills an International/Intercultural competency requirement. This course will be offered once a year with 35 seats per offering.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007  
Prerequisite: 3 credits in political science or women's studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 429** Analysis of Electoral Politics (3) The new politics, its technology, and the strategic perspectives that underlie it.

**Analysis of Electoral Politics (3)**

General Education: None  
Diversity: None

Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 430** Selected Works in the History of Political Theory (3) Detailed examination and analysis of a selected major work, thinker, or tradition in the history of political theory.

### **Selected Works in the History of Political Theory (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1998  
Prerequisite: PL SC 017 or PL SC 007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 430W** Selected Works in the History of Political Theory (3) Detailed examination and analysis of a selected major work, thinker, or tradition in the history of political theory.

### **PL SC 430W Selected Works in the History of Political Theory (3)**

The course will examine the tradition of "liberal" political philosophy, focusing principally on the social contract tradition in Western political philosophy. We will examine the work of the "classic" social contract theorists -Hobbes, Locke, Rousseau, and Kant - and discuss some more recent variants. We will then consider broad contemporary critiques of this tradition. In particular, we will consider charges of exclusion, parochialism, and biased conceptions of the self allegedly manifested in liberal theories, especially as those charges that center on considerations of race and gender.

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008  
Prerequisite: PL SC 017 or PL SC 007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 431** Ancient, Medieval, and Renaissance Political Theories (3) Political theories of Plato and Aristotle; selected Greek, Roman, medieval, and Renaissance theorists through Machiavelli.

### **Ancient, Medieval, and Renaissance Political Theories (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2003  
Prerequisite: PL SC 017 or PL SC 007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 432** Modern and Contemporary Political Theories (3) Political theories of the seventeenth through the twentieth centuries, including Hobbes, Locke, Rousseau, Marx, Mill, Mosca, Weber, and selected theorists.

### **Modern and Contemporary Political Theories (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2003  
Prerequisite: PL SC 017 or PL SC 007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 433** Political Foundations of the Early American Republic (3) The course introduces students to the major political and philosophical movements that influenced the founders of the early American republic.

### **PL SC 433 Political Foundations of the Early American Republic (3)**

The course introduces students to the major political and philosophical movements that influenced the founders of the early American republic. The first section of the course, set in the ancient world, will examine the earliest experiments in democratic government in both Greece and the Roman Republic. In addition to studying the structure and traditions of ancient governments, students will consider competing theories for why these early democratic experiments ultimately failed. The second section of the course traces the gradual evolution of representative democracy in Britain from the

signing of Magna Carta to the quiet subjugation of the monarchy in the 19th Century. Recognizing that the theoretical structures of political power remain somewhat fixed in this period, students will consider how legal precedent can gradually transform seemingly static political institutions. The third section of the course examines American efforts to establish stable representative institutions in the aftermath of the Revolutionary War. Looking back at both ancient and modern constitutional traditions, students will examine how prior democratic experiments heavily influenced the deliberations of the founders both at the Constitutional Convention and in the establishment of the new federal republic.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: PL SC 001 or HIST 020 or PL SC 017

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 434 (IL) (AFR 434) War and Development in Africa (3)** This course will examine the relationship between war and development in sub-Saharan Africa in the post colonial era.

**PL SC (AAA S) 434 War and Development in Africa (3)  
(IL)**

This course will examine the relationship between development and war in sub-Saharan Africa in the modern era. Specifically, it will analyze the extent to which the processes of state building, nation building, and international intervention have contributed to the incidence of both civil war and international conflict in Africa. We will begin with a review of several theoretical arguments on the causes of warfare in Africa and then turn to a discussion of theses on African political development. This course complements present offerings in international relations and comparative politics in the PL SC department and can serve as an advanced undergraduate offering in the African Studies concentration in AAAS. The course directly complements our present offerings in international conflict given that we don't have a regularly offered course that focuses on conflict in a specific region. In addition, it will augment our comparative politics offerings with an examination of prominent issues in comparative politics such as political development, democracy, and modernization. The course will fulfill the IL requirement and encourage students understanding of the historical background as well as the political, economic, and cultural factors that influence African politics. African conflicts are often viewed as "ethnic conflicts" and in this class students have an opportunity to assess the extent to which ethnic, linguistic, or religious factors influence the likelihood of conflict and contribute to development in African states. Students will also be required to write essays evaluating the contribution of a range of theoretical arguments on Africa's conflicts in order to assess the degree to which cultural more than political or economic factors contribute to their onset. Students will then have the opportunity to conduct more extensive research on a specific African case to develop their analyses further. These exercises will often require that students reevaluate their beliefs about social identities such as race (e.g. in Rwanda the difference between Tutsi and Hutu is often viewed as a "racial" difference between black Africans, which is at odds with most Western conceptions of race). They also require students to challenge stereotypes regarding the subordination of African values in conflicts to a simple concern with "tribe". Students will gain a broader knowledge and appreciation of the different values, traditions, and cultures evident in Africa and understand how these can both exacerbate and mitigate conflict. Evaluation in the course will consist largely of examination of the students' brief expository essays and larger case studies for which students will be encouraged to conduct original research. The course should be offered biannually with a class limit of about 40 students.

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2012

Prerequisite: PL SC 014 PL SC 003 AFR 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 435 Foundations of American Political Theory (3)** Political theories of colonial, revolutionary, and constitutional periods presented through works of selected thinkers and analysis of particular political problems.

**Foundations of American Political Theory (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: PL SC 001 PL SC 017 or PL SC 007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 435W Foundations of American Political Theory (3)** Political theories of the revolutionary and constitutional periods presented through works of selected political thinkers and political issues.

**Foundations of American Political Theory (3)**

General Education: None

Diversity: None



Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001  
Prerequisite: PL SC 001PL SC 017 orPL SC 007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 436 Civil Wars (3)** This course examines factors influencing the onset, duration, severity, termination, recurrence, and consequences of civil wars around the world.

**PL SC 436 Civil Wars (3)**

This course provides a broad exploration of the causes, characteristics, and consequences of civil wars. In particular, it investigates what makes civil war more likely to occur, what influences how long they last, how severe they are, and how likely they are to recur, while also considering their consequences for the states that experience them. It considers the scholarly research on this topic over the past decade or more, and builds an awareness both for what are the known regularities as well as what are the continuing uncertainties about the place of civil war in the contemporary international system. It does this specifically within the context of scientific research about civil wars, and thus also advances student knowledge about how social scientists learn what they know about how the world works. Building on this perspective, and after absorbing the lessons to be learned from the literature, students will gain even greater appreciation for the quality of knowledge about civil wars by conducting their own detailed analysis of a civil war (each student will study one civil war of their choosing) asking how well the civil war they study fits patterns identified by the literature. This course complements, without duplicating, existing political science courses about militarized political conflict, and qualifies as one course majors can take to satisfy their 400-level course hours requirement. In addition to political science majors, it should be of interest to international politics majors, students in other social science majors, and perhaps Masters students in the School of International Affairs as well.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: PL SC 003 orPL SC 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 437 War in World Politics (3)** Causes, resolution, and consequences of crises and wars; testing theories of conflict using both case and statistical studies.

**War in World Politics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1997  
Prerequisite: PL SC 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 438 National Security Policies (3)** Impact of national security on U.S. government and foreign policy; roles and interaction of President, Congress, government agencies, interest groups.

**National Security Policies (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001  
Prerequisite: PL SC 001 orPL SC 014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 439 (CRIMJ 439) The Politics of Terrorism (3)** Analysis of political terrorism as a violent alternative for peaceful change and traditional warfare in the nuclear age.

**The Politics of Terrorism (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008  
Prerequisite: CRIMJ 100 orPL SC 014 or permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 440 (US;IL) (AFR 440, I B 440) Globalization and Its Implications (3)** This course explores the socioeconomic

implications of globalization.

**PL SC (AAA S/I B) 440 Globalization and Its Implications (3)  
(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course explores the socioeconomic implications of globalization and some fundamental changes that have taken place in the global socioeconomic system. The bipolar configuration of global power has been radically altered, market-state relations have been reformulated, and global systems of production and finance have been reorganized. Given these recent changes in the world's structure, globalization as a socioeconomic force is examined with a special emphasis on its implications on social issues, capital-labor relations, the roles of unions and trans-nationals, unemployment issues, poverty and inequality, gender and ethnicity issues, race relations, and democratization around the world. This course also allows students to explore how different countries, communities, social classes, business firms and even institutions are affected differently by globalization. The implications of globalization on African communities is given special attention.

The course is organized into three parts: A) The first part of the course attempts to define globalization and identify its essential characteristics in light of social and economic change. This part attempts to answer questions such as what constitutes globalization, how do we know if globalization is taking place, and what aspects of it are new. B) The second part of the course attempts to assess the implications of the different aspects of globalization (identified in the first part) on many critical social issues, including capital-labor relations, the roles of unions and transnational corporations, problems of unemployment, poverty and inequality, gender, ethnic, and race relations, and democratization. C) The third part of the course examines the implications of globalization to African communities.

This course exposes students to the economic, social, political, and cultural implications of the unfolding global order. It allows them to explore how different countries, communities, social classes, business firms and even institutions are affected differently by globalization. Evaluation will be based on daily attendance, along with a class presentation of a design of a research paper; an actual research paper, a mid-term exam and a final exam.

General Education: None

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2013

Prerequisite: AF AM 100 or AFR 110 or PL SC 003 or PL SC 014 or PL SC 020 or PL SC 022

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 441 Transnational Corporations and Other Organizations in International Relations (3)** Analysis of the effects of transnational actor behavior on international relations.

**Transnational Corporations and Other Organizations in International Relations (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

Prerequisite: ECON 333I B 303PL SC 014 or BUS 364

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 442 American Foreign Policy (3)** Principles of American foreign policy; processes of policy formulation; roles of the President, Congress, the State Department, and other government agencies.

**American Foreign Policy (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: PL SC 014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 443 (IL) (AFR 443) Ethnic Conflict in Africa (3)** This course explores the various causes and impacts of ethnic conflicts in the African context.

**PL SC (AAA S) 443 Ethnic Conflict in Africa (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Ethnic conflict is presently a pervasive worldwide phenomenon. Ethnic groups in various regions of the world contest the terms of their incorporation into the 'nation' state and the world order. Such contests have often erupted into violent conflicts crossing national borders. The objectives of this course are to examine the problems of state building, the evolving nature of the state, and ethnic conflicts in the African context. The course explores the factors that contribute to

violent ethnic conflicts and the factors that mitigate such conflicts. The course largely evolves around the following two general questions. What are the most important internal and external factors that cause ethnic conflicts? The second is what political systems and arrangements tend to mitigate or resolve ethnic conflicts? In an effort to deal with these two general questions the course examines a number of case studies from different parts of Africa. The course is organized into three parts. The first part surveys general theories on the causes of ethnic conflicts and how democracy relates to ethnic conflict. The second part examines several case studies from Africa and attempt to construct a general hypothesis on the major causes of ethnic conflicts and how democratization or lack of it impacts the conflicts. The third part examines measures that may contribute in the resolution of ethnic conflicts and enhance the process of state building in Africa. Students in groups of two or three will choose a case and give a class presentation on the most important issues involved in a given conflict.

This course compliments other courses that deal with African politics, politics of developing areas, and social movements. It also supplements courses in African and African American Studies, Sociology, and Political Science that deal with issues of ethnic and race relations, as well as issues of nation building (state building).

This course exposes students to the various internal and external factors that precipitate ethnic conflicts in Africa and the economic, social, and political implications of these conflicts. It allows students to explore how different states attempt to address the problem. Evaluation will be based on attendance (5%), a class presentation of a design of a research paper (10%), a research paper (35%), a mid-term exam (25%) and a final exam (25%). This course will be offered once a year.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2013

Prerequisite: AF AM 100AFR 110PL SC 001PL SC 003PL SC 007PL SC 014PL SC 017PL SC 020 orAFRAS 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 444** Government and the Economy (3) Interactions of governmental and economic activity in American life. Survey of governmental (national, state, local) promotional, regulatory, and ownership policies.

### **Government and the Economy (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Winter 1978

Prerequisite: 3 credits in political science or economics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 445Y (US)** (AF AM 445Y, LER 445Y) Politics of Affirmative Action (3) Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S.

### **PL SC (AAA S /LER) 445Y Politics of Affirmative Action (3) (US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The objectives of this course are to introduce students to the relationship between affirmative action and other policies purportedly designed to end racial inequality in the U.S. This course approaches the study of affirmative action in the context of the historic racial discrimination and inequality that Black Americans have faced since the founding of the Nation. The purpose of this course is to help students think about how contemporary and historic affirmative action policies relate to race, concepts racial inequality, the historic and continuing causes for racial inequality, public opinion, American politics and economic thought. The course materials will lead students through scholarly and popular articles, books and video presentations on the topic. It is hoped that students will become familiar with the history of affirmative action from its conception. Students will gain an intimate understanding of affirmative action economic and social outcomes on various racial groups. No prior knowledge is assumed, however a knowledge of civil rights history, quantitative methods, and constitutional law will be useful. The Politics of Affirmative Action satisfies the requirements for major and minor electives for the African American Studies, and major and minor electives for Political Science, and Labor Studies and Industrial Relations. Students are evaluated on the basis of an examination, term paper, class participation and class presentations of papers.

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2012

Prerequisite: AAA S 100 level course andPL SC 001 orPL SC 007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 450H (J ST 450H)** Genocide and Tyranny (3) This course focuses on the conceptualization and socio-political determinants of genocide and tyrannical regimes, with an emphasis on the Holocaust.

**PL SC (J ST) 450H Genocide and Tyranny (3)**

This course focuses on the etiology of mass killing, with an emphasis on the socio-political determinants and consequences of massacres, ethnic cleansings, and other crimes against humanity. It is designed to help students understand genocide as a phenomenon of political violence and to explore the epistemological issues associated with the study of genocide. Students will learn to use the study of specific events (such as the Holocaust) to understand broader concepts and phenomena (in this case: genocide) as well as to develop analytical and communication skills through active discussion in class sessions.

The course is divided roughly into three parts: The objective of the introductory part of the course is to situate genocide as an act of political violence, and to create a working definition of the concept for the topics covered in subsequent weeks. In the second part various aspects of the Holocaust will be examined. Starting with a history of the Holocaust, we will cover philosophical, political, and military explanations for it. Some of the questions we will discuss in this part of the course include: (a) How does the Holocaust fit into the typologies of genocide? (b) Can extreme genocide that can be studied in a comparative context with the Holocaust? Does the "uniqueness" of the Holocaust influence the manner in which we study it? (c) Were the determinants of the Holocaust rooted in larger social and political factors? (d) Which contemporary political factors were associated with the Holocaust? During the last part of the course, we will discuss three other instances of genocidal violence: Armenia, Yugoslavia, and Rwanda. These events will be discussed using the same theoretical and analytical approaches as in the previous weeks. The concluding sessions will also focus on the questions of why it is important to study genocide, what lessons can be learned from understanding such events, and whether studying genocide is relevant to the current international system. Course topics will be discussed in light of assigned readings and films.

This course fulfills the distribution requirement for international relations, as well as the advanced and related course requirements for Political Science majors. The course fulfills the supporting course requirement for International Politics and Jewish Studies majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: PL SC 003PL SC 007 orPL SC 014 orHIST 121

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

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The course is divided roughly into three parts: The objective of the introductory part of the course is to situate genocide as an act of political violence, and to create a working definition of the concept for the topics covered in subsequent weeks. In the second part various aspects of the Holocaust will be examined. Starting with a history of the Holocaust, we will cover philosophical, political, and military explanations for it. Some of the questions we will discuss in this part of the course include: (a) How does the Holocaust fit into the typologies of genocide? (b) Can extreme genocide that can be studied in a comparative context with the Holocaust? Does the "uniqueness" of the Holocaust influence the manner in which we study it? (c) Were the determinants of the Holocaust rooted in larger social and political factors? (d) Which contemporary political factors were associated with the Holocaust? During the last part of the course, we will discuss three other instances of genocidal violence: Armenia, Yugoslavia, and Rwanda. These events will be discussed using the same theoretical and analytical approaches as in the previous weeks. The concluding sessions will also focus on the questions of why it is important to study genocide, what lessons can be learned from understanding such events, and whether studying genocide is relevant to the current international system. Course topics will be discussed in light of assigned readings and films.

This course fulfills the distribution requirement for international relations, as well as the advanced and related course requirements for Political Science majors. The course fulfills the supporting course requirement for International Politics and Jewish Studies majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: PL SC 003PL SC 007 orPL SC 014 orHIST 121

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 452** Government and Politics of Central Europe (3) Politics and society in the Communist Era, the revolutions of 1989, and problems of adjustment to democracy and market.

**Government and Politics of Central Europe (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

Prerequisite: PL SC 003PL SC 020PL SC 022 orPL SC 155

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 453** (IL) Political Processes in Underdeveloped Systems (3) Comparative analysis of the political, social, and economic problems characteristic of underdeveloped systems.

**Political Processes in Underdeveloped Systems (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

Prerequisite: PL SC 003PL SC 020 orPL SC 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 454** (IL) (AFR 454) Government and Politics of Africa (3) Contemporary African politics, institutions, and ideologies; patterns of change, social forces, and nation building in selected African states.

**PL SC (AAA S) 454 Government and Politics of Africa (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

In this course, we will discuss the current democratization trend in Africa by focusing on the experiences of African countries.

The course is divided into three sections. Part One considers a range of factors that affect politics in Africa. We will discuss in depth the following factors: colonialism, nationalism, the relationship between state and society, ruler-ship, the military, political parties, and economic development. Then, we will consider the experiences of our four cases, to gain a historical background. In part two, we will focus on democratic transitions. We will discuss the factors that enable transitions to occur, as well as the process that transitions follow. Then, we will consider four transitions: two that resulted in the installation of a democratic government (Nigeria in 1979, Sudan in 1986) and two that ended in continued authoritarianism (Angola in 1992, Kenya in 1978). Part three considers the prospects of democracy. We will discuss the probability of a democratic transition occurring in the near future.

The goals of this class are four fold. First, students will gain detailed knowledge about four African countries. Second, we will learn how to compare countries. Third, students will have a better understanding of the democratization process in general, and will be able to explain or predict democratization beyond the four cases discussed in this class. Finally, the experiences of these four countries offer a deeper understanding of what democracy is and provide students with greater flexibility to fulfill requirements in either the African and African American Studies major or the Political Science/International Politics major. PL SC 454 will be offered once per year with 35-50 seats per offering.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Fall 2012

Prerequisite: 3 credits from:AFR 110PL SC 003PL SC 020 orPL SC 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 455** Governments and Politics of Western Europe (3) Comparative analysis of political and governmental structures of major West European nations; main functions and processes of such structures.

**Governments and Politics of Western Europe (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: PL SC 003 orPL SC 020

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 456** Politics and Institutions of Latin-American Nations (3) Social forces and processes, governmental institutions, foreign policies of major states of Latin America.

**Politics and Institutions of Latin-American Nations (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2001  
 Prerequisite: HIST 179PL SC 003PL SC 020 orPL SC 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 457** International Politics of Latin America (3-6) Relationships among the nations of Latin America and the social forces which determine and shape their direction.

**International Politics of Latin America (3-6)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2001  
 Prerequisite: HIST 179PL SC 003PL SC 014PL SC 020 orPL SC 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 458** Government and Politics of East Asia (3-6) Examination of political institutions, democratic and communist revolution, political leadership, political processes of major states of East Asia.

**Government and Politics of East Asia (3-6)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Other Cultures and Social and Behavioral Sciences  
 Effective: Summer 1996  
 Prerequisite: 3 credits fromPL SC 003PL SC 020PL SC 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 459** (IL) (AFR 459) Culture and World Politics (3) Role of culture in world politics.

**PL SC (AAA S) 459 Culture and World Politics (3)  
(IL)**

This course examines the role of culture in world politics through an analysis of the varying dimensions of culture and their respective impact on the likelihood of cooperation and conflict among the state and non-state actors in the global system. Specifically, we examine the impact of culture in terms of social boundaries, political associations and the likelihood of an emergent global culture defined largely in terms of customs and practices related to international trade and economic production. We also examine the role of culture as a mechanism for the dissemination and maintenance of patterns of hierarchy. Integrating these different conceptions of culture, we examine the relationship between culture and foreign policy in the US.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 460** (S T S 460) Science, Technology, and Public Policy (3) The all-pervasive importance of science and technology policy in modern societies and mechanisms and processes by which it is made.

**Science, Technology, and Public Policy (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 1995

Prerequisite: 3 credits in natural sciences or engineering 3 credits in social and behavioral sciences

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 461 (IL)** Politics of the European Union (3) This course introduces students to the history, institutions and politics of the European Union.

**PL SC 461 Politics of the European Union (3) (IL)**

This course introduces students to the history, institutions and politics of the European Union. We will survey the central theories of political and economic integration, and compare them to how European integration has unfolded. We will analyze the EU's institutions and political processes, and review major EU policy areas.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: PL SC 003 or PL SC 020

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 462** Marxist and Socialist Political Theory (3) Analysis of major problems and key works in the Marxist and Socialist tradition; dialectical materialism, alienation, class warfare, etc.

**Marxist and Socialist Political Theory (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: PL SC 017 PL SC 007 PL SC 413 or PL SC 452

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 464 (IL) (AFR 464)** Globalization, Extractive Industries, and Conflict in Africa (3) Socioeconomic and environmental impacts of extractive industries in Africa.

**PL SC (AAA S) 464 Globalization, Extractive Industries, and Conflicts in Africa (3) (IL)**

Globalization has brought increased investments in extractive industries in many African countries. Investments in extractive industries are also likely to continue to increase rather rapidly, given the rising intensity in the competition for African resources, brought about by growing involvement of countries, such as China and India. The terms African countries obtain from corporations for mineral rights have been generally unfavorable. The unfolding competition for African resources brought about by investments from China and India may, however, help African governments to renegotiate the terms of mining concessions corporations to obtain better deals for their resources. Despite the rather poor terms African governments currently have, investments in extractive industries have stimulated economic growth in several countries. Some African countries, including Equatorial Guinea, Botswana, Gabon, Angola, Cameroon, and the Sudan, are experiencing what might be regarded as resource-based economic boom.

Such growth has, however, intensified compulsory acquisition of communal lands by African governments for concessions to extractive industries exposing large numbers of rural communities to evictions from the land they traditionally owned. The expropriations, which purportedly take place for public and development purposes, have led to serious socioeconomic problems, including unemployment and poverty of those evicted from their land, disintegration of traditional institutions of governance, civil wars, communal conflicts, human rights violations, high levels of corruption, and alarming rates of environmental degradation. The conflicts have ravaged many African countries and are likely to continue to occur until mechanisms that allow rural communities to become partners of the transformation are developed. This course examines the socioeconomic and environmental problems associated with land expropriations and extractive industries.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: AFR 110 or at least one of the following: PL SC 003 or PL SC 014 or PL SC 022

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 466 Political Psychology (3)** An interdisciplinary investigation of the major topics and debates characterizing the subfield of political psychology.

**PL SC 466 Political Psychology (3)**

This course offers an interdisciplinary investigation of the major topics and debates characterizing the subfield of political psychology. It draws on research being done in a variety of disciplines and disciplinary subfields including social, developmental and clinical psychology; the cognitive neurosciences; biological anthropology; genetics; evolution; and behavioral economics to examine political behavior. Specifically, the course will examine the thinking and actions of both political elites and the mass public, and consider the reasoning processes they employ in order to make sense of the political world. Topics to be covered include how emotions (e.g., fear, lust) shape human reasoning; how preferences develop; how differences in cognition, emotion and personality inform political judgment and shape political leadership; how prejudices develop and affect war and other conflicts; how political and social identities develop and how they affect individuals' political judgments and decisions; how neurobiological influences operate in conjunction with social and cultural factors to affect how individuals process information; and how genetics and hormones affect individuals political development and behavior. Through these and other topics covered in the course, students will develop an understanding of how political elites and ordinary citizens process information, develop preferences and make decisions, and why, as a consequence, they act as they do.

This course fulfills the distribution requirement for American politics and comparative politics, as well as the advanced and related course requirements for Political Science majors. The course also fulfills the supporting course requirement for International Politics majors.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2014

Prerequisite: PL SC 001PL SC 003PL SC 014 orPSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 467 International Relations of the Middle East (3)** The international relations of the Middle East, stressing national security policies of regional and outside actors, and major contemporary conflicts.

**International Relations of the Middle East (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 1985

Prerequisite: PL SC 014 orHIST 181

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 469 (IL) (ASIA 469) Government and Politics of South Asia (3)** This course offers an overview of the politics of modern South Asia with specific focus on Afghanistan, India and Pakistan.

**PL SC (ASIA) 469 Government and Politics of South Asia (3)  
(IL)**

This course provides an overview of the politics of modern South Asia with particular attention to the experiences of Afghanistan, India and Pakistan. It examines theories of political and economic development and ethnic politics, the impact of the British colonial experience on South Asia, the rise of nationalism, and the emergence of independent nation states in the region. Three important themes are explored throughout the course: (1) the state of economic development in the three countries; (2) the relationship between identity politics and violence; and (3 ) the international relations of these countries, with particular attention to terrorism and nuclear policy. Course topics will be explored through readings from textbooks and assigned articles, articles from current news sources and, documentary films from the three countries. By the end of the course, students will have knowledge of the politics of Afghanistan, India and Pakistan and the political factors that have shaped their development over the past century. Students will acquire the tools necessary to evaluate critically the impact of war, the legacy of colonialism, and the challenge in building durable democratic institutions. This course fulfills the distribution requirement for comparative politics, as well as the advanced and related course requirements for Political Science majors. The course also fulfills the supporting course requirement for International Politics majors and the related areas requirement for Asian Studies majors.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: PL SC 003PL SC 014PL SC 022 orASIA 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**PL SC 470W** Legal Brief Writing (3) Writing of legal briefs as practiced in American courts.

**Legal Brief Writing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1998  
Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 471** American Constitutional Law (3) The origins of judicial review, landmark decisions of the Supreme Court, and their impact on the American form of government.

**American Constitutional Law (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007  
Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 472** The American Legal Process (3) Analysis of the roles, procedures, and policies characterizing the American legal system.

**The American Legal Process (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001  
Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 473** American Judicial Behavior (3) Analyzes behavior of judges and other participants in the legal process; examines how and why courts function as policymaking bodies.

**American Judicial Behavior (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007  
Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 474** Civil Liberties and Due Process (3) Fundamental problems relating to civil liberties and due process.

**Civil Liberties and Due Process (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007  
Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 480W** Congress and the Presidency (3) Basic characteristics and processes of the national legislature and executive; roles and interaction of these institutions in the policy process.

**Congress and the Presidency (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007  
Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 481** Global Political Economy (3) This course examines states, markets, power, production, and the relations between the various transnational agents who act in these areas. Students may not receive credit for PL SC 481 and PL SC 412.

**PL SC 481 Global Political Economy (3)**

Changes in the international system in the 1970s led to increased interest on the part of students of international relations in the political economic processes underlying change. Important debates among scholars in both mainstream theoretical traditions and in critical theory gave rise to International Political Economy as an increasingly visible sub-field in International Relations. This seminar tracks the historical relations between the development of capitalism as an economic system and the emergence and transformation of global politics, using concepts developed in the study of political economy. Seminar discussion, examinations, and a short research paper will be used to evaluate students' learning.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PL SC 014 or INTST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 482** American State and Urban Politics (3) Explores basic characteristics and processes of American state and urban politics; nature of intergovernmental relations involving these governmental levels.

**American State and Urban Politics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

Prerequisite: PL SC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 484W** The Foreign Policy of Soviet Successor States (3) Relations between Russia and The Newly Independent States (NIS); Russia's relations with selected foreign states and political institutions; regional impact of the NIS in Baltic, Asian, and Central Asian areas.

**The Foreign Policy of Soviet Successor States (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

Prerequisite: PL SC 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 486 (IL)** (HIST 489, ASIA 489) International Culture in East Asia (3) Study of the role of culture in East Asian regional and East-West international relations.

**PL SC 486 (ASIA 489/HIST 489) International Culture in East Asia (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine the place of culture in international history through a comparative look at the role of cultural circulation and exchange in relations among China, Korea, and Japan (and between East Asia and the West) from the propagation of Buddhism in the first century A.D. to present-day circulation of popular music, movies, and comics. We will explore the international politics of culture and the politics of international culture, considering questions of what constitutes culture, whether it is ever entirely separate from politics, and how that separation has evolved over time. These larger themes of the course will be tackled by following the historical movement of concrete objects and people throughout the region. This is a course in international history; historical events, problems, and issues will be at the center of our weekly discussions. But it also seeks to explore aspects of international relations.

This course is intended to examine the role of cultural exchange in international relations. The goals of the class are not only to gain an understanding of the uses and impact of culture in international relations, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will take on the role of historian themselves, thinking critically about assigned texts and making their own interpretations of their meanings. Through readings, discussions, presentations, and the final project, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing.

Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen student's appreciation of the assigned readings, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in

developing both analytic and expressive abilities. Evaluation will emphasize student performance on a day-to-day basis and as expressed in a final research project. A possible break down would be as follows:  
 This course is designed to respond to strong student interest in East Asian international history. This course will complement and extend popular survey and upper-level courses such as HIST 172/174/175/480/481/483/484/485/486.

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures

Effective: Summer 2013

Prerequisite: any one of the following: HIST 172 HIST 174 HIST 175 HIST 480 HIST 481 HIST 483 HIST 484 HIST 485 HIST 486

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 487 International Law and Organizations (3)** Major topics and issues of international law with special attention to institutional arrangements (international organizations) through which that law operates.

### **PL SC 487 International Law and Organizations (3)**

The course is useful in two distinct ways. First, it aids in the understanding of how countries conduct their relations with one another. Second, studying international law-it is a distinct system of law-- helps students to assess whether they might be suited for law school.

The course introduces international law and international governmental organizations (the two are closely linked) and their role in the management of peaceful relations among countries as well as during international conflict. Both the contributions and limitations of international law will be analyzed. International law is viewed both as a body of norms countries feel an obligation to follow and as a means of communication among countries.

Major topics covered include sources of international law, human rights law, environmental law, economic law, law of the sea, and the use of force. There are several hundred major intergovernmental organizations. Several of the most prominent will be discussed including the UN, the WTO, the European Union, the International Labor Organization, and the International Court of Justice.

Examinations are principally of the essay variety although a command of factual information is essential to success in the course. Students also prepare critiques of important international legal cases (many of which have been decided by national courts) and of treaties (the principal modern manifestation of international law).

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

Prerequisite: PL SC 003 or PL SC 014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 488 Comparative Public Policy (3)** Comparative methodology and public policy implementation in postindustrial societies; selected case studies of policy output.

### **PL SC 488 Comparative Public Policy (3)**

Comparative Public Policy is an upper level political science course that includes components of comparative politics, public administration, and descriptive economics. The course presumes that developed industrial democracies confront common challenges in meeting human needs and that policy comparison is worthwhile despite distinctive societies and political cultures. For example, government involvement in the provision of health care varies widely from Britain's National Health Service to the largely private approach of the United States. Nevertheless all health care systems confront rising technology costs, an ageing population, and rising performance expectations. A primary purpose of the course is to consider the origin and development of individual country programs while assessing the common challenges. Cross national comparison becomes relevant to the course by including some available data on costs, implementation and outcomes. Because the course includes about six distinct areas, e.g., education, taxation, urban planning income support, and overall macroeconomic policy, the course will depict profiles of policymaking in Europe, North America and Japan. Ideally comparison should help students to evaluate the effectiveness of policy choices of a particular country and government.

A second objective of the course will be to examine the national approaches to the relationship between the state and private economic activity. Not only does government expenditure amount to nearly half of some country's total output, government choices create distinctive legal environments for business activity. Antitrust, health, wage, and consumer regulation offer an excellent point of comparing different incentives for economic activity in the United States and Europe. Apart from policy choices mentioned in the first paragraph, the regulation of economic activity has cumulative results for employment and the distribution of income. This portion of the course is intended to be somewhat more elementary than the first because of the probability that students will be less familiar with its content. The primary objective will be to help students understand the variations among market economies and reasons for their description as "neo-liberal," "social market," or "corporatist."

Finally, the course will examine some current ideas about recent changes in the global economy and their consequences

for national policy. Clearly "globalization" has become a matter of political concern owing to its consequences for the creation of wealth, employment, growth and distribution. While the course cannot devote detailed or exclusive to the European Union, Europe's response to rapid movements in short term capital and investment presents an interesting point of comparison with the United States and Japan. The course should enable students to understand the meaning and criticism of "globalization" as a factor in shaping some national policies.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2007  
 Prerequisite: PL SC 003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 489 Public Administration (3)** A survey of the major approaches to the management of most governmental agencies.

### **PL SC 489 Public Administration (3)**

Government Management is a three-credit Political Science course that teaches the role and function of bureaucracy. Although some investigation is made about state and local government functions, the primary focus of the course is on the federal bureaucracy. In particular, the course illustrates how the interrelationship between the three branches of government exists using the various federal agencies as functionaries.

The course first examines the basic functions of bureaucratic agencies in the modern world; primarily their distributive, re-distributive and regulatory activities. In addition to these functions, the various external and internal political forces that form the mission of the agencies are examined. Next the internal function of a bureaucracy is examined by highlighting the various roles of the people who comprise a typical large agency. The roles of the political appointee, the career professional, the general civil servant and the union laborer are examined, with the GS system of the federal government used as a guide to show the hierarchy that exists in a large agency.

By highlighting both the functions of a typical agency and examining its role in the larger government structure, and by looking inside the bureaucracy to see the various short and long term roles of the people who comprise those agencies, the student appreciates how large bureaucracies are at the same time always changing, and always staying the same.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2007  
 Prerequisite: PL SC 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 490 Policy Making and Evaluation (3)** Advanced analysis of public policy, emphasizing policy evaluation and the factors that determine policy success and failure.

### **Policy Making and Evaluation (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2007  
 Prerequisite: PL SC 001PL SC 002 orPUBPL 304W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 491 Peace and Conflict Studies Seminar (3)** Advanced study of major contemporary issues of peace and conflict; includes anthropological, technological, psychological, and economic perspectives.

### **Peace and Conflict Studies Seminar (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2013  
 Prerequisite: PL SC 014PL SC 091

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
 Diversity: None

Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 495** Political Science Internship (1-6) Combining experience in government offices, related agencies, or law firms, with appropriate readings and a research paper/report.

**Political Science Internship (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007

Prerequisite: prior consent of supervisor adviser or department head; applicable departmental internship requirements such as satisfactory completion of required 300- or 400-level courses appropriate for the internship program selected

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 497A** Democracy and Its Impacts (3) Does democracy matter? Do democratic countries grow faster than dictatorships, or provide more public benefits to their people? Do they invest more in health and education? Are incomes more equal in democratic states? Are democracies less corrupt? This course focuses on differences in government policies and performance across different regime types, to determine whether democratic regimes outpace autocracies. Given the amounts of international aid devoted to democracy promotion around the globe, the topic should be relevant for anyone interested in foreign aid, international development, or the impacts of transitions from dictatorship to democracy.

**Democracy and Its Impacts (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 497B** The Psychology of Terrorism (3) This class introduces students to the study of terrorism from a psychological perspective. That is, the study of the thoughts and the behaviors of those individuals who use fear to attain their goals, and those individuals who are victims of fear-driven compliance. We will explore the psychological processes that create a terrorist, the motivation for individual terrorists, terrorist organizations and their leaders, which may greatly differ. Students will learn about recruitment and indoctrination and gain an understanding of the socio-political conditions that propagate terrorist organizations and serve as recruitment tools for terrorists. Students will learn to "think" like a terrorist, in order to better understand their motives, their objectives, the methods used to achieve their objectives, and how to defeat them.

### **The Psychology of Terrorism (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 497C** Religion and War in World Politics (3) This course examines the relationship between religion and war in world politics in the modern era. Religion has become increasingly important in the relations within and between states; however, it has been an under-studied topic in world politics. This class focuses on the salience of religion in world politics; specifically, it examines the role of religion in warfare (primarily, but not exclusively international warfare). In this course, we will evaluate the extent to which religious motivation(s) of leaders (and followers), religious characteristics of states, and religious justifications generate armed conflicts; and also attempt to determine the extent to which presumable "religious wars" are different from "non-religious" (or "secular") wars. Although the class will examine the topic broadly, particular attention will be paid to more systematic studies and findings regarding these issues.

### **Religion and War in World Politics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 497D** Politics and the Media (3) This course is designed to introduce students to the interactive dynamics of the news media and the political system. We focus primarily on the news media as it is the dominant medium for political communication. Theoretical concerns include the type of information systems necessary for a healthy and vibrant democratic culture. We also examine the relationship between the historical development of mass media and its impact on democratic communication. Other topics addressed include media bias, framing journalistic norms and routines, and government regulation. Finally, we are in the midst of a profound transformation of the news media - largely influenced by the Internet - and understanding the implication of the changing nature of the news provide insight for the future of American democracy.

### **Politics and the Media (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 497E** Government and Politics of South Asia (3) This course will present an overview of the politics of modern South Asia focusing on Afghanistan, India and Pakistan. We will then begin our exploration of South Asian politics by studying the impact of the British colonial experience, the rise of nationalism and the emergence of independent nation states in South Asia. In order to develop a broad understanding of the political and economic experience of the region we will spend time analyzing the 3 countries individually. Additionally, we will explore in detail three important themes in Political Science. First, the state of economic development in these countries. Second, the relationship between identity politics and violence. Third, international relations of these countries focusing on terrorism and nuclear policy.

### **Government and Politics of South Asia (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 497F** Democratization in Asia (3) This seminar addresses the literature on democracy and democratization and then applies it in Asia. Since 1974, over thirty countries around the world started a transition toward democracy. As a result of these democratic events, comparative scholars have studied these, and earlier transition cases, to understand why some countries become democratic while others do not, and why some new democracies show signs of considering while others collapse. This seminar, then, addresses the recent work in the field of democratization. First, we will review works that define and measure key concepts, such as authoritarianism, democracy, and democratic consolidation. Then, we will consider a range of factors to explain the installation, consolidation, or failure of democracy in specific Asian countries. The goal of this seminar are three-fold.

### **Democratization in Asia (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 497H** Working with & Communicating Information in Data Instructor (3) This course will give honors students the skills needed to find data, prepare it for analysis, engage in simple forms of data analysis that illustrate relationships, and interpret substantively the results of their analyses. No statistical background is assumed. Particular attention will be given to developing data visualization skills that allow students to effectively communicate the results of their analyses to others. Data used in the course will cover a variety of substantive fields in political science including such topics as the causes of war, death penalty, elections in the US and cross nationally, campaign speeches. Additional topics will come from other fields such as global health, economics, and the geography. These skills will develop student facility to work with data in a variety of courses, senior honors project and upon graduation in the workforce.

### **Working with & Communicating Information in Data Instructor (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PL SC 499** (IL) Foreign Study--Government (1-12) Study, in selected foreign countries, of political institutions.

### **Foreign Study--Government (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Summer 2005  
 Prerequisite: PL SC 003 3 credits in economics history political science or sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Portuguese (PORT)**

**PORT 001** Elementary Portuguese I (4) For beginners. Grammar, with reading and writing of simple Portuguese; oral and aural work stressed.

### **Elementary Portuguese I (4)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
 Effective: Spring 1987

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 002** Elementary Portuguese II (4) Grammar, reading, and conversation continued; special emphasis on the language, literature, and life of Brazil.

### **Elementary Portuguese II (4)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
 Effective: Spring 1988

Prerequisite: PORT 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 003** Intermediate Portuguese (4) Grammar, reading, composition, and conversation.

**Intermediate Portuguese (4)**

General Education: None

Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Winter 1978

Prerequisite: PORT 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 051** Elementary Intensive Portuguese for Graduate Students I (3) Intensive introduction to Portuguese: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**PORT 051 Elementary Intensive Portuguese for Graduate Students I (3)**

This is the first in a series of three courses designed to give students an intensive introduction to Portuguese. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the Portuguese vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 052** Elementary Intensive Portuguese for Graduate Students II (3) Intensive introduction to Portuguese: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**PORT 052 Elementary Intensive Portuguese for Graduate Students II (3)**

This is the second in a series of three courses designed to give students an intensive introduction to Portuguese. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Portuguese vocabulary. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: PORT 051 and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 053** Intermediate Intensive Portuguese for Graduate Students (3) Continued intensive study of Portuguese at the intermediate level: reading, writing, speaking, listening, cultural contexts.

**PORT 053 Intermediate Intensive Portuguese for Graduate Students (3)**

This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Portuguese. Continued intensive study of Portuguese at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: PORT 052 or equivalent and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 197** Special topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special topics (1-9)**

General Education: None



Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 197C** (SPAN 197C) Portuguese for Learners of Spanish (3) This course is designed for learners of Spanish who wish to acquire Portuguese at an accelerated pace.

**Portuguese for Learners of Spanish (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL

Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 405** Advanced Composition and Conversation (3) Intended to strengthen the advanced student's ability to speak, read, and write in modern Brazilian Portuguese.

**Advanced Composition and Conversation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 1981  
Prerequisite: PORT 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 476** Brazilian Literature, The Modern Era (1880 to the Present) (3) A survey of the major texts of Brazilian literature from romanticism to the present.

**Brazilian Literature, The Modern Era (1880 to the Present) (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Summer 1991  
Prerequisite: PORT 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 480** The Brazilian Novel (3) A survey of the Brazilian novel from its origins to the present.

**The Brazilian Novel (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 1993  
Prerequisite: PORT 003PORT 405

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PORT 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Psychology (PSYCH)**

**PSYCH 083S** (GS) First-Year Seminar in Psychology (3) Scientific, societal, and individual implications of contemporary psychological theory.

**PSYCH 083S First-Year Seminar in Psychology (3)**  
**(GS;FYS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Modern science provides perspectives on human beings that may conflict with our intuitive and conventional views of ourselves as individuals capable of free choice and responsibility. These perspectives raise important questions for how we understand ourselves and others: Does brain chemistry govern our moods and motivations? Do our genes determine our abilities? Is the human mind just a kind of computing machine? Views based on the biology of behavior and on the computer metaphor for the mind can be found both in a wide range of academic disciplines, including psychology, anthropology, sociology, biology, neuroscience, medicine, and computer science. Perhaps more important, these perspectives are apparent in the news media, entertainment, and other aspects of popular culture. Biological and technological views of what it means to be human are thus shaping our common-sense understanding of our selves and others.

The goal of this course is to help students to understand the basis of these contemporary scientific views of human beings, and to think critically about the ways in which these views shape human experience. We will read three scholarly but accessible paperbacks (listed below), two that present biological and technological perspectives, and one that provides a critical counterpoint. We will also consider selections from popular media, including news stories, movies, and fiction, to examine the appearance of these perspectives in our contemporary culture. On a more pragmatic level, we will consider ways in which scientific perspectives can help students understand their own learning processes, leading to more effective academic skills.

The class format will be open discussion, and students will be expected to come to class prepared to discuss the assigned readings. Evaluation will be based on 10 short writing assignments, a term paper or take-home final, an in-class presentation, and class participation. Writing assignments will generally require that students apply concepts discussed in class to particular topics, or that they use library and Web resources to find relevant material. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them including the opportunity to develop relationships with faculty and other students who share their academic interests. This course fulfills the first-year seminar requirement as well as a general education or Bachelor of Arts social/behavioral science requirement.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 100** (GS) Introductory Psychology (3) Introduction to general psychology; principles of human behavior and their applications.

**PSYCH 100 Psychology (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Psychology is a scholarly discipline, a scientific field, and a professional activity. Its overall focus is the scientific study of behavior and experience, and of associated mental and physiological processes. As a scholarly discipline, psychology represents a major field of study in academic settings, with an emphasis on theories and principles of behavior and experience. As a science, psychology is a domain of research in which investigators analytically and systematically study behavior and experience to develop theories and principles and to understand their application to real-world situations. As a profession, psychology involves the practical application of knowledge, skills, and techniques for enhancing well-being and quality of life, as well as solving or preventing individual and social problems. This course provides an overview of the field of psychology, including research, theory, and application. Specific topics include the biological bases of behavior, sensation and perception, learning, cognition, motivation and emotion, development, social cognition and social influence, personality and individual differences, and mental disorders and therapy. Content is presented through a combination of lectures, readings, and demonstrations. Evaluation is primarily on the basis of objective exams given in class. A major goal of the course is to show how questions within these areas are addressed through empirical research. The course introduces students to theories, research, and procedures used in psychological research and practice. It also promotes thinking about how students can apply this knowledge to enhance their lives. After taking this course students should be able to make more informed decisions about participating in future psychology courses and have a better understanding of psychology as a science and of human behavior. This course serves as a prerequisite for most upper-level psychology courses. It introduces basic concepts covered in more depth in those courses. PSYCH 100 is required for the Psychology majors and minor. PSYCH 100 is offered three times per year. Five to six sections/semester are offered at University Park with 330-370 students per section; other locations and delivery channels may offer smaller sections.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 100H** (GS) Introductory Psychology (3) Introduction to general psychology; principles of human behavior and their applications.

**Introductory Psychology (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 100H** (GS) Introductory Psychology (3) Introduction to general psychology; principles of human behavior and their applications.

**Introductory Psychology (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 100S** (GS) Introductory Psychology (3) Introduction to general psychology; principles of human behavior and their applications.

**Introductory Psychology (3)**

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 105** Psychology as a Science and Profession (3) Overview of history and methods of psychology as a science and profession; applications and ethical issues in psychology.

**PSYCH 105 Psychology as a Science and Profession (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The purpose of this course is to introduce Psychology majors and prospective majors to basic principles of research and practice in scientific psychology. The course provides a survey of the subfields of psychology, their history, and their current importance in both academic and applied settings. The focus is on common principles and issues important across these subfields. Students will learn how psychological research is conducted, survey applications of psychological research, consider ethical issues in psychological research and practice, and learn about careers in a variety of subfields in psychology. Students will be evaluated on the basis of multiple-choice exams (75%), in-class activities (10%), and short writing assignments (15%). The course will be required for the Psychology B.A. and Psychology B.S. (all options) majors, but will not be a prerequisite for any other course. The course will be offered each fall and spring semester in large sections of 300-350 students.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 199** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 200** (GQ) Elementary Statistics in Psychology (4) Frequency distributions and graphs; measures of central tendency and variability; normal probability curve; elementary sampling and reliability; correlations; simple regression equations.

**PSYCH 200 Elementary Statistics in Psychology (4)  
(GQ)**

Psychological science is based upon empirical research. Questions about behavior and experience are answered by

gathering and analyzing data. In upper-level classes students will be expected to read and understand this research, and many will be expected to design sensible investigations of their own. At the core of these skill sets is the ability to understand and perform statistical analyses, and the ability to evaluate the match between statistical analysis and experimental procedures. This course provides an introduction to descriptive and inferential statistics commonly used in psychology, and introduces hypothesis testing as a method of scientific investigation. In addition, it explores the ways in which the assumptions of statistical tests place constraints on experimental design and, conversely, how the design of experiments can dictate the statistical test appropriate for data analysis. Specific topics include probability theory, measures of variability and central tendency, normal curves, the relation between samples and populations, correlations, and simple regression. Classes may also cover z-tests, t-tests, ANOVA, or other techniques commonly used in psychology. Content is presented through a combination of lectures, readings, and demonstrations. Evaluation is primarily on the basis of objective exams given in class. The course introduces students to quantitative procedures used in psychological research and practice. It also promotes thinking about how students can apply this knowledge to answer self-generated questions. With PSYCH 301W (Basic Research Methods in Psychology) the course provides an excellent two-course sequence to prepare students for upper level courses. After taking this course students should be able to make more informed decisions about majoring in psychology. This course serves as a prerequisite for PSYCH 301W, which itself prerequisite for many some upper-level psychology courses. PSYCH 200 or Stat 200 is required for the Psychology majors and minor.

General Education: GQ  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: PSYCH 100;MATH 021

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 212 (GS)** Introduction to Developmental Psychology (3) Developmental principles; physical growth; linguistic, intellectual, emotional, and social development from infancy to maturity.

**PSYCH 212 Introduction to Developmental Psychology (3)  
(GS)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Developmental psychology involves the scientific study of the social, emotional, and intellectual changes that enable progression from infancy to adulthood. As part of a scholarly discipline, scientific field, and professional activity, the overall focus of developmental psychology is the scientific study of age-related changes in emotions, cognitions, language, personality and social relations and the relationships of these changes to familial, peer, and cultural experiences, biological development, and personal efforts to make sense of the social and object worlds. As an important area of psychological science, developmental psychology is a domain of research in which investigators analytically and systematically study behavior and experience to develop theories and principles and to understand their application to real-world situations. As part of a profession, developmental psychology involves the practical application of knowledge, skills, and techniques for enhancing the well-being and quality of life of children, adolescents, and their families, as well as the development of age-relevant solutions to and strategies for the prevention of individual and social problems.

This course provides an overview of the field of developmental psychology, including its history, research methodologies, theories, and applications. Specific topics include the biological bases of development, parent-infant attachment, the development of sensation and perception, cognition and linguistic development, emotional development, moral development, stereotype development, childhood and adolescent psychopathology and its development. Content is presented through a combination of lectures, readings, activities, and demonstrations. Evaluation is primarily on the basis of objective exams given in class.

A major goal of the course is to show how questions within these areas are addressed through empirical research. The course introduces students to theories, research, and procedures used in psychological research and practice. It also promotes thinking about how students can apply this knowledge to enhance their lives. After taking this course students should be able to make more informed decisions about participating in future psychology courses and have a better understanding of human development, psychology as a science, and the importance of developmental psychology to the construction and improvement educational programs and clinical practice. PSYCH 212 may be applied to the requirements of the Psychology BA and Psychology BS majors and of the Psychology minor. The course meets the Social/Behavioral Sciences requirement. This course will be offered three times a year at University Park 330-350. Other locations and delivery channels may offer smaller sections.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 212H (GS)** Introduction to Developmental Psychology (3) Developmental principles; physical growth; linguistic, intellectual, emotional, and social development from infancy to maturity.

**Introduction to Developmental Psychology (3)**

General Education: GS  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
 Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 212H** (GS) Introduction to Developmental Psychology (3) Developmental principles; physical growth; linguistic, intellectual, emotional, and social development from infancy to maturity.

### **Introduction to Developmental Psychology (3)**

General Education: GS  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
 Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 221** (GS) Introduction to Social Psychology (3) Research and theory on topics including interpersonal attraction, aggression, helping, attitudes, attribution, cooperation, competition, and groups, from a psychological perspective.

### **Introduction to Social Psychology (3)**

General Education: GS  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2007  
 Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 230** (GS) Introduction to Psychologies of Religion (3) Introduction to major Western psychologies of religion (James, Freud, Jung) and to subsequent extensions of and departures from them.

### **Introduction to Psychologies of Religion (3)**

General Education: GS  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 231** (GS;US) Introduction to the Psychology of Gender (3) Psychological study of gender in historical and contemporary perspective. Role of gender in development, self-concept, social relations, and mental health.

### **PSYCH 231 Introduction to the Psychology of Gender (3) (GS;US)**

#### **(BA) This course meets the Bachelor of Arts degree requirements.**

After a beginning period of domination by men, the rise of feminism in the 1960s and 1970s in the US gave impetus to the study of women and gender. Through both traditional and feminist research methods, psychologists have sought to clarify what is general among and between women and men, and what may be individualized to specific persons or groups. Conceptions of gender are also examined cross-culturally. Emphasis of study is upon those experiences that are specifically related to gender, such as stereotypes and expectations of femininity, violence against women, economic and work-related constraints, and pregnancy and childbirth. There will be two major evaluation methods used. One will be tests that will assess students' knowledge and understanding of the major concepts, theories, and research findings. The other will be assignments that will provide the opportunity for students to apply, research, analyze, and discuss key areas of the course. Psychology 231 is intended as a basic introduction to the psychology of gender. For PSYBA and PSYBS majors, PSYCH 231 is part of the History/Philosophy/Religion/Diversity group that can be used to meet the requirement of additional courses in four different groups. PSYCH 231 can be used for the Psychology minor. Non-majors may use it to fulfill a general education social/behavioral science and international/intercultural competency selection. This course will be offered once a year with 60 seats per offering.

General Education: GS  
 Diversity: US  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2007

Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 232 (GS;US;IL) Cross-Cultural Psychology (3)** This course examines how ethnic and cultural background influences patterns of human thought and behavior.

**PSYCH 232 Cross-Cultural Psychology (3)**  
(GS;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Cross-cultural psychology investigates the influence of sociocultural factors on human thought and behavior. It will revisit the topics covered in introductory psychology in order to investigate the degree to which the major findings in each subdiscipline are culturally universal and/or culturally specific. The course will reflect the interdisciplinary nature of cross-cultural psychology by examining issues that link psychology to other fields such as anthropology, sociology, economics, and political science. One goal of the course will be to develop an understanding of the problems involved in the design and interpretation of studies comparing ethnic or racial groups, both within and across national boundaries. Students will learn to identify how subtle forms of ethnocentric bias influence both the research questions asked and the conclusions that are reached and will learn ways to identify and avoid such bias. Students will learn to analyze and integrate knowledge from a variety of sources including films, readings, scientific literature and the popular media. Course projects will require them to interact in a respectful and sensitive manner with people of other cultures in person and via the Internet. Students will learn to critically examine their own beliefs as well as the information that they encounter about culture and ethnicity inside and outside of the classroom. They will enhance their oral and written communication skills during class discussions, small group and collaborative exercises and presentations. Topics are covered that have a significant body of cross-cultural research and are directly relevant to students' lives, including issues such as: child-rearing practices around the world, culture-fair intelligence testing, aggression and ethnic conflict, and cultural influences on therapeutic success. By studying psychology from a cross-cultural perspective, students should become more aware of the diversity of the international community and develop an increased understanding and tolerance of attitudes and viewpoints different from their own. Evaluation is conducted using integrative essay exams, completion of readings quizzes, and papers and presentations of case studies and learning activities. The course fulfills general education requirements in the social and behavioral sciences and requirements for intercultural/international competence.

General Education: GS

Diversity: US;IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Spring 2007

Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 238 (GS) Introduction to Personality Psychology (3)** Past and recent conceptualizations of key issues and root ideas of personality psychology.

**PSYCH 238 Introduction to Personality Psychology (3)**  
(GS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Personality psychology involves examining theories of human nature and evaluating them in an empirical fashion. Personality psychology begins with the observation that each person is (to paraphrase Harvard psychologists Kluckhohn and Murray) in certain respects (a) like all other persons, (b) like some other persons, and (c) like no other person. In other words, personality psychology concerns itself with the study of (a) universal aspects of human nature, (b) psychological traits and types, and (c) individual uniqueness. Principal goals of the discipline include constructing descriptive taxonomies of personality, inquiring into the evolutionary and developmental origins of human universals and individual differences, and assessing the impact of personality on the life course.

This course aims to cultivate in students a breadth of understanding through an analysis of some of the major intellectual statements concerning human nature, viz., psychoanalysis, humanism, existentialism, symbolic interactionism, and Darwinism. Questions considered within the course include: How can we determine what might be a part of fundamental human nature? What are the relative contributions of conscious rationality and unconscious irrationality to human behavior? Can human behavior be explained by a finite set of motives? Do explanations in psychology differ in kind from explanations in the natural sciences? Can personality be quantified? How does one distinguish between sincerity, dissembling, and self-deception?

Short-answer examinations and class participation are used to evaluate the degree to which students have successfully comprehended course material. Students should understand why it is difficult for a theorist to create a view of human nature that transcends the theorist's own personality and cultural/historical context, and how empirical research can help overcome these obstacles. Students are to learn how to identify and evaluate the assumptions (either implicit or explicit) about human nature and individual differences that underlie any social or behavioral science. By the end of the course, students should be able to describe the basic tenets of the major theories, to be able to compare and contrast the theories, and to be able to evaluate the strengths and weaknesses of each theory. A good understanding of the course material will prepare students for advanced study in personality theory and measurement, as well providing a useful context for courses in abnormal, clinical, developmental, health, historical/philosophical, industrial/organizational, and social psychology, as well as for courses in other social sciences, certain humanities, and some applied fields such as business which at least tacitly presuppose some view of personality.



Students are evaluated on examinations that include a mixture of short answer and objective questions. Individual instructors may supplement such examinations with other forms of evaluation as appropriate to section size and setting, such as in-class exercises and term papers. PSYCH 238 is an Additional Course in the PSYBA and PSYBS majors and may count toward the Psychology Minor. It may be used to fulfill the Social and Behavioral Sciences requirement. This course will be offered once a year with 25-40 seats per offering at several non-UP locations.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 243 (GS)** Introduction to Well-being and Positive Psychology (3) Applying psychological knowledge to develop and maintain effective personal adjustment and well-being and positive social relations.

**PSYCH 243 Introduction to Well-being and Positive Psychology(3)  
(GS)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The psychology of personal well-being and adjustment involves the application of the empirically derived principles of psychology to the problems of everyday behavior. As part of a scholarly discipline, scientific field, and professional activity, the overall focus of the course is the study of the psychological process of adapting to, coping with, and managing the problems, challenges, and demands of modern life. As an important area of psychological science, well-being and adjustment is an area of research in which investigators develop and systematically test theories about adjustment. As part of a profession, it involves the application of this empirically gained knowledge to enable people to respond to environmental pressures, both physical and psychological, and to cope with stress.

This course provides an overview of the field of adjustment, including topics such as the way in which personality affects people's pattern of adjustment, the effect of stress on adjustment, the use of coping strategies to deal with stress, the adjustments people make in their social relationships (including how individuals view others, communication, behavior in groups, and intimate relationships, the development of gender roles, the emergence of sexuality, the phases of adult development, transitions in the world of work, and the way in which adjustment influences a person's psychological and physical wellness.

Content is presented through a combination of lectures, readings, active learning activities, and demonstrations. Assessment is based on objective and essay exams taken in class, and on instructional and collaborative writing assignments (which include library and internet research, and a personal journal). Discussion and questions are encouraged in all sections. Along with personal contact, students have the opportunity to communicate with faculty members via e-mail.

After taking this course students should be able to make more informed decisions about participating in future psychology courses and have a better understanding of adjustment psychology as a science, and the importance of adjustment in their own lives.

Students will be evaluated on a combination of examinations, research projects and writing assignments. PSYCH 243 may be applied to the requirements of the Psychology BS and Psychology BA options and to the requirements of the Psychology minor. This course currently meets a General Education requirement in the Social and Behavioral Sciences. It is being offered once a year with 25 seats per offering at several campuses.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 244 (GS)** Introduction to the Psychology of Human Factors Engineering (3) Introductory course in engineering/human factors psychology, emphasizing the application of core psychological principles and research to designing products and systems.

**PSYCH 244 Introduction to the Psychology of Human Factors Engineering (3)**

Human Factors Psychology is an area of psychology where the overall focus is the scientific study of human behavior and how it can be applied to the use, design and development of products and systems. Students will learn basic principles of how people process information, perceive and interact with the world in various circumstances. They will learn how psychologists conduct research on human thought and behavior in an effort to measure peoples' perceptions, attitudes, and behaviors. These basic principles will be illustrated and explored with a series of hands-on activities that relate the material to everyday life.

Topics to be covered include: research design and methods, sensation and perception, memory and language, and social psychology. Psychological principles from these areas will be used to discuss ways to improve the safety of tools and

systems, reduce human error and increase user satisfaction. Students will also gain a better understanding of the influence of stress and workload on human performance. A major topic will be ways to develop reliable and valid evaluation techniques for assessing performance, safety and ease of use of systems. In order to design effective systems, individual differences in age, gender and culture must be taken into account. People in different regions of the world have cultural differences that influence the way they perceive the world and process information. These individual differences will be addressed throughout the semester. Topics are presented through a combination of lectures, readings, demonstrations, and in-class activities. Active learning elements such as library/internet research, writing activities, and collaborate learning experiences will be applied. Evaluation is on the basis of content-based quizzes, objective exams, brief written reports of hands-on exercises, and collaborative assignments.

A major goal of the course is to show how questions relating to proper use and design of tools, computers and other systems are addressed through empirical research. The course introduces students to theories, research, and procedures used in psychological research and practice. It also promotes students to think critically about how they can apply this knowledge to enhance their lives. After taking this course students should have more sophisticated knowledge of the relationship between the brain, our thought processes and behavior. They should be able to make more informed decisions about what makes a usable product as well gain a better appreciation of the science and profession of human factors psychology.

General Education: GS

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: PSYCH 100 or 3 credits of GS

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 253 (GS)** Introduction to Psychology of Perception (3) Survey of human perception and processing of perceptual information, with some reference to animal literature. Emphasizes vision and audition.

### **Introduction to Psychology of Perception (3)**

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 256 (GS)** Introduction to Cognitive Psychology (3) Introduction to study of such higher mental processes as thinking and reasoning, imagery, concept formation, problem solving, and skilled performance.

### **PSYCH 256 Introduction to Cognitive Psychology (3) (GS)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course is an introduction to cognition, an area of psychology that investigates the ways in which we acquire, store, create and use knowledge. Cognition includes a wide range of mental processes that are used every day in almost all human activities. These include attention, perception, memory, imagery, language, problem solving, creativity, and reasoning.

Cognition refers to a theoretical approach in psychology that emphasizes the role of people's knowledge, reasoning, and expectations and this approach has had a broad influence on all areas of psychology. It also involves developing sophisticated methodologies to study processes that are not always observable. Cognitive research can be applied in order to improve mental functioning, e.g., developing programs for improving memory or cognitive rehabilitation for brain injury. It can also be used to address serious societal issues and problems such as understanding how people develop and use stereotypes. Cognitive psychology has applications to many fields including medicine, the legal system, education, and understanding mental disorders. In addition, cognitive psychology is part of the active interdisciplinary field of cognitive science that also includes disciplines such as philosophy, neuroscience and artificial intelligence.

This course provides an overview of the field of cognitive psychology, including its research, theory, and application. Content is presented through a combination of lectures, readings, activities, and demonstrations. A major goal of the course is to show how the major questions in cognition are addressed through empirical research. It also promotes critical thinking and encourages students to apply this knowledge to enhance their lives.

This course is a basic 200-level course for the psychology majors (PSYBA, PSHBA, PSHBS, APSCC, APSYC) at several campuses. It fulfills category c. cognitive/learning and psycholinguistics at University Park and category 3. cognitive/experimental at Penn State Erie, Category b. developmental, cognitive, learning at Berks Lehigh Valley college and the Commonwealth College. It may be used to satisfy the Social Behavioral Sciences requirements. In large sections evaluation will be primarily based on objective, multiple-choice examinations. Individual instructors may supplement such examinations with other forms of evaluation as appropriate to section size and setting. In smaller sections the course evaluation may be supplemented with essay exams, laboratory projects and student presentations. This course will be offered twice a year with 100 to 125 seats per offering at University Park and once a year with smaller sections at other locations.

General Education: GS  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2007  
 Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 260 (BB H 203) Neurological Bases of Human Behavior (3)** An introduction to biopsychology, emphasizing the structure and function of the human brain.

### **PSYCH (BB H 203) 260 Neurological Bases of Human Behavior (3)**

The nervous system provides the biological underpinning of behavior, and several scientific fields are concerned with the relationship between the nervous system and behavior. The goal of this course is to introduce the principle methods, findings, and theories of these scientific fields. Topics include (a) the anatomy and physiology of the nervous system, (b) how the nervous system gives rise to perception, action, language, memory, emotion and reproductive behavior, and (c) how drugs and mental illnesses affect the nervous system and alter normal perceptual, cognitive, and emotional behavior. The course prepares students for a number of more advanced courses in Psychology and Biobehavioral Health that address specialized topics in neuroscience, and may satisfy a requirement of these majors. Evaluation is based on objective exams. The course is offered each fall and spring semester.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 260A (GS) Neurological Bases of Human Behavior (3)** An introduction to biopsychology, emphasizing the structure and function of the human brain. Students may take only one course for credit from PSY 203 and PSY 203A.

### **PSYCH 260A Neurological Bases of Human Behavior (3) (GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Biological Psychology is an area of psychology where the overall focus is the scientific study of behavior and experience, and underlying associated neurological and physiological processes. This course provides an overview of the biological bases of behavior and includes a presentation of the research, theory, and application of this knowledge. Specific topics include the basic anatomy and physiology of the central and peripheral nervous system, neural transmission and the function of various neurotransmitters. The majority of the course will focus on how these basic processes contribute to the processing of information from the senses, simple and complex learning, and cognitive processes such as memory, and language. Topics will include brain development, developmental and acquired neuropsychological disorders and therapeutic techniques. Content is presented through a combination of lectures, readings, demonstrations, and in-class activities. Evaluation is primarily on the basis of objective exams given in class, and brief written reports.

A major goal of the course is to show how questions relating brain and neural function to behavior are addressed through empirical research. The course introduces students to theories, research, and procedures used in psychological research and practice. It also promotes thinking about how students can apply this knowledge to enhance their lives. After taking this course students should have a more sophisticated knowledge of the relationship between brain and behavior. They should be able to make more informed decisions about participating in future psychology courses and gain a better appreciation of the science and profession of psychology

General Education: GS  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2007  
 Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 261 (GS) Introduction to Psychology of Learning (3)** A general survey of the learning area, including animal and human experiments, with the applicability of learning principles being discussed.

### **Introduction to Psychology of Learning (3)**

General Education: GS  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2007  
 Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 268 Animal Minds (3)** This course considers the cognitive and communicative abilities of animals, especially primates, as compared with humans.

**PSYCH 268 Animal Minds (3)**

This course covers select topics in animal cognition and communication. This course will focus mostly on the behavioral level. It will focus on observations and controlled behavioral experiments rather than on neurophysiological experiments (though it will cover some mechanisms that are implicated through behavioral research). One of the main goals of this course is to discuss how we can scientifically approach the study of animal minds. One of the recurring themes of the course will be methodological: how can we pose a question to a being that does not have language? Another goal of the course is to teach critical thinking about experiments in this field. It will discuss how to run a well-controlled experiment and closely examine the claims that are made by each experimenter. Through a class project, students will gain some experience trying to observe behavior and designing experiments.

This course addresses an active research area in psychology, of broad interest to students in Psychology and other disciplines. Because of this broad appeal, no background in psychology is assumed, and no prerequisite is required. The course will fulfill a 200-level requirement for students in the PSY majors and minors. Students typically will be evaluated by two midterm exams (25% each), a final exam (35%), and a research project (15%). The course will typically be offered once each academic year with an enrollment limit of 50.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 269 Evolutionary Psychology (3)** Survey of evolutionary perspectives in current psychological research.

**PSYCH 269 Evolutionary Psychology (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course demonstrates how knowledge and principles from evolutionary biology are used to conduct research on the design of the human mind. The course explains how evolutionary psychologists identify adaptive problems faced by our ancestors and test hypotheses about psychological mechanisms designed by natural selection to solve these adaptive problems. The psychological mechanisms discussed are involved in phenomena such as perception and the control of activity, learning and cognition, mate selection and courting, development and parenting, altruism, aggression, and social structure. Evolutionary psychology is thus not a topic area such as perception, learning, or motivation, but rather a way of thinking that can be applied to any topic within psychology. The course, therefore, shows how evolutionary psychology is (1) changing how scientists approach old topics, (2) opening up new areas of research, and (3) beginning to provide a unifying framework for integrating the various subdisciplines of psychology. Students will learn to understand and evaluate evolutionary hypotheses about a range of topics in psychology and related social sciences. Evaluation will be based on a combination of methods, including for example traditional exams, written homework, papers, and participation in class and group discussions. The course is offered as a perspective that can be used to think about the subject matter in any particular content course in psychology. Students may choose this course to fulfill a requirement in the major.

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008  
Prerequisite: PSYCH 100; ANTH 021BI SC 002BIOL 133 or BIOL 222

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 270 Introduction to Abnormal Psychology (3)** Overview of assessment, causes, and treatments of psychological disorders.

**PSYCH 270 Introduction to Abnormal Psychology (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on some of the topics and questions people most commonly ask about psychology: What are the different psychological disorders, and what are they like? How do clinicians diagnose someone with a disorder? What do therapists actually do in therapy? Course objectives include: (a) examine historical and current conceptions of normal and abnormal behavior; (b) survey the origins, symptoms, and characteristics of several adult psychological disorders; and (c) introduce the main treatment approaches for psychological disorders. The course is designed to be accessible to both Psychology majors and others. Psychology B.A. and Psychology B.S. majors may use the course toward the 200-level breadth requirement of the major. Students will be assessed primarily with objective exams.

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: PSYCH 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 281** (GS) Introduction to Industrial-Organizational Psychology (3) Personnel selection, training, accident prevention, morale, and organizational behavior.

**Introduction to Industrial-Organizational Psychology (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: PSYCH 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 295** Internship (1-18) Supervised off-campus nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1985

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 297E** (MUSIC 297E) Introduction to Music Therapy (3) Introductory course in music therapy to study the

populations served by this form of therapy and its basic techniques.

### **Introduction to Music Therapy (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (12)**

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 300H** Honors Course in Psychology (1-6) Individual study and seminar in selected phases of psychology.

### **Honors Course in Psychology (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: invitation of Program Honors Committee

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 301W** Basic Research Methods in Psychology (4) Introduction to methods of psychological research, with special attention to hypothesis formation and testing, threats to validity, and data presentation.

### **Basic Research Methods in Psychology (4)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100;PSYCH 200 orSTAT 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 370** (US) Psychology of the Differently-Abled (3) This course familiarizes students with the needs and abilities of people with varying physical challenges through academic and experimental exercises.

### **PSYCH 370 Psychology of Differently-Abled (3) (US)**

In 1991 President Bush signed the Americans with Disabilities Act (ADA) which recognized that the hundreds of thousands of Americans living with disabling conditions form a class which should receive protection under the law. Many people look at the ADA as civil rights legislation which is intended to offer disabled Americans the same legal rights to access as the Civil Rights legislation of the 60s offered to Americans of color.

While discrimination in the workplace, in housing, and in other areas based on race is no longer openly practiced, people with different physical abilities are still fighting an uphill battle. Often the barriers they face are due to ignorance of their needs. The intent of this course is to increase awareness and sensitivity to the needs of people who are different in the physical dimension. Additionally, policy and economic implications will be studied.

The content will include multiple modalities, such as mobility and visual differences. The focus will be positive, emphasizing how differences in one area are overshadowed by similarities in most areas. Language in the course will focus on the positive as well, hence Psychology of the "Differently-Abled" rather than "Disabled". Accomplishments of people such as FDR and Mozart will be discussed in the context of significant contributions made by people who were physically different. Finally direct experience with people will be obtained through a community service component of the course.

The objectives of this course are to first familiarize students with the causes and consequences of different physical challenges. The long term objective is to increase sensitivity to the needs of people who are different from most of us in some ways, but very similar to us in most ways. Research has shown that familiarity is a critical tool in raising comfort levels and decreasing discriminatory and hurtful acts.

Evaluation Methods:

Examinations 40%, mid-term and final

Community Service 30%, this will be assigned through the same form Internship supervisors use to evaluate students for PSYCH 395

Research Paper 25%

Oral Presentation 5%, 15 minute presentation to class regarding their community service experience

This course will draw on materials covered in General Psychology. No other course preparation will be needed. The course is an Intercultural and International Competence (GI) course, focusing on intercultural aspects only.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 399** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (12)**

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 400** Intermediate Experimental Design (3) Design and analysis of experiments on human and animal behavior, including application of the t, F, chi-square, and binomial distributions.

### **Intermediate Experimental Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 200 or STAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 404** (EDPSY 450) Principles of Measurement (3) Scale transformation, norms, standardization, validation procedures, estimation of reliability.

### **Principles of Measurement (3)**

General Education: None

Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: EDPSY 400PSYCH 100 orPSYCH 200;STAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 405** Mathematical Psychology (3) Formalized psychological theories including models of social, biological, cognitive, and learning phenomena.

### **Mathematical Psychology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: MATH 040 or equivalentPSYCH 200 orSTAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 406W** Advanced Research Projects in Psychology (4) Advanced methodology focusing on the logic and practice of research culminating in the completion of a student designed research project.

### **Advanced Research Projects in Psychology (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: PSYCH 301W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 407** Advanced Research Methods in Psychology (3) Advanced methodology focusing on the logic and practice of research in a selected content area of psychology.

### **Advanced Research Methods in Psychology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: PSYCH 100;PSYCH 200 orSTAT 200;PSYCH 301W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 408** Program Evaluation (3) Examination of the theories and practice of program evaluation; emphasis on applied work utilizing a wide range of evaluation approaches.

### **PSYCH 408 Program Evaluation (3)**

This course will introduce the student to the basic procedures and design methodologies of program evaluation. The student will learn about the purposes of evaluation, types, applications, and ethical issues involved in evaluation. A history of programmatic theory design will be reviewed with the purpose of clarifying the linkages between goals, objectives, and the hypothesized relationships between specific programmatic elements and desired outcomes. The student will be challenged to identify and understand the normative assumptions specific to organizations about their basic program design, implementation, and assessment processes.

Students will be evaluated by a combination of the following: evaluation proposal, short written assignments, exams, oral presentation, and attendance. The prerequisites for this course include satisfactory completion of PSYCH 100, SOC 001, PSYCH 200, STAT 200, and PSY 201. This course presupposes critical thinking skills and basic competencies in statistics and research methods.

For the Psychology major (PSHBS or PSHBA) at Penn State Erie, this course is important for students who will be entering graduate school or going into practice in the areas including, but not limited to: community psychology, social psychology, industrial-organizational psychology, sports psychology, or the general social services field. This course can count towards: a) the advanced course requirement, b) the special interest course requirement, or c) elective credit. Psychology minors at Penn State Erie can apply this course toward the 15 credits in psychology beyond the PSYCH 100 requirement. Students in other majors should consult with their academic advisers to determine how this course fits into their program of study.

This course will be offered once annually (fall semester).

General Education: None  
Diversity: None  
Bachelor of Arts: None



Effective: Spring 2007

Prerequisite: PSYCH 100 or SOC 001; PSYCH 200 or STAT 200; PSYCH 301W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 410 Child Development (3)** Study of the psychology of the growing person from conception through adolescence, focusing more on periods up to middle childhood.

**PSYCH 410 Child Development (3)**

PSYCH 410 Child Development is intended for undergraduate students majoring in psychology, education and related disciplines. The purpose of this course is to introduce students to the theories and the influences on child development from conception through adolescence. Students will be introduced to research concerns in developmental psychology, including descriptions of research designs and ethical considerations in research with children and adolescents. Course content will include an in depth review of prevailing theories and influences on development from conception through adolescence. Application of the principles and influences will be applied to the physical, cognitive, and social development of children.

Requirements for the course will include objective examinations, as well as written assignments. Written assignments will involve comparisons and critiques of major developmental theories. Examples of such assignments include descriptions of the key points of a major developmental theory or process of child development, detailed description of an observation of a child and how the child's behavior relates to a major developmental theory, descriptions of how application of developmental theory apply to the student's chosen major or occupation, or comparisons and critiques of developmental theory.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 412 Adolescence (3)** Physical, cognitive, and personality development during adolescence.

**Adolescence (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 413 Cognitive Development (3)** Development of reasoning and related cognitive skills, such as perception and language.

**Cognitive Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 414 Social and Personality Development (3)** Development of social and personality attributes.

**Social and Personality Development (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 415 Topics in Developmental Psychology (3)** Special topics in developmental psychology.

**Topics in Developmental Psychology (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 413 or PSYCH 414

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 416** (HD FS 445) Development Throughout Adulthood (3) Processes of development and change of behavior from early adulthood through old age, emphasizing theory, method, and empirical research.

### **Development Throughout Adulthood (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: HD FS 249 or PSYCH 100; HD FS 312W or PSYCH 301W; PSYCH 200STAT 200 or 3 credits of statistics ; 6 credits in HD FS PSYCH or SOC.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 419** Psychology and a Sustainable World (3) Students study relationships between humans and the natural world and psychological factors contributing to environmental problems and sustainable solutions.

### **PSYCH 419 Psychology and a Sustainable World (3)**

This course examines psychological dimensions of humans' connection to the natural world, causes of human contributions to environmental problems, and psychological approaches for encouraging sustainable behavior. The course draws on the new field of conservation psychology and responds to the University's commitment to becoming a leader in sustainability education. This course is designed for upper-level undergraduate students to satisfy requirements for Psychology degree programs, the Psychology minor, and the Sustainability Leadership minor. Major topics covered include psychological foundations of environmental problems (psychological understanding of unsustainable behavior, psychological perspectives on ethical dimensions of environmental problems, people's place in nature, psychological approaches to promoting sustainable behavior), and the application of psychological principles to specific environmental topics (consumerism and sustainable lifestyles, population overshoot, climate change, land use, water use, energy use, food production and consumption, pollution and waste). Students will be able to apply concepts, theories, and findings to change cognition, motivation, and behavior, with the goal of reducing negative human impacts on the environment. They will be able to write and communicate about their work in the form of a final paper and a class presentation that conform to the standards of psychological research. Assessment methods include weekly journal assignments that document students' application of lecture and reading material to their experiences with nature, their observations about their own negative impacts on the environment, and their actions to reduce negative impacts on the environment. In addition, students will develop a conservation intervention program that targets a specific problem on campus or in a community, for which students review relevant literature, design an intervention program, give a presentation of the program, and submit a final paper on the program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: PSYCH 100PSYCH 221

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 420** Advanced Social Psychology (3) In depth study of selected research areas in human social behavior.

### **Advanced Social Psychology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 421** Self and Social Judgment (3) Individual's perceptions, evaluations, and decision-making strategies about themselves, others, and social situations or issues.

### **Self and Social Judgment (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100PSYCH 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 422 Human Sexuality (3)** Psychological influences on human sexual behavior such as love, sexual orientation, gender, intercourse, contraception, sexually transmitted diseases, dysfunctions, and paraphilias.

**PSYCH 422 Human Sexuality (3)**

PSYCH 422, Human Sexuality, is intended to examine the influence of psychological factors on human sexual behavior. Information on male & female anatomy, on the roles/influences of hormones, and on conception/pregnancy will be covered as well as information on gender, sexual orientation, communication, love, sexual harassment, paraphilias, sexually explicit material, and sexual dysfunction.

Evaluation will be by means of exams (60% of grade), papers (15% of grade), small group projects (10% of grade), and a poster presentation (15% of grade). The prerequisite for this course is satisfactory completion of PSYCH 100. As the course presupposes critical thinking skills and an awareness of research methods in psychology, it is an advanced undergraduate level course requiring junior/senior level standing.

For the Psychology major (PSHBS or PSHBA) at Penn State Erie, this course can count either toward (a) the diversity basic course requirement, (b) the advanced course requirement, (c) the special interest course requirement, or (d) elective credit. Psychology minors at Penn State Erie can apply this course toward the 15 credits in psychology beyond PSYCH 100 requirement. Students in other majors should consult with their academic advisors to determine how this course fits into their program of study.

No special facilities are required for this course, though students will need to prepare a poster for presentation.

This course is expected to be offered at least once every four semesters.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 423 Social Psychology of Interpersonal/Intergroup Relationships (3)** In-depth study of relationships among individuals (e.g., intimate relationships) or groups (e.g., prejudice, cooperation, competition, aggression, and negotiation).

**Social Psychology of Interpersonal/Intergroup Relationships (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 424 Applied Social Psychology (3)** Application of social psychological theories and research methods to field settings and to the study of social issues.

**Applied Social Psychology (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 425 Psychology of Human Emotion (3)** Reviews, critiques, and applies major historical and contemporary psychological theories of emotion experience, understanding, and expression.

**Psychology of Human Emotion (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 426 (LING 429) Language and Thought (3)** Relations between language and cognition; cognitive implications of normal and impaired language development; cognition and bilingualism.

**PSYCH (LING 429) 426 Language and Thought (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

Is language a special and uniquely human ability that develops and functions independently of other cognitive processes? Do individuals who speak different languages also have different concepts about the meaning of objects and ideas? Does language development depend on exposure to spoken language? In this course we will examine the relation between language and thought by considering evidence on language and cognition in both children and adults. Topics to be covered include the typical development and use of language as well as language and cognition in individuals whose language and/or cognition is impaired in some form. The latter include individuals with aphasia who have sustained brain damage following stroke or head injury, schizophrenics whose language reflects aspects of their disorder, children diagnosed with Williams Syndrome who appear to have good or even precocious language abilities in the face of severe cognitive impairment, and Alzheimer's patients in whom semantic memory has begun to deteriorate. The course will also discuss the acquisition of sign language among deaf individuals and the consequences of bilingualism for children raised with two languages and for adults with proficiency in more than a single language.

The purpose of this course is to provide a survey of current scholarship on the relation of language and thought, including a review of recent developments in the primary literature. The necessary background is covered in introductory Psychology and Linguistics courses, which serve as alternative prerequisites. Students will learn about the consequences of typical and impaired development for relations between cognition and language ability. It is distinguished from PSYCH 457, Psychology of Language, by a focus on the implications of language, language development, and language impairment, for cognitive processes. It covers some topics also addressed by current courses in Linguistics and in Communications Sciences and Disorders, but is distinguished from those courses by its focus on perspectives and theories from cognitive psychology. This course may be used toward the 400-level PSY requirements of the PSYBA and PSYBS majors, and toward the PSY minor. Students typically will be assessed on the basis of class participation and discussion (20%), four papers (total 60%), and an in-class presentation based on reading original research literature (20%). The course typically will be offered once each year at the University Park campus with an enrollment limit of 50.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100 or LING 001 or LING 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 427 (LING 446) L1 Acquisition (3)** How children learn their first language; psycholinguistic aspects of lexical, syntactic, semantic, and phonological development.

**PSYCH 427 (LING 446) L1 Acquisition (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on how children learn their first language from the theoretical perspectives of imitation theories, social construction theories, and innateness theories. In addition, the course covers the various stages of language acquisition including phonological (sound system), morphological (word meaning), syntactical (grammar) and semantic (meaning) development from birth to adulthood. Other related subfields covered in the course include the acquisition of Pidgin and Creole languages, bilingual and multilingual acquisition, and language acquisition and linguistic change.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2010

Prerequisite: LING 100 or PSYCH 002 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 432 (US) Multicultural Psychology in America (3)** This course focuses on the central role of culture, race, and ethnicity in the human condition.

**Multicultural Psychology in America (3)**

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 434 (GAME 434) Psychology of Gaming (3)** Upper level course examining the core psychological principles as they apply to topic of games.

**PSYCH (GAME) 434 Psychology of Gaming (3)**

This course looks at how the field of psychology can be applied to understand and improve the world of games. This requires the application of theories and research based in experimental, cognitive and several other disciplines within psychology, including but not limited to cognitive, social, motivation & emotion, and experimental psychology. By applying different theories within these disciplines we can start to understand how humans interact with games and in turn how games have evolved as a result. This course addresses an active research area in psychology, of broad interest to students in Psychology and other disciplines. The course will fulfill a 400-level requirement for students in the PSYCH majors and minors as well as those in the GAME minor. Students typically will be evaluated by exams, research project, in-class activities, homework, and article discussions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 436** Humanistic, Existential, and Religious Approaches to Psychology (3) Existential, humanistic, and religious approaches to the psychology of experience, consciousness and will.

**Humanistic, Existential, and Religious Approaches to Psychology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2012  
Prerequisite: PSYCH 100 or RL ST 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 438** Personality Theory (3) Personality theories and their application to social and personality development and personality dynamics.

**Personality Theory (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits PSYCH

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 439** History and Systems of Psychology (3) Historical antecedents to scientific psychology; development of contemporary psychological theories and research areas from the formal establishment of psychology.

**History and Systems of Psychology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 441** Health Psychology (3) Overview of the field with an emphasis on how psychological research contributes to an understanding of health and behavior.

**Health Psychology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 443** Treatment and Education in Developmental Disabilities (3) Covers etiology, classification, intervention (treatment and education), ethical and legal issues related to individuals with developmental disabilities.

**Treatment and Education in Developmental Disabilities (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 444** Engineering Psychology (3) Methods and results of experimental psychology pertinent to problems which involve man-machine relationships.

**Engineering Psychology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of GQ or PSYCH

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 445** Forensic Psychology (3) Relations between psychological theory and research and the law, legal processes, and social policy.

**PSYCH 445 Forensic Psychology (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on the interplay between psychological theory and research and the law, legal processes, and social policy. Students will be exposed to the dilemmas faced in the law and how overlap with the knowledge base and expertise of psychologists. Students will learn about the roles psychologists might play in the court system and the history of their involvement. This will include roles of consultant, policy evaluator, expert witness, assessor, and advocate. Legal issues that emerge in psychological practice will also be covered (e.g., limits to confidentiality, duty to warn, consent issues). Students will gain an understanding of the basic theories of the law and how psychological theories may intersect with these. The emphasis of discussion will be on those affecting children, youth and families. These will include topics such as divorce, child maltreatment, juvenile delinquency, domestic violence, and social welfare. Other topics of the law will also be highlighted (insanity plea, civil commitment). Particular attention will be paid to issues dealing with race, ethnicity, and social class and law and social policy.

This course expands the PSY curriculum at the 400-level to include a popular and socially significant topic, and will fulfill a 400-level PSY requirement for Psychology majors and minors. It addresses in detail legal and social policy implications of topics covered in other psychology courses. Significant background in psychology is assumed; thus PSYCH 270 (Introduction to Abnormal Psychology) is a prerequisite. Students typically will be assessed on the basis of three exams (20% each), a paper (30%), and class participation (10%).

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: PSYCH 100;PSYCH 238PSYCH 243 orPSYCH 270

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 450** Psychology of Consciousness (3) Introduction to psychological and physiological aspects of consciousness as related to brain function and clinical psychology.

**Psychology of Consciousness (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007  
Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 451** Psychology of Action (3) Basic and applied science of action, from psychological, computational, and physiological perspectives.

**PSYCH 451 Psychology of Action (3)**

In all walks of life, people must adaptively control their physical movements. Whether in industrial settings, on the highway, in the kitchen, in the studio, in the concert hall, or on the football field, skillful physical action is essential. This

course will focus on the means by which skilled physical behaviors are learned, planned, and controlled. The course will focus on a broad range of basic behaviors (e.g., reaching, walking, looking, speaking, and typewriting) as analyzed from several perspectives (physiologically, psycho-logically, and computationally). Basic science as well as practical applications will be emphasized, as will links between movement control and other, related topics such as perception, cognitive development, and robotics.

This course addresses topics in an active research area in cognitive psychology. It assumes some prior knowledge of cognitive psychology, requiring PSYCH 100 and PSYCH 256 as a prerequisite. The course will cover some topics addressed in several Kinesiology courses, but does so from the perspective of cognitive psychology. It will fulfill a 400-level PSY requirement for Psychology majors and minors. Students typically will be assessed on the basis of midterm (25%) and final (35%) exams, brief writing assignments and in-class activities (15%) and research papers or projects (25%). The course will normally be offered once each academic year.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: PSYCH 100/PSYCH 256

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 452 Learning and Memory (3)** General survey of learning and memory processes as revealed in experimental work with animals and humans.

### **Learning and Memory (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: PSYCH 100/PSYCH 256

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 456 Advanced Cognitive Psychology (3)** In depth study of complex mental processes: thinking, problem-solving, imagery, symbolic behavior, information-processing, attention, artificial intelligence, and language.

### **Advanced Cognitive Psychology (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2007  
 Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 457 (LING 457) Psychology of Language (3)** Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.

### **PSYCH (LING) 457 Psychology of Language (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

How do we process language? Why do we easily adjust to a speaker with a foreign accent? How do young children come to speak the language to which they are exposed? Why is it difficult to learn a second language as an adult? This course focuses on the cognitive processes engaged by language use. Topics to be covered include speech perception, word recognition, representation of word meaning, comprehension of sentences, spoken production of words and sentences, and first and second language acquisition. In addition, the role of language in the study of thought and the role of biological mechanisms in theories of language learning will be discussed, as well as ways in which research on the language of special populations (e.g., deaf signers, dyslexics, aphasics) can inform theories of language processing and representation.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: PSYCH 100 or LING 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 457 (LING 457) Psychology of Language (3)** Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition.

**PSYCH (LING) 457 Psychology of Language (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

How do we process language? Why do we easily adjust to a speaker with a foreign accent? How do young children come to speak the language to which they are exposed? Why is it difficult to learn a second language as an adult? This course focuses on the cognitive processes engaged by language use. Topics to be covered include speech perception, word recognition, representation of word meaning, comprehension of sentences, spoken production of words and sentences, and first and second language acquisition. In addition, the role of language in the study of thought and the role of biological mechanisms in theories of language learning will be discussed, as well as ways in which research on the language of special populations (e.g., deaf signers, dyslexics, aphasics) can inform theories of language processing and representation.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Future: Fall 2014

Prerequisite: PSYCH 100 or LING 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 458 Visual Cognition (3)** Overview of concepts and methods in cognitive visual-spatial processing.**Visual Cognition (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 459 Attention and Information Processing (3)** An examination of attentional processes. Contemporary informational processing approaches will be emphasized.

**Attention and Information Processing (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100; PSYCH 200 or STAT 200 ; 3 credits 400-level PSYCH

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 460 Comparative Psychology (3)** Behavior from standpoint of phylogenetic growth and development; biological implications; comparison of different types of animals, including man.

**Comparative Psychology (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100; PSYCH 260

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 461 Advanced Conditioning and Learning (3)** An examination of basic learning processes that have been determined within the context of classical, instrumental, and operant learning situations.

**Advanced Conditioning and Learning (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**PSYCH 462** Physiological Psychology (3) Study of the biological bases of behavior and experience, including the anatomy and physiology of the brain and nervous system.

**Physiological Psychology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100;PSYCH 260 or 3 credits of BIOL

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 464** Behavior Genetics (3) Survey of gene mechanisms and gene-environment interactions in the determination of behavior; emphasis on deviant human behavior.

**Behavior Genetics (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: PSYCH 100;ANTH 021BI SC 002BIOL 133 orBIOL 222

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 470** Abnormal Psychology (3) Causes, dynamics, symptoms, and treatment of neuroses, psychoses, personality disorders, and other psychological disorders of adulthood.

**Abnormal Psychology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100;PSYCH 238PSYCH 243 orPSYCH 270

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 471** Psychology of Adjustment and Social Relationships (3) Theory and application of psychological principles to problems in personal and social adjustment.

**Psychology of Adjustment and Social Relationships (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 473** Behavior Modification (3) Principles of advanced behavior modification techniques.

**Behavior Modification (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100 6 additional credits of PSYCH

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 474** Psychological Intervention in Childhood (3) Psychology of personal relationships in school situations.

**Psychological Intervention in Childhood (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100;PSYCH 212PSYCH 238PSYCH 243 orPSYCH 270

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 475** Psychology of Fear and Stress (3) Description and evaluation of major trends in research on stress and fear in humans and other animals.

**Psychology of Fear and Stress (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100 3 credits of BIOL statistics PSYCH 200 or STAT 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 476** Child Psychopathology (3) Etiology, diagnosis, and facilitation of adjustment of the mentally retarded, gifted, physically handicapped, and emotionally disturbed child.

**Child Psychopathology (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100; PSYCH 212 PSYCH 238 PSYCH 243 or PSYCH 270

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 477** Mental Health Practicum with Children (3) Overview of interventions for children at risk for mental health disorders; emphasis on intervention strategies, program evaluation, and applied skills.

**Mental Health Practicum with Children (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100 permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 478** Clinical Neuropsychology (3) Overview of functional human neuroanatomy and clinical neuropsychology, with emphasis on origin, assessment, and treatment of human brain damage.

**Clinical Neuropsychology (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 260

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 479 (US)** (WMNST 471) The Psychology of Gender (3) Theories and research on gender differences and gender roles. Emphasis on women's and men's current positions in society.

**The Psychology of Gender (3)**

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100 PSYCH 221

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 481** Introduction to Clinical Psychology (3) Diagnostic procedures, treatment approaches, occupational settings, and ethical considerations relevant to the profession of the clinical psychologist.

**Introduction to Clinical Psychology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100; PSYCH 238 PSYCH 243 or PSYCH 270

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 482** Selection and Assessment in Organizations (3) Background in personnel testing, performance measurement, selection strategies, with emphasis on validity and measurement reliability.

**Selection and Assessment in Organizations (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100/PSYCH 200 or STAT 200/PSYCH 281

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 484** Work Attitudes and Motivation (3) Survey of theory and research with respect to attitudes, morale, and motivation of employees and management.

**Work Attitudes and Motivation (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100; PSYCH 200 or STAT 200 or 6 credits of GQ

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 485** Leadership in Work Settings (3) Review of research and application of behavior principles in the areas of management and supervision.

**Leadership in Work Settings (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100; PSYCH 281 or 3 credits MGMT

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 489** Professional Development in Psychology (1) Develop post-graduation plan for use of psychology major; develop professional presentation style.

**Professional Development in Psychology (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: PSYCH 301W

Concurrent: PSYCH 406W or PSYCH 490

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 490** Senior Seminar in Psychology (3) Capstone experience for senior psychology majors; review of current research literature; topics vary.

**Senior Seminar in Psychology (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 301W 6 credits 400-level PSY senior Psychology major

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 491H** Honors Thesis (3) An opportunity to pursue an advanced research thesis or project to integrate studies within psychology.

**Honors Thesis (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: HONOR 301H senior standing and permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 492** Current Topics in Psychology (3) Current topics addressing significant contemporary developments in psychology.

**Current Topics in Psychology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: PSYCH 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 493** Senior Thesis (3-6) Supervised senior thesis research in psychology.

**Senior Thesis (3-6)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: approval of a thesis adviser in the department seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 494** Research Projects (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 494H** Research Projects (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1998

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 495K** Practicum with Hi-Risk Youth and Children (3) Overview of interventions for children at risk for mental health disorders; emphasis on intervention strategies, program evaluation, and applied skills.

**Practicum with Hi-Risk Youth and Children (3)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: PSYCH 477

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 495P** Animal Research Practicum (3) The primary objective of this course is to provide students with a unique hands-on experience conducting research with nonhuman primates. Within this objective are three main goals: 1) To familiarize students to the day-to-day work involved in conducting behavioral experiments with animals; 2) To increase students knowledge of select topics in animal communication and cognition. This course builds on material taught in Psych 268 (Animal Minds), though that course is not a prerequisite; and 3) To provide students with experience reading and evaluating primary source scientific papers, with the eventual goal of having the students author their own APA-style paper at the end of the course. There are two main components of this course offering. The first component consists of lab work. Students will be expected to put in a minimum of 7 hours per week working with cotton-top tamarian (*Saguinus oedipus*) monkeys in a laboratory setting.

### **Animal Research Practicum (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1985

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 496A** Teaching Assistant for PSYCH 200 (1-6) Teaching Assistant will attend all regular meetings of PSYCH 200 including the spss labs, offer office hours each week, conduct review session prior to each exam, assist students and faculty as needed in class, and assist with lab attendant duties.

### **Teaching Assistant for PSYCH 200 (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: PSYCH 200;PSYCH 301 andPSYCH 406

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 496B** Teaching Assistant for Research Methods in Psychology (1-6) Student will work as a teaching assistant for PSYCH 301, Research Methods. Duties will include student guidance. Student will also teach 20 mini- lessons.

### **Teaching Assistant for Research Methods in Psychology (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: PSYCH 200;PSYCH 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 496C** Psychology Teaching Assistant (3) Undergraduate TA for psychology course. Includes administrative work, holding office hours to assist students, and lesson preparation.

### **Psychology Teaching Assistant (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1991

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 497A** Psychology of Gaming (3) Applies the field of psychology to understand and improve the world of games by applying different theories, to understand how humans interact with games and how games have evolved.

**Psychology of Gaming (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PSYCH 499** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Public Administration (P ADM)**

**P ADM 401** Introduction to Homeland Security (3) This course provides foundational knowledge about homeland security, including policy, organization, and legal issues in the American context.

**P ADM 401 Introduction to Homeland Security (3)**

The Introduction to Homeland Security/Defense course provides a baseline of common knowledge for homeland security professionals. The course achieves this goal by focusing on homeland security/defense, the motivation and nature of terrorists, the policies established by governments, pertinent governmental plans to meet homeland security/defense goals, who the key players are across the homeland security/defense spectrum, and the relevant legal issues framing efforts to defend the nation's security. As an introduction to this broad area of study, this course serves as a basis for specialized study such as bioterrorism defense, critical infrastructure protection, cyber-security, and emergency response management. Understanding key principles will be measured through preparation of a written analysis of key homeland security/defense issues with alternative strategies consistent with current policy and legal constraints.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P ADM 404** Homeland Security and Defense in Practice (3) This course analyzes, evaluates, and critiques homeland security plans in practice.

**P ADM 404 Homeland Security and Defense in Practice (3)**

The focus of the course is to apply lessons learned in previous courses to actual organizations. Key material is reviewed, to

provide context for the capstone experience that this course provides. Students will apply the Homeland Security framework (the National Response Plan and the National Incident Management System) to case studies, such as FEMA's response to Hurricane Katrina. The main theme of the course is the need for collaboration (interoperability) across state, local, and national governments as well as with the private sector and other relevant actors. A major portion of the course examines the Commonwealth of Pennsylvania as a state-level case study. The course will culminate with a paper that applies the framework of Homeland Security and Defense to an organization of the student's choosing.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: P ADM 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**P ADM 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1993

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Public Health Preparedness (PHP)**

**PHP 410 (HLS 410)** Public Health Preparedness for Disaster and Terrorist Emergencies I (3) Analyzes the history of terrorism and explores the preparation and response to specific terrorist threats, natural disasters, and conventional catastrophes.

### **Public Health Preparedness for Disaster and Terrorist Emergencies I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010  
Prerequisite: Undergraduate StudentsBIOL 011 andBIOL 012 orCHEM 110 andCHEM 111 orMICRB 106 andMICRB 107 ; Graduate Students - Enrollment in the MHS program the Post- Baccalaureate Credit Certificate in Homeland Security or permission from the instructor.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Public Policy (PUBPL)**

**PUBPL 201** Introduction to Homeland Security (3) An introduction to homeland security, and defense, with a focus on policy, legal issues, organization, and administration.

### **PUBPL 201 Introduction to Homeland Security (3)**

Introduction to Homeland Security provides a baseline of common knowledge for understanding the nature of homeland security. The course achieves this goal by focusing on homeland security, the motivation and nature of terrorists, the policies established by governments, pertinent governmental plans to meet homeland security goals, who the key players are in homeland security, and the relevant legal issues framing efforts to defend the nation's security. As an introduction to the broad area of study, this course serves as a basis for specialized study such as critical infrastructure protection, emergency response management (including natural disasters), border security, security administration, national security, and terrorism. Understanding key principles of homeland security will be expected from students who complete this course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 241 (CRIMJ 241) Computer Applications in Public Affairs/Criminal Justice (3)** Introduction to computer applications for criminal justice and public affairs agencies.

**PUBPL (CRIMJ) 241 Computer Applications in Public Affairs (3)**

The student will gain a working knowledge of microcomputer and Internet applications to utilize them in course and/or job functions. The class will be treated primarily as a lab. The purpose is to make the student familiar with popular computer applications in current use. Applications covered include: Word Processing (Microsoft Word); Spreadsheet (Microsoft Excel); Presentation Package (Microsoft PowerPoint); Database (Microsoft Access). Internet Applications include: email - Webmail; World Wide Web Browser - Netscape Communicator and Internet Explorer; and creating a Homepage.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 304W Public Policy Analysis (3)** The use of analytic models for describing and explaining the forces shaping policy and the consequence of policy decisions.

**PUBPL 304W Public Policy Analysis (3)**

This course provides an overview of the policy process and an examination of specific policy areas in the American political system. We will focus on what constitutes public policy and basic aspects of the policy process, including agenda setting, implementation, and policy evaluation. The course covers important contemporary policies such as health care, education, energy, welfare reform, and defense. It also will provide us with an opportunity to consider the utility of policy studies, and the various ways knowledge about particular issues is put to use by academics, partisan political figures, journalists, policy advocates, and policy makers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 305 Leadership Studies (3)** Exposure to a wide range of leadership issues that will bring students to a new understanding of leadership as responsibility.

**Leadership Studies (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999  
Prerequisite: fourth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 306 Introduction to Crisis and Emergency Management (3)** An introduction to emergency management in mitigating, preparing for, responding to and recovering from hazards.

**PUBPL 306 Introduction to Crisis and Emergency Management (3)**

The course offers an overview of the field of emergency management in dealing with routine emergencies, crises or disasters, and mega disasters. Specific topics emphasized include: the roles and interactions of the public, nonprofit, and private sectors in emergency management; the legal and organizational structure of the national emergency management system; and the problems and policy issues associated with emergency management. This is done by examining the four phases of emergency management: mitigation, preparedness, response and recovery as they relate to resilience, the attempt to; and an overview, including case studies, of various human-made and, technological disasters as well as disasters related to natural hazards. Emergency management as conducted within the U.S. integrated emergency management system (IEMS) by local state and national emergency management agencies, not terrorist incidents, is the course focus rather than the emerging field of homeland security and terrorist events.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 325 (AMSTD 325) American Political Culture (3)** Study of political culture in the United States.

**PUBPL (AM ST) 325 American Political Culture (3)**

Examination of American political culture, including political history, party structure, campaign practices, elections analysis, voter behavior, and political ideology. The course satisfies the "area" requirement in society for undergraduate majors in American Studies, and is open to all majors. Students analyze social and cultural influences on the American political process. Issues of regional, ethnic, rural, urban, and gender traditions on campaigns are considered. Distinctive characteristics of American politics such as the two-party system, populism, and coalition building are discussed. Evaluation methods include examinations and essays. The course is offered once during the academic year and typically closes at 30 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: 3 credits American Studies Political Science Public Policy or Sociology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 415 (CRIMJ 415) Drug Control Policy in Comparative Perspective (3)** Examines the history of drug control policy in the United States; comparisons and contrasts with other countries' experiences.

**PUBPL (CRIMJ) 415 Drug Control Policy in Comparative Perspective (3)**

This course focuses on the history of drug control policy in the United States and the internationalization of drug prohibition. We also examine the experience of other countries with drug use, abuse and control, including alternative regulatory policies in Western Europe. This class is both historical and comparative in orientation: in tracing the roots of drug prohibition, and examining the experience of other countries, we seek to enrich our understanding of American style drug control and the feasibility of alternative approaches.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

Prerequisite: CRIMJ 200 orPL SC 001 orPL SC 014 orSOC 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 475 Critical Infrastructure Protection (3)** This course provides knowledge about protection of critical infrastructure as an aspect of homeland security.

**PUBPL 475 Critical Infrastructure Protection (3)**

Critical Infrastructure Protection provides a definition of critical infrastructure and examines the importance of protecting it in the post-9/11 era. The course focuses on policies and programs designed to prevent catastrophic events and to protect and maintain the nation's critical infrastructure. It examines such activity through an understanding of the network of organizations at all levels of government and in the private sector responsible for protecting infrastructure. Case examples are provided of catastrophic events to provide an understanding of risks involved in infrastructure protection. Understanding key principles will be measured through preparation of a written analysis of a key homeland security/defense issue with alternative strategies consistent with current policy and legal constraints.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: 5th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 480 Seminar in Urban Policy (3)** Work in this course will focus upon governmental institutions and public policy problems in metropolitan areas.

**Seminar in Urban Policy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1998

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 481 Seminar in Environmental Policy (3)** Fundamentals of evolution; impacts on natural resources; interaction of environmental issues, current decision-making process policy, enforcement mechanisms; future actions.

**Seminar in Environmental Policy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 482 Seminar in Health Policy (3)** Introduction to policy analysis of issues of current interest and importance to public administrators in the health industry.

**Seminar in Health Policy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 483 Seminar in National Security Policy (3)** Course will examine the inter-relationship of foreign, military and economic policy.

**Seminar in National Security Policy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 485 Seminar in Welfare Policy (3)** Course examines the origins, development, and impact of welfare programs.

**Seminar in Welfare Policy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1998

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 490 Seminar in Public Policy (3)** A survey of the major policy issues, actors and institutions involved in the policy-making system of contemporary society. (May be repeated for credit.)

**Seminar in Public Policy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

Prerequisite: seventh-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 495 Internship (3-12)** Experience in a public service agency related to knowledge gained through academic course work, reading, and discussion.

**Internship (3-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: fifth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**PUBPL 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Quality Control (Q C)

**Q C 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Q C 098** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Q C 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Q C 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Q C 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Q C 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Q C 450** Quality Control and Quality Improvement (3) Review of quality control and improvement methods including SPC applications, acceptance sampling, regression analysis, and design of experiments.

**Quality Control and Quality Improvement (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: MATH 141 or MATH 210

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Q C 460** Introduction to Six Sigma (3) Introduction to Six Sigma philosophy with case studies of the Define-Measure-Analyze-Improve-Control (DMAIC) Process and an emphasis on selection and application of statistical tools.

**Q C 460 Introduction to Six Sigma (3)**

Students are first introduced to the Six Sigma philosophy which is a structured, quantitative approach to improving the quality of products and processes. Students are then introduced to the DMAIC (Define-Measure-Analyze-Improve-Control) Process and how it fits into the framework of the Six Sigma philosophy. Although all steps of the DMAIC process are investigated, the course has a strong emphasis on the "Analyze" step. The purpose of the Analyze step is to explore and understand tentative relationships between and among product and process variables and to develop insight into potential improvements. The course will show how the DMAIC Process is used to achieve business results through the Six Sigma philosophy of a strong focus on fact-based decision-making. The course is suited for engineering and engineering technology students entering the workforce as they are often uniquely placed in crucial roles linking product design and manufacturing within their hiring organization.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: MATH 141 or MATH 210 6th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Q C 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Quality and Manufacturing Management (QMM)**

**QMM 491** Introduction to Business Concepts for Manufacturing (3) Introduction to business, topics in marketing, accounting, and finance for nonbusiness students in manufacturing management.

**Introduction to Business Concepts for Manufacturing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: students taking this course CAN NOT be a Business major and must be in their senior year

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**QMM 492** Introduction to Engineering Design Principles (3) Engineering principles including different engineering fields, graphics, design, solid modeling and failure analysis.

**Introduction to Engineering Design Principles (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001  
Prerequisite: students taking this course CAN NOT be an Engineering major and must be in their senior year

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**QMM 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Quantification (QUANT)**

**QUANT 310** Mathematical Methods in the Social and Managerial Sciences (3) Functions (linear and nonlinear), systems of linear equations, matrix algebra, introductory differential calculus, applications in business and economics.

**Mathematical Methods in the Social and Managerial Sciences (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983  
Prerequisite: college algebra

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Radiological Sciences (RADSC)**

**RADSC 101** Radiographic Introduction and Procedures/Lab I (4) Radiology history, basic radiation protection principles, medical terminology, introduction to radiography and radiographic procedures/lab.

**Radiographic Introduction and Procedures/Lab I (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RADSC 102** Radiographic Procedures/Lab II (4) Continuation of Radiographic Procedures/Lab I to include appendicular skeleton and introduction to head work.

**Radiographic Procedures/Lab II (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2002  
Prerequisite: RADSC 101RADSC 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RADSC 103** Radiographic Procedures/Lab III (3) Continuation of Radiographic Procedures/Lab II to include digestive, urinary, and biliary systems and facial bone work.

**Radiographic Procedures/Lab III (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2002  
Prerequisite: RADSC 102

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RADSC 110** Patient Care in Radiologic Sciences (3) Basic concepts of routine and emergency patient care procedures addressed from the radiographer's perspective.

**RADSC 110 Patient Care in Radiologic Science (3)**

The content of this course includes the basic concepts of patient care, including consideration for the physical and psychological needs of the patient and family. Routine and emergency patient care procedures are addressed from the radiographer's perspective. Students will learn proper infection control techniques and will prove competency in CPR. This course is a requirement of the radiography (radiologic technology) curriculum and could be utilized as an option for students interested in patient care procedures such as health science majors. As is consistent with the core courses in the Radiography program, a passing grade for enrolled radiography students is 75%.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RADSC 204** Radiographic Exposure I (3) Fundamental knowledge base of factors that govern and influence the production and recording of radiologic images.

**Radiographic Exposure I (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2002  
Prerequisite: RADSC 103

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RADSC 205** Radiographic Exposure II (3) Continuation of exposure factors concerning radiographic imaging; film, electronic imaging, processing, quality assurance and related areas will be emphasized.

**Radiographic Exposure II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2002  
Prerequisite: RADSC 204

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RADSC 206** Advanced Radiographic Procedures (3) Emphasis on specialized positioning and advanced radiographic procedures; includes introduction to cross-sectional anatomy.

### **Advanced Radiographic Procedures (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2002  
Prerequisite: BIOL 141RADSC 205

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RADSC 207** Registry Review (4) Registry Review includes material from all radiological science courses, with emphasis on National Certification Examination, and career planning.

### **Registry Review (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2002  
Prerequisite: RADSC 206

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RADSC 210W** Radiographic Pathology (3) Writing intensive study of theories of disease causation and the pathophysiologic disorders compromising health systems with emphasis on radiographic presentation.

### **RADSC 210W Radiographic Pathology (3)**

A writing-intensive study of the basic fundamentals of pathology (disease process) with emphasis placed on radiographic presentation. Material covered includes the basic concepts of disease and terms related to pathology, systemic classifications of disease including etiology, examples, complications and prognosis, radiographic procedures and presentation, and the health process. Writing requirements include two short papers and a longer sequenced paper. All papers will receive instructor feedback and subsequent submission of a final revised paper. An informal writing assignment with peer review is also required. The writing process evolves throughout the course as the student applies knowledge learned to current assignments. This course is a requirement of the radiography (radiologic technology) curriculum and could be utilized as an option for students interested in a visual study of disease process such as health science and biology majors or for students in need of a writing-intensive course. As is consistent with the core courses in the Radiography program, a passing grade for enrolled radiography students is 75%.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2002  
Prerequisite: BIOL 129BIOL 141

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RADSC 220** Radiation Biology and Protection (3) Study the principles of interaction of radiation with living systems, effects on cells and tissues, biological response, and radiation protection.

### **RADSC 220 Radiation Biology & Protection (3)**

The content of this course includes the basic fundamentals of radiation interactions, basic biology with emphasis placed on effects of radiation exposure on cells and on radiation protection mandates and techniques. This course is a requirement of the radiography (radiologic technology) curriculum and could be utilized as an option for other students interested in radiation effects such as health science, biomedical engineering, health physics or physics and biology majors. As is consistent with the core courses in the Radiography program, a passing grade for enrolled radiography students is 75%.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**RADSC 230 Radiographic Physics (3)** Basic knowledge of atomic structure, characteristics of radiation, x-ray production, photon interactions, circuitry, imaging equipment and quality control.

### **RADSC 230 Radiographic Physics (3)**

The content of this course includes the basic fundamentals of atomic structure, characteristics of radiation, x-ray production, photon interactions, circuitry, imaging equipment and quality control. This course is a requirement of the radiography (radiologic technology) curriculum and could be utilized as an option for other students interested in radiation interactions and imaging equipment such as health science, biomedical engineering, health physics or physics majors. As is consistent with the core courses in the Radiography program, a passing grade for enrolled radiography students is 75%.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RADSC 240 Pharmacology and Drug Administration (2)** Basic concepts of pharmacology, the basic techniques of venipuncture, and the administration of diagnostic contrast agents and/or intravenous medications.

### **RADSC 240 Pharmacology and Drug Administration (2)**

The content of this course includes the basic concepts of pharmacology, basic techniques of venipuncture, and the administration of diagnostic contrast agents and intravenous medications. Material covered includes drug nomenclature and categories, routes of administration, current practice status, and legal and ethical issues of medication administration. Students are required to prove competency in venipuncture using the arm phantom. This course is a requirement of the radiography (radiologic technology) curriculum and could be utilized as an option for other students interested in pharmacology such as Health Science and Biology majors. As is consistent with the core courses in the Radiography program a passing grade for enrolled radiography students is 75%.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: BIOL 141RADSC 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RADSC 295 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Ralrd Transp Engineer (RTE)**

**RTE 195 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.



**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 301** Railroad Industry Overview and Economic Regulation (3) This course explores the relationship between railroads and customers, competitors, and the political, regulatory, and economic environment.

**Railroad Industry Overview and Economic Regulation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: ECON 102  
Concurrent: RTE 303

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 302** Railroad Track Location, Construction and Maintenance (3) Principles of railroad track location, alignment, elements and safety regulations.

**Railroad Track Location, Construction and Maintenance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: C E 310C E 336  
Concurrent: C E 335 C E 360

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 303** Railroad Operation and Safety (3) Basics of rail operations, including the role of terminals and safety principles.

**Railroad Operation and Safety (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

Concurrent: RTE 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 305** Railroad Communications and Signals (3) Principles of the separation of trains, including signals, interlocking, and communications.

**Railroad Communications and Signals (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: PHYS 212CMPSC 201 orCMPSC 202  
Concurrent: RTE 303

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 402** Railroad Operations Practicum (3) Practicum (lectures, supervised field work, laboratories) exploring practical problems in rail operations and safety.

**Railroad Operations Practicum (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: RTE 303RTE 305

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 403** Railroad Track Practicum (3) Practicum (lectures, labs, supervised field experiences) exploring the construction and repair of track.

**Railroad Track Practicum (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: RTE 302C E 310  
Concurrent: C E 333W C E 335

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 404** Railroad Mechanical Practicum (3) Practicum (lectures, labs, supervised field experiences) examining the repair of locomotives and cars.

**Railroad Mechanical Practicum (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: RTE 303PHYS 211PHYS 212E MCH 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 406** Railroad Capstone Project (4) Capstone project to integrate course knowledge in a team-based project.

**Railroad Capstone Project (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: C E 333WRTE 305RTE 402RTE 403RTE 404C E 332 7th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RTE 499 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Recreation, Park and Tourism Management (RPTM)**

**RPTM 100S** Introduction to Golf Management (2) First year seminar for students enrolled in the Professional Golf Management option of RPTM.

### **RPTM 100S Introduction to Golf Management (2)**

This course is designed to provide 1st year students enrolled in RPTM - Professional Golf Management Option, an introduction to the University, to their major / option, and to the Professional Golfers' Association of America. The course objectives are to introduce students to active learning as a way to make the transition to a more demanding academic environment. Students in the class will participate in collaborative group projects, which should also provide opportunities for them to establish relationships with faculty and peers. Students will investigate career opportunities within their field, as well as develop cover letters, resumes and reference sheets that will be necessary in obtaining internships for the summer session following their first year. Course content will also include information to help students become better students, by introducing them to available resources at the University, as well as develop skills in areas such as time management, study skills, note-taking etc. In addition, information will be introduced to help students become responsible members of the University community.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 101** Introduction to Recreation Services (2) Introduction to discipline and exploration of professional career models/ paths, historical development of profession, expectations and opportunities in recreation services.

### **RPTM 101 Introduction to Recreation Services (2)**

The primary objective of this course is to provide students with an understanding of the historical and contemporary perspectives of the recreation and park profession. In addition, the course will provide an exploration of careers in leisure, recreation and parks, or related services with emphasis on the various leisure delivery systems.

Main topics typically include:

- \* Understanding of the roles and significance of leisure and recreation in past and present societies.

- \* Awareness of the factors contributing to the emergence of specific movements, delivery systems, and agencies within the recreation and parks movement.

- \* Knowledge of the specific roles assumed by public, private, nonprofit, community and commercial agencies in providing

resources and contributing to contemporary participation patterns and lifestyles.

\* Awareness of professional career models, expectations, and opportunities.

\* An understanding of issues and trends currently affecting the direction of leisure services.

This is a required course for the Recreation, Park and Tourism Management major, usually taken during the freshman or sophomore year. Students in other majors who are exploring Recreation, Park and Tourism Management are encouraged to enroll.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 120 (GS;US;IL) Leisure and Human Behavior (3)** Leisure from historical and contemporary perspectives, including forces shaping leisure behavior, and relationships among leisure, the environment, and social institutions.

**RPTM 120 Leisure and Human Behavior (3)**  
**(GS;US;IL)**

Leisure and Human Development introduces leisure from historical and contemporary perspective including forces shaping leisure behavior, and relationships among leisure, the environment, and social institutions. Special attention is given to the role of leisure in individual health and wellness. Main topics include: the role of leisure in past and present societies; the ways in which leisure, recreation, and play relate to personal health and wellness, the economy, personal identity, work, religion, sexuality, race, class, socio-economic status, time use patterns, and education; leisure's contribution to human development throughout the life course; the role of leisure in one's life, specialization in leisure activities, leisure careers, serious forms of leisure, and leisure and addiction; and trends in the world economy and culture, technology, urbanization and suburbanization, governance, and demography and how they may influence leisure behavior.

Student performance is evaluated through exams and concept maps undertaken in class. Students also examine their own leisure by constructing a one-week time diary. The diary involves providing a detailed account of time allocated to work, personal maintenance, and "free time." Students analyze their data, calculate statistics about their time use, and write a reflexive essay that connects their findings to class concepts. The time diary also includes wearing a pedometer for one week to gauge physical activity.

General Education: GS

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 140 (SCIED 140) Outdoor School Field Experience (2 per semester/maximum of 6)** To provide students with educational leadership skills and teaching opportunities working with children in an outdoor residential camp setting.

**RPTM (SCIED) 140 Outdoor School Field Experience (2 per semester/maximum of 6)**

The Outdoor School Field Experience course allows students to observe, learn, and apply leadership techniques and teaching methodologies in an experiential education program that occurs off campus. This field-based experience provides students with numerous opportunities to practice and refine their leadership and teaching skills through active participation in one week of Outdoor School Field Experience, a residential outdoor/environmental education program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: Students must apply for and be accepted into the Outdoor School Field Experience.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 199 (IL) Foreign Studies (1-12 per semester/maximum of 12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12 per semester/maximum of 12)**

General Education: None

Diversity: IL

Bachelor of Arts: None  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 210** Introduction to Commercial Recreation and Tourism (2) Historical and contemporary perspectives of the field of commercial recreation and tourism.

### **RPTM 210 Introduction to Commercial Recreation and Tourism (2)**

The primary objective of this course is to introduce students to, and provide core competencies in, the fundamentals and principles of commercial recreation and tourism as fields of service including; the delivery of goods, services, amenities, facilities, entrepreneurship, and trends in commercial recreation and tourism. A second objective is to provide students with an overview of career possibilities in the fields of commercial recreation and tourism.

Main topics typically include:

- \* The history of recreation and tourism and how these sectors fit in the broad spectrum of leisure delivery systems
- \* The role and inter-relationship between private, nonprofit, and public resources in commercial recreation
- \* Management principles in organization, planning, marketing, promotion, finance, public relations, human resource practices, and decision making in commercial recreation and tourism
- \* Current needs, problems and issues associated with the commercial recreation and tourism sectors
- \* Career opportunities in commercial recreation and tourism.

This is a required course for the RPTM major in the Commercial and Community Recreation Management option. Students in other majors are welcome after all RPTM majors have scheduled.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 230** Teambuilding Facilitation (3) Learn leadership and teambuilding skills to facilitate group dynamics and adventure, team activities.

### **RPTM 230 Teambuilding Facilitation (3)**

Through hands-on experience, discussion, and observation students will develop a sound background to the basics of teambuilding. This course will focus on the philosophy of team activities and experiential education, and the skills required to lead and facilitate teambuilding events. In addition to learning skills, the students will be asked to apply their knowledge of teambuilding to lead actual activities for their peers. Finally, students will be exposed to information about career opportunities in the field of teambuilding and adventure education.

Main topics include:

- \* An introduction to teambuilding philosophy and its relation to the outdoor education field. General concepts to be covered include: challenge by choice, full value contracts, the experiential learning cycle and the adventure wave.
- \* Activity understanding to include icebreakers, problem solving activities and trust events
- \* Programming and activity sequencing
- \* Leadership skills and the role of the facilitator
- \* Stages of group development
- \* Debriefing activities, transfer of learning and metaphoric transfer
- \* Activity safety: emotional and physical
- \* Risk Management and the elements of good judgment
- \* Group assessment and program creation
- \* Program evaluation

This course is one of the selections for RPTM majors in the adventure-based programming emphasis of the Outdoor Recreation Option. Students in other majors are welcome after RPTM majors have scheduled.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 236** Leadership and Group Dynamics in Recreation Services (3) Supervision in recreation services, including theories, strategies, group dynamics, applied leadership and decision-making skills.

**RPTM 236 Leadership and Group Dynamics in Recreation Services (3)**

The primary objectives of RPTM 236 are for students to examine both leadership and group dynamics as a function of leisure and recreation services. Students in RPTM 236 will be given a variety of leadership opportunities, both in and out of class, to begin to develop leadership skills as well as observe others in recreation leadership positions. Information on leadership theory and group dynamics (group development, roles in groups, group decision making) will be provided through group exercises and hands on experiences.

Main topics include:

- \* Leadership theory
- \* Approaches to leadership; leadership styles
- \* Definition of group including characteristics and effective group management
- \* Group decision making and problem solving
- \* Recreation leadership skills including behavior management, interpersonal skills and motivation
- \* Teaching as a leadership skill; learning theory
- \* Communication as a leadership skill
- \* Teambuilding

RPTM 236 is a required course for RPTM majors. Students in other majors are welcome. It is strongly suggested that RPTM 236 be taken prior to, not concurrent with RPTM 356.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 277 (US) Inclusive Leisure Services (3)** Review of leisure services and programs designed to be inclusive of individuals from underrepresented groups and overview of professional, legal, and ethical issues.

**Inclusive Leisure Services (3)**

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 295A Introduction to Golf Management (1-4)** Introduction to various phases of golf operations in public, private, municipal, or military settings.

**RPTM 295A Introduction to Golf Management (1)**

The primary objective of this course is to complete a 40-hour per week internship at an approved golf property. While on internship the student will complete assignments involving the United States Golf Association's rules of golf. The student will also complete a variety of assignments associated with tournament operations and the teaching of the game of golf to both adults and juniors. Another primary objective involves golfer development programs.

Main topics include:

- \* Rules of Golf: officiating, rules clinic, newsletters, tips, and course clinic
- \* Tournament Operations: budgeting, staffing, publicity, course preparation, health and safety issues, tournament operations software, and evaluation
- \* Introduction to Teaching Golf: research teaching styles, lesson observation, and conducting a series of lessons
- \* Development of Golfer Programs: program design, planning, budgeting, scheduling, problem solving, and program evaluation

This is a required course for all students in the Golf Management Option that are majoring in Recreation, Park and Tourism Management. The internship is not open to students of other majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: 2.00 cumulative grade point average

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 296 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 297B** Interpreting Halloween to Children (2) Learn to interpret the natural origins of Halloween to visitors attending the annual Shaver's Creek Fall Harvest Festival featuring Children's Halloween Trail - an interactive family event.

**Interpreting Halloween to Children (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 297C** Urban Service Experience (2) Ursa Major - one of the most recognized constellations in the sky - never sinks below the horizon, providing a constant bearing to the North Star. The URSA Urban Service Experience will provide you with the direction to start your journey at Penn State. Since 2000, this -2-credit Penn State student orientation program - held in Philadelphia - has provided incoming first-year students with an opportunity to participate in community service projects while making friendships that will ease the transition from home to college. Working side-by-side with other incoming Penn State students, the participants will learn about the benefits of serving a community and become more aware of the needs of those appreciating their service.

**Urban Service Experience (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 297D** Sustainable Tourism and the Environment (1) Human impact on natural resources and sustainable tourism in the South Pacific. This course is a prerequisite for the winter break RPTM Study Abroad Program.

**Sustainable Tourism and the Environment (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 297E** Outdoor School Instructor (1-3) Outdoor School is a field experience class and you must be accepted as a instructor before being registered. Must have completed 2 weeks of ODS as a counselor to be considered. Contact Ellen Will for an application @ eeb11@psu.edu

**Outdoor School Instructor (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None



Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: must have completed 2 weeks of ODS as a counselor to be considered

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 297E Outdoor School Instructor (1-3)** Outdoor School is a field experience class and you must be accepted as a instructor before being registered. Must have completed 2 weeks of ODS as a counselor to be considered. Contact Ellen Will for an application @ eeb11@psu.edu

### **Outdoor School Instructor (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: must have completed 2 weeks of ODS as a counselor to be considered

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 297F Mental Training FO (1)** This course is designed to systematically teach golfers mental strategies and focusing techniques associated with performance excellence in golf.

### **Mental Training FO (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 297G Wilderness First Aid Course (1)** The WFA is the perfect course for the outdoor enthusiast or trip leader who wants a basic level of first aid training for short trips with family, friends, and outdoor groups. It also meets the ACA guidelines. Upon successful completion of the course, you will receive a SOLO WFA certification, which is good for two years. For further information on this course visit: <http://www.soloschools.com/index.cfm?event=course.wfa>

### **Wilderness First Aid Course (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 297I Peer Education for Sustainability (3)** The course provides an immerse experience in peer education for sustainability. Peer education embraces the idea that members of the community, rather than outside experts, are in the best position to encourage choices for sustainable living.

### **Peer Education for Sustainability (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 297S RPTM 297S - First Year Seminar (2)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **RPTM 297S - First Year Seminar (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 299 (IL) Foreign Studies (1-12 per semester/maximum of 12)** Foreign Studies in RPTM.

**Foreign Studies (1-12 per semester/maximum of 12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: RPTM 199

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 300Y (IL) Tourism and Leisure Behavior (3)** Examination of the impact of recreational sociocultural, governmental, economic, and physical environment on the leisure traveler within the tourism industry.

**RPTM 300Y Tourism and Leisure Behavior (3)  
(IL)**

The objective of this course is to help students understand the tourism concept from a national and international perspective. The students will debate the motivations that lead people to engage in tourism and in hosting tourists. They will also examine the social, economic and ecological impacts that tourism development can bring to host communities and to tourists. The students will finally apply all the learned materials to conceptualize sustainable development strategies that aim at improving the quality of life of host communities, provide quality experiences to visitors, and protect the existing cultural and ecological resources of the destination.

Main topics typically include:

- \* History - How people engage in tourism throughout all periods of history and the influence of major historic events on modern tourism
- \* Socio-cultural impacts - How host cultures are transformed through tourism
- \* Economic impacts - Revenues and costs to host economies due to tourism
- \* Ecological impacts - Ways in which tourism helps and hurts the environment
- \* International terrorism and peace - Why tourism is called the peace industry and how it is affected by terrorism and political instability
- \* Sex tourism - Why tourism can alleviate or aggravate the exploitation of vulnerable segments of society
- \* Tourism planning and policy - How to plan and manage tourism in ways that it produces sustainable benefits to the host community

This is a required course for RPTM majors in the Community and Commercial Recreation option. Students in other majors are welcome.

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 320 Recreation Resource Planning and Management (3)** Relationship between leisure behavior and natural environment. Exploration of natural resources which enhance leisure.

**RPTM 320 Recreation Resource Planning and Management (3)**

This course is an introduction to managing the recreational use of U.S. lands, waters, and wildlife. Course objectives include providing students with an awareness of the scope of outdoor recreation resources and major outdoor activities; knowledge about outdoor recreation resource agencies, their mandates, and their resources; an understanding of key outdoor recreation issues and impacts and their relationships to activity type and visitor behavior; knowledge about appropriate management tools for addressing impacts; and an understanding of the contribution of planning to effective recreation resource management.

Main topics typically include:

- \* Introduction to the scope of outdoor recreation in the U.S., key characteristics of major user groups, visitor motivations and benefits, and phases of the recreation experience
- \* The recreation resource base
- \* Federal, state, local, and private recreation resource providers
- \* Ecological impacts of outdoor recreation
- \* Conflict, crowding, and equal access in outdoor recreation
- \* Recreation carrying capacity, direct and indirect management techniques, and concentrating versus dispersing visitor use
- \* Facilities and design of recreation sites
- \* Visitor use limits, permits, and fees
- \* Information, education, and programs for visitors
- \* Visitor use monitoring
- \* Planning frameworks for outdoor recreation

This is a required course for RPTM majors in the Outdoor Recreation Option. The course is open to students in all majors.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 325** Principles of Environmental Interpretation (3) Introduction, history, practice, and principles of contemporary interpretive activities common to natural and cultural history program sites.

### **RPTM 325 Principles of Environmental Interpretation (3)**

The primary objective of this course is to provide students with an overview of the field of environmental interpretation with special emphasis in understanding and applying the principles inherent in effective programs and presentations. The second objective is to provide information about career opportunities in the interpretive profession. The third objective is to provide students with a variety of service learning opportunities to help them refine their career aspirations.

Main topics typically include:

- \* Becoming aware of the history, professional resources and best practices in the field of environmental interpretation.
- \* Creating and using effective interpretive materials including exhibits and visuals aids in non-formal programs.
- \* Demonstrating sound interpretive methods and techniques by conducting short presentations.
- \* Gaining an awareness of the operation of a visitor center and the experience of using live animals in interpretive programming.
- \* Demonstrating a competency in program development by participating in the planning, presenting and evaluation of the Children's Halloween Trail at Shaver's Creek Environment Center.

This course is one of the selections for RPTM majors in the Environmental Interpretation emphasis and the Adventure-based Programming emphasis of the Outdoor Recreation Option. Students in other majors are welcome. This course is a pre-requisite for RPTM 326, 327, 425, and 430.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 326** Natural History Interpretation (3) Methods, techniques, resources to acquire knowledge of natural history. Field identification, projects of an applied nature, and seasonal application.

### **RPTM 326 Natural History Interpretation (3)**

The primary objective of this course is to give students the basic skills and resources to research and interpret the natural history of a given park or natural area. Building on the prerequisite course (RPTM 325: Principles of Environmental Interpretation), students continue to apply and practice principles that help create effective outdoor programming. The second objective is to provide students with a variety of service learning opportunities to help them refine their career aspirations.

Main topics typically include:

- \* Learning the skills and available resources to identify common fauna and flora found in Central PA including birds, mammals, amphibians, trees and wildflowers
- \* Imparting a basic understanding of the ecology of the Eastern Forest landscape and the ability to interpret that understanding to a general audience.
- \* Writing a short natural history interpretive article for a general audience.
- \* Demonstrating sound interpretive methods and techniques by conducting short presentations.
- \* Gaining an awareness of the operation of a visitor center and the experience of using live birds of prey in interpretive programming.
- \* Demonstrating a competency in program development by planning, researching, and presenting a natural history program in an outdoor setting to their peers.

This course is one of the selections for RPTM majors in the Environmental Interpretation emphasis of the Outdoor Recreation Option. Students in other majors are welcome providing they have met the pre-requisite (RPTM 325).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: RPTM 325

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 327 Cultural History Interpretation (3)** Methods, skills, and techniques necessary for the programming of historical sites and areas.

### **RPTM 327 Cultural History Interpretation (3)**

The purpose of this course is to provide students with an understanding of the cultural resources within central Pennsylvania and to learn how to effectively interpret these resources through interactive programs and experiences. Building on the prerequisite course (RPTM 325: Principles of Environmental Interpretation), students continue to apply and practice principles that help create effective outdoor programming.

Main topics typically include:

- \* Demonstrating sound interpretive methods and techniques by conducting short presentations
- \* Demonstrating a competency in program development by planning, researching, and presenting two different 1st Person Interpretation -living history programs in an outdoor setting to the general public and to school groups.
- \* Participation, planning and presenting a Maple Sugaring Lesson at the community attended Maple Harvest Festival.
- \* Engaging in research and writing of a Historical Character Paper. Learning how and where to conduct cultural history research in any community by utilizing historical societies, historical sites, libraries, and personal interviews.
- \* Observation of professional cultural history interpreters.

This course is one of three selections for RPTM majors in the environmental interpretation emphasis of the Outdoor Recreation Option. It is included as part of the "Discovery Semester" block of courses taught by faculty at the Shaver's Creek Environmental Center.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: RPTM 325

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 330 Adventure-Based Program Leadership (3)** Both theoretical and experiential components are included as the role of the leader in outdoor adventure programs is examined.

### **RPTM 330 Adventure-Based Program Leadership (3)**

Both theoretical and experiential components are included as the role of the leader in adventure-based programs is examined. This course will focus on the philosophy, ethics, and current practices in the area of adventure-based programming. Focus of instruction will be upon program design, developing skills for facilitating personal growth and providing leadership for outdoor pursuits including rock climbing, canoeing, teambuilding, hiking and backpacking.

Main topics to be covered:

- \* Leadership aspects of teambuilding: spotting, the purpose of teambuilding initiatives, debriefing
- \* Leadership aspects of rock climbing: belaying, safety, climbing skills, a look at top rope set up
- \* Leadership aspects of whitewater canoeing: preparation, reading the river, rope rescues, righting a capsized canoe, paddling skills
- \* Leadership aspects of backpacking: leave no trace environmental ethics, how to pack and prepare, 2-night backpacking trip to Black Moshannon State Park, planning a trip, reading a topographic map, acquiring a permit

RPTM 330 is one of the selections for RPTM majors in the adventure-based programming emphasis of the Outdoor Recreation Option. The course is open to students from all majors.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 334 Non-profit Recreation Agency Operations (3)** Recreation agencies in voluntary and semiprivate sectors will be investigated through membership strategies, fund raising, volunteer management, etc. case studies.

### **RPTM 334 Non-Profit Recreation Agency Operations (3)**

The primary objective of this course is to expose students to the operational practices and missions of nonprofit recreation and tourism organizations. In particular, this course will allow students to investigate voluntary and semi-private sectors through membership strategies, fundraising and development roles, and volunteer management.

Primary topics taught in this course will typically include the following:

- \* The role of non-profit organizations in providing park, recreation and tourism opportunities
- \* Missions, governance procedures, and societal roles associated with non-profit organizations
- \* Program support functions and non-profit fundraising strategies
- \* Skills and roles of professional staff in non-profit organizations

This course is a requirement for RPTM majors in the park management emphasis of the Outdoor Recreation Option. This is

also a supporting course (i.e., department list) for RPTM majors in the Commercial and Community Recreation Management Option. Students in other majors are welcome after all RPTM majors have been scheduled.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2005  
 Prerequisite: or concurrent: RPTM 356

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 356** Programming in Recreation Services (3) Translating agency philosophy and policy into understanding of organization, management, implementation, and evaluation of programming in recreation services.

### **RPTM 356 Programming in Recreation Services (3)**

This course is designed to provide students with information and practical experience required to successfully design, promote, implement, and evaluate programs and special events in community, campus, or commercial contexts. There are several course objectives, including: (a) increasing students' knowledge of key concepts in program planning and an understanding how they impact programming decisions; (b) increasing students' knowledge of decision factors involved in analyzing and designing a recreation program or special event; and (c) increasing students' skills associated with key management functions required to implement a recreational program or special event. Students are required to work in teams to design, promote, implement and evaluate a special event that will benefit participants and the sponsoring agency.

Main Topics Typically Included in the Course:

- \* Programming concepts, including programmer, program contexts, benefits-based programming, programming approaches, comprehensive programming cycle, and program formats
- \* Management structures, including organization of teams into committee structures with clear roles, responsibilities, and reporting structure
- \* Program design, including program concept, program purpose, goals and objectives, and development of themed events
- \* Situation analysis, including analysis of internal and external factors/ resources, potential participants' needs and interests, and program-related research
- \* Budget development and sponsorship, including direct fixed and variable costs associated with event, differential pricing, and sponsorship
- \* Promotion, including purposes for promotion, types of promotional tools, and development of a promotional plan
- \* Event logistics, including development of a schedule of events, equipment and supplies, volunteers and staffing, registration, site layout, and event logistics
- \* Risk management, including safety check, policies and procedures, staff/volunteer orientation, and overall risk management plan.
- \* Program evaluation, including summative and formative, process and outcome evaluation

This is a required course for majors in Recreation, Park, and Tourism Management. Students from other majors may enroll in this course, providing they have met the pre-requisites.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2005  
 Prerequisite: or concurrent: RPTM 101 RPTM 236 ; fifth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 360** Golf Operations Management (3) The course will focus on business planning, budgeting, inventory management, and financial controls within golf operations.

### **RPTM 360 Golf Operations Management (3)**

The primary purpose of this course is to prepare a student in the fundamentals of retail management pertaining to effectively operating a golf shop. Although successful retail management of a golf shop requires many different considerations, this course specifically emphasizes the planning and controlling of both the operational and merchandising effort. The first objective is to teach the student about the planning process that is necessary to effectively manage a retail business. The second objective is to provide a student with an understanding of the practices and procedures in operating a golf shop. The third objective is to teach the student effective merchandising and pricing techniques.

Main topics typically include:

- \* Types of plans that are needed in order to operate a retail business effectively.
- \* Developing strategic plans and business plans.
- \* Effective merchandising techniques for purchasing, pricing and selling.
- \* Planning techniques concerning both the purchasing and selling process.
- \* Quantitative open-to-buy planning as well as effective assortment planning procedures.
- \* Vendor selection and relations as well as negotiable terms of sale.

\* Techniques regarding pricing, merchandise presentation and promotion.

This is a required course for RPTM majors in the Golf Management Option. It is usually scheduled during the student's sixth semester. Students from other majors may enroll after RPTM majors have registered.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: MGMT 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 370** Introduction to Arena Management (3) Introduction to arena and facilities management including operations, budgeting, marketing and staffing. Course is taught on site at a sports/ entertainment arena (ex: the Bryce Jordan Center).

### **RPTM 370 Introduction to Arena Management (3)**

Introduction to Arena Management introduces students to the complex skills and duties required to manage a sports/entertainment arena. The course is taught on-site at the Bryce Jordan Center at University Park. Main topics include: facility design and facility law; event planning and production; history of the touring industry; entertainment and sports booking; ticketing; marketing and public relations; crowd management, safety and implications of the Americans with Disabilities Act; technology and ticketing systems; professional and collegiate sports management; and partner agencies i.e. food and beverage. Student performance is evaluated through exams and special projects, including a formal small group presentation. Students are provided with exposure to a variety of experiential learning opportunities in service departments throughout the arena. Assignments are targeted to current events in the arena management industry.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: RPTM 120

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 394** Orientation to Internship (1) Plan and prepare for internship in Recreation Services. Analyze career opportunities, internship process, and associated requirements. For RPTM majors only.

### **RPTM 394 Orientation to Internship (1)**

The primary objective of this course is to assist students with planning and preparing for their professional Practicum experience. The supporting objectives are: to provide awareness of the role and significance of the Practicum experience, including its relationship with professional practice; assist students in their understanding of the placement process, including prerequisites for placement; provide students with a working knowledge of their requirements while on Practicum, including contractual arrangements, on-site professional conduct, written assignments, evaluation procedures and evaluation criteria; and to provide the students with knowledge of post-practicum concerns, including resources for professional employment and professional certifications.

Main topics typically include:

- Introduction to the practicum experience and pre-requisite requirements
- Personal and professional needs assessments and the importance of determining deficit skill and competency areas as related to the student's intended career.
- Development of career and practicum goals and their relative importance to practicum site research and selection.
- Preparation of a professional cover letter and resume.
- Searching for and selecting possible practicum sites
- Professional approaches to contacting, communicating and following-up with prospective practicum agencies.
- Interviewing skills, including various interview formats, commonly asked questions, appropriate body language, and professionalism.
- Practicum requirements, including assignments, communication with the university and agency supervisor, and academic and performance evaluation.
- Post-practicum concerns, including graduation, employment, and professional certifications.

This course is required of RPTM majors (except Golf Management Option), and is usually taken two semesters prior to the semester that a student plans to participate in RPTM 495A (Internship in Recreation Services). The course is not open to students from other majors.

Students are evaluated by performance on written assignments and quizzes.

This course is offered both spring and fall semesters with typical enrollments of 70-90 in the fall and 50-70 in the spring.

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: fifth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 395B** Participation in Golf Management (1-4) Practical individual involvement in selected golf operations in public, private, municipal, or military settings.

#### **RPTM 395B Participation in Golf Management (1-4)**

The primary objective of this course is to complete a 40-hour per week internship at an approved golf property. While on internship the student will complete assignments involving: turfgrass management, analysis of the golf swing, and pre-work in merchandising and inventory management.

Main topics include:

- \* Turfgrass Management: routine and non-routine maintenance, practices, traffic management, environmental issues, pest control, communications with superintendent.

- \* Analysis of the Golf Swing: video lessons, business plan for teaching, clubfitting systems.

- \* Merchandising and Inventory Management (pre-work): explore OTB practices, compare product lines, profile vendors, pricing methods, and evaluation of merchandise displays

This is a required course for RPTM majors in the Golf Management Option. The internship is not open to students in other majors.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: RPTM 295A ; 2.00 cumulative grade point average

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 397A** Social and Environmental Sustainability: Applications in the Tourism Industry (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Social and Environmental Sustainability: Applications in the Tourism Industry (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 397G** Intermediate Golf Instruction and Business (2) This course serves as a laboratory for examining effective teaching and learning strategies and explains how to develop and practice strategies suitable for providing instruction to intermediate players.

#### **Intermediate Golf Instruction and Business (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 397K** Administration Golf Operation II (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Administration Golf Operation II (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 397S** AURORA First Year Seminar (1) This First Year Seminar is designed to introduce first year students who have participated in ORION or USE to the academic and social culture of Penn State University. The objective of the class is to help you engage with academic, social, and personal resources available to Penn State and in the community and to facilitate your transition to college life. (limited to ORION and USRA participants)

**AURORA First Year Seminar (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 397S** AURORA First Year Seminar (1) This First Year Seminar is designed to introduce first year students who have participated in ORION or USE to the academic and social culture of Penn State University. The objective of the class is to help you engage with academic, social, and personal resources available to Penn State and in the community and to facilitate your transition to college life. (limited to ORION and USRA participants)

**AURORA First Year Seminar (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 399** (IL) Foreign Studies (1-12 per semester/maximum of 12) Foreign Studies in RPTM.

**Foreign Studies (1-12 per semester/maximum of 12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: RPTM 199

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 410** Marketing of Recreation Services (3) Theoretical/practical application of marketing/advertising strategies in the development/delivery of recreation services.

**RPTM 410 Marketing of Recreation Services (3)**

The primary objective of this course is to provide students with an overview of marketing in general and recreation/tourism marketing in particular. Supplemental objectives are to (a) provide students with a review of different marketing theories and practices and (b) help students apply marketing principles to practical recreation/tourism situations.

Main topics typically include:

- \* Introduction to marketing and its evolution
- \* Parameters of the recreation/tourism experience and how this affects marketing practices
- \* Defining and segmenting the consumer market
- \* The marketing mix
- \* Conducting marketing research in an effort to develop effective marketing strategy
- \* Service quality and its impact on marketing strategy
- \* Customer loyalty and its impact on marketing strategy
- \* Recognizing and responding to the changing needs of consumer markets

This is a required course for RPTM majors, generally taken after completion of the introductory courses in the major.



Students in other majors, including those pursuing the Liberal Arts Business minor, are welcome after RPTM majors have scheduled.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: fifth-semester standing or above

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 415 Commercial Recreation Management (3)** Planning, developing, and managing profit-oriented recreation opportunities.

### **RPTM 415 Commercial Recreation Management (3)**

Building upon subject matter presented in many of the core RPTM courses, the primary objective of this course is to provide students with an understanding of strategic management processes and how they apply to recreation/tourism businesses. A second objective is to develop students' decision-making and analytical abilities.

Main topics typically include:

- \* An overview of the strategic management process
- \* Having the mindset of an entrepreneur/intrapreneur
- \* The "ins and outs" of conducting feasibility studies
- \* The pros and cons of different forms of business
- \* Generating and setting short- and long-term goals and objectives for recreation/tourism businesses
- \* Capitalizing, financing and budgeting for recreation/tourism businesses
- \* Planning, organizing, managing and controlling recreation/tourism businesses
- \* Regulations, taxation and licensure of recreation/tourism businesses
- \* Recognizing the importance of developing and maintaining relationships with various constituencies
- \* Options for strategic growth

This course is required of RPTM majors in the Commercial and Community Recreation Management option. Students take this course after or concurrent with RPTM 410. Students in other majors who have met the pre-requisites, including those pursuing the Liberal Arts Business minor, are welcome after RPTM majors have scheduled.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: RPTM 210 and RPTM 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 425 Principles of Interpretive Materials (3)** Principles, practices, application of non-personal interpretive activities common to natural/cultural history, including exhibits, audio-visual and illustrative materials.

### **RPTM 425 Principles of Interpretive Materials (3)**

The primary objective of this course is for students to follow the exhibit creation process from conceptualization through construction to completion. Along the way, students will present their works-in-progress to fellow students and instructors for modification and improvement. Their final products will be used in a practical environment in the exhibit room at Shaver's Creek Environmental Center and at various educational functions around the state - PA State Farm Show, Central PA Festival of the Arts, Penn State's Ag Progress Days, etc.

Main topics to be covered:

- \* Topics vs. Themes: narrowing the unifying concepts in exhibit design
- \* Flow in an exhibit and museum space: how to guide logical progression of thought in both an exhibit and exhibition area
- \* Color Schemes
- \* Computer aided design techniques
- \* Woodworking skills

This course is one of the selections for RPTM majors in the environmental interpretation emphasis of the Outdoor Recreation option. Students from other majors may enroll in this course if they have met the pre-requisite (RPTM 325).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: RPTM 325

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**RPTM 430 Environmental Education Methods and Materials (3)** Methods and materials for developing, implementing, and evaluating environmental education programs within formal and non-formal educational settings.

### **RPTM (AEE) 430 Environmental Education Methods and Materials (3)**

The primary objective of this course is to provide students with an introduction to Environmental Education (EE) methods (pedagogy) and materials for both formal and non-formal settings. A second objective is to provide the student with an opportunity to apply specific methods and materials to practical situations at Shaver's Creek Environmental Center. These opportunities include Outdoor School, School Day Programs, Maple Harvest Festival, and Scout Programs. A third objective is to provide information about gaining access to EE materials through web-based, written, and personal contacts.

Main topics typically include:

- \* Introduction to the history, definition, and philosophy of Environmental Education (EE)
- \* Differences between formal and non-formal EE settings
- \* PDE Environment & Ecology Standards
- \* Models of EE pedagogy
- \* Place-based-education labs covering: The Land, Water Resources, Fauna, and Flora
- \* "Keystone Aquatic Resource Education" teacher resource workshop (or other national curricula- i.e. P WILD, PLT, Project WET, etc.)
- \* EE Resources available at SCEC, the web, and other EE centers

This course is one of the selections for RPTM majors in the environmental interpretation emphasis and adventure-based programming emphasis within the Outdoor Recreation option. Students from other majors may enroll in this course if they have met the pre-requisite (RPTM 325).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: AEE 100 or RPTM 325

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 433W Program Evaluation and Research in Recreation Services (3)** Systematic, structured problem-solving process for decision making in recreation and parks. Research techniques/evaluation procedures; quantitative, qualitative methodologies; deductive, inductive reasoning.

### **RPTM 433W Program Evaluation and Research Services (3)**

The goal of this course is to provide students with the background necessary to understand and evaluate research reports and to conduct research projects of moderate complexity in the field of recreation, parks, and tourism management. The research focus of the class is on evaluation and assessment. Class topics include introductions to the philosophy of science, including the nature of theories, hypotheses, concepts and constructs, to measurement theory, to applied sampling techniques, and to methods of scale construction. Both quantitative and qualitative research methods are addressed. In-class activities include the conceptualization and execution of an applied evaluation project. This project involves practice in interviewing, in-class focus groups, survey questionnaire development, data collection, and data analysis. The course will provide students with a conceptual map of how research is conducted, the resources available to them, the vocabulary of research, and guidance in writing a research report.

Additionally, this is a Writing Across the Curriculum class. Students will prepare several short writing projects, some based on interviews or observational studies that they have conducted, as well as a final report based on the evaluation research conducted by the entire class.

The course material is divided into units of study with topical areas within each unit sequentially presented to parallel the research process itself. Students are expected to have read assigned materials and to attend class prepared to discuss them. Classes involve lectures, discussions, and in-class activities such as focus groups, survey questionnaire development and presentations of research results.

This class is required of all undergraduate majors in Recreation, Park and Tourism Management. RPTM 356 and a 3-credit course in statistics are prerequisites for this course. Students from other majors are welcome in this course, providing they have met the pre-requisites.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: RPTM 356 3 credits in statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 435 Recreation Facilities Planning and Management (3)** Planning and management of selected facilities with emphasis upon maintenance, activity, and support provisions.

### **RPTM 435 Recreation Facilities Planning and Management (3)**

The purpose of this course is to introduce students to planning, design, and maintenance practices at recreation and park facilities. This course will emphasize the activity and support provisions of recreation facilities and will identify standards of design and maintenance. Compliance with accepted risk management practices and the Americans with Disabilities Act (ADA) will also be stressed in this course.

Specific topics covered in this course include:

- \* Maintenance management practices and risk management procedures
- \* Monitoring and reporting recreation and park facility use
- \* General planning considerations of selected recreation facilities, parks and tourism attractions
- \* Special materials and apparatus required for specific park and recreation facilities
- \* Support facilities necessary to complement developments that offer these activities (e.g., vehicular circulation and parking, lighting, emergency provisions, etc.)

This is a required course for RPTM majors in the park management emphasis within the Outdoor Recreation Option. The course is also on the department list of the Commercial and Community Recreation Option. Students in other majors are welcome providing there are seats available after RPTM majors have been scheduled.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: fifth-semester standing or above

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 440 Adventure-based Programming and Administration (3)** Utilization of wilderness/backcountry environments and participant challenge; history, models, theories; survey of organizations; program design, administration; and issues.

### **RPTM 440 Adventure-Based Programming and Administration (3)**

The first objective of this course is to promote awareness of the history and evolution of adventure-based programming and to look at how this process has impacted the state of programming today. Secondly, through experiential, in-classroom activities students are expected to apply their knowledge of the various outdoor topics and theories examined in class throughout the semester. Third, students learn about the hiring and interview process as they create resumes and explore the currently listed jobs in the field. Fourth, various topics related to current issues in the field are debated, discussed and considered while looking at the future of adventure-based programming.

Main topics to be covered:

- \* History of Experiential Education/Adventure-based Programming
- \* Risk Management in relation to outdoor programming: looking at accidents, forms, and client screening
- \* Hiring/interviewing/looking at resumes
- \* Programming for various audiences: youth at risk, elderly, people with disabilities, women, college student orientation programs, and experiential education in the classroom
- \* Staff training: topics/skills to be covered, leader problems, and burnout
- \* Current Issues: controversial issues, what is in the news, media, gender roles/stereotypes

RPTM 440 is a selection for RPTM majors in the adventure-based programming emphasis of the Outdoor Recreation option. The pre-requisite for this course is RPTM 330 or RPTM 356.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: or concurrent: RPTM 330 or RPTM 356

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 460 Political and Legal Aspects of Recreation Services (3)** Role of local, state, federal government in provision of recreation services. Legislative and judicial systems.

### **RPTM 460 Political and Legal Aspects of Recreation Services (3)**

The primary objective of this course is to examine the governmental systems that influence the delivery of recreational services. The formal structure of government is considered along with the day-to-day political processes that determine public policy. All three levels of government-federal, state, and local--are studied. Particular attention is given to the judicial systems of these governments. The course also gives considerable attention to tort liability by examining case law as it relates to recreation facilities and services. The course also explores federal and state laws pertaining to employer/employee relations and administrative responsibilities. An additional objective is to investigate land use planning as it impacts recreation services.

Main topics include:

- \* The Court Systems, legislative branches
- \* Planning: historical perspective, land use, zoning, mandatory dedication, easements, building codes
- \* Liability: elements of negligence, situations giving rise to law suit, product liability, defenses & risk management, review

- \* Personnel laws; Federal laws, State Human Relations Acts, Civil Service, Hatch Act, FLSA, finance, garnishment & bankruptcy
- \* Public Relations Law: copyright, photography, lotteries, libel, slander, privacy
- \* Administrative Law: purchasing, entrepreneurship, Federal Tax laws

This is a required course for all students majoring in Recreation, Park and Tourism Management. It is open to students of other majors, providing they have met the pre-requisite.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2005  
 Prerequisite: RPTM 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 470 Recreation and Park Management (3)** Management of recreation and park services in public/non-profit settings; planning, budgeting fiscal development, resources allocation, decision- , making, computer applications.

### **RPTM 470 Recreation and Park Management (3)**

The primary objective of this course is to provide advanced standing RPTM students with an understanding of management and administration procedures that are essential to operating and managing park facilities and recreation programs. Secondly, students will be given an opportunity to be exposed to park and recreation governance processes and will be asked to synthesize the roles that key stakeholders play in the management of public-sector park and recreation organizations.

Key topics covered in this course include:

- \* A historical account of park and recreation operating environment as well as trends in park support and positioning of the field
- \* Inter-organizational partnerships and collaborations in the park and recreation field
- \* Financing, budgeting and fiscal control processes
- \* Human resource management principles and policies
- \* Creating effective working relationships with community stakeholders and park and recreation board members
- \* Comprehensive recreation, park and open space planning

This course is required for RPTM majors in the park management emphasis within the Outdoor Recreation Option. Students in other majors are welcome providing there are seats available after RPTM majors have been scheduled.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2005  
 Prerequisite: RPTM 320

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 480 Senior Management Seminar (1)** Current management issues will be examined relative to professional management strategies, ethics, and leadership in leisure services.

### **RPTM 480 Senior Management Seminar (1)**

This course is a seminar about current issues in outdoor recreation management. The course objective is to provide students with an opportunity to read about and discuss issues including outdoor recreation management goals and techniques, liability and risk management, leadership, ethics, the place of outdoor recreation in multiple-use management of natural resources, public participation in resource management, and career opportunities.

Topics for the semester are typically selected by the instructor in consultation with students. Examples that have been selected in the past include:

- \* Managing potential conflict between motorized and non-motorized recreation
- \* Leadership and risk management in outdoor adventure activities
- \* Commercial recreation on public lands and waters
- \* Politics, policy, and public involvement in managing public lands and waters;
- \* Recreation and the management of wildlife, timber, minerals, water, and grazing
- \* Career opportunities in teambuilding and leadership development
- \* Concession operations in public parks and forests
- \* Planning and developing a new National Monument
- \* Public employment and civil service requirements.

This is a required course for RPTM majors in the Outdoor Recreation Option. Students are required to have sixth semester standing or higher and have completed RPTM 320. The course is not open to students from other majors.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: sixth-semester standing in RPTM

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 494H** Senior Honors Thesis (1-6 per semester/maximum of 6) Senior Honors Thesis

**Senior Honors Thesis (1-6 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 495A** Internship in Recreation Services (12) Meet educational objectives through participation in organized practical experience; direct observation and professional supervision in full-time work experience.

**RPTM 495A Internship in Recreation Services (12)**

The primary objective of this course is to provide students with an opportunity to meet their educational objectives through participation in well-planned and organized practical experience. Secondary objectives include individualizing the practical experience based upon the student's intended professional career; structuring the experience to facilitate increases in professional skills and competencies as related to the student's professional goals; providing the student with professional supervision and mentoring; and offering the student a diversity of professional responsibilities, including direct leadership and administrative opportunities, in order to prepare the student for successful career entry.

Main topics typically include:

- \* Orientation to the Internship Agency
- \* Development of individualized practicum goals/educational objectives
- \* Critical analysis of professional issues and events
- \* Comparison and contrast of complementary and competing agencies/organizations
- \* In-depth study of the student's practicum agency
- \* Development and implementation of a "special project"

This is a required course for RPTM majors (except Golf Management option) usually taken after a student has completed the majority of the courses in the major. Students must complete RPTM 394 (Orientation to Internship) prior to enrollment. The course is not open to students from other majors.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005  
Prerequisite: RPTM 394 ; seventh-semester standing; 300 hours practical experience; and a 2.0 grade-point average; current and valid certification in advanced first aid and cardiopulmonary resuscitation

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 495B** Internship in Golf Management (1-4) Observation and participation under supervision in golf operations in public, private, municipal, or military settings.

**RPTM 495B Internship in Golf Management (1-4)**

The primary objectives of this course are to complete a 40-hour per week internship at an approved golf property. While on internship the student will complete assignments involving philosophy and swing concepts of teaching, and supervising and delegating.

Main topics include:

- \* Philosophy and Swing Concepts of Teaching: group lessons, teaching evaluation, lesson plan, lesson series with disability populations, physical training.
- \* Supervising and Delegating: performance problems, joint problem solving, motivating assignments, and delegation.

This is a required course for all RPTM majors in the Golf Management Option. The internship is not open to students of other majors.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

Prerequisite: RPTM 395B ; 2.00 cumulative grade point average; current and valid certification in advanced first aid and cardiopulmonary resuscitation

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 495C** Internship in Golf Management (1-4) Observation and participation under supervision in golf operations in public, private, municipal, or military settings.

**RPTM 495C Internship in Golf Management (1-4)**

The primary objective of this course is to complete a 40-hour per week internship at an approved golf property. While on internship the student will complete assignments involving merchandising and inventory management, food and beverage control, and portfolio development.

Main topics include:

- \* Merchandising and Inventory Management: creating an open-to-buy plan, pricing, sales, inventory, displaying
- \* Food and Beverage Control: customer survey, labor pro forma, costing, storage, and regulations
- \* Port Folio Development: industry problem statement and presentation

This is a required course for RPTM majors in the Golf Management Option. The internship is not open to students of other majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: RPTM 495B ; 2.00 cumulative grade point average

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 495D** Internship in Golf Management (1-4) Observation and participation under supervision in golf operations in public, private, municipal, or military settings.

**RPTM 495D Internship in Golf Management (1-4)**

The primary objective of this course is to complete a 40-hour per week internship at an approved golf property. While on internship the student will complete an initial report, midterm and final evaluations, an agency evaluation, activity logs, and application for membership into the PGA of America.

Main Topics Include:

- \* Observation and participation under supervision in golf operations in public, private, municipal, resort or military settings
- \* Complete Membership Application for PGA of America

This is a required course for RPTM majors in the Golf Management Option. The internship is not open to students of other majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: RPTM 495C ; 2.00 cumulative grade point average

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 497I** Canoeing Leadership (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Canoeing Leadership (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 497J** Peer Mentoring (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Peer Mentoring (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: RPTM 356

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 498D** Backpacking Leadership (2) This course will introduce students to backpacking leadership skills, including pre-trip planning; selection, use, and care of equipment; and backcountry travel techniques. Participants will also learn the value of leadership, teamwork, and communication; human impacts on the environment; and development of a personal connection to the environment. Students will have an opportunity to practice leadership skills and to plan and lead to a two-day backpacking trip.

**Backpacking Leadership (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 498F** Rock Climbing Leadership (3) This course will help students develop a working knowledge of the history and philosophies of rock climbing; the foundations of physically and mentally preparing for the sport of climbing; the basic equipment needs for climbing in an indoor setting; ways to manage the inherent risks of the sport; how and when to use and teach many basic climbing techniques; AMGA standard practice for climbing in a gym setting; and the current trends in climbing as a sport. Students will earn an American Mountain Guiding Association (AMGA) Climbing Wall Instructor Certification.

**Rock Climbing Leadership (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 498G** Player Development/Tournament Golf (2) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Player Development/Tournament Golf (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RPTM 499** (IL) Foreign Studies (1-12 per semester/maximum of 12) Foreign Studies in RPTM.

#### **Foreign Studies (1-12 per semester/maximum of 12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: RPTM 199

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Rehabilitation (REHAB)**

**REHAB 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Rehabilitation and Human Services (RHS)**

**RHS 096** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**RHS 100** (GS;US;IL) Introduction to Disability Culture (3) Social and cultural contexts of disability on both a micro and macro levels will be examined.

**Introduction to Disability Culture (3)**

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Fall 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 196** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 300** Introduction to Rehabilitation and Human Services (3) Disability, public and private rehabilitation agencies, case management; resources for training; observations in rehabilitation settings.

**Introduction to Rehabilitation and Human Services (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: 6 credits in psychology sociology human development and family studies and/or crime law and justice

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 301** Introduction to Counseling as a Profession (3) Overview of the counseling theories that are often used in human service and rehabilitation practices.

**Introduction to Counseling as a Profession (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 302** Client Assessment in Rehabilitation and Human Services (3) Provides a practical understanding and skills to utilize assessment in the helping process.

**Client Assessment in Rehabilitation and Human Services (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: 3 credits in statistics  
Concurrent: 3 credits in statistics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 303** Group Work in Rehabilitation Practice and Human Services (3) An overview of essential elements and dynamics for conducting groups and various team-related activities will be the major focus.

**Group Work in Rehabilitation Practice and Human Services (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: 6 credits in psychology sociology or human development

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 396** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 400W** Case Management and Communication Skills (3) Principles and practices of obtaining, recording, evaluating, and utilizing case data in rehabilitation planning; implementation of rehabilitation plans.

**Case Management and Communication Skills (3)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: RHS 300

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 401** Community Mental Health Practice and Services (3) Community mental health roles, historical points, current trends, and ethical standards; funding and impact on service provision.

**Community Mental Health Practice and Services (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: 6 credits in psychology and/or sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 402** Children and Families in Rehabilitation Settings and Human Services (3) Contemporary family issues, child development, legal considerations, cultural and familial factors within rehabilitation and human services practice will be addressed.

**Children and Families in Rehabilitation Settings and Human Services (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: RHS 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 403** Medical Aspects of Disability (3) Common disabling illnesses, injuries, and congenital defects; their symptomatology, prognosis, and treatment; implications for personal, social, and vocational adjustment.

**Medical Aspects of Disability (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: 6 credits in psychology and/or sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 428** Rehabilitation Corrections (3) An overview of rehabilitation in different correctional settings focusing on history, classification, risk assessment, intervention strategies, and community reentry.

**Rehabilitation Corrections (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: RHS 300

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 495A** Rehabilitation and Human Services Internship (15) Full-time practicum in rehabilitation and related human services agencies and institutions providing psychosocial, vocational, educational, and/or residential services to people with disabilities.

**Rehabilitation and Human Services Internship (15)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: students must have successfully completed all other required coursework for the major (grade of "C" or higher) as well as fulfilled general education requirements.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an

individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RHS 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical of of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Religious Studies (RL ST)**

**RL ST 001 (GH;US;IL)** Introduction to World Religions (3) An historical and comparative survey of the principal beliefs and practices of the world's major religions.

**RL ST 001 Introduction to World Religions (3)**  
(GH;US;IL)

**(BA)** This course meets the Bachelor of Arts degree requirements.

The academic study of religion is distinct from instruction in a religion, in that one seeks simply to learn about a religion, its history, texts, major personages, and belief claims. Because religions are always deeply intertwined with the entire cultural history of a region (linked with everything from weather and topography to political, social and economic history), studying a religion always means placing it in its larger cultural context. World Religions (RL ST 001) is an introduction to the religions of the world, past and present. After an introduction to the academic study of religion and various aspects of the field (methods, history, problems), the course begins a more--or--less chronological progression from the ancient world to our contemporary times. Each religion (e.g.: Ancient Near Eastern; Greek and Roman; Hinduism; Buddhism; Judaism; Christianity; Islam; NRMs ["New Religious Movements"]) is placed in its historical, social, and cultural context. The questions that arise in the course of such study are profound (e.g.: how have various religions answered the major questions of life: the question of the meaning of life; the question of evil; the question of how one defines "moral" behavior; the question of how one deals with others who may have a different religion or different morality; etc.), and can be of great help in critically examining one's own views and presuppositions about such matters. The student should leave the course with a good grasp of the variety of answers given by human beings to these "religious" questions over the centuries; how religions are linked to their cultures; how religions change and transform themselves; and how religions function within a culture, including our own. This should provide the student an excellent framework within which to reflect on his or her own religious experience, and prepare the student for mature, sophisticated interaction with the topic of religion later in life. An example of evaluation may be: Evaluation based on discussion, quizzes, mid-term and final exam. As an introduction to religion--and world religions in particular--RL ST 001 offers a brief overview of all the world's major religions, most of which are the subject of focused courses at the 100--level and above. Because RL ST 001 also contains modules relevant to the methodologies used in the academic study of religion, it is also related (or linked) to all other courses in religious studies, which use these same methods. RL ST 001 may be used to fulfill 3 credits in the Humanities. RL ST 001 also may be used to fulfill a US;IL requirement in the major or minor.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 003 (GH;US;IL) (ASIA 003)** Introduction to the Religions of the East (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

**RL ST (ASIA) 003 Introduction to the Religions of the East (3)**  
(GH;US;IL)

**(BA)** This course meets the Bachelor of Arts degree requirements.

This course will explore the foundations, development, and diversity of religious traditions in Asia, focusing mostly on Hinduism, Buddhism, Confucianism, Daoism, and Shinto. It is organized according to two sections: Foundations and Developments. The Foundations section provides an introduction to the worldviews and practices of Eastern teachings. We will also discuss the structure of society, the social expectations on individuals based on gender and class, and rituals, which expose us to rich mythologies or intricate ceremonies. The second section, Developments, traces the evolution of religious doctrine and practice through history. Here, we learn to distinguish among large and small-scale movements and schools, and to familiarize ourselves with the geographical scope of each religion in South, Southeast, and East Asia. An abiding emphasis in this course will be on how to read and interpret the varied scriptures and primary texts of these religions.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 003** (GH;US;IL) (ASIA 003) Introduction to the Religions of the East (3) Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions.

**RL ST (ASIA) 003 Introduction to the Religions of the East (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will explore the foundations, development, and diversity of religious traditions in Asia, focusing mostly on Hinduism, Buddhism, Confucianism, Daoism, and Shinto. It is organized according to two sections: Foundations and Developments. The Foundations section provides an introduction to the worldviews and practices of Eastern teachings. We will also discuss the structure of society, the social expectations on individuals based on gender and class, and rituals, which expose us to rich mythologies or intricate ceremonies. The second section, Developments, traces the evolution of religious doctrine and practice through history. Here, we learn to distinguish among large and small-scale movements and schools, and to familiarize ourselves with the geographical scope of each religion in South, Southeast, and East Asia. An abiding emphasis in this course will be on how to read and interpret the varied scriptures and primary texts of these religions.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 004** (GH;US;IL) (CAMS 004, J ST 004) Jewish and Christian Foundations (3) Introduction to the perspectives, patterns of worship, morality, historical roots, and institutions of the Judaeo-Christian traditions; their relationships to culture.

**RL ST (CAMS/J ST) 004 Jewish and Christian Foundations (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Jewish and Christian Foundations seeks to help students better understand the Bible as the scriptural background for both Judaism and Christianity. Some people believe the Bible is "scripture," self communicated by God to humanity. To others, this text is a compendious collection of poetry, historical writing, law, myth, and mystical writings, which stems from the religious, political, and cultural milieu of the ancient Near East. Some people believe this is a book designed to bring people to belief in the power and reality of the god discussed in these writings. For others, the book is a source of both unity and division among people in the world, and must be treated as ambiguous in nature. Still others see the biblical text as the single most important collection of literature to have shaped the religious, political, and imaginative contours of western civilization. This course focuses on selected portions of the biblical text, representing diverse strands of historical remembrances, interpreted and re-interpreted in light of critical historical events, and serving, first as an oral, and later as a written account of the life, beliefs, and hopes of Jewish and Christian peoples. Readings from both the Hebrew Bible (the Christian "Old Testament") and the Christian scriptures (the "New Testament") will be used.

RLST/CAMS/J ST 004 provides a broad discussion of the origin of both Judaism and Christianity within a historical and geographical framework. The principle teachers, writers, and "founders" are discussed, including Moses, Isaiah, David, Ezra, Jesus, Peter, and Paul. Students are challenged to read and understand these important writings which have interpreted the human condition and which have oriented generations of people towards a transcendent referent associated with love and loyalty. Evaluation methods may include two hour examinations, a final examination, and two short writing assignments. The examinations are not cumulative. Class participation will also be a factor in overall evaluation for the final grade. RL ST/CAMS/J ST 004 may be used to fulfill requirements for the Religious Studies, Classics and Ancient Mediterranean Studies and Jewish Studies major/minor. Finally, students will be challenged to evaluate and

respond to the literature as it touches on human experience experiences which all people share regardless of their personal religious affiliation.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 007** Inner Lives in Religious Biography (3) Reading and discussion of selected autobiographical and biographical statements to discover and compare different forms of spirituality.

### **Inner Lives in Religious Biography (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 012** (GH;IL) (CAMS 012, J ST 012) Lands of the Bible (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

### **RL ST (CAMS/J ST) 012 Lands of the Bible (3) (GH;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

CAMS/J ST/RL ST 012 introduces students to the lands, cities, and peoples associated with the Hebrew and Christian scriptures. Using methodologies from historical geography, archaeology, ancient history, epigraphy, and anthropology, students study the Fertile Crescent, from the Nile Valley, through the Levant and its Jordan River valley, to Mesopotamia--the river valleys of the Tigris and Euphrates. Students will study the cities and states of the cultures along these rivers in the Bronze and Iron Ages, including Memphis/Saqqarah, Thebes, Ugarit, Jerusalem, Lachish, Megiddo, Shechem, Samaria, Hazor, Ebla, Babylon, Ur, Petra, Jericho, 'Akko, and others. These are the lands of the Hebrew and Christian scriptures, but also cities that have been revealed through modern study. For example, the texts excavated at Ugarit (Syria) in the 1920's shed light on the relations between ancient Israelites and their Canaanite neighbors in the period of the "Conquest" and the monarchies of the Iron I and Iron II periods. Students will learn that the culture of the ancient Near East is inexorably linked to an understanding of the religious traditions that grew up in the region, including Judaism, Christianity, and Islam. Classes will be a combination of lecture, discussion, and problem-solving, with frequent use of slides and occasional use of artifacts to illustrate the topics at hand. Students are evaluated on three of the following five means: a midterm test, a final essay examination, a five to seven page term paper, a team research oral presentation, a team research poster presentation. Participation in class discussion will also be evaluated. This course fulfills three credits of the General Education or the B.A. humanities requirement. For majors in Classics and Ancient Mediterranean Studies, the course fulfills the requirement of three credits in Near Eastern literature and language, civilization, or archaeology. The course fulfills the three credit requirement for courses in RL ST 001-099 for the Religious Studies major, and the Jewish Studies major's requirements. The course also would fulfill three credits of the six credit requirement for courses in any field that may be below the 400-level for the Religious Studies Minor, three credits of the nine credits required in course work for the Jewish Studies Minor, and three of the 18 credits required for the Classics and Ancient Mediterranean Studies minor.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 012U** (GH;IL) (CAMS 012U, J ST 012U) Lands of the Bible (3) Textual and archaeological evidence for the lands, cities, and peoples associated with the Hebrew Bible and Christian scriptures.

### **Lands of the Bible (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 044** (GH;IL) (CAMS 044) Ancient Near Eastern and Egyptian Mythology (3) Survey of major ancient Mediterranean myths, gods, and goddesses in their cultural contexts; influence on later cultures.

**RL ST (CAMS) 044 Ancient Near Eastern and Egyptian Mythology (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

RL ST/CAMS 044 introduces students to a selection of major ancient Mediterranean and Egyptian myths, gods, and goddesses. Ancient Canaan, Mesopotamia, and Egypt (geographically approximating the contemporary Middle East) were primary locations for the development -- beginning already in the fourth millennium B.C.E. -- of highly complex urban civilizations, many of which persisted until the turn of the Era. These ancient societies were responsible both for notable technological achievements, such as writing, sophisticated irrigation systems, and the wheel, and for notable cultural achievements, such as impressive legal codes, highly developed astronomical research, and complex religious systems. This course will acquaint students with some major religious writings stemming from these fascinating old world cultures. The class discusses in some detail a limited range of stories about the divine realm, creation, the flood, kingship, life and death, and sexuality. The course pursues such comparisons by studying myths against the background of the different cultures that produced them. Because a number of these religious myths are historically related, the course will also critically compare the similarities and the differences between them. To underscore how important historical and geographic settings are to understanding these stories, the course uses different techniques of instruction such as small group discussions, slides, lectures, and films. Three of the world's major religions -- Judaism, Christianity, and Islam -- trace their roots to the religions of the ancient Near East and Egypt. Hence, some attention will be paid to the similarities and differences between the views expressed in these myths and the views developed in classical Judaism, Christianity, and Islam. By grappling with issues such as divine character, self-identity, and female/male relationships in the ancient Mediterranean world, students will be better acquainted with how classical Judaism, Christianity, and Islam innovate beyond the religious heritage to which they are indebted.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 070** (GH;IL) (CAMS 070, J ST 070) Prophecy: The Near East Then and Now (3) Prophecy in the ancient Near East, the ancient Jewish and Christian traditions, and today.

**RL ST (CAMS, J ST) 070 Prophecy: The Near East Then and Now (3)**  
(GH;IL)

The objective of this course is to introduce students to the prophetic traditions of the ancient Near East and the Bible of the Judeo-Christian traditions. The course will explore the development of prophetic circles in the ancient Near East (incl. Egypt, Syria, Canaan, and Mesopotamia) and then focus on the major prophetic traditions of the Hebrew Bible (to include at least Isaiah, Jeremiah, Ezekiel, Amos, Hosea, Micah, Haggai, Zechariah, and Daniel) and how these traditions were understood in early Judaism and nascent Christianity. Special attention will be paid to the roles of priests, kings, and prophets in ancient Israel to better understand Israelite and Judaeon prophetic traditions in ancient Israelite society. The course will then examine the rise of apocalypticism and its modern manifestations in the coalition of conservative Christians and Jews in "Zion" -- the new Jerusalem. Additional emphasis will be placed on the religious and political interactions which manifest themselves in the prophetic movements--then and now--including the rhetoric of ideology and propaganda. Important figures and events illustrate these cultural and political trends, in antiquity, and in the contemporary setting.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 083S** (GH) First-Year Seminar in Religious Studies (3) Critical approaches to the dimensions and directions in Religious Studies.

**RL ST 083S First-Year Seminar in Religious Studies (3)**  
(GH;FYS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Students will be expected to master material relative to the introductory study of a major world religion or aspect thereof, as well as to acquire basic skills useful to the study of the liberal arts. Students will learn to read books and original documents, discuss them, formulate effective arguments, and write essays and papers. The course will challenge students to express themselves and to gather information through discussion and writing of papers about major world religion(s) or aspect(s) of world religion(s). It will challenge students to think about social behavior, the nature of community, and the value of scholarly endeavor as these relate to the particular topic of the seminar. Frequently, the course will deal with

intercultural and international topics, though some of the variable topics may not readily lend themselves to such analysis. Through readings, discussions, lectures, and research projects, students will become acquainted with major figures and developments in a major world religion, as well as to acquire basic skills useful to the study of the liberal arts. Students will learn to read books and original documents, discuss them, formulate effective arguments, and write essays and papers. Analysis of this type will provide students with techniques for appreciating and judging arguments and presentations in many fields of learning distinct from religion, from scholarly to popular. By reading and understanding religious texts and the arguments based on them, students will learn to consider the cultural assumptions of different groups and societies and will come to discern and, perhaps, gain deeper insight into their own values and assumptions by contrast with these. Although the course will focus on a specific topic, the instructor will help the student to see the wider implications of the issues and controversies discussed. Whenever possible, the international and intercultural aspects of the topic will be considered. The course fulfills the first-year requirement as well as one of the humanities requirements in general education or a Bachelor of Arts humanities requirement.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 090** (GH;IL) (CAMS 090, J ST 090) Archaeology of Jerusalem: Past and Present (3) Archaeology and history of Jerusalem from earliest times (c. 3000 BCE) to the present.

**RL ST (CAMS/J ST) 090 Archaeology of Jerusalem: Past and Present (3)**  
**(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Jerusalem, a holy city for Judaism, Christianity and Islam, is symbolically depicted in art and literature as the physical and spiritual center of the world. Throughout its history, this "city of peace" was a focal point attracting numerous cultures and peoples, the latter sometimes as prophets and more often as conquerors. The reasons for Jerusalem's centrality and significance during the past five millennia as a heavenly and earthly capital are explored in this course.

The course curriculum will survey the religious, political, archaeological and historical record of ancient Jerusalem, beginning with its earliest settlement during the fourth and third millennia BC. Jerusalem's urbanization in the second millennium BC, its role as the capital of biblical Israel and Judah during the First and Second Temple periods, and its transformation as a center of Christianity and later Islam are studied utilizing the testimony of artifacts, architecture, and iconography in relation to the written word. Throughout the ages and continuing into the 21st century, Jerusalem remains a contested city for the three monotheistic faiths. The holy city's impact on the politics of the modern Middle East will be critically examined in light of Jerusalem's history and recent archaeological discoveries and their modern-day interpretation.

Objectives include the critical evaluation of archaeological, historical and literary evidence and its relationship to modern-day political and religious perceptions of Jerusalem. The course will encourage research skills (including library training sessions) and writing and oral communication skills based on an analytical approach to the texts and material culture relevant to Jerusalem.

Student evaluation will be based on active participation (attendance, discussion sessions, group presentations, and individual oral presentations), two short papers, a midterm, and a final exam.

This course will fulfill three credits of the General Education or the B.A. humanities requirement and the GI requirement. For majors in CAMS, the course will fulfill the requirement of three credits in Near Eastern literature and language, civilization, or archaeology; and for those in the CAMS ancient Mediterranean archaeology option it will fulfill the three credits of archaeology course work requirement. The course will fulfill three credits of course work concerned with the ancient period or with the land of Israel.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 101** (GH;IL) Comparative Religion (3) Comparative or historical analysis of religious factors--worship, theology, ethics, scriptures, etc., in two or more religious traditions.

**Comparative Religion (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 102 (GH;IL) (CAMS 102, HIST 102, J ST 102) Canaan and Israel in Antiquity (3)** Political, social, and intellectual history of the land of Canaan/Israel in the Biblical era: Late Bronze and Iron Ages.

**RL ST (CAMS/HIST/J ST) 102 Canaan and Israel in Antiquity (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

From the domestication of animals and the dawn of agriculture to the development and socialization of monotheism, the world of the first civilizations led to that of the Bible and ancient Israel. This course, involving a critical view of Biblical texts in light of other ancient sources, archaeology and historical methods, explains the nature and the evolution of society, religion and thought in the Biblical era. Learn how civilization arose, and how the state appropriated religion and applied it for its purposes. How the science of administration developed and deployed ideological tools to further its own ideas of the West developed. This course is deeply subversive, particularly of religious and academic shibboleths. The only authority in this class is that of the most persuasive reader, and doctrines, whether religious or political, will have to be checked at the door.

An example of evaluation may be: weekly participation in discussion; mid-term and final essay examinations involving a critical evaluation of ancient text's claims in combination with archaeological evidence; a research essay, where the class or section size is lower than 30; an ability to read critically, bringing different classes of evidence to bear on issues arising from the texts, and construct coherent and compelling arguments to a particular thesis. The course provides a Near Eastern counterpart to HIST 100, 402 and a Near Eastern aspect to the Jewish Studies major. It complements RL ST 110, by offering historical exploration of the culture under study in that course. Related courses include ANTH 012, HEBR, 010, ENGL 104, RL ST 004, and RL ST 111. The course helps round out the majors in History and Jewish Studies, particularly in ancient history. It also extends the program in Religious Studies (history of religions), and it contributes to the ancient stream of the prospective program in Jewish Studies and History.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 103 (GH;US;IL) (ASIA 103) Introduction to Hinduism (3)** Historical development of Hinduism to the present.

**RL ST (ASIA) 103 Introduction to Hinduism (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides a historical overview of the development of ideas that provide the foundation of the south Asian religious culture. The course begins with a discussion of the Vedic ritual tradition, tracing the emergence of the idea of civic responsibility or Dharma. It then proceeds to analyze how the Vedic ritual tradition may have given rise to the philosophical concepts like that of Karma or (individual action and its underlying motives), Samsara (the cyclical view of life), and the Atman (nature of the individual) during the Upanishadic/Vedantic era. The first half of the course concludes with selected readings from the Bhagavadgita, and the Mahabharata. The readings will all be in English. Class discussions focus on how the classical Hindu worldview may have emerged from the philosophical foundation of the Upanishads, and later built the groundwork for the Hindu devotional Bhakti tradition. The second half of the course focuses on the various regional or little traditions from the middle ages analyzing how the local religious cultures (both in the Hindi and non-Hindi speaking areas) may have played out against the great classical Brahmanic tradition. The course concludes with a discussion of how Hinduism has been historically influenced by other religious cultures (both indigenous and foreign) like Buddhism, Jainism, Islam, and Christianity.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 103 (GH;US;IL) (ASIA 103) Introduction to Hinduism (3)** Historical development of Hinduism to the present.

**RL ST (ASIA) 103 Introduction to Hinduism (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides a historical overview of the development of ideas that provide the foundation of the south Asian religious culture. The course begins with a discussion of the Vedic ritual tradition, tracing the emergence of the idea of civic responsibility or Dharma. It then proceeds to analyze how the Vedic ritual tradition may have given rise to the philosophical concepts like that of Karma or (individual action and its underlying motives), Samsara (the cyclical view of life), and the Atman (nature of the individual) during the Upanishadic/Vedantic era. The first half of the course concludes with selected readings from the Bhagavadgita, and the Mahabharata. The readings will all be in English. Class discussions focus on how the classical Hindu worldview may have emerged from the philosophical foundation of the Upanishads, and later built the groundwork for the Hindu devotional Bhakti tradition. The second half of the course focuses on the various regional or little traditions from the middle ages analyzing how the local religious cultures (both in the Hindi and non-Hindi speaking areas) may have played out against the great classical Brahmanic tradition. The course concludes with a discussion of how Hinduism has been historically influenced by other religious cultures (both indigenous and foreign) like Buddhism, Jainism, Islam, and Christianity.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 104** (GH;US;IL) (ASIA 104) Introduction to Buddhism (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

**RL ST (ASIA) 104 Introduction to Buddhism (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is a general survey of the historical development, basic doctrines, and practices of Hinayana, Mahayana, and Vajrayana Buddhism. The course is structured around the "Three Jewels" of Buddhism: Buddha, Dharma, and Sangha. That is to say, we will learn about the Buddha as a historical figure and spirit; we will come to understand the basic elements of his doctrinal teachings; and we will examine the community of followers who have practiced his teachings. Special attention will be paid to the various "geographies" of Buddhism as expressed through different cultures in ancient India, Southeast Asia, and East Asia. At the conclusion of the course, we will encounter Buddhism as a relatively new cultural force in America. The course revolves around the discussion of key issues in the philosophy, ethics, and theology of various forms of Buddhism.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 104** (GH;US;IL) (ASIA 104) Introduction to Buddhism (3) A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism.

**RL ST (ASIA) 104 Introduction to Buddhism (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is a general survey of the historical development, basic doctrines, and practices of Hinayana, Mahayana, and Vajrayana Buddhism. The course is structured around the "Three Jewels" of Buddhism: Buddha, Dharma, and Sangha. That is to say, we will learn about the Buddha as a historical figure and spirit; we will come to understand the basic elements of his doctrinal teachings; and we will examine the community of followers who have practiced his teachings. Special attention will be paid to the various "geographies" of Buddhism as expressed through different cultures in ancient India, Southeast Asia, and East Asia. At the conclusion of the course, we will encounter Buddhism as a relatively new cultural force in America. The course revolves around the discussion of key issues in the philosophy, ethics, and theology of various forms of Buddhism.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 105** (GH;US;IL) Buddhism in the Western World (3) A general survey of the development of Buddhism as a religious tradition in the West, focusing especially on America.

**RL ST 105 Buddhism in the Western World (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The academic study of religion is distinct from instruction in a religion in so far as one seeks simply to learn about religion, or religions, by considering the history, texts, major figures, and belief systems of one or more traditions. Because religions are always deeply intertwined with the entire cultural history of a region, studying a religion has always involved placing it in a larger cultural context. Buddhism in the Western World (RL ST 105) provides an intense concentration on a particular topic from the Buddhist religious tradition, focusing on historical, comparative, and phenomenological concerns. The course concentrates on the major figures involved, integrated with significant issues and religious practices in the development of the aspect of the Buddhist religious tradition under investigation. In many cases, across the face of Indian, Chinese, and Japanese Buddhism, gender, racial, and ethnic issues play critical roles in the development of the tradition studied, and these are explored in depth. Finally, the course examines the symbols, myths, and rituals of culture or cultures involved, which are radically different than our own, providing for each student the opportunity to compare, consider, and assess a wide variety of expressions of religiosity. Evaluation is research paper. Buddhist in the based on discussion, written assignments, and a major Western World, RL ST 105, offers a special focus on a particular aspect of one of the major religious traditions of the world. Because general approaches and methodologies in the academic study of religion are employed throughout the course, RL ST 105 is linked to all other courses in religious studies. RL ST 105 may be used to fulfill 3 credits in the Humanities, and may also be used to fulfill a US;IL requirement in the major or minor.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 106** (GH;IL) (J ST 106) Mysticism (3) A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

**Mysticism (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 107** (GH;US;IL) Introduction to Islam (3) Community and message of the early movement; development of authoritative structures and traditions; proliferation of sects; theology and creeds; mysticism.

**Introduction to Islam (3)**

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 108** (GH;IL) Muhammad and the Qur'an (3) History of the Qur'an and its interpretation by the early Muslim community; life of Muhammad and his role within Islam.

**Muhammad and the Qur'an (3)**

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**RL ST 110 (GH;US;IL) (CAMS 110, J ST 110) Hebrew Bible: Old Testament (3)** Introduction to the history, literature, and religion of ancient Israel.

**RL ST (CAMS/J ST) 110 Hebrew Bible: Old Testament (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Hebrew Bible is the record of the interaction between the people of ancient Israel and their God. As a religious text, the Bible is inextricably intertwined with the cultures of Israel's neighbors, including the Canaanites, Syrians, Greeks, Assyrians, Babylonians, Arabs, Egyptians, and the peoples of the eastern desert. To study the Hebrew Bible and its development during the first millennium BCE is to study the history, culture, and literature of the entire region. Hebrew Bible introduces students to the literature of ancient Israel, its rituals, the stories which established a people's identity, and which defined their moral behavior. Great figures of the texts, such as Moses, David, Solomon, Bathsheba, Ruth, Jeremiah, Daniel, and Ezra, teach us important lessons about life and how people of faith attempted to relate to one another, to God, and to people outside their ethnic group. Students will read from the text and from a textbook which contains scholarly opinion from a variety of sources. Recent archaeological and epigraphical studies will be incorporated into the course to enhance our work. The ultimate goal will be to assess the meaning of the texts in their ancient Near Eastern environment, and to understand the development of Hebrew religion and the beginnings of Rabbinic Judaism. Students will be evaluated using an hour examination, a 6-8 pp. "hermeneutical essay," a final examination, class attendance and discussion. As an introduction to the scriptures of the Hebrew Bible / Old Testament, RL ST/CAMS/J ST 110 utilizes the methodologies used in the academic study of religion. The course is related or linked to many courses in religious studies which use these same methods or which are related to the history and development of Judaism, Christianity, or Islam. RL ST/CAMS/J ST 110 may be used to fulfill requirements for the Religious Studies major. RL ST/CAMS/J ST 110 may also be used to fulfill the GI or GH requirements in the major or minor in Religious Studies, Classics and Ancient Mediterranean Studies and Jewish Studies.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 111 (GH;IL) (CAMS 111, J ST 111) Early Judaism (3)** Religious thought, practices, and parties in the Second Temple period; the emergence of rabbinic Judaism.

**RL ST (CAMS/J ST) 111 Early Judaism (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Early Judaism will introduce students to the history of Judaism as reflected in Jewish literature from the period of the Babylonian exile (587/6 BCE) to the closure of the Babylonian Talmud (ca. 600 CE). In this period, ancient Hebrew religion was transformed into a new world religion-Judaism. Students will read selections from the Bible, and from other religious literature, including the Dead Sea Scrolls, the Apocrypha, the Christian Scriptures, the Mishnah, and the Talmudim. By tracing the development of various Jewish "parties," students will appreciate how Classical Judaism evolved, and how the early Church emerged from Jewish roots in the first centuries CE. Early Judaism grew from its roots in the period of Achaemenid domination. Jews were dispersed throughout the eastern Mediterranean, so influences from Persian, Hellenistic, and Roman thought naturally influenced the faith's development. Students in Early Judaism will develop a new appreciation for the basic beliefs and practices of Judaism as well as for the beginnings of the Jesus movement and the development of the early Christian Church. Theological and historical questions concerning the origins of evil, the primacy of prayer, the beginnings of Jewish religious architecture, and the rise of anti-Semitism will be explored. Religion is always linked inextricably to culture. Judaism's transformation in contact with diverse cultures will become evident throughout RL ST/CAMS/J ST 111. The methodologies used in this course will enable students to read and evaluate primary and secondary sources used in the academic study of Judaism. Many other courses in Religious Studies (001, 004, 110, 120, 124), Jewish Studies (010 and 102), and Classics and Ancient Mediterranean Studies, as well as History and Art History are closely related or linked to this course. RL ST/CAMS/J ST 111 may be used to fulfill 3 credits in the Humanities, or to fulfill the GI requirement in the major or minor. The course will be offered once each year, with an enrollment of 65. This course will satisfy 3 credits towards the minor in Jewish Studies or the major in Religious Studies, plus being cross-listed with CAMS, fulfilling part of the requirement for courses in supporting or related areas of all Classics and Ancient Mediterranean Studies majors. The course also provides an excellent addition to other courses, such as CAMS 010, "Mesopotamian Civilization;" CAMS 044, "Ancient Near Eastern Mythology;" CAMS 045 "Classical Mythology;" CAMS 033, "Roman Civilization;" and CAMS/RL ST/ JST 012, "Lands of the Bible."

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**RL ST 114 (GH;US;IL) (J ST 114) Modern Judaism (3)** Trends in Jewish life and thought since the French revolution; Judaism's responses to the challenge of modernity.

**RL ST (J ST) 114 Modern Judaism (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course explores the opportunities and problems of Jews around the world from the late eighteenth century -- the "age of emancipation" -- to the present time. Commercial, political, and intellectual revolutions in the 1700s, giving rise to modern capitalism, republicanism, and an emphasis on reason, combined to induce political states to grant Jews unprecedented freedom. Emancipation introduced new elements into Jewish life: religious change, personal choice, and internal disagreements. In practical ways, life improved for Jews, as they became more prosperous and assimilated. But freedom also increased the chances for loss of identity, as liberals discarded some rituals as old-fashioned and many individuals chose to give up traditional practices. In addition, anti-Semitism persisted, although it was now, at times, more difficult to detect. Traditional forms of hostility to Jews, such as heresy trials and political expulsions, were replaced by subtle expressions of political and social discrimination. But hatred of Jews did not disappear, despite widespread acceptance in Western culture of political liberalism. The class explores these trends in Europe, the Americas, and Israel. It begins by looking at the fragile freedom of nineteenth-century Jews. In the twentieth century, Jewish experience has often been characterized by open conflict: in the Holocaust, the formation of Israel, contemporary black-Jewish relations in the United States, and Jewish-Muslim relations in the Middle East. The course concludes with these recent struggles. Course readings include personal narratives (reminiscences or letters) and works of fiction (a short story, play, and novel). The class is primarily a discussion class, using writing assignments as the principal method of evaluation. The course requires three graded essays and an ungraded proposal. Students are also asked to keep a journal of commentary on course readings. Class attendance and participation are components of the final grade. The course serves as an introduction to modern Judaism as a religion and culture. It prepares undergraduate students for advanced work in European and American Judaism, as well as Israeli history and culture. These advanced courses are found in the Religious Studies and Jewish Studies programs and in the Departments of History and Comparative Literature. It may be used to complete the major or minor requirements in Religious Studies and Jewish Studies. The class fulfills the humanities requirement for non majors.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 115 (GH;US) (HIST 115, J ST 115) American Jewish History and Culture (3)** Examination of the history, culture, social tensions, and contributions of Jews and Judaism in America.

**RL ST (HIST/J ST) 115 American Jewish History and Culture (3)**  
(GH;US)

Throughout American history, Jewish presence on American soil has compelled Americans to re-think the meaning of religious and ethnic diversity. As one of the earliest non-Christian immigrant populations, American Jews struggled to explain how they could nonetheless fit into American cultural, political and social life. At the same time, many Jews have been concerned with their own survival as a distinctive group, unwilling to cede those practices, behaviors or traits that designate them as a people apart from other Americans. This course is about how these two seemingly contradictory goals—to integrate into America and to remain distinctive from other Americans—shaped the history and experience of Jews in the United States and influenced the way Americans think about diversity and pluralism.

The student of American-Jewish history must be attuned to the multiple ways that Jewishness has been defined: as a race, a religion, a nationality, and an ethnicity. In this course, far from choosing just one of these designations, we will explore Jewish life from many different angles. Topics to be considered include religious reform, immigrant experience, political activism, popular culture, and struggles over community authority. Readings focus on a number of primary texts, including memoirs, novels, films and philosophical essays. Secondary books and articles will also help deepen students' understanding of trends in American-Jewish history and awaken them to diverse interpretations of history. Students will be encouraged to engage actively and critically with the texts by writing short reading responses, longer essays, and participating in classroom discussion and presentations, all of which will serve as the basis for their evaluation.

This course complements offerings in Religious Studies, Jewish Studies and History. It provides a foundation for an already existing upper-level seminar in American Judaism (listed in Jewish Studies and Religious Studies). In addition, the course strengthens the History department's offerings in American history, serving as a basis for students interested in immigration, ethnicity and religious history. Students who are interested in modern Jewish history will also find this course a worthwhile addition to their program of study, since, unlike other courses, it deals primarily with the story of Jewish life in the United States.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 116 (GH;IL) Muslims in America (3)** This course is a study of Muslims from multiple racial, cultural, and national perspectives; it explores what it means to be a Muslim in America.

**RL ST 116 Muslims in America (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is a study of Muslims in the United States. It examines the multiple racial, cultural, and national groups that comprise this diverse community; we will question what it means to be a Muslim in America. It traces the trajectory of this seventh century faith as a transplanted faith in the New World. The course interrogates Islam in America starting with the historical record of the surviving Muslims that came to the shores of the Americas as African slaves and their enduring efforts to remain Muslims. Next, we examine African American Islam in its myriad formations. The influx of immigrants in the 1960s from the Arab Muslim world, Africa and Asia, including Central Asia became the second historical chronicle of Islam in America. This inquiry examines the narratives of each wave of Islam as a cultural and religious force in the development of Muslim identity in America. The course will examine how Muslim populations during each of these divergent waves confronted American pluralism, diversity and democracy. The course examines the transformation of the Islamic tradition from its origins in the Arabian peninsula to the shores of North America, including questions of authority, the growing salience of American Muslim women's conception of gender jihad, the struggle of Muslim trans gender community to gain acceptance, institution building, and the efforts to develop an American Muslim identity. The course will also examine the musical genre of rap music with special reference to the second generation of Muslim. We will also examine the role of Islam in American prisons. The course will examine how the Islamic tradition has been adapted to the American cultural milieu and how Muslim culture is also influencing America. The course will examine how Islam and Muslim populations have been conceptualized in America before and after 9/11.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 120 (GH) (CAMS 120, J ST 120) New Testament (3)** Introduction to the history, literature, and religion of early Christianity in its Jewish-Hellenistic setting.

**RL ST (CAMS/J ST) 120 New Testament (3)**  
(GH)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course introduces the student to the New Testament (NT), the principal religious text of Christians. As such, it is one of the most significant and most studied texts in human history. Written in Greek between approximately 55 C.E. and 110 C. E. the New Testament consists of 27 individual books, each written by a separate author (c, authors), that were later assembled into the "New Testament." Because of the growth of Christianity, the NT has influenced every aspect of our world-to name only a few: history, politics, economics, literature, philosophy, ethics, medicine, science, the arts (music, architecture, the visual arts), gender roles, theater and drama, law, psychology, and sociology. After introducing the student to the academic study of religion and the "historical-critical method," our study begins by examining the materials from which the NT's text is reconstructed, and the period in which the NT was authored. This includes exploring other parallel phenomena (such as miraculous hearings, resurrections, and virgin births) in contemporaneous Graeco-Roman religions. After this background is in place, the course turns to an examination of the gospels and their interrelationships, the pictures of Jesus presented (and their relationship to first-century B.C.E. Judaism), variations among Christian understandings of Jesus reflected in the NT and other contemporaneous Christian writings (he was a man, an angel, a lesser divinity), Paul and his life and writings, and the emergence of Christianity from Judaism as a distinct, new, apocalyptic religion. Along the way, we examine the manuscript tradition of the NT, changes that have been made to its text, and different interpretations of certain passages in the NT. We also examine the historical-critical tools scholars use to date and sequence passages in the NT (form, redaction, literary, and historical criticism, for example), for one can correlate the evolution of early Christian theology with the evolution of the NT's text.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 120H (GH) (CAMS 120H, J ST 120H) New Testament (3)** Introduction to the history, literature, and religion of early Christianity in its Jewish-Hellenistic setting.

**New Testament (3)**

General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 121** Jesus of Nazareth (3) An historical critical examination of the life and message of Jesus of Nazareth.

**Jesus of Nazareth (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 122** (GH;IL) (CAMS 122, J ST 122) Apocalypse and Beyond (3) This course surveys apocalyptic literature and apocalyptic movements from the ancient Near East to the modern world.

**RL ST (CAMS/J ST) 122 Apocalypse and Beyond (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course offers a scholarly survey of apocalyptic literature and apocalyptic imagination about the end of the world, from its beginnings in the ancient Near East and the Bible to some examples from the modern world. The course will cover three areas: 1) the ancient literary genre of apocalypse in the Near East; 2) apocalyptic writings in the Jewish and Christian traditions (especially the books of Daniel and Revelation in the Bible, and the Qumran Dead Sea Scrolls), as well as within Islam, which generated Western apocalyptic thinking throughout the ages; and 3) some historical examples and discussion of the sociological underpinnings of apocalyptic groups in the medieval to modern periods. Additional attention will be paid to the impact that apocalyptic worldviews have had on the secular world, especially in the fine arts and cinema.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Other Cultures and Humanities  
 Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 123** (GH;IL) (CAMS 123, J ST 123) Ancient Monotheisms: Judaism, Christianity, Islam (3) Examines the origins and early development of the three major monotheisms of ancient Near East: Judaism, Christianity, and Islam.

**RL ST (J ST/CAMS) 123 Ancient Monotheisms: Judaism, Christianity, Islam (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines the origins and early development of the three major monotheistic religions: Judaism, Christianity, and Islam. These three related religious traditions originate in the Near East and all center around a belief in the existence of one single god (monotheism).

The aim of the course is to describe and compare core events, major beliefs, practices, and significant historical trends in each monotheistic tradition from their respective beginnings to around 750 C.E. The course begins with the origins of Judaism, the first religion in the Near East to be monotheistic. It then examines how Christianity branched out of Judaism in ancient Palestine, as well as how Islam emerged in Arabia in the 7th century C.E. within a historical context rich in Jewish and Christian influences.

All three religions share basic beliefs about the nature of deity, the role of the written word in revelation, and prophets as messengers. Equal emphasis will be placed on these commonalities and on the major tenets and practices that differentiate these three religions.

General Education: GH

Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 124** (GH;US;IL) (CAMS 124, J ST 124) Early and Medieval Christianity (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the second through the fifteenth century.

**RL ST (CAMS/J ST) 124 Early and Medieval Christianity (3)**  
**(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course traces the development of one of the world's "Big 5" religions from the death of its founder (about the year 30 C. E.) down to the middle ages. It focuses on significant trends, controversies, personalities, and turning points. These are not just diverse in terms of chronological breadth, but are also spread geographically from the eastern end of the Roman Empire (the border with Persia) to northern Europe. Attention is given to the various manifestations of Christianity (Judaic, Hellenistic, Latin), and the linkage between local patterns (culture, history and predispositions) and how these shaped the sort of Christianity that took root in particular areas. Students typically will be evaluated on four "pop" quizzes, a midterm and a final exam. The course can be used towards a major or minor in Religious Studies, Classics and Ancient Mediterranean Studies, and Jewish Studies and used to fulfill 3 credits in the Humanities for non-majors.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 125W** (GH) Modern Christianity (3) Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the sixteenth century to the present.

**Modern Christianity (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 130** (GH) The Ethics of Western Religion (3) History of theological-social ethics of the Judaeo-Christian tradition.

**The Ethics of Western Religion (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 131** (GH) (PHIL 132) Introduction to Bioethics (3) Studies questions of ethics in relation to biotechnology research and implementation, genetic engineering, medicine, animal and human rights.

**RL ST 131 (PHIL 132) Introduction to Bioethics (3)**  
**(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course, as other 100-level Religious Studies Program and Philosophy courses, is intended for Liberal Arts majors and others likely to take Religious Studies and Philosophy courses rather than for Religious Studies majors. This course will provide a critical survey of key concepts, problems, and figures in the short history of bioethics and in contemporary studies and possible future directions. The course will develop the student's analytical and critical skills through study of different views on the nature of life and what experimentation with life-forms morally entails. The course will examine the increasingly techno-scientific definition of the nature of life and the human condition and evaluate such arguments and positions of practice in regard to opposing views of life as inherently sacred. It will investigate the extent and breadth of moral arguments in regard to differing life forms and consider the rights of humans and non-human animals. Students will be graded on participation, case study analyses, a group presentation, and a final paper. PHIL 132/RL ST 131 satisfies the GH requirement and it may be used to fulfill major and/or minor requirements in Philosophy and Religious Studies.



General Education: GH  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 132W** Sects and Cults (3) The origins, beliefs, and practices of new or dissenting religious groups and their relationship to the dominant religious culture.

### **Sects and Cults (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 134** (GH;IL) (CAMS 134, J ST 134) Archaeology of Biblical Israel (3) Archaeology of Biblical Israel from 1200 B.C.E. to c. 640 C.E.; relationship between archaeological and textual evidence.

### **RL ST (CAMS/J ST) 134 Archaeology of Biblical Israel (3) (GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Ancient Israel and the Levant, a region that included present-day Israel, Jordan, Palestine, Lebanon, and southern Syria, traditionally served as the land bridge and crossroads that connected the great empires of Mesopotamia and Egypt. Its strategic geographic location has ensured its significance throughout history. Many different cultures and peoples have influenced and controlled this region resulting in a very multi-cultural past reflecting the history of the entire Ancient Near East. This is the background to the origins of the Israelites at the end of the second millennium B.C.E., the birth of the Hebrew Bible, and the emergence of Judaism, Christianity and Islam. This course will focus on Biblical Israel in the southern Levant from the emergence of Ancient Israel (ca. 1200 BCE) through the Second Temple and Roman periods concluding with the development of the region as the "Holy Land" for Jews, Christians and Moslems. Students will examine the emergence of Israel; the arrival and settlement of the Philistines; state formation and the period of the United and Divided Monarchies; the fall of Israel and Judah to the Assyrians and Babylonians; the return from exile during the Persian period; Hellenism and the influence of the Roman world on Palestine; the reemergence of Judah during the Second Temple period; the destruction of the Second Temple and emergence of Rabbinic Judaism; Palestine and its role as the "Holy Land" to Jews, Christians and Moslems. The course grade will be based on active participation (attendance, discussion sessions, group presentations and individual oral presentations), one midterm exam and one paper. This course fulfills three credits of the General Education or the B.A. humanities requirement and the GI requirement. For majors in Classics and Ancient Mediterranean Studies, the course fulfills the requirement of three credits in Near Eastern literature and language, civilization, or archaeology; and for those in the Classics and Ancient Mediterranean Studies ancient Mediterranean archaeology option it fulfills the three credits of archaeology course work requirement. The course fulfills three of the nine credit requirement for courses in RL ST 100-299 for the Religious Studies major, and Jewish Studies major's requirement for three credits of course work. CAMS/J ST/RL ST 134 GH may be used to fulfill the requirements for 12 credits of course work at any level towards a Classics and Ancient Mediterranean Studies minor.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 137** (GH;US;IL) (WMNST 137, J ST 137) Women and Religion (3) Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.

### **RL ST (J ST/WMNST) 137 Women and Religion (3) (GH;US;IL)**

Women and Religion examines the historical and contemporary role of women in society and in religion, how those roles are shaped by religious doctrines around leadership, ritual, language, and the valuation of women's experience and history, and the diversity of women's voices speaking to these issues.

An historical inquiry begins with a review of early goddess-based religion and an examination of gender roles promoted in selected creation narratives, including those from Genesis. Additional biblical and non-canonical texts are studied for their various characterizations of woman, the influence of marital status, and her place in the public and private spheres. Historical debates about women consider what roles women played in leadership structures, in religious ceremonies and in

the creation of a theological tradition as well as the places women created for themselves outside "official" institutional churches or the formalities of worship.

We study prominent women in biblical history, the early church, the medieval past, and in modern American history. What are their stories and what noteworthy contributions did they make in the history of religion? What do we know of their lives and thought?

Furthermore, the course addresses contemporary issues of importance to women and how those issues are resolved from the multiple perspectives within Judaism and Christianity. Such issues may include dating, marriage, family and divorce; spousal and gender relations; reproductive rights; homosexuality; sexual violence toward women; work outside the home; and religious leadership and inclusion.

Finally, the course examines women's diverse understandings of the ways of being religious. Women are not a homogeneous group and are responding in a multitude of ways to the decisions they face about staying within or working outside established institutions. We consider their choices, from redefining and recreating new traditions and rituals, both within and outside formal worship settings, to returning to goddess worship and other innovations inspired by the most recent feminist movement.

All topics are discussed in light of the different beliefs and understandings across the movements within Judaism as well as within Roman Catholicism and the many Protestant denominations. In addition, the diversity of scholarly interpretation is emphasized, including that offered by feminist theologians and the breadth of women's experience arising from factors of race, ethnicity, sexual orientation, and class and educational background.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Fall 2012  
Prerequisite: third-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 140Y (GH;US) (AM ST 140Y) Religion in American Life and Thought (3)** The function, contributions, tensions, and perspectives of religion in American culture.

### **Religion in American Life and Thought (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 145 (GH;US;IL) (AF AM 145) African American Religions and Spirituality (3)** History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.

### **RL ST(AF AM) 145 African American Religions and Spirituality (3) (GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an introduction to African American religion in the U.S. We will investigate the history and significance of the religious dimension of African American life and culture. We will also examine the demographics of race and religious experience. African Americans (I also use the term Black American) have many different religious backgrounds including Protestant, Catholic, Moslem, and others, which are examined in this course. However, since well over 90% of Blacks who have a religious experience and organization are Christian, the history of the Black Christian church and Blacks in the Christian churches in the United States will occupy most of our study. This course will also examine the theological backgrounds of the Black church from the basic Christian documents in the New Testament, to the most widely known Black theologians and the development of "black liberation theology," one of Christian theology's most important contributions. The theology of Martin Luther King, Jr., will be of particular concern.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 145** (GH;US;IL) (AF AM 145) African American Religions and Spirituality (3) History and significance of the religious dimension of the Black American struggle for equality from enslavement to the contemporary period.

**RL ST(AF AM) 145 African American Religions and Spirituality (3)**  
(GH;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an introduction to African American religion in the U.S. We will investigate the history and significance of the religious dimension of African American life and culture. We will also examine the demographics of race and religious experience. African Americans (I also use the term Black American) have many different religious backgrounds including Protestant, Catholic, Moslem, and others, which are examined in this course. However, since well over 90% of Blacks who have a religious experience and organization are Christian, the history of the Black Christian church and Blacks in the Christian churches in the United States will occupy most of our study. This course will also examine the theological backgrounds of the Black church from the basic Christian documents in the New Testament, to the most widely known Black theologians and the development of "black liberation theology," one of Christian theology's most important contributions. The theology of Martin Luther King, Jr., will be of particular concern.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 146** (GH;US) (AF AM 146) The Life and Thought of Martin Luther King, Jr. (3) A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.

**RL ST (AAA S) 146 The Life and Thought of Martin Luther King Jr. (3)**  
(GH;US)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course attempts to provide an accurate description of the life and thought of Martin Luther King, Jr., an historical summary of the civil rights movement and an understanding of nonviolent means of social change. The students degree of achievement will be assessed by means of short-answer and essay examinations (not to exceed three in number) and a research project. Each of these will be equal in weight. This course will count in the supporting courses category of the major and minors in African/African American studies. It also will fulfill additional courses credits in the Religious Studies Program. It may also fulfill GH and US requirements for non majors.

General Education: GH

Diversity: US

Bachelor of Arts: Humanities

Effective: Spring 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 147** (GH;US) (AF AM 147) The Life and Thought of Malcolm X (3) The life of Malcolm X/EI Hajj Malik EI Shabazz (1925-1965) and his social, political, economic, and moral thought.

**RL ST (AAA S) 147 The Life and Thought of Malcolm X (3)**  
(GH;US)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine in-depth the life, speeches, and thoughts of Malcolm X/EI Hajj Malik EI Shabazz. While the "Autobiography" will be a major source, we will also use other sources to develop an understanding of the philosophy and thought of Malcolm X. We will explore the social, economic, political, cultural, religious, moral, and spiritual context of America in general and of African Americans in particular. We will examine Malcolm X's influence on the period in which he lived and since his assassination. We will compare and contrast his view on issues of race, culture, politics, education, crime, human rights, civil rights, morality, and economics with those of other African American leaders and with the prevailing views of most Americans on those subjects. We will devote a large portion of the course to the examination of the social movements that impacted on Malcolm and those that he influenced. The speeches of Malcolm X and the writings about Malcolm X are instructive and will be utilized along with other documents. Videotapes and audiotapes will also be employed as instructional materials. Students are expected to be ACTIVE participants in the learning/teaching experience. Students are required to participate in class discussions centered on the readings and related topics. There will be a written mid-term examination and a written final examination. Students are expected to complete an individual research project related to the course and write a paper on that research as well as to participate in a collaborative group project of

their choosing on a subject related to the class. This course will count in the supporting courses category of the major and minors in African/African American studies. It also will fulfill credits in the Religious Studies Program. It may also be used to fill GH and US requirements.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 153** (GH;IL) (CAMS 153, J ST 153) Dead Sea Scrolls (3) Examines the discovery, contents, and interpretations of the Dead Sea Scrolls, Jewish texts from approximately 225 B.C.E. to 68 C.E.

**RL ST (CAMS/J ST) 153 Dead Sea Scrolls (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will explore early Judaism through what is known about it from the Dead Sea Scrolls, Jewish documents dating from approximately 225 B.C.E. to 68 C.E. that were discovered in 1947-1956 along the Dead Sea in Jordan (now the West Bank of Palestine). The course will be divided into three parts: 1) a short introduction to Judaism, especially the history of early Judaism, from the writing of the Hebrew Bible (Old Testament) to the Talmud; 2) a discussion of the caves above the Dead Sea and their relationship to the archaeological site called Khirbet Qumran; and 3) a survey of the contents of the 900+ Dead Sea Scrolls and select readings of some of them. These scrolls are primarily of three kinds: "biblical" books (books that came to comprise what is now known as the Hebrew Bible/Old Testament) and their commentaries or translations; "apocryphal" or "pseudepigraphical" books (previously known Jewish writings that never made it into the Hebrew Bible, such as Tobit, Enoch, etc.); and "sectarian" Jewish writings (previously unknown writings that seem to come from a minority Jewish group).

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 160** (GH;IL) (CAMS 160, J ST 160) Sacrifice in Ancient Religions (3) Examines theories of sacrifice and its manifestations in especially the religions of the ancient Mediterranean world and the Near East.

**RL ST (CAMS/J ST) 160 Sacrifice in Ancient Religions (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Sacrifice (from Latin sacer "holy" + facere "to make") is one of the most prominent and troubling aspects of religion, in that it involves making an offering or slaughtering an animal to a deity. Its destruction and violence is often at odds with other rituals and core understandings within a religion, so why is it done and what good does it bring? This course will first examine some competing definitions and theories of sacrifice, and then turn to its manifestations in the ancient societies and religions of Greece, Rome, Egypt, Mesopotamia, Israel/Palestine (along with its neighbors Hatti and Phoenicia), as well as some examples from outside the Mediterranean world and the Near East, such as Mesoamerica or Vedic religion.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 165** (IL) (ARAB 165, HIST 165) Introduction to Islamic Civilization (3) Islamic history, culture, religious life c.600-1500 C.E.

**Introduction to Islamic Civilization (3)**

General Education: None  
Diversity: IL

Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 181 (IL) (ASIA 181)** Introduction to the Religions of China and Japan (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.

**RL ST (ASIA) 181 Introduction to the Religions of China and Japan (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is an introductory survey of the historical, philosophical, and cultural dimensions of the major religious traditions in China and Japan. The course delineates and highlights the organic view of the universe and the hierarchical ordering of society in East Asia. It traces the evolution of the major traditions—Confucianism, Daoism, Buddhism in China, as well as Shinto, Buddhism and Confucianism in Japan—by examining their ideas of humanity and nature, morality and society, and metaphysics and ethics. It also reveals the interaction and interrelation between ideology, politics and society, and their impact on the development of the major religious traditions in history. A major focus is the relation between the “little tradition”—the popular and folk practices and beliefs of esoteric Daoism, devotional Buddhism, and fertility-cult Shinto—and the “great tradition”—the elite and literate doctrines and precepts of Confucianism, philosophical Daoism, and monastic Buddhism. The course also devotes some attention to the influence of religion on various facets of culture, such as medicine, science, literature, art and food.

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 181 (IL) (ASIA 181)** Introduction to the Religions of China and Japan (3) A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto.

**RL ST (ASIA) 181 Introduction to the Religions of China and Japan (3)  
(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is an introductory survey of the historical, philosophical, and cultural dimensions of the major religious traditions in China and Japan. The course delineates and highlights the organic view of the universe and the hierarchical ordering of society in East Asia. It traces the evolution of the major traditions—Confucianism, Daoism, Buddhism in China, as well as Shinto, Buddhism and Confucianism in Japan—by examining their ideas of humanity and nature, morality and society, and metaphysics and ethics. It also reveals the interaction and interrelation between ideology, politics and society, and their impact on the development of the major religious traditions in history. A major focus is the relation between the “little tradition”—the popular and folk practices and beliefs of esoteric Daoism, devotional Buddhism, and fertility-cult Shinto—and the “great tradition”—the elite and literate doctrines and precepts of Confucianism, philosophical Daoism, and monastic Buddhism. The course also devotes some attention to the influence of religion on various facets of culture, such as medicine, science, literature, art and food.

General Education: None  
Diversity: IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 197H** (ANTH 197H, HIST 197H) Religions and Society in Russia (1) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Religions and Society in Russia (1)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 235** (US;IL) (HIST 235, J ST 235) The Church and the Jews (3) Examination of the relationship between Western church and the Jews from the First Century to Enlightenment.

### **RL ST 235 The Church and the Jews (3) (US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will examine a key aspect of western history - the complex relationship between the Western (Roman Catholic) Church and the Jews, from the first century to the present. We will analyze ideas and policies regarding Jews as expressed in different realms, from theology and canon law to church art and popular preaching. We will also examine how changing conditions led to striking changes in church attitudes and policy, and how church policy was often at odds with popular sentiments about Jews.

The course will be designed to enable students to grasp the fluidity of attitudes over time, and the interplay of economic, social, political, and theological factors; to grasp of essential elements of a key area of conflict in western culture; and to develop their skills in the close reading of primary texts

Students will be evaluated on the basis of three quizzes and a final exam. The course would offer a chance for students to develop perspectives previously gained in a number of courses, particularly HIST 001 and 002 (The Western Heritage), RL ST 001 (Introduction to World Religions), RL ST 101 (Comparative Religion), HIST 107 (Medieval Europe), HIST 407 (Early Medieval Society), and J ST 010 (Jewish Civilization). It would complement such courses as HIST 108 (The Crusades), HIST 408 (Church and State in the High Middle Ages), HIST 412 (Intellectual History of the Middle Ages), HIST 414 (Renaissance and Reformation), J ST 111 (Early Judaism), J ST 110 (Hebrew Bible), RL ST 120 (New Testament), and RL ST 124 (Early and Medieval Christianity).

The course will count for 3 credits toward: a) the 22 credits required for the minor in Jewish Studies, b) the 33 credits required for the major in Jewish Studies, c) the 30 credits required for the major in Religious Studies, and d) the 36 credits required for the History major.

General Education: None

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 280** (GH;IL) (WMNST 280, J ST 280) WOMEN AND JUDAISM (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.

### **RL ST (J ST;WMNST) 280 Women and Judaism (3) (GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Women and Judaism will introduce students to the roles and views of women as seen in the Jewish tradition. Because Judaism is not monolithic, these views will vary even within time periods and even among rabbis. The goal of this course, therefore, is not for students to leave the class with one idea of what a Jewish woman is or one idea of what issues are at stake for women in Judaism. Rather, the goal is for students to understand the complex relationship women have to this religion. This course will also explore the views of Jewish women and the issues that concern them in contemporary society. Objectives include the following: students will begin to understand the stereotypes that influence how Western society views Jewish women, and as a result, how they have come to view themselves. They will be asked to examine the many important roles that Jewish women have played both in their religion and the society at large. They will be asked to examine how the Jewish tradition both helped and hindered women to play these roles. They will see how Jewish women contributed to the development of their own religion and to the larger culture in which they live. They will develop a deeper appreciation for the complexity of the relationship between women and religion. Topics include images of Jewish women in the Bible and the media, women and Jewish views of sexuality, Jewish ethics, Judaism and feminism, and women and Jewish theology. Students will be evaluated by examination, writing ability (several short papers or one larger paper), and group presentations.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 1996  
 Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 400** Theories of Religion (3) Comparative and interdisciplinary study of two or more systematic theories of religion: anthropological, psychological, sociological, philosophical/theological.

#### **Theories of Religion (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 1983  
 Prerequisite: 6 credits in religious studies or seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 405 (IL) (J ST 405)** Ancient Jewish Traditions and Modern Food Movements (3) Jewish laws, customs and attitudes with regard to food production, agricultural policy and eating from biblical to modern times.

#### **RL ST (J ST) 405 Ancient Jewish Traditions and Modern Food Movements (3) (IL)**

This course examines Jewish laws, customs and attitudes with regard to food production, agricultural policy and eating from biblical to modern times. These tenets of the Jewish tradition presently underwrite modern movements concerned with land use and food sustainability, as well as ethical behaviors in food production. The goal of the course is to understand how Jewish tradition can inform and contribute to improvements in the modern food system.

The starting point is the ancient world of the Israelites,. Students will study agrarian interpretations of the Hebrew Bible as well as extra-biblical sources and archaeological data. The biblical attitudes toward food, eating, and agricultural practices are then traced into the post-biblical period and rabbinic periods. The course then jumps ahead to the present day, to shed light on a number of modern Jewish agricultural and food initiatives concerned with issues such as healthy land use, sustainability, and justice in food production and distribution. These movements proceed from various

interpretations of Jewish law and custom, and illustrate how some modern Jewish attitudes toward food and eating are responsible for reimagining, and in some cases reinvigorating, biblical ideas and practices.

At the conclusion of this course, students will be able to identify and understand the historical and theological significance of diet and eating practices of ancient Israelites and will understand the development of Jewish food laws and practices in the post-exilic and early rabbinic eras. Students will be able to evaluate the extent to which ancient Jewish thought has influenced modern Jewish attitudes and actions regarding food and social responsibility, and will be able to envision the ways in which Jewish tradition, both ancient and modern, can contribute to current progress and future improvement in our systems of food production, distribution and consumption. While a wide variety of derivative topics will be discussed, this course is particularly appropriate for students pursuing programs of study dealing with the biblical world, the development of early Judaism, Jewish ethics, and/or modern Jewish thought, as well as those studying agriculture and food systems who are interested in how Jewish tradition addresses these universal concerns.

Evaluation will be based on weekly 1-2 page written responses to the assigned readings (45%), a midterm exam (15%), final project (30%), participation (10%). No special facilities are required. Course will be offered each term, enrollment limited to 20 students.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 407Y (IL) (HIST 409Y, J ST 409Y) European Anti-Semitism from Antiquity to the Present (3)** Surveys the history of anti-Semitism in Europe from antiquity through the Middle Ages to the present.

**RL ST 407Y (HIST 409Y, J ST 409Y) European Anti-Semitism from Antiquity to the Present (3) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course analyzes major episodes in the history of anti-Semitism and tries to clarify the Motives and dynamics involved. It seeks to understand what these episodes have in common, and what is unique in each case. Is there a single universal, eternal anti-Semitism? Or are there rather anti-Semitisms", each belonging to a unique historical context? Is there a single continuous line of development in anti-Semitism? What is the relationship of a particular anti-Semitism to the national culture in which it originates?

We will be reading the major original texts of anti-Semitism from Roman and ancient writers, through early Christian texts and medieval Christian Blood Libels against the Jews, documents of the Spanish expulsion, Lutheran tracts, Voltaire's essays, German philosophical texts from Kant to Marx, Wagner's racial essays, the Protocols of Zion, and documents of Nazi anti-Semitism by Hitler and Streicher.

The major part of the grade will depend on a short research paper, which will be presented in various drafts, so that the final version represents the culmination of discussion and constructive criticism and advice. This course is a parallel course to J ST/HIST 416 (Zionist History) and J ST/HIST 118 (Modern Jewish History). This course will count toward the Religious Studies, Jewish Studies, and History majors and minors in the 400-level category.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 408 (US;IL) Hindu Studies (3)** Special topics in Hindu studies.

**RL ST 408 Hindu Studies (3) (US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Religious Studies 408 (Hindu Studies) provides a critical examination of selected philosophical and devotional systems within the diversity of Hindu religious traditions within the context of south Asian history. This course explores the nature of Hindu Darshana or outlook through textual analysis of some of its primary scriptures (in translation), as well as (in English) works by more recent Hindu thinkers and philosophers. Students will trace the emergence of ethical, moral, and social ideals of Hinduism through a detailed study of its belief systems as they had evolved through the ages. For example, a typical research project may involve writing a series of two papers, one focusing on the religious roots of non-violence in heterodox ideals of Jainism of fifth century B.C.E, and a second one, exploring the modern relevance of non-violence in political discourse as represented in the writings of Mohandas Gandhi. Students will be evaluated on a mid-term and a final exam, two research papers and debates. RL ST 408 serves as one of the courses fulfilling the 6 credits requirement of the 400-level course for a Religious Studies major. It also fulfills the United States Cultures and International Cultures designation.

General Education: None

Diversity: US;IL



Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005  
Prerequisite: 3 credits in religious studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 409 (US;IL) Buddhist Studies (3)** Special topics in Buddhist studies.

### **Buddhist Studies (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Spring 2006  
Prerequisite: 3 credits in religious studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 410 (US;IL) (HIST 410, J ST 410) Jews in the Medieval World (3)** Trends in medieval Jewish society under Islam and Western Christendom.

### **RL ST 410 (Jews in the Medieval World (3)) (US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The Jews lived in widely scattered communities under Christian and Islamic rule in the medieval period. This course will examine how Jews adapted the traditions they developed in Palestine and Babylonia in the early centuries C.E. to the new conditions they encountered in Europe and the Mediterranean region from the ninth to the fifteenth centuries. It will focus on the general problem of how traditional societies survive in rapidly changing circumstances, particularly when their members are a minority population. The course will aim at developing students' skills in comparative analysis as they compare the adaptive strategies of Jews in different cultural spheres (the Franco-German region versus Spain, for example). They will also be asked to compare the different polemical stances Jews adopted vis-a-vis Christianity, on the one hand, and Islam, on the other. They will be encouraged to understand the ways in which Jews internalized certain aspects of the majority culture and rejected others. It is hoped that they will come to see how deeply Jewish history was intertwined with medieval Christian and Islamic history, despite inter-religious hostilities and the frequent need for Jews to defend against majority aggression.

The course will be linked to most of the courses taught in the field of Jewish Studies, especially J ST 111 (Early Judaism), J ST 114 (Modern Judaism), and J ST 118 (Modern Jewish History from 1492). It will also be linked to offerings in Religious Studies: RL ST 001 (Introduction to World Religions), RL ST 101 (Comparative Religion), RL ST 107 (Introduction to Islam), RL ST 124 (Early and Medieval Christianity), and RL ST 165 (Introduction to Islamic Civilization). Further, it would complement HIST 001 and 002 (The Western Heritage), HIST 107 (Medieval Europe), HIST 108 (The Crusades), HIST 407 (Early Medieval Society), HIST 408 (Church and State in the High Middle Ages), HIST 412 (Intellectual History of the Middle Ages), and HIST 471W (Classical Islamic Civilization, 600-1258).

The course will count for 3 credits toward: a) the 22 credits required for the minor in Jewish Studies, b) the 33 credits required for the major in Jewish Studies, c) the 30 credits required for the major in Religious Studies, and d) the 36 credits required for the History major.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 411 (US;IL) (J ST 411) Jewish Studies (3)** Study of the life and thought of a particular period or movement in the history of Judaism.

### **Jewish Studies (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006  
Prerequisite: 3 credits in religious studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 412 (J ST 412) American Judaism (3)** The development of Jewish religion and culture in America from the colonial era to the present.

### **American Judaism (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 1999  
 Prerequisite: HEBR 010 or J ST 010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 420** Major Christian Thinkers (3) Systematic inquiry into the religious thought of one or more Christian thinkers, such as Paul, Augustine, Luther, Calvin, Kierkegaard, or Tillich.

### **Major Christian Thinkers (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 1983  
 Prerequisite: 3 credits in religious studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 422** (AM ST 422) Religion and American Culture (3 per semester/maximum of 6) Selected topics, problems, or historical movements in American religion. Relation between religion and American culture.

### **Religion and American Culture (3 per semester/maximum of 6)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 424H** (HIST 424H, J ST 424H) Monotheism and the Birth of the West (3) The birth of monotheism and its relation to social organization, the idea of individuality, and science.

### **RL ST (J ST/HIST) 424H (PHIL 434H) Monotheism and the Birth of the West (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Learn about the formation of Western culture, while learning to analyze the texts and other evidence about its formation from a critical, rather than naive, viewpoint. The idea of monotheism probably arose very early, and was even briefly implemented as a state cultic policy in Egypt in the 14th century BCE. Why, then, did it take another seven centuries to become widespread--appearing in ancient Judah, Babylon, and Ionia almost simultaneously? To answer this question, the course focuses on several developments, through the medium of primary texts and archaeology: the shift from a state hinterland based in extensive agriculture and household processing to one organized for intensive agriculture and industrial processing the rise of recognizably modern science; the promotion of individuation and an international elite culture in the context of Assyrian and Babylonian imperial ambitions; the development of the historical and archaeological arts in the context of archaizing in order to reinvent local traditions; and the socialization of monotheism and of democracy. Students will be evaluated on their discussion of the textual evidence as well as on reports in class and a final paper. This is the sole honors course treating the birth of the West. It expands on knowledge acquired in courses listed as prerequisites and in RL ST/CAMS/J ST 012; CAMS 044; ANTH/CAMS 133; CAMS/PHIL 200; HIST 100; HIST/J ST 102; and PHIL 200 and enriches the students experience in CAMS 400, CAMS 440, and CAMS 480; HIST 402; J ST 411; PHIL 437; PHIL 453, and PHIL 461. This course counts toward the major in Jewish Studies, History, Religious Studies and toward the minor in Jewish Studies and Religious Studies.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Fall 2012  
 Prerequisite: RL ST 004RL ST 102RL ST 110 or RL ST 120

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 440Y** (US;IL) The Orthodox Christian Tradition (3) History, culture, and beliefs of the Eastern Orthodox religious tradition with special reference to Russia.

### **The Orthodox Christian Tradition (3)**

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2011  
 Prerequisite: RL ST 004RL ST 124RL ST 125RUS 100 or RUS 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 461** (US;IL) (SOC 461) Sociology of Religion (3) Contemporary religion in the global perspectives: beliefs, structure, and function of major religious traditions, denominations, and cults.

### **Sociology of Religion (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2013

Prerequisite: 3 credits of sociology or religious studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 471Y** (IL) (HIST 471Y) Classical Islamic Civilization, 600-1258 (3) Pre-Islamic Arabia; Muhammad; Arab conquest; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.

### **Classical Islamic Civilization, 600-1258 (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 478** (J ST 478) Ethics After the Holocaust (3) Explores the philosophical effects of the Holocaust for thinking about the primary question: Is ethics possible?

### **RL ST (J ST/PHIL) 478 Ethics After the Holocaust (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an examination of ethical theories before the Holocaust and how those theories have failed, philosophically and empirically. Course topics will include the history of ethical theory, the nature and problem of evil, goodness and suffering, witnessing and testimony, and the promise of an ethics. This course provides students with philosophical approaches to the issues that emerge out of the events of the Holocaust. The course will help students expand their knowledge of the events of the Holocaust through a philosophical approach that does not merely expose them to what happened, but asks them to think about the implications of what happened: most specifically, how do we understand ethical life, if it cannot stop or confront evil? This course provides students with the philosophical approaches to the issues that emerge out of the events of the Holocaust. It will encourage them to think critically, write effectively and express their thoughts logically. Student evaluation will be based on weekly reaction papers, group presentations, and a final seminar paper. This course covers material in the history of philosophy, contemporary philosophy, and writings pertaining to the Holocaust in various forms (historical, literary documentary, and so forth). It provides links to other major areas in the history of philosophy, postmodernism, ethics, philosophy of religion, and Jewish history.

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 2012

Prerequisite: one course in Jewish Studies or Philosophy

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 483** (IL) Zen Buddhism (3) The development and current state of Zen Buddhist thought and practice.

### **Zen Buddhism (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Spring 2006

Prerequisite: HIST 172HIST 173HIST 174HIST 175PHIL 111RL ST 003RL ST 104 orRL ST 181

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None

Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 495** Internship (1-18) Supervised off-campus, non-group instruction, including field experience, practica, or internships.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2004  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RL ST 499** (IL) Foreign Study--Religious Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Study--Religious Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Risk Management (R M)**

**R M 100** Real Estate Practice (3) Study of real estate to enable individuals to make successful transactions and decisions. May not be used to satisfy Smeal College baccalaureate degree requirements.

**Real Estate Practice (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: not available to students who have taken R M 303

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 301** Risk and Decisions (3) Introduction to decision-making under uncertainty. Mathematical probability and statistics, decision theory and game theory will be studied.

**Risk and Decisions (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: B A 301 or FIN 301; MATH 110 or MATH 140; STAT 200 or SCM 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**R M 302** Risk and Insurance (3) Introduction to the principles and methods of handling business and personal risks; emphasis on insurance techniques.

**Risk and Insurance (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 303** Real Estate Fundamentals (3) Introduction to urban real estate; economic forces affecting property rights; real estate markets and finance; land-use analysis; government policies.

**Real Estate Fundamentals (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: 4th semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 320W** Risk Management and Insurance (3) Goals and methods of risk management. Commercial insurance and alternative risk transfer (ART) methods in addition to the characteristics of insurance markets and intermediaries used by risk managers.

**Risk Management and Insurance (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: R M 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 330W** Real Estate Risk Analysis (3) Risk and value associated with real estate decision making, which includes purchasing, leasing renovation, financing, and investing.

**Real Estate Risk Analysis (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: R M 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 395** Internship (1-3) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 401** Fundamentals of Private Pensions (3) Analysis of pension regulation, funding, vesting, retirement annuities under insured and self-insured plans, actuarial cost analysis, plan termination insurance.

**Fundamentals of Private Pensions (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: R M 302 or R M 320W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 405** Corporate Risk Management (3) Risk management for firms and organizations; loss control, risk transfer, and loss financing alternatives; Corporate employee benefit program design and financing.

**Corporate Risk Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: R M 302 or R M 320W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 410** Compound Interest and Annuities (3) Compound interest and annuity functions; equations of value; determination of yield rates; construction of tables.

**Compound Interest and Annuities (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: Prerequisite or concurrent: R M 301; MATH 414 or STAT 414

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 411** Actuarial Mathematics I (3) A study of the mathematical theory of life contingencies; single-life functions and their applications.

**Actuarial Mathematics I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: R M 410; STAT 414 or MATH 414

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 412** Actuarial Mathematics II (3) Joint-life and survivor-life functions, population life tables, and multiple decrement theory, with applications to disability and retirement problems.

**Actuarial Mathematics II (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: R M 411

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 415** Modeling for Actuarial Science (3) Modeling for Actuarial Science, including models of interest rates, used to price liabilities, and models of stock prices and options used to price Employee Options and Cash Balance Accounts.

**Modeling for Actuarial Science (3)**

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: R M 410

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 420** Property and Casualty Insurance (3) Actuarial methods and concepts used to develop manual rates for property and casualty insurance.

**Property and Casualty Insurance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: R M 320W or R M 330W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 424** (B LAW 424) Real Estate Law (3) Analysis of contemporary law applicable to various types of ownership interests and rights, methods of transferring ownership, and use of real property.

**Real Estate Law (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: B LAW 341 or B LAW 243

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 425** (B LAW 425) Business and Environmental Regulation (3) Examines the interplay between environmental regulation and commercial activities, including property interests.

**Business and Environmental Regulation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: B LAW 341 or B LAW 243

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 430** Life and Health Insurance (3) Industrial organization of the US life-health insurance industry; economic issues related to organizational structure, operational functions, and the supply and demand for life-health products.

**Life and Health Insurance (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: R M 302 or R M 320W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 450** Contemporary Issues in Real Estate Markets (3) Historical performance, land use issues, market valuation, real estate development, public policy issues.

**Contemporary Issues in Real Estate Markets (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: R M 303 or R M 330W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 460** (FIN 460) Real Estate Financial Analysis (3) Debt and equity financing capital structure, "creative financing," risk analysis, corporate asset management.

**Real Estate Financial Analysis (3)**



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: FIN 305W or R M 303 or R M 330W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 470** (FIN 470) Real Estate and Capital Markets (3) Analysis of publicly-traded real estate of both the equity, (REITs) and debt (MBSs) sides. The course also provides international perspectives.

### **Real Estate and Capital Markets (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: FIN 305W or R M 303 or R M 330W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 480** (I B 480) International Real Estate Markets (3) International perspectives on real estate as property, evaluation of land use regulations, and differences in real estate markets across countries.

### **International Real Estate Markets (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: R M 303 or R M 330W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 494H** Honors Research Project (1-6) Supervised honor student research projects identified on an individual or small-group basis.

### **Honors Research Project (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 496** Independent Studies (1-18) Creative Projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 497A** Real Estate Case Competition (2) A Smeal team competes to analyze, create investment strategy and present power point presentation at collegiate competition.

**Real Estate Case Competition (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 497B** (B LAW 497A) Entertainment Law (3) Provide students with an understanding of fundamental issues in entertainment law that arise in a business context.

**Entertainment Law (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 497B** (B LAW 497A) Entertainment Law (3) Provide students with an understanding of fundamental issues in entertainment law that arise in a business context.

**Entertainment Law (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 497C** Risk, Strategy, and Decision Making (3) An overview of the growth of the financial industry in the U.S. economy and the globalization of financial markets. It will look at the role of government, consumers, mortgage companies, the rating agencies and the banking sector in the creation of the housing bubble. The impact of certain financial derivatives on the global economy in general and specific countries in particular will be explored. Through readings of key players involved in the crisis, it will identify risk management issues that are important to this case and look at proposed remedies designed to avoid future problems.

**Risk, Strategy, and Decision Making (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R M 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Romanian (ROM)

**ROM 296** Independent Studies (1-18) Creative projects, includes research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### Independent Studies (1-18)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**ROM 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### Special Topics (1-9)

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Rural Sociology (R SOC)

**R SOC 011** (GS;US) Introductory Rural Sociology (3) Basic sociological concepts applied to rural societal institutions and rural communities; causes and consequences of rural social change.

### R SOC 011 Introductory Rural Sociology (3) (GS;US)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The objectives of the course are (1) to acquaint students with the fundamental concepts, principles and research methods of rural sociology; and (2) to assist students in applying these concepts and principles to gain an understanding of rural societal institutions and the forces leading to social change in rural America and globally. Lectures and readings are designed to encourage students to examine their assumptions and understanding of the structure and functioning of rural communities, the forces leading to rural social change, and the likely course of these changes in the future. A major objective is to challenge students to critically analyze rural society and rural social institutions from a sociological perspective. Understanding the changing nature of rural society in an increasingly urbanizing and integrated world is a key consideration. The course meets requirements in the Agricultural Business Management and Environmental and Renewable Resource Economics Majors, as well as one General Education requirement.

General Education: GS  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R SOC 134** (GN) (AGECO 134) Sustainable Agriculture Science and Policy (3) The science, socio-economics, and politics of managing food and fiber production systems. Sustainability implications of current practices and future options.

### R SOC (AGECO) 134 Sustainable Agriculture Science and Policy (3) (GN)

This general education course will teach students about the soil, plant, animal, and ecological sciences; technologies, and policies of our agroecosystems in an integrated manner. We will examine agricultural resources and options available for sustainable management of resources for food production. Students will have many opportunities to examine and critically analyze scientific knowledge and policies during discussions, writing exercises, and role playing to develop analytical and communication skills. There are no prerequisites for this course. This course can link with other courses that address how research and efforts in agricultural sciences, ecology, policy, economics, philosophy, education, and

communication influence sustainable management of natural resources for the present and the future.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R SOC 296** Independent Studies (1-18) Creative projects, including research and design which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R SOC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R SOC 327 (S T S 327)** Natural Resources, Science, Ethics, and Society (3) The purpose of this course is to enable students to become competent critical thinkers about the state of natural resources through greater understanding of scientific, discourse formation, and the ethical dimensions of natural resources issues.

#### **R SOC (S T S) 327 Natural Resources, Science, Ethics, and Society (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The purpose of this course is to enable students to become competent critical thinkers about the state of natural resources through a greater understanding of scientific, discourse formation, and the ethical dimensions of natural resources issues. This course first examines scientific descriptions of the state of natural resources relying particularly on global assessments of biodiversity, forests, water, land degradation, ecosystem health, and other natural resources. The course then examines critically scientific descriptions of the state of these resources using social discourse analyses of how society frames issues relating to the state of natural resources. Discourse frames that are expressly identified include discourses that assume global environmental catastrophes will be triggered if limits to the use of natural resources are exceeded, economic discourses that often assume that there are no limits to the use of natural resources, sustainable development discourses that attempt to integrate economic development and environmental protection, and other dominant discourses. Each discourse will be shown to foreground certain variables and background other issues. The course also examines ethical issues about the use of natural resources that are often excluded from public discussion of natural resource management and are often hidden in discourse that frame these issues. These ethical issues include questions of distributive justice, limits of economic evaluations of the value of natural resources, questions of procedural justice, and others. The course ends with an evaluation of these ethical issues.

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2013 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R SOC 417 (CED 417)** Power, Conflict, and Community Decision Making (3) Impact of institutions on human interdependence and behavior, the structure of power, and community decision making and public policy.

#### **R SOC (CED) 417 Power, Conflict, and Community Decision Making (3)**

Community decision making and public choice is the result of collective action among individuals. The purpose of this course is to develop frameworks for analyzing conflict, power, and public choice. This course enables students to

understand how culture and institutions affect the nature of human interdependence and behavior, shape patterns of influence and power, and impact community decision making and policy.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013 Ending: Summer 2014  
 Prerequisite: R SOC 011 or SOC 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R SOC 420 (US;IL) (CED 420, WMNST 420) Women in Developing Countries (3)** Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

**R SOC (WMNST/CEDEV) 420 Women in Developing Countries (3)  
 (US;IL)**

The purpose of this course is to increase understanding of women's lives in third world countries at the time when women's movements, grassroots activism, and feminism are on the rise in the third world. The course examines third world women's challenges to Western definitions of feminism and traces the theoretical shifts and practical changes related to women's issues in African, Asia, and Latin America. Students participate in studying specific community and agricultural development projects. Topics include feminist critiques of development and post-colonialism, ecofeminism and environment, sexuality and reproduction, global restructuring, and grassroots community activism. Students will be evaluated based on class participation, two written critiques of readings, a final course project, a mid-term, and a final exam. This course will add diversity to both the rural sociology, community and economic development, and women's studies curricula. International, gender, ethnic, and racial issues are core components of the course. The course will be an elective for women's studies majors and minors and will serve graduate students in rural sociology, women's studies, and other fields.

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: None  
 Effective: Summer 2013 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R SOC 452 Rural Organization (3)** Social organization and change in rural communities; use of sociological principles in analysis of rural problems and rural development.

**R SOC (CEDEV) 452 Rural Organization (3)**

This course combines an introduction to the social theories of communities with real-life examples of applications to understanding community problems and concerns. The focus is on the special circumstances facing, small towns and rural communities, but the concepts are applicable in all communities, from urban neighborhoods to suburbs. Topics covered include local community in a global economy, power and decision-making, the role of governments and other social institutions, development of community and the importance of building social infrastructure as well as economic and physical infrastructure, multi community collaboration and building, sustainable communities. Those taking the class will gain experience in conducting a case study of a small Pennsylvania community, build skills in working in a team, and gain understanding of the complexity of factors that influence community (and your own) well-being. If your future career involves operating within a community setting, this course can increase your knowledge of that setting and how to function within it. And, even if you don't plan on working with communities in your job, you will be living in a community. This course can help you to understand the ways that you can contribute to improving your own quality of life by becoming involved in your community. Grades in this class are based on the community case study report, take home, mid-term and final exams, short team exercises, and class participation. Graduate students taking the course also are required to write reaction papers to three different topics during the semester.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013 Ending: Fall 2014  
 Prerequisite: 6 credits in rural sociology sociology or psychology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R SOC 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R SOC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**R SOC 499** (IL) Foreign Study--Rural Sociology (1-12) Study in selected countries of rural social institutions and current rural sociological problems.

**Foreign Study--Rural Sociology (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Russian (RUS)**

**RUS 001** Elementary Russian I (4) Audio-lingual approach to basic Russian; writing. Students who have received high school credit for two or more years of Russian may not schedule this course for credit, without the permission of the department.

**Elementary Russian I (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 1985

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 002** Elementary Russian II (4) Audio-lingual approach to basic Russian continued; writing. Students who have received high school credit for four years of Russian may not schedule this course for credit, without the permission of the department.

**Elementary Russian II (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 1985  
Prerequisite: RUS 001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 003** Intermediate Russian (4) Emphasis on reading unsimplified texts; composition; grammatical analysis.

**Intermediate Russian (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language  
Effective: Fall 1985  
Prerequisite: RUS 002

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 051** Elementary Intensive Russian for Graduate Students I (3) Intensive introduction to Russian: first half of graduate

intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

### **RUS 051 Elementary Intensive Russian for Graduate Students I (3)**

This is the first in a series of three courses designed to give students an intensive introduction to Russian. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the Russian vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 052 Elementary Intensive Russian for Graduate Students II (3)** Intensive introduction to Russian: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

### **RUS 052 Elementary Intensive Russian for Graduate Students II (3)**

This is the second in a series of three courses designed to give students an intensive introduction to Russian. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Russian vocabulary. Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: RUS 051 and graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 053 Intermediate Intensive Russian for Graduate Students (3)** Continued intensive study of Russian at the intermediate level: reading, writing, speaking, listening, cultural contexts.

### **RUS 053 Intermediate Intensive Russian for Graduate Students (3)**

This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Russian. Continued intensive study of Russian at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: RUS 052 or equivalent and graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 083S (GH;US;IL) First-Year Seminar in Russian (3)** Russia's cultural past and present.

**RUS 083S First-Year Seminar in Russian (3)**  
(GH;FYS;US;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Russia, the world's largest country stretching over eleven time zones in Europe and Asia, is currently undergoing a dramatic transformation. For the past hundred years, Russia has served as a laboratory of gigantic dimensions as various social ideals were implemented with unprecedented radicalism. At the same time, Russia's great writers raised "ultimate questions" about social justice, the existence of God, and the meaning of human life with an unparalleled acuity and intensity.

This course surveys Russia's cultural past and present. Although it touches on aspects of Soviet culture, the main emphasis lies on what some people would call the "real Russian culture," eclipsed for seventy years under the Communist regime and now about to be resurrected. At this crucial juncture in the history of Russia, the notion of a "real" culture remains highly problematic and controversial. The course surveys the various attitudes of Russian thinkers and authors toward the question of national identity and national destiny. Examples of Russian high culture (philosophy, literature, art, music) and the Russian religious faith (Orthodoxy) are discussed alongside with daily life in post-communist Russia. Special emphasis will be placed on the in-depth study of a few seminal works of Russian literature. The course also includes some Russian films. A knowledge of Russian is not required. Each section of this course will be limited to twenty students who will be instructed by an experienced professor. Questions and discussion are strongly encouraged.

This course can be used to fulfill the General Education or Bachelor of Arts Humanities requirement, the United States and

International Cultures requirement, and the first-year seminar requirement. A series of short papers will train students in the skills of information gathering and written expression. The course grade will be based on oral participation and on the grade for the papers, which will be evaluated both for content and writing. This course will help to prepare students for a variety of additional courses in the fields of literature and Russian/East European area studies. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 099 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 100 (GH;IL) Russian Culture and Civilization (3)** The Russian people from the tenth century to present times; their literature, arts, music, science, and philosophy. In English.

**RUS 100 Russian Culture and Civilization (3)  
(GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course surveys Russia's cultural past and present. Although it touches on aspects of Soviet culture, the main emphasis lies on what some people would call the "real Russian culture," eclipsed for seventy years under the Communist regime and now about to be resurrected. At this crucial juncture in the history of Russia, the notion of a "real" culture remains highly problematic and controversial. The course surveys the various attitudes of Russian thinkers and authors towards the question of national identity and national destiny. Examples of Russian high culture (philosophy, literature, art, music) and the Russian religious faith (Orthodoxy) are discussed alongside with daily life in post-communist Russia. The course also includes some Russian films. A knowledge of Russian is not required. The course format consists of lectures, slide, video and audio presentations. Questions and discussion are strongly encouraged.

At the end of the course, students will be familiar with the problems that Russia faces at the present time, they will have a summary knowledge of Russian history and geography, and will be acquainted with representative achievements of Russian high culture.

Students are evaluated on the basis of four multiple choice exams, of which the lowest grade will be dropped (60% of course grade), and a research paper graded for both content and language (40% of course grade). Extra credit can be earned through class presentations, offering an opportunity for practice in public speaking, and by writing reaction papers about lectures offered by the Penn State Center for Russian and East European Studies, or appropriate extracurricular events (e.g., concerts of Russian music, exhibits of Russian art, etc.)

As a General Education course, Russian 100 incorporates the following four elements of active learning: international competence (which is inherent in the subject matter), information gathering and analysis, active use of writing, and dialogue pertaining to social behavior, community, and scholarly conduct, which will be provoked by the reading material. Russian literature and culture is famous for raising the "big questions." Vast in scope, unabashedly ambitious, nineteenth-century Russian literature aspired to nothing less than to teach its readers how to live. The failed communist experiment in the twentieth century raises poignant questions about the desirability and pitfalls of utopian social engineering. Students have to write a 10-page research paper on a topic previously agreed upon with the instructor. For this paper, they have to explore both electronic and print resources. The paper is graded for content, structure, and language. As an option for extra credit, students can volunteer a class presentation on their research topic. Recent presentations included, for example, a lecture on Russian rock music with sound samples and pictures downloaded from the internet, and a presentation on Russian composers of the futurist avant-garde.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**RUS 110** (GH;IL) Russian Folklore (3) Study of bylina, lyrical and historical songs, folktales, drama, ceremonial poetry, chants, charms, proverbs, and mythology of Russia. In English.

**RUS 110 Russian Folklore (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Russian 110 is a general survey of Russian folklore for English-speaking students. It concerns itself not with the aristocratic and intelligentsia culture of Russia, but with the rites of passage, agricultural ceremonies, beliefs, legends, folktales, and epics of the Russian peasants, most of whom were illiterate. Students are evaluated on the basis of three examinations (half short-answer and half essay), a legend collecting project, and a final. The legend project requires students to collect a legend or tale (usually from the American tradition), evaluate it against folklore indices, present it to the other students, and write it up. Russian 110 may be counted toward the major in Russian Translation (BS). It may also be used to fulfill General Education Humanities and International/Intercultural Competency requirements. This course will be offered once a year with 50 seats per offering.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 141Y** (IL) Russian Literature in English Translation: 1800-1870 (3) Pushkin, Lermontov, Gogol, the critics, Turgenev, Dostoevsky, Tolstoy. Writing assignments will serve as a major way of exploring subject matter.

**Russian Literature in English Translation: 1800-1870 (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 142Y** (IL) Russian Literature in English Translation: 1870 to Present (3) Dostoevsky, Tolstoy, Chekhov, Gorky, symbolists, selected Soviet authors. Writing assignments will serve as a major way of exploring subject matter.

**Russian Literature in English Translation: 1870 to Present (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 143** (GH;IL) (GER 143) The Culture of Stalinism and Nazism (3) The culture of Stalinist Russia and Nazi Germany in comparative perspective.

**RUS (GER) 143 The Culture of Stalinism and Nazism (3)**  
(GH;IL)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The regimes of Stalin and Hitler have decisively shaped the 20th-century historical experience not only in Russia and Germany, but in much of Europe and the world at large. At the same time, there is no consensus about how to classify these systems, whether the term "totalitarian" is appropriate to describe them, and whether Stalinist Russia and Nazi Germany are essentially similar or essentially different historical phenomena.

Espousing a comparative perspective, this course will explore the culture produced by both Stalinist Russia and Nazi Germany. The main focus will be on works of literature, but it will also take into account the visual arts, architecture, music, film, and popular culture. The classics of Stalinist socialist realism and Nazi propaganda, such as Nikolai Ostrovskii's *How the Steel Was Tempered* or Leni Riefenstahl's *Triumph of the Will* will be analyzed both as political statements and works of art. The course will also include a reading of authors who attempted to create artistic representations of life in Stalinist and Nazi societies, such as Yevgeny Zamyatin, Alexander Solzhenitsyn, Bertolt Brecht, or George Orwell.

The course will be team-taught by faculty of the Department of Germanic and Slavic Languages and Literatures. Additional faculty from the Departments of Spanish and Italian and Comparative Literature (Japanese) may be invited to lecture about the totalitarian culture in their respective societies, and members from the Department of History may be

invited to lecture about the historical context of Stalinism and Nazism. A knowledge of Russian or German is not required, as class lectures and discussions as well as all reading assignments will be in English.

At the end of the course, students will have a summary knowledge of the cultural history of Stalinist Russia and Nazi Germany and of the aesthetic and philosophical issues raised by these cultures. Requirements for the course will include a research paper. The course grade will be based on the average score on the mid-term and final exam (using definitions and essay questions) and the grade for the paper, which will be evaluated both for content and style.

This course will fulfill the General Education and Diversity requirements. It complements courses on the politics and history of totalitarian regimes offered by the departments of Political Science and History, and it will provide a background for students wishing to study Holocaust literature or Soviet Literature.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 196** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 200** (IL) Intermediate Russian II (4) A continuation of intermediate Russian with a comprehensive grammar review and focus on reading, writing and speaking Russian.

#### **Intermediate Russian II (4)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: RUS 003 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 204** (IL) Intermediate Russian II (4) Intensive practice of Russian reading, writing, listening and speaking; review of Russian grammar.

#### **RUS 204 Intermediate Russian II (4)**

**(IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This course will provide intensive Russian language training at the intermediate level, stressing the four skills of reading, writing, listening, and speaking. Together with its companion course, Russian 214, the course will provide a complete review of Russian grammar. It will include a discussion of the case system, verbal morphology, and aspect in conjunction with conversation practice and writing assignments. Russian 204 will be a required course for Russian majors. It can be taken before or after Russian 214 (which will also be required).

Grading will be based on regular written tests and a final exam which will include an oral component. Students will be encouraged to use the new language training equipment available at Sparks Building.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Summer 2011

Prerequisite: RUS 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 214 (IL)** Intermediate Russian III (4) Intensive practice of Russian reading, writing, listening and speaking; review of Russian grammar.

**RUS 214 Intermediate Russian III (4)**  
**(IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will provide intensive Russian language training at the intermediate level, stressing the four skills of reading, writing, listening, and speaking. Together with its companion course, Russian 204, the course will provide a complete review of Russian grammar. It will include a discussion of participles and verbal adverbs, verbs of motion, and problems of Russian syntax in conjunction with conversation practice and writing assignments.

Russian 214 will be a required course for Russian majors. It can be taken before or after Russian 204 (which will also be required).

Grading will be based on regular written tests and a final exam that will include an oral component.

Students will be encouraged to use the new language training equipment available at Sparks Building.

General Education: None

Diversity: IL

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Summer 2011

Prerequisite: RUS 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 296** Independent Studies (1-18) Creative projects, including research design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 304** (IL) Readings in Russian III (3) Extensive reading of contemporary Russian texts, including articles from Soviet press and short fiction.

**Readings in Russian III (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2006  
Prerequisite: 6 credits of Russian at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 305** (IL) Advanced Russian Conversation (3) Discussion and role-playing based on real-life situations and current events; supervised by a native speaker.

**RUS 305 Advanced Russian Conversation (3)  
(IL)**

RUS 305 is the basic conversation course for the B.A. in Russian. It centers around discussion and role-playing on such topics as ordering plane tickets, traveling on Russian trains, Russian restaurants, cooking at home, traveling to and from work, summer jobs and career plans, sports and other forms of leisure, movies and television, and interviews with famous people. Some current events are also discussed, e.g. Russian attitudes towards the Romanovs, the AIDS crisis, the economic situation in Russia.

Evaluation is based on individual and group oral presentations, regular quizzes, and short compositions.

No special facilities are required, but students are encouraged to use the new language training equipment available in Sparks Building.

General Education: None  
Diversity: IL  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Spring 2006  
Prerequisite: RUS 204/RUS 214

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 360** (IL) Advanced Russian Grammar (3) Russian morphology and syntax on an advanced level.

**Advanced Russian Grammar (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Spring 2006  
Prerequisite: 6 credits of Russian at the 200 level

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Humanities  
 Effective: Summer 1996  
 Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 399 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 400 (IL)** Senior Seminar in Russian Culture (3) Senior seminar devoted to topics in Russian culture; conducted in Russian.

**RUS 400 Senior Seminar in Russian Culture (3) (IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

RUS 400 will be the senior seminar for Russian majors. Building on linguistic and cultural material covered in the second and third levels of study toward the Russian major, it will add depth and sophistication to the students' understanding of basic concepts in Russian culture and improve their ability to discuss and write about these concepts in Russian.

The materials for RUS 400 will be arranged chronologically and will cover the "big themes" of Russian culture: e.g., the legacy of Kievan Rus, the cultural/historical preconditions for the "Third Rome" theory, the rift between the people and the upper classes following Peter the Great, Westernizers versus Slavophiles, the Bolshevik Revolution, the Stalinist terror. Readings will be selected from a wide variety of genres and will reflect a diversity of linguistic styles: e.g., passages from the ancient chronicles, folk legends, memoirs and autobiography, letters, historical and literary texts. Some films will be used.

Students will be evaluated on the basis of frequent quizzes and oral participation. In addition, each student will write a short research paper and present it in Russian to the class. These papers will help round out the presentation of central themes in Russian culture. Research papers might cover such topics as Andrey Rublev, religious sectarianism, peasant beliefs about nature, the biography of Lenin.

Russian 400 will be a required course for both the B.A. and B.S. in Russian. Students must complete RUS 204, 214, and 304 prior to RUS 400.

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2006  
 Prerequisite: RUS 204RUS 214RUS 304

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 401** Advanced Russian A (3) Advanced Russian grammar, conversation, and composition.

**RUS 401 Advanced Russian A (3)**

RUS 401 is an advanced Russian language course that covers topics in grammar in the context of the spoken and written language. It is taught in Russian and serves as a complement to RUS 402. Emphasis will be placed on verbal aspect, reflexive and passive verbs, un-prefixed verbs of motion, relative pronouns, and participles. Classes will include group and individual oral presentations, analyses of written texts, and assignments using the internet to access recent oral and written materials in Russian that treat current events and illustrate particular linguistic usage. Students will also view one feature film.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2012  
 Prerequisite: RUS 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**RUS 402** Advanced Russian B (3) Advanced Russian grammar, conversation, and composition.

**RUS 402 Advanced Russian B (3)**

RUS 402 is an advanced Russian language course that covers topics in grammar in the context of the spoken and written language. It is taught in Russian and functions as a complement to RUS 401. Emphasis will be placed on prefixed verbs of motion, use of the imperative, comparative and superlative forms, and complex and conditional sentences in Russian. Classes will include group and individual oral presentations, analyses of written texts, and assignments using the internet to access recent oral and written materials that treat current events and illustrate particular linguistic usage. Students will also watch one feature film during class time.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: RUS 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 403** Advanced Russian Conversation and Composition (3) A conversation and composition course that includes situational topics as well as complex academic discourse.

**RUS 403 Advanced Russian Conversation and Composition (3)  
(IL)**

The Russian 403 course is intended primarily to develop students' oral and composition skills in Russian. The main focus of the course will be on speaking and understanding spoken Russian and writing on a variety of themes. The students will engage in different oral activities on a number of topics from the everyday life of an average Russian person to more complex discussions of current events, culture, history, the arts, and politics. The students will be expected to do a good deal of talking in Russian both with classmates and with the instructor in class, and prepare oral and written assignments at home. The written exercises will enhance the students' ability to perform well on the class assignments. The course will include a practical review and practice of some of the most complex and troublesome aspects of Russian grammar. There will be a considerable emphasis on vocabulary, word-formation for vocabulary building, and communicative strategies in the course. One of the goals of the course is also to increase the students' understanding of Russian culture and the Russian way of life based on Russia's history and current reality.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: RUS 200 or permission of program  
Concurrent: RUS 400 RUS 401 RUS 402 RUS 405 RUS 412

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 404** Advanced Reading and Composition (3) Advanced Russian Reading and Composition.

**RUS 404 Advanced Reading and Composition (3)**

RUS 404 focuses on reading and writing in Russian. Some time is spent on reading strategies, methods of building a working Russian vocabulary, sentence structure, and word order. Reading materials are at the advanced level and for the most part treat the history of the Russian Revolution and Civil War, the Stalinist era and the Thaw. Literary selections complement the historical readings and include works of Blok, Akhmatova, Zoshchenko, Bulgakov and Solzhenitsyn.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: RUS 401 RUS 402 or RUS 403

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 405** (IL) Seminar in Russian Literature (3-6 per semester/maximum of 6) Readings in classical Russian literature; Topics vary.

**RUS 405 Seminar in Russian Literature (3 per semester/maximum of 6)  
(IL)**

In no other culture has literature attained the centrality it enjoyed in nineteenth- and twentieth-century Russia. Political, social and historical constraints propelled Russian writers into figures of witness, prophecy and moral instruction. Yet far

from being limited to the vast, dark novels of legend, Russian literature offers a great deal of variety, including much humor, lyricism and fantasy. Russian 405 is a senior-level seminar devoted to the in-depth study of selected texts of classical nineteenth- and twentieth-century Russian literature. It presupposes a solid reading knowledge of Russian. The choice of authors and texts will vary from one year to the next. Writers discussed on a regular basis will include such major figures as Alexander Pushkin, Mikhail Lermontov, Nikolai Gogol, Ivan Turgenev, Fyodor Dostoevsky, Lev Tolstoy, Anton Chekhov, as well as selected writers from the Soviet and post-Soviet period.

The thematic emphasis will vary from one year to the next. The focus may be on the oeuvre of a single writer, on the development of a particular genre (e.g., lyric poetry or the short story), on a particular time period (e.g., the so-called "Silver Age" at the beginning of the twentieth century), or a particular theme (e.g., the conflict between liberalism vs. radicalism, the "woman question," the role of religion, Russia vs. the West, Russian "Orientalism," the Communist Revolution and its discontents, etc.).

The literary texts will be read in Russian. They will be analyzed both in their socio-historical context and as aesthetically compelling manifestations of verbal art. Explorative analytical writing and class discussion will be essential means to explore the subject matter.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: RUS 401RUS 402 orRUS 403

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 406 (IL) Russian Film (3) Conversation and Composition based on classical Russian films.**

### **RUS 406 Russian Film (3) (IL)**

Taught in Russian, this course offers an overview of the development of the film industry in the USSR/Russia within its historical context: from the silent classics of the Soviet Golden Age, to the mass entertainment movies of Socialist Realism, the new-wave productions of the cultural thaw of the 60s, the popular genres of the "stagnating" 70s, the liberated films of the glasnost period, and the most recent movies reflecting Russia's difficult economic transition. Russian cinema will be discussed as an index of sociopolitical trends over the years, as well as a medium in its own right. Therefore, attention will be devoted to historical turning points that affected the cultural policies of the Soviet Union, and consequently the styles, themes, and quality of filmmaking. At the same time, the course will consider the film as text, and analyze the feelings it stirs, the moods it evokes, and the ideological message it conveys. To this end, the course will cover the basic elements and techniques of film language (shots, montage, mise en scene, etc.) and the process of visual perception that affects the audience.

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: RUS 401RUS 402 orRUS 403

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 410 (IL) Heritage Russian 1 (3) Introductory course for heritage speakers of limited linguistic proficiency aiming at teaching basic reading, writing, and grammar skills in Russian.**

### **RUS 410 Heritage Russian 1 (3) (IL)**

The course is aimed at "heritage speakers" of Russian, i.e., those who grew up speaking Russian in the family without a full Russian educational and cultural background. It is designed for students who have speaking and comprehension ability in Russian, but have minimum or no exposure to writing and reading. This course teaches basic skills of writing, reading, and grammar. It includes simple original reading material (fairy tales, poems, songs), as well as visual and multimedia material, such as cartoons, advertising, etc.) The course will enhance the students' knowledge and understanding of Russian culture as well as increase their awareness of their own complex cultural identity (Students with reading and limited writing proficiency should consider Heritage Russian II (RUS 411).

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2014

Prerequisite: basic speaking proficiency in Russian; placement test and consent of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 412 (IL) Russian Translation (3 per semester/maximum of 6) Translation from Russian into English of complex texts from the humanities, social sciences, and technical fields.**

**Russian Translation (3 per semester/maximum of 6)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 426 (IL) Dostoevsky (3)** Study of representative works by Dostoevsky in the original Russian.

**Dostoevsky (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 427 (IL) Tolstoy (3)** Study of representative works by Tolstoy in the original Russian.

**Tolstoy (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 460 (IL) Linguistic Analysis of Contemporary Russian (3)** Detailed study of the phonology, morphology, and syntax of Modern Standard Russian and the major dialects.

**Linguistic Analysis of Contemporary Russian (3)**

General Education: None

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

Prerequisite: 9 credits of Russian at the 200 level or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 494H Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.



### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**RUS 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **School Psychology (S PSY)**

**S PSY 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S PSY 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S PSY 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## School of Science, Engineering, and Technology (SSET)

**SSET 295** Internship (1-18) Supervised off-campus, individual training including practical field experiences or internships where written and oral critique of the activity is required.

### **SSET 295 Internship (1-18)**

The objectives of the Penn State Harrisburg, Capital College Internship Program are to:

Attract and retain capable students to pursue their educational and career goals in mathematics, engineering, engineering technology, and the sciences,  
Connect students with professionals who practice engineering, mathematics, technical, and science skills daily,  
Establish mentoring programs to break down the barriers between student learners and practicing professionals,  
Create service learning and internship experiences designed to reinforce classroom learning in technical and theoretical subjects, Retain students in the College and in the region by developing a seamless transition from the academy to the workplace.

The instructional and cooperative arrangements with business and industry will begin early, will be sustained throughout the four-year educational program, and will be supported by strong partnerships linking educational, business, industrial, and the intellectual communities in operative regional networks. Cooperation, collaboration, and a commitment to the future of the profession are essential if the "brain drain" is to be reversed in this region.

Another aspect of the internship program is to assist students in finding career-related, temporary employment opportunities, and to provide support and training for such positions while pursuing their education at Penn State Harrisburg, Capital College.

The Internship Program will be administered by the School of Science, Engineering, and Technology. The staff is versed in handling student/employer relations and handles student orientations, resume/job listing database management, interview schedules, registration, evaluations, and final reports. Students who utilize the Internship Program in any way will be required to register for courses applicable to each program. The course credits may range from one to three depending upon the particular program requirements. The utilization or substitution of internship credits to meet degree requirements is strictly a program decision.

This course requires that students submit a report that is of professional quality, concise, and focused on answering the provided questions. It must be typed in 12-point font and double-spaced. Students will be assigned either an SA (satisfactory) or UN (unsatisfactory) grade based on their reports and employer evaluations. The original report, portfolio, and evaluation forms are due on the last day of instruction for the semester or session. The grading will be based on the following criteria:

20% Internship Plan  
20% Portfolio  
20% Final Report  
40% Employer Evaluation

No special on-campus facilities are required for the course. The course will be offered every semester including the summer session.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003  
Prerequisite: prior approval of the proposed assignment by the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SSET 395** Internship (1-18) Supervised off-campus, individual training including practical field experiences or internships where written and oral critique of the activity is required.

### **SSET 395 Internship (1-18)**

The objectives of the Penn State Harrisburg, Capital College Internship Program are to:

Attract and retain capable students to pursue their educational and career goals in mathematics, engineering, engineering technology, and the sciences,  
Connect students with professionals who practice engineering, mathematics, technical, and science skills daily,  
Establish mentoring programs to break down the barriers between student learners and practicing professionals,  
Create service learning and internship experiences designed to reinforce classroom learning in technical and theoretical subjects, Retain students in the College and in the region by developing a seamless transition from the academy to the workplace.

The instructional and cooperative arrangements with business and industry will begin early, will be sustained throughout the four-year educational program, and will be supported by strong partnerships linking educational, business, industrial, and the intellectual communities in operative regional networks. Cooperation, collaboration, and a commitment to the

future of the profession are essential if the "brain drain" is to be reversed in this region.

Another aspect of the internship program is to assist students in finding career-related, temporary employment opportunities, and to provide support and training for such positions while pursuing their education at Penn State Harrisburg, Capital College.

The Internship Program will be administered by the School of Science, Engineering, and Technology. The staff is versed in handling student/employer relations and handles student orientations, resume/job listing database management, interview schedules, registration, evaluations, and final reports. Students who utilize the Internship Program in any way will be required to register for courses applicable to each program. The course credits may range from one to three depending upon the particular program requirements. The utilization or substitution of internship credits to meet degree requirements is strictly a program decision.

This course requires that students submit a report that is of professional quality, concise, and focused on answering the provided questions. It must be typed in 12-point font and double-spaced. Students will be assigned either an SA (satisfactory) or UN (unsatisfactory) grade based on their reports and employer evaluations. The original report, portfolio, and evaluation forms are due on the last day of instruction for the semester or session. The grading will be based on the following criteria:

- 20% Internship Plan
- 20% Portfolio
- 20% Final Report
- 40% Employer Evaluation

No special on-campus facilities are required for the course. The course will be offered every semester including the summer session.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2003

Prerequisite: prior approval of the proposed assignment by the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SSET 495 Internship (1-18)** Supervised off-campus, individual training including practical field experiences of internships where written and oral critique of the activity is required.

### **SSET 495 Internship (1-18)**

The objectives of the Penn State Harrisburg, Capital College Internship Program are to:

- Attract and retain capable students to pursue their educational and career goals in mathematics, engineering, engineering technology, and the sciences,
- Connect students with professionals who practice engineering, mathematics, technical, and science skills daily,
- Establish mentoring programs to break down the barriers between student learners and practicing professionals,
- Create service learning and internship experiences designed to reinforce classroom learning in technical and theoretical subjects,
- Retain students in the College and in the region by developing a seamless transition from the academy to the workplace.

The instructional and cooperative arrangements with business and industry will begin early, will be sustained throughout the four-year educational program, and will be supported by strong partnerships linking educational, business, industrial, and the intellectual communities in operative regional networks. Cooperation, collaboration, and a commitment to the future of the profession are essential if the "brain drain" is to be reversed in this region.

Another aspect of the internship program is to assist students in finding career-related, temporary employment opportunities, and to provide support and training for such positions while pursuing their education at Penn State Harrisburg, Capital College.

The Internship Program will be administered by the School of Science, Engineering, and Technology. The staff is versed in handling student/employer relations and handles student orientations, resume/job listing database management, interview schedules, registration, evaluations, and final reports. Students who utilize the Internship Program in any way will be required to register for courses applicable to each program. The course credits may range from one to three depending upon the particular program requirements. The utilization or substitution of internship credits to meet degree requirements is strictly a program decision.

This course requires that students submit a report that is of professional quality, concise, and focused on answering the provided questions. It must be typed in 12-point font and double-spaced. Students will be assigned either an SA (satisfactory) or UN (unsatisfactory) grade based on their reports and employer evaluations. The original report, portfolio, and evaluation forms are due on the last day of instruction for the semester or session. The grading will be based on the following criteria:

- 20% Internship Plan
- 20% Portfolio
- 20% Final Report
- 40% Employer Evaluation

No special on-campus facilities are required for the course. The course will be offered every semester including the summer session.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2003  
Prerequisite: prior approval of the proposed assignment by the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Science (SC)

**SC 100** Introduction to Research (1) Introduces essential elements of laboratory safety, laboratory techniques, research ethics, and scientific communication skills. Especially for undergraduate research students.

### **SC 100 Introduction to Research (1)**

The main objective of the course is to prepare students for a fulfilling and successful learning experience in the research laboratory. Students who engage in undergraduate research often continue to project for four to six semesters. This course provides students with the necessary introductory information to the undergraduate research experience so that the entire experience is more satisfying and productive for the students. A corollary goal is to introduce research students to other, like-minded students. Several in-class activities will involve group work combined with an explicit discussion of productive group dynamics. The course will cover four major issues associated with a sustained research project: safety, techniques, ethics, and communication. The course will make students more cognizant of the importance of each of these areas and will provide justification for the importance of each activity in the research enterprise. Students will be evaluated via a series of assignments in which the students reflect on the components of each area and the importance of that area to the continuation of scientific knowledge. Students will be quizzed on safe laboratory practices, usually with a laboratory practical on safety. Students will be assessed on the satisfactory performance common laboratory techniques such as using a pipette, using an analytical balance, using a power source, and proper handling of large equipment like super speed centrifuges. Ethics will be assessed via assignments that require students to contemplate a variety of ethical issues. As part of ethical conduct students will be expected to learn the proper composition of a laboratory notebook. The notebook will provide a segue between ethics and communication skills. Students will examine several recent scientific research articles and discuss the way in which the article is written. They will be assessed on their ability to summarize and critique the article in writing. A book on scientific writing could be assigned for this portion of the course because a student would find use of such a resource as they progress on an independent research project. The laboratory technicians or laboratory managers might assist the faculty member who is teaching the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 101** (AG 100) Job Placement Skills and Strategies (1) Strategies and skills designed to identify career/life goals and implement career decisions.

### **SC (AG) 101 Job Placement Skills and Strategies (1)**

This course focuses on the practical skills that are important for people who are seeking employment as well as introduces you to the variety of career options available to students.

The assignments are designed to take the students through the job search process. The instructor will take the employer's point of view when grading assignments. After successfully completing this course, the student should feel in control of their search for summer job, internship, or full-time position.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 200** (GN) Science in Our World: Certainty and Controversy (3) A science appreciation course, aimed at making non-scientists more informed consumers of science.

### **SC 200 Science in Our World: Certainty and Controversy (3) (GN)**

Science is frequently in the news. That's because it affects our everyday lives, shapes our view of the world and our place in it, and will have a profound impact on our future. This course teaches an appreciation of science and scientific thinking.

It is aimed at making non-scientists more informed consumers of science by improving their ability to distinguish good science from bad science, and science from non-science. The course assumes no background knowledge. It is not for scientists. Teaching is delivered by case studies of controversies within science and/or the public domain, some of which are resolved, some of which are not. The first section of the course illustrates general principles by studying arguments now largely resolved, but which still resonate, such as child health and IQ, smoking, and why the peacock has such a ridiculous tail. The second section focuses on unresolved scientific controversies which might include climate change, personalized genetic medicine, passive smoking, nanotechnology, the scientific evaluation of the healing power of prayer, or deer management in Pennsylvania. The third section evaluates unresolved scientific issues in the contemporary media: why it is in the news, what are the scientists involved actually doing and arguing about, and how is the media handling the science? This will be likely focused on real time analysis of media reaction to a scientific paper published by PSU faculty during the course. The fourth section will discuss paradigm shifts which have occurred during the students' lifetimes, particularly those involving our view of ourselves and our universe, and end by speculating on the paradigm shifts that could occur in the next twenty years. The course will draw on experts from within and outside of PSU. Throughout, the focus is on the nature of the debates, looking at how scientists evaluate problems, and why that can generate controversy within science and beyond science – but at the same time, generate knowledge which profoundly affects our well being and our understanding of ourselves.

General Education: GN  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 201 Medical Professions (1)** Learn about the different medical professions and related subjects.

### **SC 201 Medical Professions (1)**

The purpose of this course is to provide students with general information on the different health professions and various related subjects as potential career options. Many students come to the university with an interest in pursuing a health profession but do not have a clear idea of what kind of work is involved in the particular profession of their choice. Moreover, students often are not aware that there are other health career options available. This one-credit course is targeted to all students that have a general interest in health and science, and may include students in the following majors: premedicine, science, biology, chemistry, biochemistry and molecular biology, forensic science, nursing, kinesiology, nutrition, and biobehavioral health. Some of the professions discussed are: allopathic and osteopathic medicine, physical therapy, occupational therapy, physician assistant, nurse practitioner, dentistry, maxillo-facial surgery, optometry, audiology, genetic counseling, nursing, podiatry, and pharmacy. In addition to describing the professions, time is spent talking about academic preparation for specific professions and the application process for admission to health profession schools. Furthermore, the nature of various health profession training programs are described, as well as how students obtain tuition funds for payment of such programs. One week's topic generally focuses on health profession training outside the United States (e.g., foreign medical schools). This course is structured as a seminar course; all lectures are given by invited speakers. The speakers talk about the profession in general and may give specific information about the particular school they attend or currently work at. Students are encouraged to ask questions about the health careers and also to interact with the speakers after the class, where they might ask specific questions pertaining to their suitability as an applicant. The course will meet in the evenings, for one hour, one day a week, for 15 weeks. The students that enroll in this course receive a satisfactory or unsatisfactory grade based on attendance only (there are no exams, quizzes or written reports). Students may miss up to three classes during the fifteen week session. Therefore, students that attend twelve of the fifteen lectures will receive a satisfactory grade. If a student needs to miss class due to an evening exam, they will need to fill out an Excused Absence Form, which can be obtained from the instructor (no other activities are excusable except for athletic competitions for students in varsity teams).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 210 Sophomore Science Seminar (2)** Covers topics related to success in upper level courses including critical thinking, library resources, reading primary literature, and communication skills.

### **SC 210 Sophomore Science Seminar (2)**

The main objective of this course is to serve as a bridge between the first two years of a science program and the last two years. Sophomore students need to understand that upper-level coursework in the sciences requires higher order cognitive skills as well as an intellectual maturity that enables the student to meet the challenge of upper level coursework. Students also require an ability to access the multitude of scientific information available on the web and in library databases therefore students will be expected to demonstrate their ability to retrieve information. Sophomore students are faced with many exciting possibilities that they should be aware of including undergraduate research and cooperative education. This course will enable students to make more informed decisions about how to best structure their own educational needs while meeting the demands of upper level coursework. Students will be assessed via a variety of methods including participation in discussion, actively seeking information from seminar guest speakers (in the form

of questions), written reports (interview with faculty member, summary of scientific article, synthesis of newspaper reports about recent discoveries, individually selected research topic), and oral presentations (critique of recent science information in newspapers, independent topic, interview with faculty member).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 294** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 295** Science Co-op Work Experience I (1-3) A supervised work experience where the student is employed in a scientific position. To be offered for SA/UN grading.

#### **Science Co-op Work Experience I (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: acceptance into the Eberly College of Science co-op program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1991

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 297B** Seminars for Freshman (1) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Seminars for Freshman (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 297C** Science Pedagogy for Learning Assistants (1-3) Effective facilitation of group work and content discourse requires a working knowledge of research based pedagogical practices as well as an understanding of how students learn. This course provides Learning Assistants with the background to carry out and understand their role in the educational team and how they can influence classroom climate and facilitate group work.

**Science Pedagogy for Learning Assistants (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 297D** Millennium Seminar (0) Weekly Millennium Scholars Program Meetings and seminars.

**Millennium Seminar (0)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 395** Science Co-op Work Experience II (1-3) A supervised work experience where the student is employed in a scientific position. To be offered for SA/UN grading.

**Science Co-op Work Experience II (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: SC 295

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 400** Consequences of Science (1) A series of lecture/discussions in which science faculty members show the social implications of their research specialty.

**Consequences of Science (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Winter 1978

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 401** Basic Science and Disease (1) Clinical aspects of various disease and how basic scientific information contributes towards understanding and treating disease.

**SC 401 Basic Science and Disease (1)**

The purpose of this course is to provide students with some general background on the symptoms, risk factors, prevention, and treatment of various diseases. Along with the clinical aspects of the diseases, we examine how basic scientific research studies contribute information towards helping to understand the mechanisms underlying disease development and control. This one-credit course is targeted to all students that have a general interest in health and science, and may include students in the following majors: premedicine, science, biology, chemistry, biochemistry and molecular biology, forensic science, biobehavioral health nursing, kinesiology and nutrition. Enrollment priority is given to students with fourth semester or above status.

Examples of topics discussed are: Hypertension, Osteoporosis, Infectious Diseases, Asthma, Chronic Obstructive Pulmonary Disease, Cancer, Diabetes, Sickle Cell Anemia/Anemia, Blood Disorders, Hypercoagulability, Coronary Artery Disease, Alcoholism/Alcohol Poisoning, HIV/AIDS, Tuberculosis, Irritable Bowel Syndrome, Hepatitis, Thyroid Disease, Congestive Heart Failure, Parkinson's Disease, and Arthritis

This course is structured as a seminar. Most lectures are powerpoint presentations by invited speakers, which usually will be local physicians sometimes paired with Penn State research faculty. The speakers introduce the disease topic by discussing the basic anatomy and physiology of the system or body part most affected by the disease. (e.g. lungs, heart,

kidneys, etc). Once the foundation is established the pathophysiology is discussed. Risk factors and prevention are also highlighted. One important goal of each seminar is to indicate to students how advances in basic science research can impact the understanding and treatment of disease. Students are encouraged to ask questions after the lecture. The speaker(s) remain afterwards to allow students to ask more specific questions about the disease topic. On occasion, speaker physicians also talk about their medical school training and/or life as a practicing physician. The students that enroll in this course receive a letter grade based on attendance (students must attend 9 out of 10 classes), quizzes and a 2-3 page reaction paper on one of the disease topics. Random short-answer quizzes are sometimes administered at the end of a seminar, testing on information presented during the seminar. Also, reading assignments are sometimes given prior to a seminar, or information handout materials are provided during the seminar. If a student needs to miss class due to an evening exam they need to fill out an Excused Absence Form, which can be obtained from the instructor (no other activities are excusable except for athletic competitions for students in varsity sports).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: 4th semester standing or higher standing plus 3 credits in biology and 3 credits in chemistry

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 402** Science-Related Employment: Corporate Organization, Opportunities, and Expectations (1-3 per semester/maximum of 3) Present undergraduate and graduate students with information and skills necessary for success in science-related job positions available in industry.

**Science-Related Employment: Corporate Organization, Opportunities, and Expectations (1-3 per semester/maximum of 3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: 5th semester standing or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 476** Human Dimensions of Health Care (3) Field experience in five or more medical settings; complementary exposure to the scientific literature; weekly discussions.

**SC 476 Human Dimensions of Health Care (3)**

This course, delivered jointly by Penn State and the local medical community, is designed to provide field experience for students with plans for a future in the health professions. The course is structured around rotations through multiple no less than five medical settings, which may include Community Medicine, Dentistry, Emergency Room, Family Medicine, Hospice Care, Oncology, Optometry, Palliative Care, Pediatrics, Physical Therapy, Senior Services, Wound Care, and other specialties.

The first four weeks consist of an introduction and orientation to the goals each setting. The purpose of these sessions is to acquaint the students with the requirements of the course as well as expectations for the on-site rotations. During this time, the students become familiar with the health care issues associated with each setting through literature specific to particular medical settings. At the end of these sessions the students write a course plan, in which they review the major issues common to each setting, and project how they expect to gain and how they expect to contribute in each setting.

During the next nine weeks, the students rotate through the medical settings, spending two afternoons per week in rotation. Students are scheduled to assignments with one of the medical settings for the afternoon. At these times the students are under direct supervision of the setting's staff. Where feasible, students may also sit in on physicians' staff meetings, attend lectures, or receive other forms of special instruction provided by medical staff. All students will maintain a logbook of activities during the rotations.

Weekly meetings on campus are devoted to reports of experiences by each of the students, discussions based on the questions developed during the orientation period, and resolution of issues which may arise. In this way, students assigned to each rotation inform those students who will later enter that setting.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: 5th semester standing;BIOL 230W andBIOL 240W or equivalent; approval of health sciences committee or coordinator

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 494** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.



**Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 494H** Research Project Courses (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project Courses (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 495** Science Co-op Work Experience III (1-3) A supervised work experience where the student is employed in a scientific position. To be offered for SA/UN grading.

**Science Co-op Work Experience III (1-3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: SC 395

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Science Education (SCIED)**

**SCIED 110** (ENGR 110) Introduction to Engineering for Educators (3) This course focuses on physics content, engineering design principles, and elementary science education pedagogy.

**Introduction to Engineering for Educators (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 140** (RPTM 140) Outdoor School Field Experience (2 per semester/maximum of 6) To provide students with educational leadership skills and teaching opportunities working with children in an outdoor residential camp setting.

**SCIED (RPTM) 140 Outdoor School Field Experience (2 per semester/maximum of 6)**

The Outdoor School Field Experience course allows students to observe, learn, and apply leadership techniques and teaching methodologies in an experiential education program that occurs off campus. This field-based experience provides students with numerous opportunities to practice and refine their leadership and teaching skills through active participation in one week of Outdoor School Field Experience, a residential outdoor/environmental education program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: Students must apply for and be accepted into the Outdoor School Field Experience.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 297B** (EARTH 297B) Fundamental of Climate Science (3) Address the meaning, variability and change of climate over time as a result of natural and man-made processes. Course is geared toward elementary ed majors but could be appropriate for EMS students interested in reform-based science education.

#### **Fundamental of Climate Science (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 410** Using Technology to Enhance Science Teaching (3) This course explores contemporary practice and research associated with applications of technology to enhance science learning and teaching.

#### **SCIED 410 Using Technology to Enhance Science Teaching (3)**

The primary emphasis of this course is to explore current research and practice associated with using technology tools to enhance the teaching and learning of science. Through participation in the course, students will have the opportunity to:

- \* investigate a variety of technology tools with specific applications in supporting student learning in science (e.g., web-based resources, simulations, tutorials, graphing software, concept mapping programs, hypermedia authoring tools, etc.) and document abilities to use these tools;

- \* incorporate technology tools into science instruction (e.g., making observations, designing and conducting investigations, interpreting and reporting results, etc.) in ways that enhance teaching and learning;

- \* evaluate technology tools within the context of their applications to supporting teaching and learning science;
- \* participate in electronic discussions of central considerations associated with enhancing science teaching with technology; and

- \* author a hypermedia tool that supports science teaching and learning (and incorporates a variety of media).

In addition, students will design and conduct an individualized project targeted at meeting these needs as science teachers and/or graduate students in science education.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2000

Prerequisite: admission to one of the science teaching options in SECED

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 411 Teaching Secondary Science I (3)** Introduction to teaching secondary school science, including curriculum, learning theory, media, evaluation as they relate to student progress.

**Teaching Secondary Science I (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1994

Prerequisite: C I 295 ; appropriate courses for certification option and approval of department

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 412 Teaching Secondary Science II (3)** Implementation of science instruction using a variety of modern approaches.

**SCIED 412 Teaching Secondary Science II (3)**

SCIED 412 is the third of three sequenced methods courses for secondary science teachers. In SCIED 412 prospective science teachers practice and develop skills in planning, presenting, and assessing effective science learning and teaching for students in middle and high school grades. The course incorporates theory and practice associated with science learning and teaching in school classroom settings. As in SCIED 410 and 411, emphasis will be on becoming a professional science teacher. Goals include: developing the knowledge, skills, and dispositions that encourage reflective practice, collaborative action, and lifelong inquiry into teaching and learning.

Students will develop an understanding of learning theory, and the approaches that diverse individuals take to construct knowledge; becoming competent in the use of science content and inquiry processes and the various materials that can help in the planning instruction relevant to learners' needs; developing skills in instructional, communication, management, and assessment strategies that contribute to planning meaningful science lessons for middle or high school level students, and will become competent in selecting and integrating appropriate technological tools into instruction.

Finally, students will become aware of major issues facing science education today and consider the implications of those issues for teaching. Additionally, the focus on technology initiated in SCIED 410 and continued in SCIED 411 will be extended in SCIED 412. Students will engage in teaching and learning science using appropriate state-of-the-art technology applications. A variety of software tools will be explored including, but not limited to, probeware, spreadsheets and graphing packages, on-line collaborative inquiry-based projects, and models and simulations. Students will apply their knowledge of technology tools acquired in SCIED 410 to classroom settings. Students will teach a technology-enhanced science lesson in a mentored environment, i.e., small group peer teaching, and strive to integrate technology in their practicum classroom.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: SCIED 410SCIED 411

Concurrent: C I 412W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 455 Field Natural History for Teachers (3)** Ecologically oriented field study course to provide teachers with basic knowledge of natural science resources in school environments.

**Field Natural History for Teachers (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Winter 1978

Prerequisite: 3 credits in biological science

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 457 Environmental Science Education (3)** Philosophy, techniques, and skills for teaching environmental science, including curriculum development, fieldwork, and the use of appropriate technologies.

**SCIED 457 Environmental Science Education (3)**

This course provides an introduction to teaching environmental science to children. Although our emphasis is school-based instruction in the middle and secondary sciences, the course is also appropriate for grade K-6 teachers and teachers of other environmentally related subjects (e.g., social studies, agriculture), as well as educators who plan to work in nonformal educational settings such as nature centers and museums. The course builds students' knowledge in the philosophy, methods, and skills of environmental education; engages students in environmental curriculum analysis and development; and provides hands-on training in classroom-based and field-based environmental investigations. Training and practice with appropriate environmental technologies is included, including CBLS, GPS, and computer software.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2003

Prerequisite: 3 credits of calculus 9 credits of sciences 400-level teaching methods course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 458** Teaching Science in the Elementary School (3) Interpreting children's science experiences and guiding development of their scientific concepts; a briefing of science content material and its use.

### **SCIED 458 Teaching Science in the Elementary School (3)**

SCIED 458 is designed to support teacher candidates in developing their own reflective practice in science teaching for young learners. Candidates in this course engage in a series of experiences that move them from their own understanding of engagement in science, to understanding children's engagement in science, and finally towards methods of designing science instruction for young learners. Central to this work is a focus on reflective practice; expert teachers reflect on their own teaching practices. During this course, candidates learn to be critical of their own learning, instructional design, and teaching. Candidates use this to revise their practice as they grow as science teachers. The course activities, assignments, readings, and placement experiences offer multiple opportunities for candidates to learn essential knowledge and practices to support children's curiosity about the world.

Course assignments and in-class experiences are designed to help teacher candidates understand the importance of engaging their future students in a strongly integrated focus on science content and practice. This encompasses both how scientists work (the practice of doing science and building our knowledge of the world) and how children learn the skills and practices of doing science. Helping children understand the practices of science is of equal importance as helping them learn the content of science.

To start understanding ways of supporting children in learning to do science in age-appropriate ways, teacher candidates in this course contrast their understanding and experiences with those of children. Assignments are designed to help facilitate exploration of the links between understanding children's prior knowledge and beliefs, using knowledge of how people learn, and making pedagogical choices to move children towards specific content and practice goals. Candidates consider the role of differentiated instruction and methods of assessment in science teaching.

Finally, the course examines methods of adapting science curriculum using knowledge of children and specified learning goals. Teacher candidates bring together what they have learned about the practices of science, social constructivist instructional methods, and assessment to think critically about how to support elementary students learning science across time.

SCIED 458 is a part of a block of courses in a PSU teacher education program that is unified by a basic set of principles and a field experience component.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: LL ED 400LL ED 401LL ED 402 three credits each in biological earth and physical sciences

Concurrent: C I 495A OR C I 495B ; MTHED 420 SS ED 430W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 470** Selected Studies in Science Education (1-6) Intensive work on particular issues, trends, or developments in science education for elementary and secondary school teachers.

### **Selected Studies in Science Education (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Winter 1978

Prerequisite: Instructional I certification and teaching experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 496A** Teaching Science to Children in Informal Settings (1.5) Independent Study for TESLA students.

### **Teaching Science to Children in Informal Settings (1.5)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCIED 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Science, Engineering, and Technology (SE&T)**

**SE&T 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Science, Technology, and Society (S T S)**

**S T S 047** (SOC 047) Wilderness, Technology, and Society (3) Impact of developments in science, literature, and art on changing attitudes toward nature; consequences for conservation, preservation, environmental ethics.

### **Wilderness, Technology, and Society (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1991

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 055 (GN) (AERSP 055) Space Science and Technology (3)** The science and technology of space exploration and exploitation; physical principles; research and development; history, space policy, and social implications.

**Space Science and Technology (3)**

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences and Social and Behavioral Science

Effective: Spring 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 100 (GH) Science, Technology, and Culture (3)** A survey of the development and culture of science, technology, and medicine in world history.

**S T S 100 Science, Technology, and Culture (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

"Science, Technology, and Culture" surveys the development and culture of science, technology, and medicine in world history. This course will introduce students to using the humanities, social sciences, and the arts to understand the development and uses of science, technology, and medicine in human history. The course focuses on broad trends and changes over time in their social and cultural contexts.

The course is intended to address the needs of a wide range of students. For students majoring in the the arts, humanities and social sciences, the course provides a deeper understanding of the relationship between lay/popular and techno-scientific cultures. For the scientific and technically oriented student, the class exposes students to the study of technical and scientific problems from a broader cultural and historical perspective. All students will develop a knowledge of the values that have motivated and informed scientific, technological, and clinical ventures as well as an appreciation of important cultural dimensions of techno-scientific work, including the influence of religious concepts and practices, the impact of race, class, and gender, the significance of language and symbols, and the role played by local and global traditions.

The course also asks students to think critically about the role of science, technology, and medicine in world history and the impact of that history on today's world. Topics include: the role of scientific and technical expertise in society; the social and economic conditions that have fostered and impeded scientific development and technological innovation; the social, aesthetic, and symbolic considerations that have shaped the way scientific ideas have been framed and used; and the impact of scientific notions and technological innovations on social life.

Students are required to read both primary and secondary texts. Students are also required to augment their classroom readings with scholarly material that they find through library and electronic research. In addition to regular classroom discussions, students will also participate in team-based learning activities and projects that require the students to interact with their peers and to present their thoughts publicly.

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 101 (GH) Modern Science, Technology, and Human values (3)** Relationships of science and technology to human aspirations, values, and arts.

**Modern Science, Technology, and Human values (3)**

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 105 (GHA) (FD SC 105) Food Facts and Fads (3)** Impact on society and the individual of modern food technology, food laws, additives, etc.; historical, current, and futuristic aspects.

**S T S (FD SC) 105 Food Facts and Fads (3)  
(GHA)****(BA) This course meets the Bachelor of Arts degree requirements.**

Food Facts and Fads is an introductory food course that broadly surveys various aspects of food, agriculture, nutrition, and health. Students in this course explore the components of the food system from producer to consumer; examine issues related to modern food technology, food and nutrition policies, and changes in the food industry; and assess the impact on the food system, consumers, and on society as a whole. Students will assess their own food and nutrition behaviors, become more aware of the environment in which they make food decisions, and devise strategies for improving health through better diet and increased physical activity. Students learn through lectures, videos, guest speakers, discussions, individual and group activities, and optional field trips. This course emphasizes active learning and critical thinking. Students are expected to complete electronic quizzes, write two or more short reflective papers, and complete a project on a food topic of the student's choosing, for which information must be gathered from several sources in a variety of ways.

General Education: GHA  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 107 (GH) (PHIL 107) Introduction to Philosophy of Technology (3)** The character of technology; its relation to human values; philosophical assumptions in its development; and how it transforms the world.

**S T S (PHIL) 107 Introduction to Philosophy of Technology (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

"Introduction to the Philosophy of Technology" surveys a number of recent thinkers on the meaning of technology, its role in our and other societies, and critiques of its effects. Through readings of classic works on philosophy of technology as well as investigations of contemporary media reports and representations of technology, the course will engage your thought about what technology "means" to you and the values embedded in it. This course meets the broad general education needs of students from the humanities, social sciences, engineering, agriculture, as well as professional tracks such as business and pre-law. As technology is increasingly fundamental to our modern way of life in all its aspects, this course gets students asking question about why we do what we do with technology and how it affects us, others around us, and the environment. Required readings typically include collections of essays ranging in reading level from popular journalism to mass-market fiction to historical analyses of technological change and in-depth philosophical investigations of the concept of technology. Classroom time will be organized around lecture, regular classroom discussion, and a number of student-led debates. Evaluation will be based upon short writings, a small research paper, a midterm, and a final. The course meets the requirement for General Education in the Humanities (GH). Crosslisted with Philosophy it compliments other S T S courses (notably, S T S 101 and 233) and is a pre-requisite for S T S/ Phil 407.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 122 (GH) History of Science I (3)** A history of science and culture from Stonehenge to the scientific revolution.

**S T S (HIST) 122 History of Science I (3)  
(GH)****(BA) This course meets the Bachelor of Arts degree requirements.**

The purpose of this course is to explore the earliest developments in science, beginning with the prehistoric roots of technology and theories of human origins, followed by an engagement with the achievements of the Mayans, Aztecs, and native North Americans. We then turn to science and technology in the ancient Greek and Egyptian worlds, followed by an analysis of early Chinese and East Indian science, medieval science in Europe, selected African sciences, and the rise of modern science in Scientific Revolution and beyond. The point of the course is to show that science is a world tradition with an ancient history, and that many social, political, cultural, and economic forces can push or pull this peculiar form of knowing in one direction rather than another. There are other history of science courses offered at Penn State, but none treats the history of science in general in relation to its social context and influences. Other history of science courses are more thematic than survey courses. HIST/S T S 123, "History of Science II," treats science from the scientific revolution to the present. Students may take either course alone or out of sequence; the first will not be a prerequisite for the second. The expectation is that students will combine knowledge acquired in this course with knowledge from their required general education courses in science to develop a broader understanding of history and science. HIST/S T S 122 may be used to fulfill a requirement for the History major and the History minor and it is an essential part of the recently proposed science and technology history theme within the Science Technology & Society minor. Nonmajors may use it to

fulfill a general education humanities requirement.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 122** (GH) History of Science I (3) A history of science and culture from Stonehenge to the scientific revolution.

**S T S (HIST) 122 History of Science I (3)**  
(GH)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The purpose of this course is to explore the earliest developments in science, beginning with the prehistoric roots of technology and theories of human origins, followed by an engagement with the achievements of the Mayans, Aztecs, and native North Americans. We then turn to science and technology in the ancient Greek and Egyptian worlds, followed by an analysis of early Chinese and East Indian science, medieval science in Europe, selected African sciences, and the rise of modern science in Scientific Revolution and beyond. The point of the course is to show that science is a world tradition with an ancient history, and that many social, political, cultural, and economic forces can push or pull this peculiar form of knowing in one direction rather than another. There are other history of science courses offered at Penn State, but none treats the history of science in general in relation to its social context and influences. Other history of science courses are more thematic than survey courses. HIST/S T S 123, "History of Science II," treats science from the scientific revolution to the present. Students may take either course alone or out of sequence; the first will not be a prerequisite for the second. The expectation is that students will combine knowledge acquired in this course with knowledge from their required general education courses in science to develop a broader understanding of history and science. HIST/S T S 122 may be used to fulfill a requirement for the History major and the History minor and it is an essential part of the recently proposed science and technology history theme within the Science Technology & Society minor. Nonmajors may use it to fulfill a general education humanities requirement.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 123** (GH) History of Science II (3) A history of science and culture from the scientific revolution to the present.

**S T S (HIST) 123 History of Science II (3)**  
(GH)

**(BA) This course meets the Bachelor of Arts degree requirements.**

The purpose of this course is to explore the earliest developments in science, beginning with the prehistoric roots of technology and theories of human origins, followed by an engagement with the achievements of the Mayans, Aztecs, and native North Americans. We then turn to science and technology in the ancient Greek Egyptian worlds, followed by an analysis of early Chinese and East Indian science, medieval science in Europe, selected African sciences, and the rise of modern science in the Scientific Revolution and beyond. The point of the course is to show that science is a world tradition with an ancient history, and that many social, political, cultural, and economic forces can push or pull this peculiar form of knowing in one direction rather than another. There are other history of science courses offered at Penn State, but none treats the history of science in general in relation to its social context and influences. Other history of science courses are more thematic than survey courses (e.g., "History of Mathematics" and "History of Gender in Science and Archaeoastronomy"). HIST 122, "History of Science I," treats science from Stonehenge to the scientific revolution. Students may take either course alone or out of sequence; the first will not be a prerequisite for the second. The expectation is that students will combine knowledge acquired in this course with knowledge from their required general education courses in science to develop a broader understanding of history and science. HIST/S T S 123 may be used to fulfill a requirement for the History major and the History minor and it is an essential part of the recently proposed science and technology history theme within the Science, Technology and Society minor. Students will learn historical techniques for the objective evaluation of readings and the formulation of clear and valid responses. Students' grades will be formed from a combination of a midterm and a final. Students are also required to do a paper for the class, the topic being subject to the approval of the instructor.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details



check the specific course syllabus.

**S T S 123 (GH)** History of Science II (3) A history of science and culture from the scientific revolution to the present.

**S T S (HIST) 123 History of Science II (3)  
(GH)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The purpose of this course is to explore the earliest developments in science, beginning with the prehistoric roots of technology and theories of human origins, followed by an engagement with the achievements of the Mayans, Aztecs, and native North Americans. We then turn to science and technology in the ancient Greek Egyptian worlds, followed by an analysis of early Chinese and East Indian science, medieval science in Europe, selected African sciences, and the rise of modern science in the Scientific Revolution and beyond. The point of the course is to show that science is a world tradition with an ancient history, and that many social, political, cultural, and economic forces can push or pull this peculiar form of knowing in one direction rather than another. There are other history of science courses offered at Penn State, but none treats the history of science in general in relation to its social context and influences. Other history of science courses are more thematic than survey courses (e.g., "History of Mathematics" and "History of Gender in Science and Archaeoastronomy"). HIST 122, "History of Science I," treats science from Stonehenge to the scientific revolution. Students may take either course alone or out of sequence; the first will not be a prerequisite for the second. The expectation is that students will combine knowledge acquired in this course with knowledge from their required general education courses in science to develop a broader understanding of history and science. HIST/S T S 123 may be used to fulfill a requirement for the History major and the History minor and it is an essential part of the recently proposed science and technology history theme within the Science, Technology and Society minor. Students will learn historical techniques for the objective evaluation of readings and the formulation of clear and valid responses. Students' grades will be formed from a combination of a midterm and a final. Students are also required to do a paper for the class, the topic being subject to the approval of the instructor.

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 124 (GH;US;IL)** (HIST 124) History of Western Medicine (3) This course explores the history of health, illness, and medicine in western society.

**S T S (HIST) 124 History of Western Medicine (3)  
(GH;US;IL)**

Relying on both primary and secondary sources, the course examines developments in medical thinking and practice, the changing status of medical practitioners, and the experience of patients in order to understand the links between medicine and its social, cultural, intellectual, and political contexts.

This course will also augment offerings in bioethics and medical humanities by providing the historical context of ethical issues and social policies concerning medicine. It will be attractive to students pursuing a health professional career and will provide a historical context to the issues raised in courses such as HD FS 301 "Values and Ethics in Health and Human Development Professions," BIOL 461 "Contemporary Issues in Science and Medicine," PHIL/S T S 432 "Medical and Health Care Ethics," and ANTH 470H "Our Place in Nature." The course will be one of the Humanities Electives for the Bioethics/Medical Humanities Minor as well as the proposed Disability Studies minor.

Within the Department of History, the course is part of the undergraduate offerings in the history of science and , thus, is directly linked to HIST/S T S 122, HIST/S T S 123, and HIST 103. The course would also support the Science, Technology, and Society Program's undergraduate minor, augmenting courses in science and health and medicine, such as S T S 101, S T S 105, S T S 200, and S T S 432.

General Education: GH

Diversity: US;IL

Bachelor of Arts: None

Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 130** World Food Problems (1-3) Critical examination of data sources, issues, and perspectives concerning contributions of science, technology, and society in resolving world food problems.

**World Food Problems (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 1991

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 130H** World Food Problems (1-3) Critical examination of data sources, issues, and perspectives concerning contributions of science, technology, and society in resolving world food problems.

**World Food Problems (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 135** (GS) (PL SC 135) The Politics of the Ecological Crisis (3) The political implications of the increasing scarcity of many of the world's resources.

**S T S (PL SC) 135 The Politics of the Ecological Crisis (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

"The Politics of Scarcity" examines some "big" questions about the prospects for human in general and democracy in the United States in particular. Much of the reading assumes that our civilization faces the twin problems of increasingly serious shortages of resources and a growing ecological crisis that threatens the basis of life. Further, it argues that these "twin crises" feed upon each other, and that together they pose serious short and long run challenges to survival. Some readings attribute these problems to the dominant values that characterize modern Western society. The course does consider some dissents from this perspective, arguments that things will be just fine. However, it concentrates on problems and predictions of trouble. Thus, the class does not claim to present an evenly balanced assessment. Rather, it recognizes that most of what we learn, read, and see supports the status quo and assumes our civilization and energy-dependent way of life will continue. Consequently it makes sense to emphasize the less frequently argued position that we may be headed for disaster.

The class aspires to appeal to students regardless of major or college -- to scientists, engineers, students of the humanities, and even economists and political scientists. It fulfills the University-wide general education requirement in Social Science. Although it discusses the role of politics in general and the role of the American political system in particular in discussing the "twin crises," it mostly grapples with fundamental questions of value that underlie and guide the play of power in our political system and with how the massive changes now taking place globally both affect and are affected by politics.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 150** (GN;IL) (EM SC 150) Out of the Fiery Furnace (3) A history of materials, energy, and humans, with emphasis on their interrelationships. For nontechnical students.

**Out of the Fiery Furnace (3)**

General Education: GN

Diversity: IL

Bachelor of Arts: Natural Sciences and Social and Behavioral Science

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 151** (GS;US) (HIST 151) Technology and Society in American History (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.

**Technology and Society in American History (3)**

General Education: GS

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**S T S 151S** (GS;US) (HIST 151S) Technology and Society in American History (3) Development of technology in America from colonial times; its reception and its influence on social, economic, and political life.

**Technology and Society in American History (3)**

General Education: GS

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 157** (US) (WMNST 157) Science, Technology, and Gender (3) The role of women and gender in science, technology, and engineering.

**S T S (WMNST) 157 Science, Technology, and Gender (3)**  
**(GS;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

S T S/WMST 157 examines the role of gender in science, engineering, and technology. The course offers a broad interdisciplinary overview of scholarly research and theory pertaining to women and issues of gender in science, engineering, and technology. The course is interdisciplinary (drawing materials from the natural and social sciences) and cross-cultural (taking a comparative approach to western and non-western sciences and technologies), and it examines the ways that different beliefs and practices related to gender have shaped the practice of science in different times and places. Students study great women scientists and also barriers institutional and ideological - that women have had to overcome in order to participate in science, asking how the presence and absence of women have affected those studies. Students will be graded by several quizzes and two short exams during the semester. To evaluate progress in developing critical thinking skills, the students will be required to write a response journal and/or response papers to major topic areas during the semester. Also, one individual or group presentation will be required. These instruments enable the instructor to assess students' acquisition of knowledge relevant to the general objectives of General Education.

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 200** (GS) Critical Issues in Science, Technology, and Society (3) An overview of interactions between science, technology, and society from social sciences and humanities perspectives.

**Critical Issues in Science, Technology, and Society (3)**

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 200S** (GS) Critical Issues in Science, Technology, and Society (3) An overview of interactions between science, technology, and society from social sciences and humanities perspectives.

**Critical Issues in Science, Technology, and Society (3)**

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 201** (GN) Climate Change, Energy, and Biodiversity (3) Studies of global warming, energy options, and biodiversity; their interrelations as sciences and as societal issues.

**Climate Change, Energy, and Biodiversity (3)**

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences and Social and Behavioral Science

Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 201H (GN)** Climate Change, Energy, and Biodiversity (3) Studies of global warming, energy options, and biodiversity; their interrelations as sciences and as societal issues.

**Climate Change, Energy, and Biodiversity (3)**

General Education: GN

Diversity: None

Bachelor of Arts: Natural Sciences and Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 233 (GH) (PHIL 233)** Ethics and the Design of Technology (3) Ethics and individual and group decision-making in the design of technology including design projects and specific attention to institutional ethics.

**S T S (PHIL) 233 Ethics and The Design of Technology (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Technology has been around nearly as long as humans have been around. Humans have always created artifacts and artificial environments to aid us in our survival and to help fulfill our needs and desires. Moreover, today technology is all pervasive, transforming and conditioning our social and political relations, our cultural understanding of ourselves, and our relationship with other animals and the natural environment. Yet not much thought has been expended upon the meaning of technology, particularly in its moral dimensions. This course takes several steps to correct this deficiency. Because technologies can have far reaching effects well beyond the domain of their immediate application, the role of designers is crucial in deciding whether we take an intelligent or unintelligent approach to technology. All technologies exist to serve one human need or another. Designers make important choices concerning the creation, development, and deployment of many if not most technological innovations. Consequently, the task of the designer is an ethical one. Our goal is twofold: First, we will try to broaden our moral imaginations by taking into account the wider ranging effects that technologies have in order to reveal the moral significance of design choices. Second, we will examine the process of design itself, particularly in the way that the design process is similar to ethical reasoning in general. It is hoped that by accomplishing these two tasks, we will be empowered as designers, customers, citizens, and future employers to make choices that better fulfill the moral task of technological innovation. Two means will be used to achieve our course goals. Much of the time will be spent thinking about and discussing the various impacts that particular technologies have upon the social, cultural, and political lives of human beings and upon the natural environment. To facilitate thoughtful discussion, we will read a number of authors, writing short papers in preparation for critical discussion in class. In this way we will be better prepared to discuss and think about the issues at hand by having had the chance to organize our thoughts in advance. The second means is aimed at putting our ideas into practice by working in teams on several design projects. These design projects will require the integration of readings, discussion, and research and their synthesis to solve a design problem. Student teams will work cooperatively on these projects and make oral progress reports as well as final written and oral reports.

General Education: GH

Diversity: None

Bachelor of Arts: Humanities

Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 235 (GH)** Science and Religion (3) This course investigates the relationship between science and religion in multiple cultures.

**S T S 235 Science and Religion (3)  
(GH)**

The purpose of this course, designed to fulfill general education requirements in the humanities (GH), is to encourage students to investigate the relationships between the disciplines of science and religion. While most of the emphasis of the course will be on the historical interaction between science and Western religion, we will also investigate science ("natural philosophy") in the Islamic, Hindu, and Eastern religious traditions. Students will read classic texts that discuss science and religion from scientists such as Newton and Darwin as well as from world Scriptures and contemporary positions of various influential scientists and religious scholars concerning views of the material world as it relates to the spiritual world. There will be no attempt to encourage students to accept a particular religious or secular viewpoint. Rather, the course will be successful if at its conclusion the student can articulate a personal viewpoint while appreciating the reasons others might have for holding alternative opinions. Students will develop an understanding of the arguments and the historical context in which they originated which lead to differing positions. Thus, individual students will be

expected to demonstrate this understanding in a series of examinations scheduled throughout the semester, and in a final examination if required by the instructor. Discussion and debate are useful devices in the search for understanding. In order to facilitate such discussion, students will be required to make one presentation to the class on an assigned topic. This presentation will serve as the starting point for class exploration of the topic. To encourage active and collaborative learning, the student presentations may be group efforts, however, no group will consist of more than three students.

General Education: GH

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: completion of a basic composition course or the equivalent S T S 100 or S T S 101 or completion of 30 credits of coursework

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 245 (GS;IL) Globalization, Technology, and Ethics (3)** An investigation of technology and ethics in the globalized world from contemporary, socio-cultural, and historical perspectives.

**S T S 245 Globalization, Technology, and Ethics (3)**  
(GS;IL)

The objective of Globalization, Technology, and Ethics is to prepare students (especially but not limited to engineering and business students) who are headed into the corporate or government world for the challenges and realities of working in a rapidly globalizing world. This course will encourage students to become leaders in a mobile and diverse transnational workplace and help them to become critical citizens of that world. Through team-centered projects and readings from the social sciences and humanities, students will broaden their understanding of engineering, technology, and culture and then be given an introduction to how one makes ethical decisions about that world. The course is designed to provide skills, theories and experiences that will help them to be respectful, diplomatic and professional while being able to successfully work with technology in multiple cultures and contexts.

Globalization, Technology, and Ethics will also address topics of critical international and economic importance by including discussion of the World Trade Organization, World Bank, and International Monetary Fund. Students will understand their relationship to global manufacturing and technology use, off-shoring, outsourcing, international debt financing, and restructuring of world economies based upon different models of globalism. In addition, the class will address issues of 'globalization' and student's and citizens' role in the globalized world and the multiple interactions that shape our technological world today.

General Education: GS

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 327 (R SOC 327) Natural Resources, Science, Ethics, and Society (3)** The purpose of this course is to enable students to become competent critical thinkers about the state of natural resources through greater understanding of scientific, discourse formation, and the ethical dimensions of natural resources issues.

**S T S (R SOC) 327 Natural Resources, Science, Ethics, and Society (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The purpose of this course is to enable students to become competent critical thinkers about the state of natural resources through a greater understanding of scientific, discourse formation, and the ethical dimensions of natural resources issues. This course first examines scientific descriptions of the state of natural resources relying particularly on global assessments of biodiversity, forests, water, land degradation, ecosystem health, and other natural resources. The course then examines critically scientific descriptions of the state of these resources using social discourse analyses of how society frames issues relating to the state of natural resources. Discourse frames that are expressly identified include discourses that assume global environmental catastrophes will be triggered if limits to the use of natural resources are exceeded, economic discourses that often assume that there are no limits to the use of natural resources, sustainable development discourses that attempt to integrate economic development and environmental protection, and other dominant discourses. Each discourse will be shown to foreground certain variables and background other issues. The course also examines ethical issues about the use of natural resources that are often excluded from public discussion of natural resource management and are often hidden in discourse that frame these issues. These ethical issues include questions of distributive justice, limits of economic evaluations of the value of natural resources, questions of procedural justice, and others. The course ends with an evaluation of these ethical issues.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2011 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 407 (PHIL 407) Technology and Human Values (3)** Interrelationships of twentieth-century technological change and human values. Emphasis on the social and ethical aspects of technological progress.

**Technology and Human Values (3)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Social and Behavioral Sciences

Effective: Spring 1999

Prerequisite: 9 credits in philosophy including PHIL 107 or 6 credits of philosophy at the 200 level

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 408 (COMM 408) Cultural Foundations of Communications (3)** Examination of oral, scribal, print, industrial and electronic cultures; analysis of impact of technology on communications and social structure.

**S T S (COMM) 408 Cultural Foundations of Communications (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

S T S (COMM) 408 traces the development of communications technologies and their impact on culture over the last 500 years. Students will examine how different tools for communicating changed the way people organized and made sense of their worlds. The course begins by looking at oral cultures and moves on to the scribal, print, industrial, electronic and post-industrial or postmodern cultures, studying the media developments that marked each of these eras. With each period and its corresponding technology students will examine how and why the new media altered not only the *form* of communication (the type of speech, form of writing and/or speed of information transfer), but also how such changes altered the *content* of knowledge (how people made sense of their lives and communities). Readings are drawn from a range of disciplinary perspectives on the issues, from history, sociology and anthropology, to philosophy, communication studies and cultural theory.

The historical and theoretical knowledge provided by the course will give students a solid foundation for coming to terms with media trends in present-day society and for thinking through their possible epistemological, political and cultural impacts.

The course is a communications elective for the Journalism and Telecommunications majors and the Media Studies minor.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2009

Prerequisite: select 3 credits from COMM 100 COMM 110 COMM 118 COMM 150 COMM 180 COMM 251 COMM 260 WCOMM 320 COMM 370 ; or 3 credits of S T S

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 416 (US;IL) (AF AM 416, WMNST 416) Race, Gender and Science (3)** The class will focus on race and gender as products of science, and how societal values shape scientific activity.

**S T S (AAA S/WMNST) 416 Race, Gender and Science (3)  
(US;IL)**

The course's objective is to provide a seminar for students to integrate feminist theory, social theory, and science studies through class discussions, essays and research. The role of science in defining, producing, applying and policing of gender and race in society will be explored through the work of feminists and traditional scholars working in a variety of disciplines from cultural studies to science studies. Students will be encouraged to develop a critical analysis of race and gender in science in order to understand the impact of gender and race on the production of scientific knowledge. This course is designed for students in the humanities, social sciences, science and technical fields. Readings will be taken from past and contemporary social theory (i.e. students will be reading original works not textbooks). Students will be expected to read, understand and synthesize 75-100 pages of reading per class and to discuss them in a seminar fashion in order to analyze, critique and evaluate various theories to develop their own understanding of the interrelationship of science, race and gender. In addition they will do two professional-style book reviews during the semester. At the end of the semester students will integrate theory with social, cultural and historical data that they collect through library research (with a minimum of 50 sources). Students will present the paper to the class in a conference style presentation that will conclude with a Q&A session.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: 6 credits in S T S WMNST or AAA S

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 420** (EM SC 420, SOC 420) Energy and Modern Society (3) Technology and economics of energy resources, production, and consumption; environmental factors, exhaustion, new technology.

**Energy and Modern Society (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1991

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 427W** (CED 427W) Society and Natural Resources (3) Analysis of the relationship between societal development and enhancement and natural resources.

**S T S (CED/SOC) 427W Society and Natural Resources (3)**

There is a common tendency to portray environmental and natural resource problems as biophysical in nature. The implication of this tendency is that such problems are best addressed by scientists and engineers who discover evidence of and devise new technologies to fix them. Another common tendency is to assume that people resist solutions to environmental and natural resource problems because of individually held anti-environmental attitudes. In contrast to these two perspectives, sociologists point out that environmental and natural resource problems often lie at the intersection of biophysical processes and social, political, economic, belief, value, and knowledge systems. The goals of this writing-intensive course are to introduce students to the complexity of environmental and natural resource problems and to teach them to think sociologically. In addition to reading assigned books and articles, students will participate in a simulation to negotiate a global environmental treaty, attend a field trip to learn about alternative energy strategies, and conduct research on a local environmental or natural resource issue. After taking this course, students should be better prepared to engage in debates with academics, politicians, and other citizens regarding the causes of and potential solutions to environmental and natural resource problems.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: R SOC 011 or SOC 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 428** (IL) (HIST 428) The Darwinian Revolution (3) The origins and implications of evolutionary theory.

**The Darwinian Revolution (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities and Social and Behavioral Sciences  
Effective: Spring 2006  
Prerequisite: An introductory Science course and a history course.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 430** (IL) (NUTR 430) Global Food Strategies: Problems and Prospects for Reducing World Hunger (3) Technological, social, and political solutions to providing basic food needs; food resources, population, and the environment; current issues.

**S T S (NUTR) 430 Global Food Strategies: Problems and Prospects for Reducing World Hunger (3) (IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Global Food Strategies examines opportunities for the world's poor to improve their health, nutrition, and physical environment by focusing on their own cultural strengths and organization, reassessing the opportunities within their environment, evaluating the appropriateness of new and old technologies, and gaining a renewed respect for their own abilities. Measures of appropriateness used throughout the course are ecological sustainability and cultural sensitivity. Approximately one third of the course focuses on the historical basis of underdevelopment up to and including the post-modern era. Topics include economic colonization, the industrialization of agriculture, the impacts of globalization, trade priorities and debt loads on the poor, population and ecological issues; and a critique of the economics of scarcity. The second two thirds focuses on micro-strategies for poverty alleviation. Topics include culturally-appropriate people centered development, women's empowerment needs including microlending (small loans), the prospects and rationales for biological agriculture vs. industrialized agriculture, successful models of health and population control, the impact of American consumerism, and ecological footprint analysis. The goals of the course are to 1) awaken the student's interest in hunger and poverty issues and the cultural dimensions of poverty, 2) acquaint the student with viable and sustainable strategies for hunger and poverty alleviation for the very poor, and 3) enable the student to understand enough about globalism that he/she can critically analyze and evaluate international affairs articles in national newspapers. The classes

integrate lecture information with films that help with the visualization of poverty problems and prospects, readings, current events, and small group discussion around issues and case studies. Readings are drawn from development classics and from a wide range of recent literature on poverty and change. Evaluation includes student responses to three essay tests posed by the instructor over the semester, and journal keeping. The class project is designed to promote citizenship/leadership skills. Students will make a contract to perform a particular citizen action relating to hunger and poverty alleviation, which they will describe in an oral report and written format. Participation is evaluated.

General Education: None  
Diversity: IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 432** (PHIL 432) Medical and Health Care Ethics (3) Examines ethical, political, and social issues in the research, implementation, and practice of medicine, medical technologies, and healthcare.

### **Medical and Health Care Ethics (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Social and Behavioral Sciences  
Effective: Fall 1998  
Prerequisite: fifth-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 433** (PHIL 433) Ethics in Science and Engineering (3) Ethical issues arising in the practice of science and engineering and their philosophical analysis.

### **Ethics in Science and Engineering (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Social and Behavioral Sciences  
Effective: Fall 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 435** (PHIL 435) The Interrelation of Science, Philosophy, and Religion (3) The historical and transformative interactions between science and Western philosophical and religious views of nature, humanity, and God.

### **The Interrelation of Science, Philosophy, and Religion (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Social and Behavioral Sciences  
Effective: Spring 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 457** (US;IL) (HIST 457, WMNST 457) The History of Women in Science (3) Critical analysis of the role women, gender, and minorities have played in the natural sciences.

### **The History of Women in Science (3)**

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities and Social and Behavioral Sciences  
Effective: Spring 2013  
Prerequisite: HIST 116HIST 117WMNST 100WMNST 106 orWMNST 157

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 460** (PL SC 460) Science, Technology, and Public Policy (3) The all-pervasive importance of science and technology policy in modern societies and mechanisms and processes by which it is made.

### **Science, Technology, and Public Policy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science



Effective: Spring 1995

Prerequisite: three credits in Natural Sciences or Engineering three credits in Social and Behavioral Sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S T S 470** Technology Assessment and Transfer (3) Nature of technology assessment and technology transfer in product design and development process from federal and university labs, and internationally.

### **Technology Assessment and Transfer (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Security & Risk Analy (SRA)**

**SRA 001S** First-Year Seminar in Security and Risk Analysis (1) Provides introduction to the field of Security and Risk Analysis and assessments of key skills.

### **SRA 001S First-Year Seminar in Security and Risk Analysis (1)**

SRA 001S gives first-year students a concrete overview of the field of Security and Risk Analysis (SRA), including discussion of the knowledge and competencies required for careers in this field, familiarity with the variety of career paths and the specific requirements of each, and an understanding of the skills, abilities and knowledge that is common across career paths within this field. As part of this course, students will participate in a Developmental Assessment Center, which will assess their current skill levels in the areas of Oral and Written Communication, Leadership, Conflict Resolution, Decision Making and Problem Solving, as well as other core areas to be identified. Working with the assessment team, the will create specific, individualized plans to develop skills in areas where they are currently deficient and to build on current strengths.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Fall 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 111** (GS) Introduction to Security and Risk Analysis (3) This introductory course spans areas of security, risk, and analysis covering contexts in government agencies and business organizations.

### **SRA 111 Introduction to Security and Risk Analysis (3)**

Introduction to Security and Risk Analysis is a preliminary course with a broad focus, spanning the areas of security, risk and analysis. In addition to familiarizing the student with basic technical terminology, it will also touch upon social and legal issues, risk analysis and mitigation, crime intelligence and forensics, and information warfare and assurance.

This course will motivate students to understand the requirements for security in any government agency or business organization through the use of case studies. Included in this segment are cases related to cyberterrorism, bioterrorism, and critical infrastructure protection. Some concepts to be covered in the area of information security are: confidentiality, integrity, availability, and non-repudiation. Various methods of safeguarding these security concerns will be discussed, such as: single- and multi-factor authentication, encryption, digital signatures, prevention of denial of service attacks, and so forth. This course also covers social and legal issues related to security, in particular identity theft and social engineering. Topics in this section include identity theft, spam, spyware, and adware. This course also covers the principles and the approaches to risk analysis. Here students study vulnerability analysis, crime and intelligence analysis, forensics, techniques for risk assessment and risk mitigation.

The course will prepare students for more in-depth courses such as SRA 211, SRA 221 and SRA 311.

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 211 Threat of Terrorism and Crime (3)** Provides overview of nature, scope, and seriousness of threats to security as a result of terrorism and crime.

#### **SRA 211 Threat of Terrorism and Crime (3)**

Threat of Terrorism and Crime is a course designed to acquaint students with the security threats posed by both terrorist and criminal activity, and with strategies to combat these threats. Terrorism and security are defined as well as terrorism in its historical context. Varieties of terrorist groups, organizations and their actions are studied with targets of terrorism being a focus. Types of crime including street, employee, organized and white collar crime are studied.

Information theft can occur in each of the types of crime. Security threats of each type are studied and mitigation techniques are evaluated. Methods of studying terrorism and crime cover data collection, analysis of the reliability of the data, and fusing the data so that information is obtained that leads to knowledge to combat terrorism and crime.

Finally to put the course in perspective, students study critical shortfalls in our understanding of terrorism and crime including unreliable data, biased estimates and a lack of understanding of terrorist and criminal motives and objectives.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: SRA 111

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 211H Threat of Terrorism and Crime (3)** Provides overview of nature, scope, and seriousness of threats to security as a result of terrorism and crime.

#### **Threat of Terrorism and Crime (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: SRA 111

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 221 Overview of Information Security (3)** Provides an understanding of the overview of information security including security architecture, access control, and internet secure applications.

#### **SRA 221 Overview of Information Security (3)**

SRA 221 focuses on an overview of information security. Students will learn the principles of information security, security architectures and models, aspects and methods of information security such as physical security control, operations security, access control, hacks/attacks/defense, systems and programs security, cryptography, network and web security, worms and viruses, and other Internet secure applications. Students will also learn how to plan and manage security, security policies, business continuity plans, disaster recovery plans, and social and legal issues of information security.

A major component of the course will be several hands-on exercises and a final team-based project. This course will incorporate collaborative and action-learning experiences wherever appropriate. Emphases will be placed on developing and practicing writing and speaking skills through application of the concepts, theories and technologies that define the

course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: SRA 111IST 110CMPSC 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 231 Decision Theory and Analysis (3)** Provides an overview of decision theoretical and analytical concepts and tools in the security risk analysis field.

### **SRA 231 Decision Theory and Analysis (3)**

Decision Theory and Analysis is designed for students to build an understanding of how to improve the judgment and decision making of individuals, groups and organizations. Behavioral decision theories provide the theoretical core for the course. These theories draw on insights from a diverse set of disciplines, including cognitive and social psychology as well as economics, statistics and philosophy.

Offered annually (and more if demand requires), this course will foster understanding of: (a) the cognitive, emotional, social and institutional factors that influence judgment and choice, (b) normative (economic) models of rational choice, and (c) how judgment and decision making can be predicted and/or improved through prescriptive aids and models.

Applications of these theories and methods to real-life venues will be used to engage and focus the students. For example, insights on how such concepts apply to supply chain security, bioterrorism threats, legal decision making, large-scale risk assessments (e.g., assessing risks of transnational threat), and first-response/crisis decision making will be common. Where appropriate, real situations and cases are used to bring concepts and scenarios alive.

Overall, the course emphasizes basic skills and concepts that enhance an individual's ability to understand why individuals, groups and organizations behave the way they do, how they formulate the issues and problems they confront, as well as to choose rationally among competing courses of action.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: SRA 211STAT 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 311 Risk Management: Assessment and Mitigation (3)** Assessment and mitigation of security vulnerabilities for people, organizations, industry sectors, and the nation.

### **SRA 311 Risk Management: Assessment and Mitigation (3)**

The proposed course in risk management focuses on applications of problem solving skills and decision theory. The course will review the theoretical templates developed in previous courses and then move to the implementation of these theories and models. While the course would employ some textbook-based and lecture-based learning, the emphasis will be case-based learning and scenario analysis and will include team presentations.

The first part of the course will review and discuss risk assessment models and ways to mitigate these risks. The course will focus on vulnerabilities and controls that could deter or prevent problems, detect breaches, and correct these ruptures and penetrations. The student will utilize quantitative and qualitative risk analysis as appropriate.

The bulk of the course would apply these theories to the person, to the organization, to the sector, and to the nation. For each focal point, the student will have to identify the threats, the vulnerabilities, and the controls to counterbalance these vulnerabilities. At the individual level, the course will focus on events such as identify theft, physical security during international travel, or invasion of one's privacy. At the organizational level, including both public and private entities, the course will focus on incidents such as cyber crimes, fires, flooding, financial frauds, kidnapping of employees, and expropriation of resources. At the sector level, the course will focus on the power grid, the transportation system, the communication system, the water supply, and the energy supply chain. At the national level, the course will focus on

national disasters, terrorism, and war, both conventional and nuclear.

For each of these topics, the student will analyze the security risk and attempt to find ways to mitigate the risk. This analysis includes incidence response, development of security policies and administration, and security and crisis management. The course will rely heavily on case studies and scenario analysis.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: SRA 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 321 The Role of Information and Intelligence (3)** The Role of information and intelligence introduces students to the architecture and policies of the U.S. Intelligence Community (IC) and examines how U.S. intelligence policies and practices relate to overall U.S. foreign policy objectives and are influenced by today's global environment and emerging technologies. The course examines the users and processes of IC, participants of Competitive Intelligence, and comparative intelligence communities.

### **SRA 321 The Role of Information and Intelligence (3)**

This course introduces intelligence structures and policies and explores the role and use of information and intelligence in the 21st Century, in support of individual citizens, national defense and corporate America. It will introduce the major actors in the U.S. intelligence community and frame U.S. intelligence policies in terms of overall U.S. foreign policy objectives in the current globalized international arena. The course discusses the history and evolution of U.S. intelligence policies, capabilities and information requirements as well as the legal and constitutional foundations of those policies. The course will examine and attempt to apply methods and techniques of the information user and intelligence practitioner. The course will also provide experience in applying principles and techniques learned in the context of a team-based intelligence-analysis simulation exercise.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: SRA 111SRA 211SRA 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 397 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 397E Security Economics and Privacy Behaviors (3)** Explore the economic incentives for security attacks and appropriate security defenses; apply methods from the economic and behavioral sciences to current privacy and security challenges.

### **Security Economics and Privacy Behaviors (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 433 Deception and Counterdeception (3)** Deception tactics, technologies and procedures and approaches to counterdeception analysis.

### **SRA 433 Deception and Counterdeception (3)**

This course introduces deception and counterdeception and their role in support of security risk analyses in competitive environments. The course covers fundamental theories of deception, human cognition and its vulnerabilities to deception, and the vulnerabilities of technical collection systems and sensors to deception. The course discusses deceptive practices in use by attackers and defenders, including both non-technical and technical means. The course also provides experience applying technical and non-technical counterdeception techniques to security risk analysis problems.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: SRA 211SRA 221SRA 231SRA 311

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 440W Security and Risk Analysis Capstone Course (3)** The Security and Risk Analysis Capstone course is designed to provide IST students enrolled in the SRA major to experience a semester-long security and risk problem-solving experience, providing realistic security dilemmas requiring a solution process that is well suited for teamwork and collaboration.

### **SRA 440W Security and Risk Analysis Capstone Course (3)**

This course is designed to provide IST seniors enrolled in the SRA major to experience a semester-long security and risk analysis scenario or problem-solving exercise by providing realistic analytic dilemmas requiring solutions that incorporate facets of the three SRA Options. The problems selected for the Capstone should lend themselves to team collaboration and group solutions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

Prerequisite: SRA 221 and SRA 311; ENGL 202C or ENGL 202D seventh-semester standing (this course is intended for seniors) and the five common course requirements plus at least three of the required courses in an option

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 468 Visual Analytics for Security Intelligence (3)** Introduce visual analytic techniques for security informatics and intelligence. It covers analytical techniques on visualizing threats, risk, and vulnerability.

### **SRA 468 Visual Analytics for Security Intelligence (3)**

This course surveys techniques for visualizing and analyzing security information and for communicating and using information about threats, risk and vulnerability to decision-makers. It will motivate students by the needs for better intelligence in a broad range of homeland security applications. Through case studies and problem-based learning, students will develop understanding of important concepts and issues, such as data source and data quality, associations and integration of incidence, hazards, and risk factors, and the difficulties of analyzing and communicating knowledge. Various visual analytical methods for homeland security intelligence will be discussed, such as : (1) mapping and visualizing patterns of crime and incidence, (2) identifying targets and agents of terrorist attacks, (3) spatial analysis of social, economic and environmental risk indicators, and (4) prediction of threat and risk. It also pays special attention to the interpretation of analytical results for actions. Geographical information systems and associated spatial analytical tools will be used to exemplify the kinds of information environment available to intelligence community. The course will prepare students to become immediate workforce for security-related industries and government agencies.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: IST 110SRA 111

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 471 Informatics, Risk, and the Post-Modern World (3)** Provides in-depth study of how security informatics is influenced by the risk and post-modern culture.

### **SRA 471 Informatics, Risk, and the Post-Modern World (3)**

The post-modern world provides a changing climate and context for defining and understanding threats, intelligence, decisions, and risk. Likewise, post-modern cultures consist of beliefs that are heavily influenced by psychology, social connectivity, collective behavior, religion, ethnicity, and political systems. This system of systems is heavily dependent upon and influenced by information, information technology, and the web (social informatics). When examining human behavior as it impacts risk, these various social-technical factors must be considered in planning for terrorism, intelligence analysis, and emergency events.

As the post-modern world becomes increasingly complicated, the ability to discern, identify, and address threats in terms of risk becomes exceedingly more difficult. Provision of learning underlying psychological, social, political, religious, and technical components of how risk accelerates through various stages will be critical for protection of national and international interests within the security sphere. Security informatics will be at the heart of both recognizing emerging

situations and employing tools/agents/measures to assuage emergency, terrorist, or even national disaster events.

This course provides the student with a broad perspective to critically examine both theories and practice of security informatics as related to the cultures in which threats emerge asymmetrically. Students will be placed on the role of systems analysts to problem solve and analyze information from a broad bandwidth of information specifically as informed by culture, post-modern thought, psychological intent, and situation awareness. The course will be grounded by participation in case studies and/or analyzing exercises of risk. Students will be required to do comprehensive reading assignments, engage in team cognition-social interaction, and become familiar with social informatics concepts and tools as related to risk, terrorism, and information warfare.

As the post-modern world becomes increasingly complicated, the ability to discern, identify, and address threats in terms of risk becomes exceedingly more difficult. Provision of understanding some of the underlying psychological, social, political, religious, and technical components of how risk accelerates through various stages will be critical for protection of national and international interests within the security sphere. As extreme events become more prevalent in society, security informatics will be at the heart of both recognizing emerging situations and employing tools/agents to assuage emergency, terrorist, or even national disaster events.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: IST 110SRA 231

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 472** Integration of Privacy and Security (3) Exploration of technological, operational, organizational and regulatory issues related to maintenance of individual privacy, confidentiality of organizations, and information protection.

### **SRA 472 Integration of Privacy and Security (3)**

This course is designed to introduce students to the major organizational, technical, operational and regulatory issues in information privacy and security, and to give them experience in performing a privacy analysis, designing privacy-aware applications and developing privacy policy in organizations. Topics covered include: conceptualizations and theories of privacy and security, privacy laws and compliance, building a privacy organizational infrastructure, integrating privacy in the software development process, performing a privacy analysis, privacy issues in outsourcing and cross-border data transfers, integrating privacy into customer relationship management and vendor management, information systems audit and intentional standards on privacy and security. This course will mix technical details, applied value and organizational insights of assuring privacy and security through the use of case studies, real-life problems, hands-on exercises and team projects.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: SRA 211 or SRA 221 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 497A** Statistical Analysis for Information Sciences (3) Intermediate-level statistics course emphasizing understanding hypothesis testing and experimental design, a broad array of statistical techniques applied to data analysis, and computer tools to support testing analysis; specifically applied to information sciences and technology applications.

### **Statistical Analysis for Information Sciences (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 497A** Statistical Analysis for Information Sciences (3) Intermediate-level statistics course emphasizing understanding hypothesis testing and experimental design, a broad array of statistical techniques applied to data analysis, and computer tools to support testing analysis; specifically applied to information sciences and technology applications.

**Statistical Analysis for Information Sciences (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 497A** Statistical Analysis for Information Sciences (3) Intermediate-level statistics course emphasizing understanding hypothesis testing and experimental design, a broad array of statistical techniques applied to data analysis, and computer tools to support testing analysis; specifically applied to information sciences and technology applications.

**Statistical Analysis for Information Sciences (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SRA 497C** Crisis Informatics (3) We will examine how technologies have played a role in saving lives; specifically technologies used toward emergency and disaster response.

**Crisis Informatics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Serbo-Croatian (S CR)

**S CR 199** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S CR 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S CR 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None

Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S CR 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S CR 399** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S CR 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S CR 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**S CR 499** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Slavic (SLAV)**

**SLAV 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.



**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1990

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SLAV 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Social Science (SO SC)**

**SO SC 001** (GS) Urbanization (3) An overview of the social sciences, including an interdisciplinary analysis of the urban process.

**Urbanization (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SO SC 297** Special Topics (1-9) Formal courses given infrequently to explore in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SO SC 480W** Quantitative Methods in the Social Sciences (4) Students will learn to conduct, analyze and write up quantitative social scientific research according to appropriate professional standards.

**SO SC 480W Quantitative Methods in the Social Sciences (4)**

Students in this course will gain a working understanding of the rationale for the use of a variety of quantitative research methods and become familiar with the design, constraints and appropriate applications of those most frequently used in the applied behavioral and social sciences. They will gain experience designing and conducting research through a blend of class exercises and field research applications. Students will also gain a basic familiarity with the use of tools such as the Statistical Package for the Social Sciences (SPSS) to analyze the data gathered through quantitative research. Finally, through classroom instruction coupled with a process of writing, revising and individual consultation with the instructor regarding their research reports, students will master APA style and develop their academic and professional writing skills including critical thinking and conceptualization in addition to the basics such as spelling and grammar where necessary.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SO SC 481** Qualitative Research Methods in the Social Sciences (4) Students will learn how to conduct, analyze and write up qualitative social research according to appropriate professional standards.

**SO SC 481 Qualitative Research Methods in the Social Sciences (4)**

Students in this course will gain a working understanding of the philosophy, conceptualization and application of qualitative and participatory research methods in the behavioral and social sciences including such methods as ethnographic research and participant observation, conceptual mapping and interviewing techniques and explore their applications in participatory and action research. Students will also learn how to analyze and write up the results of such research endeavors according to the standards of the field including the use of computerized qualitative data analysis packages (such as NUD\*IST or the Ethnograph) and mastery of APA style.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SO SC 492** Current Topics in the Social Sciences (3) This course allows for various current topics to be offered as suitable to the needs of the program.

### **SO SC 492 Current Topics in the Social Sciences (3)**

As the umbrella course for the Social Sciences, this course allows for various current topics to be offered as suitable to the needs of the program. Description varies by each instructor teaching the class.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SO SC 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SO SC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Social Studies Education (SS ED)**

**SS ED 200** (US) American Heritage (3) Essentials of American Heritage for heritage interpretative education applications.

### **SS ED 200 American Heritage (3) (US)**

SS ED 200 is designed to introduce students to Heritage Education as a career opportunity for students interested in teaching history/heritage, working at history museums and heritage sites, Public History, and/or working in related fields and/or to diversify, enhance, and enrich their teacher certification, and/or to enrich their understanding of America's founding. SS ED 200 is the first in a series of four courses that lead to the Heritage Education Certificate (15 credits). Students who complete the program shall be eligible and prepared to complete the requirements for the Certified Interpretative Guide credential as offered by the National Association for Interpretation. In this course, students will synthesize knowledge and understandings of American heritage focused on America's founding as found in past and prevailing curricular sources and more importantly as represented at America's heritage sites and historical museums. Students will have opportunities to apply this knowledge through curricular and presentation experiences. Taking advantage of Penn State's central location and access to heritage/history museums and heritage and historical sites throughout the Northeast, the course will include visitations to select heritage and historical sites and museums. Pending outside funding, one to three field trips to local and regional heritage sites shall be included in this course. Pending arrangements with local and regional sites, typically, trips scheduled shall be "day-trips." Students unable to travel will be provided with alternative assignments. As part of these visits, students will observe heritage presentations by staff,

engage staff, view exhibits/collections, make and record observations via technology (pictures, video, and personal notes). Student assessments will include critical essay reviews on past and present presentations of America's founding as found in relevant sources together with assessments of local, regional, and national heritage sites. Two exams shall also be required.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: any U.S. History selection (3 credits) suggested HIST 020

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SS ED 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SS ED 411** Teaching Secondary Social Studies I (3) Methods for teaching social studies in secondary grades; nature of social studies, content and learning outcomes, instructional strategies and planning.

### **SS ED 411 Teaching Secondary Social Studies I (3)**

Teaching social studies in the secondary grades (7-12) with emphasis on content and methods for the major subjects (citizenship and government, economics, geography, and history). The principal goal is to provide prospective teachers with a better understanding of the nature, structure, and experience of social studies in the U.S., how to identify, select, instruct, and assess rigorous content and learning outcomes, and effective strategies for designing, planning, and implementing instruction. Additional topics may be included as determined by the section instructor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: C I 295ECON 104GEOG 010HIST 020HIST 021PL SC 001 ; plus 6 credits of other Option Requirements (Prescribed Courses Additions Courses Supporting Courses and Related Areas Concentration)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SS ED 412W** Teaching Secondary Social Studies II (3) Writing-intensive course focusing on study of the social studies teacher's role in planning instruction; strategies for teaching.

### **SS ED 412W Teaching Secondary Social Studies II (3)**

Advanced study and practice of teaching social studies in the secondary grades (7-12) with emphasis on content and methods for the major subject areas (citizenship and government, economics, geography, and history). The principal goal is to provide prospective teachers with intellectual preparation and relevant practice in selecting and applying rigorous content knowledge to higher-order thinking in the classroom and practical experience designing, planning, and implementing social studies instruction. Topics include the social studies teacher's role in planning and practicing instruction, strategies for implementing and assessing teaching in the social studies, and others as determined by the section instructor. As a writing course (W), SS ED 412W engages students in professional in-depth writing experiences that involve planning, process, development, teaching and learning social studies content, and other relevant writing that teachers are expected to perform.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

Prerequisite: SS ED 411

Concurrent: C I 412W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SS ED 430W** Teaching Social Studies in the Elementary Grades (3) Principles underlying use of social studies in the elementary school; practical demonstration of desirable methods.

**SS ED 430W Teaching Social Studies in the Elementary Grades (3)**

Social studies transforms the social sciences and humanities to promote civic competence (National Council for the Social Studies, 2002). In this course, teacher candidates learn to coordinate and conceptualize the richness of anthropology, economics, geography, history, civics, and sociology for elementary classroom pedagogy. Candidates become familiar with various instructional strategies that support social studies. Candidates gain an understanding of the information, concepts, theories, analytical approaches, and different perspectives--including global and multicultural perspectives--that are important to teaching social studies. Candidates also learn how to assess social studies learning in a variety of ways.

This course stresses technology, content integration, social science competence, differentiated instruction, multicultural/global knowledge, teaching social historical inquiry, and constructing democratic learning communities. Teacher candidates learn how to apply the State Learning Frameworks and National Standards in their classroom instruction. At the conclusion of the course, candidates have a good understanding of elementary social studies and are able to develop and demonstrate powerful social studies curricula.

Being a "W" course, SS ED 430 incorporates both formal and informal writing into in-class and graded assignments to encourage teacher candidates to develop as critical thinkers and productive writers. This writing includes an essay describing one's own experiences as a social studies learner, reading responses, the creation of a unit of instruction, and several lesson plans that describe significant activities. These writing tasks are meant to professionalize the communication skills required to effectively teach social studies as well as to effectively communicate with parents, educators, and administrators.

SS ED 430W is a part of a block of courses in a PSU teacher education program that is unified by a basic set of principles and a field experience component.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: LL ED 400LL ED 401LL ED 402 nine credits in history and the social sciences

Concurrent: C I 495A OR C I 495B ; MTHED 420 SCIED 458

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SS ED 470** Issues in Social Studies Education (1-6) Concentration on particular issues, trends, and developments in the social studies.

**Issues in Social Studies Education (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Winter 1978

Prerequisite: Instructional I certificate and teaching experience

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SS ED 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SS ED 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SS ED 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Sociology (SOC)

**SOC 001** (GS) Introductory Sociology (3) The nature and characteristics of human societies and social life.

**SOC 001 Introductory Sociology (3)**  
(GS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Introductory Sociology provides perspectives and information useful in understanding all societies. The major theories (functionalism, conflict, and symbolic interactionism) and concepts provide the foundation upon which the remaining material rests. Learning how sociologists do research provides the tools for understanding the production of knowledge and for evaluating the validity of sociological assertions. Familiarity with systematic theorizing and conceptual development, along with some comprehension of the nature of the scientific method as it is applied in sociology, enhances critical reasoning. To promote a more complete understanding of human social life, both in its inherent constraints and in the opportunities it provides; the nature and reality of culture and social structure are explored. The study of socialization provides perspectives on how one becomes a member of society. Exploring social interaction adds insight into the formation of the social self and the salience of group identities and norms. Ending this first section with a discussion of social control highlights the forces of stability and change in society.

The course then progresses to considerations of social stratification and inequality. The nature of privilege and oppression are discussed and considered in the specific contexts of race, ethnicity, gender, and age. The focus then shifts to social institutions. The essential work of society is accomplished via its major institutions: family, education, health care, economy and work, religion, and politics. Applying theoretical perspectives to the form and function of these institutions enhances an understanding of how different social structures provide varying constraints and opportunities to their inhabitants. Finally, considering large-scale forces for change provides a platform to comprehend where human societies have been, are now, and might be headed.

Throughout the course, the lectures as well as the textbook draw amply on cross-cultural and cross-national material. In addition, the course emphasizes the complexity of human social life and describes the many variables (social structural, cultural, interpersonal, and psychological) that influence behavior. A special component of the course deals with topics pertinent to the social behavior and norms of students of the ages typically taking this course. Depending on the faculty member, these topics could include sexual behavior, alcohol use, and problems in interpersonal relationships.

Discussion and questions are encouraged in all sections. Sections of this course may include group research projects, debates, and library or internet-based research. Along with personal contact, students have the opportunity to communicate with teaching assistants and faculty members via e-mail. Writing assignments, along with in-class examinations, are required in all sections.

This course meets a general education requirement in the social and behavioral sciences.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 001S** (GS) Introductory Sociology (3) The nature and characteristics of human societies and social life.

**SOC 001S Introductory Sociology (3)**  
(GS)

**(BA) This course meets the Bachelor of Arts degree requirements.**

Introductory Sociology provides perspectives and information useful in understanding all societies. The major theories (functionalism, conflict, and symbolic interactionism) and concepts provide the foundation upon which the remaining material rests. Learning how sociologists do research provides the tools for understanding the production of knowledge and for evaluating the validity of sociological assertions. Familiarity with systematic theorizing and conceptual development, along with some comprehension of the nature of the scientific method as it is applied in sociology,

enhances critical reasoning. To promote a more complete understanding of human social life, both in its inherent constraints and in the opportunities it provides; the nature and reality of culture and social structure are explored. The study of socialization provides perspectives on how one becomes a member of society. Exploring social interaction adds insight into the formation of the social self and the salience of group identities and norms. Ending this first section with a discussion of social control highlights the forces of stability and change in society.

The course then progresses to considerations of social stratification and inequality. The nature of privilege and oppression are discussed and considered in the specific contexts of race, ethnicity, gender, and age. The focus then shifts to social institutions. The essential work of society is accomplished via its major institutions: family, education, health care, economy and work, religion, and politics. Applying theoretical perspectives to the form and function of these institutions enhances an understanding of how different social structures provide varying constraints and opportunities to their inhabitants. Finally, considering large-scale forces for change provides a platform to comprehend where human societies have been, are now, and might be headed.

Throughout the course, the lectures as well as the textbook draw amply on cross-cultural and cross-national material. In addition, the course emphasizes the complexity of human social life and describes the many variables (social structural, cultural, interpersonal, and psychological) that influence behavior. A special component of the course deals with topics pertinent to the social behavior and norms of students of the ages typically taking this course. Depending on the faculty member, these topics could include sexual behavior, alcohol use, and problems in interpersonal relationships.

Discussion and questions are encouraged in all sections. Sections of this course may include group research projects, debates, and library or internet-based research. Along with personal contact, students have the opportunity to communicate with teaching assistants and faculty members via e-mail. Writing assignments, along with in-class examinations, are required in all sections.

This course meets a general education requirement in the social and behavioral sciences.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 001W (GS) Introductory Sociology (3)** The nature and characteristics of human societies and social life.

**SOC 001W Introductory Sociology (3)**  
**(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Introductory Sociology provides perspectives and information useful in understanding all societies. The major theories (functionalism, conflict, and symbolic interactionism) and concepts provide the foundation upon which the remaining material rests. Learning how sociologists do research provides the tools for understanding the production of knowledge and for evaluating the validity of sociological assertions. Familiarity with systematic theorizing and conceptual development, along with some comprehension of the nature of the scientific method as it is applied in sociology, enhances critical reasoning. To promote a more complete understanding of human social life, both in its inherent constraints and in the opportunities it provides; the nature and reality of culture and social structure are explored. The study of socialization provides perspectives on how one becomes a member of society. Exploring social interaction adds insight into the formation of the social self and the salience of group identities and norms. Ending this first section with a discussion of social control highlights the forces of stability and change in society.

The course then progresses to considerations of social stratification and inequality. The nature of privilege and oppression are discussed and considered in the specific contexts of race, ethnicity, gender, and age. The focus then shifts to social institutions. The essential work of society is accomplished via its major institutions: family, education, health care, economy and work, religion, and politics. Applying theoretical perspectives to the form and function of these institutions enhances an understanding of how different social structures provide varying constraints and opportunities to their inhabitants. Finally, considering large-scale forces for change provides a platform to comprehend where human societies have been, are now, and might be headed.

Throughout the course, the lectures as well as the textbook draw amply on cross-cultural and cross-national material. In addition, the course emphasizes the complexity of human social life and describes the many variables (social structural, cultural, interpersonal, and psychological) that influence behavior. A special component of the course deals with topics pertinent to the social behavior and norms of students of the ages typically taking this course. Depending on the faculty member, these topics could include sexual behavior, alcohol use, and problems in interpersonal relationships.

Discussion and questions are encouraged in all sections. Sections of this course may include group research projects, debates, and library or internet-based research. Along with personal contact, students have the opportunity to communicate with teaching assistants and faculty members via e-mail. Writing assignments, along with in-class examinations, are required in all sections.

This course meets a general education requirement in the social and behavioral sciences.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science



Effective: Fall 1998

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 003 (GS) Introductory Social Psychology (3)** The impact of the social environment on perception, attitudes, and behavior.

**SOC 003 Introductory Social Psychology (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Social psychology is a discipline that bridges sociology and psychology. Sociology focuses on large-scale social trends while psychology emphasizes the individual organism and its functioning. Social psychologists borrow perspectives and methods from both sociology and psychology. The major thrust, however, is on the influence of the social group areas such as socialization, social influence, conformity, group decision-making, interpersonal relationships, and social power. This course provides an overview of the major ideas and research streams that characterize modern social psychology.

Eight major goals guide the form and content of this course: (1) Survey existing theory and research in contemporary social psychology, (2) Enhance students' understanding of how social scientists conduct research, (3) Provide insight into the influence of social settings on human behavior, (4) Relate social psychology to other areas of social and behavioral science, (5) Help students to understand the interface between theory and research in social psychology, (6) Demonstrate the nature and outcomes of different cultural and sub-cultural processes, (7) Relate course material to contemporary personal and social problems, and (8) Provide opportunities for students to sharpen their critical thinking about human behavior. In general, this course is designed to enhance students' understanding of themselves, other individuals, and the world in which they live. For example, after taking the course, students will have a better understanding of why people sometimes help others in trouble and sometimes ignore them, what kinds of situations promote conformity to authority, what factors result in anger and violence, why intergroup conflict is so pervasive, and how attitudes are acquired.

Assessment is based on a combination of objective tests, a written group research project, individual papers, or a series of short research projects, depending on the instructor. All courses have at least one graded writing assignment. Group projects involve research on social influence. For example, students may use the Internet to study how political or religious groups attract supporters. Individual papers sometimes involve a critical book review. Alternatively, individual papers may be based on short research activities, such as examining the roles of women and men in rock videos or television commercials. Discussion and questions are encouraged in all sessions.

Sociology 003 meets a general education requirement in the social and behavioral sciences. This course also provides a useful foundation for advanced social science courses in economics, marketing, political science, counseling, child development, and law enforcement. It is a prerequisite for Sociology 403: Advanced Social Psychology.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 003H (GS) Honors Introduction to Social Psychology (3)** This is an honors course that enables students to learn, apply, and evaluate basic social psychology concepts, theories, and research.

**SOC 003H Honors Introduction to Social Psychology (3)**

Social Psychology is the scientific study of human minds and behaviors. It focuses on human development, social interaction between individuals, group influences on individuals, and interaction between groups. Social Psychology is an interdisciplinary area of study that bridges sociology and psychology. However, sociological contributions to this field will be emphasized. This course is especially appropriate for students in the Schreyer Honors College and Paterno Fellows.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 005 (GS) Social Problems (3)** Current social problems such as economic, racial, and gender inequalities; social deviance and crime; population, environmental, energy, and health problems.

**SOC 005 Social Problems (3)  
(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to introduce students to the main societal issues facing humanity at the present time and in the

foreseeable future. Although the course examines a number of social issues in the United States (such as crime and poverty), the course generally takes an international and inter-cultural perspective. The primary social issues that affect individuals and their children today are global, rather than national, in scope. For this reason, globalization is a recurring theme in the course.

Discussion and questions are encouraged in all sections. Assessment is based partly on objective and short-answer tests taken in class, including a final examination. All sections also include writing assignments that involve either library or Internet research. For example, in one commonly used assignment, students write a paper describing and analyzing a serious social problem in some country other than the United States, such as Ireland, Egypt, New Zealand, Ethiopia, Argentina, or Indonesia. An alternative writing assignment requires that students investigate and describe a local problem in Centre County. Another variation requires students to research the views of other students and groups on campus and compose a letter to the Penn State university president about an issue or problem on campus involving student behavior.

SOC 005 provides excellent preparation for most upper-level sociology courses. Because this course introduces students to social problems that will confront their generation in the near future, it also is relevant to other majors and disciplines, such as political science, economics, and health and human development. This course meets a General Education requirement in the Social and Behavioral Sciences.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 005H (GS) Social Problems (3)** Current social problems such as economic, racial, and gender inequalities; social deviance and crime; population, environmental, energy, and health problems.

### **Social Problems (3)**

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 007 Introduction to Social Research (3)** Fundamental concepts and problems in social science research; design, measurement, sampling, causation, validity, interpretation.

### **Introduction to Social Research (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 012 (GS) (CRIMJ 012, CRIM 012) Criminology (3)** Explanations and measurement of crime; criminal law; characteristics of criminals and victims; violent, property, white-collar, organized, and sexual crimes.

### **SOC (CRIMJ /CRIM) 012 Criminology (3) (GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Criminology is the study of the causes of criminal behavior. As such this course is an introduction to the topic with special focus on the major theories explaining criminal behavior including differential association, anomie, control theory and labeling theory. A key focus of the class is examining the most recent scientific research testing the basic theories. The students learn the various research techniques that have been used to study criminal behavior including crime statistics such as the Uniform Crime Report that serves as a monitor on crime trends. Several important areas of study that link understanding criminal behavior and its distribution across the social system are investigated including age, gender, race and ethnicity. One goal of the course is to promote a more complete understanding of crime and how it is enmeshed in human social life. The course concludes by using the knowledge base generated in the course to study the link of our understanding of criminal behavior and the emerging crime control policies of the past few decades. Finally, the course reviews the impact and effectiveness of some of these policies.

Throughout the course, the lectures as well as the readings emphasize the complexity of explaining human behavior and criminal behavior in particular. One aspect of the course is the use of a term paper on the objective and subjective availability of crime to the student. This paper emphasizes the complexity of the student's social life and the role that these factors may have on whether they have engaged in criminal behavior and their analysis of the causes of their criminal behavior. This project personalizes the various theories and helps the student understand the importance of their

social environment in whether they have or will engage in crime.

Discussion and questions are encouraged in all sections. Sections of this course may include group research projects, debates, and library or internet-based research. Along with personal contact, students have the opportunity to communicate with teaching assistants and faculty members via e-mail. Writing assignments, along with in-class examinations, are required in all sections.

This course meets a General Education requirement in the Social and Behavioral Sciences for non majors, is required for the CLJBA and CLJBS majors, and may be used in the SOC majors and minors.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 012H (GS) (CRIM 012H) Criminology (3)** Explanations and measurement of crime; criminal law; characteristics of criminals and victims; violent, property, white-collar, organized, and sexual crimes.

### **Criminology (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 013 (GS) (CRIMJ 013) Juvenile Delinquency (3)** Juvenile conduct, causes of delinquency, current methods of treatment; organization and function of agencies concerned with delinquency.

### **Juvenile Delinquency (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 015 (GS) Urban Sociology (3)** City growth and decline; impact of city life on individuals, families, neighborhoods, and government; urban life-styles.

### **Urban Sociology (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 019 (GS) Sociology of Popular Culture (3)** Students are introduced to the sociological study of how popular culture is produced, consumed, and experienced.

### **SOC 019 Sociology of Popular Culture (3) (GS)**

**(BA) This course is approved for the Bachelor of Arts degree requirements.**

This course provides an introduction to the sociological study of popular culture. Students are introduced to core sociological perspectives on culture and use them to the study how popular culture is produced, consumed, and experienced across space and time. The course addresses topics such as creativity and innovation in culture production; the rationalization and commercialization of popular culture; cultural capital and social distinctions; popular culture as an identity resource; selling and consuming popular culture, and popular culture in the digital era. Opportunities for students to conduct their own investigations of popular culture promote the development of research, evaluation, and communication skills that facilitate awareness of the significance of popular culture in their daily lives. By studying popular culture via social processes, structures, and interpersonal relationships students become more sociologically savvy observers of the world around them and gain a richer understanding of social stasis and change. The course provides students with a foundation for further study in sociology and related social sciences, as well as academic and

applied disciplines that focus on popular culture.

General Education: GS  
Diversity: None  
Bachelor of Arts: Other Cultures  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 023** (GS) Population and Policy Issues (3) Local, national, and international population trends; basic techniques of demographic analysis; population problems; implications for public planning and policy.

**SOC 023 Population and Policy Issues (3)**  
**(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Demographic changes are some of the most important factors in understanding the future of specific professions, our nation, and the world. This course introduces students to the discipline of demography, including an overview of demographic issues, theories of population, and major findings from demographic research. Focusing on the state, national, and global level, students will learn how the discipline of demography and how population structure and age are related to social institutions and public policy issues. Students will receive hands-on experience with the data and methods used by professional demographers and health and urban planners. Thus, this course should provide students with 1) a global perspective on population changes, 2) knowledge of demography research and theory, 3) analytical skills for the application of demography to public policy, 4) an awareness of how the diversity of a population (e.g., age structure, race, ethnicity, sex, and culture) is related to public policy, and 5) the active learning of demographic techniques.

The instructors encourage discussion and questions in all sections. Assessment is based on objective tests taken in class, writing assignments, and student research projects called population analysis exercises. The analysis exercises allow students to use the data and methods of professional demographers. Some sections will also hold in-class debates and will require the performance of in-class assignments.

This course meets a General Education requirement in Social and Behavioral Sciences.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 023H** (GS) Population and Policy Issues (3) Local, national, and international population trends; basic techniques of demographic analysis; population problems; implications for public planning and policy.

**Population and Policy Issues (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 030** (GS) Sociology of the Family (3) Family structure and interaction; functions of the family as an institution; cross-cultural comparisons. Students may take only one course for General Education credit from SOC 030 or HD FS 129.

**SOC 030 Sociology of the Family (3)**  
**(GS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Family, in all of its forms, is one of the most fundamental and enduring of social institutions. Because almost everyone grows up in a family, we are accustomed to thinking about the ways in which our values, personalities, and goals have been shaped by family experiences. In this course, however, we will examine families and family relationships from a sociological perspective. In particular, we will consider how our private, taken-for-granted family experiences are related to social factors such as gender, race, ethnicity, social class, the economy, and cultural attitudes and values. Through this course, students will (1) gain a better understanding of current U.S. family patterns and trends, based on empirical research, (2) be able to analyze and interpret family patterns and trends using sociological concepts and theories, (3) evaluate family-related information from multiple perspectives, (4) develop a greater appreciation of the diversity and choices in family life today, and (5) clarify their own values with respect to marriage and family life.

The instructors encourage discussion and questions in all sections. Assessment is based on objective tests taken in class

and writing assignments. These assignments may include library and Internet research, original empirical research, or a journal in which students describe their developing ideas about marriage and family life.

This course meets a general education requirement in the social and behavioral sciences.

Students may take only one course for General Education credit from SOC 030 or HD FS 129.

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 030H (GS)** Sociology of the Family (3) Family structure and interaction; functions of the family as an institution; cross-cultural comparisons. Students may take only one course for General Education credit from SOC 030 or HD FS 129.

### **Sociology of the Family (3)**

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 035** Sociology of Aging (3) Introduction to the sociological study of aging.

### **SOC 035 Sociology of Aging (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The sociology of aging covers social aspects of aging, including common beliefs about older people, the diversity of the aged, and how institutions such as the economy and family influence the aging process. Evaluation methods include two exams, each worth 20 percent of the final grade, and a series of written assignments. For example, there is one 5-7 page paper and a second shorter one on aging in another society. The course serves as a basis for taking SOC 435, Social Gerontology. It can be counted toward the major or minor in Sociology or Human Development and Family Studies.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 047 (S T S 047)** Wilderness, Technology, and Society (3) Impact of developments in science, literature, and art on changing attitudes toward nature; consequences for conservation, preservation, environmental ethics.

### **Wilderness, Technology, and Society (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 055 (GS)** Work in Modern Society (3) The nature of work in varied occupational and organizational settings; current trends and work life in the future.

### **Work in Modern Society (3)**

General Education: GS

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 060 (GS;IL)** (ANTH 060, J ST 060, PL SC 060) Society and Cultures in Modern Israel (3) An introduction to the society

and cultures of the State of Israel from 1948 to the present.

**SOC (ANTH/J ST/PL SC) 060 Society and Cultures in Modern Israel (3)  
(GS;IL)**

This course will review the social, cultural, and political systems in the State of Israel as they have developed and changed since its inception in 1948. The role of immigration, ethnicity, and religion on Israeli society and cultures will be explored along with the non-Israeli cultures that have helped to shape conditions there. The course will look into the diverse social and political institutions of contemporary Israel, examine the borders and geographic features of the region, and discuss who lives there, where they reside, and for which portions of this period. It will examine the wars and tensions between Israel and neighboring Arab states; the status of the Arab/Palestinian minority in Israel; and the growth of Palestinian nationalism. Social conditions in the State of Israel are the result of a unique history. Israelis have absorbed large numbers of immigrants from many parts of the world while engaged in ongoing political and military conflicts. Jewish settlers in Israel/Palestine revitalized a language (Hebrew) and developed unusual collectivistic institutions (e.g., the kibbutz). Israeli nationalism is founded both on secular and religious ideologies. It includes notions of a return from Diaspora and the desire for personal and collective redemption. The study of social processes such as these will provide an opportunity to consider the foundations and functions of nation-states and social systems generally. Materials will include selections from primary texts, official documents, novels, films, and ethnographic materials along with scholarly reviews and essays. Students will be exposed to materials produced from a variety of disciplinary and political perspectives. Through writing assignments, projects, and essay examinations, students will integrate, compare, and analyze these materials. The course complements offerings in Jewish Studies, Sociology, Anthropology, Political Science, and Middle East Studies and will satisfy the IL requirement. It enables those in Jewish Studies to examine the roughly 30% of Jews who reside in Israel, builds upon a current course on Zionism, and provides context for the study of modern Hebrew. It offers an additional international alternative for students in Sociology and Political Studies and a topical area in cultural Anthropology. Students in Middle East Studies will find it worthwhile to study a nation with a significant impact on the region.

General Education: GS  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 083S (GS) First-Year Seminar in Sociology (3)** Critical approaches to issues in the structure of society.

**SOC 083S First-Year Seminar in Sociology (3)  
(GS;FYS)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Each section of this course will be limited to 20 students who will be instructed by an experienced faculty member. Each section will focus on a well-defined body of scholarship that addresses a relatively specific topic while at the same time provide an opportunity for surveying broadly existing knowledge in the discipline. The specific content of the course will vary from offering to offering, and depending on the interests of the instructor, will introduce students to a sociological perspective on particular social issues. For example, one section examines racism and sexism as axes of privilege and oppression. Other sections may deal with major social institutions, such as the family or religion, or with fundamental social processes (e.g., demographic, social, and psychological). Finally, some sections may have a heavier policy emphasis--examining responses to social issues--while others might take a comparative or international approach.

Each section will emphasize the development of discussion, writing, and analytical skills and will give students the opportunity to work individually and in small groups. Students can expect to receive a general introduction to the University as an academic community and to explore their responsibilities as members of that community. They will also become familiar with the learning tools and resources available to them, and they will be able to establish relationships with faculty and other students who share their academic interests. This course fulfills a general education or Bachelor of Arts requirement in the social/behavioral sciences.

General Education: GS  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 103 (US) (AF AM 103, WMNST 103) Racism and Sexism (3)** Critical analysis of the structure of race and gender inequality in the contemporary United States.

**SOC (AAA S/WMNST) 103 Racism and Sexism (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on racism and sexism through a critical analysis of race and gender equality/inequality. A primary objective of this course is to provide students with information and conceptual tools necessary for understanding the

structure and composition of race and gender inequality in the United States today. The focus on both racism and sexism provides a perspective that is quite different from those of courses that deal with race or sex alone. Racism and sexism have much in common that suggests their combined study. The course examines the way in which these processes are socially constructed and defined and how these constructions and definitions are experienced in daily life at an individual level and societal level. The course also examines how social control dependent on power, privilege, and advantage continues to perpetuate sexism and racism. This understanding is fundamental to considering the ways in which society and its individual members may motivate social change that enhances equality. Other objectives include developing an appreciation of the commonalities and differences among women and among men and women of diverse ethnic groups in terms of their real-life experiences with these processes; expanding the ability to read and/or view critically information/misinformation encountered in everyday life; enhancing the capacity to express knowledge and perspectives both orally and in writing. In addition, each student comes to the class with personal objectives that the instructor attempts to ascertain and incorporate. A common foundation of knowledge is established through consideration of current statistical data and academic research studies, as well as essays and novels based on subjective thought and experience. Also included are historical documents that have influenced the social and legal status of women and of men and women of color throughout our country's history. Videos and the media are supplementary sources. Students are encouraged to be alert to relevant current events and be prepared to discuss them from a critical perspective. The format of the class is informal, emphasizing group participation and responsibility. Grades are based on the evaluation of short papers on the readings, relevant events, and contemporary culture; class participation; a book report; and a final project or take-home exam. AAA S/WMNST/SOC 103 is a supporting course for both the women's studies and sociology majors and minors and the African and African American Studies major. It is an additional course for the African and African American Studies minor. The course also meets the requirement for 3 credits on the topic of women of color for the women's studies major and the minor.

General Education: None  
 Diversity: US  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 109 Sociological Perspectives (3)** Intensive and critical analysis of the bases of the social order, change, values, knowledge, and conflict.

#### **Sociological Perspectives (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 110 (GS;US) (WMNST 110) Sociology of Gender (3)** Changing sex role expectations and behavior for men and women in contemporary society.

#### **SOC (WMNST) 110 Sociology of Gender (3) (GS;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides an introduction to the analysis and understanding of how men's and women's lives are different and how they intersect with each other. The course focuses on the social construction of gender and the impact of gender on experiences in a variety of social contexts and institutions throughout the life course, including cross-cultural comparisons of gender expectations. An overriding objective is to help students better assess and analyze the effects of gender throughout history and in their everyday lives.

Class sessions are a mixture of lectures, discussions, group exercises, guest speakers, and films designed to engage the students in the learning process. Each session helps students to critically evaluate the effects of gender discussed in their readings and experienced in their everyday lives. The evaluation tools used for this course extend this critical evaluation. Although the specific evaluation methods vary by sections, all sections use some form of reaction papers, book reviews, and/or journals. These writing assignments require students to demonstrate an understanding of the class readings, lectures, and activities, and to offer an evaluation and assessment of these readings and presentations. Because the social construction of gender is intertwined with family, work, religion, education, government, and all interpersonal interaction, the course overlaps with courses in each of these areas.

This course meets a General Education requirement in Social and Behavioral Sciences. It can be used as a lower-level sociology course in the Sociology BA major and the Sociology minor. It can also be used as a supporting course in the Women's Studies major and minor.

General Education: GS  
 Diversity: US  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 119 (GS;US) Race and Ethnic Relations (4)** Historical patterns and current status of racial and ethnic groups; inequality, competition, and conflict; social movements; government policy.

**SOC 119 Race and Ethnic Relations (4)**  
**(GS;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course has three objectives. First, the course will help you to think critically about issues related to race and ethnicity in American society. These issues include the meaning of race and ethnicity; the extent of racial and ethnic inequality in the U.S., the nature of racism, discrimination, and racial stereotyping; the pros and cons of affirmative action; the development of racial identity; differences between assimilation, amalgamation, and multiculturalism; and social and individual change with respect to race relations. The second objective is to foster a dialogue between you and other students about racist and ethnocentric attitudes and actions. The third objective is to encourage you to explore your own racial and ethnic identity and to understand how this identity reflects and shapes your life experiences.

The course is offered in both a large and a small enrollment format. In large enrollment courses, you not only attend lectures, but also participate in weekly discussion groups run by teaching assistants. These discussion groups typically have between 10 and 15 students. Your course grade is based on a combination of objective examinations, participation in group discussions, and short writing assignments. One example of a written assignment involves weekly journals. Each of your journal entries (typewritten and one or two pages in length) will focus on personal reactions to course material and answers to questions posed by the instructor. The course also requires out-of-class attendance at two campus events related to race or ethnicity, such as films, speakers, or workshops. For each event, a one-page written summary and personal reaction is required. Teaching assistants provide feedback on writing.

Small (or moderate) sections of the course usually operate without separate discussion sections. In these courses, however, instructors set aside a substantial amount of class time for discussion of course material, equivalent to about one class session per week. During discussions, the class may remain together or divide into smaller discussion groups. After addressing a topic, you may be asked to submit a short written reaction to the issues raised in the discussion. Assessment is based partly on objective examinations. In addition, the course requires a library research project in which you explore in greater detail a controversial topic covered in class. These papers require the use of multiple sources (books, journal articles), excluding the textbooks for the course. The instructor provides written feedback, prior to the end of the semester, on your papers.

This course meets a general education requirement in the social and behavioral sciences as well as a general education requirement in intercultural and international competence.

General Education: GS  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 199 (IL) Foreign Studies (1-12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 201 (GS) (CRIM 201) Presumed Innocent? Social Science of Wrongful Conviction (3)** Social science of how wrongful convictions occur; disparities in the criminal justice system; risks, factors, and policies.



**Persumed Innocent? Social Science of Wrongful Conviction (3)**

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 207** Research Methods in Sociology (3) Experiential-based course covering the four main social research methods: available data, survey research, experiments, and field research.

**Research Methods in Sociology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001  
Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 209** (GS;IL) (AFR 209) Poverty in Africa (3) The course examines the causes, consequences, and dynamics of poverty in African countries.

**Poverty in Africa (3)**

General Education: GS  
Diversity: IL  
Bachelor of Arts: None  
Effective: Fall 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which will fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 300** Preceptorship in Sociology (1-8, maximum of 4 per semester) Supervised experience as a teaching assistant under the supervision of an approved faculty member.

**Preceptorship in Sociology (1-8, maximum of 4 per semester)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2003  
Prerequisite: 3 credits in course work related to the subject of the course

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 309** Sociology of Health (3) Sociological concepts and principles operative in public and private areas of health and illness, including cultural, ethnic, and ecological factors.

**Sociology of Health (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001  
Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 381H** Junior Honors Seminar in Sociology (1) Supervised experience in planning the honors thesis and a sociological career.

**Junior Honors Seminar in Sociology (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1999  
Prerequisite: sociology major junior standing and admission to the Schreyer Honors College

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 395** Internship (1-6) Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.

**Internship (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1981  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**SOC 400W** Senior Research Seminar (3) Major concepts and principles of sociology through reading, data analysis, and writing. Capstone course for senior Sociology majors.

**Senior Research Seminar (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2001

Prerequisite: SOC 470

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 403** Advanced Social Psychology (3) Analysis of the major theoretical approaches and research findings of contemporary social psychology.

**Advanced Social Psychology (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1983

Prerequisite: SOC 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 404** Social Influence and Small Groups (3) The study of social influence, leadership and status, and social cohesion and commitment processes in small groups.

**Social Influence and Small Groups (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: SOC 003 or PSYCH 420

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 405** Sociological Theory (3) Overview of the development of sociological theory; current issues and controversies.

**Sociological Theory (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: 3 credits in the Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 406** (CRIMJ 406, CRIM 406) Sociology of Deviance (3) Theory and research concerning deviant behaviors and lifestyles viewed as significant departures from a group's normative expectations.

**SOC (CRIMJ/CRIM) 406 Sociology of Deviance (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Sociology of Deviance focuses on the theory and research in social construction of social norms, the violation of norms, and social reaction to the violation of norms. The course focuses on the role of social structure and power in the definition of deviance, on structural, cultural, and social psychological processes involved in deviant behavior, and the dynamics of social reaction to deviance. The course includes some content focusing on criminal deviance, but also emphasizes non-criminal deviance, as well as the role of social movements and social change in constructing and contesting deviance definitions. CRIMJ/SOC/CRIM 012 and CRIM/CRIMJ 250W are prerequisites. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the "Crime" component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: SOC 012 SOC 013 or SOC 005 or permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 408 Urban Ecology (3)** Spatial and temporal aspects of urban structure; urban growth, neighborhoods, racial and ethnic groups, mental illness; cross-cultural perspectives.

**Urban Ecology (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1983

Prerequisite: 3 credits in sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 409 (US) (AF AM 409) Racial and Ethnic Inequality in America (3)** The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.

**SOC (AAA S) 409 Racial and Ethnic Inequality in America (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course explores the impact of inequality and discrimination on individual and group identity for a wide range of social groups with special focus on racial and ethnic majorities and minorities. Using an extensive list of readings, writing assignments, small group activities, and journals (for personal reflection and scholarly critique) the students join the instructor in exploring the effects of inequality and discrimination. While emphasis is given to the inequality and discrimination experienced by local and national populations, a significant portion of the class will address issues rooted in international structures and institutions. Students are evaluated on quizzes, reaction papers, and analysis journals. AAA S/SOC 409 is not a required course in Sociology; it is, however, an optional 400-level course for all majors and minors that fulfills one of their upper-level course requirements. AAA S/SOC 409 is not required for the major or minor, but it is one of several optional courses from which they can choose to fulfill major and minor requirements.

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2012

Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 411 (US) (HD FS 416) Racial and Ethnic Diversity and the American Family (3)** This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States.

**SOC 411 (HD FS 416) Racial and Ethnic Diversity and the American Family (3)**

During the last several decades, the racial and ethnic composition of the U.S. population has changed dramatically. At end of the 20th century, non-Hispanic whites accounted for less than 75 percent of the U.S. population. While blacks remained the largest minority group, there were nearly as many Hispanics as blacks, and the number of Asians was increasing. Population projections indicate that by the middle of the 21st century, Hispanics will make up nearly one-fourth of the U.S. population. Blacks, Asians, and American Indians together will comprise an additional fourth of the population. The last several decades have also brought significant changes in family life in the United States, including declining rates of marriage, a rising age-at-marriage, an increase in cohabitation, and a dramatic rise in the proportion of births outside of marriage. While these trends in family life have been experienced by all racial and ethnic groups, there is substantial variation in family patterns by race and ethnicity. The course will build on other courses in social inequality and the family. The course does not overlap with any existing courses in the Department of Sociology or with courses offered in other relevant departments.

This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States. The student will read articles from major sociological journals and learn to extract major points and issues. He/she will learn to synthesize and critique various arguments on major issues in the field. The student will acquire skills in summarizing and evaluating arguments in essay form. He/she will also develop oral presentation skills. Final grades for the course will be based on class participation, a brief (approximately 5 pages) paper, a group presentation, a midterm examination (essay format) and a final examination (essay format). The course is not required for the Sociology minor or major. However, the course can count as one of the 400-level elective courses in Sociology for the Sociology minor, B.A. or B.S.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2005

Prerequisite: 3 credits in sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**SOC 412 (CRIMJ 412, CRIM 412) Crime, Social Control, and the Legal System (3)** Legal and extralegal control; public opinion on crime; criminal justice and correctional processes; legal sanctions; control strategies. Field trip.

**Crime, Social Control, and the Legal System (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: SOC 012SOC 013 orSOC 005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 413 (CRIM 413, CRIMJ 413) Advanced Criminological Theory (3)** This course provides an in-depth look at theories of crime and examines influential empirical studies designed to these theories.

**SOC (CRIM/CRIMJ) 413 Advanced Criminological Theory (3)**

Advanced criminological theory is intended to extend and deepen students' knowledge of core ideas in criminology. The course has four main emphases: 1) learning major schools of thought in criminology, 2) learning about the uses and construction of theory, 3) learning about approaches to integrating criminological theories, and 4) exploring how criminological concerns are grounded in and interrelated with core issues in sociology. The course is offered once a year with 50 seats per offering. CRIMJ/CRIM/SOC 012 is a prerequisite. Students will be evaluated on research or analytical papers, written assignments on course readings, and/or in-class essay-style exams. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with a Deviance and Criminology specialization.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: SOC 012CRIMJ 250W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 414 (CRIMJ 414, CRIM 414) Criminal Careers and the Organization of Crime (3)** Research on and theory of criminal careers and crime organizations, emphasizing recruitment and disengagement; offender characteristics and life- styles; policy implications.

**Criminal Careers and the Organization of Crime (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: SOC 012SOC 013 orSOC 005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 416 (US) (EDTHP 416) Sociology of Education (3)** The theoretical, conceptual, and descriptive contributions of sociology to education.

**Sociology of Education (3)**

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2006

Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 419 (US) Race and Public Policy (3)** Seminar format course in which sociological theory and research are applied to current race policy issues.

**Race and Public Policy (3)**

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2006

Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 420** (EM SC 420, S T S 420) Energy and Modern Society (3) Technology and economics of energy resources, production, and consumption; environmental factors, exhaustion, new technology.

**Energy and Modern Society (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 422** World Population Diversity (3) Survey of world diversity in national population growth/composition; the impacts of demographic change on the economic/social life of nations/people.

**World Population Diversity (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 423** Social Demography (3) Social demographic perspectives on fertility, mortality, morbidity, migration, population density, demographic transitions, social mobility, family, the aged, and minorities.

**Social Demography (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: SOC 023 or SOC 422

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 424** Social Change (3) Critical review of classical and recent theories of social change, emphasizing the transformations occurring in the modern world.

**Social Change (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1983

Prerequisite: 3 credits in sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 424H** Social Change (3) Critical review of classical and recent theories of social change, emphasizing the transformations occurring in the modern world.

**Social Change (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: 3 credits in sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 425** Social Conflict (3) An analysis of the variables affecting intergroup and international conflict and cooperation.

**Social Conflict (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: general behavioral science general psychology or general sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 428** Homelessness in America (3) Survey of social science research on homelessness in the contemporary United States.

**Homelessness in America (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 429** Social Stratification (3) Structure and dynamics of class, caste, and status systems; class differentials and social mobility; current theoretical and methodological issues.

**Social Stratification (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Winter 1978

Prerequisite: 3 credits in sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 430** Family in Cross-Cultural Perspective (3) Sociological analysis of family systems in various cultures and subcultures.

**Family in Cross-Cultural Perspective (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2001

Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 431** (HD FS 431) Family Disorganization: Stress Points in the Contemporary Family (3) Focuses on divorce, remarriage, incest, family violence as well as problems associated with family formation and parent-child relations.

**Family Disorganization: Stress Points in the Contemporary Family (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 1994

Prerequisite: 6 credits of human development and family studies psychology or sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 432** Social Movements (3) Why and how people mobilize to promote or retard social change. Factors predicting success or failure of social movements.

**Social Movements (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1983

Prerequisite: 3 credits in sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 435** (HD FS 434) Perspectives on Aging (3) An analysis of the demographic, social, and cultural factors affecting the aged population in American society.

**Perspectives on Aging (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2007  
 Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 440** (HD FS 440) Family Policy (3) An in-depth examination of family policy.

**SOC (HD FS) 440 Family Policy (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to provide an in-depth examination of family policy. Students will identify and critically analyze major issues, controversies, and policies that affect families. Attention will be devoted to recognizing both intended and unintended consequences of family policies and understanding policy challenges and trade-offs. Students will gain an understanding of how policies are shaped by both facts and myths, as well as our values. Students will examine historical and current trends in family patterns (e.g., divorce, women's labor force participation, nonmarital births) to understand the implications they hold for individuals, families and society. Students will gain an awareness of the social, economic, historical, legal, and political contexts within which family policies exist and are proposed. Although the main focus is on U.S. family policy, some time will be devoted to learning about family policies in other countries. We will learn about several specific family policies in-depth (e.g., welfare), but a final goal is to help students develop a general way of looking at family policy that they can then use to understand any issue of family policy that unfolds throughout their lifetime. This course will foster thoughtful reflection and critical thinking, writing skills, research skills, and skills of synthesis, logic, and argument. Course goals will be accomplished through course readings, writing assignments, lectures, class discussions, debates and group projects. Mastery of course material and student evaluation are assessed in several ways. Students will take a midterm and final exam that cover lectures, class discussions, and assigned readings. Two papers are also required. The first paper is based on an analysis of newspaper articles dealing with family policy issues that students will collect and relate to course materials. The second paper is a literature-based analysis of a family policy in a society outside the United States. Class participation is also essential and its evaluation will be based on a combination of class attendance, contributions to class discussions, participation in group debates and projects, and an oral presentation of the final paper on a non-U.S. family policy.

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2007  
 Prerequisite: 3 credits of SOC or HD FS

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 445** U.S. Immigration (3) This class examines theories of U.S. immigration and immigrant adaptation, effects of immigration, and policy.

**SOC 445 U.S. Immigration (3)**

The United States has long been known as a nation of immigrants. People have come for all sorts of reasons, including economic opportunity, political asylum, and religious freedom. Immigration continues to be a fundamental source of demographic and social change today. However, the nature of the changes brought about by immigration will depend on the pathways immigrants and their descendants take as they incorporate into American society. This course is designed to introduce students to theories of immigration, patterns of immigrant incorporation, immigration's impact on the U.S., and political debates about immigration issues.

Topic to be discussed include:

- Why do immigrants come to the U.S.?
- In what kinds of communities do immigrants live?
- What is the economic impact of immigration on U.S. society?
- What is the social impact of immigration?
- Are new immigrants assimilating?
- What are the problems with current immigration policies and what are the alternative approaches to reform?

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2012  
 Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 446** Political Sociology (3) Sociological analysis of types of political organization and their relations with other elements of social life.

**Political Sociology (3)**

General Education: None  
 Diversity: None



Bachelor of Arts: Social and Behavioral Science  
Effective: Winter 1978  
Prerequisite: 3 credits in sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 448 Environmental Sociology (3)** Examination of the relationship between the physical environment and society.

**Environmental Sociology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 60 credits at least 9 of which are in the social sciences graduate status or permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 449 Environmental Movements (3)** Comparative exploration of environmental movements within the context of classical and new social movement theory.

**Environmental Movements (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 90 credits at least 9 of which are in the social sciences or which include SOCIO/CMPSY 470 graduate status or permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 450 Justice and the Environment (3)** Considers notions of justice in relation to environmental philosophy, environmental movements, and general environmental concerns.

**Justice and the Environment (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: 90 credits graduate status or permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 454 (US) The City in Postindustrial Society (3)** Postindustrial social organization in the United States and Europe; consequences for metropolitan social stratification, community power, and environmental quality.

**The City in Postindustrial Society (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2006  
Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 455 Work and Occupations (3)** Work and occupational life in modern society; work in the past, present, and future.

**Work and Occupations (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 1983  
Prerequisite: 3 credits in sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 456 (WMNST 456) Gender, Occupations, and Professions (3)** The role of gender in shaping contemporary North American patterns of employment, occupational roles, and statuses.

**Gender, Occupations, and Professions (3)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2013

Prerequisite: WMNST 100 or 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 457 (US;IL) (ANTH 457, J ST 457) Jewish Communities: Identity, Survival, and Transformation in Unexpected Places (3)** Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement.

**SOC (ANTH/J ST) 457 Jewish Communities: Identity, Survival, and Transformation in Unexpected Places (3) (US;IL)**

This course addresses an understudied aspect of Jewish experience. It aims to expand our understanding of Jewish communities by focusing on those that are, alternatively, small, situated in out-of-the-way places, culturally outside the Jewish urban mainstream, or embedded in a larger society with markedly different values and traditions. These communities often constitute the points-of-contact between Jews and non-Jews, and in so doing sometimes transform Jews, non-Jews, and the relationships among them. Other such communities constitute experiments in Jewish lifeways and provide mainstream Jews with pilot projects for potential social and cultural change. This course will explore the significance of small, little-known, idiosyncratic, and anomalous Jewish communities on Jewish history and culture, and draw on them to instruct students on the social and cultural processes of small or unusual communities generally. The communities studied will be located both in the U.S. and elsewhere in which Jews have lived as a minority community during modern times. The course will look at the founding, growth, and decline of such communities and at their social processes and institutions. It will explore how to understand and analyze such communities, which vary from one part of the world to another. The social world of Jewish communities, large and small, is a core interest of Penn State's Jewish Studies Program. This course will complement the current offerings in Jewish Studies, strengthening the social, cultural, and contemporary perspectives available in the Program. It will provide students with an opportunity to explore individual experience and micro-level processes among Jews, and to study the dynamics of identity and survival. It will complement the current offerings in Sociology and Anthropology by affording an opportunity to focus on community-level social processes and by adding a course on contemporary Jewry. The course will integrate knowledge from a variety of sources and fields, promote intercultural understanding, and meet US and IL requirements. Materials will be interdisciplinary, and will include ethnographies, sociological studies, population studies, histories, and personal narratives. They will include primary texts, creative works, and scholarly analyses. The assignments will be structured to facilitate preliminary experience in independent analysis, library research, or field research.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Summer 2006

Prerequisite: ANTH 001 or ANTH 045HEBR 010J ST 010SOC 001SOC 005SOC 007SOC 015

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 461 (US;IL) (RL ST 461) Sociology of Religion (3)** Contemporary religion in the global perspective: beliefs, structure, and function of major religious traditions, denominations, and cults.

**Sociology of Religion (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2013

Prerequisite: 3 credits in sociology or religious studies

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 467 (CRIM 467, CRIMJ 467) Law and Society (3)** Law and society studies the social origins of law and legal systems; occupational careers, and decision-making of legal officials.

**SOC (CRIMJ/CRIM) 467 Law and Society (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Law and society teaches students' knowledge of key concepts and core ideas about the role of law in society. The course will cover the basics of key legal philosophies, major social science theories of law and society, research in law and society, the structure of the legal profession, and vital contemporary issues involving the role of law in society. CRIM/CRIMJ 113 and CRIM/CRIMJ 250W are prerequisites. The evaluations methods will include written assignments on course readings, and essay-style exams. Law and Society may be counted toward the credits required for the B.A. and B.S. in Crime, Law and Justice. It would fulfill one of the 400-level requirements in the "Law" component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization.

General Education: None

Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2008  
 Prerequisite: CRIMJ 100 or CRIMJ 113 or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 468** Mood-Altering Substances in Society (3) Perspectives of cultures throughout the world toward mood-altering substances are reviewed in light of public policy, benefits, and problems.

### **Mood-Altering Substances in Society (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 469** Techniques in Small Group Facilitation (1-4 per semester/maximum of 12) This course is the training course for students working as facilitators with the World in Conversation Project.

### **SOC 469 Techniques in Small Group Facilitation (1-4 per semester/maximum of 12)**

SOC 469 is an advanced training course for students who have been selected to be facilitators for the World in Conversation Project. In this course, students draw on sociological theories and methods to learn how to sharpen their group facilitation skills in order to lead small group dialogues on race relations. The main objective is to learn how to create an ideologically neutral environment in which participants will think critically and speak candidly about their views and roles in race relations. All evaluations are accomplished through "live" observations of students actually facilitating dialogue. In order to be considered for a position as facilitator with the World in Conversation Project, a student must successfully complete SOC 119 (Race and Ethnic Relations) and SOC 300 (Preceptorship in Sociology).

There are different learning objectives for students who take SOC 469 the first time as compared to those returning for multiple semesters. The general objectives are as follows:

**Semester 1:** During the first semester, students develop advanced facilitation skills. In the context of work with the World in Conversation Project, this means that they acquire the tools they need to encourage critical thinking, to address complex racial and culture-related subjects and emotions, to lead "ideologically neutral" dialogue, and to more adeptly understand and implement the Socratic Method. At the core of their learning is study of the sociological dynamics of group process.

**Semester 2:** During the second semester, students develop their social and emotional intelligence as the foundation for implementing successful conversational interventions. The core of their learning involves integrating a more advanced understanding of their own personal cultural identity with more advanced facilitation techniques. In other words, in order to master small group facilitation and group process, students need to explore the nuances of their own personal racial and cultural identities and how these enter into their work as facilitators.

**Semester 3:** Students stay on for a third semester only if they can clearly articulate the advanced facilitation/observation/interpretation skills learned during the first two semesters in a way that allows them to assume the role of a peer mentor with new facilitators.

A student is only invited back for subsequent semesters of SOC 469 if they have successfully accomplished the learning objectives set forth for each semester.

The method of evaluation is standard for each semester that a student takes the class, and consists of a combined approach that includes: 1) live observations via an audio/video monitoring system and performance goal-setting with instructors and WCP staff (weekly), 2) self-evaluation and personal goal-setting through review of recorded small group dialogue sessions (three times per semester), and 3) personal meetings with course instructors (twice per semester).

For Your Information:

What is the WCP?

These are campus wide 90 minute, peer facilitated small groups where trained undergraduate students (former SOC 119 facilitators) help participants explore their personal stories, views, biases and roles in race relations using a version of the Socratic Method. These inquiry-based sessions are designed to discuss the true nature of race relations face to face in an ideologically neutral environment. The conversations are extremely popular with participants (85 percent rate them as valuable and worthwhile) and the number offered each year has grown from 140 to over 800 in just six years. Currently twenty facilitators work for the project, all Penn State undergraduate students.

The WCP Mission Statement:

The mission of the RRP is to create an ideologically neutral environment for dialogue where individuals can voice their true concerns about race relations and begin to address these concerns in a productive and meaningful way.

WCP Philosophy:

Our guiding assumption is that the articulation of one's viewpoint on an issue is the beginning of greater understanding and knowledge of that subject. And the experience of doing so with others in a group setting creates a kind of synergy that advances critical thinking as well as bridge building.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: SOC 119 and SOC 300

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 470** Intermediate Social Statistics (4) Descriptive and inferential statistics in social research: central tendency and variation, normal distribution, measures of association, confidence intervals, hypothesis testing.

#### **Intermediate Social Statistics (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2001  
Prerequisite: SOC 207

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 471** Qualitative Research Methods in Sociology (3) Theory, methods, and practice of qualitative data collection, including observation, participant observation, interviewing; supervised projects in natural settings.

#### **Qualitative Research Methods in Sociology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 2001  
Prerequisite: 3 credits in Sociology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 481H** Senior Honors Seminar in Sociology (1) Supervised experience in planning and writing the honors thesis.

#### **Senior Honors Seminar in Sociology (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Spring 1999  
Prerequisite: sociology major senior standing and admission to the Schreyer Honors College

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

#### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

#### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2000

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOC 499** (IL) Foreign Study--Sociology (2-6) Study, in selected foreign countries, of groups, institutions, and social problems.

#### **Foreign Study--Sociology (2-6)**

General Education: None

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2005

Prerequisite: 3 credits in Sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Sociology-CI (SOCIO)**

**SOCIO 476** Sociology of Science and Technology (3) Examines the constitutive relationship between society, science and technology and ethical concerns arising from these relationships.

#### **SOCIO 476 Sociology of Science and Technology (3)**

Unquestionably, ours is a technological and scientific age. Economic changes since Antiquity appear to be driven by or at least greatly influenced by technological innovation and science. Still, sociologists contend that the scientific enterprise is a social one - both a result of social forces and a social force itself. Because of this, it behooves us to consider science and technology from a sociological perspective. Moreover, science's and technology's growing importance in society require that we evaluate their ethical implications. In particular, a number of questions need to be addressed. What is science? How does science differ from other endeavors, particularly technological development? What values underlie science? How do science and technology shape society? Conversely, how does society shape science and direct technological development? And what are the ethical implications of science and technology? To adequately consider these questions, review of prehistoric technological innovations, technological innovations of antiquity, and their impact on social structures and institutions is necessary. Modern science's structure and impact require that science's origins, assumptions and values be examined and compared to its predecessors. The tangible effects of science and technology on

law, public policy, medicine, education, etc., call for careful consideration of specific examples detailing the way that society shapes science and technology while society itself is shaped by science and technology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2003

Prerequisite: 60 credits at least 6 of which are in the social sciences or graduate status or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Software Engineering (SWENG)

**SWENG 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### Internship (1-18)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 311** Object-Oriented Software Design and Construction (3) Design, documentation, testing, and construction of software using software engineering strategies embodied in object-oriented programming languages.

### SWENG 311 Object-Oriented Software Design and Construction (3)

Object-oriented design and programming embody powerful design strategies that are based on practical and proven software engineering techniques. In this class, students will learn how existing object-oriented languages support these strategies, how to apply these strategies to moderately-sized systems, and how to use a visual object-oriented modeling tool such as the Unified Modeling Language (UML). Students will build on programming skills acquired in prerequisite programming courses by programming in a major object-oriented programming language.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: CMPSC 122

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### Internship (1-18)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 396** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### Independent Studies (1-18)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 400** Introduction to Software Engineering Studio (3) Provides an introduction to the principles of software engineering and includes complementary instruction in one programming language.

**Introduction to Software Engineering Studio (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999  
Prerequisite: senior standing or above

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 411** Software Engineering (3) Software engineering principles including life cycle, dependability, process modeling, project management, requires specification, design analysis, implementation, testing, and maintenance.

**SWENG 411 Software Engineering (3)**

This is an introductory course in software engineering, addressing the software development process, including aspects such as software requirements documentation, design specification, implementation, system integration, testing, and maintenance by individuals and teams. Topics include software process modeling, requirements elicitation and documentation, software architecture design and analysis, detailed design and programming, graphical user interface (GUI's) design and prototyping, software quality assessment, software testing, software maintenance and evolution management, personal and team-based development. In lab students gain practical experience by completing programming assignments and utilizing computer-aided software engineering (CASE) tools for their personal projects tailored to each stage of the software life cycle. A semester long team-based project is required that reinforces teamwork fundamentals and the concepts covered in lecture. The projects and assignments provide an opportunity for student teamwork, document writing, and oral presentations.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: CMPSC 122  
Concurrent: SWENG 311

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 421** Software Architecture (3) The analysis and design of software systems using canonical design patterns.

**SWENG 421 Software Architecture (3)**

This course introduces the frequently-used software infrastructures in software development by experienced engineers. The formal UML notations are utilized to design software architecture and help communicate the design visually.

Students will learn the real practice of architectural styles, design patterns and design reuse. As to certain complex problems, alternative architectures will be proposed and their design trade offs will be evaluated. For instance, students compare two-tier with three-tier client/server architectures for distributed systems, and employ multi-process and multi-thread concurrent architectures for high performance computation systems. Moreover, students learn to conduct high level quality analysis from the design artifacts. The quality evaluation will focus on a number of attributes, including reusability, extendibility and performance.

A great deal of effort is placed on the major categories of design types containing dozens of separate design patterns. Students first review the most fundamental design patterns. Afterwards, they apply creational patterns to effectively create objects, partitioning patterns to categorize objects, structural patterns to allocate objects, behavioral patterns to interface the communication between objects, and concurrent patterns to handle tasks simultaneously. These skills will enable students to extend their own knowledge after graduation by giving them the skills to learn new patterns on their own.

Finally, students will integrate their programs with native code applications to enlarge the application domains. To achieve best reusability, they also learn modular designs to develop component-based software. These help them meet today's software needs of cross applications and architectures.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: SWENG 411

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 431** Software Verification, Validation, and Testing (3) Introduction to methods of software verification, validation, and testing; mathematical foundations of testing, reliability models; statistical testing.

#### **SWENG 431 Software Verification, Validation, and Testing (3)**

Provides a background necessary for verification, validation, and testing of software systems. Verification addresses the question: "are we building the product right?" In other words, does the product meet the engineering specifications? Validation addresses whether the right product is being built and if it meets the design requirements. The testing aspect of the course addresses many of the methods available to test software systems. The levels of testing explored are 1) unit level (each module is tested independently), 2) integration testing (where the modules are integrated together and tested as a complete system), and 3) acceptance testing (the testing requirements of the users). Following this, specific test methodologies are addressed. By the end of this course the student should also be able to develop an appropriate test plan.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: SWENG 411;STAT 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 452W** Embedded Real Time Systems (3) The design and implementation of real time systems.

#### **SWENG 452W Embedded Real Time Systems (3)**

Real time operating systems is the study of hardware/software systems in which timing constraints must be met for correctness. Real time systems are embedded in applications ranging from the antilock brakes in cars to the flight control systems for jetliners. Students are first introduced to the concept of systems with real time constraints by examining case studies. The unified modeling languages (UML) with real time extension is introduced allowing students to capture the constraints present in the systems in a variety of models allowing the problem to be described at several levels of abstraction. Tasks and messages are introduced as programming structures which can satisfy the constraints described by the UML models. With a basic understanding of real time systems and how to implement them, the focus of the course shifts away from these technical concerns towards understanding the documentation of the requirements using the Volere Requirements Specification template. All the writing assignments in the class will revolve around Volere in one way or another. Increasingly complex case studies will give the class the opportunity to explore more sophisticated inter-task communications mechanisms as well as common pitfalls present in RTOS applications. Students will learn how to verify the correctness of their applications in order to guarantee that the real time constraints can be met when the system is deployed. Discussion will turn to application programmer interfaces used by hardware vendors to port hardware into a RTOS. The class will end by designing and building a complex RTOS by a team of students using the techniques learned in the class. The project will outline the needs of the RTOS application in a project proposal using the Volere template. The proposal will be developed iteratively with the faculty member until its scope and definition are clear. This proposal will be developed into a complete requirement specification including a time-line and identification of development benchmarks. This system resulting from the development will be documented in the final report write-up.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: CMPSC 472 orCMPSC 473 orCMPEN 441

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 465** Web Services (3) This course introduces the students to a contemporary computing paradigm called



"service-oriented computing."

**SWENG 465 Web Services (3)**

This course focuses on a new computing paradigm called "service-oriented computing", which has been greatly impacting a wide array of software systems. It covers "service-oriented architecture." Students will not only gain an in-depth understanding of the concepts and technical issues underpinning Web services, but also gain hands-on experience of the development of software systems built upon Web services.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: SWENG 311 orCMPSC 221

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 480 Software Engineering Design (3)** Concepts of engineering ethics, economy, and project management, senior capstone project selection, and technical communication skills.

**SWENG 480 Software Engineering Design (3)**

This course prepares senior software engineering students for industrial engineering design and project management. It covers the engineering design process, project planning and evaluation, engineering ethics, and engineering economy. In addition, students select, specify, and start their capstone design project, which is completed, in the follow-up course, SWENG 481. Students are expected to carry out a group design project that is on par with industrial expectations. Upon completion of this course a student should have a solid understanding of the engineering design process, a clear capstone project description, should have completed some preliminary design work, and be adequately prepared to complete the project in SWENG 481.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: SWENG 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 481 Software Engineering Project (3)** Capstone group design projects in software engineering.

**SWENG 481 Software Design Projects (3)**

In this course students complete their group senior design project started in SWENG 480. Design groups meet regularly with a faculty advisor to report progress and resolve technical issues. Oral and written progress reports are expected at selected times. The class culminates with a final technical defense of the project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: SWENG 480

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 494 Research Project (1-12)** Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 495 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 497A** Special Topics: Software Documentation (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics: Software Documentation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 497B** Special Topics: Tools and Processes for Software Engineers (3) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics: Tools and Processes for Software Engineers (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWENG 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Soil Science (SOILS)**

**SOILS 071** (GN;IL) Environmental Sustainability (3) An introduction to environmental science, exploring sustainable human- environment interactions with examples from environmental soil science.

**SOILS 071 Environmental Sustainability (3)**  
**(GN;IL)**

This class provides an introduction to environmental sustainability for students with no background in environmental science or soils. The concept of sustainability provides a framework for understanding environmental problems by balancing the needs of current society with the long-term needs of future societies and the environment. Sustainability also provides a framework for linking international cultures because environmental problems and solutions often cross political and cultural boundaries. The goal of the course is to develop critical thinking skills related to sustainable environmental choices. As we explore the concept of sustainability, we will discover the role of soil in mediating human-environment interactions by determining natural plant and animal abundance, supporting agriculture, and buffering the environment against modern pollution.

The five themes of the class are: 1) The science of nature and the nature of science, which introduces students to the scientific method and value systems that affect environmental choices, 2) Population and consumption, where we consider these challenges to global sustainability, 3) the Malthusian dilemma of how we can feed billions of people in the near future, 4) the conservation dilemma of how we can maintain a healthy environment (while feeding billions of people), and 5) Success stories in sustainable environmental science and policy.

The class will include "soils cases" in which examples from environmental soil science are used to convey principles of sustainability, and "sustainability walks" to see examples of sustainable environmental choices near campus. Students will complete the class with: 1) a survey of the key issues in global environmental sustainability, 2) exposure to current scientific information related to these issues, 3) an enhanced ability to interpret environmental data, 4) an increased knowledge of the role of soils in maintaining environmental quality, 5) an increased understanding of how environmental problems and solutions are global phenomena, requiring cooperation among many international cultures, and 6) a significant depth of knowledge about "what it takes" to feed 6.5 billion people while maintaining a healthy environment.

General Education: GN  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 101 (GN)** Introductory Soil Science (3) A study of soil properties and processes and relationships to land use, plant growth, environmental quality, and society.

**SOILS 101 Introductory Soil Science (3)**  
**(GN)**

This survey and foundational course introduces students to a broad range of subject matter from most sub-disciplines of soil science. We study a range of soil characteristics and seek to understand their relationship to soil function, land use, plant growth, environmental quality, and society/culture. This course introduces students to the variety and complexity of soils on a local, national, and international scale. We identify the physical, chemical, and biological properties and processes of soils and relate these to the way that societies use and abuse soils. Students acquire a working knowledge of the technical terminology of soil science and begin developing observational skills needed to describe and/or locate soil properties for specific locations and to interpret those properties for various uses. We learn to recognize and explain various land use and management practices and to select those that are appropriate at a given site. Students also evaluate the impact of land use and management decisions on agricultural productivity and sustainability, environmental and ecological health, and on community relationships.

This course is required or on a list from which students select for many environmental and agricultural majors. It is specifically listed as a prerequisite for many other SOILS courses and for several soils-related courses taught at Penn State.

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 102** Introductory Soil Science Laboratory (1) Laboratory exercise and field trips designed to develop student competency in soil description, analysis, and assessment.

**SOILS 102 Introductory Soil Science Laboratory (1)**

This laboratory course is designed for students who plan to work directly with soils, make land use and management decisions, or to be involved in projects requiring practical application of soil science principals. By conducting weekly laboratory and field exercises and writing reports on their work, students will deepen their understanding of, and learn to apply, the fundamental soil properties and processes introduced in SOILS 101. This laboratory course, in conjunction with the SOILS 101 lecture course, will provide foundational learning in soil science and prepare students for upper level soil science courses. This laboratory course is also designed to provide students with hands on experience in analytical procedures for soil assessment, testing, and interpretation, as well as field experience in observing, characterizing and

describing soils.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: SOILS 101  
Concurrent: SOILS 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 190** Professional Development in Environmental Soil Science (1) Development of learning goals and an introduction to faculty and alumni contacts, student portfolios, the senior thesis, and internship opportunities.

#### **Professional Development in Environmental Soil Science (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 401** Soil Composition and Physical Properties (3) Advanced study of mineralogical and physical properties of soils which affect soil-plant-water relationships.

#### **Soil Composition and Physical Properties (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: SOILS 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 402** Soil Nutrient Behavior and Management (3) Chemical and biological behavior of soil nutrients; management for plant availability and fate in the environment. Laboratory emphasizes soil testing and soil-plant relationships.

### **SOILS 402 Soil Nutrient Behavior and Management (3)**

Soil Nutrient Behavior and Management is a senior/graduate level course that covers the chemical and biological processes that determine the behavior of essential plant nutrients in soils. As this understanding of basic nutrient behavior is developed in the course, it is applied directly to explain the basis for management of nutrients for optimum plant availability. This same nutrient behavior is linked to the fate of nutrients either applied as sources of plant nutrition or through disposal of nutrient containing materials on soils, which is a major environmental issue. Management practices necessary to minimize environmental impacts from nutrients are also covered. From this background students will be able to understand nutrient behavior and management recommendations and adapt management to a variety of soil-plant systems and situations both for plant growth and environmental protection. Real world examples of developing and adapting management systems are used to illustrate this process. The laboratory exposes the student to common soil testing procedures, methods for studying soil nutrient-plant interactions, and examples of practical application of management practices in the field. Evaluation will be based on 3 exams, laboratory reports, homework assignments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: CHEM 112SOILS 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 403** Soil Morphology Practicum (2 per semester/maximum of 4) Students develop field skills to describe soil morphology, classify soils, and make land use interpretations.

### **SOILS 403 Soil Morphology Practicum (2 per semester/maximum of 4)**

SOILS 403 is an eight week course that provides students with the opportunity to: make detailed soil morphological descriptions and interpretations; evaluate soil properties and their suitability for different land uses; and observe various soils throughout the Northeastern U.S. SOILS 403 synthesizes techniques used to describe soil morphology and site characteristics, classify soils, and make land use interpretations. The field skills taught are highly applicable to those pursuing careers in fields of environmental studies, engineering, waste disposal, horticulture, landscape architecture, agricultural, forestry, consulting, and by those describing soils for research. Students also have the opportunity to try out for the Penn State Undergraduate Collegiate Soil Judging Team each fall.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: SOILS 101 or equivalent

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 404** Urban Soils (3) This course introduces the student to natural and human-influenced soils.

### **SOILS 404 Urban Soils (3)**

This course introduces the student to the management of soils in urban and suburban settings via comparisons in soil physical, chemical, and biological properties. The soil is also examined as the interface between the biotic and abiotic components of an urban site. Therefore, site management of soil during or following placement is examined in detail. Urban soil physical and chemical properties are discussed in terms of site stability. The interactions between stormwater management, erosion control, soil mechanics, and the soil's ability to support vegetation are examined in the context of sustaining urban environments. The soil design process is presented: site assessment, biophysical analysis, profile construction, specification formulations, and conformance testing and inspection protocols. Professional practical examples such as mine reclamation, brown field restoration, and landscape construction are presented to illustrate the process. The student completes a series of exercises to gain experience in soil examination, soil/land use interpretation, site assessment, soil erosion calculations and a group assignment that evaluates soil issues on a reclamation or construction project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: SOILS 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 405 (GEOSC 405) Hydopedology (3)** Soil and water interactions across scales, integrated studies of landscape-soil-water relationships, fundamental processes of water flow and chemical transport.

### **SOILS (GEOSC) 405 Hydopedology (3)**

Hydopedology is the study of the fluxes, storages, pathways, residence times, and spatio-temporal organization of water in the root and deep vadose zones, and their relations to climate, ecosystem, land use, and contaminant fate. The aim is to characterize integrated physical, chemical, and biological processes of soil-water interactions across scales (including chemicals and energy transported by water flow). This course embraces interdisciplinary and multiscale studies of interactive pedological and hydrological processes in the earth's surface and subsurface environments. The course will address the fundamental issues and practical applications of hydopedology (as a sister discipline of hydrogeology). This course emphasizes *in situ* soils that have distinct characteristics of pedogenic features, structures, layers, and soil-landscape relationships in the real world. Students will gain an in-depth understanding of soil and water interactions across scales from point observations to watershed phenomena, and will gain skills in predicting flow pathways and water fluxes in the landscape. This course promotes active learning, critical thinking, and hands-on skills. Course format will consist of two lectures and one laboratory/field exercise each week. The course will utilize a network of local watersheds with different land uses for demonstrations and class projects. Grading will be based on weekly lab/field exercise (20%), class research project (40%), homework (10%), one midterm exams (15%), and one final exam (15%). Since hydopedology is linked to a wide array of environmental, ecological, geological, agricultural, and natural resource issues of societal importance, SOILS (GEOSC) 405 will support interdisciplinary training of students in Soil Science as well as in other disciplines of the College of Agricultural Sciences, especially Agricultural and Biological Engineering, Agronomy, and Forest Resources. Students in the College of Earth and Mineral Sciences, College of Engineering, Eberly College of Science, and the Intercollege Graduate Degree Program in Ecology also will find this course useful when undertaking research on the vadose zone, the hydrologic cycle, and the earth system.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: SOILS 101

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 412W Soil Ecology (3)** Introduction to soil organisms; includes interactions between organisms, their processes, and metabolism with a major focus on microorganisms.

### **Soil Ecology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 011BIOL 127 orBIOL 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 416 Soil Genesis, Classification, and Mapping (4)** Lecture and laboratory course on the genesis of soils, their classification, mapping, and interpretation for land use.

### **SOILS 416 Soil Genesis and Classification (3)**

The study of soil genesis, classification, and mapping examines the evolution of soils, their organization into natural units, and their distribution throughout the world. Physical, chemical, and morphological soil characteristics are studied both in the field and classroom and then used to classify soils. These classification units are in turn used to study the processes that influence soil development. Students acquire a detailed knowledge of the technical terminology of soil genesis and develop observational and analysis skills needed to describe and/or interpret soil morphologies in the context of the landscape a profile is found in. Students learn to recognize and explain soil genetic pathways due to current or past soil forming periods (as affected by climate change for example). Students also evaluate the effect of soil genesis on land use and management decisions, learn how to map soils at multiple scales, and deliver soil mapping information.

The course is comprised of weekly lectures and a laboratory. Exercises in the field and laboratory are designed to further develop a student's ability to ascertain a natural soil's origin using the five soil forming factors. Field skills that will be refined over the course of the semester include profile description, site description, soil mapping, and measurement and characterization of soil physical and chemical properties.

Upon completion of SOILS 416, students will demonstrate: 1) deep understanding of fundamental soil processes that result in the genesis of soils around the world; 2) familiarity with soil analytical and testing protocols for common laboratory and field measurements used in studying the genesis of soils; 3) skills for interpreting soil profiles from the soil orders of the world; 4) accurate prediction of soil genesis pathways for a given landform; 5) the ability to interpret soil profile physical and chemical data, classify a soil according to US Soil Taxonomy, map soils to an order 1 level, and be able to apply soil profile information as gathered from the US Soil Survey program to make land use interpretations.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: SOILS 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 418** (AGECO 418, AN SC 418) Nutrient Management in Agricultural Systems (3) Comprehensive review of nutrient flow in animal agricultural systems, environmental regulations, and environmental stewardship practices.

### **SOILS (AGECO/AN SC) 418 Nutrient Management in Agricultural Systems (3)**

Nutrient Management in Agricultural Systems is a senior level course that applies the fundamentals of animal and plant, sciences to the concept of a nation-wide food animal system. The regional concentration and consolidation of animal production enterprises has resulted in important economic savings for consumers. But these changes have also had some detrimental impacts on the environment. For example, some nutrients such as calcium and phosphorus and certain trace elements are mined, while others such as nitrogen and potassium are derived from crop production systems. In all cases, the nutrients are transported to areas of livestock concentration. A small portion of the nutrients leave the farm in the form of animal products, while 60 to 70% of the nutrients are excreted and applied to nearby crop land. The environmental implications of the net influx of these nutrients to livestock producing communities have only recently been recognized. These concepts will provide the background around which regulations are written and sound nutrient management strategies are developed and implemented.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 419** (GEOSC 418) Soil Environmental Chemistry (3) Introduction to chemical constituents and processes occurring in soils. Topics include mineral weathering, soil solution chemistry and adsorption of solutes.

### **SOILS 419 (GEOSC 418) Soil Environmental Chemistry (3)**

Upon completion of the course, the students will be able to identify the soil components and properties responsible for the chemical reactivity of soils and will know the fundamental chemical processes that occur in soils. The students will also be able to link theoretical concepts to real life environmental problems.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: CHEM 112

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 420** Remediation of Contaminated Soils (3) Basic principles and technical aspects of remediation of contaminated soils.

### **SOILS 420 Remediation of Contaminated Soils (3)**

Remediation of contaminated soils is an introduction to the basic principles and techniques of remediation. Upon completion of this course, students will be able to determine what type of remediation technology needs to be used in real-world conditions depending upon the chemical nature and extent of contamination and learn about protocols for soil sampling and leach testing. They will learn about regulatory background and many different types of wastes that will be encountered in contaminated soils. Students gain knowledge of various cationic and anionic species of metal contaminants and how best to fix these using chemical fixation and solidification technique, which is an established remediation technology. In addition, they will learn about other established technologies such as on-site and off-site incineration and innovative technologies such as bioremediation, phytoremediation, vacuum extraction, thermal desorption, soil washing, solvent extraction, ex-situ supercritical oxidation, in-situ vitrification etc. They will be able to determine which technology is cost-effective for a particular contaminated soil. Students are evaluated through written testing of their understanding of basic remediation concepts and an oral presentation about a novel remediation technology through literature search. Soils 420 has no laboratory component.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: SOILS 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**SOILS 422** Natural Resources Conservation and Community Sustainability (3) Conservation, land-use, and community (soil, water, air, plants, animals, and humans) impacting quality of life and sense of place.

### **SOILS 422 Natural Resources Conservation and Community Sustainability (3)**

SOILS 422 provides the student with practical knowledge of community and natural resources conservation. The course covers symbiotic aspects of soil, water, air, plants, animals, and humans and their impact on the community. The course focuses on developing methods for the conservation and sustainable use of resources. This involves understanding the land ethic and developing a sense of place.

Conservation awareness has grown in recent years. Originally, erosion control was the sole reason for conservation planning. Eventually water conservation also became a concern addressed by planning. We have now moved into an era of ecosystem-based planning, where soil health, water and air quality, sustainable communities, and much more are considered in conservation planning. This planning involves both natural and human resources.

SOILS 422 covers understanding, designing, and developing best management practices (BMP's) for addressing resource conservation and maintaining sustainable farmland and communities. Calculating runoff and soil loss are researched and integrated into conservation planning as tools for establishing the need for BMP's.

Resources and technologies are covered, such as soil surveys, geographic information systems (GIS), global positioning systems (GPS), and ground penetrating radar (GPR). Networking and partnerships are also covered to give the student a practical knowledge of the critical nature of teamwork. Additionally, workings and interactions between federal, state, and local organizations and agencies are explored.

Land-use patterns, such as urban and suburban sprawl, mining, logging, and resource utilization are explored. Education is enhanced in the form of a community/sense of place project. This project utilizes classroom knowledge and incorporates student research into a practical plan for developing an appreciation and awareness for ones community.

Throughout the course the various aspects of soil, water, air, plants, animals and humans are woven together to emphasize the importance of all decisions on the ecosystem. After completing SOILS 422, the student will be equipped to make valuable and educated decisions to positively affect the community.

At the end of the course the student will be able to evaluate effects of human activities on the landscape; make sustainable land use decisions; determine the need for, and design best management practices; and develop a sense of place and describe individual roles and responsibilities in the community.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: SOILS 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 450** Environmental Geographic Information Systems (3) Use of geographic information systems (GIS) and digital spatial databases to characterize landscapes for environmental assessment and management.

### **Environmental Geographic Information Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: SOILS 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 489** Supervised Experience in College Teaching (1-3) Participate with instructors in teaching an undergraduate soil science course; assist with teaching and evaluation and with development of instructional materials.

### **Supervised Experience in College Teaching (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: SOILS 101 approval of instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 490** (AGRO 490) Colloquium (1) Continuing written and oral presentations developed by students in consultation with the course instructor.

### **Colloquium (1)**



General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: seventh-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 494** Senior Thesis (1-6) Supervised data collection and analysis on a topic of interest to the student culminating in a formal thesis.

**Senior Thesis (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: permission of the course coordinator

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 494H** Senior Thesis (1-6) Supervised data collection and analysis on a topic of interest to the student culminating in a formal thesis.

**Senior Thesis (1-6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: permission of the course coordinator

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 497** Special Topics (1-9) Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SOILS 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Spanish (SPAN)

**SPAN 001** Elementary Spanish I (4) Audio-lingual approach to basic Spanish; writing. Students who have received high school credit for two or more years of Spanish may not schedule this course for credit, without the permission of the department.

### Elementary Spanish I (4)

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 1985

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 001H** Elementary Spanish I (4) Audio-lingual approach to basic Spanish; writing. Students who have received high school credit for two or more years of Spanish may not schedule this course for credit, without the permission of the department.

### Elementary Spanish I (4)

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 002** Elementary Spanish II (4) Audio-lingual approach to basic Spanish continued; writing. Students who have received high school credit for four years of Spanish may not schedule this course for credit, without the permission of the department.

### Elementary Spanish II (4)

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 1985  
Prerequisite: SPAN 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 002H** Elementary Spanish II (4) Audio-lingual approach to basic Spanish continued; writing. Students who have received high school credit for four years of Spanish may not schedule this course for credit, without the permission of the department.

### Elementary Spanish II (4)

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: SPAN 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 003** Intermediate Spanish (4) Audio-lingual review of structure; writing; reading.

### Intermediate Spanish (4)

General Education: None  
Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language  
Effective: Fall 1985  
Prerequisite: SPAN 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 010** Intensive Spanish (6) Basic Spanish grammar, oral, aural, and writing skills (essentially equivalent to SPAN 001 and first half of SPAN 002).

**Intensive Spanish (6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Fall 1988

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 020** Intensive Spanish (6) Basic and intermediate Spanish grammar, oral, aural, and writing skills (essentially equivalent to second half of SPAN 002 and all of SPAN 003).

**Intensive Spanish (6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language  
Effective: Fall 1988  
Prerequisite: SPAN 010

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 051** Elementary Intensive Spanish for Graduate Students I (3) Intensive introduction to Spanish: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**SPAN 051 Elementary Intensive Spanish for Graduate Students I (3)**

This is the first in a series of three courses designed to give students an intensive introduction to Spanish. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the Spanish vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 052** Elementary Intensive Spanish for Graduate Students II (3) Intensive introduction to Spanish: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**SPAN 052 Elementary Intensive Spanish for Graduate Students II (3)**

This is the second in a series of three courses designed to give students an intensive introduction to Spanish. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Spanish vocabulary. Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: SPAN 051 or equivalent and graduate standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 053** Intermediate Intensive Spanish for Graduate Students (3) Continued intensive study of Spanish at the intermediate level: reading, writing, speaking, listening, cultural contexts.

**SPAN 053 Intermediate Intensive Spanish for Graduate Students (3)**

This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Spanish. Continued intensive study of Spanish at the intermediate level: reading, writing, speaking, listening, and cultural contexts.

Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: SPAN 052 or equivalent and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 083S (GH;IL)** First-Year Seminar in Hispanic Literatures and Cultures (3) Introduction to the study of Hispanic literatures and cultures.

**SPAN 083S First-Year Seminar in Hispanic Literatures and Cultures (3)**  
**(GH;FYS;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The first-year seminar in Spanish will introduce students to the study of Hispanic literatures and culture in their first semester at the University. Students will read (in English) significant literary texts, view art works (including films and videos), listen to music and explore the Hispanic world in general. These experiences will help prepare them for additional courses in literature and in Spanish, but will also serve as an introduction to things Hispanic, and as a point of comparison with U.S. culture. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them including the opportunity to develop relationships with faculty and other students who share their academic interests. This course will introduce students to the study of Hispanic literatures and culture in their first semester at the University. This experience will help prepare them for additional courses in literature and in Spanish. The course satisfies both the first-year seminar and a general education humanities or Bachelor of Arts humanities requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 099 (IL)** Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 100** Intermediate Grammar and Composition (3) An intermediate level grammar review that also incorporates directed and original composition exercises.

**Intermediate Grammar and Composition (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Summer 1996  
Prerequisite: SPAN 003 or placement

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 100A** Intermediate Grammar and Composition for Spanish Bilinguals (3) A review of grammar and practice with composition focusing on needs and problems specific to Spanish-speaking bilinguals.

**Intermediate Grammar and Composition for Spanish Bilinguals (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1996  
Prerequisite: placement

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**SPAN 105 Elementary Spanish I for Students in the Agricultural Sciences (4)** The course covers basic Spanish, grammar, and oral, aural, and writing skills for students in the Agricultural Sciences. Students who have received high school credit for two or more years of Spanish may not schedule this course for credit without the permission of the instructor. This course does not count toward Spanish majors or the Spanish minor.

**SPAN 105 Elementary Spanish I for Students in the Agricultural Sciences (4)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The class will focus on the development of basic language skills, socio-cultural awareness and discourse. The class periods will be used to develop: (1) the student's knowledge of Spanish as a linguistic code through mastery of a personalized vocabulary as well as common idiomatic language structures important to the student's ability to communicate with Spanish speakers employed in their area of agricultural interest; (2) the student's understanding of major grammatical concepts critical to effective communication in work management within the food, agriculture and natural resources industries; (3) the student's cultural awareness of the varied Spanish speaking cultures with which the student will come into contact in the workplace; and (4) the student's ability to be creative with their knowledge of the language as it relates to the development of self-confidence and effective communicative proficiency in Spanish. Frequent short quizzes and the collection and grading of are important components of the course as they are used to encourage the use of Spanish on a daily basis. Classroom activities will be designed to require students to use and develop their communication skills in Spanish to communicate efficiently and relate personally to Spanish speakers. Students will be evaluated based on homework, quizzes, exams, and class participation. Students who have received high school credit for four years of Spanish may not schedule this course for credit, without the permission of the instructor. This course does not count toward Spanish majors or the Spanish minor.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 106 Elementary Spanish II for Students in the Agricultural Sciences (4)** Further development of basic Spanish skills and the cultural awareness needed to work with Spanish speakers in the agricultural industries.

**SPAN 106 Elementary Spanish II for Students in the Agricultural Sciences (4)**

The class will focus on further development of the elementary language skills, socio-cultural awareness and discourse introduced in SPAN 105. It will also build on the agricultural concepts introduced in Spanish 105. The class periods will be used to develop further: (1) the student's knowledge of Spanish as a linguistic code through further mastery of a personalized vocabulary as well as common idiomatic language structures important to the student's ability to communicate with Spanish speakers employed in their area of agricultural interest; (2) the student's understanding of major grammatical concepts critical to effective communication in work management within the food, agriculture and natural resources industries; (3) the student's cultural awareness of the varied Spanish speaking cultures with which the student will come into contact in the workplace; and (4) the student's ability to be creative with their knowledge of the language as it relates to the development of self-confidence and effective communicative proficiency in Spanish. Frequent short quizzes and the collection and grading homework assignments are important components of the course as they are used to encourage the use of Spanish on a daily basis. Classroom activities will be designed to require students to use and develop their communication skills in Spanish to communicate efficiently and relate personally to Spanish speakers. Students will be evaluated based on homework, quizzes, exams, and class participation. Students who have received high school credit for four years of Spanish may not schedule this course for credit, without the permission of the instructor. This course does not count toward Spanish majors or the Spanish minor.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: SPAN 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 110 Intermediate Conversation (3)** Practice in oral expression in Spanish, with emphasis on aural comprehension, idiomatic usage, and fluency. Use of journalistic materials.

**Intermediate Conversation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Winter 1978

Prerequisite: SPAN 003 or placement

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 120** Intermediate Reading (3) Emphasis on rapid reading comprehension. Selected readings from contemporary Hispanic literature, social sciences, current events, etc.

### **Intermediate Reading (3)**

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Winter 1978

Prerequisite: SPAN 003 or placement

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 130** (GH;IL) Iberian Civilization (3) Spanish and Portuguese life from the medieval period to the present; literature, the arts, and contemporary problems in historical perspective.

### **Iberian Civilization (3)**

General Education: GH

Diversity: IL

Bachelor of Arts: Humanities

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 131** (GH;US;IL) Ibero-American Civilization (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

### **SPAN 131 Ibero American Civilization (3) (GH;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The nations and peoples of Latin America have a unique, interesting history and cultural heritage that are rooted in the traditions, beliefs, experiences, values, and struggles of Native American, European, African and other populations. As close neighbors and major trading partners of the United States, Latin American republics have both benefited and suffered from the proximity and foreign policies of the northern capitalist democracy, and have contributed to its strength and growing ethno-racial diversity. This course aims to provide the student with a broad, general introduction to the lands, peoples, and history of Latin America; to inform the student about the region's ethnic diversity, cultural background, and problems of development; and to promote appreciation for the values and practices of other cultures, and a better understanding of relations between the nations of the region and the United States. Classes will usually combine lecture and discussion of reading assignments, with an expectation of high student participation. Films, videos, and recordings will enhance and illustrate readings.

Three examinations (each covering approximately one third of the lessons presented), an occasional quiz, a book report or an annotated bibliography, participation and attendance will be the basis for evaluation of student learning and grades. Students are required and expected to read assignments, to attend class regularly, and to be prepared to participate in class discussions by answering and raising questions relevant to the lessons. Poor attendance will adversely affect a student's standing and grade.

This course will fulfill the Humanities Breadth and Cultural Diversity requirements. The course does not count toward credits in the major or minor in Spanish because it is taught in English. Nevertheless, it will complement the department's offerings by providing students with a greater appreciation of Latin America's cultural origins, socioeconomic development, and everyday realities. Overhead projector and screen will be needed as special facilities.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 131U** (GH;US;IL) Ibero-American Civilization (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

### **Ibero-American Civilization (3)**

General Education: GH

Diversity: US;IL

Bachelor of Arts: Other Cultures and Humanities

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 131Y (GH;US;IL)** Ibero-American Civilization (3) Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems.

**SPAN 131Y Ibero American Civilization (3)**  
**(GH;US;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The nations and peoples of Latin America have a unique, interesting history and cultural heritage that are rooted in the traditions, beliefs, experiences, values, and struggles of Native American, European, African and other populations. As close neighbors and major trading partners of the United States, Latin American republics have both benefited and suffered from the proximity and foreign policies of the northern capitalist democracy, and have contributed to its strength and growing ethno-racial diversity. This course aims to provide the student with a broad, general introduction to the lands, peoples, and history of Latin America; to inform the student about the region's ethnic diversity, cultural background, and problems of development; and to promote appreciation for the values and practices of other cultures, and a better understanding of relations between the nations of the region and the United States. Classes will usually combine lecture and discussion of reading assignments, with an expectation of high student participation. Films, videos, and recordings will enhance and illustrate readings.

Three examinations (each covering approximately one third of the lessons presented), an occasional quiz, a book report or an annotated bibliography, participation and attendance will be the basis for evaluation of student learning and grades. Students are required and expected to read assignments, to attend class regularly, and to be prepared to participate in class discussions by answering and raising questions relevant to the lessons. Poor attendance will adversely affect a student's standing and grade.

This course will fulfill the Humanities Breadth and Cultural Diversity requirements. The course does not count toward credits in the major or minor in Spanish because it is taught in English. Nevertheless, it will complement the department's offerings by providing students with a greater appreciation of Latin America's cultural origins, socioeconomic development, and everyday realities.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Other Cultures and Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 132 (IL) (AF AM 132, AFR 132)** Afro-Hispanic Civilization (3) A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America.

**SPAN (AAA S) 132 Afro-Hispanic Civilization (3)**  
**(IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

The nations and peoples of Latin America have a unique, interesting history and cultural heritage that are rooted in the traditions, beliefs, experiences, values, and struggles of Native American, European, African and other populations. This course focuses on the presence and participation of African peoples and their descendants in the formation and development of societies and cultures in representative areas of the Caribbean, South America, and Central America and on the evolution, diversity, and richness of the African heritage therein. Course content includes the African background, the experience and impact of slavery, the social, cultural, and economic heritage of slavery, the role of race in Latin America, and Afro-Hispanic intellectual, literary, and artistic developments (e.g., aspects of folklore, music). The course aims to provide students with a general introduction to human and cultural elements of African origin within the Spanish- and Portuguese-speaking nations of the Americas so that they may be more knowledgeable of the meaning, significance and widespread influence of the African diaspora. It proposes to provide the student with a better understanding of Africa's contribution to Latin American identity, diversity, culture, and development; to promote appreciation for the values and practices of other cultures, and greater awareness of the relations between the nations of the region and the United States.

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject

which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 197A** Medical Spanish: Health Issues and Cultural Awareness (3) This course is designed to develop oral and written communication skills using specialized vocabulary in the health care field. Completing course achieves 15th credit level proficiency and is designed to replace SPAN 100 for students going in to any major that has a medical or health component.

**Medical Spanish: Health Issues and Cultural Awareness (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: SPAN 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 197A** Medical Spanish: Health Issues and Cultural Awareness (3) This course is designed to develop oral and written communication skills using specialized vocabulary in the health care field. Completing course achieves 15th credit level proficiency and is designed to replace SPAN 100 for students going in to any major that has a medical or health component.

**Medical Spanish: Health Issues and Cultural Awareness (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: SPAN 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 197B** Spanish in the Media (3) This course is designed to develop skills through a focus on mass media in Hispanic culture. Completing course achieves 15th credit level proficiency and is designed to replace SPAN 100 but ONLY for students going in to Communication majors.

**Spanish in the Media (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: SPAN 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 197B** Spanish in the Media (3) This course is designed to develop skills through a focus on mass media in Hispanic culture. Completing course achieves 15th credit level proficiency and is designed to replace SPAN 100 but ONLY for students going in to Communication majors.

**Spanish in the Media (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: SPAN 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 197C (PORT 197C)** Portuguese for Learners for Spanish (3) This course is designed for learners of Spanish who wish to acquire Portuguese at an accelerated pace.

**Portuguese for Learners for Spanish (3)**

General Education: None



Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2014 Ending: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 197D** Catalan (3) Intensive introduction to the Catalan language and culture.

**Catalan (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 2014 Ending: Summer 2014  
Prerequisite: basic reading knowledge of another Romance language (Spanish French Italian Portuguese or Romanian)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 199** (IL) Foreign Study--Beginning Conversational Spanish (3) Grammar review and practice in oral expression and aural comprehension.

**Foreign Study--Beginning Conversational Spanish (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 200** Intensive Grammar and Composition (3) Intensive grammar review; composition. Designed primarily for majors and prospective majors.

**Intensive Grammar and Composition (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Spring 2001  
Prerequisite: SPAN 100 or by placement

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 210** Readings in Iberian Civilization (3) Intermediate level Spanish readings dealing with Iberian life from pre-historic times to the present.

**Readings in Iberian Civilization (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 1993  
Prerequisite: SPAN 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 215** Introduction to Spanish Linguistics (3) Introduction to the fundamental components of linguistics using data from the Spanish language.

**SPAN 215 Introduction to Spanish Linguistics (3)**

Spanish 215 will introduce students to the fundamental components of linguistics (phonology, morphology, syntax, lexicon, and semantics) using data from the Spanish language. The course requires no previous knowledge of linguistics, but presupposes familiarity with Spanish at the 15 credit level or higher. The underlying purpose is to awaken students' interest in Spanish linguistics; to provide them with a foundation in the terminology and concepts necessary for studying higher level courses that are part of Spanish major and minor curricula; and to help them to decide which of the upper level classes they would be most interested in taking. Student performance in the course will be evaluated by (a) exams designed to verify their familiarity and understanding of linguistic terminology and concepts, their skill in doing phonetic transcription, and their ability to solve problems in phonology, morphology, syntax, and semantics, and (b) their preparedness and participation in classroom activities.

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Summer 2006  
Prerequisite: SPAN 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 220** Readings in Ibero-American Civilization (3) Intermediate level Spanish readings dealing with Ibero-American life from the pre-conquest to the present.

**Readings in Ibero-American Civilization (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 1992  
Prerequisite: SPAN 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 230** (GH) Masterpieces of Spanish Literature in English Translation (3) Study of works and authors of international importance; lectures, readings, and written works in English.

**Masterpieces of Spanish Literature in English Translation (3)**

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 253W** Introduction to Hispanic Literature (3) Introduction to generic distinctions, critical methods, and approaches to Hispanic literature.

**SPAN 253W Introduction to Hispanic Literature (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

During the semester students will learn how to write, and will practice writing, critical and analytical essays based upon the different genres of literature studied in class. All students will write three compositions during the semester, which will be written twice incorporating in the final draft suggestions made by their peer editors and by their instructor. The writing of the second version will be preceded by a conference with the instructor in which s/he will make comments and suggestions to the students about how to avoid the same errors made in the first draft. The themes for all papers must be chosen in consultation with the professor.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2008  
Prerequisite: SPAN 100 and SPAN 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 297A** Sport and Modernity in Latin America (3) This course will provide an interpretative framework for understanding the enormous success of sport in Latin America and its larger role in the global economic and geopolitical landscape.

**Sport and Modernity in Latin America (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 299** (IL) Foreign Study--Intermediate Conversational Spanish (3) Grammar review and practice in oral expression and aural comprehension.

**Foreign Study--Intermediate Conversational Spanish (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 300** Advanced Grammar and Composition Through Reading (3) Development of advanced grammar and composition skills through reading texts by native speakers and adapting their techniques for original compositions.

**Advanced Grammar and Composition Through Reading (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2013  
Prerequisite: SPAN 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 301** Advanced Writing and Stylistics in Spanish for Spanish Speakers (3) This course will enhance writing proficiency in Spanish of Spanish speaking students by targeting common problems characteristic of Spanish speakers.

**Advanced Writing and Stylistics in Spanish for Spanish Speakers (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2008  
Prerequisite: SPAN 100A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 305** Spanish for Social Services (3) Practical Spanish for social workers, medical personnel, law enforcement officers, etc.; emphasis on Puerto Rican vocabulary, idiom, and pronunciation.

**Spanish for Social Services (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2001  
 Prerequisite: SPAN 200

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 314** Spanish Sounds (3) Spanish phonetics and phonemics; systematic means of correcting pronunciation defects; other audio-lingual applications.

### **Spanish Sounds (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2015 Future: Spring 2015  
 Prerequisite: SPAN 200SPAN 215

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 315** (GH;US) (LTNST 315) Spanish and Spanish-speakers in the U.S. (3) In this course, we investigate various aspects of the language(s) and language behaviors of U.S. Latinos.

### **SPAN (LTNST) 315 Spanish and Spanish-speakers in the U.S. (3) (GH;US)**

The course is premised on the idea that language is a crucial component in the formation of identity. To understand Latina/o identity formation in the U.S., then, one must analyze what role languages--Spanish and English--have played in identity formation. The class commences with a brief historical assessment of the various U.S. Latino communities, including Mexican-American, Cuban-American, and Puerto Rican communities. Such a historical purview proves significant in the study of the cultural traditions that persist in these communities, chief among these, the Spanish language. In exploring the Spanish language in U.S. Latino communities, we consider several major sets of questions, among them the following: In what ways do the languages of U.S. Latino communities differ from those of monolingual Spanish- (and English-) speaking communities? What factors contribute to the maintenance and loss of Spanish in these communities? How does language contribute to the creation of individual and societal identity? How is language exploited in the representation of other U.S. Latino cultural traditions? We consider these questions across a variety of genres: poetry, prose (autobiography in particular), film, art, television, and music. These texts reveal how social environments determine language use as well as how artists have used language to reshape social environments, through, for example, the development of new language practices such as Spanish-English code switching. The course also connects these cultural practices to debates on Spanish in public life and policy.

General Education: GH  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Summer 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 316** Spanish Morphology and Syntax (3) Analysis of Spanish word structure (morphology) and its relationship to syntactic structures.

### **SPAN 316 Spanish Morphology and Syntax (3)**

This course is an introduction to the study of Spanish morphology and syntax. In linguistics, morphology is the study of the morphemes (e.g. affixes, words, roots) of language and how they combine together to form words. Syntax is the study of how words combine together to form phrases and sentences. Because this course is for Spanish majors and minors, the focus in this course is on the structure of words, phrases, and sentences in Spanish, how Spanish compares to other languages, and how morphology and syntax vary across Spanish dialects. Special focus will be made on explaining the kinds of errors typical of English-speaking learners of Spanish as a second language, and a primary goal of the course is for students to improve their proficiency in using Spanish morphosyntax. The course is taught in Spanish.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2014 Future: Fall 2014  
 Prerequisite: SPAN 200SPAN 215

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 326** (GH;US) Reading the Border/Lands (3) This course examines representations of the U.S.-Mexico border in relation to the actual geographic space.

**SPAN (LTNST) 326 Reading the Border/Lands (3)  
(GH;US)**

This class will center on discussions of the U.S.-Mexico borderlands in cultural theory and practice. "Borderlands" is understood as a transcultural space filled with physical, cultural, economic, political, and mythical elements. The aim is to view how different artists from the Borderlands, both northern Mexican and Chicano, mediate their borderlands reality. That is to say, the goal of the class is to examine the different "imaginative geographies" in the borderlands. We examine a wide-ranging mix of cultural texts that includes prose, poetry, essays, and performance art, as well as film and video art. We explore how writers have historically rethought notions of citizenship, identity, and culture to create more fluid spaces of representation in cultural contact zones. We will in particular, pay close attention to the relationship between national geography and the shaping of regional identities and popular cultures —between the maps that nations draw and the cultural forms that cut across them.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 353** Survey of Spanish Literature before 1700 (3) Selected major works of prose, poetry, and drama from the Middle Ages to the end of the seventeenth century.

**Survey of Spanish Literature before 1700 (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2008  
Prerequisite: SPAN 253W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 354** Survey of Spanish Literature Since 1700 (3) Selected major works of prose, poetry, and drama from the eighteenth century to the present.

**Survey of Spanish Literature Since 1700 (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2008  
Prerequisite: SPAN 253W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 355** Survey of Spanish American Literature through "Modernismo" (3) Selected major works of prose, poetry, and drama from the discovery through "modernismo".

**SPAN 355 Survey of Spanish American Literature Through "Modernismo" (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Spanish 355, "Survey of Spanish American Literature through "Modernismo," will provide students with a systematic introduction to the history of Spanish American literature, beginning with the ancient stories and poems of the Amerindians before the arrival of Columbus and ending with the major authors of "Modernismo". Along the way, students will read and discuss major works by Columbus, prominent participants in the conquest, poets, essayists, dramatists: all of the major literary artists of that portion of the new world that would become known as Spanish America. Special highlights include one of America's first great epic poets, Alonso de Ercilla y Zuniga, one of the earliest feminists--the great baroque poet, dramatist, and philosopher, Sor Juana Ines de la Cruz, the great Romantic poet, Jose Maria Heredia, who authored one of the most memorable tributes to Niagara Falls, Jose Hernandez, who immortalized the Argentine gaucho in his epic Martin Fierro, and Jose Marti, best known in this country for authoring the words of the folksong "Guantanamera." The course will include works by a number of authors from the "Modernismo" movement, the first American literary movement to exercise a major influence on European authors: Jose Marti, Ruben Dario, Leopoldo Lugones, Manuel Gutierrez Najera, etc.

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2008  
Prerequisite: SPAN 253W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**SPAN 356** Survey of Spanish American Literature after "Modernismo" (3) Historical survey of the major figures and periods in Spanish American literature after "modernismo".

**SPAN 356 Survey of Spanish American Literature after "Modernismo" (3)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Spanish 356, "Survey of Spanish American Literature from 'Modernismo' to the Present," will provide students with a systematic introduction to the history of Spanish American literature, beginning just after the first great period of literary innovation in Spanish American, "Modernismo," and continuing to the contemporary period. Students will read and discuss some of the major literary works of the late 19th and early 20th centuries, including works by Nobel laureates Gabriela Mistral, Miguel Angel Asturias, Pablo Neruda, Gabriel Garcia Marquez, and Octavio Paz, as well as Jorge Luis Borges and others.

General Education: None

Diversity: None

Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language

Effective: Spring 2008

Prerequisite: SPAN 253W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Humanities

Effective: Summer 1999

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 399** (IL) Foreign Study--Spanish (1-12) Advanced training in Spanish language skills.

**Foreign Study--Spanish (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: SPAN 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 410** Advanced Oral Expression and Communication (3) Emphasis on achieving practical command of spoken Spanish and the comprehension of native speech. Use of journalistic materials.

**Advanced Oral Expression and Communication (3)**

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Fall 1995

Prerequisite: SPAN 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 412** Translation (3) Techniques of oral and written translation from Spanish to English and vice versa, particularly for business, literature, and social work.

**Translation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: SPAN 300

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 413** Interpretation (3) Introduction to the art of interpretation, with particular attention to the professions for which it is most commonly required.

**SPAN 413 Interpretation (3)**

Spanish 413 will provide students with demonstrations and exercises designed to develop the skills required in sight translation and in consecutive, simultaneous and summary interpretation. The course does not presume to provide the training needed for entrance into the profession; it is intended to give students sufficient understanding of the rigors and demands of the profession and to help them determine whether they have the interest and skills to pursue further training in this area. At the same time, it will provide students with a unique opportunity to improve their listening comprehension and fluency in the target language, whether English or Spanish.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: SPAN 412

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 414** Spanish Phonology (3) Spanish phonetics and phonemics; systematic means of correcting pronunciation defects; other audio-lingual applications.

**Spanish Phonology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013 Ending: Fall 2014  
Prerequisite: SPAN 200SPAN 215

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 415** Spanish Morphology and Syntax (3) The Spanish grammatical system; analysis of morphemic units and their organization into syntactic structures.

**Spanish Morphology and Syntax (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013 Ending: Summer 2014  
Prerequisite: SPAN 200SPAN 215

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 418** The Evolution of Spanish (3) The emergence and development of the sounds and forms of Spanish.

**The Evolution of Spanish (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: SPAN 200SPAN 215

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 420** Spanish for Business and International Trade (3) Introduction to the Spanish of international business and to the social and cultural norms of negotiation in Spanish-speaking countries.

**Spanish for Business and International Trade (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2008  
Prerequisite: SPAN 300

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 439** Don Quijote (3) Thorough study of the masterpiece, including its sources, genesis, language, style, success, and influence.

**Don Quijote (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2013  
Prerequisite: SPAN 253W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 440** Teaching of Romance Languages (3) Theories of second language acquisition. Current classroom practices in the teaching of Romance languages.

**Teaching of Romance Languages (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: SPAN 200

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 472** The Contemporary Spanish American Novel (3) The regionalist and social novel since 1910, together with the social background.

**The Contemporary Spanish American Novel (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2013  
Prerequisite: SPAN 253W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 474** Many Mexicos (3) Overview of Mexican literature, culture and history from pre-colonial period to present.

**Many Mexicos (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: SPAN 253W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 476** Masterpieces of Spanish American Literature (3) Reading, analysis, and discussion of selected major works representative of Spanish American prose and poetry.

**Masterpieces of Spanish American Literature (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language and Other Cultures  
Effective: Spring 2013  
Prerequisite: SPAN 253W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 479** (GH;US) (LTNST 479) U.S. Latina/o Culture en Espanol (3) The history, culture, art, and social issues of Latinos in the United States.



**SPAN (LTNST) 479 U.S. Latina/o Culture in Spanish (3)**

This is an overview of literature and culture, in Spanish, created within the United States. We will read fiction, essays and film, but also consider poetry, travel accounts, visual art and performances, and cultural practice and sociological issues (like "quinceañeras" and soccer leagues) in order to discuss some of the following themes particular to the Hispanic experience within the U.S.: immigration and transnationalism; the imaginary homeland; families and assimilation; conflicted identity; language and a sense of place. We will emphasize two basic tools of literary analysis: "close reading," and library research.

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: SPAN 253W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 488** War, Revolution, and the Struggles for Modernity: Spain 1898-1939 (3) This course, conducted in Spanish, examines Spanish literature from 1898 to 1939.

**SPAN 488 War, Revolution, and the Struggle for Modernity: Spain 1898-1939 (3)**

This course, conducted in Spanish, advances questions concerning what constituted artistic, literary, social, and political modernity in Spain between 1898 and 1939. By analyzing a range of texts and artworks, the objective of this course is to understand how the revolutionary forces of modernity (modernidad) shaped one of the most profoundly transformative periods in Spanish history. In thinking about issues such as sexuality, secularism, representation, feminist liberation, social rebellion, political unionism, and artistic innovation, the course will outline the country's advancement toward a new democratic form of government and, tragically, a devastating Civil War. The course will examine the literary and artistic works of Pérez Galdós, Unamuno, Rubén Darío, Picasso, Ramón Gómez de la Serna, Maruja Mallo, Rosa Chacel, Federico García Lorca, and Salvador Dalí, among others. As the course approaches each text or artwork, it will discuss how the author's or artist's social and political views affected their expression; the foreign and domestic influences that shaped their understanding of literature and art; how sexuality, gender, and tradition were questioned in their work; the ways in which personal freedom and liberty were protected and voiced; and the reasons why Spain dovetailed into civil war. By the end of the course, students will have improved their Spanish skills, developed their critical reading and writing skills, and gained a deeper understanding of the complexity of Spanish modernity.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014  
Prerequisite: SPAN 253W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 490** Masterpieces of Spanish Prose (3) Reading, analysis, and discussion of selected masterpieces of Spanish novels, short stories, etc.

**Masterpieces of Spanish Prose (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities and Second or Beyond 12th Level Foreign Language  
Effective: Spring 2013  
Prerequisite: SPAN 253W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**SPAN 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 497A** Contemporary Youth Cultures in Latin America (3) Music bazaars, DJs and rave parties, and "barras de futbol," are only some of the manifestations associated with young people in Latin American literature, film, and music. In this course, we will compare different youth cultures in Latin America in terms of their productions and representations in the public sphere.

**Contemporary Youth Cultures in Latin America (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 497B** Language Variation Across the Spanish-Speaking World (3) Esta o ehta? Yo digo o digo yo? We will discuss language variation across the Spanish-speaking world with a focus on phonology and morphosyntax. We will also discuss bilingualism and different varieties of Spanish spoken in the U.S., and will work with data sets to illustrate the methodologies used for studying language variation.

**Language Variation Across the Spanish-Speaking World (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 497C** Latino Culture en Espanol (3) This is an overview of literature and culture, in Spanish, created within the United States. We will read fiction, essays and film, but also consider poetry, travel accounts, visual art and performances, and cultural practice and sociological issues (like "quinceaneras" and soccer leagues) in order to discuss some of the following themes particular to the Hispanic experience within the U.S.: immigration and transnationalism; the imaginary homeland; families and assimilation; conflicted identity; language and a sense of place.

### **Latino Culture en Espanol (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPAN 499** (IL) Foreign Study--Spanish (1-12) Contemporary Spanish life and civilization. Emphasis on post-Civil War period: literature, arts, and sociopolitical problems.

### **Foreign Study--Spanish (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005  
Prerequisite: SPAN 100SPAN 110 orSPAN 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Special Education (SPLED)**

**SPLED 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 395W** Observing in Exceptional Settings (3) Observations of exceptional persons and techniques used by their teachers in a variety of settings, e.g., school, day care, vocational.

### **Observing in Exceptional Settings (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

Prerequisite: EDPSY 101 . PA Act 34 clearance required. In addition non-Pennsylvania residents must provide evidence of an FBI background information check. (Forms: 228 Chambers)  
Concurrent: SPLED 425

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 400** Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management (4) Legal issues, learner characteristics, collaboration skills, assessment, and behavior management related to educating students with disability in inclusive settings.

#### **SPLED 400 Teaching Exceptional Students in General Education Settings (4)**

This course is delivered via a model of blended instruction and addresses foundational skills (assessment and management) and knowledge (laws, etiologies, collaboration) for those working with students with special education needs in general education classrooms. Almost 30% of the content includes student understanding of the history and current relevance of special education law; roles and responsibilities of general education teachers in providing services to students with special education needs; characteristics and etiologies relevant to providing effective instruction to students with mild and severe disabilities; and developing and maintaining effective education teams. Roughly 35% of content is relevant to assessment in inclusive settings and is centered on sound instructional decision making as well as linking instruction to standards based curricula. Coverage includes understanding formative and summative assessment; creating and administering curriculum-based assessments in reading, mathematics, and writing; designing systems to collect behavioral data; interpreting a variety of norm-referenced test scores; using brief experimental analyses is adequate for a given purpose. Roughly 35% of content is relevant to applying principles of Applied Behavior Analysis (ABA) to managing and motivating learners with special needs placed in inclusive settings. Broad objectives include student acquisition of knowledge and skills related to ABA principles and interventions such as: identifying the nature (positive and negative) of consequences maintaining or decreasing specific behaviors; operationally defining behavior; establishing a classroom and school environment conducive to learning for all students; creating class-wide, school-wide; and individual motivation systems; intervening to decrease specific behavior; and using functional behavioral assessments (FBAs) and positive behavior supports.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: EDPSY 014 and EDPSY 010 or relevant child development course (e.g. HD FS 229 HD FS 239). Fifth semester standing or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 401** Motivating Exceptional Learners (4) Group and individual techniques to promote student task engagement and prosocial behavior.

#### **Motivating Exceptional Learners (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: or concurrent: a grade of C or better required in SPLED 395W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 402** Human Rights: Historical and Current Issues in Special Education (3) Litigation, legislation, regulation, and advocacy issues impacting on educational and related services for individuals with academic and/or physical disabilities.

#### **Human Rights: Historical and Current Issues in Special Education (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: or concurrent: SPLED 400 or SPLED 425

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 403A** Evidence-Based Instruction for Elementary Students with Disabilities in Reading, Math, and Writing (3) Evidence-based methods for design, delivery, and adaption of instruction for elementary students with disabilities in reading, mathematics, and writing.

#### **SPLED 403A Evidence-Based Instruction for Elementary Students with Disabilities in Reading, Math, and Writing (3)**

This course is delivered via a model of blended instruction and addresses aspects of designing, delivering, and adapting instruction for students across the range of disability (i.e., mild, moderate, and severe) in elementary, inclusive settings. Content on relevant learner characteristics of special needs students is found throughout the course. About half the

course covers content on: designing direct and explicit instruction; self-regulated learning; assistive technology; adaptations and accommodation for learners with several disabilities; and the hierarchy of taxonomical units relative to instructional design. The remaining half of the course covers content relevant to a wide range of literacy concerns and includes: evidence based practices for instruction in early reading (e.g. decoding, phonemic awareness, phonic and structural analysis; and vocabulary); reading comprehension at primary and intermediate levels (e.g. test structure, content specific vocabulary, and narrative and expository reading in content domains); writing (e.g. handwriting, spelling grammar, and written expression); and mathematics (e.g. number sense and early numeracy, basic facts and operations, applied skills, problem solving, fractions, decimals, and percents).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: SPLED 400

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 403B Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings (3)**

Evidence-based methods for designing, delivering, and adapting instruction for students with disabilities in inclusive secondary education settings.

**SPLED 403B Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings (3)**

This course is delivered via a model of blended instruction and addresses aspects of designing, delivering, and adapting instruction for students across the range of disability (i.e., mild, moderate, and severe) in secondary inclusive settings. Content on relevant learner characteristics of special needs students is found throughout the course. About half the course covers content on: designing direct and explicit instruction; self-regulated learning; assistive technology; adaptations and accommodation for learners with several disabilities; and the hierarchy of taxonomical units relative to instructional design. The remaining half of the course covers content relevant to a variety of procedures and approaches to help students with special education needs gain meaningful access to secondary curriculum content without watering it down or ignoring the instructional needs of students without disabilities. Broadly this content includes ways of planning and delivering instruction to help all students, including those with learning problems, understand and retain critical course content. Topics include using graphic organizers, options for presenting content, mnemonics; task specific learning strategies; cooperative groups and peer focused interventions; study guides and guided notes; advance organizers; text structures for narrative and expository text; single and multiple-approaches for reading comprehension; writing mechanics, prompts, and rubrics; narrative, informative, and persuasive writing; problem solving (including Polya's model); analogies; elaborative interrogation; and practice for problem solving.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: SPLED 400

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 404 Working with Families and Professionals in Special Education (3)** Strategies for productive interactions between special educators and others such as colleagues, employers, parents, service providers, professionals, and students.

**Working with Families and Professionals in Special Education (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: or concurrent: a grade of C or better required in SPLED 425

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 408 (EDPSY 408) Meeting Instructional Needs of English Language Learners with Special Needs (3)** The course content and activities focus on instruction and assessment for English Language Learners with special needs.

**SPLED (EDPSY) 408 Meeting Instructional Needs of English Language Learners with Special Needs (3)**

The purpose of this course is to bring together two bodies of research to prepare future teachers of learners with special needs who are also English language learners to be effective teachers. The course has been developed to fulfill requirements of Pennsylvania Department of Education and in recognition of the growing number of English Language Learners (ELL) in the general population and thus in special education settings. The course presents (1) theory and research on the instructional needs of English Language Learners (ELLs) and (2) the knowledge base on effective instruction for students with special needs and assists students to integrate the two. Major topic areas include principles and issues in second language acquisition; ELL characteristics including linguistic and cultural factors that affect second language acquisition; techniques and methods of research-based instruction for English Language Learners with special needs; lesson planning and instructional modifications for ELLs with special needs; and appropriate assessment practices

for ELLs with special needs. A major objective of this course is for students to be able to develop or modify instructional plans that reflect evidence based practices for adapting for the needs of ELL learners with special needs. Evaluation will be based on a combination of methods including, tests and quizzes, analyses of videos and case studies and reports of observations and interviews.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: EDPSY 010EDPSY 014 Prerequisite or concurrent:SPLED 395WSPLED 425

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 409A** Fundamental Literacy Skills for Students with Special Needs (3) Effective reading curriculum and teaching methods to teach students with special needs.

### **SPLED 409A Fundamental Literacy Skills for Students with Special Needs (3)**

Effective classroom-based assessment, curriculum development, and instructional strategies for teaching reading to educate students with special needs will be described in this course. Students will learn how to assess, develop curriculum, and provide scientifically based best practice instruction in reading to K-12 students with special needs. Students will learn how to select reading skills necessary to scaffold and enhance students' present reading skills. Methods for using researched based assessment strategies and developing foundational reading skills within a classroom context, will be described.

This course builds on prerequisite Special Education courses in curriculum and instructional methods. Students in SPLED 409A extend knowledge of explicit instructional strategies in the context of reading. The content offered in this course complements 409B and 409C through the integration of researched based methods and sound instructional design within a curriculum to most effectively teach students with special needs.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: A grade of C or better required inSPLED 425SPLED 395WSPLED 401SPLED 412SPLED 454SPLED 495E

Concurrent: SPLED 495G

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 409B** Writing and Content Literacy for Students with Special Needs (3) Effective curriculum and materials for teaching writing and content literacy to students with special needs.

### **SPLED 409B Writing and Content Literacy for Students with Special Needs (3)**

Effective application of classroom-based measurement, curriculum development, and instructional strategies for teaching writing and content literacy to educate students with special needs will be described in this course. Students will learn how to use assessment to develop curriculum and provide scientifically based best practice instruction in writing mechanics (handwriting, spelling, capitalization & punctuation) and written expression (pre-planning to revision) to K-12 students with special needs. Students will learn how to identify, select, and teach content text structure. Methods for using assessment to develop a reading comprehension curriculum within a content classroom context and teach K-12 students with special needs to read and comprehend narrative and expository text (such as text found in Math, Science, Social Studies, and other content textbooks) will be described. Methods for using assessment to develop curriculum and teach K-12 students with special needs to respond to content text and materials through writing will also be examined.

This course builds on prerequisite Special Education courses in curriculum and instructional methods. Students in SPLED 409B will have achieved mastery in basic reading theory, assessment, curriculum, and instructional methods. The content offered in this course adds to the existing course content by specifically addressing writing mechanics, written expression, and content reading, curriculum development, and instructional methods (including plans for generalization and maintenance) for students with special needs.

Written responses for assigned readings will be required for each topic area. Written evaluations and class assignments (including case studies) will be given to assess student learning throughout the course time period. Students' learning will be further evaluated through projects that demonstrate understandings of applying classroom-based measurement, curriculum development, and the instructional methods required to effectively teach writing and content learning to students with special needs. Student applied projects, in coordination with practicum placement, for writing instruction will include: (1) the collection of baseline writing data for a student with special needs, (2) development of a curriculum scope and sequence, (3) development of a research validated instructional intervention, (4) implementation of the intervention, (5) the collection of writing data throughout instruction and after instruction, and (6) development and implementation of an instructional plan for maintenance and generalization. To demonstrate understandings of teaching content reading and writing, students will prepare a presentation of an identified research-based content reading or writing instructional strategy or approach taught within a curriculum scope and sequence.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: a grade of C or better required in SPLED 425 SPLED 395 WSPLED 401 SPLED 409 ASPLED 412 SPLED 454 SPLED 495E

Concurrent: SPLED 495G

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 409C** Mathematics Instruction for Students with Special Needs (3) Research-based practices for teaching mathematics skills to students with special needs.

### **SPLED 409C Mathematics Instruction for Students with Special Needs (3)**

Research-based assessment, instruction, and intervention strategies for teaching mathematics skills to students with special needs will be described in this course. Students will identify (a) the risk factors associated with mathematics disabilities, (b) effective prevention and remediation models of mathematics disabilities, (c) characteristics of scientifically-based instruction in content-area skills (e.g., counting, addition, fractions, problem solving, geometry) for K-12 students with disabilities, and (d) how to effectively provide and assess the effects of such instruction while provided in general and special education classrooms. This course builds on prerequisite Special Education courses in curriculum and instructional methods. Students in SPLED 409C will have achieved mastery in assessment, curriculum, and instructional methods. The content offered in this course adds to the existing course content by specifically addressing how to teach content-area skills for students with special needs.

Written responses for assigned readings will be required for the topic areas. Written evaluations and class assignments will be given to assess student learning throughout the course time period. Students' learning will be further evaluated through projects that demonstrate understanding of classroom-based assessment, curriculum development, and the instructional methods required to effectively teach content-area mathematics skills to students with special needs. Student applied projects, in coordination with practicum placement, for mathematics instruction will include: (1) the collection of baseline mathematics performance data for a student with special needs, (2) development of a curriculum scope and sequence, (3) development of a research validated instructional intervention, (4) implementation of the intervention, (5) on-going data collection throughout instruction and after instruction, and (6) development and implementation of an instructional plan for maintenance and generalization. To demonstrate understandings of teaching content area mathematics skills, students will prepare a presentation of a self- or instruction-selected research-based curriculum and instructional strategy or approach that meet "best practice" standards (e.g., those identified through previous meta-analysis).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: a grade of C or better required in SPLED 425 SPLED 395 WSPLED 401 SPLED 409 ASPLED 412 SPLED 454 SPLED 495E

Concurrent: SPLED 495G

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 411** Intervention for Students with Severe Disabilities (3) Assessment, teaching strategies, curricula, materials, and assistive techniques for use with individuals having severe disabilities (mental and physical).

### **Intervention for Students with Severe Disabilities (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: a grade of C or better required in SPLED 395 WSPLED 401 SPLED 425

Concurrent: a grade of C or better in SPLED 495E

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 412** Instruction for Students with Mild Disabilities (4) Appropriate teaching strategies, curriculum sequences, and materials selection and evaluation for children with mild special needs.

### **Instruction for Students with Mild Disabilities (4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: a grade of C or better required in SPLED 395 WSPLED 401 SPLED 425 SPLED 454

Concurrent: a grade of C or better required in SPLED 454

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 415** Early Special Education (3-4) Includes early identification methods, assessment, curricula, parent involvement, and program evaluation for exceptional preschoolers in mainstreamed or segregated settings.

**Early Special Education (3-4)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: a grade of C or better required in the following courses SPLED 454 ; a course in child development

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 418** Technologies for Persons with Disabilities (2) Sensory aids, communication systems, computer systems, expert systems, simulations, and other technologies for students who are academically or physically challenged.

**Technologies for Persons with Disabilities (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: SPLED 400 or SPLED 425

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 419** Assistive Technology for General Education Teachers (2-3) Strategies to support use of assistive technologies by students with disabilities in general education classrooms.

**SPLED 419 Assistive Technology for General Education Teachers (2-3)**

This course will teach students the role of the general education teacher in supporting the use of assistive technology (AT) by students with disabilities in general education classrooms. Students will learn the role of the general education teacher in the AT process, including (as appropriate) how to identify student AT needs, obtain information on common AT applications and devices, make first-hand use of current AT solutions, and evaluate the use of AT to address specific student needs. Particular attention will be given to the use of AT to assist students with disabilities in reading, writing, math, communication, and the development of social skills. Students will learn the role and responsibilities of the general education teacher on the AT team, as well as issues of "scope of practice", and the roles and responsibilities of the other licensed professionals on the AT team. Students will also be provided with resources and strategies for making use of state and national information resources and services related to AT.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: SPLED 400 SPLED 403A or SPLED 403B

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 425** Foundations of Special Education, Etiologies, Law, and Implications for Practice (4) An introduction to exceptional individuals being served in special education programs across the life span.

**SPLED 425 Foundations of Special Education, Etiologies, Law, and Implications for Practice (4)**

This course is designed to provide an introduction to all exceptionalities included in special education programs as delineated by the most recent federal legislation guiding services for individuals with special needs. An important component of this course is the exploration of typical developmental stages and milestones used to monitor children's growth and progress over time. Fourteen (14) categories of disability are defined in relation to how states define who is eligible for a free appropriate public education under special education law. In addition, recent legislation is explored in relation to services provided, funding requirements, accommodations and classroom placement. The primary objective of this course to provide future educators with a solid foundation for their understanding disabilities, services, and legislation as they enter into the special education profession. Secondary objectives include preparing students to (a) address common misconceptions and myths associated with special education, (b) work with interdisciplinary teams in the formation of Individualized Education Program (IEP), and (c) promote the preparation of exceptional individuals to assume adult roles.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: admission into the SPLED Undergraduate or Graduate Program.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.



**SPLED 430** Foundational Skills for Working with Students with Special Education Needs in General Education Classrooms  
(1) Introduction to working with students with special education needs in the general education classroom, including history and legal foundation.

**SPLED 430 Foundational Skills for Working with Students with Special Education Needs in General Education Classrooms (1)**

This is the first course in the Evidence-Based Practices for Inclusive Classrooms and Differentiating Instruction course series. The course is appropriate for pre- or in-service general education teachers who are seeking content on the roles and responsibilities of the general education teacher in providing services to students with special needs. This course serves as an introduction and prerequisite to the subsequent courses in the series.

This course addresses foundational skills for working with students with special education needs in general education classrooms. Board course objectives include student understanding of the history and current relevance of special education law; roles and responsibilities of the general education teacher in providing services to students with special education needs; providing effective instruction to students with mild and severe disabilities; and developing and maintaining effective education teams.

Evaluation of proficiency will occur in a variety of ways including short quizzes, graded application assignments, and course exams. At the beginning of the course, students will receive a packet containing DVD's of faculty presentations with imbedded activities, ungraded quizzes, and checkpoint summaries. Each recorded session will be roughly 2.5 - 3 course total duration, exclusive of the required stopping/starting to complete imbedded, parallel learning activities. Some sessions may involve students accessing various targeted websites relevant to the content. Additionally, for most sessions, there will be assigned readings; an ungraded practice activity with feedback and/or comparison responses; and a graded assignment and quiz items. The latter will be delivered primarily via ANGEL with the instructor available for feedback and questions throughout the course via-PicTel or some similar videoconferencing technology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: teacher certification or permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 431** Evidenced-Based Methods for Monitoring Student Progress and Making Instructional Decisions (2)  
Evidence-based methods for assessing student progress and making data-based instructional decisions.

**SPLED 431 Evidence-Based Methods for Monitoring Student Progress and Making Instructional Decisions (2)**

This is the second course in the Evidence-Based Practices for Inclusive Classrooms and Differentiating Instruction course series. The course is appropriate for pre- or in-service teachers prepared to work in general education settings who are seeking content on validated methods for supporting the learning of students with special needs (e.g. Learning Disabilities, Emotional/Behavioral Disorders, Communication Disorders, Developmental Delays, etc.) in general education classes. Students should complete this course after they have completed the first course in the series (Foundational Skills for Working with Students with Special Education Needs in General Education Classrooms) and prior to completion of the final course in the series (either Evidence-Based Practices for Inclusive Elementary Classrooms or Evidence-Based Practices for Inclusive Secondary Classrooms).

This course is based on a model of effective instruction that includes (a) deciding what to teach, (b) instructional design, and (c) assessing the effectiveness of instruction. A feedback loop is instruction more effective and more efficient. After completing the class students should be able to: (a) give a rationale for the collection of data in classrooms; (b) describe the assessment process; (c) describe response to intervention and the general educator's role in the process; (d) summarize data using graphs and trendlines; (e) create and administer curriculum-based assessments in reading, mathematics, and writing; (f) design systems to collect behavioral data in classrooms; (g) interpret a variety of norm-referenced test scores; (h) use brief experiential analyses to identify effective academic interventions; (i) interpret norm-referenced test data; and (j) determine if the reliability/validity of an assessment is adequate for a given purpose.

Evaluation of proficiency will occur in a variety of ways including short quizzes, graded application assignments, and course exams. At the beginning of the course, students will receive a packet containing DVDs of faculty presentations with imbedded activities, ungraded quizzes, and checkpoint summaries. Each recorded session will be roughly 2.5 - 3 hours total duration, exclusive of the required stopping/starting to complete imbedded, parallel learning activities. Some sessions may involve students accessing various targeted websites relevant to the content. Additionally, for most sessions, there will be assigned readings; an ungraded practice activity with feedback and/or comparison responses; and a graded assignment and quiz items. The latter will be delivered primarily via ANGEL with the instructor available for feedback and questions throughout the course via e-mail. Furthermore, at least once during the course, instructors will be available live via PicTel or some similar videoconference technology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: SPLED 430

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 432** Evidence-Based Practices for Inclusive Behavior Management (2) Managing and motivating learners with special needs in general education settings based upon principles of Applied Behavior Analysis.

**SPLED 432 Evidence-Based Practices for Inclusive Behavior Management (2)**

This is the third course in the Evidence-Based Practices for Inclusive Classrooms and Differentiating Instruction course series. The course is appropriate for pre- or in-service teachers prepared to work in general education settings who are seeking content on validated methods for supporting the learning of students with special needs (e.g. Learning Disabilities, Emotional/Behavioral Disorders, Communication Disorders, Developmental Delays, etc.) in general education classes. Students should complete this course after they have completed the first and second courses in the series (Foundational Skills for Working with Students with Special Education Needs in General Education Classrooms and Evidence-Based Methods for Monitoring Student Progress and Making Instructional Decisions) and prior to completion of the final course in the series (either Evidence-Based Practices for Inclusive Elementary Classrooms or Evidence-Based Practices for Inclusive Secondary Classrooms).

The course addresses aspects of managing and motivating learners with special needs placed in general education settings based upon the principles of Applied Behavior Analysis (ABA). Broad course objectives include student acquisition of knowledge and skills related to ABA principles and interventions such as: identifying the nature (positive or negative) of consequences maintaining or decreasing specific behaviors; operationally defining behavior; establishing a classroom and school environment conducive to learning for all students; creating class-wide, school-wide, and individual motivation systems; and intervening to decrease specific behaviors.

Evaluation of proficiency will occur in a variety of ways including short quizzes, graded application assignments, and course exams. At the beginning of the course, students will receive a packet containing DVDs of faculty presentations with imbedded activities, ungraded quizzes, and checkpoint summaries. Each recorded session will be roughly 2.5 - 3 hours total duration, exclusive of the required stopping/starting to complete imbedded, parallel learning activities. Some sessions may involve students accessing various targeted websites relevant to the content. Additionally, for most sessions, there will be assigned readings; an ungraded practice activity with feedback and/or comparison responses; and a graded assignment of quiz items. The latter will be delivered primarily via ANGEL with the instructor available for feedback and questions throughout the course via e-mail. Furthermore, at least once during the course, instructors will be available live via PicTel or some similar videoconferencing technology.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: SPLED 430SPLED 431

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 433** Effective and Explicit Instruction for Students with Learning Difficulties (2) Evidence-based methods for designing, delivering, and adapting academic instruction for students with mild, moderate, and severe learning difficulties.

**SPLED 433 Effective and Explicit Instruction for Students with Learning Difficulties (2)**

This is the fourth course in the Evidence-Based Practices for Inclusive Classrooms and Differentiating Instruction course series. This course is appropriate for pre- or in-service teachers prepared to work in general education settings who are seeking content on validated methods for supporting the learning of students with special needs (e.g. Learning Disabilities, Emotional/Behavioral Disorders, Communication Disorders, Developmental Delays, etc.) in general education classes. Students should complete this course after they have completed the first course in the series (Foundational Skills for Working with Students with Special Education Needs in General Education Classrooms) and prior to completion of the final course in the series (either Evidence-Based Practices for Inclusive Elementary Classrooms or Evidence-Based Practices for Inclusive Secondary Classrooms).

The course addresses aspects of designing delivering and adapting instruction for students across the range of disability (i.e., mild, moderate, & severe).

Evaluation of proficiency will occur in a variety of ways including short quizzes, graded application assignments, and course exams. At the beginning of the course, students will receive a packet containing DVDs of faculty presentations with imbedded activities, ungraded quizzes, and checkpoint summaries. Each recorded session will be roughly 2.5 - 3 hours total duration, exclusive of the required stopping/starting to complete imbedded, parallel learning activities. Some sessions may involve students accessing various targeted websites relevant to the content. Additionally, for most sessions, there will assigned readings; an ungraded practice activity with feedback and/or comparison responses; and a graded assignment and quiz items. The latter will be delivered primarily via ANGEL with the instructor available for feedback and questions throughout the PicTel or some similar videoconferencing technology.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: SPLED 430

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 434A** Evidence-Based Practices for Inclusive Elementary Classrooms (2) Evidence-based methods to effectively serve special needs students in elementary general education settings, including reading, writing, and mathematics instruction.

#### **SPLED 434A Evidence-Based Practices for Inclusive Elementary Classrooms (2)**

This course is one of two final class options in the Evidence-Based Practices for Inclusive Classrooms and Differentiating Instruction course series. The course is appropriate for pre- or in-service teachers prepared to work in general education settings who are seeking content on validated methods for supporting the learning of students with special needs (e.g. Learning Disabilities, Emotional/Behavioral Disorders, Communication Disorders, Developmental Delays, etc.) in general education classes. Students should complete this course only after they have completed the first four courses in the series (Foundational Skills for Working with Students with Special Needs in General Education Classrooms, Evidence-Based Methods for Monitoring Student Progress and Making Instructional Decisions, Evidence-Based Practices for Inclusive Behavior Management, Evidence-Based Design and Delivery of Effective Instruction for Students with Learning Difficulties).

This course addresses aspects of providing reading, writing, and mathematics instruction to elementary school students with special needs in the general education classroom. Broad course objectives include student acquisition of knowledge and skills in reading (e.g., word recognition, fluency, reading comprehension, vocabulary); writing (e.g., spelling, grammar, handwriting) and written expression (e.g., narrative, informative, persuasive); and mathematics (e.g., computation and problem solving).

Evaluation of proficiency will occur in a variety of ways including short quizzes, graded application assignments, and course exams. At the beginning of the course, students will receive a packet containing DVDs of faculty presentations with imbedded activities, ungraded quizzes, and checkpoint summaries. Each recorded session will be roughly 2.5 - 3 hours total duration, exclusive of the required stopping/starting to complete imbedded, parallel learning activities. Some sessions may involve students accessing various targeted websites relevant to the content. Additionally, for most sessions, there will be assigned readings; an ungraded practice activity with feedback and/or comparison responses; and a graded assignment and quiz items. The latter will be delivered primarily via ANGEL with the instructor available for feedback and questions throughout the course via e-mail. Furthermore, at least once during the course, instructors will be available live via PicTel or some similar videoconferencing technology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: SPLED 430SPLED 431SPLED 432SPLED 433

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 434B** Evidence-Based Practices for Inclusive Secondary Classrooms (2) Evidence-based methods to effectively serve special needs students in secondary general education settings.

#### **SPLED 434B Evidence-Based Practices for Inclusive Secondary Classrooms (2)**

This course is one of two final class options in the Evidence-Based Practices for Inclusive Classrooms and Differentiating Instruction course series. The course is appropriate for pre- or in-service teachers prepared to work in general education settings who are seeking content on validated methods for supporting the learning of students with special needs (e.g. Learning Disabilities, Emotional/Behavioral Disorders, Communication Disorders, Developmental Delays, etc.) in general education classes. Students should complete this course only after they have completed the first four courses in the series (Foundational Skills for Working with Students with Special Needs in General Education Classrooms, Evidence-Based Methods for Monitoring Student Progress and Making Instructional Decisions, Evidence-Based Design and Delivery of Effective Instruction for Students with Learning Difficulties).

The course addresses a variety of procedures and approaches to help students with special education needs gain meaningful access to the secondary curriculum content without watering it down or ignoring the instructional needs of students without disabilities. Broad course objectives include ways of planning and delivering instruction to help all students, including those with learning problems, understand and retain critical course content.

Evaluation of proficiency will occur in a variety of ways including short quizzes, graded application assignments, and course exams. At the beginning of the course, students will receive a packet containing DVDs of faculty presentations with imbedded activities, ungraded quizzes, and checkpoint summaries. Each recorded session will be roughly 2.5 - 3 hours total duration, exclusive of the required stopping/starting to complete imbedded, parallel learning activities. Some sessions may involve students accessing various targeted websites relevant to the content. Additionally, for most sessions, there will be assigned readings; an ungraded practice activity with feedback and/or comparison response; and a graded assignment and quiz items. The latter will be delivered primarily via ANGEL with the instructor available for feedback and questions throughout the course via e-mail. Furthermore, at least once during the course, instructors will be available live via PicTel or some similar videoconferencing technology.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: SPLED 430SPLED 431SPLED 432SPLED 433

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 444** Inclusive Education and Assessment (6) Knowledge and skills needed to educate students with special needs in urban schools.

**Inclusive Education and Assessment (6)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: ELED 400  
Concurrent: URBED 395W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 454** Assessment for Instruction (4) Orientation to evaluation of special students with emphasis on the creation, use, and interpretation of teacher-made assessment procedures.

**Assessment for Instruction (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: a grade of C or better required in EDPSY 101  
Concurrent: a grade of C or better in SPLED 412

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 460A** Fundamentals of Reading Instruction in Special Education (3) Topics include the interactive nature of reading, recent findings of the National Reading Panel, explicit instruction principles and reading assessments.

**SPLED 460A Fundamentals of Reading Instruction in Special Education (3)**

Fundamentals of Reading Instruction in Special Education (RISE 1), is the first course in an approved distance education certificate program. It is designed to provide teachers of students with special needs with evidenced-based procedures to teach a variety of reading skills.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 460B** Teaching and Assessing Reading Skills of Students with Special Needs (3) Topics include methods for assessing and teaching reading skills including fluency, word level decoding and comprehension.

**SPLED 460B Teaching and Assessing Reading Skills of Students with Special Needs (3)**

Teaching and Assessing Reading Skills of Students with Special Needs (RISE 2), is the second course in an approved distance education certificate program. It is designed to provide teachers of students with special needs with evidenced-based procedures to teach a variety of reading skills.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: SPLED 460A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 460C** Specialized Reading Applications in Special Education (3) Topics include methods for assessing and teaching reading skills in vocational competence, functional reading, reading for students with sensory impairment.

**SPLED 460C Specialized Reading Applications in Special Education (3)**

Specialized Reading Applications in Special Education is the third course in an approved distance education certificate program. It is designed to provide teachers of students with special needs with evidenced-based procedures to teach a variety of reading skills.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: SPLED 460A and SPLED 460B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 461** Introduction to Autism Spectrum Disorders: Issues and Concerns (3) Overview of issues, characteristics, and evidenced-based assessment strategies, and approaches for individuals with autism/PDD.

**SPLED 461 Introduction to Autism Spectrum Disorders: Issues and Concerns (3)**

This course will center on working with individuals having Autism Spectrum Disorders (ASD) and Pervasive Developmental Disorders (PDD) in educational and related settings. Topics include an overview of characteristics and diagnosis, ethical issues in treatment, assessment, the use of science in treatment approaches, working effectively with families, and strategies for successful inclusion of students with ASD/PDD in integrated settings. Course content will be delivered through DVD lectures, and required as well as supplemental readings. Evaluation procedures will include on line multiple-choice exams. The course will be changed to assess students through 6 (v.4) online multiple choice exams. Multiple choice format offers immediate feedback to students. To ensure assessment of applications skills, exams will include case studies in which students must apply skills to areas such as child assessment, data analysis, and strategies for working effectively with parents.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: EDPSY 010 or EDPSY 014 or equivalent or admission into the Professional Development Certificate in Autism or relevant child development course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 462** Autism and Applied Behavior Analysis (3) This course addresses principles of applied behavior analysis and empiricism related to instruction and special issues affecting individuals with autism.

**SPLED 462 Autism and Applied Behavior Analysis (3)**

This world campus course will include an overview of basic principles of applied behavior analysis (ABA) and elements of empiricism and ethics in educational settings. Course objectives will center on acquisition of content related to: a) principles of ABA instruction; b) ethical standards in education; c) best practice interventions for learning; d) strategies for diagnosing and programming for behavioral issues; e) special issues affecting individuals with ASD and their families. Course content will be delivered through DVD lectures, and required as well as supplemental readings. Evaluation procedures will include on line multiple-choice exams, and on line assignments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: 4th semester standing or higher

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 463** Communication and Social Competence (3) Overview of deficits and strategies in speech, language, and communication across the Autism Spectrum Disorder.

**SPLED 463 Communication and Social Competence (3)**

Communication and Social Competence is the third course in the 5 course (12 credit) series leading to the Professional Development Certificate in Autism. All information, activities, and assignments are through videotaped and web-based learning. Content includes an overview of the deficits in the area of speech, language, and communication across the Autism Spectrum Disorders (ASD). Basic information on the nature of these deficits is provided from both a psycholinguistic model as well as a behavioral model. In addition to information on deficits, the majority of the course content will provide practical information related to intervention.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: SPLED 461

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 464** Assessment and Curriculum (3) Overview of screening, diagnosis, and identification of skills in developmental domains and curricula for individuals with autism.

**SPLED 464 Assessment and Curriculum (3)**

Assessment and Curricula is the fourth course in the 5 course (12 credit) series leading to the Professional Development Certificate in Autism. All information, activities, and assignments are through videotape and web-based learning. Content includes types of assessment and identification of skills in developmental domains. Practical strategies will be outlined.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011  
 Prerequisite: SPLED 461

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 465** Asperger Syndrome (1) Characteristics, assessment, intervention, and curricula for individuals with Asperger syndrome. Emphasis will be given to social skill development.

**SPLED 465 Asperger Syndrome (1)**

Asperger is the fifth course in a five course (12-credit) series leading to the Professional Development Certificate in Autism. All information, activities, and assignments are through videotaped and web-based learning. Basic information on views of causes, assessment, treatments, and parent concerns for individuals with Asperger syndrome are included.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 495E** Experience with Exceptional Children (3) Supervised activities with exceptional children in a variety of possible settings, e.g., schools, institutions, day care centers, vocational settings.

**Experience with Exceptional Children (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011  
 Prerequisite: a grade of C or better required in SPLED 395W SPLED 401 SPLED 425 SPLED 454 . PA Act 34 clearance required. In addition non-Pennsylvania residents must provide evidence of an FBI background information check. (Forms: 228 Chambers)  
 Concurrent: a grade of C or better in SPLED 411 SPLED 412

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 495F** Practicum in Special Education (15) Teaching experience with mildly/moderately disabled children in age appropriate settings, e.g., infant/preschools, schools, vocational/job sites.

**Practicum in Special Education (15)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011  
 Prerequisite: a grade of C or better required in SPLED 495G . PA Act 34 clearance required. In addition non-Pennsylvania residents must provide evidence of an FBI background information check. (Forms: 228 Chambers)

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 495G** Experience with an Integrated Inclusion Classroom (4) Supervised teaching in integrated general classrooms with activities in assessment, diagnosis, and direct intervention with students in need or with disabilities.

**Experience with an Integrated Inclusion Classroom (4)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2011  
 Prerequisite: a grade of C or better required in SPLED 425 SPLED 395W SPLED 401 SPLED 412 SPLED 454 SPLED 495E . PA Act 34 clearance required. In addition non-Pennsylvania residents must provide evidence of an FBI background information check (Forms: 228 Chambers).  
 Concurrent: a grade of C or better required in SPLED 409

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 497A** Assistive Technology for Persons with Disabilities (1) Sensory aids, communication systems, computer systems, expert systems, simulations, and other technologies for students who are academically or physically challenged.

#### **Assistive Technology for Persons with Disabilities (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SPLED 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Statistics (STAT)**

**STAT 100** (GQ) Statistical Concepts and Reasoning (3) Introduction to the art and science of decision making in the presence of uncertainty.

#### **Statistical Concepts and Reasoning (3)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 1988

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 200** (GQ) Elementary Statistics (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.

**STAT 200 Elementary Statistics (4)  
(GQ)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

STAT 200 is a standard first course in statistics. Students who have successfully completed this course will understand basic concepts of probability and statistical inference, including common graphical and numerical data summaries; notions of sampling from a population of interest, including the sampling distribution of a statistic; construction and interpretation of confidence intervals, test statistics, and p-values; and connections between probabilistic concepts like the normal distribution and statistical inference. They will recognize various types of data, appropriate statistical methods to analyze them, and assumptions that underlie these methods. They will also gain extensive experience in the use of statistical software to analyze data and the interpretation the output of this software.

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Placement into MATH 021 or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 200** (GQ) Elementary Statistics (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.

**STAT 200 Elementary Statistics (4)  
(GQ)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

STAT 200 is a standard first course in statistics. Students who have successfully completed this course will understand basic concepts of probability and statistical inference, including common graphical and numerical data summaries; notions of sampling from a population of interest, including the sampling distribution of a statistic; construction and interpretation of confidence intervals, test statistics, and p-values; and connections between probabilistic concepts like the normal distribution and statistical inference. They will recognize various types of data, appropriate statistical methods to analyze them, and assumptions that underlie these methods. They will also gain extensive experience in the use of statistical software to analyze data and the interpretation the output of this software.

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Placement into MATH 021 or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 200H** (GQ) Elementary Statistics (4) Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation.

**Elementary Statistics (4)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: Placement into MATH 021 or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 220** Basic Statistics for Quantitative Students (3) Descriptive statistics, probability, binomial and normal



distributions, one and two sample models, introduction to regression, ANOVA and contingency tables. Students may only take one course from STAT 200, 220, and 250 for credit.

**Basic Statistics for Quantitative Students (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994  
Prerequisite: MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 240 (GQ)** Introduction to Biometry (3) Statistical analysis, sampling, and experimentation in the agricultural sciences; data collection, descriptive statistics, statistical inference, regression, one factor AOV, probability. Students may take only one course from STAT 200, 220, 240, 250 for credit.

**STAT 240 Introduction to Biometry (3)  
(GQ)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This is a course concerned with statistical analysis pertaining to the natural and agricultural sciences. The objective of the course is to provide students with a good basis for understanding uncertainty and its effects on understanding observational studies and experiments. Course content includes data collection, descriptive statistics, statistical inference, regression, and ANOVA. Students will learn through lectures, individual and group problem solving, computer-based activities, and case study discussions. Since real-life use of statistics relies upon computers, this course will provide a strong hands-on analysis element necessitating regular access to computer labs. The statistical background gained by students will provide them with a base for future use of statistics in both their course work and careers.

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Placement into MATH 021 or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 240 (GQ)** Introduction to Biometry (3) Statistical analysis, sampling, and experimentation in the agricultural sciences; data collection, descriptive statistics, statistical inference, regression, one factor AOV, probability. Students may take only one course from STAT 200, 220, 240, 250 for credit.

**STAT 240 Introduction to Biometry (3)  
(GQ)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

This is a course concerned with statistical analysis pertaining to the natural and agricultural sciences. The objective of the course is to provide students with a good basis for understanding uncertainty and its effects on understanding observational studies and experiments. Course content includes data collection, descriptive statistics, statistical inference, regression, and ANOVA. Students will learn through lectures, individual and group problem solving, computer-based activities, and case study discussions. Since real-life use of statistics relies upon computers, this course will provide a strong hands-on analysis element necessitating regular access to computer labs. The statistical background gained by students will provide them with a base for future use of statistics in both their course work and careers.

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: Placement into MATH 021 or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 250 (GQ)** Introduction to Biostatistics (3) Statistical analysis and interpretation of data in the biological sciences; probability; distributions; statistical inference for one- and two-sample problems.

**STAT 250 Introduction to Biostatistics (3)**

**(GQ)****(BA) This course meets the Bachelor of Arts degree requirements.**

STAT 250 is a standard first course in statistics, with an emphasis on applications and statistical techniques of particular relevance to the biological sciences. Students who have successfully completed this course will understand basic concepts of probability and statistical inference, including common graphical and numerical data summaries; notions of sampling from a population of interest, including the sampling distribution of a statistic; construction and interpretation of confidence intervals, test statistics, and p-values; and connections between probabilistic concepts such as normal distributions and statistical inference. They will recognize various types of data, appropriate statistical methods to analyze them, and assumptions that underlie these methods.

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Placement into MATH 021 or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 250 (GQ)** Introduction to Biostatistics (3) Statistical analysis and interpretation of data in the biological sciences; probability; distributions; statistical inference for one- and two-sample problems.

**STAT 250 Introduction to Biostatistics (3)  
(GQ)****(BA) This course meets the Bachelor of Arts degree requirements.**

STAT 250 is a standard first course in statistics, with an emphasis on applications and statistical techniques of particular relevance to the biological sciences. Students who have successfully completed this course will understand basic concepts of probability and statistical inference, including common graphical and numerical data summaries; notions of sampling from a population of interest, including the sampling distribution of a statistic; construction and interpretation of confidence intervals, test statistics, and p-values; and connections between probabilistic concepts such as normal distributions and statistical inference. They will recognize various types of data, appropriate statistical methods to analyze them, and assumptions that underlie these methods.

General Education: GQ

Diversity: None

Bachelor of Arts: Quantification

Effective: Fall 2014 Future: Fall 2014

Prerequisite: Placement into MATH 021 or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 301 (GQ)** Statistical Analysis I (3) Probability concepts; nature of statistical methods; elementary distribution and

sampling theory; fundamental ideas relative to estimation and testing hypotheses.

**Statistical Analysis I (3)**

General Education: GQ  
Diversity: None  
Bachelor of Arts: Quantification  
Effective: Summer 1988  
Prerequisite: 3 credits of calculus

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 318** (MATH 318) Elementary Probability (3) Combinatorial analysis, axioms of probability, conditional probability and independence, discrete and continuous random variables, expectation, limit theorems, additional topics. Students who have passed either STAT(MATH) 414 or 418 may not schedule this course for credit.

**Elementary Probability (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1989  
Prerequisite: MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 319** (MATH 319) Applied Statistics in Science (3) Statistical inference: principles and methods, estimation and testing hypotheses, regression and correlation analysis, analysis of variance, computer analysis. Students who have passed STAT (MATH) 415 may not schedule this course for credit.

**Applied Statistics in Science (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1989  
Prerequisite: STAT 318 or knowledge of basic probability

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 401** Experimental Methods (3) Random variables; probability density functions; estimation; statistical tests, t-tests; correlation; simple linear regression; one-way analysis of variance; randomized blocks.

**Experimental Methods (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1988  
Prerequisite: MATH 111 or MATH 141

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 402** Statistical Analysis II (3) Two-sample problems, single and multifactor ANOVA, simple and multiple regression, categorical data.

**Statistical Analysis II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: STAT 301 . 400 level needed for honors program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 414 (MATH 414)** Introduction to Probability Theory (3) Probability spaces, discrete and continuous random variables, transformations, expectations, generating functions, conditional distributions, law of large numbers, central limit theorems. Students may take only one course from STAT(MATH) 414 and 418.

### **Introduction to Probability Theory (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

Prerequisite: MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 415 (MATH 415)** Introduction to Mathematical Statistics (3) A theoretical treatment of statistical inference, including sufficiency, estimation, testing, regression, analysis of variance, and chi-square tests.

### **Introduction to Mathematical Statistics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1989

Prerequisite: MATH 414

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 416 (MATH 416)** Stochastic Modeling (3) Review of distribution models, probability generating functions, transforms, convolutions, Markov chains, equilibrium distributions, Poisson process, birth and death processes, estimation.

### **Stochastic Modeling (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1984

Prerequisite: STAT 318 or STAT 414; MATH 230

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 418 (MATH 418)** Introduction to Probability and Stochastic Processes for Engineering (3) Introduction to probability axioms, combinatorics, random variables, limit laws, and stochastic processes. Students may take only one course from MATH(STAT) 414 and 418 for credit.

### **STAT (MATH) 418 Introduction to Probability and Stochastic Processing for Engineering (3)**

This course gives an introduction to probability and random processes. The topics are not covered as deeply as in a semester-long course in probability only or in a semester-long course in stochastic processes only. It is intended as a service course primarily for engineering students, though no engineering background is required or assumed.

The topics covered include probability axioms, conditional probability, and combinatorics; discrete random variables; random variables with continuous distributions; jointly distributed random variables and random vectors; sums of random variables and moment generating functions; and stochastic processes, including Poisson, Brownian motion, and Gaussian processes.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: MATH 230 or MATH 231

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 440** Computational Statistics (3) Topics related to computing in statistics, including numerical linear algebra, optimization, simulation, numerical integration, and bootstrapping.

### **STAT 440 Computational Statistics (3)**

This course introduces many important ideas in statistical computing. Students are expected to possess knowledge of mathematical statistics at the level of STAT 415 and matrices at the level of MATH 220. Students will learn the statistical computing environment called R and use R to implement many of the theoretical computing topics, which include numerical linear algebra, optimization, numerical and Monte Carlo integration, random number generation and

simulation, and bootstrapping. Other statistical and mathematical software may be treated briefly, including symbolic mathematics environments like Mathematics and Maple.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2006  
 Prerequisite: STAT 200 or equivalent STAT 415 MATH 220

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 460** Intermediate Applied Statistics (3) Review of hypothesis testing, goodness-of-fit tests, regression, correlation analysis, completely randomized designs, randomized complete block designs, latin squares.

### **Intermediate Applied Statistics (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2006  
 Prerequisite: STAT 200 STAT 220 STAT 240 STAT 250 STAT 301 or STAT 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 461** Analysis of Variance (3) Analysis of variance for single and multifactor designs; response surface methodology.

### **Analysis of Variance (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: STAT 200 STAT 220 STAT 240 STAT 250 STAT 301 or STAT 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 462** Applied Regression Analysis (3) Introduction to linear and multiple regression; correlation; choice of models, stepwise regression, nonlinear regression.

### **Applied Regression Analysis (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2006  
 Prerequisite: STAT 200 STAT 220 STAT 240 STAT 250 STAT 301 or STAT 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 463** Applied Time Series Analysis (3) Identification of models for empirical data collected over time; use of models in forecasting.

### **STAT 463 Applied Time Series Analysis (3)**

This course covers many major topics in time series analysis. Students will learn some theory behind various time series models and apply this theory to multiple examples. An introduction to time series and exploratory data analysis will be followed by a lengthy study of several important models, including autoregressive, moving average, autoregressive moving average (ARMA), autoregression integrated moving average (ARIMA), and seasonal models. For each model methods for parameter estimation, forecasting, and model diagnostics will be covered. Additional topics will include spectral techniques for periodic time series, including power spectra and the Fourier transform, and one or more miscellaneous topics chosen by the instructor, such as forecasting methods, transfer function models, multivariate time series methods, Kalman filtering, and signal extraction and forecasting. The use of statistical software will be a central component of this course, as will the proper interpretation of computer output. Students enrolling for this course are assumed to have taken a semester-long course on regression.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2006  
 Prerequisite: STAT 462

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 464** Applied Nonparametric Statistics (3) Tests based on nominal and ordinal data for both related and independent

samples. Chi-square tests, correlation.

**Applied Nonparametric Statistics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2006

Prerequisite: STAT 200STAT 220STAT 240STAT 250STAT 301 orSTAT 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 466** Survey Sampling (3) Introduction to design and analysis of sample surveys, including questionnaire design, data collection, sampling methods, and ratio and regression estimation.

**STAT 466 Survey Sampling (3)**

This course covers classical sampling design and analysis methods useful for research and management in many fields. Topics include design of questionnaires; methods of data collection, sample-survey designs including simple random sampling, stratified sampling, cluster sampling, and systematic sampling ratio, regression, and difference estimation; two-stage cluster sampling; population size estimation; methods for dealing with nonresponse; and possibly other topics at the discretion of the instructor. Statistical software will be used to apply many of the techniques covered by this course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2006

Prerequisite: STAT 200STAT 220STAT 240STAT 250STAT 301 orSTAT 401

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 470W** Problem Solving and Communication in Applied Statistics (3) Provide problem solving and communication skills through development of writing ability, interaction with peers and the SCC, and oral presentations.

**Problem Solving and Communication in Applied Statistics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2000

Prerequisite: STAT 460STAT 462STAT 480

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 480** Introduction to SAS (1) Introduction to SAS with emphasis on reading, manipulating and summarizing data.

**STAT 480 Introduction to SAS (1)**

STAT 480 addresses the fundamentals of the SAS programming language. It addresses the programming environment and major aspects of the Base SAS software, including reading in, manipulating, and transforming data. It also addresses techniques for reshaping and restructuring data files, merging and concatenating data sets, creating summaries and subsets of data sets, formatting and printing data, as well as using some of the basic statistical procedures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: 3 credits in statistics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 481** Intermediate SAS for Data Management (1) Intermediate SAS for data management.

**STAT 481 Intermediate SAS for Data Management (1)**

STAT 481 builds on the skills and tools learned in STAT 480 to provide intermediate level ability to use the Statistical Analysis System (SAS). It covers additional capability and major uses of the program, such as error checking, report generation, date and time processing, random number generation, and production of presentation quality output for graphs and tables. Other possible topics include advanced merging, PROC SQL, importing and exporting data sets, SAS GRAPH, and the Output Delivery System.

General Education: None

Diversity: None

Bachelor of Arts: None  
 Effective: Summer 2007  
 Prerequisite: STAT 480

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 482** Advanced Topics in SAS (1) Advanced statistical procedures in SAS, including ANOVA, GLM, CORR, REG, MANOVA, FACTOR, DISCRIM, LOGISTIC, MIXED, GRAPH, EXPORT, and SQL. Credit can not be received for both STAT 482 and STAT 480/481/483.

### **STAT 482 Advanced Topics in SAS (1)**

STAT 482 builds on the skills and tools learned in STAT 480 and STAT 481 to provide advanced programming ability to use the Statistical Analysis System (SAS). It provides a survey of the major statistical analysis procedures, such as the TTEST, GLM, REG, MANOVA, FACTOR, DISCRIM, LOGISTIC, and MIXED procedures. Other topics include using the TABULATE procedure to create reports, generating random numbers, exporting data from SAS data sets, using the SAS/Graph module to produce presentation quality graphs, using the SQL procedure to query and combine data tables, and using macros to write more efficient SAS programs. Credit can not be received for both STAT 482 and STAT 480/481/483.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2009  
 Prerequisite: STAT 480 and STAT 481

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 483** Statistical Analysis System Programming (3) Introduction, intermediate, and advanced topics in SAS. Credit can not be received for both STAT 483 and STAT 480/481/482.

### **STAT 483 Statistical Analysis System Programming (3)**

The three-credit STAT 483 course is a combination of the three one-credit courses STAT 480, STAT 481, and STAT 482. In STAT 480, students are introduced to the SAS windowing system, basic SAS programming statements, and descriptive reporting procedures, such as the FORMAT, PRINT, REPORT, MEANS, and FREQ procedures. In STAT 481, the focus is primarily on extending the programming skills of the students, as they learn how to read messy data into SAS data sets, how to combine SAS data sets in various ways, how to use SAS character functions, how to read and process date and time variables, how to use arrays and do loops to write more efficient programs, and how to use the Output Delivery System to create SAS output in a variety of formats. STAT 482 provides a survey of the major statistical analysis procedures, such as the TTEST, GLM, REG, MANOVA, FACTOR, DISCRIM, LOGISTIC, and MIXED procedures. Other STAT 482 topics include using the TABULATE procedure to create reports, generating random numbers, exporting data from SAS data sets, using the SAS/Graph module to produce presentation quality graphs, using the SQL procedure to query and combine data tables, and using macros to write more efficient SAS programs. Credit can not be received for both STAT 483 and STAT 480/481/482.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2009  
 Prerequisite: 3 credits in statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small group basis.

### **Research Project (1-12)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007  
 Prerequisite: 6 credits in statistics

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small group basis.

### **Research Project (1-12)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2007

Prerequisite: 6 CREDITS IN STATISTICS

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships.

#### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: 6 credits in statistics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

#### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

#### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 497C** Topics in Stat Computing with R (1) Topics: 1) Basic background on R II) Manipulating data I III) Finding help V) Simple univariate data V) importing data VI) Documenting your work VI) Manipulating data II VII) Repetitive tasks - loops and the apply () family (IX) visual data X) Basic analysis (as much as possible we'll work with real data.)

#### **Topics in Stat Computing with R (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 497C** Topics in Stat Computing with R (1) Topics: 1) Basic background on R II) Manipulating data I III) Finding help V) Simple univariate data V) importing data VI) Documenting your work VI) Manipulating data II VII) Repetitive tasks - loops and the apply () family (IX) visual data X) Basic analysis (as much as possible we'll work with real data.)

#### **Topics in Stat Computing with R (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**STAT 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

#### **Foreign Studies (1-12)**

General Education: None



Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Supply Chain Mgmt (SCM)

**SCM 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### Foreign Studies (1-12)

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 200** (GQ) Introduction to Statistics for Business (4) Topics include descriptive statistics, probability distributions, statistical inference, regression and correlation, and forecasting.

### SCM 200 Introduction to Statistics for Business (4) (GQ)

SCM 200 introduces basic statistical concepts and models within the framework of business problems and applications. Students learn about the usefulness of business statistics to decision making, how to perform basic statistical and analytical procedures, and how to interpret, critically evaluate, and analyze data. Special emphasis is given to active learning methods. Grades are primarily determined by homework, quizzes, mid-term exams and a final exam.

General Education: GQ  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: MATH 021 or higher or satisfactory score on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 200H** (GQ) Honors Introduction to Statistics for Business (4) Topics include descriptive statistics, probability distributions, statistical inference, regression and correlation, and forecasting.

### SCM 200H Honors Introduction to Statistics for Business (4) (GQ)

SCM 200 introduces basic statistical concepts and models within the framework of business problems and applications. Students learn about the usefulness of business statistics to decision making, how to perform basic statistical and analytical procedures, and how to interpret, critically evaluate, and analyze data. Special emphasis is given to active learning methods. Grades are primarily determined by homework, quizzes, mid-term exams and a final exam.

General Education: GQ  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: MATH 021 or higher or satisfactory score on the mathematics placement examination

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 200H** (GQ) Honors Introduction to Statistics for Business (4) Topics include descriptive statistics, probability distributions, statistical inference, regression and correlation, and forecasting.

### SCM 200H Honors Introduction to Statistics for Business (4) (GQ)

SCM 200 introduces basic statistical concepts and models within the framework of business problems and applications. Students learn about the usefulness of business statistics to decision making, how to perform basic statistical and analytical procedures, and how to interpret, critically evaluate, and analyze data. Special emphasis is given to active learning methods. Grades are primarily determined by homework, quizzes, mid-term exams and a final exam.

General Education: GQ  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: MATH 021 or higher or satisfactory score on the mathematics placement examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 301** Supply Chain Management (3) Supply chain management concepts, principles, and methodologies.

**SCM 301 Business Logistics Management (3)**

SCM 301 is an introductory course that provides an overview of key logistics and supply chain management processes, concepts, and methodologies. Emphasis is given to the framework for supply chain management, the analysis of logistics cost, and service trade-offs among inventory, transportation, and warehousing activities, the strategic role of information technology in supply chains, the use of third-party logistics providers, and the methods of measuring the value of logistics performance. Instruction is based on problem-based learning pedagogy.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: ACCTG 211ECON 102SCM 200 orSTAT 200 ; limited to students in baccalaureate status

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 301H** Supply Chain Management (3) Supply chain management concepts, principles, and methodologies.

**Supply Chain Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015  
Prerequisite: ACCTG 211ECON 102SCM 200 orSTAT 200 ; limited to students in baccalaureate status

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 310** Introduction to Operations Management (3) An introduction to the strategic importance and the analytic tools of operations management. Not available to baccalaureate business students in Smeal.

**Introduction to Operations Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: SCM 200 orSTAT 200 or permission of the program; fifth semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 320** Transport Systems (3) Strategic role of freight transportation systems and services in supply chain networks. Not available to baccalaureate business students in Smeal.

**SCM 320 Transport Systems (3)**

SCM 320 develops an understanding of the strategic role of freight transportation systems in supply chain networks. Emphasis is given to the components of transportation systems, including their technological features, operational processes, and cost conditions, the buyer-seller channels for acquiring transportation services, and the strategic and tactical alternatives for transport procurement. Instruction is based on problem-based learning pedagogy.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

Prerequisite: SCM 301 orMKTG 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 400** Transport Planning (3) Advanced study of transport systems in supply chain networks.

**Transport Planning (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: B A 302 andSCM 404

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 404** Demand Fulfillment (3) Analysis of demand fulfillment and the role of distribution operations management in the supply chain.

**SCM 404 Demand Fulfillment (3)**

This course introduces the student to how customer demand is managed and how subsequent orders are filled in both business-to-business and business-to-consumer markets. Topics focus on the demand fulfillment process, which encompasses flows of goods, information, and funds from the moment a business receives an order from a customer until all requirements for the order are satisfied in full. These topics include:

- \*role of demand management and distribution operations in the supply chain
- \*transportation management
- \*distribution center processes
- \*inventory control and order management elements
- \*facility costing and productivity analysis
- \*strategic demand management and distribution operations issues in the supply chain.

Both theoretical and quantitative perspectives will be offered on these topics. Additionally, each topic will be addressed from strategic and financial perspectives. After completing this course, students will have the knowledge, skills, and abilities to:

- \*Explain the role of demand management in the supply chain
- \*Explain the role of distribution operations in demand management
- \*Determine the strategic and financial impacts of demand management and distribution operations management
- \*Articulate the role of information systems in demand management and distribution operations management
- \*Use quantitative techniques to analyze supply chain processes
- \*Describe related system software.

This is one of three prescribed foundation courses for the Supply Chain and Information Systems major for which SCM 301 Supply Chain Management is a prerequisite. This course also satisfies the prerequisite for SCM 421 Supply Chain Modeling and Analysis. Student evaluations are based on individual and group homework assignments and computer-lab exercises, as well as on at least three written examinations.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2011  
 Prerequisite: B A 302 or SCM 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 405 Manufacturing and Services Strategies (3)** Investigates manufacturing and services strategies in supply chain networks.

### **SCM 405 Manufacturing and Services Strategies (3)**

This course examines manufacturing and services strategies, with special emphasis given to quality management concepts, methods, and issues. After completing this course, students will have the knowledge, skills, and abilities to:

- Explain the role of manufacturing or services operations from the boundary-spanning perspective of supply chain management and how supply chain management can be used as a strategic competitive advantage
- Articulate how the various components of a manufacturing strategy are integrated, particularly with respect to the use of information technologies for supply chains
- Effectively apply operational and quality tools useful in implementing manufacturing strategies.

Individual and team assignments form the basis for evaluation. Evaluation methods include a combination of class participation, exams, "hands-on" exercises, case studies, and written assignments. This is one of three prescribed foundation courses in the Supply Chain and Information Systems major for which B A 302 "Supply Chains" is a prerequisite. The course is also an important prerequisite for the capstone course in the major, SC&IS 450 "Supply Chain Leadership."

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2011  
 Prerequisite: SCM 301 or B A 302

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 406 Strategic Procurement (3)** Analysis of strategic procurement in the supply chain.

### **SCM 406 Strategic Procurement (3)**

SCM 406 provides an in-depth analysis of the procurement process and supplier management, with strong emphasis placed on managing a supplier base for both products and services. Elements examined include the strategic role of procurement in supply chains, the identification and evaluation of requirements, the strategic make-versus-buy decision, how to identify, evaluate, and select potential suppliers and conduct a post-purchase evaluation; and the impact of information technology on strategic procurement. Both theoretical and quantitative perspectives will be offered. In addition, the topics will be addressed from strategic, financial, and global perspectives. In light of these perspectives, the course objectives are to develop a comprehensive understanding of:

- (1) the supplier selection and evaluation process
- (2) the relationship between product design and the supplier base
- (3) the types of relationships that exist between buyers and sellers
- (4) the impact of information technology on strategic purchasing and supply management.

Students will also develop skills in using quantitative tools to select and evaluate suppliers. This is the third of three prescribed foundation courses in the Supply Chain and Information Systems major.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: B A 302 orSCM 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 416** Warehousing and Terminal Management (3) Administration of warehouse and terminal functions in logistics systems, with analysis of customer service, forecasting, inventory, investment, design, and operation. Not available to baccalaureate business students in Smeal.

### **Warehousing and Terminal Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: SCM 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 421** Supply Chain Analytics (3) Models and Methodologies for supply chain analysis.

### **SCM 421 Supply Chain Analytics (3)**

This course provides a spreadsheet-based, example-driven approach to learn about important supply chain models, problems, and solution methodologies. The objectives of this course are:

- (1) to develop valuable modeling skills that students can appreciate and use effectively in their careers
- (2) reinforce and enrich your understanding of supply chain theories, principles, and concepts studied previously in foundation courses.

Student evaluation is based on:

- (1) individual and team group performance on problem-based exercises
- (2) individual performance on examinations
- (3) class participation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: SCM 404 orSCM 405 orSCM 406

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 435** International Logistics (3) Design and operation of global supply chain networks. Not available to baccalaureate business students in Smeal.

### **SCM 435 International Logistics (3)**

SCM 435 develops an understanding of concepts, methods, and issues for design and management of global supply chain networks. Special emphasis is given to import and export processes. This is an elective course for majors and minors in Business Logistics and a required course for majors in Business Logistics and International Business.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: SCM 301 andSCM 320

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 445** Operations Planning and Control (3) Aggregate production planning procedures, disaggregation methods in hierarchical production planning, master production scheduling, material requirements planning, lot-sizing, and capacity planning. Not available to baccalaureate business students in Smeal.

### **Operations Planning and Control (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: SCM 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 450W Strategic Design and Management of Supply Chains (3)** Strategic design and management of supply chains.

**SCM 450W Strategic Design and Management of Supply Chains (3)**

This course is about the strategic design and effective operation of supply chains. It will help prepare you for supply chain management positions in manufacturing, distributing, and other service firms including providers of logistics services. The course focuses on the definition, as well as the application, of a single logic that guides the management of all the supply chain activities. Information decision support systems, primarily computer-based, provide the foundation for this logic. Because the determination of inventory locations and the control of inventory levels play a key role in this logic, we spend considerable time on these subjects. The last section of the course covers ways to lead and organize people to manage cross-firm and cross-functional relationships effectively. After completing this course, students should have the knowledge, skills, and abilities to:

- Articulate the process perspective and the total systems view of supply chain management, the impact of systems thinking on firm performance, and the nature of relationships supply chain networks.
  - Quantify the effect of strategic initiatives such as postponement and risk pooling on the financial performance of the firm, as well as on supply chain performance.
  - Use and apply selected quantitative tools useful in implementing supply chain strategies.
  - Explain the complex nature of human interaction needed to successfully introduce supply chain concepts in the firm.
- This is the prescribed capstone course for the Supply Chain and Information Systems major. It builds upon the fundamental supply chain knowledge, skills, and abilities developed in foundation and intermediate courses. Students must complete SCM 421 before taking this course.

SCM 450W is a writing-intensive course. In addition to written assignments encompassing case studies, hands-on exercises, and examinations, student evaluations include oral presentations and class participation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2011

Prerequisite: SCM 421

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 455 Logistics Systems Analysis and Design (3)** Customer service, inventory management, transportation, warehousing, purchasing, international logistics, site location planning and analysis, and total cost analysis.

**Logistics Systems Analysis and Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2007

Prerequisite: SCM 301 or SCM 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 456 Supply Chain Risk Analysis (3)** Business processes are modeled as a network of queues using discrete-event simulation and analyzed model outcomes using statistical methods.

**SCM 456 Simulation Models of Business Processes (3)**

Students will learn to build models using commercial-grade simulation software. The course objective is to teach the methods and best practice of conducting simulation experiments, but this can only be realized within the context of a fully functional modeling tool. [Our traditional choice is ARENA, from Systems Modeling Corp., but other products are feasible.] Students learn to build models of processes typical in business operations, trace their step by step function, measure performance of the system, and predict the impact of proposed changes in the system. Simulation is a long-standing method in management science that has broad applicability.

Students will complete two examinations, regular homework assignments, and an applied project. The concepts in this course build upon one another. Early homework assignments and in-class lab exercises permit the instructor to insure mastery of the principles of the course. Students work in pairs to collect and analyze data about a real system as the basis for their final project.

SCM 456 is one of three courses (MS&IS 427, 455, or SCM 456) that students can select to complete requirements for the Management Science and Information Systems major and it is an optional course in the Operation and Information Systems Management curriculum.

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: SCM 200 and B A 302

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 460** Purchasing and Materials Management (3) Purchasing policies, procedures, order specifications and agreements, supplier selection, and the role of purchasing in production planning and inventory management. Not available to baccalaureate business students in Smeal.

**Purchasing and Materials Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: SCM 301 or SCM 310

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 465** Electronic Business Management (3) A problem-based exploration of the various electronic business tools and technologies required to efficiently manage a supply chain. Not available to baccalaureate business students in Smeal.

**Electronic Business Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007  
Prerequisite: SCM 301 or SCM 310

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 497A** Logistics Case Study Analysis (3) This course will introduce students to the case analysis method with an emphasis on logistics. Students will learn to a) identify the type of case and the most important questions to be addressed, b) identify required information, relevant data sources and appropriate analytical methods, and c) develop and make effective presentations of key case study findings and recommendations. The course will follow the basic approach to case analysis described in Ellet (2007), and will emphasize quantitative practice exercises done by groups of students.

**Logistics Case Study Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: permission of the program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SCM 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Surveying (SUR)**

**SUR 111** Plane Surveying (4) Plane surveying principles; basic measurement statistics; use and care of equipment; traversing, area, and coordinate computations; differential leveling; RTK-GPS measurements.

**SUR 111 Plane Surveying (4)**

The objectives of this first course in surveying is to introduce the surveying profession and cover the fundamental methods of plane surveying which include use and care of equipment, field procedures, computations, and measurement error theory. As a result of completing the classroom component of the course, students will be able to: (1) make accurate conversions between commonly used surveying units, (2) apply the rules of significant figures to surveying measurements and calculations, (3) identify sources and types of error in surveying measurements, (4) understand differential leveling theory including note-form, survey closure, and loop adjustment, (5) compute the standard error of a set of repeated measurements and establish an acceptable range of observed values based upon a specified level of confidence, (6) adjust a set of measured angles and compute line directions for a closed traverse, (7) compute and adjust by compass rule the departures and latitudes of a closed traverse, (8) apply coordinate geometry methods to compute coordinates, direction, distance, and area. As a result of completing the laboratory component of this course, students will be able to: (1) perform a differential leveling survey within FCGS third order work, (2) perform a closed traverse survey with a relative precision of 1/10,000 using a total station, (3) use the RTK-GPS field method to measure position of stations in a closed traverse, and (4) complete a set of traverse computations for a closed traverse and present them in a prescribed format. SUR 111 is a prerequisite to all SUR courses. Student performance is based upon a mixture of



homework, field exercises, writing assignments, quizzes, exams and a course portfolio. The final exam is comprehensive. All field exercises are held outside and on the campus grounds. Students must dress for weather conditions of the day of the laboratory exercise.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: or concurrent: MATH 026 or MATH 040 or MATH 140

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 162 Methods in Large Scale Mapping (3)** CAD applications in mapping; data collection using traditional and satellite techniques; map compilation; COGO.

### **SUR 162 Methods in Large Scale Mapping (3)**

SUR 162 is the basic mapping course in the curriculum. The concept of reference datum is introduced; the US national spatial reference system is described. Map design considerations such as scale are introduced. Map compilation emphasizes computer aided drafting. Basic standards and procedures of control and mapping surveys are introduced. Basic concepts of coordinate geometry are introduced. Laboratory exercises incorporate practice in control and mapping surveys, in map compilation and in application of coordinate geometry.

As a result of completing the classroom component of the course students will be able to (1) describe hardcopy and softcopy maps, (2) describe the standard series of maps in the US National Mapping Program, (3) describe US national map accuracy standards, (4) apply map design considerations such as map clarity, order and balance, (5) calculate scale and map layout, (6) apply procedures of interpolation to calculate positions of contours, (7) describe the use of triangulated irregular networks to create contours, (8) describe components of the US national spatial reference system, (9) describe design considerations for triangulation, trilateration, traverse and precise leveling, (10) describe the survey procedures used to locate contours, (11) describe procedures to make a digital elevation model, (12) design a survey to collect mapping data using a data collector to enable efficient drawing, (13) use coordinate geometry to calculate position and elevation of a feature, to calculate direction and distance of a line, to calculate coordinates of a station using intersection, to calculate coordinates of an occupied station using resection.

As a result of completing the laboratory component of the course students will be able to (1) set up a new map compilation project in a mapping program, (2) create and use blocks for standard map features (eg borders, title boxes), (3) use mapping program COGO features, (4) use mapping program contouring capabilities to create a digital terrain model, (5) use mapping program features to load collected positional data and draft a manuscript, (6) design and conduct a control traverse, and a mapping survey to collect data using an electronic data collector.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: SUR 111/EDSGN 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 212 Route and Construction Surveying (4)** Circular, compound, spiral horizontal curves; equal, unequal tangent vertical curves; alignments, earthwork; control, building, pipe, street, and as-built construction surveys.

### **SUR 212 Route and Construction Surveying (4)**

SUR 212 builds directly upon the fundamental surveying principles presented in SUR 111 (Plane Surveying), particularly traverse methods and coordinate geometry calculations. The course covers the fundamental geometric computations for street alignment design starting with simple circular, compound circular and spiral horizontal curves. This includes computation for intersection angles, radius, length, tangents, degree of curvature, stationing and stake-out calculations using coordinate geometry methods. The topics of vertical curve analysis follow which includes street grade, rate of change of grade, stationing, low and high points, passing a curve through fixed point and other alignment related analysis and design. Both equal tangent and unequal tangent vertical curves are discussed. Vertical curves are followed by street cross-sections, templates, slope stake locations, cut/full, earthwork computations and other aspects of 3-D alignment design.

Once curve geometry and street alignment calculations are covered, the course moves into field stake-out methods for construction. Street alignment stake-out is covered first, using industry standard software with traditional and RTK-GPS equipment. A road alignment project is used to combine the aspects of geometric analysis and design with field stake-out methods including a control survey. Beyond street stake-out, other construction surveys are addressed including building, pipe line, culverts, storm and sanitary sewers, as-built and other construction related surveys. The laboratory exercises present field methods for construction projects in accordance with design specifications. Computations of earthwork volumes are also covered for other construction projects beyond that of street alignments.

General Education: None

Diversity: None

Bachelor of Arts: None  
Effective: Summer 2011  
Prerequisite: SUR 162

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 222 Photogrammetry (3)** Basic principles of metric photogrammetry with single and stereopair photos; coordinate transformations; map production with stereo imagery; flight planning. Lab.

**SUR 222 - Photogrammetry (3)**

Photogrammetry covers the basic principles of aerial photography and the geometry of the optics in relation to aerial cameras. Mathematical theories for refining and processing measurements from single aerial photographs are developed. Such measurements are transformed to obtain real world coordinates of features on the surface of the earth. Two-dimensional conformal, affine, and projective coordinate transformation equations and the three-dimensional conformal coordinate transformation equations are developed and applied to the measurements on the photographs. In addition, the theory underlying the geometry of stereopairs of photographs are developed and used to determine elevations of features on the photograph.

Stereographic equipment and software are used to produce accurate topographic maps of the overlap areas between stereopairs. The course also covers procedures and considerations for planning an aerial photography mission which include flight planning, cost analysis, equipment selection, placement of photo controls, and overall project management.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: Prerequisite or concurrent: SUR 162

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 241 Surveying Measurement Analysis (3)** Statistical error analysis of surveying measurements; propagation of random errors; confidence intervals and statistical testing. Lab.

**SUR 241 Surveying Measurement Analysis (3)**

Surveying Measurement Analysis explores the fundamental concepts of statistical error analysis with applications to surveying measurements. It covers the normal distribution function and theories describing the fundamental procedures in data including measures of central tendency and measures of data variation. It then explores sampling distribution theory and develops statistical confidence intervals and testing using the  $\chi^2$ , students t, and F distributions. Fundamental concepts in the propagation of variance are developed and applied to the traditional surveying observations of angles, distances, azimuths, elevation differences. These error propagation techniques are further used to explore the propagation of variance in traditional traverse computations. The accompanying lab exercises help reinforce and validate the theoretical foundations of this class.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2001  
Prerequisite: SUR 111  
Concurrent: MATH 083 or MATH 140

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 262 Coordinate Systems in Map Projections (2)** Introduction to coordinate systems used in the Lambert, Mercator, Transverse Mercator, and UTM map projections; reduction of surveying observations.

**SUR 262 Coordinate systems in Map Projections (2)**

Coordinate systems in map projections covers the fundamental relationships between the physical earth, the geoid, the ellipsoid and map projections. It will explore the use of map projections in state plane coordinate systems, and the use of these coordinate systems in large mapping and construction projects. The course explores the corrections that must be made to properly use these coordinate systems including the reduction of observed elevations, distances, azimuths and angle.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013  
Prerequisite: Prerequisite or concurrent: MATH 110 or MATH 140; SUR 162

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 272 Cadastral Surveying (3)** Evolution of land records systems; PLS: property ownership and conveyancing; common and statute law; rules of construction; boundary location procedures.

**Cadastral Surveying (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1993  
Prerequisite: SUR 111

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1997

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 313** Integrated Surveying (3) Control, boundary, mapping and construction surveys; survey planning, coordinating; report and record map preparation.

**SUR 313 Integrated Surveying (3)**

SUR 313 is intended for SRT and SUR E students in their last year in the programs. Objectives of SUR 313 are directed toward providing instruction and practical experience in activities common in surveying practice, experience requiring the integration of virtually all abilities gained in previous surveying courses.

The class is organized as a student surveying company with the instructor as general supervisor. Objective 1 of the student surveying company is to analyze a letter from a client (the instructor) requesting a survey. The letter will request a survey (typically ALTA boundary or construction). The client letter will specify standards (ALTA and other) the survey is to meet, standards commonly required in survey practice. The client letter will specify products to be delivered, typically a report of record of survey maps and analyses showing the degree to which required survey standards have been met. In addressing objective 1, students determine exactly what work needs to be done to satisfy client requirements. Typically these include several sub-surveys: (1) a relatively long-range satellite (GNSS) survey to bring control into the project area, (2) a traditional local control survey to create a control network to control subordinate surveys and the surveys producing what the client has requested, typically boundary retracement and mapping surveys. The result of work on objective 1 is the organization of the class into coordinating groups, one per sub-survey plus two additional groups for report compilation and editing and map production and editing.

Objective 2 of the student surveying company is to develop detailed work plans for sub-surveys, report preparation and map production. The result of work on objective 2 is the set of work plans. A written contract (as a letter of understanding) between the student surveying company and the client is prepared.

Objective 3 is to perform that record search, field work, data analysis, mapping and preliminary report writing for the sub-surveys necessary to meet client requirements.

Objective 4 is to compile the final report of survey.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012  
Prerequisite: SUR 162  
Concurrent: SUR 212 SUR 272

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**SUR 341** Adjustment Computations (3) Matrix methods in least squares; random error propagation; observation equation model; conditions between parameters; basic post-adjustment statistical analysis.

**SUR 341 - Adjustment Computations (3)**

Adjustment computations covers the basic theory and mechanics of a least squares adjustment using the traditional surveying observations of distances, angles, azimuths, and elevation differences. It explores the theory of error propagation, and uses this theory to determine the precision of indirectly measured quantities. It explores post-adjustment analysis through the use of various statistical tests, and error ellipse computation and analysis. This course primarily focuses on the least squares adjustment and analysis of differential leveling, triangulation, trilateration, traverse and network observations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: SUR 262 ; Prerequisite or concurrent: CMPSC 201STAT 401SUR 241

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 351** Geodetic Models (3) Three dimensional geodesy; computations on the ellipsoid; map projections; reduction of observations and elements of physical geodesy.

**SUR 351 Geodetic Models (3)**

Course covers the basic gravimetric and geometric geodesy aspects as related to surveying. Motions of the Earth and the effect on reference systems are explored. The Earth's gravity field, its measurement, reduction of gravity observations to the geoid, uses for gravity and gravity anomalies are studied. Different coordinate reference systems are studied including astronomic, geodetic, and satellite coordinate systems. Transformation between the various coordinate systems is covered while also considering crustal plate motion. Basic mathematical representations and transformations between various representative ellipsoids are explored. Satellite navigation and positioning is discussed at a rudimentary level. Both point positioning and relative positioning techniques are discussed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: MATH 141SUR 262

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 362** Introduction to Geospatial Information Engineering (3) Basic concepts in geographic information engineering; spatial reference frame-works; map and text data; digital environments; software and hardware plat-forms.

**SUR 362 Introduction to Geospatial Information Engineering (3)**

Land has varied meaning and value to different cultures and generations. There is a need to manage land and its resources in order to sustain life and meet the demands of competing interests. Geospatial information technology provides a means through which data about land can be analyzed to obtain information that may be used to support land management decisions. The geospatial information engineering course is the foundation course in the surveying engineering program that introduces students to the technology.

The objective of this course is to teach students to collect and process spatial data, analyze and make decisions, and to communicate the results using maps and other information delivery formats.

This course begins with the introduction of geospatial technology and its application in decision making, resource allocation and management, a socio-economic development. Students learn the different types of data that are used in geospatial information technology. They learn about graphical data structures as well as descriptive databases and how to build them. Three spatial data models are discussed together with their advantages and drawbacks, as well as descriptive databases. Students capture various datasets from the field, convert them into usable formats, and process them using the models that have been discussed so as to reinforce the knowledge. Spatial reference systems and map projections are discussed. Procedures for performing geospatial analyses and querying databases are discussed and students conduct laboratory exercises using the field data that they captured. Map making techniques are discussed and students learn to communicate the results of analysis through maps.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: SUR 162SUR 272

Concurrent: MATH 110 or MATH 140 SUR 222

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 372W** Legal Aspects of Land Surveying (3) Legal research; rules of evidence including classification and evaluation; unwritten rights; land description composition; easements.

### **Legal Aspects of Land Surveying (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1994

Prerequisite: SUR 272

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 381** Stormwater Hydraulics and Hydrology (4) Hydraulics: statics, continuity, energy, friction; hydrology: rainfall, abstractions, travel time, runoff; stormwater design: sewers, culverts, basins, erosion; municipal regulations.

### **SUR 381 Stormwater Hydraulics and Hydrology (4)**

Stormwater Management Hydraulics and Hydrology is an elementary treatment of common design practices used to create stormwater management plans for small to medium sized land development projects. Erosion and sedimentation design is also addressed within the context of a stormwater management plan. The course is intended for engineering students who are not required to take formal fluid mechanics or hydrology courses, yet have a need to understand or complete the design aspects of stormwater management as it relates to their professional practice. Some state professional registration laws refer to this type of engineering design as "minor engineering" which is engineering design as it relates to land surveys connected to land development activities. Other types of "minor engineering" include street alignment, sanitary sewers, water lines, utilities and site grading.

The course contains three segments. The first segment covers the elementary hydraulics necessary to design drainage structures and storm water detention facilities. These topics include fluid statics, continuity, conservation of mass, conservation of energy, friction losses, minor losses, energy grade line, open channel flow, weirs and orifices. The second segment covers elementary hydrology methods used to analyze runoff from land development sites and small to medium watersheds. The hydrology topics include watershed characteristics, rainfall, abstractions, runoff, time of concentration, peak flow methods, hydrograph methods, basic channel routing and detention basin routing. The third segment covers government regulations and common design methods used to design storm sewers, detention basins and erosion control plans. A project includes the design of a multiple-element storm sewer system, a stable open channel, a detention facility with a multiple outlet structure, and some erosion control measures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: MATH 141 6th semester standing

Concurrent: PHYS 213

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 422** Digital Photogrammetry (3) Mathematical methods for processing digital imagery, creating digital elevation models and ortho-photographs, and applications in spatial data infrastructure.

### **SUR 422 Digital Photogrammetry (3)**

As a continuation to an existing photogrammetry course, this course is designed to provide a deeper understanding of the mathematical principles of photogrammetry as well as current applications of photogrammetric mapping. In recognition of the increasing use of digital images in geospatial technologies, especially in applications involving natural resource inventory and mapping, this course provides advanced knowledge in softcopy photogrammetry. This course deals with mathematical methods for processing tilted aerial photographs. Two- and three-dimensional coordinate transformation methods for correcting the geometry of digital imagery are taught. These are followed with the development of collinearity equations for analytical aerotriangulation and the adjustment of a block of photographs. Extraction of contours and development of elevation models are also taught. Creation of digital ortho-photographs, mosaics and color balancing of mosaicked images are discussed. Applications of ortho-rectified digital images in geospatial technologies are also taught.

Laboratory exercises include the use of computer hardware and software to enhance and classify remotely sensed images, apply softcopy photogrammetry methods to develop contour maps, digital elevation models, and digital orthophotographs from a block of photographs. The course has direct relationship to photogrammetry, adjustment computations, and multipurpose land information systems which are all taught in the surveying program. It is a required course which is offered to baccalaureate degree students in the surveying engineering program. Academic achievement is evaluated through quizzes, home works, and examinations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: MATH 220SUR 362

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 441 Data Analysis and Project Design (3)** Post least squares adjustment analysis of control networks, statistical testing, blunder detection, network design considerations, and computer optimization techniques.

### **Data Analysis and Project Design (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

Prerequisite: STAT 401 or STAT 451SUR 341

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 455 Precise Positioning Systems (3)** Stellar coordinate systems; geodetic reference coordinate systems; satellite orbital theory; global positioning systems; pseudo-ranging; GPS vector adjustments.

### **Precise Positioning Systems (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

Prerequisite: SUR 351 . Prerequisite or concurrent: SUR 441

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 462 Parcel-Based Geospatial Information Systems (3)** Acquisition processing of land parcel data; development of land information system and applications in geospatial information technology.

### **SUR 462 Parcel-Based Geospatial Information Systems (3)**

People and cultures around the world have different perceptions of land. Land has different value to many people. As a natural resource, with finite size, there are always competing interests when it comes to allocation use and management of units of land. The basic unit of land is the parcel. All activities are associated with land parcels. With such competing interests, it is important to manage land and its resources in an effective manner so as to ensure its sustainability. To ensure proper stewardship of land, data about each land parcel must be maintained so that information from parcel-based geodatabases may be used to support decisions involving land, people, and communities. Parcel-based information technology serves as a component of the geospatial technology with special applications in place-based information.

This course builds on the knowledge obtained from SUR 362, Geospatial Information Engineering course. It begins by considering various perceptions of the use and value of land to different cultures, communities, and organizations. A justification is made for the need to manage land and resources in land in order to promote good stewardship. The use of technology for land parcel information management is discussed. From there the course progresses through land parcel data types and sources, data conversion and geodatabase development. Applications of land parcel data in place-based information management are discussed. Accuracy considerations for parcel data in various applications are also discussed. Spatial analysis and methods for presenting or communicating results are discussed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: SUR 362SUR 372W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 471 Professional Aspects of Land Surveying (3)** Ethical issues and legal limits of practice; surveyor as an expert witness; surveyor-client relationship; responsibilities to the profession.

### **Professional Aspects of Land Surveying (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

Prerequisite: SUR 372W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 482 Land Development Design (3)** The land development process; geometric, environmental, aesthetic aspects of

development; local regulatory requirements; preparation of final plat and report.

### **SUR 482 Land Development Design (3)**

Land development design is designed for seniors in Surveying Engineering and covers the basic principles of residential design and development. The objective of the course is to provide students with exposure to elements of the land development process from an engineering perspective.

Topics covered include land development regulations, site analysis of soils, site evaluation in terms of opportunities and constraints, sketch design, site layout, preliminary design, street layout including horizontal and vertical design, grading plan, drainage design, stormwater management, sewer and water, and erosion and sedimentation controls.

Students work in teams of two or three on a design project for a local property. Students will utilize AutoCAD Civil 3D (or similar software) and the Virginia Tech/Penn State Urban Hydrology Model (VTPSUHM) (or similar) in the project design. A site visit to the design property is included in the course.

At the end of the course, student teams will exchange their project designs and critique each other's work from the view point of a township engineer. Designs are evaluated for adherence to a pre-selected municipal subdivision and land development ordinance (SALDO). Students are required to present their final designs to the class. They must be prepared to explain their work and defend any design elements that are questioned during the presentation.

After completion of this course, students will be able to: 1) evaluate a site for land development potential, 2) prepare sketch designs for a proposed land development site, incorporating opportunities and constraints, 3) prepare a preliminary design including street alignment for a residential subdivision, sanitary sewer for a residential subdivision, storm sewer with inlets and inverts and a grading plan; and 4) prepare a mock final plan for public review and presentation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: SUR 212SUR 372W ; Prerequisite or concurrent: SUR 381

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 490 Seminar in Surveying (1)** Individual or group work in surveying.

### **Seminar in Surveying (1)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

Prerequisite: senior standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 496 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1993

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SUR 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1993

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Sustainability (SUST)

**SUST 200** (GS) Foundations of Leadership in Sustainability (3) Science, ethics, and leadership in social, environmental, and economic sustainability.

### Foundations of Leadership in Sustainability (3)

General Education: GS  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Swahili (SWA)

**SWA 001** Elementary Swahili I (4) Listening, speaking, reading, writing Swahili: an introduction for beginners; basic structures and vocabulary; cultural elements.

### Elementary Swahili I (4)

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 002** Elementary Swahili II (4) Listening, speaking, reading, and writing Swahili; structures and vocabulary; cultural elements.

### Elementary Swahili II (4)

General Education: None  
Diversity: None  
Bachelor of Arts: Second or Beyond 12th Level Foreign Language  
Effective: Spring 1995  
Prerequisite: SWA 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 003** Intermediate Swahili (4) Further development of listening, speaking, reading, and writing skills in Swahili: structures and vocabulary; cultural elements.

### Intermediate Swahili (4)

General Education: None  
Diversity: None  
Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language  
Effective: Spring 1995  
Prerequisite: SWA 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 051** Elementary Intensive Swahili for Graduate Students I (3) Intensive introduction to Swahili: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

### SWA 051 Elementary Intensive Swahili for Graduate Students I (3)

This is the first in a series of three courses designed to give students an intensive introduction to Swahili. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the Swahili vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2008  
Prerequisite: graduate standing



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 052** Elementary Intensive Swahili for Graduate Students II (3) Intensive introduction to Swahili: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts.

**SWA 052 Elementary Intensive Swahili for Graduate Students II (3)**

This is the second in a series of three courses designed to give students an intensive introduction to Swahili. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Swahili vocabulary. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: SWA 051 and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 053** Intermediate Intensive Swahili for Graduate Students (3) Continued intensive study of Swahili at the intermediate level: reading, writing, speaking, listening, cultural contexts.

**SWA 053 Intermediate Intensive Swahili for Graduate Students (3)**

This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Swahili. Continued intensive study of Swahili at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2008

Prerequisite: SWA 052 or equivalent and graduate standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**SWA 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**SWA 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1995

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**SWA 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Systems Engineering (SYSEN)**

**SYSEN 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1999

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Telecommunications (TELCM)**

**TELCM 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TELCM 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1997

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TELCM 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TELCM 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1992

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Theatre (THEA)**

**THEA 001S** First-Year Seminar: Theatre Production Practices (1) An orientation to the School of Theatre production practices, resources, faculty, and practicum.

### **THEA 001S First-Year Seminar: Theatre Production Practices (1)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 001S will serve as the First-Year Seminar for all undergraduate majors in the School of Theatre. In all School of Theatre degree programs, backstage production is one of the primary curricular and experiential areas held in common. It is in this area that most theatre students gain their first practical experience in producing theatre on our stages. This course will provide the necessary training and experience for all students to safely practice in the production of live theatre in our spaces.

This course will orient first-year students to faculty, facilities, and practices of production utilized in the School of Theatre season. Students will be introduced to the faculty and their areas of expertise. They will be oriented to the spaces and equipment in our theatres and taught safe operation of the equipment. They will learn the practical and professional expectations placed on students participating in a School of Theatre production. Learning will take place both in lecture/demonstration format and through the practical experience of working on a School of Theatre production.

Students will be evaluated by:

1. Backstage practices and safety will be evaluated through knowledge based quizzes and/or skill demonstrations as appropriate to each subject.
2. Professionalism evaluated through attendance, reliability and skill growth as observed during the execution of practicum assignments.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2006  
Prerequisite: admission into Theatre Program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 080** (GA) Pit Orchestra (1-3 per semester/maximum of 3) Rehearsal and performance of contemporary and historical musical theatre styles, including operetta and light opera.

### **THEA 080 Pit Orchestra (1-3 per semester/maximum of 3) (GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 080 provides an introduction to the particular demands of the orchestral pit player, with an emphasis on the musical theater repertoire. The course objectives is to prepare the student for a professional theatre engagement. This course parallels the orchestra ensembles in the School of Music (Philharmonia, Chamber Orchestra) but with the added techniques of theatre orchestra: standard vamps, "vocal last time" vamps, fade on cue, cut on cue, etc. Grades are determined by (1) level of performance and improvement, and (2) attendance at all rehearsals, sectionals and

performances. The special facilities for this course will include orchestral rehearsal space in the School of Music, as well as the Pit/Performance space in the School of Theatre.

Enrollment will vary depending on the needs of individual musical scores; however, the performance schedule is such that an ensemble large enough to accommodate both players and substitutes is desirable. This is a repeatable course. Students will comprise the orchestra for a School of Theatre's production each semester. An audition is required for admission to this course. Emphasis will be placed on precision ensemble playing, as well as the skill of playing together as a section while simultaneously following the conductor. Because of the highly technical nature of theatrical productions, there are frequent cues given by the conductor which are vitally important to the performance. Mastering the specialized skill of splitting one's attention evenly between the music stand and the podium will be a major objective of this course. In the process of preparing the music for each production other skills will be taught and acquired, such as: learning when to accompany and when to play in a solo manner; when to follow and when to lead as a section player; for brass players, developing the "Broadway" sound: big, bright, and focused; for reed doublers, the techniques involved in performing on multiple instruments in a single number; for all musicians, familiarity with the plethora of styles now being performed on Broadway: traditional Broadway, pop, rock, and the more classical styles of some of the contemporary theatre composers.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2008  
Prerequisite: audition

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 100** (GA;US;IL) The Art of the Theatre (3) An experiential survey of all aspects of the living theatre, as presented by a resident company of theatre artists.

**THEA 100 The Art of the Theatre (3)**  
**(GA;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is an introduction to the living art of the theatre. Beginning with the script as the source of production aesthetics, analysis of textural context, structure, and genre provide tools to the imaginative impulses of the theatre artist and audience. As a variety of individual texts are analyzed and explored, the performance of scenes from the texts supports the imaginative process as each topic is demonstrated by a resident Company of theatre artists. The course is concerned with the universality of the theatrical impulse, and includes a selection of international and multi-ethnic voices and performance techniques. This is a required course for all theatre majors and provides the groundwork for all other theatre courses. At the same time, the course is designed to allow the general student to experience and understand the art of the theatre.

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 102** (GA) Fundamentals of Acting (3) Introduction to the art and craft of acting for non-theatre majors.

**THEA 102 Fundamentals of Acting (3)**  
**(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 102 aims to introduce the student to basic principles of the art and craft of acting, focusing on HOW and WHY actors do what they do in preparation of and for a performance less than on the attainment of performance skills themselves. Students will become acquainted with acting processes, theatre terminology, script analysis, improvisation, and other fundamentals to give them a more inclusive sense of the totality of the actor's work as craftsperson and artist. In so doing, the student actors must tap their own powers of concentration, observation, creativity, and imagination. A major focus in the course is the development of the ability to analyze one's own work and the work of peers in the class. Problem-solving in solo, paired, and/or large group contexts is a daily requirement in class.

THEA 102 is NOT an acting course designed to develop fine actors; it is a course ABOUT acting. Thus, the course objectives are these:

1. To introduce the concept of acting as a process and craft.
2. To develop an understanding of acting skills, script and character analysis, and theatre/acting terminology.
3. To heighten powers of observation, focus, invention, imagination, and the ability to accurately and positively analyze and critique peer's work.
4. To experience the commitment and discipline that acting requires.
5. To learn how best to score, interpret, and use the script as the fundamental source or criterion for truthful behavior on stage.

Educational strategies: to accomplish the above objectives, a variety of strategies will be employed, including lectures,

discussions, readings from the text, instructor critiques of student work(s), experiential activities that require full student commitment and participation, presentation of assignments after significant rehearsal outside of class, and other preparations and teaching strategies as necessary and appropriate.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 103** Fundamentals of Directing (3) Training and experience in basic skills of directing. Designed for non- theatre majors.

### **Fundamentals of Directing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 104** Fundamentals of Theatre Production (3) Training and experience in basic skills of technical theatre. Designed for non-theatre majors.

### **Fundamentals of Theatre Production (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 105** (GA) Introduction to Theatre (3) An introduction and overview of the history, craft, and art of the theatre to foster an informed appreciation of theatrical events. This course is an alternate to THEA 100.

### **THEA 105 Introduction to Theatre (3) (GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will introduce students to the art and craft of theatrical production. Students will learn about plays, playwrights, major eras and styles of theatrical production, the analysis of scripts, genres of dramatic literature, and the personnel involved in the production of plays.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 107** (GA) Introduction to Dramatic Structure (3) An introduction to structural analysis in dramatic literature.

### **Introduction to Dramatic Structure (3)**

General Education: GA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 110** Playscript Analysis (3) Theory and method of playscript analysis for the general theatre student.

### **Playscript Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 112 (GA)** Introduction to Musical Theatre (3) A survey of music theatre as an art form.

**Introduction to Musical Theatre (3)**

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 113** Musical Theatre Theory I (3) Studies in the fundamentals of music notation and sight-singing.

**THEA 113 Musical Theatre Theory I (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 113 is designed to provide the beginning musical theatre student with the fundamentals of music theory and diatonic harmony as well as the analytical skills with which to approach and appreciate the structure of songs and musical theatre scores. It is focused primarily on the musical theatre literature to enable the beginning student to learn and appreciate more efficiently the literature that will be central to the performance classes in the major. The class places a rigorous emphasis on pitch and rhythmic identification to develop a high degree of musicianship in the beginning student, both to provide a solid basis for the classes to come and to make the performer more competitive in the musical theatre industry. It is designed to be entry-level in preparation for THEA 114 (Musical Theatre Form and Analysis) and the upper-level theory classes (THEA 212 and THEA 214).

The course presupposes no previous musical training or experience. For those with some previous musical theory education, the course may function successfully as a refresher before the more rigorous analysis courses to follow. It satisfies a significant need in that it focuses on the specific theoretical knowledge the musical theatre student needs to know to become competitive in a professional career.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2000  
Prerequisite: admission into Musical Theatre Option

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 114** Music Theatre: Form and Analysis (3) A survey of music theatre as an art form.

**Music Theatre: Form and Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1993  
Prerequisite: admission into Musical Theatre Option

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 115** B.F.A. Acting Foundations (2) Fundamental aspects of training the actor's body, voice, mental focus, and imagination.

**THEA 115 B.F.A. Acting Foundations (2)**

THEA 115 is an introduction to the awakening and enhancement of beginning students' physical, vocal, mental, and imaginative instrument in preparation for the demanding work to follow in later acting, voice/speech, and movement studios.

The course will introduce physical conditioning and breathing exercises specifically for actors, introduce exercises to enhance mental focus/concentration, and lead students through a series of exercises designed to stimulate and enhance the actor's imagination and trust in the world of fantasy.

Students will be exposed to a variety of techniques from which they may, over time, develop their own individual physical/mental training discipline. They will be encouraged to accurately assess their own physical/vocal/mental self-image, to develop a plan (with the instructor) to minimize intrusive mannerisms and to maximize positive traits and



work habits.

Grading will be based on each student's commitment to the training regimen, application of past lessons in present assignments, quality of daily work, and the ability to accurately perform the exercises taught.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: admission to B.F.A. in Musical Theatre

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 120 Acting I (3)** Fundamental skills and training in acting. Emphasis on physical/vocal awareness and the nature of dramatic communication. Theatre majors only.

### **Acting I (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 121 Fundamentals of Acting II (3)** This course is a continuation of THEA 120 and designed to build upon the basic foundation of acting.

### **THEA 121 Fundamentals of Acting II (3)**

THEA 121 is a continuation of THEA 120 and designed to build upon the basic foundation of acting. Regardless the style or medium, good acting boils down to the process of "living truthfully under imaginary circumstances." THEA 121 will provide the student with practicum experiences in scene study and Monologue/Auditioning technique. The course will also deepen and expand the range of student experience to include a more sophisticated and diverse immersion into the craft of acting.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: THEA 120

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 130 Introduction to Theatre Scenic and Costume Technology (3)** Introduction to the methods, materials, equipment, concepts and processes involved in the construction of scenery and costumes for the theatre.

### **THEA 130 Introduction to Theatre Scenic and Costume Technology (3)**

This course will familiarize students with the methods, materials, equipment, concepts, and processes involved in the construction of scenery and costumes for the theatre. The emphasis of this course will be on the physical process that results in the production of both scenery and costumes. Lecture topics include:

Soft Goods Layout and Construction

Basic Flat Layout and Construction

Dimensional Scenery

Rigging and Paint

The Costume Shop/The Big Picture

Designer's Sketch to Wearable Costume

Hand Sewing Techniques

Sewing Techniques/The Sewing Machine

In addition to lectures, students will be expected to participate in hands-on laboratory activities that will reinforce and inform the classroom theory. These activities will give students an opportunity to apply the principles they will learn in the lecture component.

These courses enable our students to converse intelligently with *all* of the members of the theatre community, regardless of their specific theatre emphasis. Students will develop a fundamental understanding of the relationship between the various areas of theatre production.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 131** Introduction to Theatre Sound and Lighting Technology (3) Introduction to the methods, materials, equipment, facilities, concepts and processes used to create theatre lighting and sound.

**THEA 131 Introduction to Theatre Sound and Lighting Technology (3)**

This course will familiarize students with the methods, materials, equipment, facilities, concepts and processes used to create theatre sound and lighting. The emphasis of this course will be on the physical process that results in the production of both lighting and sound. Lecture topics include:

Mixers  
Connectors & Cable  
Playback vs. Reinforcement  
Safety & Hanging Lights  
Focusing, Circuits and Dimmers  
Instrument types, Qualities of Light

In addition to lectures, students will be expected to participate in hands-on laboratory activities that will reinforce and inform the classroom theory. These activities will give students an opportunity to apply the principles they will learn in the lecture component.

These technical theatre courses enable our students to converse intelligently with *all* members of the theatre community, regardless of their specific theatre emphasis. Students will develop a fundamental understanding of the relationship between the various areas of theatre production.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 146** Basic Theatrical Makeup (2) Both straight and corrective makeup, with character and styling techniques for stage, film, and television.

**Basic Theatrical Makeup (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1989

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 150** Fundamentals of Design for the Theatre (3) Exploration of the philosophy and technique of scenic, costume, and lighting design.

**Fundamentals of Design for the Theatre (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2008

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 170** Introduction to Stage Lighting Production Techniques (3) Introduction to theatre lighting facilities, equipment, and practice. Practical experience with major productions.

**Introduction to Stage Lighting Production Techniques (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1998  
Prerequisite: THEA 150

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 180** Introduction to Stagecraft (3) Introduction to methods, materials, equipment, facilities, and concepts used in

scenery construction for the Theatre. Practical experience with departmental productions.

### **Introduction to Stagecraft (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1998  
Prerequisite: THEA 150

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 189** (GA) Theatre Production Practicum (1 per semester/maximum of 6)\* Supervised experience in theatre by crew participation in University theatre productions. For non-theatre students only.

### **THEA 189 Theatre Production Practicum (1 per semester/maximum of 6) (GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 189 provides hands on experience in the production areas of the theatre including scenery, costumes, electrics and backstage crew. Students will be assigned to various crews during the semester to support the production of scenery, costumes, and lighting theatre shows. The students will be under the direction of faculty, staff, and graduate students (at University Park) who will provide guidance and information in a practical manner. Students will gain practical knowledge in scenic, property and costume construction techniques, painting techniques, and lighting technology. Students will develop skills associated with various tools and equipment used to build properties, costumes, and scenery. In order to accomplish these objectives, students are assigned to a mentor/crew leader at each class meeting who may demonstrate new techniques or skills and then oversee the students as they apply these skills to a current production need. This method of instruction allows students to progress at a pace that is comfortable and permits one-on-one instruction as needed. The course is offered each semester at University Park and taught concurrently with THEA 289 and 489, so ten sections are offered for enrollment. These sections correspond to THEA 289 and 489 sections.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2004

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 199** (IL) Foreign Studies--Theatre Arts (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies--Theatre Arts (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Summer 2005  
Prerequisite: approval by department

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 200** Script Analysis (2) An introduction to script analysis for theatre majors, which focus on full text analysis as a foundation for area specific analysis. Two styles of analysis (contextual and structural) are studied.

### **THEA 200 Script Analysis (2)**

THEA 200 is a course designed to teach theatre majors and minors the art and craft of understanding play texts. The course begins by exploring the nature and means of transmitting meaning through theatre texts. Discourse theory and contextual analysis are applied to at least two examples of American realism. The second method of analysis is a structuralism approach that will also be applied to at least two examples of American realism. The third area of study is

the application of historicism and structuralism to non-realistic scripts.

Students will work individually and in small groups to create written and oral presentations of their analyses. The course is designed to teach through practice and application of methods to a variety of types of scripts written for the theatre.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 202 Beginning Scene Study (3)** Introduction to the fundamentals of scene study through readings, improvisations, exercises and scene work.

### **THEA 202 Beginning Scene Study (3)**

A continuation of work started in THEA 102, this course is designed for theatre minors who wish to further advance their understanding of the art of acting. Advanced scene work, exercises, improvisations, and text analysis are explored, along with peer evaluations and instructor feedback on both processes and performances.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2012

Prerequisite: THEA 102 and enrollment in the Theatre Minor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 207 (GA;US) Gender and Theatre (3)** A study of theatre and drama literature as formed by issues of gender, race, and ethnic background.

### **THEA 207 Gender and Theatre (3) (GA;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Theatre 207 provides a basic survey of issues of representations of gender identity in theatre. The course will trace women's experiences in theatre from their absence on European classical stages to the more recent formation of feminist theatres. The course will explore issues of sexual orientation and gender identity as presented through drama and performance. The plays and writings chosen for study may include selections from African, European, African American, Latina, Asian American, Anglo American, and Native American playwrights. The course will examine issues of gender as they are presented by women of different races and cultures, by men of different races and cultures, and by women and men of various sexual orientations. The goal of the course is to examine the ways theatre and theatrical performances have portrayed individuals within a pluralistic society based on gender identity and ethnicity. Theatre has existed in every known civilization, but until recently, the contributions of predominantly white European males have provided the basis for the study of theatre. Most drama anthologies include plays written predominantly by white European males. By focusing on gender as it has been and is portrayed in theatre from diverse perspectives, THEA 207 will encourage an aesthetic appreciation of the art of theatre while exploring issues of gender identity on artistic creation and critical response.

General Education: GA

Diversity: US

Bachelor of Arts: Arts

Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 208 (GA;US;IL) (AF AM 208) Workshop: Theatre in Diverse Cultures (3)** A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples.

### **THEA (AAA S) 208 Theatre Workshop in Diverse Cultures (3) (GA;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Theatre Workshop in Diverse Cultures is a performance-oriented class that aims to introduce students to the broad cultural diversity that exists in artistic expression. The class will focus on several plays throughout the semester that will represent cultural, ethnic, and gender diversity as well as different literary styles. Students will be exposed to various cultures by working on plays created by artists from those cultures. The course will concentrate on a specific playwright, culture, or region, such as plays from the Caribbean. Students will be required to read, study, analyze, and perform plays from the genre. For example, the class may focus on the works, life, and philosophy of August Wilson and read Joe Turner's Come and Gone, Seven Guitars, Piano Lesson, and Fences. The class may explore Asian styles such as Noh Theatre and Asian American works by D. H. Hwang or work by Nigerian playwright and Nobel Prize winner Wole Soyinka. The presentation of these plays will be a principle part of the class, but the reading and discussion of the material will be

as important. Students will participate in some capacity with the production of these plays in areas such as stage management, dramaturgy, sets and props, lights, sound, costumes, house management, publicity, and acting. These pieces will be performed in class, in workshop, and occasionally for the general public. Students will work as an ensemble and become acquainted with basic acting and theatre techniques. The course objectives are:

- 1) to develop and enhance students' appreciation for the discipline and commitment required for multicultural theatrical presentations
- 2) to help to sensitize all students to the broad cultural diversity in artistic expression
- 3) to provide students with an introductory engagement with drama.

AAA S/THEA 208 serves as a primary selection for students pursuing the Theatre minor.

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 208S** (GA;US;IL) Workshop: Theatre in Diverse Cultures (3) A performance-oriented class, which explores the historic and contemporary theatrical works of various culturally diverse peoples.

**THEA 208S Theatre Workshop in Diverse Cultures (3)**  
**(GA;US;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Theatre Workshop in Diverse Cultures is a performance-oriented class that aims to introduce students to the broad cultural diversity that exists in artistic expression. The class will focus on several plays throughout the semester that will represent cultural, ethnic, and gender diversity as well as different literary styles. Students will be exposed to various cultures by working on plays created by artists from those cultures. The course will concentrate on a specific playwright, culture, or region, such as plays from the Caribbean. Students will be required to read, study, analyze, and perform plays from the genre. For example, the class may focus on the works, life, and philosophy of August Wilson and read Joe Turner's Come and Gone, Seven Guitars, Piano Lesson, and Fences. The class may explore Asian styles such as Noh Theatre and Asian American works by D. H. Hwang or work by Nigerian playwright and Nobel Prize winner Wole Soyinka. The presentation of these plays will be a principle part of the class, but the reading and discussion of the material will be as important. Students will participate in some capacity with the production of these plays in areas such as stage management, dramaturgy, sets and props, lights, sound, costumes, house management, publicity, and acting. These pieces will be performed in class, in workshop, and occasionally for the general public. Students will work as an ensemble and become acquainted with basic acting and theatre techniques. The course objectives are:

- 1) to develop and enhance students' appreciation for the discipline and commitment required for multicultural theatrical presentations
- 2) to help to sensitize all students to the broad cultural diversity in artistic expression
- 3) to provide students with an introductory engagement with drama.

AAA S/THEA 208 serves as a primary selection for students pursuing the Theatre minor. The course will be offered every fall semester. Enrollment is approximately 15 to 20 students. Frequency of offerings and enrollment varies at other college and campus locations.

General Education: GA  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 209** Hip Hop Theatre (3) Hip Hop Theatre defines and explores Hip Hop as an art form. The student will explore Hip Hop culture through Hip Hop Theatre aesthetics: Emceeing, DeJaying, Beat boxing, graffiti art, and dance.

**THEA 209 Hip Hop Theatre (3)**

Hip Hop Theatre is designed for students with an interest in Hip Hop Theatre/culture. This class introduces students to Hip Hop Theatre through Hip Hop aesthetics: DJing, Emceeing, Dance, Graffiti art, and Human Beat boxing. In addition, this class includes lecture sessions and discussions about Hip Hop culture Theatre as a global, multi-ethnic, grassroots youth culture committed to social justice and self-expression through specific modes of performance. This course seeks to introduce students to a culturally significant art form, enhance theatrical discourse, and provide practical opportunities for students to apply skills learned in class via collaborative creations, text, and performance. This course is directly related to dance, theatre, African American history and other arts based and humanities based courses. Students will be evaluated on their attendance, participation in class, willingness to learn, and the effort put forth in class.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 210** Hip Hop Theatre Performance Workshop (3 per semester/maximum of 9) Hip Hop Theatre Performance Workshop expands on the Hip Hop Theatre lecture component and experience from Hip Hop Theatre, and delves more into a performance and workshop structure. Students will apply themes studied in Hip Hop THEA 209 or DANCE 271 to this course, which focuses on performance experiences.

**THEA 210 Hip Hop Theatre Performance Workshop (3 per semester/maximum of 9)**

Hip Hop Theatre Performance Workshop is designed for students who want to expand their experience in Hip Hop Theatre and/or African American Dance History to a performance level. The student will use his/her knowledge of Hip Hop aesthetics, historical and cultural references, and natural talent to collaborate in creating an original theatre production. Students will demonstrate their understanding of Hip Hop as a global, multi-ethnic, grassroots youth culture through performance. This course is directly related to dance, theatre, African American history, and other arts and humanities courses. Student work will be observed throughout the semester. Student progress will be evaluated by his/her level of contribution to the process, engaging in discussions, and participation in the culminating performance. Class attendance and effort will also be assessed.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 2012

Prerequisite: THEA 209 or DANCE 271 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 212** Musical Theatre Theory II (3) Intermediate studies in diatonic harmony, analysis, sight-singing and dictation.

**THEA 212 Musical Theatre Theory II (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 212 is designed to provide the intermediate musical theatre student with the mastery of harmonic and melodic analysis with which to approach and appreciate the structure of songs and musical theatre scores. It is designed to enable the intermediate student to sight-read more efficiently the literature that is central to the performance classes in the major, and to develop basic accompaniment and transposition skills that will become indispensable to the professional career. A continued emphasis on pitch and rhythmic identification will enable the intermediate student to maintain a high degree of musicianship in the performance classes required in the major and will make the performer more competitive in the musical theatre industry.

THEA 113, the entry-level theory course and THEA 114, Music Theatre Form and Analysis are prerequisites to THEA 212, which is designed as the third course of the theory-form-and-analysis sequence. The course satisfies a significant need in that it focuses on the specific theoretical knowledge the musical theatre student requires to become competitive in a professional career.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 2000

Prerequisite: THEA 113 THEA 114 and admission into Musical Theatre Option

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 214** Musical Theatre Theory III (3) Advanced studies in the technique and practice of chromatic harmonic analysis and sight-singing.

**THEA 214 Musical Theatre Theory III (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 214 is designed to provide the advanced musical theatre student with the analytical skills with which to approach and appreciate the harmonic and melodic structure found in the various compositional styles of musical theatre literature. It is focused specifically on musical theatre literature that is representative of the current repertoire to enable the advanced student to function more effectively in auditions and other performance venues. The course is designed to function as the culmination of the theory-form-and-analysis sequence, connecting up the terminology, techniques, and repertoire, developed throughout the four-semester process. The course satisfies a significant need in that it focuses on the specific theoretical knowledge that the musical theatre student is required to master in order to become competitive in a professional career.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 2000

Prerequisite: THEA 113THEA 114THEA 212

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 220 Acting II (3)** Principles of acting through improvisation, exercises, and character analysis, with emphasis on basic skills of voice and movement. For theatre majors only.

### **Acting II (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2001

Prerequisite: THEA 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 221 Acting III (3)** A continuation of Thea. 220. For Theatre majors only.

### **Acting III (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: THEA 130 or THEA 131 and School of Theatre approval

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 222 Acting Laboratory (2)** Laboratory experience in student-directed scenes and/or one-act plays.

### **Acting Laboratory (2)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2014

Prerequisite: THEA 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 223 Musical Theatre Performance I (2)** Studio training in the unique performance skills, repertoire and business of professional music theatre.

### **THEA 223 Musical Theatre Performance I (2)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The purpose of this class is to introduce sophomore BFA musical theater students to the art of performing the solo song based on the book musical. While utilizing the performer's skills in acting, singing and dance/movement, the student will learn how to communicate clearly and compellingly

1. who his/her character is

2. to whom the character is singing

3. why the character is singing these particular words to this particular music at this particular time. The student must understand his/her environment, relationships, obstacles, tactics, and stakes in order to accomplish this task.

This is the class that begins to synthesize the student's performance training for the special demands of musical theatre. Most of the work will concentrate on solo performance, building the student's power and confidence and beginning to explore both their individual uniqueness and their crucial relationship to their audience.

Students must prepare two contrasting musical theatre pieces from "book" musicals preferably from "The Golden Age" (1920-1960s). These songs must be chosen in collaboration with musical theatre faculty and the student. Students must obtain copies of the music and lyrics for their songs and the book. A thorough knowledge of the book is as important as a thorough knowledge of the music and lyrics in order to make informed performance choices. Students are required to keep a journal. Written exercises about passive, active, stage directions, and character analysis as well as in-class exercises on these topics will be part of the class assignments.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: THEA 114THEA 115THEA 116THEA 212 admission into Musical Theatre option

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 224** Musical Theatre Performance II (2) Studio training in the unique performance skills, repertoire and business of professional music theatre.

**THEA 224 Musical Theatre Performance II (2)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will cover three primary areas of study: musical theatre scene work, the study of the major repertoire in musical theatre from 1965-1990 (excluding Sondheim and Webber), and performance power training.

Scenes that contain songs require special techniques of the actor-singer. Using the preparation and presentation of four such scenes, the musical theatre student will begin to develop successful performance strategies for musical theatre scene work.

Through the use of in-class reports the musical theatre student will continue to gain understanding and appreciate the rich musical theatre literature of the late 1960s and the 1990s. Primarily, the course will cover the works and lives of Bock and Harnick, Jerry Herman, Kander and Ebb, Jule Styne, Jones and Schmidt, and Maltby and Shire.

Through exercises, studies, and improvisation designed to sharpen the student's use of energy, focus, structuring skills, imagining, stylizing, and coordinating, the musical theatre student will obtain a significant increase in his/her performance power.

The musical theatre student will prepare three duet scenes with song and an ensemble scene with song during the semester. Students will have two opportunities to present each duet scene.

THEA 224 is a continuation of Musical Theatre Performance I. These studios represent the core of the musical theatre training program.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: THEA 223 admission into Musical Theatre Option

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 225A** B.F.A. Acting Studio I (2) Exercises to develop truthful listening and responding as a foundation for acting studio scene study.

**THEA 225A B.F.A. Acting Studio I (2)**

Listening and responding in an unadorned, truthful way is the lynch-pin of the actors's work. In THEA 225A, students will begin with exercises designed to enhance truthful behavior on stage. In addition, this semester's work includes exercises to increase awareness of the sensory world around us and its effect on the actor's imagination, availability to emotion, and mental focus. Contentless scene work leads the student through the basics of behavior on stage: playing for a purpose (goal), encountering obstacles, and finding the necessary tactics to behave appropriately in the imaginary circumstances.

THEA 225A is a performance studio, that is, each students will be actively involved each day. Each class will begin with some physical and/or vocal warm-up done by all students. The instructor will look for consistent applications of and growth in individual techniques earlier explored. The core of each day's work will focus on student improvisation or scene work. Students thus are subject to daily observation, daily testing for comprehension and application of material encountered, daily assistance, and daily criticism of their work. In addition to daily critiques, students will receive a mid-semester and semester-end evaluation from the lead instructor.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: THEA 115 and admission to B.F.A. in Musical Theatre

Concurrent: THEA 225B and THEA 225C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 225B** B.F.A. Movement Studio I (2) Introduction to techniques to condition the actor and improve physical awareness and self-use.

**THEA 225B B.F.A. Movement Studio I (2)**

THEA 225B is designed to condition the actor's body for the demands of the stage, to begin the long process of self-awareness and effective, efficient self-use, to free the body and mind of restrictive self-images and inefficient, habitual movement/use patterns and to assist the actor in the development of a confident, expressive physical instrument that will be an equal partner with the mind and the voice in the creation of a character for the stage.

Additional resources from which an instructor may draw include contact improvisation, games with balls to develop full commitment to the activity and eye-body coordination, group balancing games, and a host of other well-tested, effective



movement-based learning activities.

Because THEA 225B is a laboratory performance course, one in which students must share what they are learning or performing on an almost daily basis, on-going assessment takes place through faculty feed-back in working sessions, through faculty and peer critique of work presented, through a written evaluation at mid-semester (followed by a conference with the instructor), and through a written evaluation and in-person conference at the end of the semester. Performance faculty other than the instructor will often observe and comment upon work and most will view semester-concluding scene presentations and offer insights. Students thus receive assessment on many occasions in the course of the semester.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: THEA 115

Concurrent: THEA 225A and THEA 225C

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 225C B.F.A. Voice/Speech Studio I (2)** Introduction to actor voice and speech training.

### **THEA 225C B.F.A. Voice/Speech Studio I (2)**

THEA 225C is the first in a sequence of voice and speech courses for the actor. This first semester installment will focus on awareness and conditioning activities related to breath, posture, resonance and articulation. Prose and poetry readings will be used for application activities. Students will experience activities that will heighten their physical awareness of vocalizing. Most activities will involve a re-learning of how they speak, bringing to their conscious awareness the processes of voice/speech which were initially learned through early childhood nurturing. Class events will include awareness of breath patterns and the means to release inhibitive behaviors related to spinal posture, head and neck alignment, and musculature along the breath/vocal tract. Students will also gain awareness of how breath relates to their expressive/emotional system.

Class activities will also include physical awareness of the consonant and vowels sounds and their phonetic transcriptions. Each event will strive to improve actors' intelligibility and increase musicality of speech. Through application assignments with word lists, sentences, poetry and prose, students will increase language sensitivity.

This semester will also address voice quality issues directly and how they relate to the above. Specific events will focus on vibratory awareness in primary resonators and how to apply this awareness in all vocal life. Issues of vocal health, projection and emotional demands will be addressed.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: THEA 115

Concurrent: THEA 225A and THEA 225B

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 250 Introduction to Scene Design (3)** Introduction to the history, processes, materials, and concepts involved in designing scenery for the theatre.

### **THEA 250 Introduction to Scene Design (3)**

This course is the introductory course to the art and practice of designing scenery for the stage. The primary goals of the course are to introduce students to the history and profession of scene design, and to help students learn a fundamental design process to apply to the evolution and presentation of design for stage scenery. This process includes play analysis, script and visual research methods, analysis of dramatic action, concept evolution, and visual communication methods. Evaluations will be based on the following:

1. Students will submit papers to demonstrate text analysis skills and to explore the work of specific designers or historical trends (25%)
2. Students will receive in-class critiques to evaluate their design concepts and communication skills (25%)
3. Students will receive comment sheets for each studio project critiquing specific aspects of their design process (50%)

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: THEA 130 THEA 131 prerequisite or concurrent: THEA 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 251 Theatre Drafting Techniques (2)** Introduction to drafting of floor plans, section drawings, construction graphics, and mechanical perspective for the theatre.

**THEA 251 Theatre Drafting Techniques (1)****(BA) This course meets the Bachelor of Arts degree requirements.**

Theatre 251 is a foundation course for all students studying theatre design or technology. Students will learn the lexicon of lines and marks that make up the language of theatre drafting. They will be instructed in traditional drafting techniques and work to master the skills required to execute complete, accurate, and clear draftings. Drafting is the basic form of communication in theatre design and technology. All students involved in these disciplines will use drafting extensively throughout their careers. As such, the skills introduced and practiced in this course form a necessary foundation for all other design and technology courses. This course prepares students by teaching them a language necessary to advanced coursework. Theatre 251 is a required course in the theatre B.F.A. Production program.

Throughout the course students complete draftings of increasing complexity. These draftings will be evaluated for content, clarity and skill. Individual drafting projects will be assigned a point value.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 252 Design Presentation Techniques (1)** Media and materials exploration; sketching, rendering, and modeling methods.**Design Presentation Techniques (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 253 Scene Painting (1)** Introduction to painting scenery for the theatre; methods and materials.**Scene Painting (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 260 Introduction to Costume Design (3)** Introduction to costume design process through character analysis and the use of color, line, and texture.**THEA 260 Introduction to Costume Design (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 260 provides the student the opportunity to experience the costume design process from the reading of the script to the creation of a fully rendered costume design. The work of a costume designer begins with the ability to read the play script from both the perspective of the audience and that of the human beings depicted in the imaginary premise. The student is given a specific methodology for reading a play and determining the plot, the dramatic action, and the theme or significance of the action of the play. Next, the student is exposed to research methods and techniques that illuminate historical periods and genres and allow the designer to fully appreciate the lives of human being living in different times and locations. Beginning projects are derived from contemporary dramatic material that requires relatively little examination into the social and historical period. Subsequent projects, however, move farther away from contemporary realism and require extensive research to grasp the essence of the period. The next section of the course is devoted to an examination of how this research and analysis is used by the costume designer to make artistic choices. Students are introduced to a specific technique for analyzing a character and determining what kind of clothing would be appropriate for the individual based on the student's analysis of their personality, social status, and function in the play. The final project involves the creation of a costume design for the entire play. The student is guided through the process of improving rendering skills, creating a finished representation of each garment worn in the play, and enhancing their ability to communicate these choices to a director and actors.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 261** Introduction to Costume Construction Techniques (3) Intermediate study of the methods, materials, equipment, concepts and processes involved in the construction of costumes for the theatre.

**THEA 261 Introduction to Costume Construction Techniques (3)**

This course will advance the knowledge of students in the methods, materials, equipment, concepts and processes involved in the construction of costumes for the theatre.

The emphasis of this course will be on the specialized processes that result in the production of theatrical costumes. Formal course material in the form of lecture/demonstrations will address the specialized approach to the construction and tailoring of theatrical costumes for men's and women's wear. Examination of the historic context of the clothing technique, as well as the contemporary application of such techniques for theatrical use will also be addressed. In addition to lectures and demonstrations, students will be expected to participate in hands-on laboratory activities that will reinforce and inform the classroom theory. These activities will give students an opportunity to apply the principles they learn in the lecture component.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: THEA 130

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 270** Introduction to Lighting Design (3 per semester/maximum of 99) This course will focus on helping each student to develop a design process that takes them from script to stage.

**THEA 270 Introduction to Lighting Design (3 per semester/maximum of 99)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Introduction to Lighting Design will focus on helping each student to develop a design process that takes him or her from script to stage. Students will study each step of the lighting design process and use these steps to create the design for a fictional production. Students will also have the opportunity to hone their design skills with a series of practical projects that will allow them to experiment with intangible qualities of light. This class will use a traditional proscenium presentation for the development of these techniques.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 280** Introduction to Technical Direction for the Theatre (3) Introduction to the methods, materials, equipment, facilities, concepts and processes associated with Technical Direction for the Theatre.

**THEA 280 Introduction to Technical Direction for the Theatre (3)**

This course will familiarize students with the methods, materials, equipment, facilities, concepts and processes used by Theatre Technical Directors to produce the spectacle of theatre. The concepts of project management will be introduced and the processes associated with project management will be explored. The steps involved in producing a technical package that will facilitate the implementation and completion of a production will be introduced and explored.

The emphasis of this course will be on exploring how Technical Directors bring designs to reality on the stage. The planning and management processes will be introduced and explored through the use of exercises and projects that will reinforce and inform the lectures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: THEA 130THEA 131

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 282** (GA) Production Practicum (3--may repeat once for a total of 6) Introduction to all aspects of theatre

production--analysis, design, construction, production, performance--for non-theatre majors.

**THEA 282 Production Practicum (3)  
(GA)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will introduce and expand skills in the performance and production of plays. Students will learn about the play, the playwright, the time period, the performance history of the chosen play, and its relation to theatre history and the cultural values of society particularly as they are depicted in the arts. Students will participate actively in individually selected aspects of design/construction and performance (students may choose to focus on performance, to work primarily with the design/construction team, or to combine performance with design/technical work). After the completion of the production, students will evaluate their work.

General Education: GA  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 285 Introduction to Sound Design (3)** An introduction to sound design for the theatre.

**THEA 285 Introduction to Sound Design (3)**

The purpose of this course is to provide an overview of the techniques and the tools of sound design and the sound designer's role in the collaborative design process in the theatre setting. The goal of this course is to develop a method of understanding sound and sound design, and discovering a language with which to express this understanding in a theatrical context. In order to accomplish these goals, there is fundamental exposure to the terms and techniques of contemporary sound design that is necessary along with an understanding of the challenges and problems inherent in designing sound for the stage. The course also serves as an introduction to continuing advanced study in topics such as audio recording and advanced sound design that relate to sound design.

Projects will make up the majority of the assignments for the class, and therefore will constitute the majority of the grading. The evaluation of these projects will not only consist of written and audio submitted portions, but also the student's presentation of the project to the class. During the sections of the class based on the terminology and tools of theatrical sound design, quizzes will be administered in order to check the progress of the students and ensure their comprehension of the material. Each student will complete a final project in lieu of a final exam: the sound design of a theatrical script. This project will not only consist of the final design work, but also the class presentation of the conceptual basis for the design as well as the implementation of the design.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: INART 258A or THEA 150

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 289 Theatre Production Practicum (1 per semester/maximum of 3)** Supervised experience in production techniques.

**THEA 289 Theatre Production Practicum (1)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The course is designed to provide practical training in the production techniques of theatre arts. In preparing the physical productions for the School of Theatre, the student will encounter the technology of theatre arts. Diverse areas such as construction, electricity, painting, mechanics, plastics, electronics, costuming, and sewing are experienced in an organized and directed laboratory situation.

The course compliments the introductory theatre production courses and the advanced production practicum course. The B.A. program and the B.F.A.--production option requires a maximum of two credits of this course, and the B.F.A.--musical theatre option requires three credits.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2000

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 296 Independent Studies (1-18)** Creative projects, including research and design, supervised on an individual basis

and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 299** (IL) Foreign Studies--Theatre Arts (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies--Theatre Arts (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 321** Scene Study II (3) A continuation of THEA 320.

**Scene Study II (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2013  
Prerequisite: THEA 420 and approval by department

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 322** Voice and Speech I (2) Vocal techniques for the actor: articulation, voice control, support, and projection.

**Voice and Speech I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1990  
Prerequisite: THEA 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 324** Movement for Actors I (2) Techniques and skills in physical expression, awareness, control, and stage

movement.

### **Movement for Actors I (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1990  
Prerequisite: THEA 120

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 325** Movement for Actors II (2) Continuation of THEA 324.

### **Movement for Actors II (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1990  
Prerequisite: THEA 324

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 326** Music Theatre Performance Workshop (1 per semester/maximum of 3) Performance studies in cabaret, revue, and club environments.

### **Music Theatre Performance Workshop (1 per semester/maximum of 3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2008  
Prerequisite: DANCE 234 THEA 224 audition enrollment in Musical Theatre Option

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 327** Musical Theatre Auditions (2) Research and preparation of auditions for work in professional musical theatre venues.

### **THEA 327 Musical Theatre Auditions (2)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Theatre 327 offers junior and senior musical theatre students an opportunity to examine the art of the musical theatre audition from research to performance. Since these students have completed two to three years of vocal and acting study, piano, and music theory, they are ready to work at honing their skills for professional auditions. Each student will prepare four to six professional auditions and simulate them in class. Feedback is provided by the class and visiting guests from the profession. All audition material is memorized and professional attitude as well as dress is required. The audition material is different for each student in the class.

Grading is based on the student's ability to prepare quickly and accurately, take direction, and incorporate it into the audition on the spot. The continued research and performance of new material is required weekly.

Theatre 327 is an elective course in the B.F.A. theatre musical theatre option.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2004  
Prerequisite: THEA 224

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**THEA 399** (IL) Foreign Studies--Theatre Arts (1-12) Courses offered in foreign countries by individuals or group instruction.

**Foreign Studies--Theatre Arts (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 400** Advanced Theatre Projects (1-6 per semester) Individual and group-directed study of in-depth projects involving reading, discussion, performance, and critical analysis by faculty.

**Advanced Theatre Projects (1-6 per semester)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1991  
Prerequisite: seventh-semester standing or 12 credits in theatre or related areas

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 401Y** (IL) Theatre History I: Ancient to 1700 (3) Survey of drama and theatre from primitive rites through the Renaissance.

**Theatre History I: Ancient to 1700 (3)**

General Education: None  
Diversity: IL  
Bachelor of Arts: Arts  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 402** Theatre History II: From 1700 to Present (3) Survey of European drama and theatre from the eighteenth century through the modern period.

**THEA 402 Theatre History II: From 1700 to Present (3)**

A survey of drama and theatre from the seventeenth century through the modern period. The course is a sequential second half of the history of world theatre. Beginning with the post-Shakespearean era, students study major theatre movements in play writing, acting, theatre architecture and design. Some eras include the English Restoration and Georgian periods, the French Neoclassical period, German Romanticism, and the rise of the Beijing Opera. In addition, emerging post-colonial theatres of Africa and Asia will be explored. For each major era or movement, a play by one of the acknowledged masters of the form will be read and discussed in class. Students will write brief responses to their assigned readings, as well as experience a variety of assessment techniques.

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2012  
Prerequisite: THEA 401Y

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 405** (US) Theatre History: American Theatre (3) Survey of American drama and theatre from the colonial period to the present.

**Theatre History: American Theatre (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Arts  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 407** (US) (WMNST 407) Women and Theatre (3) A study of theatre practice and dramatic literature as informed by issues of gender, race, and ethnic background.

**THEA (WMNST) 407 Women and Theatre (3)  
(US)****(BA) This course meets the Bachelor of Arts degree requirements.**

Theatre 407 approaches the study of theatre/performance as a valuable site for the exploration of race, class, and gender as social constructs. The focus will be on 20th century developments of women and theater. Feminist theory and theatrical practice will be a focus of the course and will reflect conflicts and differences present within feminism.

General Education: None  
Diversity: US  
Bachelor of Arts: Arts  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 408 (US) History of American Musical Theatre (3)** A survey of the history of American musical theatre presented in a social, cultural, and aesthetic prospective.

**History of American Musical Theatre (3)**

General Education: None  
Diversity: US  
Bachelor of Arts: Arts  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 410 Play Analysis (3)** Advanced skills in textual analysis of plays and screenplays.

**Play Analysis (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2008  
Prerequisite: THEA 100 or THEA 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 412 (US;IL) (AF AM 412) African American Theatre (3)** Exploration of the development of African American theatre from its roots in Africa through the diaspora, to the present time.

**THEA (AAA S) 412 African American Theatre (3)  
(US;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

In this course, we will explore the development of African American theatre from its roots in Africa and Europe, through the diaspora, to the present time. We will learn something of the rich diversity of African American people and their contribution to the world's creative mainstream. We will become acquainted with both historical and contemporary artists who created and continue to create this unique American art form. The goals of the course are:

- 1) to develop familiarity with African American theatre and the socio-historic context in which it was created
- 2) to develop an understanding of the relationship of African American theatre to mainstream American theatre
- 3) to acquire an appreciation of the schools, styles, and techniques of African American theatre

We will do this by reading and engaging plays in the context of the period in which they were created, viewing films of plays, and attending relevant productions where possible.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Arts  
Effective: Spring 2013  
Prerequisite: THEA 100 or THEA 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 420 Scene Study I (3 per semester/maximum of 9)** Advanced monologue and scene study techniques. Principal focus on realism.

**THEA 420 Scene Study I (3 per semester/maximum of 9)**



**(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 420 Advanced Scene Study is a course in which students are allowed to explore and deepen their understanding of the art and craft of acting. The course is repeatable for credit and taught by a variety of instructors. This allows students to experience the processes of different pedagogical methodologies. Regardless of the instructor, the shared emphases include: scene work in a variety of styles (from classical verse plays to cutting edge contemporary material) tailored to the needs of the individual student; movement toward increased technical proficiency; deepening awareness that "acting is living truthfully under imaginary circumstances," however similar or different those circumstances may be to the actor's personal life; and, growing self-sufficiency through self-directed scenes and individual rehearsal discipline. The environment of the classroom/rehearsal space is both safe and critical, as students begin to accept that risk is integral to successful acting. The student is also engaged in giving constructive criticism to their peers, learning to be honest, detailed, and nurturing in the process. This critical process requires students to give unconditional support to their peers, support that is geared toward mutual improvement and emotional/physical safety.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2013

Prerequisite: THEA 221 AND APPROVAL BY THE DEPARTMENT

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 423 Musical Theatre Performance III (2)** Studio training in the unique performance skills, repertoire and business of professional musical theatre.

**THEA 423 Musical Theatre Performance III (2)****(BA) This course meets the Bachelor of Arts degree requirements.**

In depth preparation and performance of scenes from the works of Sondheim and Webber. Also, exploration of the adjustments needed to perform successfully in non-traditional performance venues.

The third in a musical theatre performance studio sequence, THEA 423 applies performance technique and methodology studied in previous studio classes to the works of contemporary composers, particularly Stephen Sondheim and Andrew Lloyd Weber. The course also explores the adjustment to performance needed when working in non-traditional stage spaces such as ballrooms, cruise ships, and industrials.

THEA 423 is a continuation of Musical Theatre Performance II. These studios represent the core of the musical theatre training program. Grading will be based on the quality of the musical theatre student's studio work, report, and demonstrated respect for the professional studio environment.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: THEA 224 seventh-semester standing in the Musical Theatre Option

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 424 Musical Theatre Performance IV (2)** Studio training in the unique performance skills, repertoire and business of professional musical theatre.

**THEA 424 Musical Theatre Performance IV (2)****(BA) This course meets the Bachelor of Arts degree requirements.**

This studio is designed for senior musical theatre majors to hone their skills in acting, singing, and dancing in the last semester of their college career. The majority of the class will be the preparation of the Senior New York Showcase where each student will have the opportunity to perform for an invited audience of agents, alumni, and special guests. Students are responsible for all research and preparation of showcase material. Showcase material will be coached in class, but the main body of preparation relies on the students themselves, utilizing skills and techniques learned throughout their studio training.

Grading will be based on attendance, preparation, and attitude. These are all critical factors for entering the profession and for successfully completing this course. Deadlines and appointments must be kept. Students must do adequate outside preparation.

THEA 424 is a continuation of Musical Theatre Performance III. These studios represent the core of the musical theatre training program.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: THEA 423

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 425A B.F.A. Acting Studio II (2) Scene Study**

**THEA 425A B.F.A. Acting Studio II (2)**

THEA 425A is a laboratory or practicum course requiring active student presentation of work in progress for critiques by the instructor and input from peers. Working in pairs, students will be assigned a five-minute scene from modern American realism. Students must read the play from which the assigned scene is taken, do the necessary historical/analytical homework, develop a character biography and a scene score, and present the result of their work in the initial on-the-feet working sessions for faculty critique and peer input. Taking away responses from each working session, the students are expected to rehearse outside of class to address any issues raised in the previous working session and to ready the scene for the next viewing.

In THEA 425A, the instructor will serve, not as a director, but as an acting coach, asking probing questions and using his or her own energy to exhort, guide, and discipline the students. It is expected that faculty intervention will decrease and student self-reliance will increase with each passing studio.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: THEA 115THEA 225A  
Concurrent: THEA 425C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 425C B.F.A. Voice/Speech Studio II (2) Advanced voice and speech training for BFA Musical Theatre students.**

**THEA 425C B.F.A. Voice/Speech Studio II (2)**

In THEA 425C, B.F.A. Musical Theatre students will continue to develop and expand their vocal instrument. Basics of vocal production will be repeated and developed with a greater focus on the individual actor's application of his/her voice in the performance of various texts.

The first ten weeks will recall the basics of the past two semesters of voice/speech work and continue to expand the actors' capabilities. Extended work in the area of breath support and release, resonance and vocal range, and speech/articulation will all be explored with appropriate texts.

In the last five weeks of the semester, work will focus on text in the performance setting. A short program of text performances will be devised and presented in the last week of class.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: THEA 225C  
Concurrent: THEA 425A

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 426 Children's Theatre (3) Theories and practice of theatre for children.**

**Children's Theatre (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2001  
Prerequisite: THEA 150THEA 220

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 427A B.F.A. Acting Studio III (2) Continuation of THEA 425A**

**THEA 427A B.F.A. Acting Studio III (2)**

THEA 427A is an extension of THEA 425A, a laboratory or practicum course requiring active student presentation of work in progress for critiques by the instructor and input from peers. Working in pairs, students will be assigned a five-minute scene from modern American realism. Students must read the play from which the assigned scene is taken, do the necessary historical/analytical homework, develop a character biography and a scene score, and present the result of their work in the initial "on-the-feet" working sessions for faculty critique and peer input. Taking away responses from each working session, the students are expected to rehearse outside of class to address any issues raised in the previous

working session and to ready the scene for the next viewing.

In THEA 427A, the instructor will serve, not as a director, but as an acting coach, asking probing questions and using his or her own energy to exhort, guide, and discipline the students. It is expected that faculty intervention will decrease and student self-reliance will increase with each passing studio.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: THEA 425A  
Concurrent: THEA 427C

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

#### **THEA 427C B.F.A. Voice/Speech Studio III (2) Stage Dialect Studies**

##### **THEA 427C B.F.A. Voice/Speech Studio IV (2)**

THEA 427C focuses on the acquisition of stage dialects and accents. For each dialect the student becomes aware of the resonance, phonetic, inflection, and rhythm changes necessary to perform dramatic text with an accent or dialect. Vocal agility, phonetic recall and the ability to integrate the altered vocal behavior to the demands of acting are the primary goals. Each dialect unit will have an introductory instruction, a review session, and a presentation of a reading of a dialect monologue. The final project will be the performance of two dialect monologues.

Students will be evaluated upon preparedness, work ethic, focus, openness to change, growth, degree of self-reliant recall, and creative application of new skills. This studio performance class offers opportunity for assessment from the instructor in each class session. Periodic assignments will be made to assess self-reliant application of the work.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: THEA 425C  
Concurrent: THEA 427A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 429 Theatre Performance Practicum (1-3 per semester)** Supervised experience in rehearsal and performance of significant roles.

##### **Theatre Performance Practicum (1-3 per semester)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983  
Prerequisite: admission by audition only

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 434 Introduction to Directing (3)** Introduction to principles and procedures of play direction.

##### **Introduction to Directing (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012  
Prerequisite: THEA 114 or THEA 410; THEA 170 or THEA 180

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 436 Directorial Processes (3)** Preparing a play for production including the scoring of the script, developing ground plan, casting, and staging projects in American realism.

##### **Directorial Processes (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1991  
Prerequisite: THEA 434 and approval of instructor prior to registration

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**THEA 437** Artistic Staff for Production (1-6) To provide students with experience in choreography, dramaturgy, combat, staging, voice/speech, musical direction, assisting in direction, for major productions.

**Artistic Staff for Production (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 1989

Prerequisite: approval of the proposed assignment by the instructor prior to registration

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 440** Principles of Playwriting (3 per semester/maximum of 6) Structure, dramatic effect, characterization, and dialogue; the writing, reading, and criticism of original one-act plays.

**THEA 440 Principles of Playwriting (3 per semester/maximum of 6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 440 is a course in which students are allowed to explore, deepen, and exercise their understanding of the craft of playwriting. This course is repeatable and taught by one instructor. This course utilizes diverse critical commentary, craft-based texts, and plays that elaborate and illustrate the core writing techniques of structure, dramatic effect, characterization, and dialogue. The writing requirement of the class concentrates on the construction of several ten-minute plays, which are shared in the class as works-in-progress. The students engage with giving and getting constructive criticism inside a safe and nurturing space, and the students work towards articulating and exercising the technical aspects of writing in a clear, concise, and effective manner.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2013

Prerequisite: THEA 100 or THEA 105

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 447** Make-Up Design for Production (1-6) Materials, research, preparation, design, execution of make-up for major University Theatre productions.

**Make-Up Design for Production (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 1989

Prerequisite: approval of proposed assignment by the instructor prior to registration

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 450** Advanced Topics in Scene Design (3 per semester/maximum of 6) Design emphasis on a variety of production techniques, genre, and styles.

**THEA 450 Advanced Topics in Scene Design (3 per semester/maximum of 6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course will build upon the basic design process introduced in THEA 250. Students will explore design solutions for shows requiring multiple locals. Students will also be introduced to shows reflecting a variety of dramatic styles and will explore effective design solutions within stylistic constraints. In addition to previously introduced graphic skills, emphasis will be placed on graphic techniques involved in the production of scenery, including design drafting, prop drawings, and paint elevations.

As this course may be repeated, there will be a rotation of topics to ensure that students receive different content each semester. Topics within the rotation may include:

Design for Shakespeare, unit settings

Design for Musicals, practical and stylistic concerns

Design for Opera

Design for shows requiring simultaneous local

Poetic or fragmented realism

Design for contemporary episodic scripts

Epic theatre design

General Education: None

Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2006  
Prerequisite: THEA 250 or portfolio review

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 451** Drafting, Drawing, and Painting for the Theatre (1) Drafting, freehand drawing including perspective methods and property development, rendering techniques, and painters' elevations.

**Drafting, Drawing, and Painting for the Theatre (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1993  
Prerequisite: THEA 251 THEA 252 and prior approval of instructor; first-year MFA theatre candidacy

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 453** Advanced Scene Painting (1 per semester, maximum of 12) Practicum study in painting techniques currently in professional use. Exploration of tools, available paints, and texturing materials.

**Advanced Scene Painting (1 per semester, maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 1991  
Prerequisite: THEA 253

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 454** Period Research for the Theatre (3) History of decor, styles, and movements in art and architecture.

**Period Research for the Theatre (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1993  
Prerequisite: BFA theatre arts candidacy or permission of instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 456** Scenic Projects for Production (1 per semester, maximum of 6) Special projects for production; painting, properties, design assistance.

**Scenic Projects for Production (1 per semester, maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1993  
Prerequisite: approval of proposed projects by instructor prior to registration

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 457** Scene Design for Production (1 per semester/maximum of 6) Design and execution of production projects.

**Scene Design for Production (1 per semester/maximum of 6)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983  
Prerequisite: approval of proposed project by instructor prior to registration

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 458** Digital Imaging for the Theatre (1) Introduction to imaging software and its application in theatrical design and production.

**THEA 458 Digital Imaging for the Theatre (1)**

This course will provide students with an introduction to digital imaging software and explore the use of this software in the theatrical design and production process. An introduction to Photoshop or similar programs will make up the first part of the course. As part of the introduction to software, course time will be devoted to image acquisition using techniques such as Web based research, scanning, and use of the digital camera. The remainder of the course will focus on applying imaging software to the process of evolving and presenting designs for scenery, costumes, and lighting. Design presentation will include output of images for applications such as projection, Web pages, and both large and small-scale printing.

Students will execute a number of projects that will be turned in digitally to the instructor. Each project will have a specific objective and the grade will be outlined in a comment sheet.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: Design or Visual Arts major or permission of program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 459** Theatre Portfolio & Business Practices (2) Life as a professional theatre designer. Contracts, taxes, record-keeping, resumes, portfolios, interviewing, job hunting, and legal considerations.

### **THEA 459 Theatre Portfolio & Business Practices (2)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed to prepare the student of design for life as a professional theatre designer. There are many challenges to working in the business of design, arising primarily from the fact that most theatre designers are self-employed. It's not enough to be a talented designer; one must also be a savvy business person. Contracts, taxes, recordkeeping, resumes, portfolios, interviewing, job hunting, and legal considerations will all be addressed, as they relate to life as a freelance designer. Special attention will be paid to the assembly of a professional portfolio, which is the centerpiece of any designers' work.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: B.F.A. Theatre candidacy

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 460** Advanced Topics in Costume Design (3 per semester/maximum of 6) Developing and executing a design concept in a variety of the performing arts.

### **THEA 460 Advanced Topics in Costume Design (3 per semester/maximum of 6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 460 places emphasis on the use of text analysis and extensive historical research to make artistic choices as a costume designer in a production of a classical play, opera, or dance. Plays of this sort are of a size and scope not often found in contemporary material, which places exceptional demands on a designer. This course investigates the manner in which the theatrical imagination can be liberated to fulfill the particular requirements of classic theatre, opera, and dance.

The course will require several large-scale projects that reinforce the costume design process in a variety of the performing arts. Each area of work within a project is separately graded. These projects will contain written segment components such as a design statement or character analysis, an oral presentation or explanation of the designer's choices and process, and (where applicable) a demonstration of the fully realized costume renderings.

The student is expected to master the process that takes a costume designer from reading a script (or listening to a piece of music) to the creation of a design concept to the visual presentation of renderings from which clothing can be constructed. Particular emphasis is placed on developing the oral presentation skills necessary to communication with the director and other theatre artists.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: THEA 260THEA 464

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 461** Advanced Topics in Costume Construction and Technology (3 per semester/maximum of 6) A specialized course in advanced costume construction techniques and theatrical costume technologies.

**THEA 461 Advanced Topics in Costume Construction and Technology (3 per semester/maximum of 6)****(BA) This course meets the Bachelor of Arts degree requirements.**

THEA 461 addresses the skills and techniques of theatrical costume construction necessary for the undergraduate student to understand and master in preparation for work within a professional costume setting. Emphasis is placed upon the creation of an historic silhouette as illustrated by a theatrical costume rendering for both men and women, with an eye to theatrical execution. Focus is placed on the production of clothing, as well as the creation of theatrical properties and accessories for the historic figure.

The course will require several large-scale projects that reinforce the costume construction process in a variety of historic eras. Each area of work within a project is separately graded. These projects will contain supporting research and examine the understanding and identification of construction and accessory techniques as manifested in the costume rendering.

A student's approach to problem solving, personal process, communication skills, and successful time management will also be addressed.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: THEA 261

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 464 History of Fashion (3)** Survey of dress from Egyptian period to contemporary fashion.

**History of Fashion (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2008

Prerequisite: THEA 100 or THEA 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 465 History of Fashion II (3)** Survey of dress from 1800 to contemporary fashion.

**THEA 465 History of Fashion II (3)****(BA) This course meets the Bachelor of Arts degree requirements.**

The course is the second part of the history of fashion that is an elective for graduate theatre students, is required for the B.F.A. Costume Design emphasis, and is an elective for the undergraduate theatre minor. The goal of the course is to identify and examine movements and trends in clothing and fashion from 1800 to the present. Each period is studied by using primary sources, slide presentations, and actual garments to illustrate the relationship between clothing and broad social, historical and artistic developments. Emphasis will be placed on plays that serve as particularly good examples of a period or style of fashion covered in the course.

Grading will be based on periodic quizzes covering topics from class lectures, slide presentations, and textbook readings. There will be one oral presentation, a written comprehensive final exam, and assigned graphic presentations or "redrawings" of clothing pieces.

To complete these "redrawings" the student will find a primary source or a photographic reproduction of a primary source and "redraw" the garment. For example, a student may find a painting, a sculpture, or photo of a garment (usually on a figure) that represents the period being discussed in class. The student would then "redraw" or copy that image, not trace, for the purposes of identifying the clothing pieces that are shown in the original. The "redrawings" are graded not on the student's ability to draw but rather on the content, detail, and thoroughness of the pencil sketch.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 2004

Prerequisite: THEA 100 or THEA 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 466 Costume Construction for Production (1 per semester/maximum of 6)** Execution of production projects in construction and shop management.

**Costume Construction for Production (1 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 467** Costume Design for Production (1 per semester/maximum of 6) Design and execution of production design projects.

**Costume Design for Production (1 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 470** Advanced Topics in Lighting Design (3 per semester/maximum of 6) Advanced Topics in Lighting Design will rotate through opera, dance, non-traditional spaces, architecture, advanced technology, and color theory.

**THEA 470 Advanced Topics in Lighting Design (3 per semester/maximum of 6)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Advanced Topics in Lighting Design will utilize a rotating curriculum and may be taken twice for credit. Topics will include lighting design for opera, dance, non-traditional spaces, architecture, advanced technology, and color theory. Students will also learn to write and critique their own work, as well as the work of others, and to speak knowledgeably about design topics. There will also be some flexibility to allow students to pursue individual interests and group-directed projects.

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 2006

Prerequisite: THEA 270

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 471** Stagelighting Design II (3) Advanced training through lectures and laboratory experience with color, shape, and form as it relates to the specifics of illumination.

**Stagelighting Design II (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 1993

Prerequisite: THEA 470

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 472** Lighting Technology (3) An introduction to the basics of electricity, dimmer protocols, lightboard programming, lighting paperwork, and master electrician & assistant lighting design practices.

**THEA 472 Lighting Technology (3)**

THEA 472 is an introduction to the basics of electricity, dimmer protocols, lightboard programming, lighting paperwork, and master electrician & assistant lighting design practices. This course will help prepare theatre designers to understand the inner workings of all of the equipment, working practices and safety requirements that are involved with the business of lighting design. This course will also provide students with many of the skills needed to get their foot in the door and get started in the business.

Special attention will be paid to safety, stressing the need for safe working practices and environments over the need to get the show up no matter what.

Students will learn how all of the advanced technology that is being introduced to the world of lighting functions and how these new technologies are all integrated into a functional system.

Students will serve as master electricians and/or as assistant lighting designers as part of the hands-on production aspect of the class, with ample time devoted to process discussions and post-show critiques of the work. Small-group problem solving and system troubleshooting will be discussed in depth and applied to real production situations.

General Education: None

Diversity: None

Bachelor of Arts: None



Effective: Summer 2005

Prerequisite: THEA 270 or equivalent

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 477** Lighting Design for Production (1 per semester/maximum of 6) Design and execution of design projects.

**Lighting Design for Production (1 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 480** Advanced Topics in Technical Direction for the Theatre (3 per semester/maximum of 6) Advanced study of the methods, materials, equipment, facilities, concepts and processes associated with Technical Direction for the Theatre.

**THEA 480 Advanced Topics in Technical Direction for the Theatre (3 per semester/maximum of 6)**

This course will build on the foundations established in THEA 280. Students will be engaged in studying advanced topics through discussions and explorations of current theatre technology, communication and the management systems used to control the processes associated with modern technical direction. Examples of topics include project management, current trends in drafting, advanced technical packages, and structural design for the stage. This course is repeatable and topics will vary.

Students will participate in class discussions, hands-on exploration of equipment, investigate current practices through observation and research, and will complete projects associated with the topics studied.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: THEA 280

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 480B** Technical Production IV (3) Discussion of problems of the technical director: personnel management, time management, scheduling, budgeting, purchasing, and the technical drawing of production.

**Technical Production IV (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Spring 1995

Prerequisite: THEA 381

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 481** Stage and Production Management (3) Production planning, scheduling, assignment of personnel, rehearsal procedures, and budgeting.

**Stage and Production Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1983

Prerequisite: THEA 170THEA 180

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 482** Technical Production - Rigging (3) In-depth exploration of current rigging techniques used in entertainment.

**Technical Production - Rigging (3)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 484** Sound Recording Techniques (3) Multi-track audio recording and post production techniques.

**THEA 484 Sound Recording Techniques (3)**

THEA 484 will provide fundamental skills in recording an audio production.

The first four weeks will cover basics of current recording equipment, basic microphone theory and placement according to principles of sound propagation within performance spaces.

The second four weeks will expand on the principles of the first four weeks, considering the problems of recording in a variety of different locations and specific techniques for recording particular instruments.

The final seven weeks will focus on work within a recording studio. Students will need to configure a mixer with a multi-rack digital recorder and create a mastered CD with all appropriate post processing (EQ, compression, reverberation, etc.).

Students will work on teams for various recording projects, with one student serving as producer for each, so that they gain a comprehensive knowledge of the various duties involved in setting up and operating recording equipment.

Team projects will make up the majority of the grading for the class. Periodic quizzes will be administered in order to check the progress of the students and ensure their comprehension of the material. Each student will complete a final project in lieu of a final exam. During the production of this project, they will also be expected to serve in ancillary roles for their classmates' projects. Their participation in these other projects will be considered in the grading of their final project.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2011

Prerequisite: INART 258A or THEA 285

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 485** Sound for Theatre Production (3 per semester/maximum of 6) Aesthetics of live and recorded sound; recording and editing techniques for the stage.

**Sound for Theatre Production (3 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 2012

Prerequisite: THEA 100THEA 150

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 486** Stage Management for Production (1-9) Stage manager for University Theatre production.

**Stage Management for Production (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Summer 1996

Prerequisite: approval of proposed assignment by instructor prior to registration

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 487** Technical Projects for Production (1 per semester/maximum of 6) Execution of practical production projects.

**Technical Projects for Production (1 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: Arts

Effective: Fall 1983

Prerequisite: approval of proposed project by instructor prior to registration

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 489** Theatre Production Practicum (1 per semester) Supervised experience in production techniques. For theatre majors only.

**Theatre Production Practicum (1 per semester)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2012  
Prerequisite: THEA 160 or THEA 180

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 494H** Research Projects - Honors (1-12 per semester/maximum of 12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Projects - Honors (1-12 per semester/maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 495** Internship Practicum (1-6 per semester/maximum of 12) Professional field experience in theatre performance, production, and management assignments.

**Internship Practicum (1-6 per semester/maximum of 12)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983  
Prerequisite: approval of internship by instructor prior to registration

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 496** Independent Studies (1-18) Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 496H** Independent Studies - Honors (1-18) Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies - Honors (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Spring 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 1983

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 497A** Professional Training Internship (1) Off-site professional training in specific program-related area.

**Professional Training Internship (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 2014 Ending: Summer 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 497B** Advanced Acting Studio for Musical Theatre (3) Acting studio for advanced Musical Theatre students.

**Advanced Acting Studio for Musical Theatre (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: permission of MT program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 497C** Acting for Camera (3) Camera acting workshop for advanced actors.

**Acting for Camera (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 497F** Theatre Workshop (2) Production project.

**Theatre Workshop (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 497J** Comedy Writing Workshop (3) A writing workshop in the comedy genre.

**Comedy Writing Workshop (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 497K** Writer's Room (3) Workshop for students writing the script for the School of Theatre/College of Communications sitcom.

**Writer's Room (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: Arts  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**THEA 499** (IL) Foreign Studies--Theatre Arts (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies--Theatre Arts (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: approval by department

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Training and Development (TRDEV)**

**TRDEV 460** Foundations in Training and Development (3) Roles in training and development, relationships between training and development and other organizational structures, and the principles of training design.

### **Foundations in Training and Development (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1986

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TRDEV 465** Performance Analysis (3) This course involves the systematic analysis of employee performance in organizations to identify performance problems, diagnose causes, and specify solutions.

### **TRDEV 465 Performance Analysis (3)**

A fundamental goal of training and development is to improve employee performance. An important first step in achieving this goal is the analysis of employee performance at the organization, process, and job-performer levels. This course involves the in-depth study of concepts, principles, and strategies for analyzing performance at these three levels to identify performance problems, diagnose causes of performance, problems, and specify appropriate training and development solutions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005 Ending: Fall 2014  
Prerequisite: TRDEV 460TRDEV 418 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TRDEV 470** Human Resource Development Tools and Techniques (3) Examination of contemporary strategies, tools, and techniques for designing human resource functions to promote employee learning and performance within organizations.

### **TRDEV 470 Human Resource Development Tools and Techniques (3)**

The course provides an overview of the human resources function in organizations and examines the role of human resource development (HRD) and human resource management in relation to performing key tasks in the human resources function. Students investigate contemporary perspectives of HRD as a transformational function responsible for adding value and delivering results within organizations. The investigation includes the study of four contemporary HRD roles (strategic partner, administrative expert, employee champion, and change agent) and tools and techniques used by professionals in each of these HRD roles to facilitate employee learning and performance.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2005 Ending: Fall 2014

Prerequisite: TRDEV 460TRDEV 418 or permission of the program

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## Turfgrass (TURF)

**TURF 100** Introduction to Turfgrass Management (3) Introduction to turfgrass species, establishment, maintenance, and pest control of turfgrass species used for sports, lawn/utility turf, and golf courses.

### **TURF 100 Introduction to Turfgrass Management (3)**

TURF 100 is an introduction to the major turfgrass species, including their identification, growth and development, adaptation, and practical uses. Students will be introduced to turfgrass establishment and renovation. The importance and timing of cultural practices will be covered as well as an introduction to turfgrass pest management. There are demonstration labs including field trips and hands-on activities. There will be three exams and seven quizzes. The students will also be graded on projects including identifying various turfgrass species, seeds, insects, diseases, and weeds. This course is designed for non-science majors with little experience in plant science and culture. This course serves primarily as a service course for the Professional Golf Management Option in the College of Health and Human Development. This course has numerous web-based resources that the students can access independently. The students are required to make several visits to a demonstration lab in the research greenhouses. There are also a number of scheduled field trips.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 230** Turfgrass Pesticides (1) Course covers chemical toxicity, formulations, environmental fate, labels, MSDS, calibration, IPM, safety, handling, storage, and Pennsylvania certification and regulations.

### **Turfgrass Pesticides (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 235** The Turfgrass (3) Characterization of the primary plant species used for sports, lawn and utility turf; includes turfgrass morphology, environmental adaptation, and cultural requirements.

### **The Turfgrass (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 238** (HORT 238) Turf and Ornamental Weed Control (3) Students will be introduced to the development of integrated weed management strategies utilizing a variety of cultural and chemical methods.

### **Turf and Ornamental Weed Control (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 295** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: prior approval of proposed assignment by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 297 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 425 Turfgrass Cultural Systems (3)** A study of turfgrass maintenance practices and how their interrelationships can be utilized to develop management systems.

### **TURF 425 Turfgrass Cultural Systems (3)**

TURF 425 is offered to students that are in their final year of the turfgrass science major. They are expected to use the information provided in the course and previously learned agronomic principles and concepts, to develop management and problem solving skills. More in depth information pertaining to various management systems are presented which expands upon prerequisite course content. Students are expected to be able to integrate different turfgrass maintenance practices into sound management strategies that lead to the production of high quality turfgrass areas. The management compromise between aesthetic quality and Functionality is stressed and students are challenged to recognize those cultural practices that influence the balance between the two. There are three 100 point exams during the semester. The majority of the content in each exam will come from the information provided since the previous one. Several unannounced quizzes will be given throughout the semester (usually 12 to 13 with only the 10 best counting toward the grade). A soil testing exercise is also included whereby the student is expected to take an appropriate sample from a site of their choosing submit it to the soil testing lab, interpret the soil test results, and make a written recommendation based upon the results. The course will help the student better understand how the maintenance practices and pest control programs learned in other courses inter-relate in the overall management scheme for a given turfgrass site. It will also prepare them for TURF 436 (Case Studies) where they will be expected to work in teams in problem solving situations. The facilities provided in ASI building, associated greenhouses, and the turfgrass field research plots as well as the campus grounds provide ample support for the effective delivery of the course.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: SOILS 101/TURF 235

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 434 Turfgrass Edaphology (3)** Characterization of soil physical properties for the establishment and maintenance of sports turf; includes root-zone construction.

### **TURF 434 Turfgrass Edaphology (3)**

TURF 434 is offered to students that are entering their final year of the turfgrass science major. This course builds on introductory turfgrass and soil courses. In this course you will learn to interpret soil physical results using the United States Golf Association specifications for greens construction. You will learn how to evaluate and manipulate the physical properties of a soil in order to provide a quality turfgrass stand under varying conditions. You will use new information as well as physical and quantitative tools provided to aid in soil management decisions. You will defend your decisions to other students in group-exercises conducted on a computer bulletin board. You will also submit your decision making process and defend your decisions in writing, in the form of business proposals. This class has a series of labs, some of which run over several weeks. You will use class material and the physical and quantitative tools learned in the labs to inform your decision-making processes. Your grade will be based on exams, lab reports, and practicums. The practicums and the labs are interrelated. The practicums, which are mini-case studies of actual turfgrass situations and problems, require you to apply techniques and information learned in the physical lab periods. The practicums are graded on initial draft, final draft, and your critique of other student's solution to a problem. TURF 434 is an advanced course in soil physical properties.

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: SOILS 101TURF 235

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 435** Turfgrass Nutrition (4) Study of turfgrass nutrition and growth; emphasizing constructed and mineral soil fertility, nutrient uptake and function, and fertilizer use efficiency.

#### **TURF 435 Turfgrass Nutrition (4)**

Turfgrass Nutrition is a study in the nutrition and growth of turfgrass plants. Upon completion of this course, students will be able to distinguish the function and requirements of nutrients in the turfgrasses; describe how soil physical and soil chemical properties/conditions affect nutrient availability; select soil amendments to remedy soil chemical limitations; identify the best fertilizers and application methods to satisfy site-specific nutritional requirements; prepare nutrient management plans by appraising edaphic and environmental conditions and current cultural management and use; and will have discovered how best to sample soil, tissue, and water; submit samples, choose appropriate specialty tests, and interpret reports. TURF 435 compliments Turfgrass Edaphology, by examining soil chemical (rather than physical) properties as turfgrass growth parameters and addressing ameliorative measures in concept and operation. Students are introduced to the many classes of specialty fertilizers used in turfgrass management and their specific attributes are revealed through laboratory and field exercises. Students are evaluated through written testing of plant growth and nutrition concepts, interpretation of soil analysis, recommendations of fertilizer type and rate, and nutrient fate and management. TURF 435 has a substantial laboratory component.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: SOILS 101TURF 235

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 436W** Case Studies in Turfgrass Management (3) Case study and discussion considering integrated management of selected turfgrass sites; emphasis on problem analysis, principle application, and decision making.

#### **TURF 436W Case Studies in Turfgrass Management (3)**

Case Studies in Turfgrass Management is a three credit, writing intensive course for students in the final year of the Turfgrass Science major. The goal of this 'capstone' course is to provide students with an understanding of processes involved in solving turfgrass and soil problems at the managerial level. Using several real-life scenarios provided by the instructor, students will learn to gather facts associated with a problem, analyze the problem, formulate a set of options for solving the problem, implement a plan of action, and evaluate the results of the action. Once these processes are assimilated, students will form teams and select challenging turf and soil problems, analyze them, formulate options for solving the problems, select the most feasible solutions, and evaluate outcomes. Teams will submit reports and develop presentations for class. Teams will also be charged with questioning presenting teams and evaluating team members. Students will be evaluated through exams, reports, presentations, and class participation.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: TURF 238TURF 425

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 489** Supervised Experience in College Teaching (1-3) Participate with instructors in teaching and undergraduate turfgrass course. Assist with teaching an evaluation and with development of instructional materials.

#### **Supervised Experience in College Teaching (1-3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: TURF 235

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 490** Colloquium (1) Oral presentations developed by students in consultation with the course instructor.

#### **Colloquium (1)**

General Education: None

Diversity: None

Bachelor of Arts: None



Effective: Summer 2013

Prerequisite: seventh semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**TURF 496** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Ukrainian (UKR)**

**UKR 001** Elementary Ukrainian I (4) Reading, writing, and speaking Ukrainian.

### **Elementary Ukrainian I (4)**

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Summer 1991

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 002** Elementary Ukrainian II (4) Reading, writing, and speaking Ukrainian.

### **Elementary Ukrainian II (4)**

General Education: None

Diversity: None

Bachelor of Arts: Second or Beyond 12th Level Foreign Language

Effective: Summer 1991

Prerequisite: UKR 001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 003** Intermediate Ukrainian (4) Reading, writing, and speaking Ukrainian.

### **Intermediate Ukrainian (4)**

General Education: None

Diversity: None

Bachelor of Arts: Foreign Language and Second or Beyond 12th Level Foreign Language

Effective: Summer 1991

Prerequisite: UKR 002

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 099** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 100 (GH;IL)** Ukrainian Culture and Civilization (3) Survey of Ukrainian culture and civilization from the Middle Ages to the present.

**UKR 100 Ukrainian Culture and Civilization (3)  
 (GH;IL)**

The course acquaints students with Ukrainian culture from the origins of Kyivan-Rus in the 9th Century to the present day. The course will examine the many facets that make up culture: history, politics, language, literature, folklore, religion, science, music, and art. The course will place Ukrainian culture in the broader context of the Slavic nations and peoples. It will focus on the development of national identity from the origins of the Ukrainian people through the colonial period under tsarist Russian domination, through Soviet domination, and finally to post-independence identity following the dissolution of the Soviet Union in 1991. The course will include films and expert guest lectures. The course format will consist of lectures, slide, video and audio presentations. Readings will all be in English. Questions and discussion on class lectures and readings and on topical matters will be strongly encouraged. At the end of the course, students will be familiar with the problems that post-colonial Ukraine faces at present. They will have a basic general knowledge of Ukrainian history and geography, and will be acquainted with representative achievements of Ukrainian high and folk culture. There will be a mid-term (30%), a final exam (30%), and a research paper (30%). The latter will be graded both for content and writing ability. Ten percent of the class grade will be for class participation, including attendance and active participation in discussions. Students may also receive extra credit by making a 10-15 minute oral presentation in class on a pre-approved topic, which will offer students the opportunity to practice public speaking. The exams will include written identification questions, brief essay questions, and a longer essay question that synthesizes knowledge acquired in class. As a General Education course, Ukrainian 100 incorporates the following four elements of active learning: international competence (a much lesser known part of the East European world), information gathering and analysis, active use of writing, and dialogue pertaining to social behavior, community and scholarly conduct. The case of Ukraine as a "submerged nation," subsumed under tsarist Russia and the Soviet Union, will provide students with a colonial paradigm of development of a minority culture and language under a politically stronger colonizing culture. Students need to write a 10-page paper for the course and will learn to explore library and internet resources. The paper will be graded for content, clarity, structure, and effective use of language. As an extra-credit option, students may volunteer to give a class presentation on their research topic or another topic of interest. Students may also acquire extra-credit by writing reaction papers on topical extracurricular lectures or visits to Ukrainian cultural sites (like the Ukrainian Museum in New York, the Ukrainian Embassy in Washington, DC, or historic Byzantine Rite Ukrainian churches). Ukrainian 100 is not required for the B.A. degree in Russian, but may be used under the rubric of "Additional Courses" for the B.S. degree in Russian Translation. UKR 100 may be used to satisfy the Gen Ed Humanities and United States Cultures and International Cultures requirements.

General Education: GH  
 Diversity: IL  
 Bachelor of Arts: None  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 196 Independent Studies (1-18)** Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2004

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 199** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 204** Readings in Ukrainian (3) Readings in Ukrainian literature and journalism.

**Readings in Ukrainian (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1991  
Prerequisite: UKR 003

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 395** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 399** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**UKR 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Veterinary and Biomedical Sciences (VB SC)**

**VB SC 050S** Mechanisms of Disease (3) Introduction to the study of disease pathogenesis and careers in Animal Health Research and Service.

**VB SC 050S Mechanisms of Disease (3)**

Mechanisms of Disease is a first year seminar directed to students with an interest in a career in veterinary medicine or in bio-medical disciplines. Students are introduced to the concepts of epidemiology, cell biology, clinical medicine and toxicology through use of appropriate case material. The importance of basic science courses to the understanding of this material is emphasized. Reading and written assignments are related to the case study material as well as adaptation to the college experience. Grading is based on class participation and written assignments.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 097** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 101** Careers in Veterinary Medicine and the Allied Professions (1) Exploring career pathways in veterinary medicine and the allied health industry.

**VB SC 101 Careers in Veterinary Medicine and the Allied Professions (1)**

The course is intended for first year students with an interest in careers in veterinary medicine or in the allied industries. Upon completion of the course students will have an understanding of the various careers possible in veterinary medicine; including types of specialization by species and/or by discipline. Students will have the opportunity to discuss careers in industries related to animal health and animal health research. Student learning will occur through the use of guest speakers, written assignments and on-line discussion groups. Student evaluation will be based on performance on assignments and on-line discussion groups.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 130** (GHA) Understanding Human Disease (3) An explanation of disease mechanisms, enabling non-scientists to better understand medical journalism and apply basic medical principles to everyday life.

**VB SC 130 Understanding Human Disease (3)  
(GHA)**

All humans are impacted by disease, either personally or through friends or family members who are affected. Understanding Human Disease is an overview of disease processes for individuals not majoring in a scientific field. Students will have the opportunity to study the basic knowledge tools required to understand how different diseases arise, how they progress, how they are treated and in many cases, how they can be prevented. The course material is divided into two segments: the first portion discussing the different ways that diseases develop and includes explanations on normal and abnormal inflammatory processes, different types of infectious diseases, genetic diseases and congenital abnormalities (birth defects), diseases that affect the immune system and metabolic diseases. Diseases that are affecting significant populations such as HIV, diabetes, cancer and heart disease will be discussed. The second segment includes a discussion of the significant diseases affecting different organ systems of the body. Student participation is encouraged through questions. Additional topics of immediate interest as identified by the news media or class interest will be discussed. The course is intended for those who wish to better understand published medical journalism, for individuals who want to be able to discern the caliber of medical information in the popular press, for those students who wish to make healthy choices in their lifestyle and for individuals who may not be destined for a career in a scientific field.

General Education: GHA  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 211** (GN) The Immune System and Disease (3) Introduction to the immune system that emphasizes the immune response to infection and consequences of a defective immune response.

**The Immune System and Disease (3)**

General Education: GN  
Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Fall 2007

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 230** The Science of Poisons (3) An introduction to toxicology using real world examples to highlight the impact of toxicants on environmental, biochemical and physiological processes.

**VB SC 230 The Science of Poisons (3)**

Toxicology is the study of poisons (natural and man-made) and how these agents adversely affect living organisms. It involves the prevention of harm and the development of measures to assess risk. As a science it borrows from many disciplines including biochemistry, chemistry, epidemiology, genetics, and physiology. It also has great societal impact with regard to the development and testing of consumer products, exposure to industrial chemicals, and maintaining safe

food and water. The course format will be lectures that incorporate real world examples of the effects of toxicant exposure on many levels (cell, organ, whole body, environmental). Students will be evaluated by quizzes, exams, and class participation. Students are required to have a basic understanding of biology and chemistry. The course is offered once per year in the Fall semester.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: CHEM 110BIOL 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 231** Introduction to Cancer Research and Medicine (3) An understanding of the terminology, basic concepts, techniques, multidisciplinary approaches and challenges in cancer research and medicine.

**VB SC 231 Introduction to Cancer Research and Medicine (3)**

Introduction to Cancer Research and medicine is designed for second year undergraduate students preparing for careers in biomedical research. Students will develop an understanding of the theories, scope, approaches and challenges of cancer related biomedical research. The lectures and discussions will emphasize the interdisciplinary character of the discovery process. Students will be introduced to topics on cellular mechanisms responsible for cancer development and progression; techniques in cancer research involving generation and banking of research materials, and methods for performing molecular, genomic and proteomic analyses; approaches for discovery and validation of diagnostic and prognostic biomarkers as well as systems for high through put screening of targets for rational development of interventional therapeutics. Student evaluation will be based on performance on examinations and class participation.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: BIOL 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 280** Current Issues in Veterinary Medicine (2) Discussion of the social, ethical and economic aspects of current and emerging issues related to animal ownership and veterinary medicine.

**VB SC 280 Current Issues in Veterinary Medicine (2)**

Current Issues in Veterinary Medicine is designed to provide students with the opportunity to research, present and discuss the social, ethical and economic issues important in Veterinary Medicine. Students will be expected to research the literature on specific topics within the general area of discussion, prepare and deliver an in class presentation and discuss their findings. Students are evaluated on class presentations and on three written position papers during the semester. The course is offered every spring semester.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2010

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 290H** Undergraduate Research Colloquium (1) Presentations by appropriate faculty on research opportunities for undergraduates.

**VB SC 290H Undergraduate Research Colloquium (1)**

The goal of the course is for students to acquire the skills necessary to obtain an independent research project of the scope and scale required to complete an Honors Thesis.

Students will learn to use online tools to approach primary literature in order to familiarize themselves with faculty research topics. Department faculty will present overviews of their research programs, including potential opportunities for undergraduate projects. First year honors students in the Veterinary and Biomedical Sciences, Immunology and Infectious Disease, and Toxicology majors should take this course in their second semester. Other interested students may take the course with department approval.

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Spring 2014  
Prerequisite: permission of program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 303** Principles of Animal Disease (3) Principles involved in the causes of animal diseases; control measures, including sanitation and hygiene.

### **VB SC 303 Principles of Animal Disease (3)**

Animal Health and well being has emerged in the past several years as a clear concern of society. The general public is concerned about the health and well-being of their companion animals as well as the animals that provide them with portions of their daily diet. The Foot and Mouth outbreak that occurred in Great Britain in the spring of 2001, coming on the heels of increased concern about BSE and its possible links to the human disease; variant CJD, resulted in an increased awareness of the potential for animal disease to have adverse effects on society. These effects range from availability of wholesome food products to the zoonotic transmission of diseases between humans and animals.

The goal of this course is to introduce students to the principles of animal disease prevention. This requires the student recall relevant background knowledge in biology, nutrition, microbiology and animal husbandry and management.

Individual examples of certain diseases are used to illustrate each of the general causes of disease. While an attempt is made to discuss most of the diseases of major importance in Pennsylvania animal agriculture, the diseases discussed are by no means inclusive of all diseases encountered in all species in this geographical area. With the increased susceptibility of our borders to the introduction of Foreign Animal Diseases, we must include some discussion of these diseases as well.

Collectively, the course material should provide an animal manager with a background to better understand the implement decisions that are required to prevent losses from disease. Those decisions may range from governmental mandates to recommendations from a practicing veterinarian for a herd or an individual animal. The inherent, environmental and special factors involved in the etiology of disease and the manipulation of these factors in a disease control program will be emphasized.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007 Ending: Fall 2014  
Prerequisite: MICRB 106 or MICRB 201 . Prerequisite or concurrent: AN SC 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 330** Introduction to Molecular Pharmacology (3) An introduction to the basic principles of pharmacology, drug development and use.

### **VB SC 330 Introduction to Molecular Pharmacology (3)**

Upon completion of this course the student will be able to correlate their knowledge of basic and organic chemistry, biochemistry and physiology to the understanding of drug actions. The molecular interactions between drugs and their tissue receptors and possible modifications of drugs to target different receptors will be discussed. Drugs used to treat infectious disease, treat cardiovascular disease, modulate the immune system, and treat cancer will be examined for their molecular interactions. Students will understand the complexities of new drug design and development from the initial stages of laboratory development to final approval for use by the Food and Drug Administration.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2007  
Prerequisite: CHEM 201 CHEM 202 BIOL 110B M B 211; BIOL 230 or B M B 251

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 395** Internship (1-10) Independent study and supervised field experience related to the student's professional interest. Limited to students in animal agriculture majors.

**Internship (1-10)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: fifth-semester standing in an animal agriculture major; approval by department of proposed plan before registration

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 402W** (ENT 402W) Biology of Animal Parasites (3) An introduction to animal parasitology. Emphasis placed on host/parasite interactions, parasites of zoonotic importance, control programs and taxonomy.

**VB SC 402W Biology of Animal Parasites (3)**

This course provides students an opportunity to obtain an introduction to the field of animal parasitology. Material presented emphasizes life cycle patterns of animal parasites, host-parasite interactions and pathology, disease patterns and zoonotic potential of parasites to human disease, economic importance of parasitic diseases, taxonomy and parasite control programs. Information presented in this course will be useful to students interested in pursuing a career in veterinary medicine or careers dealing with animal care and management. Evaluation of student performance is achieved by 6 quizzes, three examinations and 3 writing assignments. The course is offered each spring semester with an enrollment of 15 to 25 students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: BIOL 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 403** Principles of Animal Disease Control (3) Principles of disease control based on knowledge of the multiple causes of animal disease.

**Principles of Animal Disease Control (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: MICRB 106 or MICRB 201 . Prerequisite or concurrent: AN SC 301

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 405** Laboratory Animal Science (3) Principles involved in maintaining laboratory animals. Emphasis is on management, preventive medicine, and surgical considerations used in laboratory animal colonies.

**VB SC 405 Laboratory Animal Science (3)**

This course in Laboratory Animal Science introduces students to the biology and characteristics of a variety of laboratory animal species, explores the care and use of animals in various research environments and examines ethical/legal issues pertaining to the use of animals in research and teaching. The laboratory section reinforces topics discussed in lecture and provides an opportunity for students to learn basic animal handling techniques in a safe and professionally supervised environment. Students work with live laboratory animals including mice, rats, hamsters, guinea pigs, and rabbits. They learn handling techniques, administration techniques (such as by injection), and sample collection techniques (such as blood collection). They also learn surgical principles and perform a surgical procedure using aseptic technique.

The Laboratory Animal Science course appeals to and benefits several general groups of students. Those who plan to pursue careers involving animal research such as in academia or industry receive a broad foundation in the field of laboratory animal science as well as an introduction to techniques commonly employed when handling animals. Those pursuing careers involving veterinary medicine or veterinary technology receive training and the opportunity to develop clinical/technical skills focused on a unique group of species. Students that are undecided in their career choice find that the field of laboratory animal science holds many opportunities for those with animal knowledge, handling skills and an understanding of the societal issues surrounding the use of animals in research.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: AN SC 201 AN SC 301 BIOL 110



**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 407 Dairy Herd Health Programs (2)** A discussion of health programs for dairy herds to assist in the control of infectious and metabolic diseases of dairy animals.

**VB SC 407 Dairy Herd Health Programs (2)**

Dairy Herd Health Programs provides students interested in dairy farm management and/or herd health medicine the opportunity to integrate basic knowledge of dairy cattle diseases into a comprehensive and practical herd health program. Herd health management is discussed as it relates to infectious disease control including mastitis and calf diseases, reproductive management, metabolic disease control and parasite control. A text book is not required. Readings are provided via ANGEL and students are strongly encouraged to read current scientific and lay press literature in the appropriate subject areas.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: AN SC 301AN SC 310AN SC 427AN SC 431W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 409 Wildlife Diseases (3)** An introduction to wildlife diseases emphasizing their impact on wildlife, domestic animals and humans in today's world.

**Wildlife Diseases (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: BIOL 110W F S 209

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 418 Bacterial Pathogenesis (2)** Study of molecular interactions between bacterial pathogens and their hosts.

**Bacterial Pathogenesis (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: MICRB 201MICRB 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 420 General Animal Pathology (3)** Nature and mechanisms of the disease process including degenerations, growth disturbances, inflammation, host-parasite relationships and neoplasia.

**VB SC 420 General Animal Pathology (3)**

The objectives of this course are to help the student develop an understanding of the concepts and general principles of disease processes in vertebrate species, attain skills required to observe and describe tissue changes in animals and develop critical thinking skills required for problem solving. In addition to text materials, photographs and photomicrographs of a variety of tissue lesions will be presented and discussed to emphasize concepts of disease processes as described in the course. Specific subjects that will be presented include cellular injury and necrosis, inflammation, blood coagulation, hemodynamic disorders, diseases of immunity, cell growth and adaptation and neoplasia. This course utilizes knowledge previously attained from courses in physiology, chemistry, immunology and biochemistry.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: AN SC 423 orBIOL 472MICRB 201AN SC 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 421 (BIOL 421) Comparative Anatomy of Vertebrates (4)** The comparative anatomy of representative vertebrate animals, discussed from a descriptive and an evolutionary viewpoint.

**VB SC (BIOL) 421 Comparative Anatomy of Vertebrates (4)**

Upon completion of this course, students will understand the fundamentals of vertebrate anatomy and be able to employ comparisons between phylogenetically distinct vertebrate species to illustrate evolutionary adaptations and the relationship between structure and function. Unique adaptations such as those of ruminants and birds will be explored in addition to the more common fish, amphibians and mono-gastric mammals typically used to illustrate these principles. Laboratory activities utilizing specimens representative of higher and lower vertebrate species will emphasize structure identification and functional adaptations. Students will be evaluated by means of laboratory examinations which will focus on structure identification. Attendance in laboratory is mandatory and laboratory exercises to be completed at each laboratory period will be graded. Students that miss laboratory session due to an excused absence should arrange a make up assignment with the instructor.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: BIOL 240W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 423W** Pathology of Nutritional and Metabolic Diseases (3) Overview of nutritional and metabolic diseases of animals integrating concepts from biochemical and physiologic aberrations to clinical applications.

### **VB SC 423W Pathology of Nutritional and Metabolic Diseases (3)**

Nutrition plays a critical role in health, disease and convalescence of man and animals. Understanding the role of nutrition in disease pathogenesis, recovery and prevention requires an integration of biochemical and physiologic sciences and clinical practice. The intent of this course is to help the student integrate their knowledge from various basic science disciplines to real-world clinical issues related to the role of nutrition in disease pathogenesis, management and prevention across various animal species. Common nutrition and metabolic disease of production and companion animals will be used to demonstrate various principles of disease pathogenesis from a biochemical to whole animal basis. Deficiency and toxicity diseases of all essential nutrients will be addressed. In addition, a secondary role of nutrition in disease susceptibility and recovery mediated through immunologic and physiologic processes will be highlighted. In completing the course, students will have an understanding of comparative gastrointestinal anatomy and how this influences essential nutrients required and unique nutritional disease conditions. Additionally, students will gain appreciation for clinical management of nutritional diseases from diagnosis to prevention. Course format will be lectures and case-based discussions. With the integrative approach to course content, students are required to have previous courses in biology, biochemistry and nutrition. The course can meet requirements for writing across the curriculum and satisfies 400-level course requirements for Animal Bioscience and Animal Science majors. Prerequisites for the course include B M B 211 or B M B 401, and AN SC 301 or equivalent nutrition course.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: B M B 211 or B M B 401 AN SC 301 or equivalent nutrition course

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 425 (AN SC 425)** Principles of Avian Diseases (3) Principles of pathogenesis and control of diseases in poultry and other avian populations. Case material used where appropriate.

### **VB SC (AN SC) 425 Principles of Avian Diseases (3)**

This course discusses the major diseases of domestic poultry, with etiology, prevention, and treatment reviewed on each disease. Since many of these diseases also affect wild birds and pet birds these are also reviewed. Lastly, avian disease with zoonotic (human public health) potential are also discussed in the course. This course is required by those seeking a poultry minor.

Previous coursework in pathogenic microbiology is beneficial.

General Education: None  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Spring 2009  
 Prerequisite: AN SC 201 BIOL 110 MICRB 201

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 430** Principles of Toxicology (3) Introduction to the biomedical aspects of toxicology with emphasis on the mechanisms and fate of chemical interaction with biological systems.

### **Principles of Toxicology (3)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: BIOL 110BIOL 240W;B M B 211 orB M B 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 431** (E R M 431) Environmental Toxicology (3) Effects of pollutants on animal health at the chemical, physical, and cellular level.

### **VB SC (E R M) 431 Environmental Toxicology (3)**

This ecotoxicology course is designed to provide a mechanistic understanding of how chemicals released into the environment affect individuals and populations. General concepts of fate and transport of chemicals in the environment, including sources and emission of pollutants, is a major focus of this course. In addition, the principals underlying the study of adverse health effects, toxicology, will be described. The experimental means used to assess toxicity and the regulation of chemical releases by governmental agencies will be included. Many of these concepts will be reinforced through the use of a case study approach where a pertinent, timely, environmental issue is incorporated into the ongoing lectures.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2011  
Prerequisite: BIOL 110CHEM 110CHEM 112

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 432** (B M B 432, MICRB 432) Advanced Immunology: Signaling in the Immune System (3) The study of signaling pathways that regulate the immune response.

### **Advanced Immunology: Signaling in the Immune System (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: B M B 400MICRB 410

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 433** (B M B 433) Molecular and Cellular Toxicology (3) In-depth coverage of processes by which drugs/chemicals interact with biological systems and the experimental approaches used to study these interactions.

### **Molecular and Cellular Toxicology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: B M B 401

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 435** (B M B 435, MICRB 435) Viral Pathogenesis (2) A study of the molecular, immunological, and pathological aspects of viral diseases as well as laboratory methods of diagnosis.

### **Viral Pathogenesis (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007  
Prerequisite: MICRB 201;B M B 251 andB M B 252 orBIOL 110 andBIOL 230W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 444** Epidemiology of Infectious Diseases (3) An introduction to epidemiology of infectious diseases with emphasis on understanding epidemiologic concepts for identifying, preventing and controlling infectious diseases.

### **Epidemiology of Infectious Diseases (3)**

General Education: None  
Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: BIOL 220/STAT 200 or STAT 250

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 445** Molecular Epidemiology of Infectious Diseases (3) A discussion and practicum of the molecular laboratory techniques used to study molecular epidemiology of infectious diseases.

### **Molecular Epidemiology of Infectious Diseases (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: BIOL 220/STAT 200 or STAT 250 and VB SC 444

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 448W** Current Topics in Immunology (3) Study of current approaches and questions driving research in immunology and infectious diseases.

### **Current Topics in Immunology (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: MICRB 410B M B 400

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 451** Immunotoxicology of Drugs and Chemicals (3) An in depth discussion of the effect of xenobiotics and drugs on host immune mechanisms.

### **VB SC 451 Immunotoxicology of Drugs and Chemicals (3)**

Maintaining good health is a priority for most of us, and a key element in staying healthy is a properly functioning immune system. However, we are constantly exposed to a barrage of chemicals in the environment both natural and man-made. Some of the key questions asked included: 1) do environmental chemicals affect the generation of immunity?, 2) is our environment to blame for bad health? , and 3) can natural compounds cause immunotoxicity? These questions and more will be addressed in Immunotoxicology. This course will focus primarily on the effects of chemicals in the environment but will also cover the impact of other factors such as therapeutics, recreational drugs, and dietary factors on the immune system. Immunomodulatory mechanisms will be examined at systemic, cellular and molecular levels. Discussions will include theory, principles, and methodology and key issues in immunotoxicity, host immune mechanisms, and tumorigenesis. Key issues in regulatory immunotoxicology will be discussed to make students prepared for jobs in Federal Regulatory Agencies. Grading for undergraduates will include midterm and finals, and class participation; while graduate students will be required to also write a short, immunotoxicologically-related research proposal. Our intent is to provide a bridge between the two sciences and the undergraduate majors of Immunology and Toxicology, with an introduction to the basic mechanisms by which environmental, occupational, and therapeutic agents may interfere with immunologic systems. Immunotoxicology is offered every fall semester and is designed for undergraduate students from toxicology, immunology, and forensic science majors.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2012

Prerequisite: MICRB 201 or B M B 251

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 494H** Honors Thesis (1-6 per semester/maximum of 6) Independent study directed by a faculty supervisor that culminates in the production of a Veterinary and Biomedical Sciences honors thesis.

### **Honors Thesis (1-6 per semester/maximum of 6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: junior or senior status in the Schreyer Honors College and permission of the Veterinary and Biomedical Sciences honors advisor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**VB SC 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Wildlife (WILDL)**

**WILDL 101** Introduction to Wildlife Management (3) Basic principles of wildlife management. Introduction to general ecology and wildlife population dynamics.

**Introduction to Wildlife Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 103** Animal Identification (3) Identification of mammals, birds, reptiles, and amphibians; introduction to their life histories.

**Animal Identification (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 106S** Wildlife Management Techniques (4) Overview of laboratory and field techniques for natural resource research and management.

**WILDL 106S Wildlife Management Techniques (4)**

Overview of laboratory and field techniques for natural resource research and management. Navigation using map, compass, and GPS; mark and recapture techniques; censusing and population estimation; radiotelemetry and related tools; and in-field data collection, data entry, and management are emphasized.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: WILDL 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 204** Wildlife Mensuration (4) Estimation and analysis of animal populations and their habitats, including sampling considerations and basic biometry.

**Wildlife Mensuration (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: 3 credits in mathematics

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 207** Outdoor Recreation (3) Sociology, history, and economics of recreational demand; recreational areas and management procedures.

**Outdoor Recreation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 208M** Terrestrial Wildlife Management (3) Ecological characteristics and manipulation of terrestrial habitats; control of wildlife populations.

**Terrestrial Wildlife Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014  
Prerequisite: FORT 150FORT 160WILDL 101WILDL 103WILDL 106WILDL 204

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 208W** Terrestrial Wildlife Management (3) Ecological characteristics and manipulation of terrestrial habitats; control of wildlife populations.

**Terrestrial Wildlife Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: FORT 150FORT 160WILDL 101WILDL 103WILDL 106WILDL 204

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 209** Animal Handling and Care (4) Techniques in capturing, marking, and maintaining wild animals in captivity. Wildlife physiology, parasitology, and necropsy procedures are covered.

**Animal Handling and Care (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: WILDL 101

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 211** Aerial Photo Interpretation (4) Techniques of photo interpretation; type mapping of wildlife environments; photo censusing of wild animals.

**Aerial Photo Interpretation (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 213** Wetlands and Fisheries Management (3) Introduction to basic limnology. Ecology and management of swamp, marsh, pond, and stream habitats and their animal populations.

**Wetlands and Fisheries Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: WILDL 101WILDL 103WILDL 106WILDL 204

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 295** Internship in Wildlife Technology (1-6) Supervised off-campus field experience related to student's major.

**Internship in Wildlife Technology (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: prior approval of proposed assignment by instructor.

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WILDL 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Wildlife and Fisheries Science (W F S)**

**W F S 209** (GN) Wildlife and Fisheries Conservation (3) Survey of current and historical issues in wildlife and fisheries conservation; emphasis on vertebrate biodiversity, habitat management and protection, and populations.

**W F S 209 Wildlife and Fisheries Conservation (3)**  
(GN)

**(BA)** This course meets the Bachelor of Arts degree requirements.

Management of our natural resources is critical to all aspects of human existence. Wildlife and fishery resources are integral to our food supplies, the quality of our lands, and form a deep foundation of our culture. Learning to manage our fisheries and wildlife resources will impact our current generation, and future generations. Integrating natural laws with social responsibilities will require students to make management decisions that will ensure a future rich in resources. The basics concepts of ecology will help establish the limits required for sustainable development. This course will introduce students to fisheries and wildlife and basic ecological principles as they relate both to the natural and human-built environment. Students will learn to appreciate the role of humans in the natural world and the effects of human actions upon fisheries and wildlife management. Students will learn tools and techniques used in the management of fish and wildlife. We will discuss the major types of ecosystems and how these are managed, and we will become familiar with the history of wildlife and fisheries conservation and current legislation and policies.

General Education: GN

Diversity: None  
Bachelor of Arts: Natural Sciences  
Effective: Summer 2013  
Prerequisite: BIOL 110 or BIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 296** Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 299** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 300** The Vertebrates (2) Overview of the evolution, systematics, ecology, and behavior of the subphylum vertebrata.

**W F S 300 The Vertebrates (2)**

The purpose of this course is to introduce students to vertebrate zoology and will include overviews of vertebrate evolution, systematics, anatomy, physiology, ecology, and behavior. The course will begin by introducing the phylum Chordata. The cephalochordata, amphioxus (*Branchiostoma lanceolatum*), will be discussed and used as a model of a prevertebrate. The basic organization and theories of vertebrate evolution will be reviewed. The superclasses, Agnatha and Gnathostomata, will be introduced. The origin of each of the major group of vertebrates will be traced. The general approach will be phylogenetic and include discussions of the major changes associated with each group's evolution and selected elements of their extant diversity and biology.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 301** Vertebrate Laboratory (2) Overview of the anatomy, identification, collection, and preservation of the vertebrates.

**W F S 301 Vertebrate Laboratory (2)**

The purposes of this course are to introduce students to the anatomy of the vertebrates and to expose students to the diversity of vertebrates that reside in Pennsylvania. Students will dissect and learn the anatomy of the dog, fish, frog, and cat or mink. Additional laboratory periods will concentrate on collecting/observing, and identifying fish, amphibians, reptiles, birds, and mammals. Museum curation techniques will be taught, and students will be required to construct dichotomous keys to specimens that inhabit Pennsylvania. The identification part of the course is meant to introduce students to representatives of the taxa that occur within the Commonwealth in preparation for higher-level courses in ichthyology, herpetology, ornithology, or mammalogy. Collection techniques will emphasize the proper collection and preservation of organisms for natural history museums.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: or concurrent: W F S 209; W F S 300

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 310** Wildlife and Fisheries Measurements (3) Introduction to field and laboratory approaches for collecting,



analyzing, and communicating data regarding wildlife and fish populations and their habitats.

**W F S 310 Wildlife and Fisheries Measurements (3)**

This course will introduce students to basic measurements used to describe fish and wildlife populations and their habitats. Laboratory exercises will stress sampling approaches and implementation, common techniques for collecting information about amphibians, fish, birds, and mammals and their respective habitats, mapping and orienteering, and methods for summarizing and reporting findings.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: or concurrent: W F S 209STAT 240

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 406 Ornithology Laboratory (2)** Laboratory and field identification of Pennsylvania birds, avian ecology and behavior, field survey techniques.

**W F S 406 Ornithology Laboratory (2)**

Ornithology Laboratory establishes the basic skills for identifying bird species in the field. This laboratory and field course is open to students with some background in wildlife and should be taken after completing or at the same time as the ornithology lecture course. The objectives of this course are for students to use laboratory specimens, identification software, field guides, and instructor-led field trips to 1) define, locate, and recognize anatomical features used to describe birds and characterize families; 2) recognize and identify approximately 160 species of birds by sight and approximately 60 by song in the field and/or lab; and 3) describe habitat, seasonal abundance, and distribution of bird species within the state. Most weeks include an introductory lecture followed by field instruction.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: or concurrent: W F S 209W F S 407

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 406 Ornithology Laboratory (2)** Laboratory and field identification of Pennsylvania birds, avian ecology and behavior, field survey techniques.

**W F S 406 Ornithology Laboratory (2)**

Ornithology Laboratory establishes the basic skills for identifying bird species in the field. This laboratory and field course is open to students with some background in wildlife and should be taken after completing or at the same time as the ornithology lecture course. The objectives of this course are for students to use laboratory specimens, identification software, field guides, and instructor-led field trips to 1) define, locate, and recognize anatomical features used to describe birds and characterize families; 2) recognize and identify approximately 160 species of birds by sight and approximately 60 by song in the field and/or lab; and 3) describe habitat, seasonal abundance, and distribution of bird species within the state. Most weeks include an introductory lecture followed by field instruction.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

Prerequisite: or concurrent: W F S 209W F S 407

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 407 Ornithology (3)** Introduction to the biology, ecology, adaptations, and conservation of birds.

**Ornithology (3)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 110W F S 209

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 408** Mammalogy (3) Identification, systematics, characteristics, adaptations, ecology, behavior, natural history and conservation, and socio-economic aspects of mammals.

### **Mammalogy (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 409** Mammalogy Laboratory (2) Laboratory and field identification of mammals, ecology and behavior of mammals, field survey techniques.

### **W F S 409 Mammalogy Laboratory (2)**

Mammalogy Laboratory provides the necessary skills for identifying North American mammals. Taken concurrently with or after completing the mammalogy lecture course, this laboratory and field course is open to students with some background in wildlife. The objectives of this course are for students to 1) identify North American mammals by skulls and skins, 2) identify eastern North American mammals by tracks in the field, 3) capture and measure small mammals, and 4) gain an understanding of the characteristic behavior and ecology of North American mammals. Fields skills include animal handling, tracking, and observation. Additional skills may include skin and skull preparation and museum techniques for the care of mammals.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: or concurrent:W F S 209W F S 408

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 409** Mammalogy Laboratory (2) Laboratory and field identification of mammals, ecology and behavior of mammals, field survey techniques.

### **W F S 409 Mammalogy Laboratory (2)**

Mammalogy Laboratory provides the necessary skills for identifying North American mammals. Taken concurrently with or after completing the mammalogy lecture course, this laboratory and field course is open to students with some background in wildlife. The objectives of this course are for students to 1) identify North American mammals by skulls and skins, 2) identify eastern North American mammals by tracks in the field, 3) capture and measure small mammals, and 4) gain an understanding of the characteristic behavior and ecology of North American mammals. Fields skills include animal handling, tracking, and observation. Additional skills may include skin and skull preparation and museum techniques for the care of mammals.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Future: Fall 2014  
Prerequisite: or concurrent:W F S 209W F S 408

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 410** General Fishery Science (3) Introduction to the study, management, and uses of fish populations; methods of investigation, culture, and harvest of fishes.

### **General Fishery Science (3)**

General Education: None

Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 210 or W F S 209

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 422 Ecology of Fishes (3)** Role of fishes in aquatic communities and general ecosystems. Environmental factors influencing fish as individuals, populations, and communities.

### **Ecology of Fishes (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 220W or W F S 209

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 430 (FOR 430) Conservation Biology (3)** The application of biological principles to issues in the conservation of biodiversity.

### **Conservation Biology (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 220W or FOR 308

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 435 (E R M 435) Limnology (3)** Biogeochemistry and natural history of freshwater ecosystems.

### **W F S (E R M) 435 Limnology (3)**

This course will define and describe major principles (physical, chemical, biological, and ecological) that govern the structure and function of freshwater ecosystems (ponds, lakes, and rivers). Current scientific literature will be critically reviewed and discussed in relation to comparative philosophy, methodology, and case studies that cover a range of topics in limnology. The objectives of E R M (W F S) 435 are to familiarize students with the major physical properties, chemical cycles, taxonomic groups of organisms, and ecological interactions that define and describe the natural function of aquatic ecosystems. The course will use case studies to illustrate and examine pertinent issues (e.g., excessive material loading, introduction to exotic species, habitat fragmentation, and climate change) that can alter the structure and function of aquatic ecosystems. Knowledge of these basic ecosystem principles will be applied towards formulating real-life resolutions to the issues identified in class, in order to better manage aquatic resources (methods to reduce material loads, transport controls of exotic species, habitat restoration, and reduction of global gases). This course will be useful to both undergraduate and graduate students seeking degrees in Environmental Resource Management, Wildlife and Fisheries Science, Ecology, and other related subjects. At the undergraduate level, the course will serve as a 400-level selection in both the Environmental Resource Management and Wildlife and Fisheries Science degree programs. At the graduate level, the course will compliment several Wildlife and Fisheries courses that form the compliment of that degree program. Moreover, the course can satisfy the course requirement for ecosystems ecology in the inter-college Ecology graduate program and serve as a breadth course in Water Resources for graduate students in the Watershed Stewardship program.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 110BIOL 220WCHEM 110

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 436 (E R M 436) Limnological Methods (3)** Application of current methodologies to evaluate the biological, chemical, and physical characteristics of aquatic ecosystems.

### **W F S (E R M) 436 Limnological Methods (3)**

Limnological Methods will instruct students to apply state of the art analytical measurements in order to gain an understanding of how and why ecosystems support specific biodiversity and biogeochemical cycles. The course will help students define key ecological elements (e.g., ecosystem metabolism, resource limitation, predator-prey relations) in both qualitative and quantitative terms, thereby making them tangible, tractable, and readily understandable. The course will use an instructional rubric to integrate conceptual, analytical, and communicative exercises in order to instruct students about how to evaluate variation in natural ecosystems.

This course provides experiential training in the scientific process (rubric), so students can learn by doing, thereby internalizing their knowledge. Course content is organized into three 5-week sections, each of which will emphasize one component of the biogeochemical cycle (physical, chemical, biological). In each section, students will carry out a focused group study designed to evaluate how a pertinent environmental perturbation can affect that component of the aquatic biogeochemical cycle. The course content in each five-week block will have students: 1) review the experimental design and hypothesis, 2) implement the experimental design in the field or laboratory, 3 and 4) process and analyze samples in the laboratory, and 5) make statistical and graphical evaluations of the experimental results relative to their hypothesis (in class) and present these findings in written form. Knowledge of these basic ecosystem principles will be applied towards formulating real-life solutions to the issues identified in class, in order to better manage aquatic ecosystems.

This course will be useful to undergraduate students seeking degrees in Environmental Resource Management and Wildlife and Fisheries Science, as well as graduate students pursuing degrees in Ecology, Forest Science, Wildlife and Fisheries Science, Watershed Stewardship, and other related subjects. At the undergraduate level, the course will serve as a 400-level elective in Environmental Resource Management degree program, Wildlife and Fisheries Science degree program, and the inter-college Marine Science option. At the graduate level, the course will complement several Forest Science and Wildlife and Fisheries courses. Moreover, the course can also satisfy the requirements for the ecosystems ecology focus in the inter-college Ecology graduate program. Grades will be based on three research papers, and a final laboratory practical.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 110 and CHEM 110

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 440 Natural Resources Public Relations (3)** The course prepares students to integrate public relations concepts with principles of natural resources management at the community level.

#### **W F S 440 Natural Resources Public Relations (3)**

This course will bring together the elements of previous courses in speech, writing, resource management, and policy to enable the student to present concepts and ideas to the public about management options. The course introduces the student to techniques used in conducting public relations activities as natural resources professional or as a representative of a natural resources agency or NGO. The course will emphasize current topics of sustainability, stewardship, ecosystem management, and conservation, all of which involve integration of ecological, economic and institutional concerns with a strong focus on effectively communicating with citizens at a local community level.

Professional presentations will be a major component of the class. Teams will develop a series of photographs to accompany a news feature; write a popular article; edit their peers' work; design and build a public display on a resource issue; research a current natural resources topic; develop a presentation and present their team's work to the class for evaluation.

They will learn how to develop media contacts, the aspects of hiring, supervision and interviewing for positions, work with both the electronic and print media, write a news release on a controversial topic, which will be evaluated by a professional in the field. A number of guest lecturers will be used to discuss current concerns and relate practitioner's experiences in the field. The class will focus on individual skills and team oriented projects. Students will be evaluated by their peers, professionals, and through a written mid-term and an oral final.

The course is based on a distinctive sub-discipline in natural resources management, which focuses on "information and education", typically one of five main divisions of a natural resources agency or organization. The central theme of the class is to bring to bear many of the concepts and ideas from a variety of previous classes to focus on the importance of public relations to the resource management field.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: CAS 100 seventh-semester standing and 6 credits of W F S FOR or R P M

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 446 Wildlife and Fisheries Population Dynamics (3)** Concepts and estimation of mammalian, avian, and fish populations; processes of mortality, natality, growth, and regulation.

#### **Wildlife and Fisheries Population Dynamics (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: W F S 209

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 447W** Wildlife Management (3) Management of renewable wildlife resources by applying ecological concepts, habitat evaluation, and decision-making; writing and editing reports are emphasized.

**Wildlife Management (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: W F S 209 or W F S 309

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 450** (E R M 450) Wetland Conservation (3) Wetland types, classification, functions and values; hydrology, soils, and plants; introduction to wetland identification and delineation; wetland regulations.

**W F S (E R M) 450 Wetland Conservation (3)**

Wetlands are unique ecosystems, differing in many ways from both terrestrial and aquatic environments. They provide recognized values and functions to society, although these values and functions remain difficult to quantify. The study of wetlands is interdisciplinary, requiring background knowledge in science, management and policy disciplines. This course will explore the variety of wetland types and functions, and emphasize the diverse hydrological, biological, chemical, and physical interactions that occur within wetlands. Because wetlands are recognized as valuable assets in the landscape, issues surrounding wetland management and regulation have taken on increased importance; we will address these issues as well. Topics will also include the restoration of degraded wetlands and wetland creation, along with the construction of wetlands for pollution abatement.

Students will become familiar with different wetland types and how they are classified, and will develop skills in understanding the interactions between wetland hydrology, hydric soils and hydrophytic vegetation. They will also develop an understanding of important national and state policies and regulations pertaining to wetlands and their protection and delineation. Classroom assessment will be based on three cumulative exams, homework assignments, and a final project.

The course will fulfill 3 credits of electives or technical selections in the Wildlife and Fisheries Science major. Other students university-wide may be interested in the course, and the intention is to develop a course that is accessible to a wide variety of traditional and non-traditional students. For proper instruction, a technology classroom with computer projection equipment will be required.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: E R M 300 or W F S 209

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 452** Ichthyology (2) Study of the structure, taxonomy, systematics, and natural history of freshwater and marine fishes.

**Ichthyology (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 110BIOL 240W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 453** Ichthyology Laboratory (2) Identification of fishes, major fish families, use of keys.

**Ichthyology Laboratory (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: BIOL 110BIOL 240W . Prerequisite or concurrent: W F S 452

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 454** Field Ichthyology (2) Introduction to collection and field identification of the fishes of Pennsylvania.

**W F S 454 Field Ichthyology (2)**

This course is designed familiarize students with collection, observation, and field identification of Pennsylvania's fish fauna. Students are taught how to collect, preserve, catalog, curate, and observe fishes. Additionally, they are taught how

to gather pertinent in situ behavioral and distributional information on fishes and how to manage, record, and store field data. With the increasing emphasis on biodiversity and environmental monitoring, students need to be able to collect, manage, and store data as well as secure the chain of custody.

This course is offered annually at the end of spring semester at the Tom Ridge Environmental Center in Erie, PA. Classes begin Sunday night at 1800 and extend until 1700 on Friday. After the three-hour introductory class, students meet each day at the Tom Ridge Environmental Center at 0700. Field collections/observations begin promptly, and end about 1700. Students reassemble in the laboratory at 1830 for a two-hour discussion of the day's activities. On one day, a series of night collections is made that extends until midnight. Students are responsible for their motel and food expenses during the week. All transportation to and from the collection sites is provided.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: BIOL 110/BIOL 240W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 460 Wildlife Behavior (3)** Scholarly discussion and critique of history, concepts, and application of wildlife behavioral concepts to conservation issues.

### **W F S 460 Wildlife Conservation Behavior (3)**

The course will give an in-depth coverage of concepts related to an understanding of wildlife behavior. Particular focus will be given to a discussion, critique, and development of these concepts and their application to contemporary issues in conservation and natural resource management of wildlife because there is a general lack of understanding of behavior by conservationists and natural resource managers.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: at least 6 credits in general wildlife or biology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 462 Amphibians and Reptiles (3)** Critique of global evolution and conservation of amphibians and reptiles, focusing on Northeastern U.S. natural history and ecology.

### **W F S 462 Amphibians and Reptiles (3)**

This course explores the evolution, ecology, and conservation of amphibians and reptiles. This course is open to all students with some background in biology. The objectives of this course are for students to 1) describe the evolution, anatomy, reproduction, and physiology of amphibians and reptiles, 2) place contemporary research in the context of the natural history traits and behavioral ecology of herps, and 3) critically evaluate the application of these concepts to natural resource management for salamander, frog, turtle, lizard, and snake species and populations. Evaluation methods include minute papers and exams.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: 5th semester standing or higher and 6 credits of general biology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 463W Fishery Management (3)** Management of sport and commercial fisheries, including biological, political, social, and economic factors; regulations and other management techniques.

### **W F S 463W Fishery Management (3)**

This course will introduce students to the management of recreational and commercial fisheries. The course emphasizes fishery management as a goal-oriented process that adapts over time to changes in fish populations and societal goals. Students will learn to recognize and understand that ecological, economic, political, and social forces shape this management process. Major methods of fisheries management involving people, population, and habitat management will be surveyed. Case studies highlighting the application of these management strategies to current fishery management are explored. Writing reports and management plans is emphasized.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

Prerequisite: W F S 209W F S 300W F S 301W F S 310

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 495** Wildlife/Fisheries Internship (1-6) Supervised field experience related to the student's major.

**Wildlife/Fisheries Internship (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: approval of proposed assignment by instructor prior to registration

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 497A** Animal Welfare (3) Understanding animal welfare and promoting animal well-being in farmed, wild and captive animals, and implications for policy, legislation and conservation.

**Animal Welfare (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

Prerequisite: BIOL 110W F S 209

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W F S 499** (IL) Foreign Studies (1-12 per semester/maximum of 12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12 per semester/maximum of 12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Women's Studies (WMNST)**

**WMNST 001S** (GS;US;IL) Introduction to Women's Studies (3) Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

**Introduction to Women's Studies (3)**

General Education: GS  
Diversity: US;IL  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 008 (GH) (PHIL 008) Philosophy and Feminism (3)** Explores diverse feminist philosophies of culture and knowledge, and examines gender's role in accounts of reality, truth, morality, and justice.

**WMNST (PHIL) 008 Philosophy and Feminism (3)  
(GH)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course familiarizes students with concepts and problems of feminist philosophies. It seeks to examine the feminist critique of theories of knowledge and power, as well as the cultural, political, and linguistic implications of this critique. Students will be expected to evaluate existing epistemological assumptions, social organization, the character of power, and language from the vantage of contemporary feminism and its historical context. Students will be graded on participation, case study analyses, a group presentation and response, and a final paper. WMST/PHIL 008 satisfies the GH requirement and is geared towards non-Philosophy majors. It may be used to fulfill the minor requirement in philosophy.

General Education: GH  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 083S (GH;US;IL) First-Year Seminar in Women's Studies (3)** Critical approaches to the dimensions and directions in Women's Studies.

**WMNST 083S First-Year Seminar in Women's Studies (3)  
(GH;FYS;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Through the reading of texts, discussions (in-class, study groups, listservs), debates, and collaborative research projects, students are introduced:

- (a) to feminist analysis of literature and/or culture
- (b) to the humanities and to the nature of research and scholarship
- (c) to the concepts of interdisciplinary vs. multidisciplinary research and scholarship
- (d) to cross-cultural issues (international)
- (e) to scholarly conduct and responsibilities

Students develop international competence by cultivating curiosity about and empathy for other cultures; by recognizing that social variables such as gender, age, social class, religion, ethnicity, race, sexual orientation, and place of residence affect the way people view the world, behave, and communicate; and by developing the ability to locate, organize, and evaluate information about the culture(s) from a variety of sources (print, electronic, people, and personal observations). The points of departure for the development of all of these competencies are literary and cultural texts from international women writers and artists. Students will be evaluated through class discussions, writing projects, and collaborative group projects. This course will prepare the students for other courses in the humanities by giving them the opportunity to gain insights into the study of the humanities through literary and cultural texts.

In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests.

This course fulfills the first-year seminar requirement as well as one of the humanities requirements in general education or a Bachelor of Arts humanities requirement.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 100 (GS;US;IL) Introduction to Women's and Gender Studies (3)** Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.



**WMNST 100 Introduction to Women's and Gender Studies (3)**  
**(GS;US;IL)****(BA) This course meets the Bachelor of Arts degree requirements.**

This is an introductory survey course that fulfills general education requirements in social sciences and international and intercultural competence. The course is also a prerequisite for upper-level women's studies courses. Women's Studies 001 focuses on women's shared and unshared experiences, issues of gender roles and stereotyping, questions related to sex/gender systems, and the different disciplinary approaches to the study of women and gender. The course asks how women's behavior, activities, accomplishments, roles, sexuality and status have been shaped by biological, psychological, sociological, cultural, historical and political determinants, as well as by women's experiences based on their racial, class and sexual identities.

Topics studied may include the history of women's liberation movements, women's experiences in home, work and educational settings, gender roles and stereotyping as influenced by media, culture, education, and other social institutions, health and body image issues, and multiple forms of oppression. The course will focus primarily on the US, but will include information from non-Western cultures as well. Women's Studies 001 is therefore both interdisciplinary (drawing information and readings from history, psychology, sociology, as well as from literature and the natural sciences) and broadly inclusive (addressing at all times the relationship between gender, race, class, ethnicity and sexual orientation).

Depending on location, class meetings may be a mixture of lectures, group discussions, individual and group exercises, films and guest speakers. Assigned readings and class meetings may be designed to help students reassess predominant modes of thought and to give students tools to analyze the interactions of power in our society. Depending upon the location, evaluation methods will include a balanced selection from among short papers, longer research papers, journals, book reviews, quizzes, exams, group assignments or other creative activities.

General Education: GS

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 100U (GS;US;IL) Introduction to Women's and Gender Studies (3)** Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

**Introduction to Women's and Gender Studies (3)**

General Education: GS

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 100U (GS;US;IL) Introduction to Women's and Gender Studies (3)** Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

**Introduction to Women's and Gender Studies (3)**

General Education: GS

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 101 (GH;US) (AF AM 101) The African American Woman (3)** The sociological, historical and political experiences of African American women, their roles and contributions to society.

**WMNST (AAA S) 101 African American Women (3)**  
**(GH;US)****(BA) This course meets the Bachelor of Arts degree requirements.**

The African American Woman is a survey course that examines how historic milieu has shaped the African American woman's experiences. The sociological, historical, and political experiences of African American women, their roles and contributions to society are covered in the course. This course is designed to cover the cultural, political, and economic experiences of African American women such as Sojourner Truth and Ida B. Wells to bell hooks. It also examines issues and experiences from the plantation to contemporary times. Students will be required to do written assignments, collaboration on group projects and will be engaged in discussion. The course is designed to encourage students to develop the capacity to pursue research for a paper and for oral reports. The course will require each student to conduct

research for a group project and written and oral reports on the class reading assignments. These requirements will enhance the student's public speaking skills.

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 101U (GH;US) (AF AM 101U) The African American Woman (3)** The sociological, historical and political experiences of African American women, their roles and contributions to society.

**The African American Woman (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 101U (GH;US) (AF AM 101U) The African American Woman (3)** The sociological, historical and political experiences of African American women, their roles and contributions to society.

**The African American Woman (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 102 (GH;IL) (AF AM 102) Women of Color: Cross-Cultural Perspective (3)** Global examination of value systems of women of color; attention to minority ethnic groups in the United States and developing countries.

**WMNST (AAA S) 102 Women of Color: Cross-Cultural Perspectives (3)  
(GH;IL)**

Women of Color: Cross Cultural Perspectives is a survey course that examines the similarities and differences of various cultures and the influences that mainstream America has on these cultures. Stereotypes, perceptions, the media, and male influences are also examined. Students will be encouraged to identify contributions made to mainstream America by women representing these cultures. Students will also be required to submit written assignments, participate in group discussions and attend on-campus events relevant to the course. The course is designed to enhance students critical thinking, writing, and speaking skills. This course can be used to fulfill supporting courses and related areas in the Women's Studies and Africana and African American Studies majors and minors. Non majors may use this course to fulfill a general education humanities requirement.

General Education: GH  
Diversity: IL  
Bachelor of Arts: None  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 103 (US) (AF AM 103, SOC 103) Racism and Sexism (3)** Critical analysis of the structure of race and gender inequality in the contemporary United States.

**WMNST (AAA S/SOC) 103 Racism and Sexism (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course focuses on racism and sexism through a critical analysis of race and gender equality/inequality. A primary objective of this course is to provide students with information and conceptual tools necessary for understanding the structure and composition of race and gender inequality in the United States today. The focus on both racism and sexism provides a perspective that is quite different from those of courses that deal with race or sex alone. Racism and sexism have much in common that suggests their combined study. The course examines the way in which these processes are socially constructed and defined and how these constructions and definitions are experienced in daily life at an individual

level and societal level. The course also examines how social control dependent on power, privilege, and advantage continues to perpetuate sexism and racism. This understanding is fundamental to considering the ways in which society and its individual members may motivate social change that enhances equality. Other objectives include developing an appreciation of the commonalities and differences among women and among men and women of diverse ethnic groups in terms of their real-life experiences with these processes; expanding the ability to read and/or view critically information/misinformation encountered in everyday life; enhancing the capacity to express knowledge and perspectives both orally and in writing. In addition, each student comes to the class with personal objectives that the instructor attempts to ascertain and incorporate. A common foundation of knowledge is established through consideration of current statistical data and academic research studies, as well as essays and novels based on subjective thought and experience. Also included are historical documents that have influenced the social and legal status of women and of men and women of color throughout our country's history. Videos and the media are supplementary sources. Students are encouraged to be alert to relevant current events and be prepared to discuss them from a critical perspective. The format of the class is informal, emphasizing group participation and responsibility. Grades are based on the evaluation of short papers on the readings, relevant events, and contemporary culture; class participation; a book report; and a final project or take-home exam. AAA S/WMNST/SOC 103 is a supporting course for both the women's studies and sociology majors and minors and the African and African American Studies major. It is an additional course for the African and African American Studies minor. The course also meets the requirement for 3 credits on the topic of women of color for the women's studies major and the minor.

General Education: None  
 Diversity: US  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 104 (GH;US) (AM ST 104) Women and the American Experience (3)** Selected aspects of the role of women in United States history and culture from colonial to modern times.

**WMNST (AM ST) 104 Women and the American Experience (3)**  
**(GH;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

WMNST/AM ST 104 is a broad-ranging introduction to women in American culture. While specific topics may vary from class to class, the course examines the history and literature of American women, paying particular attention to issues of race and diversity. Students will be evaluated on essay tests, papers, journal entries, and attendance. The course offers students valuable experience in critical thinking, analysis, and writing. The course offers students a broad introduction to American women's issues, and so serves as preparation for more advanced courses in American studies, American literature, American women's history, and Women's studies.

WMNST/AM ST 104 counts towards the American Studies major and minor and the Women's Studies major and minor. Non-American Studies majors and minors may use this course to fulfill a general education humanities (GH) or Bachelor of Arts humanities credit requirements.

General Education: GH  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 106 (GH;US;IL) Representing Women and Gender in Literature, Art and Popular Cultures (3)** Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.

**WMNST 106 Representing Women and Gender in Literature, Art and Popular Cultures (3)**  
**(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This is an introductory survey course that fulfills general education requirements in humanities and international and intercultural competence. The course is also a prerequisite for upper level women's studies courses. Women's Studies 003 examines the experiences, achievements and status of women in the humanities and the arts. The course provides a broad interdisciplinary overview of scholarly research and theory pertaining to women and gender. Students acquire an expanded framework for responding to the humanities and integrating knowledge from other courses in the humanities and the arts.

Topics studied may include the creation of patriarchy, international women's movements in the 19th and 20th centuries, cross-cultural examinations of women's religious roles, women's spirituality and religious expression, and an overview of women in literature and in elite, popular and folk arts. Other topics may include religious witch-hunts of the 16th and 17th centuries (as the expression of misogyny and ethnic bias), and developing an appreciation for aesthetic objects from various media and ethnic origins (such as Pueblo pottery, Amish quilts, Black sculpture, Hispanic painting, Appalachian music, Jewish poetry, Chinese American fiction).

The course will focus primarily upon the United States with concerted diligence to include examples of work made by a

wide diversity of aesthetically creative women differing by race, class, ethnicity, national origin and sexual orientation. Women's Studies 003 is therefore both interdisciplinary (drawing information and readings from literature and languages; art history, popular and folk arts; religion and philosophy; history, psychology, sociology) and broadly inclusive (addressing at all times the relationships among gender and class, ethnicity, national origin and sexual orientation).

Depending on the location teaching the course, class meetings may be a mixture of lectures, group discussions, individual and group exercises, films, and guest speakers. Assigned readings and class meetings may be designed to help students reassess predominant modes of thought and to give students tools to appreciate the creative work of highly diverse women. Depending again upon location, evaluation methods will include a balanced selection from among short papers, longer research papers, journals, book reviews, quizzes, exams, group assignments and other creative activities.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 106U** (GH;US;IL) Representing Women and Gender in Literature, Art and Popular Cultures (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.

### **Representing Women and Gender in Literature, Art and Popular Cultures (3)**

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 106U** (GH;US;IL) Representing Women and Gender in Literature, Art and Popular Cultures (3) Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts.

### **Representing Women and Gender in Literature, Art and Popular Cultures (3)**

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Spring 2015 Ending: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 110** (GS;US) (SOC 110) Sociology of Gender (3) Changing sex role expectations and behavior for men and women in contemporary society.

### **WMNST (SOC) 110 Sociology of Gender (3) (GS;US)**

#### **(BA) This course meets the Bachelor of Arts degree requirements.**

This course provides an introduction to the analysis and understanding of how men's and women's lives are different and how they intersect with each other. The course focuses on the social construction of gender and the impact of gender on experiences in a variety of social contexts and institutions throughout the life course, including cross-cultural comparisons of gender expectations. An overriding objective is to help students better assess and analyze the effects of gender throughout history and in their everyday lives.

Class sessions are a mixture of lectures, discussions, group exercises, guest speakers, and films designed to engage the students in the learning process. Each session helps students to critically evaluate the effects of gender discussed in their readings and experienced in their everyday lives. The evaluation tools used for this course extend this critical evaluation. Although the specific evaluation methods vary by sections, all sections use some form of reaction papers, book reviews, and/or journals. These writing assignments require students to demonstrate an understanding of the class readings, lectures, and activities, and to offer an evaluation and assessment of these readings and presentations. Because the social construction of gender is intertwined with family, work, religion, education, government, and all interpersonal interaction, the course overlaps with courses in each of these areas.

This course meets a General Education requirement in Social and Behavioral Sciences. It can be used as a lower-level sociology course in the Sociology BA major and the Sociology minor. It can also be used as a supporting course in the Women's Studies major and minor.

General Education: GS  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 116** (GS;US;IL) (HIST 116) Family and Sex Roles in Modern History (3) Historical perspectives on the Western family since 1500: gender roles, marriage, sexuality, child rearing, and old age; emphasis on United States.

**Family and Sex Roles in Modern History (3)**

General Education: GS

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 117** (GH;US;IL) (HIST 117) Women in Modern History (3) Modernization and women: changing images and roles since mid-eighteenth century in the family, workshop, politics, society. Cross-cultural comparisons.

**WMNST (HIST) 117 Women in Modern History (3)  
(GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

History/Women's Studies 117 is an introductory survey of women in the United States and possibly elsewhere, from the seventeenth to the late twentieth century. The course examines women's history from several different perspectives. First, it introduces students to the methods, sources, and questions of the past thirty years of women's history-writing, and asks students how studying women transforms our understanding of history more generally. Second, it offers a survey of the narrative of modern women's history, stressing women's interactions with the larger processes of economic and political change, their relationship to changing ideologies of gender and feminism, and their complex identities not only as women but as members of a particular race, class, ethnic, and religious group. Throughout, students will ask when gender, and when some other aspect of women's lives and identities, is most salient in identifying the restrictions and opportunities they faced. Third, students will assume the perspective of historians themselves, as they examine primary sources and attempt to make analytic and historical judgments about what they say and why they matter to the larger narrative. Through significant essay-writing assignments, students will develop analytical and writing skills in learning to think historically about women. Questions about race, class, ethnicity, and sexual orientation, as well as gender, are intrinsic to this course. Students will be evaluated based on their class participation, papers, and final exam. This course is cross-listed in History and Women's Studies and fulfills requirements for both programs' majors and minors. HIST/WMNST 117 will be accepted, but not required, for the History Major, the Women's Studies Major, and the Women's Studies Minor.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 136** (US) (LER 136) Race, Gender, and Employment (3) Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

**WMNST (L I R) 136 Race, Gender, and Employment (3)  
(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

To accomplish the goals of the course, students will participate in a variety of in-class and out-of-class exercises designed to expose them to issues of inequality generally, and more specifically, to inequalities relating to employment. Activities are designed to connect real world experiences to class readings and discussion. For example, students may be asked to conduct their own job evaluation in conjunction with a reading on gender bias in job evaluation systems. The course also relies heavily on student participation via the reporting of the results of their activities, and in discussion of assigned readings. A semester-long group project will enable students to focus their interests and become experts in one sub-area. Group projects include a collaboratively written paper as well as a class presentation designed to inform the class about a topic previously not covered through class readings, discussions, or lectures.

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**WMNST 136U (US) (LER 136U) Race, Gender, and Employment (3)** Employment relations and legislative and policy responses to labor force issues of racial and gender inequality.

**Race, Gender, and Employment (3)**

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 137 (GH;US;IL) (RL ST 137, J ST 137) Women and Religion (3)** Jewish and Christian religious views on womanhood; thought and lives of important religious women; and feminist understandings of these.

**WMNST (J ST/RL ST) 137 Women and Religion (3)  
(GH;US;IL)**

Women and Religion examines the historical and contemporary role of women in society and in religion, how those roles are shaped by religious doctrines around leadership, ritual, language, and the valuation of women's experience and history, and the diversity of women's voices speaking to these issues.

An historical inquiry begins with a review of early goddess-based religion and an examination of gender roles promoted in selected creation narratives, including those from Genesis. Additional biblical and non-canonical texts are studied for their various characterizations of woman, the influence of marital status, and her place in the public and private spheres. Historical debates about women consider what roles women played in leadership structures, in religious ceremonies and in the creation of a theological tradition as well as the places women created for themselves outside "official" institutional churches or the formalities of worship.

We study prominent women in biblical history, the early church, the medieval past, and in modern American history. What are their stories and what noteworthy contributions did they make in the history of religion? What do we know of their lives and thought?

Furthermore, the course addresses contemporary issues of importance to women and how those issues are resolved from the multiple perspectives within Judaism and Christianity. Such issues may include dating, marriage, family and divorce; spousal and gender relations; reproductive rights; homosexuality; sexual violence toward women; work outside the home; and religious leadership and inclusion.

Finally, the course examines women's diverse understandings of the ways of being religious. Women are not a homogeneous group and are responding in a multitude of ways to the decisions they face about staying within or working outside established institutions. We consider their choices, from redefining and recreating new traditions and rituals, both within and outside formal worship settings, to returning to goddess worship and other innovations inspired by the most recent feminist movement.

All topics are discussed in light of the different beliefs and understandings across the movements within Judaism as well as within Roman Catholicism and the many Protestant denominations. In addition, the diversity of scholarly interpretation is emphasized, including that offered by feminist theologians and the breadth of women's experience arising from factors of race, ethnicity, sexual orientation, and class and educational background.

General Education: GH

Diversity: US;IL

Bachelor of Arts: Humanities

Effective: Fall 2012

Prerequisite: third-semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 157 (US) (S T S 157) Science, Technology, and Gender (3)** The role of women and gender in science, technology, and engineering.

**WMNST (S T S) 157 Science, Technology, and Gender (3)  
(GS;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

S T S/WMST 157 examines the role of gender in science, engineering, and technology. The course offers a broad interdisciplinary overview of scholarly research and theory pertaining to women and issues of gender in science, engineering, and technology. The course is interdisciplinary (drawing materials from the natural and social sciences) and cross-cultural (taking a comparative approach to western and non-western sciences and technologies), and it examines the ways that different beliefs and practices related to gender have shaped the practice of science in different times and places. Students study great women scientists and also barriers institutional and ideological - that women have had to overcome in order to participate in science, asking how the presence and absence of women have affected those studies. Students will be graded by several quizzes and two short exams during the semester. To evaluate progress in developing critical thinking skills, the students will be required to write a response journal and/or response papers to major topic

areas during the semester. Also, one individual or group presentation will be required. These instruments enable the instructor to assess students' acquisition of knowledge relevant to the general objectives of General Education.

General Education: None  
Diversity: US  
Bachelor of Arts: Social and Behavioral Science  
Effective: Fall 2011

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 166 (GH;US) (HIST 166) History of Sexuality (3)** Discusses the ideas, practices, and identities surrounding sexuality over several centuries in a variety of contexts, focusing primarily on the US.

### **History of Sexuality (3)**

General Education: GH  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: one introductory level course in History or Women's Studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 194 (GH;US;IL) (ENGL 194) Women Writers (3)** Short stories, novels, poetry, drama, and essays by British, American, and other English-speaking women writers.

### **WMNST (ENGL) 194 Women Writers (3) (GH;US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

English 194 will constitute a wide ranging study of works by American, British, and other English-speaking women writers, including novels, short stories, poems, plays, and prose. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Bradstreet, Wollstonecraft, C. Rosefti, M. Shelley, Austen, C. Bronte, E. Bronte, G. Eliot, D. Wordsworth, Dickinson, Wharton, Stowe, Freeman, Jewett, Fuller, H.D., Moore, Sitwell, Bishop, Brooks, Plath, Cather, Woolf, Stein, Lessing, Bowen, O'Connor, Welty, Porter, Oates, Olsen, Sartre, Gordimer, Atwood, Morrison, Kinkaid, McCarthy, and Churchill. The course seeks to make students aware of the extensive body of literature written by women through the analysis, evaluation, and appreciation of specific works by women writers. The course also seeks to help students understand the female perspectives-the varying values and interests of women--reflected in the texts at hand and to position these perspectives within wider social, historical, and political contexts. The course also seeks to make students aware of the special problems faced by both women writers and the female inhabitants of the societies they describe in their work. As a course in women's literature, Engl/Wmnst 194 concerns itself with questions of gender. In so far as some of these women writers are black or women of color, it concerns itself with questions of race and ethnicity. In as far as the course looks at women's literature in the context of men's literature, it is concerned with the inter-relationship between dominant (male) and non-dominant (female) culture in the United States as well as in Britain. In so far as the course covers lesbian writers, it is concerned with sexual orientation. Topics under consideration will vary from class to class, but may include a chronological introduction to the development of women's literature, a consideration of a principle theme or themes common to women's literature through a number of works from across a number of historical periods, a consideration of a number of women's works in the context of historical events central to their creation, a consideration of a number of women's works in the context of formal or aesthetic elements common to those works and their various effects. Time allotted for the study of the works under consideration will vary. This class will prepare students for advanced courses in women's literature as well as other academic courses that engage in the verbal and written analysis of complex written texts. Students will be evaluated by means of essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as English Major elective credit or as credit towards the English Minor.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 197 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None

Effective: Spring 1995

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 197A (CAMS 197A) Women in Greece and Rome (3)** This course is an introductory survey of the life and status of women in the Classical world as represented in literature, art, and historical sources.

**Women in Greece and Rome (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 199 (IL) Foreign Studies (12)** Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None

Diversity: IL

Bachelor of Arts: None

Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 200 (GS;IL) Global Feminisms (3)** This course examines the diverse contents and forms of "feminism" worldwide, emphasizing women's engagement with unequal, unjust, impacts of globalization.

**WMNST 200 Global Feminisms (3)  
(GS;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course introduces students to the complexity of feminisms in the context of contemporary globalization. Much of the course focuses on the variety of feminist movement transnationally, particularly as those movements respond to not only local culture and politics, but also to global politics, and as such it touches again and again on the history of power. Explorations of the interanimating systems of power in a given area or region includes attention to ideologies of gender, race, sexuality, colonialism, imperialism, health and welfare, any or all of which are either supported or disrupted by globalism.

The course holds a feminist lens to issues such as: gender and sexualities; the politics of the body; ongoing effects of colonialism—in theory and practice—on women worldwide; women's health; women and the environment; women's labor; political economy; transnational migrations; global class relations; women and/in the media; violence against women; women and war; the global sex/human trafficking trades; silence and marginalization; citizenship politics; women in politics and activism around the globe.

The course examines contemporary feminist theory the so-called First World and or so-called Third World, highlighting the ways in which the term "feminism" continues to be contested. Given that we no longer talk about "feminism" in the singular in the United States, lack of agreement on the priorities of feminists worldwide is even more acute, given diverse cultural, political and economic positions of women around the globe. Thus the course also asks students to resist the kinds of generalizations that have led to inadequate feminist response to urgent challenges faced by women around the world. At the same time, the course will ask what kinds of connections can be made between local feminisms, and transnational feminist movement.

General Education: GS

Diversity: IL

Bachelor of Arts: Other Cultures and Social and Behavioral Sciences

Effective: Summer 2012

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 202 (GS;IL) (AFR 202) Gender Dynamics in Africa (3)** Critical analysis of multidisciplinary research on relations between men and women in Africa and critique of Western feminist theories.

**WMNST (AAA S) 202 Gender Dynamics in Africa (3)  
(GS;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**



In terms of gender studies, western academics have dominated the field. The course will offer a very different, more African-centered, analysis of the gender relations of African. Important African women writers will be read and their works analyzed. The role of African gender dynamics on the African Diaspora (North American, South America, the Caribbean, and the Middle East) will also be studied in this course.

Feminism is one of the latest Western theoretical fashions to be applied to African societies. Following the one-size-fits all (or better still the Western-size fits all) approach to intellectual theorizing, it has taken its place in a long series of Western paradigms.

African scholars, in particular African women scholars and others, are challenging the very conceptualizations of gender that are used to define, describe or categorize women and men. This class will examine the historical relationships between men and women in Africa and examine the new approaches to the study of gender dynamics in Africa. The course will challenge your perceptions of gender. The ability to critically think and an open mind are requirements for this class. You will also be expected to participate in all class discussions.

This course represents a logical sequel to an existing course, AAA S/WMNST 102, Women in a Cross Cultural perspective; and three courses, AAA S/HIST 191, Early African History, AAA S/HIST 192, Modern African History, and WMNST 4, Global Perspectives on Feminism, which have already been approved by the Senate. This course can be used in both the African and African American Studies major and minors. Grades: map exam 10%, oral history 15%, mid term 30%, and final 45%.

General Education: GS

Diversity: IL

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 205 (GS;US) (COMM 205) Gender, Diversity and the Media (3)** Explores the relationship between media and society through critical analysis of its role in social reality.

**WMNST (COMM) 205 Women, Minorities, and the Media (3)**  
**(GS;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is aimed at consumers of media in any form. It explores the relationship between the media and society through critical analysis of media and its role in education about and creation of social reality. Students research literature on human diversity issues in media representation. Students explore economic, political and social implications of media practice. Course content is designed to help build deeper understanding of gender, race, ethnicity, ability, sexual orientation and class diversity in media. Students explore the role of media and media literacy within the pluralistic democratic US society in the context of a diverse global society. Communication theory helps explain how media representations impact human construction of meaning in social relationships.

General Education: GS

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 205 (GS;US) (COMM 205) Gender, Diversity and the Media (3)** Explores the relationship between media and society through critical analysis of its role in social reality.

**WMNST (COMM) 205 Women, Minorities, and the Media (3)**  
**(GS;US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is aimed at consumers of media in any form. It explores the relationship between the media and society through critical analysis of media and its role in education about and creation of social reality. Students research literature on human diversity issues in media representation. Students explore economic, political and social implications of media practice. Course content is designed to help build deeper understanding of gender, race, ethnicity, ability, sexual orientation and class diversity in media. Students explore the role of media and media literacy within the pluralistic democratic US society in the context of a diverse global society. Communication theory helps explain how media representations impact human construction of meaning in social relationships.

General Education: GS  
 Diversity: US  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2015 Future: Spring 2015

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 225 (GA;GH) (ENGL 225, ART H 225) Sexuality and Modern Visual Culture (3)** An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century.

**WMNST (ART H/ENGL) 225 Sexuality and Modern Visual Culture (3)  
 (GA;GH)**

The terms "feminist" and "homosexual" were invented by the Victorians and reflect profound shifts in conceptions of identity. Another invention of the nineteenth century was the idea of the literary and artistic "avant-garde," a minority contingent with politically and/or aesthetically advanced views. These ideas of minority culture were deeply enmeshed with one another, and have exerted profound influence ever since. This course explores that history with the objective of developing a more sophisticated understanding of how the history of ideas affects our sense of who we are and how we read both texts and images. The course will be relevant to students of American and English studies, art, art history, and women's and sexuality studies.

General Education: GA;GH  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Summer 2009

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 227 (GH;US;IL) (ENGL 227) Introduction to Culture and Sexuality (3)** A course addressing the relationships between sexuality, literature, and culture.

**Introduction to Culture and Sexuality (3)**

General Education: GH  
 Diversity: US;IL  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: ENGL 015 or ENGL 030

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 235 (US) (IST 235) Gender and the Global Information Technology Sector (3)** Integrates information technology and gender studies. Overview issues and socio-cultural shaping of gender in the IT field.

**Gender and the Global Information Technology Sector (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 245 (GH;US) (ENGL 245) Introduction to Lesbian and Gay Studies (3)** An introduction to the study of sex and (homo) sexual identity across a wide range of disciplines and methodologies.

**Introduction to Lesbian and Gay Studies (3)**

General Education: GH  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Spring 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 250 (US) (HD FS 250) Sexual Identity Over the Lifespan (3)** Concepts of affectional and sexual orientation over lifespan, with emphasis on lesbian and gay male personal, family, and community adaptation.

**WMNST (HD FS) 250 Sexual Identity over the Life Span (3)  
 (US)**

This course reviews concepts of sexual identity as informed by a human development perspective. Concepts of sexual orientation are discussed in the context of a review of lesbian, gay male, and bisexual lives. Developmental processes of lesbian and gay life are detailed: personal change from the teenage years through adulthood, changes in family and relationship patterns, and impact of communities, laws, and culture. These processes are contrasted to the developmental processes of women and men who identify themselves as heterosexual. The complex effect of gender, race, ethnicity, class status, and historical time on sexual orientation and its expression has generated ongoing controversies in scholarship as well as in public discourse. The course will be an introduction to these controversies as informed by human development research.

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Summer 2005  
Prerequisite: 3 credits in Hd FS or 3 credits in behavioral sciences

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 270 (FR 270)** Race and Gender in Literature Translated from French (3) A critical presentation, taught in English, of changing ideas and values on race and gender in French and Francophone literatures.

**Race and Gender in Literature Translated from French (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: Humanities  
Effective: Spring 2005  
Prerequisite: FR 351

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 280 (GH;IL) (J ST 280, RL ST 280)** Women and Judaism (3) Explores the Jewish views of women that have influenced the roles of women within both the religion and Western culture.

**WMNST (J ST;RL ST) 280 Women and Judaism (3)  
(GH;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

Women and Judaism will introduce students to the roles and views of women as seen in the Jewish tradition. Because Judaism is not monolithic, these views will vary even within time periods and even among rabbis. The goal of this course, therefore, is not for students to leave the class with one idea of what a Jewish woman is or one idea of what issues are at stake for women in Judaism. Rather, the goal is for students to understand the complex relationship women have to this religion. This course will also explore the views of Jewish women and the issues that concern them in contemporary society. Objectives include the following: students will begin to understand the stereotypes that influence how Western society views Jewish women, and as a result, how they have come to view themselves. They will be asked to examine the many important roles that Jewish women have played both in their religion and the society at large. They will be asked to examine how the Jewish tradition both helped and hindered women to play these roles. They will see how Jewish women contributed to the development of their own religion and to the larger culture in which they live. They will develop a deeper appreciation for the complexity of the relationship between women and religion. Topics include images of Jewish women in the Bible and the media, women and Jewish views of sexuality, Jewish ethics, Judaism and feminism, and women and Jewish theology.

General Education: GH  
Diversity: IL  
Bachelor of Arts: Humanities  
Effective: Fall 2006

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 294** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

**Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1986

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1984

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 299** (IL) Foreign Studies (12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 300** (US) (LTNST 300) Latinas in the US: Gender Culture and Society (3) This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latina feminisms in the United States.

**WMNST (LTNST) 300 Latina Feminisms (3)  
(US)**

This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latina feminisms in the United States. It shows the connections to as well as the divergences from Latin American feminism by beginning with an analysis of how the Spanish conquest, the imposition of Catholicism, and subsequent years of colonialism shaped gender and sexual identities. It examines the contemporary effects of these historical issues and inquires into the common concerns of Latin American feminists and Latina feminists. It asks how theories and practices have diverged given different geographies, both between the U.S. and Latin America and within the U.S. The course then moves to the 1960s and 1970s in the U.S., when Chicano and Puerto Rican nationalist movements also gave rise to a feminist consciousness amongst Latinas; the conjuncture of race, ethnicity, gender, and sexuality is considered, with attention to how Latinas critiqued Anglo feminism's narrow focus on gender. The next unit focuses on family formations, considering social science and feminist discourse on the issues of patriarchy. How have Latina feminists valued yet also rearticulated the traditional family? What critiques have been made against heterosexism? How have lesbians and gays formulated new kinds of families? How does migration shape family relations? The final section of the course explores how Latina artists in different genres have responded to and resisted traditional gendered and sexual roles. Literature, film, performance art, and hip hop are all examined for their diverse representations of sexual desire.

General Education: None  
Diversity: US  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: LTNST 100 or WMNST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 301** (GH;US;IL) Sexualities, Gender and Power: Feminist Thought and Politics (3) An interdisciplinary survey of historical and contemporary feminist theories in both the United States and international contexts.

**WMNST 301 Sexualities, Gender and Power: Feminist Thought and Politics (3)  
(GH;US;IL)**

This course is an undergraduate survey of key theoretical texts shaping feminist theory both yesterday, and today. While attention is given to critical historical moments in feminist thought, the course will stress theoretical trends and debates

in feminism today. Course themes will include: (1) feminist epistemology and standpoint theory, epistemic privilege and epistemologies of ignorance; (2) postcolonial critiques of western feminism, and contemporary efforts to define a transnational and anti-racist feminism, (3) gender identity and the very viability of the category "woman"; (4) the concept of freedom, liberation, and of women's agency in feminist narratives of liberation, (5) theoretical implications for defining productive labor for women that is not exclusively the labor of childbirth, and the subsequent care of children and family; (6) the ongoing search for new paradigms of embodiment and interdependency that counter male-centered constructions.

General Education: GH  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: WMNST 100 or WMNST 106

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 364 (GS;US) (AF AM 364) Black & White Sexuality (3)** This course explains how narrow ways of thinking limit our understanding of the diverse expressions of human sexuality.

### **Black & White Sexuality (3)**

General Education: GS  
Diversity: US  
Bachelor of Arts: None  
Effective: Fall 2012

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 395 Internship (1-18)** Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

### **Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 399 (IL) Foreign Studies (12)** Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 400 (US;IL) Debates in Contemporary Feminism (3)** Consideration of feminist theories of women's experience in transforming understanding, reconceptualizing old problems, raising new ones, and expanding traditional disciplines.

### **WMNST 400 Feminist Theory (3) (US;IL)**

This course focuses on theoretical analyses of gender as major components of contemporary thought. It is designed to help students develop knowledge of critical texts to better analyze women's issues and comprehend the realities of women's lives, past and present. The course will relate analyses of gender to analyses of race, class, religion, ethnicity, national origin, and sexual orientation. The course addresses theoretical issues rooted in an analysis of gender, critiques theories that do not attend to such issues, and investigates the premises and implications of feminist theory. The course will continue to have a prerequisite of WMNST 301: Introduction to Feminist Thought. For the Women's Studies major, WMNST 400 will fall under the heading of Additional Courses, where students will have a choice of this course or WMNST 401: Feminist Perspectives on Research and Teaching. These are our two most general courses at the 400-level. It may also be used to fulfill a US;IL requirement.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: None  
Effective: Spring 2013  
Prerequisite: WMNST 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 401** Doing Feminism: Theory and Practice (3) Advanced analysis of feminist theory and the nature of its integration (sometimes uneasily) within feminist movements and practices.

#### **WMNST 401 Feminist Perspectives on Research and Teaching (3)**

The course explores current themes organizing debates and discussions within feminist discussions of teaching and research. Students will become familiar with various research perspectives that feminist researchers use including interviews, ethnography, and action research. The course will examine debates within feminist research and teaching including power, difference, and race. Key themes will include questions around the politics of representation, the relationship of research to colonialism, the authority of the researcher, researcher-researched relations, and power/knowledge relations in research, classrooms, and knowledge production broadly defined. The aim is not to identify a feminist orthodoxy but rather: 1) to identify and understand the varieties of feminism existing today; 2) to become knowledgeable about a range of themes currently emerging in feminist debates on teaching and research; and 3) to arrive at an appreciation of the transformative effect upon teaching and research these new paradigms, debates, and themes have meant across a range of disciplinary boundaries.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: WMNST 100 or WMNST 106 or WMNST 005 and WMNST 301

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 407 (US)** (THEA 407) Women and Theatre (3) A study of theatre practice and dramatic literature as informed by issues of gender, race, and ethnic background.

#### **WMNST (THEA) 407 Women and Theatre (3) (US)**

THEA/WMNST 407 approaches the study of theatre/performance as a valuable site for the exploration of race, class, and gender as social constructs. The focus will be on 20th century developments of women and theater. Feminist theory and theatrical practice will be a focus of the course and will reflect conflicts and differences present within feminism.

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: THEA 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 412 (EDTHP 412)** Education and the Status of Women (3) An examination of the relationship of education to the status of women in American society.

#### **Education and the Status of Women (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2005

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 416 (US;IL)** (AF AM 416, S T S 416) Race, Gender and Science (3) The class will focus on race and gender as products of science, and how societal values shape scientific activity.

#### **WMNST (S T S/AAA S) 416 Race, Gender and Science (3) (US;IL)**

The course's objective is to provide a seminar for students to integrate feminist theory, social theory, and science studies through class discussions, essays and research. The role of science in defining, producing, applying and policing of gender and race in society will be explored through the work of feminists and traditional scholars working in a variety of disciplines from cultural studies to science studies. Students will be encouraged to develop a critical analysis of race and gender in science in order to understand the impact of gender and race on the production of scientific knowledge. This course is designed for students in the humanities, social sciences, science and technical fields. Readings will be taken from past and contemporary social theory (i.e. students will be reading original works not textbooks). Students will be expected to read, understand and synthesize 75-100 pages of reading per class and to discuss them in a seminar fashion in order to analyze, critique and evaluate various theories to develop their own understanding of the interrelationship of

science, race and gender. In addition they will do two professional-style book reviews during the semester. At the end of the semester students will integrate theory with social, cultural and historical data that they collect through library research (with a minimum of 50 sources). Students will present the paper to the class in a conference style presentation that will conclude with a Q&A session.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: 6 credits in S T S WMNST or AAA S

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 420 (US;IL) (CED 420) Women in Developing Countries (3)** Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

**WMNST (CED) 420 Women in Developing Countries (3)  
(US;IL)**

The purpose of this course is to increase understanding of women's lives in third world countries at the time when women's movements, grassroots activism, and feminism are on the rise in the third world. The course examines third world women's challenges to Western definitions of feminism and traces the theoretical shifts and practical changes related to women's issues in African, Asia, and Latin America. Students participate in studying specific community and agricultural development projects. Topics include feminist critiques of development and post-colonialism, ecofeminism and environment, sexuality and reproduction, global restructuring, and grassroots community activism. Students will be evaluated based on class participation, two written critiques of readings, a final course project, a mid-term, and a final exam. This course will add diversity to both the rural sociology, community and economic development, and women's studies curricula. International, gender, ethnic, and racial issues are core components of the course. The course will be an elective for Women's Studies majors and minors and will serve graduate students in rural sociology, women's studies, and other fields.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 420 (US;IL) (CED 420) Women in Developing Countries (3)** Analysis of women's work, experiences, and development policies and practices in Africa, Asia, and Latin America.

**WMNST (CED) 420 Women in Developing Countries (3)  
(US;IL)**

The purpose of this course is to increase understanding of women's lives in third world countries at the time when women's movements, grassroots activism, and feminism are on the rise in the third world. The course examines third world women's challenges to Western definitions of feminism and traces the theoretical shifts and practical changes related to women's issues in African, Asia, and Latin America. Students participate in studying specific community and agricultural development projects. Topics include feminist critiques of development and post-colonialism, ecofeminism and environment, sexuality and reproduction, global restructuring, and grassroots community activism. Students will be evaluated based on class participation, two written critiques of readings, a final course project, a mid-term, and a final exam. This course will add diversity to both the rural sociology, community and economic development, and women's studies curricula. International, gender, ethnic, and racial issues are core components of the course. The course will be an elective for Women's Studies majors and minors and will serve graduate students in rural sociology, women's studies, and other fields.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 421 (IL) (HIST 421) The History of European Women (3)** European women's lives from the Middle Ages to the present.

**The History of European Women (3)**

General Education: None  
 Diversity: IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2013  
 Prerequisite: WMNST 100WMNST 106WMNST 116 orWMNST 117

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 423 (US) (CRIMJ 423, CRIM 423) Sexual and Domestic Violence (3)** Legal, sociological, and psychological perspectives of sexual and domestic violence.

**WMNST (CRIMJ/CRIM) 423 Sexual and Domestic Violence (3)  
 (US)**

This course investigates violence against women, specifically domestic, sexual, and relationship violence. Students will examine some of the legal, sociological, and psychological perspectives about sexual, domestic, and relationship violence as well as the social and cultural roots of violence against women. Students will also gain an understanding of the experiences of victims of domestic and sexual violence as well as the issues presented by perpetrators. Students will be evaluated based on performance on exams, and two research papers. CRIMJ/CRIM/WMNST 423 is a supporting course in both the WMNST major and minor as well as a supporting course in the CLJ major. It may also be used to satisfy a GI requirement.

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: CRIM 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 424 (US) (KINES 424) Women and Sport (3)** An interdisciplinary approach to contemporary issues related to women and sport from historical, physiological, psychological, and sociological perspectives.

**Women and Sport (3)**

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: PSYCH 100PSYCH 231PSYCH 479SOC 001 orWMNST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 426Y (US;IL) (GEOG 426Y) Gender Geographies (3)** Description and explanation of the links between gender relations and spatial structures; gender and work, social services, and neighborhood activism.

**WMNST (GEOG) 426Y Gender and Geography (3)  
 (US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

Until the 1970s women remained invisible in the analyses of social space: human geography was indeed just that--(hu)man. Recently, feminist geography began to challenge the implicit masculinity of the subject of geography; this course will examine the evolution of the feminist challenge. The course addresses gendered geographies across multiple scales, such as the body, home, public space, community, nation and globe. Students explore each of these through readings and will produce a series of essays throughout the semester. As a point of entry to discussion of place, space and gender, this course explores the diverse ways in which feminists have seen space as central both to masculine power and to feminist resistance. In particular we will explore arguments from interdisciplinary paradigms, stemming from cultural, post colonial, subaltern, sexuality,gender studies and critical race theory, all of which have influenced current debates across the field of geography.

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Fall 2013  
 Prerequisite: GEOG 020GEOG 126GEOG 120WMNST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 428 (US;IL) (PL SC 428) Gender and Politics (3)** Gender in politics in the United States and around the world; major



areas of women and politics research.

**WMNST (PL SC) 428 Gender and Politics (3)  
(US;IL)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course is designed as an overview to the field of women and politics. It examines the role that women play in politics in the United States and around the world. Students will begin by examining how women are socialized differently from men and how that socialization effects women's political attitudes and participation. Then students will focus on women in different political offices and how their behavior compares to that of their male counterparts. Students will then analyze the women's movement in the United States. Finally, students will turn to different theories of the ideal position of women and men in politics and use those theories to explore the issue of pornography. Students will be evaluated on a final exam, short essays ( 4 3-5 page essays), class participation, and a research paper (15 pages). This is an advanced course with 6 credits prerequisite in Women's Studies or Political Science. This course fulfills the American Politics and Comparative Politics distribution as well as the advanced course requirement for the Political Science major. It is an elective for a Women's Studies major. It also fulfills an United States Cultures and International Cultures requirement.

General Education: None

Diversity: US;IL

Bachelor of Arts: Social and Behavioral Science

Effective: Fall 2007

Prerequisite: 3 credits in political science or women's studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 430 (US) (AM ST 430) Women in American Society (3)** A historical study of women's roles and experiences in the United States.

**Women in American Society (3)**

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: 6 credits of American Studies Sociology or Women's Studies

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 438 (PHIL 438) Feminist Philosophy (3)** Examines the central currents of feminist philosophy, selected problems and concepts regarding difference, gender and sex, identity, and political culture.

**Feminist Philosophy (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: 9 credits of philosophy including 6 credits of philosophy of the 200-level or 5th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 452 (US) (BB H 452, NURS 452) Women's Health Issues (3)** Exploration of major health issues concerning women today, with an emphasis on social, cultural, and medical influences.

**Women's Health Issues (3)**

General Education: None

Diversity: US

Bachelor of Arts: None

Effective: Fall 2013

Prerequisite: BIOL 141 or PSYCH 100 or WMNST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 453 (US) (CRIMJ 453, CRIM 453) Women and the Criminal Justice System (3)** This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system.

**WMNST (CRIMJ/CRIM) 453 Women and the Criminal Justice System (3)  
(US)**

The course will examine the role of women in the criminal justice system and look at the issues related to women as offenders, victims of crime, and as professionals in the system. Students will gain an understanding of the issues concerning women in the criminal justice system, examine how societal arrangements affect women as offenders, victims, and criminal justice professionals, and better understand the overlooked problems faced by women in the criminal justice

system. Students will be evaluated on the basis of exams, presentations, and papers. CRIMJ/CRIM/WMNST 453 is a supporting course for both WMNST and CLJ majors, as well as the WMNST minor. This course may also be used to satisfy a US requirement.

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Spring 2013  
 Prerequisite: CRIMJ 100 or WMNST 100

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 455 (US) (CAS 455) Gender Roles in Communication (3)** Explores the literature on gender research in the discipline of human communication.

**WMNST (CAS) 455 Gender Roles in Communication (3)  
 (US)**

This 400-level course is a theory and application course which also satisfies an intercultural requirement. CAS/WMNST 455 strives to ensure that students understand female and male differences and similarities in communication patterns, perceptions of the opposite sex, and expectations and stereotypes regarding the opposite sex. Many researchers find that gender communication is "cross cultural," i.e., that women and men come from two different cultures, and therefore misunderstanding of each others' intent and expectations may frequently occur. This course examines how distinctions in meaning and interpersonal dynamics may create these two differing cultures, and promotes understanding and possibilities for adaptation. It also investigates when and if changing communication styles is desirable, and in which settings. A goal of the course is to help students to solve puzzles toward understanding those we work with and relate to, as well as to apply their knowledge to their own lives and contexts. The course content and format reflects these goals. CAS/WMNST 455 begins with theoretical information, later applying it to situations of interest to most -- relationships, language use differences (verbal and nonverbal), media messages, and workplace issues. Lecture incorporates considerable discussion and exploration of gender issues and most topics are followed by activities, which illustrate how theories work in real life. This course is useful for any students seeking an intercultural course. It is recommended to Communication Arts and Sciences and Women's Studies majors and minors due to emphasis on communication theory and gender issues. Business, Counseling, Psychology, Sociology, Education and any Social Science majors may fulfill a US requirement through 455. Exams are geared toward testing ability to apply theory to life. Other evaluation methods encompass short reaction papers, a book review, application paper, and team research papers and presentations. These assignments and all class exercises focus on application of theory and course content to students' lives.

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Summer 2005  
 Prerequisite: CAS 202

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 456 (SOC 456) Gender, Occupations, and Professions (3)** The role of gender in shaping contemporary North American patterns of employment, occupational roles, and statuses.

**Gender, Occupations, and Professions (3)**

General Education: None  
 Diversity: None  
 Bachelor of Arts: Social and Behavioral Science  
 Effective: Spring 2013  
 Prerequisite: WMNST 100 or 3 credits in Sociology

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 457 (US;IL) (HIST 457, S T S 457) The History of Women in Science (3)** Critical analysis of the roles women, gender, and minorities have played in the natural sciences.

**The History of Women in Science (3)**

General Education: None  
 Diversity: US;IL  
 Bachelor of Arts: Humanities  
 Effective: Spring 2013  
 Prerequisite: WMNST 100WMNST 106WMNST 157WMNST 116 orWMNST 117

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 458 (GS) (BB H 458) Critical Issues in Reproduction (3)** Examination and analysis of the new reproductive technologies from the standpoint of medical ethics, feminism, and sociocultural influences.

**Critical Issues in Reproduction (3)**

General Education: GS  
 Diversity: None  
 Bachelor of Arts: None  
 Effective: Fall 2013  
 Prerequisite: BIOL 141 or PSYCH 100 or WMNST 100

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 462 (US) (ENGL 462) Reading Black, Reading Feminist (3)** Female identity and its construction in textual representations of gender, class, color, and cultural difference in English-language literatures.

**WMNST (ENGL) 462 Reading Black, Reading Feminist (3)**  
**(US)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

ENGL/WMNST 462 provides two important learning opportunities for undergraduate students. The first is to examine the construction of female identity in the textual representations of gender, class, color, and cultural differences by black American women. The second is to identify, explore, and analyze the major issues concerning the discovery and development of a black feminist literary tradition. Authors under consideration will vary from class to class, but may include writers such as Hortense Spillers, Harriet Jacobs, Harriet Wilson, E. Genovese, Hazel Carby, Francis Harper, J. Fauset, Nella Larsen, Zora Neale Hurston, Gwendolyn Brooks, Margaret Walker, Nikki Giovanni, Sonia Sanchez, Maya Angelou, Lorraine Hansberry, Adrienne Kennedy, E. Brown-Guillory, Toni Morrison, S. A. Williams, Alice Walker, Paula Marshall, and Octavia Butler. The course will focus on the complex relationship of slavery and post-slavery black experience to the literary imagination of African American women, and of issues of gender in black identity in America. Topics covered will vary, but will include issues of the legacy of slavery, the development of black feminist thought, nineteenth-century conceptions of black womanhood, women's roles in the Harlem Renaissance, representations of black womanhood by male writers, and self-representation by female writers, women "Black Power" poets, black female playwrights, neo-slave narratives, the aesthetics of contemporary black feminism, and post-modernism and the challenge to understandings of canonicity posed by black women's writing, and the like. This class will prepare students for advanced courses in African American and feminist literature, as well as other academic courses that engage in the verbal and written analysis of complex written forms. Students will be evaluated by class participation, a group oral presentation, small group problem solving exercises, three out-of-class essays (of 5-8 pages each), and an in-class final examination consisting of essays and short answers. In addition to satisfying requirements for students emphasizing in African American literature within the English major, this course will be important in the offerings of African/African American Studies, American Studies, Women's Studies, and History. The course may be used as English major elective credit or as credit towards the English minor. The course can be used to complete the major and minor in Women's Studies Arts and Humanities area and it also satisfies the Women of Color (WOC) sub-requirement.

General Education: None  
 Diversity: US  
 Bachelor of Arts: Humanities  
 Effective: Summer 2005  
 Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 464 (US) (BE SC 464) Feminine/Masculine (3)** Study of sex role learning; investigating feminine/masculine labeling; implications for contemporary society.

**WMNST (BE SC) 464 Feminine and Masculine (3)**  
**(US)**

This course provides a critical examination of the concepts of masculinity and femininity through a consideration of how these have shifted and changed historically and cross-culturally. It considers a variety of theories of gender difference. It investigates how gender is socially constructed and practiced. Thus, it examines how gender is enacted in interpersonal relationships and defined, reinforced, and challenged through processes of socialization as well as through the various institutional spheres of social life. The course addresses the diversity of masculinities and femininities within a single society. Thus, attention is given to race and class-based differences as well as to trans-genderism and homosexuality.

General Education: None  
 Diversity: US  
 Bachelor of Arts: None  
 Effective: Spring 2008  
 Prerequisite: general psychology or general sociology

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 466 (US;IL) (HIST 466) Lesbian and Gay History (3)** Critical exploration of the history of sexuality, focusing especially on the emergence of modern lesbian and gay identities.

**WMNST (HIST) 466 Lesbian and Gay History (3)**

**(US;IL)**

This course will explore the relationships in different cultures and historical periods between the dominant culture and homosexuals, whom the culture deemed, at different times, sinful, deviant, criminal or, more recently, a minority community. Students will confront the very nature of difference, and how it has been played out in European and American history. The course will challenge students to deal with how societies define difference itself; how they isolate or punish deviants; and how the creation of the "homosexual" helped establish not simply difference but "normalcy" in a highly sexualized modern culture. Finally, the course will explore notions of identity itself, focusing on the creation of a modern gay and lesbian identity and its impact on broader questions of gender, community, civil rights, and political discourse in the United States.

An example of evaluation methods would be: course presented in a seminar format with grades based on class participation, brief analytical papers, and a longer research or historiographic paper.

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Spring 2013

Prerequisite: WMNST 100WMNST 117

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 471 (US) (PSYCH 479) The Psychology of Gender (3)** Theories and research on gender differences and gender roles. Emphasis on women's and men's current positions in society.

**WMNST (PSY) 471 The Psychology of Gender (3)**  
**(US)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

This course examines how psychologists have addressed questions relating to gender in past and present-day research. Our goal is to understand what "gender" is, and how and when gender matters in our evaluations of ourselves and in our interactions with others. The course focuses on four themes:

- (1) When does gender matter? Gender as a system of power relations, as an aspect of personality, as a cue;
- (2) Diversity within gender categories;
- (3) Thinking critically about language and the power of naming;
- (4) Connections between psychological research and social change.

Successful completions of the course will:

- (1) give students an understanding of the major concepts, theories, and methodological issues in past and current psychological research on gender
- (2) enable students to think critically about psychology's study of gender and its implications for social policy and social change
- (3) enable students to relate their history of experience of gender to the academic literature on the topic
- (4) give students an understanding of the importance and complexity of investigating gender in the context of other dimensions of social identity, such as racial ethnicity

Course grade is based on performance on quizzes/exams (30%), homework assignments (30%), a collaborative research project (35%), and class participation (5%). This course covers the psychology of gender in greater depth than does any other undergraduate PSY course, and provides a psychological perspective on topics covered in a variety of Women's Studies courses. It complements other PSY courses that cover related topics in social and personality psychology. The course can be counted as one of the required 400-level courses for the Psychology major and for the Women's Studies major.

General Education: None

Diversity: US

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2007

Prerequisite: PSYCH 100PSYCH 221

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 472 (LER 472) Work-Life Practices and Policies (3)** Explore the causes and consequences of conflicts between work, family, and other life commitments, and how these may be resolved.

**WMNST (L I R) 472 Work-Life Practices and Policies (3)**

**(BA) This course meets the Bachelor of Arts degree requirements.**

The interdisciplinary field of work-family and work-life developed as a result of middle-class women's entry into the labor force, a movement that generated conflict between family and paid work commitments. Overall, the course addresses the reasons the field developed, relevant theoretical perspectives regarding the issues, and related problems as well as proposed solutions at both the public and private sector levels. The overarching objectives of the course are to expand students' understanding of conflicts between work and family commitments, and how these might be resolved through private and public sector initiatives. Specifically, the course concerns how individuals, families, and organizations interact to help hinder the achievement of balance between work and life commitments, and relevant effects on those involved.

The changing demographics of the family, laws and trends around working time, father and mother time with children, the expanded need for elder care, work-life programs such as flextime, concierge services, paid parental leave, part-time careers, paid time-off banks, and the role of unions, corporations and government legislation are covered. The course attempts to link the likely future needs of students to broader trends in society and how balance could be achieved at the level of individuals, families, other stakeholders in the community, and for society as well. Fields of research relevant to the course include labor studies, women's studies, Industrial/Organizational psychology, the sociology of work and of family, and child development.

General Education: None

Diversity: None

Bachelor of Arts: Social and Behavioral Science

Effective: Spring 2008

Prerequisite: 3 credits of LER

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 489 (ENGL 489) British Women Writers (3)** A study of selected British women writers.

**WMNST (ENGL) 489 British Women Writers (3)**

This course provides the opportunity to study writing by British Women from a historical perspective and to explore the views these women have of themselves as artists. The course will concentrate on a careful reading of works by a variety of authors. It will address the question of the role gender plays in the selection of literary forms and the development of character, theme, symbols, and rhetorical strategies. It will also explore what particular dimensions British women writers have brought to the British literary tradition.

Students will be active learners through keeping reading journals, presenting background reports on the history of women in England, participating in small-group discussions about the texts, and writing 2 shorter essays and one longer research essay for the class. This course focuses on an area of British literature, which more traditionally structured courses tend to obscure. The course will be attractive to students from a variety of programs, including English majors, Women's Studies minors, and Interdisciplinary Humanities students.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: 6 credits of ENGL

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 490 (US;IL) (ENGL 490) Women Writers and Their Worlds (3)** American and British literature written from the perspective of women.

**WMNST (ENGL) 490 Women Writers and Their Worlds (3)  
(US;IL)**

**(BA)** This course meets the Bachelor of Arts degree requirements.

ENGL/WMNST 490 covers particular aspects of American and British literature written from the perspective of women. The courses stresses the diversity of women's authorial worlds, both through time and/or space. The readings and specific focus vary from semester to semester. ENGL/WMNST 490 seeks to make students aware of the extensive body of literature written by women, but, unlike ENGL 194, which is a survey course of women's literature, ENGL/WMNST 490 can be a more intensive course, focusing on selected themes and topics of particular concern to women as reflected in the poetry and fiction of twentieth-century American and British women writers. The class can also be taught in relationship to earlier periods, dealing, for instance, with English women novelists from 1775-1865. In such a class, readings would include fiction by Fanny Burney, Mary Wolistonecraft, Ann Radcliffe, Jane Austen, Mary Shelly, Emily Bronte, Elizabeth Gaskell, and George Eliot. The course would then place each novel in its historical, social, intellectual, and literary context, and explore the various ways in which some of England's best writers transformed their female experience of the world into fiction that extended the range and influenced the development of the novel. Regardless of the particular focus, all sections of the course pose the following questions throughout: Do women use the same myths, archetypes, and literary conventions as male writers? Or do they sometimes have to modify the myths, archetypes, and literary conventions originated by their male precursors in order to adapt them to female experience? Is there such a thing as a distinctively female imagination, with a symbolic language of its own? Is there such a thing as a chain of literary influence linking women writers to each other? What are the strategies for coping with the anxieties of authorship? What is the interaction between gender and genre? In what ways are creativity and procreativity modes of defying prevailing ideologies? Does a woman's psychological development have an effect on the plots a woman novelist conceives? How does women's literature reflect the realities of women's lives? As a course in women's literature, ENGL/WMNST 490 concerns itself with questions of gender. In so far as some of these women writers are black or women of color, it concerns itself with questions of race and ethnicity. In as far as the course looks at women's literature in the context of men's literature, it is concerned with the inter-relationship between dominant (male) and non-dominant (female) culture in the United States as well as in Britain. In so far as the course covers lesbian writers, it is concerned with sexual orientation. The course not only prepares students for taking up literary and cultural analysis in English classes, but also in any other class that engages in the verbal and written analysis of complex written texts, and in other classes in Women's Studies or in other Penn State departments that address the social, cultural, or ethical issues of gender. The course may be used as English Major elective credit or as credit towards the English Minor; it may also be used in the Women's Studies major and minor.

General Education: None  
Diversity: US;IL  
Bachelor of Arts: Humanities  
Effective: Summer 2005  
Prerequisite: ENGL 015 or ENGL 030

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 491** (AM ST 476, ENGL 492) American Women Writers (3) A study of selected American women writers.

### **American Women Writers (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2008  
Prerequisite: 6 credits of ENGL

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 492W** Current Feminist Issues (3) Critical analysis of major contemporary feminist research and writing in the arts, humanities, social and natural sciences.

### **WMNST 492W Current Feminist Issues**

This course is the capstone course for the Women's Studies major. We keep the course small (15-20 students) and offer it every spring. It is constructed to provide you the opportunity to apply the knowledge and skills you have developed in Women's Studies to some of the major topics being addressed in current academic feminist discourse. The first goal of the course is for each student to become familiar with the major arguments and evidence regarding some of the current major topics in feminism. The second goal is for each student to learn more about the multidisciplinary perspectives of women's studies. The third goal of the course is for each student to develop and demonstrate her skill at carrying out feminist scholarship.

There are two core elements of the course. The first is class discussion of readings addressing some of the major current feminist issues. Each year a new set of these topics is put together by the instructor, drawing upon the suggestions of other Women's Studies faculty and majors. The second core element of the course is each individual student doing a term paper. Work on these papers will take place both publicly and privately, so that everyone in the course will learn something about how feminist projects are constructed in the various disciplines represented by the students' choices of topics for their papers.

Because this is a W course, 2/3 of your grade will be based on writing assignments. Throughout the course, you will write short (2 page) papers on the readings that we will be discussing in our seminars. You will also write a term paper and some preliminary assignments related to it, including a topic justification paper, an annotated bibliography accompanied by a text description of the major themes identified in the bibliography, a class presentation on your paper topic, and the final 10-15 page paper. The other third of your grade will be based on your participation in seminar discussions.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2002  
Prerequisite: WMNST 301WMNST 302

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 494** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1994

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 494H** Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.

### **Research Project (1-12)**

General Education: None  
Diversity: None

Bachelor of Arts: None  
Effective: Fall 2007

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 495** Internship (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

**Internship (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1998  
Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 1983

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1984

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 497A** (J ST 497A, HIST 497C) Gender and Autobiography in Modern Jewish History (3) In this course we will read autobiographies critically and carefully in examining the tremendous changes wrought by modernity in the Jewish community.

**Gender and Autobiography in Modern Jewish History (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2014 Ending: Fall 2014 Future: Fall 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WMNST 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

**Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2005

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**Wood Products (W P)**

**W P 200W** Professional Careers in Forest Resources (3) Introduction to managing forests for products and services to meet human needs; developing career goals and an academic plan.

**Professional Careers in Forest Resources (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

Concurrent: W P 203

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 203** Anatomical Properties of Wood (1) Provide information on tree form/growth, cell wall formation/composition, structure of wood/bark cells; macroscopic/microscopic identification of hardwood/softwood cells.

**W P 203 Anatomical Properties of Wood (1)**

The purpose of this course is to introduce students to the basic concepts of the anatomical properties of wood and bark cells. Students taking this class will learn:

- 1) basic information on tree form and growth
- 2) basic information on cell wall chemical composition, formation and structure
- 3) identification and differentiation of different hardwood and softwood cells.

Course grade will be based on weekly quizzes.

W P 203 is a foundation course for the wood products major and a basic information course for the forest science major. The course will be taken by students in the fall semester in their sophomore or junior year for Wood Products major and in the their sophomore, junior or senior year for the Forest Science major.

This course provides essential background information for students in the Wood Products major. The information presented in this course will be needed for understanding advanced concepts present in 400-level courses. All wood products and forest science students will be required to take this course. It is listed as a prerequisite for most W P 400-level courses. The course is designed to provide information necessary for understanding advanced concepts presented in W P 400-level courses.

Macroscopic and microscopic hardwood and softwood cell identification will be taught in a specialized laboratory made available by the School of Forest Resources.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2014

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 1993

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 337** Wood Technology (2) An introduction to forest tree structure, function, and growth and the identification of important commercial hardwoods and softwoods.



**Wood Technology (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: W P 203

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 412** Wood in Structures (3) Behavior and design of solid, laminated, and plywood wood beams, trusses, columns, and foundations. Wood construction details.

**Wood in Structures (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: W P 200WW P 203

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 416** Wood Industries Management Development (3) Managerial concepts and issues important to forest products organizations will help prepare students to assume management-level positions.

**W P 416 Wood Industries Management Development (3)**

This course will introduce students to managerial concepts and issues important to wood products manufacturers. The design of the course is to help students think more critically about problems and issues that are directly related to efficiency and effectiveness within the wood-based industry, with an emphasis on utilizing human capital to increase competitive advantage. The overall goal of the course is to prepare students to assume management-level positions within wood-based businesses. Course content will be designed to meet the unique production environments our graduates will face. For example, managing an hourly workforce that is under-motivated with insufficient skills, in an environment that is often unpleasant and physically challenging. The course will include case studies from relevant industrial settings and will expose students to current managerial issues (i.e., via field trips to mills and guest lecturers from industry). Students will give oral presentations based on assigned readings from a best selling managerial book and will also be asked to complete numerous in-class and out-of-class exercises (e.g., learning styles inventory, conflict style assessment, to-do lists, resume, etc.).

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: W P 200W

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 417** Wood Products Manufacturing Systems and Processes (4) Description of systems and processes used in the manufacture of wood products.

**Wood Products Manufacturing Systems and Processes (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: W P 200WW P 203 and sixth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 418** Chemical Processing of Wood (4) Principles and practices of basic operations in converting wood and wood waste into useful chemicals and modified cellulose products.

**Chemical Processing of Wood (4)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2013  
Prerequisite: W P 200WW P 203

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 438** Business Concepts for Wood Manufacturing (4) The course will cover manufacturing strategies and related

financial measures in a wood production environment.

**W P 438 Business Concepts for Wood Manufacturing (4)**

This course will introduce students to the challenges inherent in attempting to profitably manufacture quality products with wood as a raw material. This will lay the groundwork for student understanding that positive margins and profitability are not a given for all wood producers. Students will receive an overview of the operations function and how it should synergize with other business functions such as R&D and marketing. The remainder of the course will be dedicated to exposing students to (1) managerial finance and accounting topics pertinent to using wood as a raw materials in a manufacturing environment and (2) modern manufacturing strategies relevant to the wood products industry. The overall goal of the course is to give students a set of skills that will allow them to make informed economic decisions for a wood manufacturing organization. Knowledge of such topics as continuous process improvement from a business strategy standpoint should provide a framework for making decisions (using the managerial finance subject matter) that will improve the economic competitiveness of their employers. The course will include case studies from relevant industrial settings and will expose students to current managerial issues through field trips to mills and guest lecturers from industry. Students will also give an oral presentation based on assigned readings from a manufacturing-management text.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: W P 200W

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 460 Wood Products Industrial Environmental Control (3)** Wood products industrial environmental control technologies and strategies for pollution abatement.

**Wood Products Industrial Environmental Control (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: fifth semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 495 Wood Products Internship (1-6)** Supervised field experience related to the student's major.

**Wood Products Internship (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: approval of proposed assignment by instructor prior to registration.

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 496 Independent Studies (1-18)** Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 497 Special Topics (1-9)** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**W P 499** (IL) Foreign Studies (1-12) Courses offered in foreign countries by individual or group instruction.

### **Foreign Studies (1-12)**

General Education: None  
Diversity: IL  
Bachelor of Arts: None  
Effective: Summer 2013

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **Workforce Education and Development (WF ED)**

**WF ED 001** Education for Work: Trends and Issues (3) Overview of the history and philosophies of education for employment, current issues, and school to work transition system.

### **Education for Work: Trends and Issues (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 100** Orientation to Teaching Vocational Industrial Education/Health Occupations Education Subjects (2) Basic elements of preparing to teach vocational trade and industrial/health occupations education subjects in the schools of Pennsylvania.

### **Orientation to Teaching Vocational Industrial Education/Health Occupations Education Subjects (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 101** Early Field Experience in Teaching Vocational Industrial Education/Health Occupations Education Subjects (1) Discussion and observation of in-school practices to aid the student in making vocational industrial education/health occupations education career decisions.

### **Early Field Experience in Teaching Vocational Industrial Education/Health Occupations Education Subjects (1)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 105** Integrated Curriculum Implementation (3) Occupational analysis for instructional planning; emphasis on instructional methods to deliver a competency based program in an integrated learning environment.

### **Integrated Curriculum Implementation (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: EDPSY 014

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 106** Program and Facilities Management (3) Organization and management of learning laboratory to facilitate the delivery of a competency based program in a safe environment.

**Program and Facilities Management (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 197** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 198** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 207W** Assessment Techniques (3) Assessment, recording, and reporting of learning in an integrated competency based vocational education system.

**Assessment Techniques (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: WF ED 105

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 270** Introduction to Industrial Training (3) Overview of training profession. Introduction to economic and psychological foundations. Examination of relationship of industrial training to education.

**WF ED 270 Introduction to Industrial Training (3)**

This course is designed to prepare individuals for a variety of training practitioner roles in businesses and industry. This course is actually the first of two courses and is an introduction to the required core courses for emphasizing the training and development professional curriculum in the Department of Adult Education, Instructional Systems and Workforce Education and Development. It is the intent of this course to equip participants with entry-level knowledge and skill to successfully pursue other designated professional core courses on needs assessment, organization development, and cross-cultural training. All of these courses fall into the category called Human Resource Development (HRD).

Industry trainers have had the opportunity to provide formal training to many persons with a wide variety of skills and competencies. Previous train-the-trainer courses in this series have addressed presentation techniques, assessment, facilities management and safety. This course will help trainers gain a total understanding of their role in the larger picture of Human Resource Development. Although traditional education is often focused on helping individuals lead better lives, training is usually focused specifically on the work that people do in one organizational setting. HRD deals with the financial value of human beings to organizations. In this course, the HRD field will be examined with respect to the training component with which participants are connected.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Spring 2003

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**WF ED 296** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

**Independent Studies (1-18)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 297** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 298** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 310** Leadership Competencies for Supervisors (3) Designed to teach contemporary supervisory leadership competencies for mid- career learners with front-line supervisory responsibilities in the workplace.

**WF ED 310 Leadership Competencies for Supervisors (3)**

Leadership Competencies for Supervisors is a course designed primarily for adult learners engaged in supervisory roles and functions in the workplace. Its purpose is to ensure that all students are equipped with the contemporary supervisory leadership competencies that are needed to function effectively in today's workplace. Upon completion of this course, the student should be able to a) Recognize the important role and function of supervisory leadership, b) Relate common critical situations experienced by supervisors and how they were handled, c) Demonstrate proficiency in competency areas important to supervisory success such as effective communication strategies, methods for resolving conflict, managing employees, etc., and d) Demonstrate ability to develop individuals and teams. Students will be assessed and evaluated through quizzes, instructor and peer observation, self-assessments and reflection, and demonstration of project deliverables.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2011

Prerequisite: two years of work experience or fourth-semester standing or prior approval by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 323** Vocational Student Organizations (3) Methods in originating, managing, and advising vocational student organizations.

**Vocational Student Organizations (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details

check the specific course syllabus.

**WF ED 395A** Trade and Industrial Occupational Experience (1-8 per semester/maximum of 24) Individual work experience in manufacturing environment or skilled craft area to develop professional competence in specific occupation.

**Trade and Industrial Occupational Experience (1-8 per semester/maximum of 24)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

Prerequisite: completion of an occupational learning period in the field of certification or field of specialization

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 395B** Occupational Resources Competence (1-8 per semester, maximum of 24) An analysis of competence in the workplace within occupations providing resources usage and management-related experience.

**WF ED 395B Occupational Resources Competence (1-8 per semester/maximum of 24)**

Occupational Resources Competence is a course designed primarily for adult learners who demonstrate an adequate understanding of contemporary resource usage and management related competencies that are needed to function effectively in today's global business environment. These competencies include: resource usage, resource management, computer and basic literacy, and understanding of systems in the workplace. Students will demonstrate competence through documentation of tasks performed and reflection on specialized accomplishments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: completion of a two-year formal learning period in the field of specialization

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 395B** Occupational Resources Competence (1-8 per semester, maximum of 24) An analysis of competence in the workplace within occupations providing resources usage and management-related experience.

**WF ED 395B Occupational Resources Competence (1-8 per semester/maximum of 24)**

Occupational Resources Competence is a course designed primarily for adult learners who demonstrate an adequate understanding of contemporary resource usage and management related competencies that are needed to function effectively in today's global business environment. These competencies include: resource usage, resource management, computer and basic literacy, and understanding of systems in the workplace. Students will demonstrate competence through documentation of tasks performed and reflection on specialized accomplishments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: completion of a two-year formal learning period in the field of specialization

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 395C** Occupational and Professional Competence (1-8 per semester, maximum of 24) A comprehensive analysis of the skills, abilities and experiences related to professional competence within the world-of-work.

**WF ED 395C Occupational and Professional Competence (1-8 per semester/maximum of 24)**

Occupational and Professional Competence is a course designed primarily for adult learners who demonstrate an adequate understanding of contemporary professional mastery related competencies that are needed to function effectively in today's global business environment. These competencies include: interpersonal competence, oral and written communication, conceptual thinking, learning and information, self-responsibility and management in the workplace. Students will demonstrate competence through documentation of tasks performed and reflection on specialized accomplishments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: completion of a two-year formal learning period in the field of specialization

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 395C** Occupational and Professional Competence (1-8 per semester, maximum of 24) A comprehensive analysis of the skills, abilities and experiences related to professional competence within the world-of-work.

**WF ED 395C Occupational and Professional Competence (1-8 per semester/maximum of 24)**

Occupational and Professional Competence is a course designed primarily for adult learners who demonstrate an adequate understanding of contemporary professional mastery related competencies that are needed to function effectively in today's global business environment. These competencies include: interpersonal competence, oral and written communication, conceptual thinking, learning and information, self-responsibility and management in the workplace. Students will demonstrate competence through documentation of tasks performed and reflection on specialized accomplishments.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2015 Future: Spring 2015

Prerequisite: completion of a two-year formal learning period in the field of specialization

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 395D** Occupational Work Experience (1-8 per semester, maximum of 24) Individual work experience in the manufacturing, health, service, or financial arena.

**Occupational Work Experience (1-8 per semester, maximum of 24)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 397** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 398** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

**Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 402** Supervision of Vocational Education (3) For administrators, supervisors, and teachers responsible for improvement of instruction through supervision or for students preparing for supervisory work.

**Supervision of Vocational Education (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2001

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 405 (ENGR 405) Project Management for Professionals (3)** Covers the essential concepts and skills needed to make effective contributions on projects, on time and within budget.

**WF ED (ENGR) 405 Project Management for Professionals (3)**

Professionals in the workplace carry out many different projects every day ranging from somewhat small tasks, e.g., planning events and designing courses, to big projects, e.g., launching an enterprise wide system. Project Management for Professionals is a practical "hands-on" course designed for mid-career adult students and covers the essential concepts and skills needed to make effective contributions and have an impact on the successful accomplishment of projects on time and within budget.

Project management principles and techniques are presented with an emphasis on how they are applied to real world workforce development projects. Topics include the project management life cycle and process; techniques for planning, scheduling, budgeting, and controlling project performance; project manager responsibilities and skills; project team development and effectiveness; project communication; and organization structures.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: two years of work experience or fourth-semester standing or prior approval by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 410 Leadership Competencies for Professionals (3)** Designed to teach contemporary professional leadership competencies for workforce professionals who do not currently have supervisory responsibilities.

**WF ED 410 Leadership Competencies for Professionals (3)**

Leadership Competencies for Professionals is a course designed primarily for adult learners who demonstrate high leadership potential and who may not have significant supervisory and managerial responsibilities. Its purpose is to ensure that all students develop an adequate understanding of the contemporary professional leadership competencies that are needed to function effectively in today's global business environment. These competencies include: collaboration / multi-disciplinary team-building, leadership in diversely distributed team environments, interpersonal communication in the workplace, conflict resolution / human performance management, project management, problem-solving / creative thinking / ethical decision making, and contemporary and emerging technology usage. Students will be assessed and evaluated through quizzes, instructor and peer observation, self-assessments and reflection, and team projects and presentations.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2011

Prerequisite: two years of work experience or fourth-semester standing or prior approval by instructor

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 411 Occupational Safety and Health for Workforce Education and Development Professionals (3)** This course assists participants in creating and supporting workplaces and educational environments free of occupational safety and health hazards.

**WF ED 411 Occupational Safety and Health for Workforce Education and Development Professionals (3)**

This course is designed to offer participants the knowledge and skills they need to create and support workplaces and educational environments free of occupational safety and health hazards. It provides Occupational Safety and Health Administration (OSHA) compliance and workplace safety training to educators, managers, supervisors, and other employees in the Career and Technical Education field as well as the Oil and Gas Drilling Industry, Advanced Manufacturing, and Construction industries.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2014

Prerequisite: a minimum of 2 years work experience or 4th semester standing

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 413 Vocational Education for Special-Needs Learners (3)** Introduction to program modifications, supplementary services, and resources required for special-needs learners in vocational and practical arts education programs.



**Vocational Education for Special-Needs Learners (3)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Fall 2001

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 424** (CN ED 424) Facilitating Career Development (3) This course provides individuals with relevant skills and knowledge to assist others in planning careers and obtaining meaningful work.

**WF ED (CN ED) 424 Facilitating Career Development (3)**

This course provides individuals with relevant skills and knowledge to assist others in planning careers and obtaining meaningful work. This course addresses the following 12 Career Development Facilitator (CDF) competencies: 1) helping skills, 2) labor market information and resources, 3) assessment, 4) diverse populations, 5) ethical and legal issues, 6) career development models, 7) employability skills, 8) training clients and peers, 9) program management/implementation, 10) promotion and public relations, 11) technology, and 12) consultation.

These 12 competencies are identified by the National Career Development Association (NCDA) for those who (will) deliver career development programs and services in a variety of settings. Potential job titles of CDFs include career group facilitator, job search trainer, career resource center coordinator, career coach, career development case manager, intake interviewer, occupational and labor market information resource person, human resource career development coordinator, employment/placement specialist, and workforce development staff.

With certain years of work experience in career development, students who complete this course are eligible to apply for the Global Career Development Facilitator (GCDF) certification through the Center for Credentialing & Education (CCE), which is affiliated with the National Board for Certified Counselors (NBCC). A GCDF is a person who works in any career development setting or who incorporates career development information or skills in their work with students, adults, clients, employees, or the public. As of January 2011, about 18,000 individuals acquired the GCDF certification world-wide including Bulgaria, Canada, China, Germany, Japan, Romania, Turkey, South Korea, and New Zealand.

The goal of the GCDF credential was to provide standards, training specifications, and credentialing for diverse career development practitioners. This GCDF credential differentiates two levels of career practice, which are 1) career counseling and 2) career facilitation that does not require a counseling degree. This differentiation reflected the reality where many individuals who are currently providing career assistance are not professional counselors.

This course is taught by a nationally and internationally trained CDF Instructor (CDFI) who is certified by the NCDA. In addition, the CDF curriculum is updated every three years by the Career Development Leadership Alliance (CDLA) under the supervision of the NCDA CDF Advisory Council in order to keep up with recent changes in the field.

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 2012  
Prerequisite: courses in Psychology Human Development and/or Education preferred

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 441** Conceptual and Legal Bases for Cooperative Vocational Education (2) History, conceptual and legal bases for a cooperative vocational education program.

**Conceptual and Legal Bases for Cooperative Vocational Education (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: WF ED 445

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 442** Operating Cooperative Vocational Education Programs (2) Student and training station selection, training plan and related subject development, records and reporting systems, school-industry coordination.

**Operating Cooperative Vocational Education Programs (2)**

General Education: None  
Diversity: None  
Bachelor of Arts: None  
Effective: Summer 1996  
Prerequisite: WF ED 441

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 445** Vocational Guidance (3) Problems and possibilities of vocational guidance; the field of guidance and guidance literature; methods of field work; school guidance techniques.

**Vocational Guidance (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

Prerequisite: WF ED 105 ; fourth-semester standing

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 450** (US;IL) Cultural Diversity in the Workplace (3) Provides opportunities for students to explore different cultures and mores that are changing the dynamics of the workplace.

**Cultural Diversity in the Workplace (3)**

General Education: None

Diversity: US;IL

Bachelor of Arts: None

Effective: Fall 2006

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 451** Lean-Sigma for Professionals (3) The course focuses on essential lean and six sigma concepts to improve processes in any industry.

**Lean-Sigma for Professionals (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2013

Prerequisite: two years of relevant work experience or fourth semester standing or prior approval by program

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 471** Training in Industry and Business (3) Appraisal of training functions and development of competencies in work analysis, design, development, delivery, and evaluation of training.

**Training in Industry and Business (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2001

Prerequisite: seventh-semester standing or higher

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 495** Internship (1-6) Supervised off-campus, nongroup instruction including field experiences, practicums, or internships. Written and oral critique of activity required.

**Internship (1-6)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

Prerequisite: prior approval of proposed assignment by instructor

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 495A** Cooperative Education Practicum (2) Validation of competencies learned in prerequisite courses during interaction with professional staff while functioning under the supervision of a certified cooperative coordinator.

**Cooperative Education Practicum (2)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

Prerequisite: WF ED 445

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 495C** Student Teaching (10) Supervised observation and practice teaching in approved vocational industrial schools/health occupations education settings.

### **Student Teaching (10)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 1997

Prerequisite: successful completion of occupational competency evaluation. PA Act 34 clearance required. In addition non-Pennsylvania residents must provide evidence of an FBI background information check. (Forms: 228 Chambers)

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 495D** Instructional Internship in Industrial Training (5) Supervised internship in industrial training. Interns will be expected to perform instructional duties in industrial environments.

### **Instructional Internship in Industrial Training (5)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

Prerequisite: WF ED 105WF ED 106WF ED 207WWF ED 270WF ED 471 ; successful completion of occupational competency examination

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 496** Independent Studies (1-18) Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

### **Independent Studies (1-18)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 497** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WF ED 498** Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

### **Special Topics (1-9)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 1996

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

## **World Languages Education (WL ED)**

**WL ED 295A** Early Field Experience for World Languages Teacher Preparation (3) Selected observation of schooling situations in Pre-K-1st grade settings focusing on language acquisition/language teaching.

**WL ED 295A Early Field Experience for World Languages Teachers Preparation (3)**

This course has two major parts: one that is conducted in a workshop-like classroom and the second part is the field experience. In this course, we will provide prospective World Language teachers with several opportunities to observe/work with infants while focusing on language acquisition processes. As part of the field experience, students will have the opportunity to observe and work in an early childhood environment. There, students will have opportunities to plan, design and deliver second language related activities. All these activities will include connections with language acquisition theories, Foreign Language National Standards and specific cognitive behavioral and communicative goals. During the workshop sessions, students will discuss their experiences, develop necessary didactic materials and teaching props, and receive guidance on how to develop their professional portfolios.

This course should be taken concurrently with a Foundations of Second Language Teaching (WL ED 300) course.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

Prerequisite: Third-semester standing; PA Act 34 and Act 151 Clearances required; FBI background information check; and Professional Liability Insurance.

Concurrent: WL ED 300

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WL ED 300** Foundations of Second Language Teaching (3) Critical understanding of basic concepts and principles in second language acquisition and teaching.

**WL ED 300 Foundations of Second Language Teaching (3)**

This course is designed to give prospective World Languages teachers a critical understanding of basic concepts and principles in, first and second language acquisition and teaching. The core of the course explicates processes of language acquisition viewed from major theories of first and second language acquisition and common issues within these major theories are presented and debated.

This course should be taken concurrently with WL ED 295A (Early Field Experience for World Languages Teacher preparation). Using the field experience component, students will be able to critically examine language teaching methodologies derived and implied from first and second language acquisition theories and to apply them while in their field experience. This course requires participating in the field experience component, group-reflections and self-critique as well as to complete the required readings, and to develop a professional growth portfolio including the four domains stated in the Penn State model of Teacher Preparation (planning and preparing for student learning; teaching; inquiring and analyzing learning and teaching- and professionalism).

This course should be taken concurrently with the Early Field Experience for World Languages Teacher Preparation (WL ED 295A).

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

Concurrent: WL ED 295A

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WL ED 399A** Language Learning Through Study Abroad (3) Use of online technologies during study abroad to promote language and culture learning and to consider implications for teaching.

**Language Learning Through Study Abroad (3)**

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2012

Prerequisite: WL ED 300

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WL ED 400** Foundations of Language in Second Language Teaching (3) Critical understanding of basic concepts and principles in second language acquisition and teaching.

**WL ED 400 Foundations of Language in Second Language Teaching (3)**

This is an advanced course designed for practicing classroom teachers who want to further their knowledge of language acquisition/language teaching. It provides a critical understanding of basic concepts and principles in first and second language acquisition and teaching. The core of the course explicates processes of language acquisition viewed from major theories of first and second language acquisition and common issues within these major theories are presented and debated.

Using their classroom experiences, students will be able to critically examine language teaching methodologies derived and implied from first and second language acquisition theories and to apply them in their classrooms. This course requires active participation, group-reflections and self-critique, and completion of required readings; 20-30 hours of volunteer work in an ESL setting; and development of a professional growth portfolio including the four domains stated in the Penn State Model of Teacher Preparation (planning and preparing for student learning; teaching; inquiring and analyzing learning and teaching; and professionalism) and the competencies for English Usage and Developing Linguistic Awareness stated by the Pennsylvania Department of Education.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

Prerequisite: PA Instructional I or II teaching certificate

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WL ED 411** Methods of Teaching World Languages in Grades 1-5 (3) Exploration of the complexity of teaching World Languages and development of curricular designs for teaching in grades 1-5 schools.

### **WL ED 411 Methods for Teaching World Languages in Grades 1-5**

In this course prospective World Languages teachers will engage in a variety of theoretical, pedagogical and reflective events to explore the complex nature of language learning/teaching including (1) individual beliefs and knowledges, (2) issues related to language/power, (3) language/cultural diversity, and (4) development of curricular designs for teaching World Languages in grades 1 - 5. This course will be conducted in a workshop style. It will have three parallel strands: (a) we will review together basic concepts and principles of language learning/teaching through readings, class discussions and presentations; (b) make connections between the readings and the L2 experience in the Practicum-World Languages Teaching in grades 1-5 (WL ED 495B); and (c) as a group, the class will design thematic units, class plans, activities and didactic materials.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

Prerequisite: EDPSY 014EDTHP 115WL ED 295AWL ED 300

Concurrent: WL ED 495B

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WL ED 412W** Methods of Teaching World Languages in Grades 6-12 (3) Exploring the complexity of teaching World Languages and development of curricular designs for teaching World Languages in grades 6-12.

### **WL ED 412W Methods of Teaching World Languages in Grades 6-12 (3)**

The purpose of this course is to help students develop a principled approach to designing and implementing lessons in their World Language classroom. Specifically, students will work towards an understanding of the processes of developing abilities in a second language that acknowledges a range of theories and associated methods but that is also situated within a particular theoretical framework of language and language learning. In this way, students will be better positioned to make the myriad instructional decisions they will face in middle school and high school contexts, ranging from materials development to lesson planning and classroom management to assessment. This is a writing-intensive course. Students will engage in a variety of formal and informal writing activities both in and out of class. Taken together, these activities function to enhance students' abilities as both producers and consumers of a range of texts relevant to their teaching practice. In addition, writing is understood to be a process integral to the fulfillment of each of the course goals.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2010

Prerequisite: WL ED 411WL ED 495B

Concurrent: WL ED 495C

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WL ED 444** (CI ED 444) Language, Culture and the Classroom: Issues for Practitioners (3) Critical understanding of cultural linguistic diversity to facilitate the inclusion of English Language Learners in a globalized classroom.

**WL ED (CI ED) 444 Language, Culture and the Classroom: Issues for Practitioners (3)**

In this course we will focus on the issues of power raised by the use of Standard English as the school language while in its grounds there are an increasing number of students who are using more than one language/dialect to communicate. We will also discuss how language mutates into an exceptional hegemonic/counterhegemonic device central to the problematic regarding school socialization. Finally, we will critically understand teachers' and schools' roles in building a safe classroom where diversity of languages and cultures are welcome and encouraged.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Fall 2007

Prerequisite: WL ED 300 or WL ED 400

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WL ED 483** Evaluating Schools Performances and Programs with English Language Learners (ELLs) (3) Using/adapting multiple techniques to assess English Language Learners (ELLs) language and other school subjects.

**WL ED 483 Evaluating Schools Performances and Programs with English Language Learners (ELLs) (3)**

This course provides students with knowledge of a variety of assessment instruments to identify and monitor levels of second language and content proficiencies of English Language Learners (ELLs). Students will learn multiple assessment models used in English as a Second Language (ESL) programs. Students will establish connections between assessment and instruction for English Language Learners, as well as gain knowledge about services available, such as instructional support, multidisciplinary teams, and other assessment services for English Language Learners. This course requires active participation, group-reflections, discussions and activities as well as to develop a professional growth portfolio including the four domains stated in the Penn State model of Teacher Preparation (planning and preparing for student learning; teaching; inquiring and analyzing learning and teaching; and professionalism) and the competences for English Language Learners (ELLs) Language and Support Services Knowledge stated by the Pennsylvania Department of Education.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2004

Prerequisite: WL ED 300 or WL ED 400

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WL ED 495B** Field Experience for World Languages Teacher Preparation in Grades 1-5 (3) Practicum. Prospective World Language teachers demonstrate knowledge on second language learning/teaching and educational theories (Grades 1-5).

**WL ED 495B Field Experience for World Languages Teacher Preparation in Grades 1-5 (3)**

Practicum situation where Prospective World Language teachers will demonstrate acquired knowledge on second language learning/teaching and educational theories. Prospective World Language teachers will have assigned school placements and will attend a weekly seminar where issues in World Language learning and teaching will be discussed. At their assigned school placement, prospective World Language teachers will have many opportunities to observe/work with children in grades 1-5 (1) focusing on second language learning/teaching and the socio/cultural issues associated to classroom practices while implementing and self-evaluated own designed activities and lessons; (2) weekly seminars will engage students in reflective activities that will enable them to analyze each week's events; (3) inquiry projects on teaching and learning of World Languages.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: EDPSY 014EDTHP 115WL ED 295AWL ED 300 ; PA Act 34 and Act 151 Clearances required; FBI background information check; and Professional Liability insurance.

Concurrent: WL ED 411

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

**WL ED 495C** Field Experience for World Languages Teacher Preparation in Grades 6-12 (3) Practicum. Prospective World Language teachers demonstrate knowledge on second language learning/teaching and educational theories (Grades 6-12).

**WL ED 495C Field Experience for World Languages Teacher Preparation in Grades 6-12 (3)**

Practicum situation where prospective World Language teachers will demonstrate acquired knowledge on second language learning/teaching and educational theories. Prospective World Language teachers will have assigned school placements in grades 6-12 and will attend a weekly seminar where issues in World Language learning and teaching will be discussed. At

their assigned school placement, prospective World Language teachers will have many opportunities to observe/work with students in grades 6-12 (1) focusing on second language learning/teaching and the socio/cultural issues associated to classroom practices while implementing and self-evaluating their own designed activities and lessons, (2) weekly seminars will engage students in reflective activities that will enable them to analyze each week's events, and (3) inquiry projects on teaching and learning of World Languages.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2009

Prerequisite: WL ED 411;WL ED 495B ; PA Act 34 and Act 151 Clearances required; FBI background information check; and Professional Liability insurance.

Concurrent: WL ED 412

**Note :** Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.





## Associate Degree Programs

Majors that lead to two-year associate degrees are available at most of Penn State's undergraduate locations. These majors provide concentrated instruction to prepare graduates for specialized occupational assignments, except for the Letters, Arts, and Sciences major, which provides graduates with a general education and some specialization in their fields of interest.

More than twenty associate degree majors lead to either the Associate in Arts degree, the Associate in Engineering Technology degree, or the Associate in Science degree.

In addition, check out Penn State's World Campus for available two-year degrees at [www.worldcampus.psu.edu](http://www.worldcampus.psu.edu).

**Concurrent and Sequential Majors Programs**--At the baccalaureate or associate degree level, students may be approved for admission to more than one major under the Concurrent Majors program. A Concurrent Majors program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Concurrent majors must all be at the baccalaureate or associate degree level. Under the Sequential Majors program, upon graduation from an associate or baccalaureate degree program, a student may apply for re-enrollment in another undergraduate degree program.



**PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: December 18, 2013**

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## Agricultural Business

*Berks College  
University Park, College of Agricultural Sciences (2 AGB)*

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR JANELLE B. LARSON, *in charge, Berks College*  
PROFESSOR SPIRO STEFANOU, *Program Coordinator, College of Agricultural Sciences, Penn State University Park*

The Agricultural Business major helps prepare students for employment in commercial agriculture and businesses serving agriculture. Five options allow students to specialize in either Crop or Animal Production, Food Technology, Horticulture, or General Agribusiness Management, which provides training in management, business organization, and marketing.

The first two semesters are offered at selected locations, where students fulfill basic course requirements in accounting, business, English, and natural and social sciences. The second year at the University Park campus provides course work in livestock and crop production, food technology, horticulture, management, and agribusiness. Each option allows the student a choice of courses to satisfy special interests and needs. The Food Technology and Horticulture options can be completed at both University Park and at Penn State Berks, although some course substitutions may be necessary, as not all courses listed below are offered at both campuses.

For the Associate in Science degree in Agricultural Business, a minimum of 63 credits is required depending on the option chosen.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(9 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR. Requirements for certain options also will fulfill other general education requirements.)  
(See description of General Education in this bulletin.)

**ELECTIVES:** 3-5 credits

**REQUIREMENTS FOR THE MAJOR:** 45-48 credits

(This includes 9 credits of General Education courses: 6 credits of GWS courses; 3 credits of GS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 16 credits

**PRESCRIBED COURSES** (13 credits)

ENGL 015 GWS(3), CAS 100 GWS(3), ACCTG 211(4), AG BM 101 GS(3) [\[1\]](#) (Sem: 1-4)

**ADDITIONAL COURSES** (3 credits)

AG BM 200(3) [\[1\]](#) or MGMT 301(3) [\[1\]](#) (Sem: 1-2)

**REQUIREMENTS FOR THE OPTION:** 29-32 credits

**ANIMAL PRODUCTION OPTION:** (31-32 credits)

**PRESCRIBED COURSES** (13 credits)

AGRO 028(3), AN SC 201(4) [\[1\]](#), A S M 101(3), SOILS 101 GN(3) (Sem: 1-4)

**ADDITIONAL COURSES** (6-7 credits)

B A 243(4) or B LAW 243(3) or AG 301W(3) or B A 241(2) and B A 242(2) (Sem: 3-4)

AG BM 102(3) or AG BM 220(3) or MKTG 220(3) or MKTG 221(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits in animal science from AN SC 100(3), AN SC 207(2), AN SC 208(1), AN SC 301(3), AN SC 305(3), AN SC 306(3), AN SC 308(4), AN SC 309(4), AN SC 310(3), AN SC 311(4), AN SC 322(3), AN SC 324(3), and AN SC 327(3) (Note: some courses may have biology and/or chemistry prerequisites.) (Sem: 3-4)

**CROP PRODUCTION OPTION:** (30-31 credits)

**PRESCRIBED COURSES** (12 credits)

A S M 101(3), AGRO 028(3) [\[1\]](#), ENT 313(2) and ENT 316(1), SOILS 101 GN(3) (Sem: 3-4)

**ADDITIONAL COURSES** (6-7 credits)

B A 243(4) or B LAW 243(3) or AG 301W(3) or B A 241(2) and B A 242(2) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits from agronomy, agroecosystems science, horticulture or turfgrass science. (Note: some may have biology and/or chemistry or other prerequisites.) (Sem: 3-4)

**FOOD OPTION:** (29-30 credits)

(Note: some courses may have biology and/or chemistry prerequisites.)

**PRESCRIBED COURSES** (23 credits)

CHEM 110 GN(3), CHEM 111 GN(1), MICRB 106 GN(3), MICRB 107 GN(1), FD SC 200(3) [\[1\]](#), FD SC 201(1), FD SC 205(3), FD SC 206(3), MIS 204(2), NUTR 251 GHA(3) (Sem: 1-4)

**ADDITIONAL COURSES** (6-7 credits)

AG BM 102(3) or AG BM 220(3) or MKTG 220(3) or MKTG 221(3) (Sem: 3-4)

B A 243(4) or B LAW 243(3) or AG 301W(3) or B A 241(2) and B A 242(2) (Sem: 3-4)

**GENERAL OPTION:** (30-31 credits)

**PRESCRIBED COURSES** (15 credits)

AG BM 102(3), AG BM 106(3), AGRO 028(3), SOILS 101 GN(3), A S M 101(3) (Sem: 3-4)

**ADDITIONAL COURSES** (6-7 credits)

B A 243(4) or B LAW 243(3) or AG 301W(3) or B A 241(2) and B A 242(2) (Sem: 3-4)

AG BM 220(3) [\[1\]](#) or MKTG 220(3) [\[1\]](#), or MKTG 221(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 6 credits in agribusiness management or business (Sem: 3-4)

Select 3 credits in agronomy, animal science, agroecosystems science, horticulture, or other courses in agriculture. (Sem: 3-4)

**HORTICULTURE OPTION:** (30-31 credits)

**PRESCRIBED COURSES** (9 credits)

HORT 101 GN(3) [\[1\]](#), HORT 202(3), SOILS 101 GN(3) (Sem: 1-4)

**ADDITIONAL COURSES** (9-10 credits)

AG BM 102(3) or AG BM 220(3) or MKTG 220(3) or MKTG 221(3) (Sem: 3-4)

HORT 137(3) or HORT 138(3) (Sem: 3-4)

B A 243(4) or B LAW 243(3) or AG 301W(3) or B A 241(2) and B A 242(2) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits from horticulture, turfgrass science, agribusiness or business. (Note: some may have prerequisites.)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2006

Blue Sheet Item #: 34-03-001

Review Date: 6/9/08

UCA Revision #1: 8/2/06

AG

## Business Administration

Abington College (2BAAB)

Altoona College (2BAAL)

Berks College (2BABL)

Capital College (2BACA)

University College (2BACC): Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Hazleton, Penn State Mont Alto, Penn State New Kensington, Penn State Lehigh Valley, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York University College (2BACC): Via World Campus

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

The associate degree program in Business Administration provides a foundation in business that, through two options, prepares graduates for either entrance to the Bachelor of Science in Business (BSB) programs in business or for direct entry into the work place. The primary objective of this major is to provide a business-oriented program with sufficient communicative and mathematical skills, socially relevant course work, and specific business specialties to develop a well-rounded and knowledgeable graduate.

The General Business Option provides an introductory foundation to core aspects of the business environment while also preparing students for future transfer into the Bachelor of Science in Business (BSB).

The Professional Studies Option provides a technically oriented program that prepares students for direct entry into the work force. Because some of the course work in this option is not accepted in baccalaureate business programs, students are encouraged to work closely with faculty and staff advisers.

Students who plan to continue into BSB should meet with their advisers regarding entrance to major and other related requirements.

For the Associate in Science degree in Business Administration, a minimum of 60 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(9 credits of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 48-50 credits

(This includes 3 credits of GQ General Education courses and 6 credits of GWS General Education courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 30-31 credits

**PRESCRIBED COURSES** (13 credits)

CAS 100 GWS(3) (Sem: 2-4)

ACCTG 211(4), ENGL 202D GWS(3) [\[1\]](#), MIS 204(3) (Sem: 2-4)

**ADDITIONAL COURSES** (17-18 credits)

ENGL 015 GWS(3) [\[1\]](#) or ENGL 030 GWS(3) [\[1\]](#) (Sem: 1-2)

MATH 021 GQ(3), MATH 022 GQ(3), or MATH 110 GQ(4) (Sem: 1-2) [\[74\]](#)

B A 243(4) [\[1\]](#) or B A 241(2) [\[1\]](#) and B A 242(2) [\[1\]](#) (Sem: 1-4)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-4)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 2-4)

**REQUIREMENTS FOR THE OPTION:** 18-19 credits

(Both options may not be available at every campus.)

**GENERAL BUSINESS OPTION:** (18-19 credits)

**ADDITIONAL COURSES** (18-19 credits )

a) Select 3 credits from MGMT 301(3) [\[1\]](#) or MGMT 301W(3) [\[1\]](#) (Sem: 3-4)

b) Select 3 credits from MKTG 301(3) [\[1\]](#) or MKTG 301W(3) [\[1\]](#) (Sem: 3-4)

c) Select 12-13 credits from B A 250(3); CAS 250(3) or CAS 252(3); LER 100 GS(3) or LER 136 US(3); ECON 102 GS(3) or ECON 104 GS(3); MATH 022 GQ(3), MATH 110 GQ(4), MKTG 220(3) (Sem: 1-4)

**PROFESSIONAL STUDIES OPTION:** (18 credits) [\[75\]](#)

**ADDITIONAL COURSES** (18 credits )

Select 18 credits from ACCTG 151(3), ACCTG 152(3), ACCTG 153(3), ACCTG 160(3), B A 100 GS(3), B A 250(3); ECON 102 GS(3) or ECON 104 GS(3); CMPSC 140(3), FIN 100(3), FIN 108(3), H P A 101(3), IST 110 GS(3), IST 210(3), IST 220(3), IST 250(3), LER 100 GS(3), LER 136 US(3); MGMT 100(3) or MGMT 100W(3); MGMT 150(3), MIS 103(3), MIS 106(1-6); MIS 190(3), MKTG 220(3); MKTG 221(3) or MKTG 221W(3); R EST 100(3) (Sem: 1-4)

[\[1\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[\[74\]](#) Students should work closely with academic advisers to ensure the completion of any and all course work required for entrance to BSB.

[\[75\]](#) This Option is designed for students planning to enter the work force directly upon graduation. Some courses included in this option will not transfer into baccalaureate business programs. Students are encouraged to work closely with their advisers.

Last Revised by the Department: Fall Semester 2007

Blue Sheet Item #: 35-06-534

Review Date: 4/10/07

UCA Revision #1: 8/9/06

UCA Revision #2: 7/26/07

UC

## Biomedical Engineering Technology

University College: Penn State New Kensington (2 BET)

PROFESSOR MYRON HARTMAN, Program Coordinator, Penn State New Kensington

PROFESSOR IVAN M. ESPARRAGOZA, Director of Engineering Technology and Commonwealth Engineering, Penn State Brandywine

PROFESSOR SVEN BILÉN, Head, School of Engineering Design, Technology, and Professional Programs, Penn State University Park

The medical community has grown to depend on medical devices and systems to diagnose, treat and monitor patients in health care. These medical devices have become very complex systems, as they are becoming microprocessor controlled, PC based, and networked to share information. Biomedical Equipment Technicians (BETs) are specialized individuals who are educated and trained on the methods of: physiological measurement; equipment application and operation; safety, performance and preventive maintenance testing; calibration; problem solving; and troubleshooting. In addition, BETs may be involved in equipment and technology management programs, selection and installation of medical equipment, manufacturer and FDA recalls of medical devices, quality improvement programs, and training programs for hospital personnel in the safe and proper use of medical equipment. The classroom and laboratory portions of this major focus on electronically and PC based medical devices for patient monitoring and life-support equipment. The student is exposed to a much broader spectrum of medical equipment through a 400-hour (ten-week) practical internship in an approved health care facility.

### Program Educational Objectives

The BET major prepares graduates who, during the first few years of professional practice, will be able to:

1. Understand the use, application, operation, corrective actions, installations, acceptance testing and preventive maintenance (PMs) inspections on a wide range of medical devices.
2. Securing employment in the medical equipment maintenance profession, attempt professional certification or advance to a higher level of education.
3. Have an awareness, understanding and application of applicable standards, regulations, and quality improvement plans regarding medical equipment support.
4. Communicate effectively with co-workers, clinical professionals and other healthcare related professionals by functioning effectively on committees and by independent work.

### Program Outcomes (Student Outcomes)

The BET program outcomes are as follows:

- a) Understand use, application, operation, installation, acceptance testing, preventive maintenance, performance assurance and safety inspections (PMs) on select medical devices.
- b) Understand and apply a fundamental knowledge of electrical and electronic engineering technology fundamentals, components, circuits and networking fundamentals.
- c) Apply basic mathematical and scientific principles to identify, analyze and solve technical problems.
- d) Awareness and understand of diversity, professional and ethical responsibilities, applicable standards and regulations regarding medical equipment support.
- e) Work with fellow technicians, clinical professionals and other related professionals by functioning effectively on teams and by independent work.
- f) Communicate effectively with fellow technicians, clinical professionals and other related professionals.
- g) Recognize and understand the need for continued professional development, including formal and informal study.
- h) Recognize, observe and participate when possible in quality improvement programs, timeless and commitment to continuous improvement that support medical equipment and systems.
- i) The application of circuit analysis and design, analog and digital electronics, microcomputers, bioengineering systems, and safety in the building, testing, operation, and maintenance of biomedical equipment.
- j) The applications of physics, chemistry, and biological sciences to building, testing, operation, and maintenance of biomedical equipment in a rigorous mathematical environment at or above the level of algebra and trigonometry.

Students completing the 2 BET degree need only complete several additional courses to obtain the Associate in Engineering Technology degree in Electrical Engineering Technology. Graduates of the program may qualify for admission to the baccalaureate degree major in Electrical Engineering Technology offered at Penn State Harrisburg, Electrical and Computer Engineering Technology offered at Penn State Erie, and Electro-Mechanical Engineering Technology offered at Penn State Altoona, Berks, New Kensington and York.

For the Associate in Engineering Technology degree in Biomedical Engineering Technology, a minimum of 71 credits is required. This program is accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR) (See description of General Education in front of *Bulletin*.)

**REQUIREMENTS FOR THE MAJOR:** 62-63 credits

(This includes 12 credits of General Education courses: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses.)

**PRESCRIBED COURSES** (47 credits)

BE T 101(1), CHEM 101 GN(3), EET 105(3), CMPET 117(3), CMPET 120(1), ENGL 015 GWS(3), IST 110 GS(3) [\[1\]](#), IST 220(3) (Sem: 1-2)

BE T 201(5) [\[1\]](#), BE T 204W(5) [\[1\]](#), BE T 205(4) [\[1\]](#), CAS 100 GWS(3), PHYS 150 GN(3), RADSC 230(3) (Sem: 3-4)

BE T 203 (4) [\[1\]](#)[\[2\]](#) (Sem: 5)

**ADDITIONAL COURSE** (15-16 credits)

MATH 022 GQ(3) and MATH 026 GQ(3) or MATH 040 GQ(5) (Sem: 1-2)

BE T 202(4) [\[1\]](#) or BE T 206(4) [\[1\]](#) (Sem: 3-4)

BI SC 004 GN(3) or BIOL 141 GN(3) (Sem: 3-4)

Select 3 credits from the following technical courses: BE T 210(3), BE T 296(1-18), BE T 297(1-9), BIOL 129 GN(4), CMPET 211(3), CMPSC 101 GQ(3), EDSCN 100(3), EET 213W(5), EET 297(1-3), EG T 201(2) or MCH T 111(3) (Sem: 3-4)

[\[1\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[\[2\]](#) BE T 203(4) Internship must be the last course taken for the degree.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-026

Review Date: 01/10/2012

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

[Comments](#)

EN

Accreditation statement updated, per COE: 8/15/11

**PROGRAM CURRENTLY ON HOLD at PENN STATE Fayette;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: Summer Session 2014**

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## Building Engineering Technology

University College: Penn State Fayette (2 BLET)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR DAVID MEREDITH, *Program Coordinator, Penn State Fayette*  
PROFESSOR TINA MERLI, *Program Coordinator, Penn State Worthington Scranton*  
PROFESSOR IVAN M. ESPARRAGOZA, *Director of Engineering Technology and Commonwealth Engineering, Penn State Brandywine*  
PROFESSOR SVEN BILÉN, *Head, School of Engineering Design, Technology, and Professional Programs, Penn State University Park*

This major is designed to provide technically trained personnel between the level of high school graduate and professional engineer or architect to support the architectural design/construction industry, and technical support firms.

Graduates of the Building Engineering Technology major may qualify for admission to baccalaureate degree majors in Environmental Engineering Technology, Mechanical Engineering Technology, or Structural Design and Construction Engineering Technology offered at Penn State Harrisburg.

**ARCHITECTURAL ENGINEERING TECHNOLOGY OPTION:** This option helps prepare students to translate sketches and design concepts into working drawings and specifications, and to work with architects, structural engineers, and all phases of the building/construction industry.

### Program Educational Objectives

Graduates from the Architectural Engineering Technology option must:

1. Have the technical knowledge and skills to work in the professional sector and building industry.
2. Use critical thinking skills to solve complex and real world challenges and applications.
3. Communicate effectively using information technology when appropriate.
4. Possess workplace skills needed to function in a business environment.
5. Continue to learn and adopt emerging technology in formal and informal settings.

### Program Outcomes (Student Outcomes)

At graduation, an Architectural Engineering Technology Option graduate must have the following attributes:

- a) The knowledge and skills common to A/E/C and technical sales of building industry.
- b) The ability to continue into a 4-year technology program
- c) The ability to work as a team member to select, size and design components of building systems.
- d) The ability to prepare, interpret and present written and graphic documents, using IT when appropriate to a specific audience/client.
- e) Demonstrated basic knowledge of project management, decision making process, applicable design codes, ethics and professional growth, conflict resolution and ability to conduct meetings.

**BUILDING ENVIRONMENTAL SYSTEMS TECHNOLOGY OPTION:** This option helps prepare students for the heating, ventilating, air conditioning, and refrigeration (HVAC&R) industry as system designers, equipment sales representatives, building automation supervisors, and indoor air quality specialists.

### Program Educational Objectives

Graduates from the Building Environmental Systems Technology option must:

1. Have the technical knowledge and skills to work in the professional sector of the HVAC&R Industry.
2. Use critical thinking skills to solve complex real world problems and applications.
3. Communicate effectively using information technology when appropriate.
4. Possess the workplace skills needed to function well in a business environment.
5. Continue to learn and adapt emerging technologies in either formal or informal settings.

### Program Outcomes (Student Outcomes)

At graduation, a BEST Option graduate must have the following attributes:

- a) Knowledge and skills identified as critical and common to the design, technical sales, commissioning and building operation sectors of the HVAC&R industry.
- b) Ability to work as a team member to select, size and design an appropriate mechanical system for a given application.
- c) Ability to produce written documents, deliver oral presentations, develop, prepare and interpret graphical information, using information technology when appropriate, to a specific audience or client at a level of effectiveness expected of new employees.
- d) Demonstrate awareness of project management, the decision-making process, applicable design codes, appropriate ethics and professional conduct, teamwork and conflict resolution, ability to conduct a literature search.

For the Associate in Engineering Technology degree in Building Engineering Technology, a minimum of 72 credits is required. These options are accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 21 credits

(12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 63-64 credits

(This includes 12 credits of General Education courses: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 42 credits

**PRESCRIBED COURSES** (42 credits)

AE T 101(3) [\[11\]](#), AE T 102(3), AE T 103(3), CMPSC 101 GQ(3), EG T 101(1), EG T 102(1), ENGL 015 GWS(3), MATH 081 GQ(3), MATH 082 GQ(3), PHYS 150 GN(3) (Sem: 1-2)

AE T 204(3), AE T 210W(3) [\[11\]](#), CAS 100 GWS(3), MATH 083 GQ(4), PHYS 151 GN(3) (Sem: 3-4)

**REQUIREMENTS FOR THE OPTION:** 21-22 credits

**ARCHITECTURAL ENGINEERING TECHNOLOGY OPTION:** (21-22 credits)

**PRESCRIBED COURSES** (16 credits)

AE T 113(2), MCH T 111(3) (Sem: 1-2)

AE T 206(2), AE T 207(3), AE T 214(3) [\[11\]](#), AE T 215(3) (Sem: 3-4)

**ADDITIONAL COURSES** (5-6 credits)

Select 5-6 credits from the following technical courses: AE T 212(3), AE T 297(1-9), CHEM 101 GN(3), EET 100(3), EG T 201(2), EG T 297(1-9), IET 105(2), MATH 140 GQ(4), MATH 231(2), MATH 250(3), MCH T 213(3), MET 281(4) (Sem: 3-4)

**BUILDING ENVIRONMENTAL SYSTEMS TECHNOLOGY OPTION:** ( 21 credits)

**PRESCRIBED COURSES**(15 credits)

AE T 121(2), MET 281(4) (Sem: 1-2)

AE T 227(3), AE T 228(3), AE T 229(3) (Sem: 3-4)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from the following technical courses: AE T 212(3), AE T 297(1-9), CHEM 101 GN(3), EET 100(3), EG T 201(2), EG T 297(1-9), IET 105(2), MATH 140 GQ(4), MATH 231(2), MATH 250(3), MCH T 213(3), MET 281(4) (Sem: 3-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2006

Blue Sheet Item #: 34-03-017

Review Date: 11/22/05

UCA Revision #1: 8/20/06

UCA Revision #2: 7/26/07

EN

Accreditation statement updated, per COE: 8/15/11



## Criminal Justice

*Altoona College (2 CJ)*

PROFESSOR Peter M. Hopsicker, Division Head, Division of Education, Human Development, and Social Sciences

Students receiving an associate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships. This program includes study in law enforcement, courts, and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Associate in Science degree in Criminal Justice prepares students for entry-level positions in criminal justice or for study at the baccalaureate level.

For the Associate in Science in Criminal Justice, a minimum of 64 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(13 of these credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**ELECTIVES:** 27 credits

**REQUIREMENTS FOR THE MAJOR:** 29 credits<sup>[1]</sup>

(This includes 13 credits of General Education courses: 3 credits of GH courses; 4 credits of GQ courses; 6 credits of GS courses.)

**PRESCRIBED COURSES** (29 credits)

CRIMJ 100(3), PHIL 103 GH(3), SOC 012 GS(3), SOC 207(3), SOC 119 GS;US(4) (Sem: 1-4)

CRIMJ 210(3), CRIMJ 220(3), CRIMJ 230(3), STAT 200 GQ(4) (Sem: 3-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2009

Blue Sheet Item #: 37-06-009

Review Date: 4/14/09

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

AL

## Electrical Engineering Technology

*Penn State Erie, The Behrend College*  
*University College: Penn State Fayette, Penn State York (2 EET)*

PROFESSOR DAVID LOKER, *Program Coordinator, Penn State Erie, The Behrend College*  
 PROFESSOR ANDRZEJ GAPIŃSKI, *Program Coordinator, Penn State Fayette*  
 PROFESSOR KENNETH DUDECK, *Program Coordinator, Penn State Hazleton*  
 PROFESSOR MICHAEL MARCUS, *Program Coordinator, Penn State York*  
 PROFESSOR IVAN M. ESPARRAGOZA, *Director of Engineering Technology and Commonwealth Engineering, Penn State Brandywine*  
 PROFESSOR SVEN BILÉN, *Head, School of Engineering Design, Technology, and Professional Programs, Penn State University Park*

The Electrical Engineering Technology (2 EET) major helps prepare graduates for technical positions in the expanding fields of electronics, computers and microprocessors, instrumentation, and electrical equipment. The primary objective is to provide a broad foundation of theoretical and practical knowledge in the areas of electrical and electronic circuits, digital circuits, computers, electrical machinery, and programmable logic controls. The program also articulates with Pennsylvania Department of Education-approved Tech Prep programs. Secondary students who have graduated from a program covered by a signed Penn State Tech Prep Articulation Agreement may be eligible for special admission procedures and /or advanced placement.

### Program Educational Objectives

To produce graduates who, during the first few years of professional practice, will:

1. Demonstrate broad knowledge of electrical/electronics engineering technology practices to support design, application, installation, manufacturing, operation, and maintenance as required by their employer,
2. Apply basic mathematical and scientific principles for technical problem solving in areas which may include circuit analysis and analog and digital electronics, microprocessors, programmable logic control, and electrical machines,
3. Utilize computers and software in a technical environment,
4. Demonstrate competence in written and oral communication,
5. Work effectively as an individual and as a member of a multidisciplinary team,
6. Show awareness of social concerns and ethical/professional responsibilities in the workplace, and
7. Matriculate into a baccalaureate degree and/or continue their professional training and adapt to changes in the workplace, through additional formal or informal education."

### Program Outcomes (Student Outcomes)

Students should possess

- a) an ability to apply the knowledge, techniques, skills and modern tools of their disciplines to electrical engineering technology activities,
- b) an ability to apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge,
- c) an ability to conduct standard tests and measurements, and to conduct, analyze and interpret experiments,
- d) an ability to function effectively as a member of a technical team,
- e) an ability to identify, analyze and solve narrowly defined engineering technology problems,
- f) an ability to communicate effectively regarding electrical engineering technology activities,
- g) an understanding of the need for and an ability to engage in self-directed continued professional development, including engineering standards,
- h) an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity,
- i) a commitment to quality, timeliness and continuous improvement.

Graduates of the Electrical Engineering Technology major may qualify for admission to the baccalaureate degree majors in Electrical Engineering Technology or Computer Engineering Technology offered at Penn State Harrisburg, Capital College; the baccalaureate degree major in Electrical Engineering Technology at Penn State Erie, The Behrend College; or the baccalaureate degree major in Electro-Mechanical Engineering Technology offered at Penn State Altoona, Penn State New Kensington or Penn State York.

For the Associate in Engineering Technology degree in Electrical Engineering Technology, a minimum of 66 credits is required. This program is accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(15 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See General Education description in front of *Bulletin*.)

**REQUIREMENTS FOR THE MAJOR:** 60-61 credits

(This includes 15 credits of General Education courses: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses, 3 credits of GH or GS)

### PRESCRIBED COURSES (38 credits)

EET 105(3), CMPET 117(3) [\[1\]](#), CMPET 120(1); ENGL 015 GWS(3), MATH 022 GQ(3), MATH 026 GQ(3), MCH T 111(3), MCH T 112(1), MET 105(3) (Sem: 1-2)  
 CAS 100 GWS(3), CMPET 211(3), EE T 114(4) [\[1\]](#), EE T 118(1) [\[1\]](#), EET 212W(4) (Sem: 3-4)

### ADDITIONAL COURSES (22-23 credits)

EDSGN 100(3); or EG T 119(2) and EET 002S(1) (Sem: 1-2)  
 S T S 200 GS(3) or S T S 233 GH(3) or S T S 245 GS;IL(3) (Sem: 1-2)  
 PHYS 150 GN(3) or PHYS 250 GN(4) (Sem:3-4)

Select 13 additional credits from one of the following tracks **a** or **b**:

**a.** Students following the baccalaureate track must complete the following courses (10-11 credits):

EET 214(3); MATH 083 GQ(4) or MATH 140 GQ(4); CHEM 110 GN(3) and CHEM 111 GN(1) or PHYS 151 GN(3) or PHYS 251 GN(4) (Sem: 3-4)

Select at least 3 additional credits from the following technical courses:

BE T 201(5), BI SC 003 GN(3), CHEM 101 GN(3), CHEM 110(3), CHEM 111(1), CMPSC 101 GQ(3), CMPSC 201 GQ(3), EET 215(1), EET 275(3), EET 297(1-9), EMET 230(3), IST 210(4), IST 220(3), IST 221(3), MATH 141 GQ(4), TELCM 140(2) (Sem: 3-4)

**b.** Students following the general track must select at least 3 credits science from the following:

CHEM 110 GN(3) and CHEM 111 GN(1), PHYS 151 GN(3), PHYS 251 GN (4) (Sem: 3-4)

Select at least 10 additional credits from the following technical courses: BE T 201(5), BI SC 003 GN(3), CHEM 101 GN(3), CHEM 110 (3), CHEM 111(1), CMPSC 101 GQ(3), CMPSC 201 GQ(3), EET 214(3), EET 215(1), EET 275(3), EET 297(1-9), EMET 230(3), IST 210(4), IST 220(3), MATH 083 GQ(4) or MATH 140 GQ(4), MATH 141 GQ(4), PHYS 151 GN(3) or PHYS 251 GN(4), TELCM 140(2) (Sem: 3-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-066

Review Date: 04/12/2011

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

[Comments](#)

EN

Accreditation statement updated, per COE: 8/15/11

## Forest Technology

*University College: Penn State Mont Alto  
University Park, College of Agricultural Sciences (2 FORT)*

PROFESSOR CRAIG T. HOUGHTON, *in charge*

The objectives of the major are to train forestry field personnel in the technical aspects of evaluating, managing, and protecting forest resources. Laboratories held in the Michaux State Forest, adjacent to Penn State Mont Alto, stress field applications of classroom theory. Both written and oral communication skills are stressed in all courses. Graduates of the program are employed by private businesses including forestry consulting firms, sawmills, and other wood products manufacturers; public agencies including federal, state, and municipal forest resource management and recreation programs; urban tree service companies, pulp and paper manufacturers, surveying firms and landscaping firms, utility companies, and other businesses requiring personnel skilled in field inventory procedures, analysis, and presentation.

Some graduates transfer their credits to bachelor's degree programs such as forest science, wildlife and fisheries science, recreation and parks management, wood products, environmental resource management, soil science, biology, and business management.

For the Associate in Science degree in Forest Technology, a minimum of 67 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits  
(See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 46 credits

**PRESCRIBED COURSES** (40 credits)

FORT 100S(1), FORT 105(3) [\[1\]](#), FORT 120(2), FORT 150(3) [\[1\]](#) (Sem: 1)  
FORT 110(3) [\[1\]](#), FORT 130(2), FORT 140(3), FORT 160(3) [\[1\]](#) (Sem: 2)  
FORT 170(3), FORT 175(1) (Sem: Summer)  
FORT 200(1), FORT 220(4), FORT 230(2), MGMT 100W(3) (Sem: 3)  
FORT 240(3), FORT 250(3) (Sem: 4)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from FORT 210(3), FORT 260(3), WILDL 101(3), or WILDL 207(3) (Sem: 3-4)

NOTE: BIOL 110(4), CHEM 110(3), and MATH 110(4) are recommended for students planning to continue in the Forest Science baccalaureate program.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2009

Blue Sheet Item #: 38-02-001

Review Date: 10/06/09

UCA Revision #1: 8/4/06

AG

## General Business

*Penn State Erie, The Behrend College (2GBBC)*

PROFESSOR JOHN M. MAGENAU III, *Director, School of Business, Behrend College*

The associate degree major in General Business offers an introduction to several aspects of business. In addition, it provides a foundation that allows those students who qualify for admission to baccalaureate degree programs in business to make a smooth transition into four-year business majors offered at Penn State Erie, The Behrend College. The business coursework required by the major introduces students to basics of accounting, economics, management information systems, quantitative business analysis, business law, the social and ethical environment of business, finance, management, marketing, and supply chain management. To complete the major, students have the option of earning a certificate in Oracle or SAP, Enterprise Resource Planning (ERP) or Financial Planning. The general education and other requirements of the major provide an opportunity for students to strengthen their skills in oral and written communication and quantitative reasoning which are essential for success in business careers.

For the Associate in Science degree in General Business, a minimum of 61 credits is required.

*Recommended Scheduling by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)

See description of General Education in this bulletin.)

**FIRST YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selections)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in GENERAL EDUCATION course selections or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-1 Credit

**REQUIREMENTS FOR THE MAJOR:** 51-52 credits

(This includes 12 credits of General Education courses: 6 credits of GWS courses; 3 credits of GQ courses; 3 credits of GS courses.)

**PRESCRIBED COURSES** (34 credits)

ENGL 015 GWS(3), CAS 100 GWS(3) (Sem: 1-2)

ACCTG 211(4)[\[1\]](#), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3), MIS 204(3)[\[1\]](#) (Sem: 2-3)

FIN 301(3)[\[1\]](#), MGMT 301(3)[\[1\]](#), MKTG 301(3)[\[1\]](#), SCM 301(3)[\[1\]](#) (Sem: 3-4)

**ADDITIONAL COURSES** (11-12 credits)

MATH 021 GQ(3), MATH 022 GQ(3), or MATH 110 GQ(4) (Sem: 1-2)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 2-3)

B A 243(4) or B A 241(2) and B A 242(2) (Sem: 2-4)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from one of the following supporting course areas: General Education, Financial Planning[\[1\]](#), Oracle Business Suite Certificate[\[1\]](#), and SAP Certificate[\[1\]](#), or other 300-or 400-level business courses[\[1\]](#) in consultation with a faculty advisor (Sem: 3-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-03-013

Review Date: 11/08/2011

UCA Revision #1: 8/8/06

BD

## Information Sciences and Technology

*Berks College (2ISBL)*

*Continuing Education, University Park (2 IST)*

*University College: Penn State DuBois, Penn State Fayette, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York (2ISCC)*

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR MARY BETH ROSSON, *Associate Dean for Undergraduate Studies*

This associate degree major is structured to prepare graduates for immediate and continuing employment opportunities in the broad disciplines of information science and technology. This includes positions such as application programmers, associate systems designers, network managers, Web designers and administrators, or information systems support specialists. Specifically, the major is designed to ensure a thorough knowledge of information systems and includes extensive practice using contemporary technologies in the creation, organization, storage, analysis, evaluation, communication, and transmission of information. The major fosters communications, interpersonal, and group interaction skills through appropriate collaborative and active learning projects and experiences. Technical material covers the structure of database systems, Web and multi-media systems, and considerations in the design of information systems. Team projects in most courses, a required internship, and a second-year capstone experience provide additional, focused venues for involving students in the cutting-edge issues and technologies in the field.

The Associate of Science in IST degree will be offered at multiple campuses within the Penn State system of colleges and campuses. Note that not all options will be available at all locations.

**Baccalaureate Option:** This option provides maximum articulation with the baccalaureate degree. Students who complete this option will meet all lower division requirements for the baccalaureate degree. This is not the case with the remaining options, although the degree of articulation is quite high for all associate degree options.

**Generalized Business Option:** This option enables students to specialize in the general business areas of accounting, marketing, and management.

**Individualized Option:** This option enables students to work closely with an adviser to develop a plan of study that meets the dual objectives of allowing a flexible academic program and providing breadth of technical specialization. An example would be a program where a student would take some of the courses listed in the Web Administration option and the remainder in the Software option.

**Software Option:** This option prepares graduates for entry-level programming support positions in industry. Students take courses in Web programming, database programming, and other contemporary programming environments.

**Web Administration Option:** This prepares graduates for positions as Web administrators and Web programmers.

**Networking Option:** This option prepares graduates for positions as entry-level computer network administrators. Students take courses in personal computer hardware, networking essentials, and network administration.

**Data/Information Option:** This option prepares graduates for entry-level database support positions. Students take courses in relational database systems and database management.

**Industrial/Manufacturing Option:** This option prepares graduates for entry-level manufacturing information systems positions. Students take courses in electrical and mechanical systems, and business and industrial processes.

**Telecommunications Option:** This option prepares graduates for entry-level positions in the telecommunications industry. Students take courses in voice and data communications, protocols, networks, and wireless systems.

For the Associate in Science degree in IST, a minimum of 60 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(9-12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See the description of General Education in this bulletin.)

**ELECTIVES:** 2-6 credits

**REQUIREMENTS FOR THE MAJOR:** 45-47 credits

(This includes 9-12 credits of General Education courses, i.e., ALL options: 3 credits of GQ courses; 6 credits of GWS courses. The Baccalaureate Option also includes 3 credits of GS courses to equal a total of 12 credits that double count; the General Business Option also includes 0-3 credits of GS courses to equal 9-12 credits that double count.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 30 credits

**PRESCRIBED COURSES** (26 credits)

CMPSC 101 GQ(3) [11](#) (Sem: 1-2)

CAS 100B GWS(3), IST 110 GS(3) [11](#), IST 111S(1) [11](#), IST 210(4) [11](#), IST 220(3) [11](#), IST 250(3) [11](#), ENGL 015 GWS(3) (Sem: 1-2)

IST 260W(3) [11](#) (Sem: 3-4)

**ADDITIONAL COURSES** (4 credits)

ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 3-4)

IST 295A(1) [11](#) or IST 295B(1) [11](#) (Sem: 3-4)

**REQUIREMENTS FOR THE OPTION:** 15-18 credits

**BACCALAUREATE OPTION:** (17-18 credits)

**PRESCRIBED COURSES** (13 credits)

IST 230(3) [11](#) and IST 240(3) [11](#) (Sem: 3-4)

ECON 102 GS(3) (Sem: 3-4)

STAT 200 GQ(4) (Sem: 3-4)

**ADDITIONAL COURSES** (4 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

**GENERALIZED BUSINESS OPTION:** (15-16 credits)

**ADDITIONAL COURSES** (15-16 credits)

Select 15 credits in consultation with the adviser from the following list: (Sem:1-4)

ACCTG 151(3), ACCTG 152(3), ACCTG 153(3), ACCTG 160(3), ACCTG 170(3), ACCTG 211(4), B A 250(3), MKTG 220(3), MKTG 221(3), MKTG 310(3), MKTG 327(3), MGMT 100(3), MGMT 150(3), MGMT 321(3), MGMT 341(3)

ECON 102 GS(3), ECON 104 GS(3), or ECON 014 GS(3)

MATH 017 GQ(3), MATH 021 GQ(3), MATH 022 GQ(3), or MATH 026 GQ(3)

**INDIVIDUALIZED OPTION:** (15 credits)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits in consultation with an adviser that follow a coherent theme in information sciences and technology with a grade of C or better required for all IST [11](#) courses. (Sem: 1-4)

**SOFTWARE OPTION:** (15 credits)**PRESCRIBED COURSES** (12 credits)

CMPSC 302(3) (Sem: 2-4)

IST 211(3)[\[1\]](#), IST 247(3)[\[1\]](#), and IST 256(3)[\[1\]](#) (Sem: 3-4)**ADDITIONAL COURSES** (3 credits)

MATH 017 GQ(3), MATH 021 GQ(3), MATH 022 GQ(3), or MATH 026 GQ(3) (Sem: 1-2)

**NETWORKING OPTION:** (15 credits)**PRESCRIBED COURSES** (12 credits)IST 225(3)[\[1\]](#), IST 226(3)[\[1\]](#), IST 227(3)[\[1\]](#), and IST 228(3)[\[1\]](#) (Sem: 3-4)**ADDITIONAL COURSES** (3 credits)

MATH 017 GQ(3), MATH 021 GQ(3), MATH 022 GQ(3), or MATH 026 GQ(3) (Sem: 1-2)

**WEB ADMINISTRATION OPTION:** (15 credits)**PRESCRIBED COURSES** (12 credits)IST 255(3)[\[1\]](#), IST 256(3)[\[1\]](#), IST 257(3)[\[1\]](#), and IST 258(3)[\[1\]](#) (Sem: 3-4)**ADDITIONAL COURSES** (3 credits)

MATH 017 GQ(3), MATH 021 GQ(3), MATH 022 GQ(3), or MATH 026 GQ(3) (Sem: 1-2)

**MANUFACTURING OPTION:** (16 credits)**PRESCRIBED COURSES** (12 credits)IST 271(3)[\[1\]](#), IST 272(3)[\[1\]](#), IST 273(3)[\[1\]](#), and IST 274(3)[\[1\]](#) (Sem: 3-4)**ADDITIONAL COURSES** (4 credits)

MATH 110(4) or MATH 140(4) (Sem: 1-2)

**TELECOMMUNICATIONS OPTION:** (15 credits)**PRESCRIBED COURSES** (12 credits)IST 221(3)[\[1\]](#), IST 222(3)[\[1\]](#), IST 223(3)[\[1\]](#), and IST 224(3)[\[1\]](#) (Sem: 3-4)**ADDITIONAL COURSES** (3 credits)

MATH 017 GQ(3), MATH 021 GQ(3), MATH 022 GQ(3), or MATH 026 GQ(3) (Sem: 1-2)

**DATA/INFORMATION OPTION:** (15 credits)**PRESCRIBED COURSES** (12 credits)IST 211(3)[\[1\]](#), IST 212(3)[\[1\]](#), IST 213(3)[\[1\]](#), and IST 214(3)[\[1\]](#) (Sem: 3-4)**ADDITIONAL COURSES** (3 credits)

MATH 017 GQ(3), MATH 021 GQ(3), MATH 022 GQ(3), or MATH 026 GQ(3) (Sem: 1-2)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-059

Review Date: 04/09/2013

UCA Revision #2: 7/27/07

IS

**PROGRAM CURRENTLY ON HOLD at PENN STATE York;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: October 16, 2013**

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## Letters, Arts, and Sciences

*Abington College (2LAAB)*

*Altoona College (2LAAL)*

*Penn State Erie, The Behrend College (2LABC)*

*Berks College (2LABL)*

*Penn State Harrisburg (2LACA)*

*University College (2LACC): Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Hazleton, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango Valley, Penn State Wilkes-Barre, Penn State Worthington-Scranton, Penn State York*

*University Park, College of the Liberal Arts (2 LAS)*

*World Campus*

ASSOCIATE DEAN JOHN L. SELZER, *in charge, Penn State University Park*

The objectives of the Letters, Arts, and Sciences major are to broaden the student's understanding, interests, and skills; to help the student become a more responsible, productive member of the family and community; and to offer a degree program with sufficient electives to permit some specialization according to the student's interests or career plans. Letters, Arts, and Sciences is a complete two-year degree major. However, graduates who later seek admission to baccalaureate degree majors may apply baccalaureate credits toward the new degree.

In addition to a wide variety of baccalaureate majors offered at University Park campus, graduates of the Letters, Arts, and Sciences major may qualify for admission to the baccalaureate degree majors in Behavioral Sciences, Elementary Education, Humanities, or Public Policy offered at Penn State Harrisburg. Or they may qualify for any of a large number of baccalaureate degree majors offered by Penn State Erie, The Behrend College, in business, the liberal arts, and sciences.

For the Associate in Arts degree in Letters, Arts, and Sciences, a minimum of 60 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(6 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**ELECTIVES:** 15 credits

**REQUIREMENTS FOR THE MAJOR:** 30 credits#[\[1\]](#)

(This includes 6 credits of General Education GWS courses.)

**PRESCRIBED COURSES** (6 credits)

ENGL 015 GWS(3) (Sem: 1-2)

CAS 100 GWS(3) (Sem: 3-4)

**ADDITIONAL COURSE** (3 credits)

ENGL 202A GWS(3), ENGL 202B GWS(3), ENGL 202C GWS(3), or ENGL 202D GWS(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Select 3 credits in any course designated as arts\* (Sem: 1-4)

Select 3 credits in any course designated as humanities\* (Sem: 1-4)

Select 3 credits in any course designated as social and behavioral sciences\* (Sem: 1-4)

Select 3 credits in any course designated as physical, biological, or earth sciences\* (Sem: 1-4)

Select 9 credits in any one of the following areas\*: arts, humanities, social and behavioral sciences, natural sciences and quantification, and foreign language skills. (If foreign language courses are chosen, it is recommended that these courses be in one foreign language sequence.) (Sem: 1-4)

**[1]**A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**#**The required credits of General Education and Requirements for the Major must be baccalaureate-level courses. For students intending to seek admission to a baccalaureate program upon graduation, it is recommended that most, if not all, of the courses be at the baccalaureate level. For those students who will seek a bachelor of arts degree upon graduation from Letters, Arts, and Sciences, it is strongly recommended that a foreign language be taken since admission to a bachelor of arts program in the College of the Liberal Arts requires one college-level course, or the equivalent, in a foreign language.

\*Courses that will satisfy the arts, humanities, social and behavioral sciences, natural sciences, and quantification requirements are defined on the Letters, Arts, and Sciences checklist, which may be obtained from the College of the Liberal Arts associate dean for undergraduate studies at the University Park campus or from any Letters, Arts, and Sciences representative at other locations.

Last Revised by the Department: Summer Session 1988

Blue Sheet Item #: 16-10-044

Review Date: 10/8/02

Reviewed by Publications: 06/23/06

LA



## Mechanical Engineering Technology

*Penn State Erie, The Behrend College*  
*University College: Penn State DuBois, Penn State York (2 MET)*

PROFESSOR SVEN BILÉN, *Head, School of Engineering Design, Technology, and Professional Programs, Penn State University Park*  
 PROFESSOR IVAN ESPARROGAZA, *Director of Engineering Technology and Commonwealth Engineering, Penn State University Park*  
 PROFESSOR DAVID JOHNSON, *Program Coordinator, Penn State Erie, The Behrend College*  
 PROFESSOR DOUGLAS MILLER, *Program Coordinator, Penn State DuBois*  
 PROFESSOR MARSHALL COYLE, *Program Coordinator, Penn State York*

This major helps graduates prepare for technical positions in manufacturing, machine and tool design, computer drafting and design, computer integrated manufacturing, materials selection and processes, technical sales, and other related industries in mechanical applications. The primary objective of the program is to provide a broad foundation in mechanical systems and applications; computer systems in drafting (CAD), manufacturing (CAM), and automation and robotics (CIM); production and product design; mechanics, dynamics, and strength of materials. This program also articulates with Pennsylvania Department of Education-approved Tech Prep programs. Secondary students who have graduated from a program covered by a signed Penn State Tech Prep Articulation Agreement may be eligible for special admission procedures and/or advanced placement. Graduates of the Associate Degree in Mechanical Engineering Technology program will:

- Practice in the areas of applied design, manufacturing, testing, evaluation, technical sales, or 2D and 3D modeling.
- Communicate effectively and work collaboratively in multi-disciplinary teams.
- Learn and adapt to changes in a professional work environment.
- Demonstrate a high standard of professional ethics and be cognizant of social concerns as they relate to the practice of engineering technology.

Graduates of this major may qualify for admission to the baccalaureate degree majors in Mechanical Engineering Technology and Structural Design and Construction Engineering Technology programs at Penn State Harrisburg; the Mechanical Engineering Technology and the Plastics Engineering Technology programs at Penn State Erie, The Behrend College; or the baccalaureate degree major in Electro-Mechanical Engineering Technology offered at Penn State Altoona, Penn State Berks, Penn State New Kensington, or Penn State York.

For the Associate in Engineering Technology degree in Mechanical Engineering Technology, a minimum of 64 credits is required. This program is accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits  
 (15 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
 (See description of General Education in front of *Bulletin*.)

**REQUIREMENTS FOR THE MAJOR:** 58 credits  
 (This includes 15 credits of General Education courses: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses, 3 credits of GH or GS.)

**PRESCRIBED COURSES** (31 credits)  
 ENGL 015 GWS(3), CAS 100 GWS(3), CMPET 117(3), CMPET 120(1), MCH T 111(3) [\[1\]](#) (Sem: 1-2)  
 EG T 114(2), IET 215(2), IET 216(2), MCH T 213(3), MET 206(3) [\[1\]](#), MET 210W(3), PHYS 151 GN(3) (Sem: 3-4)

**ADDITIONAL COURSES** (27 credits)  
 EDSGN 100(3) or EG T 120(3) (Sem: 1-2)  
 MATH 026 GQ(3) or MATH 081 GQ(3) [\[2\]](#) (Sem: 1-2)  
 EET 100(3) or EET 105(3) (Sem: 1-2)  
 IET 101(3) [\[1\]](#) or MET 105 (3) [\[1\]](#) (Sem: 1-2)  
 MATH 022 GQ(3) or MATH 082 GQ(3) [\[2\]](#) (Sem: 1-2)  
 MCH T 112(1) or MCH T 214(1) (Sem: 1-2)  
 S T S 200 GS(3) or S T S 233 GH(3) or S T S 245 GS;IL(3) (Sem: 1-2)

Select at least 8 credits from one of the following tracks a, b, or c:

**a) General Track**

AE T 297(1-9), CHEM 101 GN(3), CHEM 110 GN(3), CHEM 111 GN(1), CMPSC 101 GQ(3); EDSGN 210(2) or EG T 201(2); EET 100(3), EET 114(4), EET 118(1), EG T 297(1-9), IET 105(2), IET 109(3), IET 297(1-9), IST 110 GS(3), IST 210(4), IST 220(3), IST 250(3), MATH 083 GQ(4) or MATH 140 GQ(4) [\[3\]](#), MET 281(4), SUR 111(3), or select 3 credits in consultation with an advisor from 200-level MET courses (Sem: 3-4)

**b) CAD/IST Track**

EG T 201(2) (Sem: 3-4)  
 IST 210(4) or IST 220(3) or IST 250 (3) (Sem: 3-4)  
 Select 3 credits in consultation with an advisor from MET 200-level courses (Sem: 3-4)

**c) Baccalaureate Degree Track**

CHEM 110 GN(3); EDSGN 210(2) or EG T 201(2); EET 114(4), MATH 140 GQ(4), STAT 200 GQ(4) (Sem: 3-4)

[\[1\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[\[2\]](#) Students pursuing the baccalaureate track must take MATH 022 and MATH 026

[\[3\]](#) Students who choose to take MATH 081 and MATH 082 must select MATH 083. Students who choose to take MATH 022 and MATH 026 must select MATH 140.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-068

Review Date: 04/12/2011

UCA Revision #1: 8/3/06

UCA Revision #2: 7/30/07

[Comments](#)

EN

Accreditation statement updated by Publications, per COE: 8/15/11

## Medical Laboratory Technology

*University College (2 MLT): Penn State Hazleton*

This two-calendar-year Medical Laboratory Technology major (four semesters, two summer sessions) is designed to provide the necessary general and technical training for hospital personnel between the level of the medical laboratory technician (certificate program) and the medical technologist (baccalaureate program). The course of study includes one year of intensive clinical experience at an affiliated hospital and the theoretical background necessary for the clinical procedures performed by the certified medical laboratory technician (associate degree program). Upon completion of program requirements, the student receives the associate degree and is eligible to sit for examinations leading to certification and registry as a medical laboratory technician.

The Medical Laboratory Technology Program at Penn State Hazleton is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS, 5600 N. River Rd, Suite 720, Rosemont, IL 60018-5119, Phone 847-939-3597 Website: <http://www.naacls.org>).

Graduates of this accredited MLT program are eligible to take national certification examinations such as the American Society of Clinical Pathology (ASCP) Board of Certification exam, to become certified as an MLT (ASCP).

For the Associate in Science degree in Medical Laboratory Technology, a minimum of 72 credits is required. (Scheduling of courses in summer session depends on campus location.)

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(12 of the 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 63-65 credits

(This includes 12 credits of General Education courses: 3 credits of GWS courses; 6 credits of GN courses; 3 credits of GQ courses.)

**PRESCRIBED COURSES** (56 credits)

BIOL 141 GN(3), BIOL 142(1), CHEM 110 GN(3), CHEM 111 GN(1), MICRB 201(3), MICRB 202(2) (Sem: 1-2)

CAS 100 GWS(3), CHEM 202(3), ENGL 015 GWS(3), MICRB 150(4)[\[1\]](#), MIS 103(3) (Sem: 1-2, Summer)

MICRB 151A(5)[\[1\]](#), MICRB 151B(5)[\[1\]](#), MICRB 151C(4)[\[1\]](#), MICRB 151D(2)[\[1\]](#), MICRB 151E(2)[\[1\]](#), MICRB 151F(2)[\[1\]](#), MICRB 151G(2)[\[1\]](#), MICRB 151W(5)[\[1\]](#) (Sem: 3-4)

**ADDITIONAL COURSES** (7-9 credits)

BIOL 110 GN(4) or BIOL 129 GN(4) (Sem: 1-2, Summer)

MATH 021 GQ(3), MATH 022 GQ(3), MATH 026 GQ(3), MATH 040 GQ(5), MATH 081 GQ(3), MATH 110 GQ(4), MATH 140 GQ(4); or STAT 200 GQ(4); or STAT 250 GQ(3) (Sem: 1-2)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-04-066

Review Date: 01/14/2014

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

UC

## Physical Therapist Assistant

*University College (2 PTA): Penn State DuBois, Penn State Fayette, Penn State Hazleton, Penn State Mont Alto, Penn State Shenango*

PROFESSOR THOMAS E. GLUMAC, *Director, Penn State Mont Alto*  
 PROFESSOR BARBARA E. REINARD, *Coordinator, Penn State DuBois*  
 PROFESSOR STACY A. SEKELY, *Coordinator, Penn State Fayette*  
 PROFESSOR ROSE PETRILLA, *Coordinator, Penn State Hazleton*  
 PROFESSOR GIZELLE DEAN, *Coordinator, Penn State Shenango*

This major helps prepare individuals to become skilled technical health workers who assist the physical therapist in patient treatment. Students develop knowledge and skills in the appropriate use of equipment and exercise associated with various physical therapy treatment interventions. In order to accomplish these tasks, the curriculum combines general education, science, and technical courses specifically designed for the physical therapist assistant. The program culminates with a full-time clinical experiences.

The size of each entering class is limited so that optimal clinical experiences and practical application situations can be maintained. Students are admitted into the program only during the fall semester and must progress through the program in the prescribed manner. Clinical affiliations are maintained over a wide geographical area. Students may be required to make special housing and transportation arrangements during the clinical phase. In order to accommodate the clinical practicum, this major requires five semesters to satisfy graduation requirements.

In addition to a PTA certification/licensure, many state licensing boards and clinical facilities require a criminal background check, child abuse clearance, and a drug screening. PTA students are required to obtain FBI background and child abuse clearances for the program prior to the beginning of clinical education courses and may be required to successfully complete a drug screen. Students will be responsible for purchasing the necessary checks/clearances through a University-required vendor. Students with criminal records should contact the physical therapy licensing board in the state they plan to practice prior to applying for admission to the PTA Program to inquire about potential restrictions for licensure.

The Associate of Science degree in Physical Therapist Assistant at Penn State is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 1111 North Fairfax Street, Alexandria, Virginia 22314; telephone: 703-706-3245; email: [accreditation@apta.org](mailto:accreditation@apta.org); website: <http://www.capteonline.org>. Graduation from a physical therapist assistant education program accredited by CAPTE is necessary for eligibility to sit for the licensure examination, which is required in all states.

Penn State DuBois is seeking accreditation of a new physical therapist assistant education program from CAPTE. The program has submitted an Application for Candidacy, which is the formal application required in the pre-accreditation stage. Submission of this document does not assure that the program will be granted Candidate for Accreditation status. Achievement of Candidate for Accreditation status is required prior to implementation of the professional phase of the program; therefore, no students may be enrolled in professional courses until Candidate for Accreditation status has been achieved. Further, though achievement of Candidate for Accreditation status signifies satisfactory progress toward accreditation, it does not assure that the program will be granted accreditation.

For the Associate in Science degree in Physical Therapist Assistant, a minimum of 68 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(9-12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
 (See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 59-61 credits

(This includes 9-12 credits of General Education courses: 3-6 credits of GWS courses; 3 credits of GN courses; 3-6 credits of GS courses.)

**PRESCRIBED COURSES** (45 credits)

BIOL 129 GN(4) [\[1\]](#), BIOL 141 GN(3) [\[1\]](#), BIOL 142(1) [\[1\]](#), ENGL 015 GWS(3), P T 100(3) [\[1\]](#), PSYCH 100 GS(3) (Sem: 1-2)  
 P T 290 (1) [\[1\]](#), P T 384(4) [\[1\]](#), P T 395E(3) [\[1\]](#)\* (Sem: 3-4)  
 P T 150(2) [\[1\]](#), P T 160(3) [\[1\]](#), P T 250(4) [\[1\]](#), P T 260(3) [\[1\]](#) (Sem: 3-5)  
 P T 395F(4)\* [\[1\]](#), P T 395G(4)\* [\[1\]](#) (Sem: 5)

**ADDITIONAL COURSES** (14-16 credits)

Select 1 credit from KINES 013(1) or KINES 303 GHA(3) (Sem: 1-4)  
 Select 3 credits from ENGL 202C GWS(3) or PSYCH 212 GS(3) (Sem: 1-5)  
 Select 2-3 credits from any P T course not listed above in prescribed or additional courses [\[1\]](#) (Sem: 1-5)  
 Select 4 credits from P T 270(3-4) [\[1\]](#), P T 270A(3-4) [\[1\]](#), or P T 270W(4) [\[1\]](#) (Sem: 2-4)  
 Select 4-5 credits from P T 280(4-5) [\[1\]](#) or P T 280W(4-5) [\[1\]](#); or P T 281(2) [\[1\]](#) and P T 282(3) [\[1\]](#) or P T 280W(3) [\[1\]](#) (Sem: 3-4)

**[1]**A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

\*Courses that include clinical education experiences may require the student to travel long distances or obtain housing near the assigned clinic. Housing and transportation arrangements are the responsibility of the student.

Lasted Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-118

Review Date: 04/08/2014

UCA Revision #1: 8/9/06

DS/MA/HN/SV

## Radiological Sciences

*University College: Penn State New Kensington (2RSCC), Penn State Schuylkill (2RSCC)*

For students interested in pursuing an education in the paramedical field of radiography (radiologic technology), the radiological sciences major meets the educational and clinical requirements for the graduate to function as an entry-level radiographer. Required course work is divided into three interrelated areas including general education, radiography specific, and clinical education components. During the clinical education component, students perform radiographic exams under the directed supervision of certified radiographers at multiple area clinical education settings. The clinical component emphasizes the concepts of team practice and patient-centered care. Both the radiography-specific course work and the clinical component are structured sequentially over seven consecutive semesters, commencing each fall semester. Upon successful completion of the 72-credit associate degree, the graduate will be eligible to attempt the American Registry of Radiologic Technologists (ARRT) examination for certification.

For the Associate in Science degree in Radiological Sciences, a minimum of 72 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(15 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 66 credits

(This includes 15 credits of General Education courses: 3 credits of GH courses; 3 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

**PRESCRIBED COURSES** (66 credits)

BIOL 129 GN(4)[\[1\]](#), BIOL 141 GN(3), ENGL 015 GWS(3), MATH 021 GQ(3), RADSC 101(4)[\[1\]](#), RADSC 102(4)[\[1\]](#), RADSC 110(3)[\[1\]](#), RADSC 295(2.5)[\[1\]](#) (Sem: 1-2)

RADSC 103(3)[\[1\]](#), RADSC 210W(3)[\[1\]](#), RADSC 295(1)[\[1\]](#) (Sem: 3)

CMPSC 101 GQ(3), PHIL 103 GH(3), RADSC 204(3)[\[1\]](#), RADSC 205(3)[\[1\]](#), RADSC 220(3)[\[1\]](#), RADSC 230(3)[\[1\]](#), RADSC 295(2.5)[\[1\]](#) (Sem: 4-5)

RADSC 206(3)[\[1\]](#), RADSC 240(2)[\[1\]](#), RADSC 295(1)[\[1\]](#) (Sem: 6)

RADSC 207(4)[\[1\]](#), RADSC 295(2)[\[1\]](#) (Sem: 7)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2002

Blue Sheet Item #: 30-03-073

Review Date: 12/19/07

CL/UC

## Science

Altoona College (2SCAL)

The Science major is designed primarily to provide for the basic educational needs of students who want to pursue professional programs in various scientific or medical fields. The program provides a fundamental group of science courses of value to those who seek positions in government or industry where such knowledge is necessary or desirable. The program offers sufficient flexibility to meet diverse academic and career goals.

Graduates of the of the program may qualify for admission to the baccalaureate degrees in science. Students planning on continuing in baccalaureate degrees are encouraged to work closely with their advisers.

For the Associate in Science degree in Science, a minimum of 67 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(15 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 61 credits

(This includes 15 credits of General Education courses: 3 credits of GN courses; 3 credits of GQ courses; 3 credits of GWS courses; 3 credits of GH courses; 3 credits of GQ, GWS, GH, or GN courses.

**PRESCRIBED COURSES** (14 credits)

BIOL 110 GN(4)[\[1\]](#), CAS 100 GWS(3)[\[1\]](#), CHEM 110 GN(3)[\[1\]](#), CHEM 111 GN(1)[\[1\]](#) ENGL 015 GWS(3)[\[1\]](#) (Sem: 1-4)

**ADDITIONAL COURSES** (22-27 credits)

(*Note: PHYS 250 and PHYS 251 and MATH 140 are recommended for students planning to continue in baccalaureate programs of science.*)

Select 4-6 credits from MATH 022 GQ(3), MATH 026 GQ(3), or MATH 040 GQ(5), or MATH 140 GQ(4) (Sem: 1-2)

Select 3-4 credits from STAT 200 GQ(4), STAT 220(3), STAT 250 GQ(3) (Sem: 1-4)

Select 3 credits from PHIL 002 GH(3), PHIL 103 GH(3), PHIL 103W GH(3), PHIL 110 GH(3), PHIL 118 GH(3), PHIL 221 GH(3) (Sem: 1-4)

Select 3 credits from CMPSC 100(3), MIS 103(3), CMPSC 101 GQ(3) (Sem: 1-4)

Select 6-8 credits from PHYS 150 GN(3) and PHYS 151 GN(3) or PHYS 250 GN(4) and PHYS 251 GN(4) (Sem: 2-4)

Select 3 credits from CHEM 112 GN(3), CHEM 202(3) (Sem: 2-4)

**SUPPORTING COURSES AND RELATED AREAS** (20-25 credits)

Select 20-25 credits from approved departmental list of BIOLOGICAL/MATH/PHYSICAL SCIENCES (Sem: 1-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2002

Blue Sheet Item #: 30-03-074

Review Date: 11/22/02

UCA Revision #1: 8/14/06

UC/AL/CL

## Surveying Engineering Technology

University College: Penn State Wilkes-Barre (2 SRT)

PROFESSOR WESLEY PARKS, Program Coordinator, Penn State Wilkes-Barre  
 PROFESSOR IVAN M. ESPARRAGOZA, Director of Engineering Technology and Commonwealth Engineering, Penn State Brandywine  
 PROFESSOR SVEN BILÉN, Head, School of Engineering Design, Technology, and Professional Programs, Penn State University Park

The Surveying Engineering Technology major provides the basic undergraduate education required for private and public service as a technician in the surveying profession. Basic knowledge is provided in the areas of boundary, construction, topographic, and photogrammetric surveying. The curriculum is designed to develop an individual understanding of the skills and equipment needed to make precise surveying measurements.

### Program Educational Objectives

Specific educational objectives of the program are to prepare graduates who, after the first few years of their surveying careers:

1. Proficiently apply basic principles and methods of surveying practice to perform surveys and analyze results
2. Effectively convey technical and professional information in written, verbal, and graphic forms, as individuals and as members of a professional team
3. Demonstrate their recognition of the importance of professional organizations for their development as surveying technologists
4. Demonstrate their recognition of the need for continuous, life-long learning

### Program Outcomes (Students Outcomes)

The SRT program has adopted for its program student outcomes the following outcomes as listed in the general criteria of the TAC of ABET "Criteria for Accrediting Engineering Technology Programs, 2012-2013." Each program must demonstrate that graduates have:

- a) an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities;
- b) an ability to apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge;
- c) an ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments;
- d) an ability to function effectively as a member of a technical team;
- e) an ability to identify, analyze, and solve narrowly defined engineering technology problems;
- f) an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- g) an understanding of the need for and an ability to engage in self-directed continuing professional development;
- h) an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity; and
- i) a commitment to quality, timeliness, and continuous improvement.

Also adopted are the following TAC of ABET's Program Criteria for Surveying/Geomatics Engineering Technology Programs, 2012-2013. Associate degree programs must demonstrate that graduates are capable of:

- a) Utilizing modern measurement technologies to acquire spatial data;
- b) Employing industry-standard software to solve technical problems.

Graduates of the Surveying Engineering Technology major may qualify for admission to the baccalaureate degree majors in Surveying Engineering at Penn State Wilkes-Barre or Structural Design and Construction Engineering Technology at Penn State Harrisburg.

For the Associate in Engineering Technology degree in Surveying Engineering Technology, a minimum of 67 to 70 credits is required. This program is accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org)

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 21 credits

(12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
 (See description of General Education in this bulletin.)

### REQUIREMENTS FOR THE MAJOR: 58-61 credits

(This includes 12 credits of General Education courses: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses.)

### PRESCRIBED COURSES (31 credits)

SUR 111(4) [1], SUR 162(3) [1] (Sem: 1-2)

SUR 212(4), SUR 222(3), SUR 241(3), SUR 262(2), SUR 272(3) [1], SUR 313(3), SUR 362(3), SUR 372W(3) (Sem: 3-4)

### ADDITIONAL COURSES (27-30 credits)

CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 1-2)

EDSGN 100(3); or EG T 101(1), EG T 102(1) and ET 002(1) (Sem: 1-2)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 3-4)

MATH 022 GQ(3) and MATH 026 GQ(3); or MATH 040 GQ(5) (Sem: 1-2)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 3-4)

PHYS 150 GN(3) or PHYS 211 GN(4) or PHYS 250 GN(4) (Sem: 1-2)

PHYS 151(3) or PHYS 212 GN(4) or PHYS 251 GN(4) (Sem: 3-4)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-070

Review Date: 04/12/2011

UCA Revision #2: 7/30/07

EN

Accreditation statement updated, per COE: 8/15/11

## Turfgrass Science and Management

University Park, College of Agricultural Sciences (2 TSM)  
World Campus

PROFESSOR ANDREW S. McNITT, Program Coordinator  
445 ASI Building  
814-863-1368  
asm4@psu.edu

The Turfgrass Science and Management (2 TSM) major prepares graduates for the Bachelor of Science in Turfgrass Science (TURF) program or direct entry into the work place. The primary objective of this major is to train current/future turfgrass facility managers in communicative and mathematical skills, and initiate student mastery of technical aspects unique to management of turfgrass systems.

Graduates of this program are qualified to support golf course, landscape, and athletic field maintenance operations; production of sod commodities; equipment sales and service; and technical research programs. Graduates may also apply their credits to pursue completion of Baccalaureate programs such as Soil Science, Environmental Resource Management, Recreation and Parks Management, and Turfgrass Science (TURF). Students who plan to continue in the TURF degree program should meet with their advisors regarding entrance to major and other requirements.

For the Associate in Science degree in Turfgrass Science and Management, a minimum of 61 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits  
(15 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this Bulletin.)

**UNITED STATES CULTURES OR INTERNATIONAL CULTURES:**  
(Included in ELECTIVES or SUPPORTING COURSES AND RELATED AREAS course selections) (Sem: 1-4)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR) (Sem:1-4)

**ELECTIVES:** 3 credits (Sem: 1-4)

**REQUIREMENTS FOR THE MAJOR:** 52 credits  
(This includes 15 credits of General Education courses: 6 credits of GN courses; 3 credits of GQ courses; 3 credits of GWS courses; 3 credits of GH courses.)

**PRESCRIBED COURSES** (31 credits)  
BIOL 011 GN(3), CHEM 202(3), ENGL 015 GWS(3), ENT 317(3)[\[11\]](#), MATH 021 GQ(3), PHIL 103W GH(3), SOILS 101 GN(3)[\[11\]](#), TURF 230(1)[\[11\]](#), TURF 235(3)[\[11\]](#), TURF 238(3)[\[11\]](#), TURF 295(3) (Sem: 1-4)

**ADDITIONAL COURSES** (3 credits)  
Select 3 credits from CHEM 101 GN(3) or CHEM 110 GN(3) (Sem: 1-2)

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)  
Select 9 credits from department professional agriculture list (Sem: 1-4)  
Select 9 credits from department professional management and economics list, 3 of the 9 credits must be from bolded sub-list (Sem: 1-4)

[\[11\]](#)Classes in which students pursuing the 2 TSM degree must earn a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-03-004

Review Date: 11/13/2012

## Wildlife Technology

*University College: Penn State DuBois  
University Park, College of Agricultural Sciences (2 WLT)*

PROFESSOR CHARLES P. SCHAADT, *in charge*, Penn State DuBois

The Wildlife Technology major helps prepare students in the techniques of wildlife management. Personnel trained in this field are needed to assist in the applied phases of natural resource management, wildlife biology, range management, and the care, maintenance, and propagation of animals. Graduates should be able to support professionals in wildlife biology, park managers, game refuge managers, and laboratory technicians in research.

For the Associate in Science degree in Wildlife Technology, a minimum of 66 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits  
(See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 45 credits

**PRESCRIBED COURSES** (45 credits)

FORT 150(3), FORT 160(3), ENGL 202C(3), WILDL 101(3) [\[1\]](#), WILDL 103(3) [\[1\]](#), WILDL 106(4) (Sem: 1-2)  
AG 113(1), FOR 242(3), KINES 013 GHA(1), WILDL 204(4), WILDL 207(3), WILDL 208(3) [\[1\]](#), WILDL 209(4), WILDL 211(4), WILDL 213(3) (Sem: 3-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-05-002

Review Date: 3/6/07

AG



## Human Development and Family Studies

Altoona College (2FSAL)

University College (2FSCC): Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Mont Alto, Penn State Schuylkill, Penn State Shenango, Penn State Worthington Scranton, Penn State York  
World Campus

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

For more information, contact: Mary Jo Spicer, S-120 Henderson Building

This major integrates practical and academic experiences to provide the student with entry-level professional competence in the human service field. The objective of the major is to offer a general education background, a knowledge base in life span and family development, and a core of professional skills that may be applied in program planning and service delivery activities. The major is offered part-time, in the evening, and through independent learning.

**ADULT DEVELOPMENT AND AGING SERVICES OPTION:** This option is designed to prepare students for a wide variety of service roles in mental health facilities, nursing homes and other institutions for the aged, area agencies on aging, public welfare and family service agencies, women's resource centers, human relations programs, employee assistance programs and customer services and consumer relations programs in business and industry. An improved field experience in any of a wide variety of settings that serve adults, the aged, and their families, is required for this option.

**CHILDREN, YOUTH, AND FAMILY SERVICES OPTION:** This option is designed to prepare students for service roles in preschools; day care centers; hospitals; institutional and community programs for emotionally disturbed, abused, or neglected children and adolescents; as well as a variety of public welfare and family service agencies. An approved field experience in a children, youth, or family services setting is required for this option.

**EARLY CHILDHOOD CARE AND EDUCATION OPTION:** This option is designed to increase professional capabilities in child care training in regard to issues of quality, affordability, and accessibility of programming. The primary foci are on language, literacy, and science reasoning. In the course work, there is a blending of theory and practice that requires experience in a group setting with young children. Courses concentrate on infants and toddlers as well as older preschoolers. Each course has a strong parent/family communications component and stresses observation techniques appropriate for assessing and evaluating the development of young children.

For the Associate in Science degree in Human Development and Family Studies, a minimum of 60 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(15 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**ELECTIVES:** 0-3 credits

**REQUIREMENTS FOR THE MAJOR:** 51-55 credits

(This includes 15 credits of General Education courses: 6 credits of GWS courses; 3 credits of GS courses; 3 credits of GN courses; and 3 credits of GQ courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 30-31 credits

**PRESCRIBED COURSES** (21 credits)

CAS 100 GWS(3), ENGL 015 GWS(3), HD FS 129 GS(3) [\[1\]](#), HD FS 301(3) [\[1\]](#), PSYCH 100 GS(3) (Sem: 1-2)  
HD FS 395(6) (Sem: 3-4)

**ADDITIONAL COURSES** (9-10 credits)

EDPSY 101 GQ(3) [\[1\]](#), STAT 100 GQ(3) [\[1\]](#), or STAT 200 GQ(4) [\[1\]](#) (Sem: 1-2)  
HD FS 315 US(3) [\[1\]](#) or SOC 030 GS(3) (Sem: 3-4)  
BIOL 141 GN(3), BIOL 155 GN(3), or BI SC 004 GN(3) (Sem: 3-4)

**REQUIREMENTS FOR THE OPTION:** 21-24 credits

**ADULT DEVELOPMENT AND AGING SERVICES OPTION:** (21 credits)

**PRESCRIBED COURSES** (6 credits)

HD FS 249 GS(3) [\[1\]](#), HD FS 311(3) [\[1\]](#) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits in consultation with the adviser from University-wide offerings that enhance competence in the option (Sem: 1-4)

**CHILDREN, YOUTH, AND FAMILY SERVICES OPTION:** (24 credits)

**PRESCRIBED COURSES** (9 credits)

HD FS 229 GS(3) [\[1\]](#), HD FS 239 GS(3) [\[1\]](#), HD FS 311(3) [\[1\]](#) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits in consultation with the adviser from University-wide offerings that enhance competence in the option (Sem: 1-4)

**EARLY CHILDHOOD CARE AND EDUCATION OPTION:** (24 credits)

**PRESCRIBED COURSES** (24 credits)

HD FS 229 GS(3) [\[1\]](#), HD FS 230(3) [\[1\]](#), HD FS 231(3) [\[1\]](#), HD FS 311(3) [\[1\]](#) (Sem: 1-2)  
HD FS 232(3) [\[1\]](#), HD FS 233(3) [\[1\]](#), HD FS 234(3) [\[1\]](#), HD FS 330(3) [\[1\]](#) (Sem: 3-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2005

Blue Sheet Item #: 33-03-026

Review Date: 12/19/07

UCA Revision #1: 8/8/06

HH

## Hotel, Restaurant, and Institutional Management

*Berks College  
University Park, College of Health and Human Development (2HRIM)*

JENNIFER P. WAKEMAN, *Coordinator, Penn State Berks*

The Hotel, Restaurant, and Institutional Management major is an intensive four-semester major designed to prepare students for managerial positions in the hospitality industry. The course of study places heavy reliance on experience acquired in an on-the-job setting.

Students who achieve outstanding records may, upon completing this program, apply for admission to the baccalaureate degree major in Hotel, Restaurant, and Institutional Management in the College of Health and Human Development. Six or more additional semesters of satisfactory work are required to earn the baccalaureate degree. Graduates of this major may qualify for admission to other baccalaureate degree majors.

For the Associate in Science degree in Hotel, Restaurant, and Institutional Management, a minimum of 60 credits is required.

*Scheduling Recommendation by semester given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits  
(6 of these 21 credits are included in REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 45 credits  
(This includes 6 credits of General Education GWS courses.)

**PRESCRIBED COURSES** (35 credits)  
ENGL 015 GWS(3) [\[70\]](#), ENGL 202D GWS(3) [\[70\]](#), HRIM 201(3) [\[70\]](#), HRIM 228(1) [\[70\]](#), HRIM 250(3) [\[11\]](#), HRIM 270(4) [\[11\]](#), HRIM 295W(3), HRIM 319(3) [\[70\]](#), HRIM 329(3) [\[70\]](#), HRIM 335(3) [\[70\]](#), HRIM 336(3) [\[70\]](#), HRIM 380(3) [\[70\]](#) (Sem: 1-4)

**ADDITIONAL COURSES** (6 credits)  
HRIM 204(3) or MKTG 221(3) [\[70\]](#) (Sem: 1-4)  
HRIM 260(3) or MGMT 341(3) (Sem: 1-4)  
[\[70\]](#) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (4 credits)  
Select 4 credits in consultation with adviser to develop more depth in hospitality management (Sem: 1-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.  
**[70]** These courses are required for the baccalaureate degree in Hotel, Restaurant, and Institutional Management.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 39-01-101

Review Date: 08/24/2010

HH

## Materials Engineering Technology

*University College (2MATE): Penn State DuBois*

PROFESSOR CRAIG STRINGER, *Program Coordinator, Penn State DuBois*

PROFESSOR IVAN M. ESPARRAGOZA, *Director of Engineering Technology, Penn State Brandywine*

PROFESSOR SVEN BILÉN, *Head, School of Engineering Design, Technology, and Professional Programs, Penn State University Park*

The curriculum of the program provides students with an introduction to the range of practical skills needed to be an engineering technician in materials-related industries and organizations. The program emphasizes particulate materials technology, but the student is prepared for entry-level positions in other materials-related organizations.

Among the responsibilities of a materials technician are carrying out a variety of destructive and nondestructive tests or special problem-solving projects that require property or failure analysis. Other duties may entail preparing or examining samples under a microscope, using materials specifications or blueprints, or developing and debugging materials processing procedures.

The primary goal of the program is achieved through a core of materials engineering topics, including structure and properties of engineering materials, materials testing, powder metallurgy, and materials characterization. The technical courses are supported by foundation courses in written and oral communications, technical mathematics and calculus, chemistry, physics, computer-aided drafting (CAD), and basic engineering topics. This program is one of the Pennsylvania Department of Education-approved Tech Prep programs. Secondary school students who have graduated from a program covered by a signed Penn State Articulation Agreement may be eligible for special admission procedures and/or advanced placement. Graduates of the Associate Degree Materials Engineering Technology program will:

- Have a broad knowledge in the area of materials engineering, materials testing, materials characterization, particulate materials processing, technical problem solving, and hands on application of engineering technology.
- Have the ability to further their education through additional degree study in related fields, short courses, and/or industrial training.
- Be prepared to communicate effectively and work collaboratively in multi-disciplinary, team orientated work environments.
- Have the ability to learn and adapt to rapid changes in chosen technical field of education and professional work environments.
- Demonstrate a high standard of professional ethics and be cognizant of social concerns as they relate to the practice of engineering technology.

For the Associate in Engineering Technology degree in Materials Engineering Technology, a minimum of 64 credits is required. This program is accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 21 credits

(12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of *Bulletin*.)

**REQUIREMENTS FOR THE MAJOR:** 55 credits

(This includes 12 credits of General Education courses: 6 credits of GWS courses; 3 credits of GN courses; 3 credits of GQ courses.)

**PRESCRIBED COURSES** (49 credits)

CAS 100 GWS(3), CHEM 110 GN(3), CHEM 111 GN(1), EET 101(3), EET 109(1), EG T 101(1), EG T 102(1), ENGL 015 GWS(3), ET 002(1), MATH 081 GQ(3), MATH 082 GQ(3), PHYS 150 GN(3) (Sem: 1-2)

IET 109(3), MAE T 201(3)[\[1\]](#), MAE T 202(3)[\[1\]](#), MAE T 203(3)[\[1\]](#), MAE T 204W(3), MAE T 205(4)[\[1\]](#), MATH 083 GQ(4)[\[1\]](#) (Sem: 3-4)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from the following technical courses: EGT 114(2), EGT 201(2), EGT 297(2), MCH T 111(3), MCH T 213(3), MCH T 214(1), MAE T 297(3) (Sem: 3-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2006

Blue Sheet Item #: 34-05-127A

Review Date: 5/2/07

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

EN

## Mining Technology

*University College (2MNGT): Penn State Fayette*

The Associate of Science degree in Mining Technology blends basic sciences, mathematics, principles and practices of management, and applied courses in Mining Technology to prepare students for supervisory roles in the Mining industry. This major helps prepare students for either a production-oriented or a maintenance-oriented position in the mining industry. Graduates of this major, after serving the required apprenticeship, should be qualified to become certified managers in their field. All students complete a common core of classes, but must also choose to enroll in one of two emphases, Maintenance or Production.

The maintenance emphasis prepares students to become maintenance supervisors. Initially, graduates may work as apprentice electricians or mechanics to gain experience in repairs and planned maintenance. After certification is obtained, they may become involved with maintenance planning, working as or with the chief mine mechanic or chief mine electrician.

The production emphasis helps prepare students to become mine supervisors or engineering aides. Initially, some of the duties are to run transit and act as survey party chief, keep mine maps up to date and make projections, take samples and run analyses, make time studies, and assist with materials handling layouts.

For the Associate of Science degree in Mining Technology, a minimum of 67 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 58- 59 credits

(This includes 12 credits of General Education courses; 6 credits of GWS courses; 3 credits of GN courses; 3 credits of GQ courses)

**PRESCRIBED COURSES:** (50 credits)

CMPSC 100(3), EDSGN 100(3), ENGL 015 GWS(3), GEOSC 020 GN(3), MATH 081 GQ(3), MATH 082 GQ(3), MNG 223(2), MNG T 030(2), MNG T 100(1)[\[1\]](#), MNG T 110(3), PHYS 150 GN(3) (Sem: 1-2)

CAS 100 GWS(3), MNG T 204(3)[\[1\]](#), MNG T 205W(3), MNG T 210(3), MNG T 211(3), MNG T 214(3), MNG T 216(3)[\[1\]](#) (Sem: 3-4)

**ADDITIONAL COURSES:** (8-9 credits)

Select 8-9 credits from one of the following two emphases:

a. Maintenance Emphasis: MNG T 207(3), MNG T 208(3), MNG T 209(2) (Sem: 3-4)

b. Production Emphasis: MNG T 202(3), MNG T 213(3), MNG T 215(3) ( Sem: 3-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-05-147

Review Date: 02/23/2010

UCA Revision #1: 8/9/06

EN

**PROGRAM CURRENTLY ON HOLD :**  
**NOT ACCEPTING NEW STUDENTS EFFECTIVE SUMMER SESSION 2015**  
**Begin Date of Enrollment Hold: July 22, 2013**

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## Nursing

*Penn State Altoona (2NURS)*

*Penn State Erie, The Behrend College (2NURS)*

*University College: Penn State Fayette, Penn State Mont Alto, Penn State Worthington Scranton (2NURS)*

PROFESSOR PAULA MILONE-NUZZO, *Dean, School of Nursing*

Graduates of this major are prepared to provide care in a variety of health care settings to individuals with commonly occurring acute or chronic health problems. After earning the associate degree, students are eligible to take the registered nurse examination for licensure by the State Board of Nursing. The Nursing program is accredited by the Accreditation Commission for Education in Nursing (ACEN), 3343 Peachtree Road NE, Suite 850, Atlanta, GA 30326 (404-975-5000), [www.acenursing.org](http://www.acenursing.org), and approved by the Pennsylvania State Board of Nursing.

All transportation and expenses related to clinical are the responsibility of the student. All students must meet the following clinical facility requirements: carry professional liability insurance; complete annual health examination, criminal background and child abuse history clearances, maintain CPR certification and adhere to any additional requirements of the clinical facilities.

### Undergraduate Academic Progression Policy

The Academic Progression policy delineates the academic standards for pre-licensure students (students without an RN license), who are admitted to the undergraduate nursing program. The policy states that all prerequisite courses may be repeated only one time and failure of two nursing courses results in dismissal from the nursing major. Details of the academic progression policy are available in the student handbook. (<http://www.hhdev.psu.edu/nurs/Handbooks/index.html>).

### Entrance to Major Requirements:

First year and advanced standing (transfer) students may be admitted directly to the major if they meet Admission criteria.

Penn State students who apply by November 30, have the appropriate high school course work, meet the following criteria at Penn State and have a 3.4 cumulative GPA or higher at the end of the fall semester are guaranteed admission into 2NURS:

- 3-4 credits of 100-level science with a lab with a grade of C or higher: BIOL 129, BIOL 141 and BIOL 142, MICRB 106 and MICRB 107, and CHEM 101 preferred
- 3 credits of social science with a grade of C or higher: HD FS 129, PSYCH 100, and SOC 001 or SOC 005 preferred
- 6 additional non-remedial credits, preferably including 3 credits of math

Penn State students have **just one opportunity** for consideration for the Associate of Science in Nursing and must be enrolled in 2NRCM\*, DUS, NURS, or non-degree or provisional status at the time of application and review. **Students are strongly encouraged to meet with a [nursing advisor](#) prior to application.**

**\*There is a limit of 2 semesters of enrollment (excluding summers) in 2NRCM.**

Graduates of this major may qualify for admission to the RN to BS program in Nursing.

For the Associate of Science degree in Nursing, a minimum of 68 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(15 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 62 credits<sup>[1]</sup>

(This includes 15 credits of General Education courses: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses)

**PRESCRIBED COURSES** (53 credits)

BIOL 129 GN(4), BIOL 141 GN(3), BIOL 142(1), ENGL 015 GWS(3), NURS 111S(4), NURS 112(4), NURS 113(3), NURS 114(3), NURS 116(2), PSYCH 100 GS(3) (Sem: 1-2)

MICRB 106 GN(3), MICRB 107 GN(1), NURS 211(5), NURS 212(4), NURS 213(5), NURS 214W(3), NURS 216(2)(Sem: 3-4)

**ADDITIONAL COURSES** (9 credits)

HD FS 129 GS(3) or PSYCH 212 GS(3); SOC 001 GS(3) or SOC 005 GS(3) (Sem: 1-2)

Select 3 credits of GQ courses (Sem: 3-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-05-060

Review Date: 02/23/2010

(R&T 2/28/06)

UCA Revision #1: 8/9/06

Accrediting agency contact info updated: 7/31/13

HH

## Occupational Therapy

*Berks College (2OTBL)*

*University College (2OTCC): Penn State DuBois, Penn State Mont Alto, Penn State Shenango*

This major helps graduates prepare to be occupational therapy assistants who are qualified to be employed by agencies that provide occupational therapy and related services. The goal of occupational therapy is to enable the client to be as independent as possible in the daily performance of self-care, productive, and leisure occupations. General education, basic science, and occupational therapy courses are followed by supervised field experience. Upon successful graduation from the program, students must sit for and successfully pass the National Board for Certification in Occupational Therapy (NBCOT) national certification examination to practice. Most states also require licensure as a condition for employment. A felony conviction may affect a graduate's ability to sit for the NBCOT certification examination and obtain licensure. NBCOT may be contacted at NBCOT, 12 South Summit Avenue, Suite 100, Gaithersburg, MD 20877. 301-990-7979 or on the Web at [www.NBCOT.org](http://www.NBCOT.org).

To enter this major, students must have a high school diploma or its equivalent. To be admitted to degree candidacy, the applicant must have completed educational background requirements called Carnegie Units or Secondary School Units. Students are responsible for proof of liability insurance and other requirements specified by the facility providing supervised field experience.

The size of each entering class is limited so that optimal clinical experiences and practical application situations can be maintained. Students are expected to progress through the program in the prescribed manner. Fieldwork affiliations are maintained over a wide geographical area. Students may be required to make special housing and transportation arrangements during the fieldwork phase. Students must complete all Level II fieldwork within eighteen months of successful completion of OTA didactic course work. The 2OTCC and 2OTBL curricula are delivered in five semesters.

The Penn State Occupational Therapy program is fully accredited by ACOTE which can be reached at: Accreditation Council for Occupational Therapy Education, 4720 Montgomery Lane, Bethesda, MD 20814, 301-652-2682 or on the Web at [www.aota.org](http://www.aota.org).

For the Associate in Science degree in Occupational Therapy, a minimum of 69 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits

(12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 60 credits

(This includes 12 credits of General Education courses: 3 credits of GWS courses; 6 credits of GS courses; 3 credits of GN courses.)

**PRESCRIBED COURSES** (60 credits)

BIOL 129 GN(4) [\[1\]](#), BIOL 141 GN(3) [\[1\]](#), BIOL 142(1) [\[1\]](#), ENGL 015 GWS(3), HD FS 129 GS(3), O T 100S(1), O T 101(2) [\[1\]](#), O T 195A(1) [\[1\]](#), PSYCH 100 GS(3)

(Sem: 1-2)

O T 103 US(3) [\[1\]](#), O T 105W(3) [\[1\]](#), O T 107(3) [\[1\]](#) (Sem: 2-3)

KINES 013 GHA(1), O T 109(3) [\[1\]](#) (Sem: 3-4)

O T 195B(1) [\[1\]](#), O T 201(3) [\[1\]](#), O T 202(3) [\[1\]](#), O T 204(3) [\[1\]](#), O T 206(4) [\[1\]](#) (Sem: 4)

O T 295A(6) [\[1\]](#), O T 295B(6) [\[1\]](#) (Sem: 5)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-03-103

Review Date: 11/13/2012

UCA Revision #1: 8/9/06

PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: July 20, 2012

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## Plastics Engineering

### Technology

*Penn State Erie, The Behrend College (2PLET)*

This major is designed to help graduates prepare for careers as engineering technicians in the plastics industry. Graduates are qualified for positions requiring setting up and operating plastics processing equipment, troubleshooting processing problems, production line management, solids modeling and design, and technical service and support.

To be eligible for entrance to the Plastics Engineering Technology (PLTBD) major, a student must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed MATH 081 or MATH 026, AND MATH 082 or MATH 022, AND MATH 083 or MATH 140, and PHYS 250, and earned a grade of C or better in each of these courses.

The curriculum provides training in applied mathematics, physics, chemistry, fundamentals of the chemical and physical properties of plastics materials and their processing characteristics, quality control, solids modeling and engineering design principles, and technical communications. The processing component of the curriculum emphasizes injection molding.

Students will receive extensive hands-on experience in the college's state-of-the-art processing laboratory, learning the fundamental principles of operating equipment currently utilized in the plastics industry, including application of statistical methods and quality control. Students will also be trained in the use of solids modeling and fundamentals of plastic tooling and part design.

Graduates of this program may qualify for admission to the baccalaureate degree program in Plastics Engineering Technology offered at Penn State Erie, The Behrend College.

For the Associate in Engineering Technology degree in Plastics Engineering Technology, a minimum of 70 credits is required.

This program is accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 21 credits  
(12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 61 credits  
(This includes 12 credits of General Education courses: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses.)

**PRESCRIBED COURSES** (51 credits)  
CHEM 110 GN(3), CHEM 111 GN(1), EG T 120(3), EG T 121(3), ENGL 015 GWS(3), PL ET 050(2)[\[1\]](#), PHYS 250 GN(4)[\[1\]](#), PSU 007(1) (Sem: 1-2)  
CAS 100 GWS(3), MCH T 111(3)[\[1\]](#), PL ET 205(3)[\[1\]](#), PL ET 222(4)[\[1\]](#) (Sem: 3)  
MATH 210 GQ(3), MCH T 213(3)[\[1\]](#), PL ET 206W(3)[\[1\]](#), PL ET 227(4)[\[1\]](#), PL ET 232(3)[\[1\]](#),  
PL ET 235(2)[\[1\]](#) (Sem: 4)

**ADDITIONAL COURSES** (10 credits)  
MATH 081 GQ(3)[\[1\]](#) or MATH 026 GQ(3)[\[1\]](#) (Sem: 1)  
MATH 082 GQ(3)[\[1\]](#) or MATH 022 GQ(3)[\[1\]](#) (Sem: 2)  
MATH 083 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#) (Sem: 3)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-05-007

Review Date: 02/22/2011

UCA Revision #1: 8/9/06

Reviewed by Publications: 06/23/06

BD

## Workforce Education and Development

*University Park, College of Education*

MARK THREETON, Assistant Professor  
Address: 301C Keller Building  
Email: MDT177@psu.edu  
Phone: 814 863 5361

WESLEY DONAHUE, Associate Professor  
Address: 411C Keller Building  
Email: WED105@psu.edu  
Phone: 814 865 7074

This is a 60 credit program, with many of the courses offered in multiple delivery formats to address the needs of the adult learner, such as a blend of face-to-face and online, delivery via video conference technologies such as Polycom or Adobe Connect, or totally online. It will provide a solid foundation of curriculum pertinent to gaining knowledge and skills required for success in the field of workforce education and development. It will allow the participant to develop the skills and competencies essential to analyzing community and/or organizational needs, recommend and deliver effective education and training programs for process and employee improvement, supervise and lead others, and manage workforce development projects and initiatives. It will also provide the opportunity to network with individuals who share many of the same interests and will enhance the participant's ability to address community and organization needs.

Optional requirements for the major: of the 16 credits of electives, up to 12 credits of occupational experience can be earned.

For a Associate in Science degree in Workforce Education and Development a minimum of 60 credits are required.

*Scheduling Recommendation by Semester Standing Given Like (Sem: 1-2)*

**GENERAL EDUCATION: 21 Credits**  
(21credits of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in Electives)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in Requirements for the Major)

**WRITING ACROSS THE CURRICULUM:**  
(Included in Requirements for the Major)

**ELECTIVES: 16 credits**  
**REQUIREMENTS FOR THE MAJOR: (23 Credits)**

**PRESCRIBED COURSES (23 credits)**  
WF ED 105(3), WF ED 106(3), WF ED 207W GWS(3), WF ED 310(3), WF ED 411(3), WF ED 450 US:IL(3), WF ED 495D(5) (Sem: 1-4)

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-037

Review Date: 11/19/2013



## Baccalaureate Degree Programs

The following definitions, referring to baccalaureate degrees, majors, options, minors, and concurrent or sequential majors programs, have been adopted by the University Faculty Senate:

**Baccalaureate Degree**--An award signifying a rank or level of educational attainment. Particular types of baccalaureate degrees identify educational programs having common objectives and requirements. Degree programs may provide academic, preprofessional, or professional experiences and preparation. Majors lead to a baccalaureate degree. Each student must select a major within a baccalaureate degree type. If options are offered within a major, a student selects one. The student may also elect to enroll in a minor to supplement the major. Alternatively, the student may seek to enroll in multiple majors within the same type of baccalaureate degree or to enroll in a simultaneous degree program. A baccalaureate program of study shall consist of no less than 120 credits. Students may elect to take courses beyond the minimum requirements of a degree program.

**Major**--A plan of study in a field of concentration within a type of baccalaureate degree. Colleges and other degree-granting units may have common requirements for all of their majors. Each major may have requirements identified in Prescribed, Additional, and Supporting Courses and Related Areas categories. Elective credits are not considered part of the major. (Senate Record: 1/23/90, Appendix IV)

**Option**--A specialization within a major that should involve at least one-third of the course work credits required for the major, but need not be more than 18 credits. All options within a major must have in common at least one-fourth of the required course work credits in the major. A student can only be enrolled in an option within his/her own major.

**Minor**--A minor is defined as an academic program of at least 18 credits that supplements a major. A minor program may consist of course work in a single area or from several disciplines, with at least 6 but ordinarily not more than half of the credits at the 400 course level. Total requirements are to be specified and generally limited to 18 to 21 credits. Entrance to some minors may require the completion of a number of prerequisites, including courses, portfolios, auditions, or other forms of documentation that are not included in the total requirements for the minor. All courses for a minor require a grade of C or above.

**Concurrent and Sequential Majors Programs**--At the baccalaureate or associate degree level, students may be approved for admission to more than one major under the Concurrent Majors program. A Concurrent Majors program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Concurrent majors must all be at the baccalaureate or associate degree level. Under the Sequential Majors program, upon graduation from an associate or baccalaureate degree program, a student may apply for re-enrollment in another undergraduate degree program.

2/24/12

## Architectural Engineering

University Park, College of Engineering (A E)

PROFESSOR CHIMAY J. ANUMBA, Head, Department of Architectural Engineering

This major emphasizes the application of scientific and engineering principles to the planning, design, and construction of buildings and building systems. The goal of the program is to provide engineering graduates with the best education available for careers in the building professions. Graduates will have the ability to practice as registered professional engineers in a variety of areas, both public and private, related to the planning, design, construction, and operation of buildings and to assume a place of leadership in society.

Four options are available in the ten-semester major: the Construction option, which emphasizes building construction engineering and construction management; the Lighting/Electrical option, which emphasizes the design of lighting and electrical systems for buildings; the Mechanical option, which emphasizes the design of heating, ventilating and air-conditioning systems in buildings; and the Structural option, which emphasizes the analysis and design of building structural systems. Courses in architectural design are included in all options to give the engineering student an understanding of architectural design and its relation to engineering. Courses in engineering design are provided throughout the program. The design experience is culminated in a year-long capstone design course.

A limited number of undergraduate students in the B.A.E. program will be considered for admission to one of two integrated undergraduate-graduate degree programs. The first leads to the student earning both the B.A.E. and M.A.E. degrees and involves a graduate-level component in the capstone senior project. The second provides the student with the opportunity to earn both the B.A.E. and M.S. degrees and involves a research-oriented thesis in addition to the capstone undergraduate senior project. Students who are currently enrolled in the 7th semester of the B.A.E. degree program may apply to one of the two integrated programs and will be admitted following a positive review by the faculty committee on graduate admissions. To be considered for admission to either program, students must have attained a GPA of at least 3.0 and a grade of C or better in all classes listed as AE. A commitment from an AE graduate faculty member to serve as the student's M.S. thesis adviser is necessary for admission to the B.A.E./M.S. program. Students admitted to an integrated program must maintain a GPA in all classes used toward the M.A.E. or M.S. degree of at least 3.0. Students must complete a minimum of 172 credits for both the integrated B.A.E./M.A.E. and B.A.E./M.S. degree programs, 18 of which must be at the graduate level (500, 600 or 800-level). For the B.A.E./M.A.E. degree program, all of graduate credits are course credits. For the B.A.E./M.S. degree program, a thesis is required and six credits of thesis research (600 or 610) must be included in the candidate's academic course plan.

The professional degree, Bachelor of Architectural Engineering, is granted upon the satisfactory completion of the five-year program.

### Program Educational Objectives:

Graduates, after several years in practice, are engaged in a professional career in the building industry as follows:

- Graduates, with the appropriate experience, are qualified and competent to sit for the professional engineering exam.
- Graduates are capable to meet the challenges of the engineering work environment. The graduates have assumed some leadership responsibilities.
- Graduates are capable of solving design and project related problems based on sound engineering principles as demanded by their work.
- Graduates are successfully conducting multi-disciplinary/inter-disciplinary interactions as required by their work.
- Graduates are engaged in service activities in the public and professional realms.

### Program Outcomes (Student Outcomes):

The expected educational outcomes:

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multidisciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) recognition of the need for, and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
- (l) a proficiency in mathematics through differential equations, probability and statistics, calculus based physics, and general chemistry
- (m) proficiency in statics, strength of materials, thermodynamics, fluid mechanics, electric circuits, and engineering economics
- (n) proficiency in a minimum of three (3) of the four (4) basic curriculum areas of structures, building mechanical and electrical systems, and construction/construction management
- (o) Engineering design capabilities in at least two (2) of the three (3) basic curriculum areas of architectural engineering, and that design has been integrated across the breadth of the program
- (p) An understanding of architectural design and history leading to architectural design that will permit communication, and interaction, with other design professionals in the execution of building projects

ENTRANCE TO MAJOR -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHSY 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.A.E. degree in Architectural Engineering, a minimum of 160 credits is required. This baccalaureate program in Architectural Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

For the integrated B.A.E./M.A.E. degrees, a minimum of 172 credits of course work is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**GENERAL EDUCATION:** 45 credits  
(33 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 148 credits  
(This includes 33 credits of General Education courses: 9 credits of GN courses; 6 credits of GA courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 112 credits****PRESCRIBED COURSES** (102 credits)

CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1), E G 130(3), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), PHYS 211 GN(4) [\[1\]](#) (Sem: 1-2)  
 A E 202(3), A E 221(3), A E 222(3), ARCH 130A(6), E MCH 211(3), E MCH 213(3), MATH 250(3), PHYS 212 GN(4), PHYS 213 GN(2) (Sem: 3-4)  
 A E 308(4) [\[1\]](#), A E 309(3), A E 310(3) [\[1\]](#), A E 311(3) [\[1\]](#), A E 372(3) [\[1\]](#), A E 481W(4), A E 482(4), ARCH 210 GA(3), ARCH 211 GA(3), E E 211(3), E MCH 212(3), M E 201(3), MATH 220 GQ(2-3), MATH 231(2), STAT 401(3) (Sem: 5-6)  
 ARCH 441(3), ARCH 443(1) (Sem: 7-8)  
 ENGL 202C GWS(3) (Sem: 9-10)

**ADDITIONAL COURSES** (10 credits)

Select A E 124S(1) or 1 credit of another First-Year Seminar (Sem: 1-2)  
 ECON 102 GS(3), ECON 104 GS(3), or ECON 014 GS(3) (Sem: 1-2)  
 ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
 CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)

**REQUIREMENTS FOR THE OPTION: 36 credits****CONSTRUCTION OPTION: (36 credits)****PRESCRIBED COURSES** (24 credits)

A E 404(3), A E 475(3), A E 476(3), C E 336(3), C E 337(1), MGMT 326(3) [\[19\]](#) (Sem: 7-8)  
 A E 472(3), A E 473(3), C E 209(2) (Sem: 9-10)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 3 credits from technical courses on department list (Sem: 7-8)  
 Select 5 credits from technical courses on department list [\[19\]](#) (Sem: 9-10)  
 Select 4 credits of geotechnical courses (Sem: 9-10)

**LIGHTING/ELECTRICAL OPTION: (36 credits)****PRESCRIBED COURSES** (24 credits)

A E 404(3), A E 454(3), A E 461(3), A E 467(3), ARCH 442(3) [\[19\]](#) (Sem: 7-8)  
 A E 444(3), A E 464(3), A E 466(3) (Sem: 9-10)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 3 credits from technical courses on department option list (Sem: 7-8)  
 Select 9 credits from technical courses on department option list [\[19\]](#) (Sem: 9-10)

**MECHANICAL OPTION: (36 credits)****PRESCRIBED COURSES** (27 credits)

A E 404(3), A E 454(3), A E 455(3), A E 457(3), A E 467(3), ARCH 442(3) [\[19\]](#), M E 320(3), M E 410(3) (Sem: 7-8)  
 A E 458(3) (Sem: 9-10)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 3 credits from technical courses on department option list [\[19\]](#) (Sem: 7-8)  
 Select 6 credits from technical courses on department option list (Sem: 9-10)

**STRUCTURAL OPTION: (36 credits)****PRESCRIBED COURSES** (23 credits)

A E 401(3), A E 402(3), A E 403(3), A E 430(3), ARCH 442(3) [\[19\]](#), E MCH 315(2), E MCH 316(1) (Sem: 7-8)  
 A E 431(3), C E 209(2) (Sem: 9-10)

**SUPPORTING COURSES AND RELATED AREAS** (13 credits)

Select 9 credits from technical courses on department list [\[19\]](#) (Sem: 7-8)  
 Select 4 credits in Geotechnical (Sem: 7-8)

*Note:* The following substitutions are allowed for students attending campuses where the indicated course is not offered: ED&G 100(3) can be substituted for E G 130(3).

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[19]** Students having successfully completed ROTC upon graduation, may apply 3 credits of ROTC to these courses. Additionally, 3 credits of ROTC may be applied to GHA.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-05-032

Review Date: 02/21/2012

R & T: Approved 5/24/2013

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

EN

Department head updated by Publications: 7/23/08

Accreditation statement updated by Publications, per COE: 8/15/11

## Art Education

University Park, College of Arts and Architecture (A ED)

PROFESSOR GRAEME SULLIVAN, *Director, School of Visual Arts*

The purpose of the Art Education program is to prepare knowledgeable, skilled, and caring professional educators to become critical, reflective practitioners, researchers and artists, and agents of change for social justice in diverse contexts of educational practice; generate and disseminate knowledge that leads to new pedagogical understandings on which more effective policies and practices can be grounded; and collaborate across disciplines, professions, and constituencies to promote social change that leads to educational improvement and transformation. An integral part of the program involves a variety of observational and participatory experiences in art learning environments, and an extensive pre-practice internship. Upon completion of the degree, employment prospects and/or acceptance for advanced graduate studies depends upon individual achievement and qualifications. (See also [Teacher Education Programs](#).)

All candidates seeking entrance to Art Education for Schools option must meet the following entrance to major criteria:

1. Minimum 3.00 cumulative GPA and at least 48 credits completed (at the time of application).
2. Satisfaction of any basic-skills or entrance testing requirements as specified by the Pennsylvania Department of Education in force at the time of application for entrance to the major.
3. Complete 6 credits in Quantification (GQ)
4. Complete ENGL 015 or 030
5. Complete 3 credits in literature (GH) (C or higher required)
6. Complete early field experience: A ED 101S (C or higher required)
7. Complete education foundation courses: EDPSY 014, PSYCH 100 (C or higher required)
8. Complete art education foundation courses: A ED 201W, 211, 212 (C or higher required)
9. Complete art studio & art history foundations: ART 110S, 111, 122Y, ART H 111, 112 (C or higher required)
10. Complete and document a minimum of 80 hours of paid or volunteer work with age appropriate population. At least 40 of these age-appropriate 80 hours would be satisfied by working with "under-represented" learners whose cultural, social, or ethnic backgrounds differ from the candidate's own.

For the B.S. degree in Art Education a minimum of 133 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12-15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 103 credits

(This includes 12-15 credits of General Education courses 6 credits of GA courses; 3 credits of GS courses; 3-6 credits of GH courses.)

**PRESCRIBED COURSES** (56 credits)<sup>[1]</sup>

A ED 101S(3), ART 110S(3), ART 111(3), ART 122Y(3), ART H 111 GA;IL(3), EDPSY 014(3), PSYCH 100 GS(3) (Sem: 1-2)

A ED 201W(3), A ED 211 GA(3), A ED 212(1), ART H 112 GA;IL(3) (Sem: 3-4)

A ED 323(3), SPLED 400(4) (Sem:3-6)

A ED 225 GA;US(3), A ED 322(3), A ED 401(3), A ED 490(3), SPLED 403B(3) (Sem: 3-8)

A ED 489(3) (Sem: 7-8)

**ADDITIONAL COURSES** (33 credits)<sup>[1]</sup>

Select 12 credits at the beginning level from ART 201(3), ART 203(3), ART 211 US(3), ART 217(3), ART 220(3), ART 223(3), ART 230(3), ART 240(3), ART 250(3), ART 251(3), ART 260(3), ART 280(3), ART 296(3), ART 297(3), ART 299 IL(3), PHOTO 100 GA(3), PHOTO 200(3), or PHOTO 201(3) (Sem: 3-8)

Select 3 credits in literature (GH) courses (Sem: 1-4)

Select 3 credits from APLNG 200 GH;IL(3), APLNG 210(3), or C I 280(3) (Sem: 1-6)

A ED 495A(7) and A ED 495B(8); or A ED 495C(7) and A ED 495D(8) (Sem: 8)

**SUPPORTING COURSES AND RELATED AREAS** (14 credits)

Select 8 credits in Art at the 300 or 400 level (Sem: 3-8)

Select 6 credits in Art History at the 300 or 400 level (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 39-01-015

Review Date: 08/24/2010

R & T: 01/14/2014

UCA Revision #1: 8/2/06

AA

**PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: May 30, 2012**

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## African and African American Studies

University Park, College of the Liberal Arts (AASBA)

PROFESSOR IKUBOLAJEH LOGAN, *Interim Head*

This interdisciplinary major is designed to give students an integrated and critical understanding of the experiences and contributions of peoples of African descent. Students are encouraged to do research and evaluate the relationship between the political, social, and economic developments in Africa and the African Diaspora. Two options are available within the major and are described here.

### AFRICAN AMERICAN STUDIES OPTION:

This option provides students with the opportunity to explore the experiences of African Americans using theories and methods originating in the field along with those adopted from the various disciplines. Students are also made aware of the potential to apply knowledge to discern better approaches for solving social, political, and economic problems. The curriculum also promotes greater understanding of the relationship between African American and other ethnic groups in the shaping of American society and culture.

**Focus Areas:** The African American Studies Option has three focus areas, which are described below.

1. **History Perspective:** While stressing the interdisciplinary nature of the field, this focus allows students to concentrate on the historical experience of the African Americans, including their political, social, and economic relations with other ethnic groups, as well as the shifting historical contexts in which they have contested and shaped the evolution of American society.
2. **Social Sciences and Community Development:** This focus area allows students to concentrate on contemporary political and economic experiences of African Americans as well as on public policy issues that pertain to the economic, political, and social engagement of African Americans in the search for equality in American society.
3. **Cultural and Gender Perspective:** This focus area allows students to concentrate on culture and gender in historical and contemporary terms.

### AFRICAN STUDIES OPTION:

This option provides students with the opportunity to examine the geographical, cultural, historical, political, and economic aspects of Africa. This option has two focus areas as described below.

1. **Humanities Perspective:** This focus area enables students to concentrate on the history and culture of African societies and the evolution of Africa in world history.
2. **Social Science Perspective:** This focus area enables students to concentrate on political and economic developments, including state building and ethnic relations, development strategies, and Africa's position in the global system.

### LAW AND SOCIAL JUSTICE OPTION:

This multi-disciplinary program would provide students with the opportunity to study the politics, culture, economics, and history of African Americans in our society and link this understanding with an in depth study of criminal justice and the legal system. Issues that students will focus on will be areas such as, Are African Americans discriminated against in criminal justice decision-making? What is the historic connection between race and punishment in the US legal system? How do issues of class, race and gender impact policy decisions about crime and punishment? What is the socioeconomic impact of high incarceration rates on the African American community? The program is designed to encourage students to think systematically about the relationship among public policy, the criminal justice system, and shifting notions of social justice that have characterized debates over the workings and goals of the prison system in American life and thought.

For the B.A. degree in African and African American Studies, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(0-9 credits of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### ELECTIVES: 9-18 credits

### BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

### REQUIREMENTS FOR THE MAJOR: 45 credits<sup>[1]</sup>

(This includes 0-9 credits of General Education courses: African American Studies Option -- 0-3 credits of GA courses; 0-3 credits of GH courses; 0-3 credits of GS courses. African Studies Option -- 0-3 credits of GH courses; 0-3 credits of GS courses. Law and Social Justice Option -- 0-3 credits of GS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 12 credits

#### PRESCRIBED COURSES (12 credits)

AAA S 110 GS;IL(3), AF AM 100 GS;US(3), AF AM/HIST 211 GH;US;IL(3), SOC 207(3) (Sem: 1-4)

### REQUIREMENTS FOR THE OPTION: 33 credits

#### AFRICAN AMERICAN STUDIES OPTION: (33 credits)

#### PRESCRIBED COURSES (9 credits)

AAA S/WMNST 101 GH;US(3), AAA S/SOC/WMNST 103 US(3) (Sem: 1-4)  
AAA S 401(3) (Sem: 5-8)

#### ADDITIONAL COURSES (24 credits)

Select 24 credits from one of the following three areas of concentration.

A minimum of 12 credits should be AAA S courses, and at least 12 of these credits must be at the 400 level or above.

#### 1. History Perspective:

AAA S/RL ST 147 GH;US(3), AF AM/RL ST 146 GH;US(3), AF AM/HIST 210 GH;US(3), SOC 119 GS;US(4) (Sem: 1-4)

- AAA S/SOC 409 US(3), AAA S 431 US;IL(3), AAA S/HIST 465 US(3), ENGL 461 US(3), ENGL 469 US(3), HIST 152 GH;US;IL(3), PL SC 474(3) (Sem: 5-8)
2. **Social Sciences and Community Development:**  
 AF AM/WMNST 102 GH;IL(3), AF AM/RL ST 146 GH;US(3), AAA S/RL ST 147 GH;US(3), AF AM/HIST 210 GH;US(3), SOC 119 GS;US(4) (Sem: 1-4)  
 CRIMJ 451 US(3), AF AM/SOC 409 US(3), AF AM 431 US;IL(3), AF AM/HIST 465 US(3), ECON 304 GS(3), ECON 436W US(3), EDTHP 411(3), PL SC 490(3)  
 (Sem: 5-8)
3. **Cultural and Gender Perspective:**  
 AF AM/WMNST 102 GH;IL(3), AF AM/RL ST 145 GH;US;IL(3), AAA S/THEA 208 GA;US;IL(3), COMM/WMNST 205 US(3), ENGL 139 GH;US(3), ENGL 235  
 US;IL(3), MUSIC 007 GA;US(3), SOC 119 GS;US(4) (Sem: 1-4)  
 AAA S/THEA 412 US;IL(3), AF AM/WMNST 410(3), AF AM/CAS 422 US(3), COMM 411(3), EDTHP 411(3), ENGL/WMNST 462 US(3), ENGL 463 US(3),  
 ENGL 467 US(3), ENGL 469 US(3) (Sem: 5-8)

**AFRICAN STUDIES OPTION:** (33 credits)**PRESCRIBED COURSES** (12 credits)

AFR/HIST 191 GH;IL(3), AFR/HIST 192 GH;IL(3) (Sem: 1-4)

AAA S 400(3), AFR/PL SC 454 IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (21 credits)

Select 21 credits from one of the following two areas of concentration.

*A minimum of 12 credits should be AAA S courses, and at least 12 of these credits must be at the 400 level or above.*1. **Humanities Perspective:**

AFR 202 GS;IL(3), CMLIT 003 GH;IL(3), SWA 001(4), SWA 002(4) (Sem: 1-4)

AAA S 404(3), AF AM 431US;IL(3), AF AM/HIST 465 US(3), ANTH 447 IL(3), CMLIT 422 IL(3), CMLIT 423 IL(3), FR 458 IL(3), HIST 479 IL(3), R SOC/WMNST

420 US;IL(3) (Sem: 5-8)

2. **Social Science Perspective:**

AAA S 202 GS;IL(3), SWA 001(4), SWA 002(4) (Sem: 1-4)

AAA S 404(3), AF AM 431US;IL(3), AF AM/HIST 465 US(3), AFR 403(3), ECON 304 GS(3), ECON 471(3), GEOG 444(3), PL SC 453 IL(3) (Sem: 5-8)

**LAW AND SOCIAL JUSTICE OPTION:** (33 credits)**PRESCRIBED COURSES** (18 credits)

AF AM/HIST 210 GH;US(3), CRIMJ/CRIM/SOC 012 GS(3), CRIM 100(3), CRIMJ/CRIM 113(3) (Sem: 1-4)

AF AM 401(3), CRIM 451 US(3) (Sem: 5-8)

**ADDITIONAL COURSES** (15 credits)AFR 440 US;IL(3), AF AM/LER/PL SC 445Y, AF AM/HIST 431 US;IL(3), AF AM/SOC 409 US(3), AF AM 465 US(3), CRIM 430(3), CRIM 433(3), CRIM 435(3), CRIM  
441(3), CRIMJ/WMNST 453 US(3), CRIM/SOC 467(3), CRIM 490(3), ECON 436W US(3) (Sem: 5-8)**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2004

Blue Sheet Item #: 33-01-130

Review Date: 08/31/04

UCA Revision #2: 7/26/07

Dept head updated by Publications: 5/24/10

LA

**PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: February 17, 2012**

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## African and African American Studies

*University Park, College of the Liberal Arts (AASBS)*

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR IKUBOLAJEH LOGAN, *Interim Head*

This interdisciplinary major is designed to give students an integrated and critical understanding of the experiences and contributions of peoples of African descent. Students are encouraged to do research and evaluate the relationship between the political, social, and economic developments in Africa and the African Diaspora. An African American Studies Option, African Studies Option, and a Law and Social Justice Option are available within the major. The methodology requirements of the proposed program would enable our students to engage in social science research. It would also prepare them better for graduate programs in the social sciences.

**AFRICAN AMERICAN STUDIES OPTION:** This emphasis provides students with the opportunity to explore the experiences of African Americans using theories and methods originating in the field along with those adopted from the various disciplines. Students are also made aware of the potential to apply this knowledge to the solution of social, political, and economic problems. The curriculum also promotes greater understanding of the relationship between African American and other ethnic groups in the shaping of American society and culture.

**AFRICAN STUDIES OPTION:** This option provides students with the opportunity to examine the geographical, cultural, historical, political, and economic aspects of Africa.

**LAW AND SOCIAL JUSTICE OPTION:** This multi-disciplinary program would provide students with the opportunity to study the politics, culture, economics, and history of African Americans in our society and link this understanding with an in depth study of criminal justice and the legal system. Issues that students will focus on will be areas such as, Are African Americans discriminated against in criminal justice decision-making? What is the historic connection between race and punishment in the US legal system? How do issues of class, race, and gender impact policy decisions about crime and punishment? What is the socioeconomic impact of high incarceration rates on the African American community? The program is designed to encourage students to think systematically about the relationship among public policy, the criminal justice system, and shifting notions of social justice that have characterized debates over the workings and goals of the prison system in American life and thought. The proposed program would enable us to foster a cadre of students who will be particularly suited to pursue graduate work in the area.

For the B.S. degree in African and African American Studies, a minimum of 120 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 Credits  
(4-10 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in the this bulletin )

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 20 credits

**REQUIREMENTS FOR THE MAJOR:** 64-65 credits<sup>[1]</sup>  
(This includes 4-10 credits of General Education courses: 4 credits of GQ courses; 6 credits of GS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 16-17 credits

**PRESCRIBED COURSES** (13 credits)  
AAA S 110 GS;IL(3), AF AM 100 GS;US(3), SOC 207(3), STAT 200(4) (Sem: 1-4)

**ADDITIONAL COURSES** (3-4 credits)  
SOC 470(4) or PL SC 309(3) (Sem: 5-8)

**AFRICAN AMERICAN STUDIES OPTION:** (48 credits)

**PRESCRIBED COURSES** (9 credits)  
AF AM 101 GH;US;IL(3), AAA S/HIST 211 GH;IL(3) (Sem: 1-4)  
AAA S 401(3) (Sem: 5-8)

**ADDITIONAL COURSES** (39 credits)

**Select 21 credits with at least 3 credits in AAA S courses**

AAA S 083S GH;US;IL(3), AAA S/WMNST 102 GH;IL(3), AAA S/SOC/WMNST 103 US(3), AAA S/RL ST 146 GH;US(3), AAA S/RL ST 147 GH;US(3), AFR 197(3), AFR 199 IL(3), AF AM/HIST 210 GH;US(3), SOC 119 GS;US(3-4), ECON 102 GS(3), ECON 104 GS(3), ECON 304 GS(3) (Sem: 1-8)

**Select 18 credits at the 400-level with at least 9 credits in AAA S courses**

AAA S/SOC 409 US(3), AAA S 494(3), AAA S 495(3), AAA S 497(3), AAA S 499 IL(3), AAA S/HIST 431 US;IL(3), AFR 440 US;IL(3), AAA S/HIST 465 US(3), AAA S/LER/PL SC 445W(3), CRIMJ 451(3), ECON 436W US(3), EDTHP 411(3), PL SC 490(3) (Sem: 1-8)

**AFRICAN STUDIES OPTION:** (48 credits)

**PRESCRIBED COURSES** (9 credits)  
AAA S/HIST 191 GH;IL(3), AAA S/HIST 192 GH;IL(3) (Sem: 1-4)  
AAA S 400(3) (Sem: 5-8)

**ADDITIONAL COURSES** (39 credits)

**Select 21 credits with at least 3 credits of AAA S courses**

AAA S 083S GH;US;IL(3), AAA S 197(3), AAA S 199 IL(3), AAA S/HIST 211 GH;US;IL(3), AFR 297(3), AFR 299 IL(3), AFR 395(3), AAA S 397(3), AFR 399 IL(3), AAA S/WMNST 202 GS;IL(3), ECON 102 GS(3), ECON 104 GS(3), ECON 304 GS(3), SWA 001(4), SWA 002(4) (Sem: 1-8)

**Select 18 credits at the 400-level with at least 9 credits in AAA S courses**

AFR 403(3), AAA S/HIST 431 US;IL(3), AFR 440 US;IL(3), AFR 443 IL(3), AAA S/PL SC 454 IL(3), AAA S/HIST 465 US(3), AAA S/L I R/PL SC 445W(3), AAA S 494(3), AFR 495(3), AFR 497(3), AFR 499 IL(3), ECON 471(3), GEOG 444(3), PL SC 453 IL(3) (Sem: 1-8)

*Only 3 credits of AAA S 495 (internship) and 6 credits of AAA S 497, AAA S 495, AAA S 494, or AAA S 499 in any combination may be used to satisfy this requirement.*

**LAW AND SOCIAL JUSTICE OPTION:** (48 credits)

**PRESCRIBED COURSES:** (18 credits)

AAA S 210 GH;US(3), AF AM 401(3), CRIMJ/CRIM/SOC 012 GS(3), CRIMJ/CRIM 100(3), CRIMJ/CRIM 113(3), CRIMJ/CRIM 451 US(3) (Sem: 1-8)

**ADDITIONAL COURSES:** (30 credits)

Select 30 credits from: AAA S/HIST 431 US;IL(3), AAA S/SOC 409 US(3), AAA S/L I R/PL SC 445W(3), AAA S/HIST 465 US(3), AFR 440 US;IL(3), ECON 436W US(3), CRIMJ/WMNST 453 US(3), CRIM 490(3), CRIM 441(3), CRIM/SOC 467(3), CRIM 430(3), CRIM 433(3), CRIM 435(3) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 33-01-131

Review Date: 8/31/04

UCA Revision #2: 7/26/07

LA

Last department head update by Publications: 5/24/10



## Applied Behavioral Science

*Capital College (ABESC)*

PROFESSOR KENNETH B. CUNNINGHAM, *Program Coordinator, School of Behavioral Sciences and Education*

The Applied Behavioral Science major is an interdisciplinary program that provides a base of theoretical and empirical knowledge from the social and behavioral sciences and the hands-on skills needed to apply that knowledge effectively in working with people. The major helps students prepare for careers that provide direct service to individuals in need of assistance. These careers are in a variety of human services both in the public and private sectors or in personnel-related positions such as human resources. The major is especially useful for adult learners who are interested in augmenting their professional skills and advancing their career positions through an academic program which combines course work from selected social and behavioral science fields.

Graduates may also pursue advanced degrees in fields such as community psychology, social work, human resource management, gerontology, urban planning, and counseling. The strengths of the program include: internships directly related to the student's area of interest, flexibility in course selection that allows students to focus on particular interests, a solid foundation of knowledge on which to build skills, and skill development courses.

### Entry to Major Requirements:

Entry to the Applied Behavioral Science major requires a 2.00 or higher cumulative grade-point average.

For a B.S. degree in Applied Behavioral Science, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(9 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education Course Requirements in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR )

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 4-10 credits

### REQUIREMENTS FOR THE MAJOR: 74-80 credits

(This includes 9 credits of General Education courses: 3 credits of GWS courses; 6 credits of GS courses.)

### PRESCRIBED COURSES (23-29 credits)<sup>[1]</sup>

ENGL 202A GWS(3), PSYCH 100 GS(3) (Sem: 1-4)

SO SC 480W(4), SO SC 481(4), SO SC 492(3) (Sem: 5-8)

SOC 405(3) (Sem: 5-8)

BE SC 395(3-9) (Sem: 7-8)

### ADDITIONAL COURSES (45 credits)<sup>[1]</sup>

Select 3 credits from: SOC 001 GS(3) or SOC 005 GS(3) (Sem: 1-4)

Select 3 credits from: ANTH 045 GS;US;IL(3), GEOG 020 GS(3), PL SC 001 GS(3), PL SC 003 GS;IL(3) (Sem: 1-4)

**Select 30 credits** (a minimum of 3 credits at the 400 level) in consultation with an adviser from the following: AFR 192 GH;IL(3) or AF AM 212 US(3) or any BE SC, HD FS, or SOC course.

--Take a minimum of 9 credits from BE SC

--Take a minimum of 9 credits from SOC

--Take a minimum of 6 credits from HD FS) (Sem: 5-8)

**Select 9 credits** (a minimum of 3 credits at the 400 level) in consultation with an adviser from PSYCH, PUBPL, PL SC, CRIMJ (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (6 credits)<sup>[1]</sup>

**Select 6 credits** from department list in consultation with an adviser (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2009

Blue Sheet Item #: 37-05-021

Review Date: 2/24/09

UCA Revision #1: 8/14/06

UCA Revision #2: 7/26/07

CL

## Accounting

Capital College (ACCT)

JANE KOCHANOV, *Director of Undergraduate Studies, School of Business Administration*

This major helps students prepare for careers in auditing and public accounting, industrial and managerial accounting, and in governmental and not-for-profit accounting. It also provides a sound background for students who plan to pursue graduate studies in accounting or related fields. Students who complete the prescribed courses and earn a Bachelor of Science degree will satisfy the academic requirements to sit for the Certified Public Accountant (CPA) examination. Graduates may also elect to pursue other professional certifications, including Certified Management Accountant (CMA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), and Certified Government Financial Manager (CGFM). Because the Harrisburg area is the center of industry and economic development for south-central Pennsylvania, students are provided with many opportunities to experience the world of business.

For a B.S. in Accounting a minimum of 120 credits is required. At least 50 percent of the business credit hours required for the degree must be taken at the Capital College. No more than 60 credits should be from business and business-related courses. Students wishing to fulfill the 150 credit-hour education option to become a CPA in Pennsylvania (which reduces the experience requirement for certification) are encouraged to enter Capital College's Master of Business Administration program or the Master of Science in Information Systems program subsequent to receiving their undergraduate accounting degree.

### Entry to Major Requirements:

Entry to the Accounting major requires the completion of 8 entry-to-major courses: ACCTG 211(4)[\[1\]](#); ECON 102 GS(3); ENGL 015 GWS(3)[\[1\]](#) or ENGL 030 GWS(3) [\[1\]](#); FIN 301(3); MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#); MGMT 301(3); MKTG 301(3); SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#); and a 2.00 or higher cumulative grade-point average. Additional information about this major is available in the office of the Director of Undergraduate Studies, School of Business Administration at Penn State Harrisburg.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education Course Requirements in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 8 credits of non-business courses

### REQUIREMENTS FOR THE MAJOR: 79 credits

(This includes 12 credits of General Education Courses: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses)

### PRESCRIBED COURSES (55 credits)

ACCTG 211(4)[\[1\]](#) (Sem: 1-4)

ECON 102 GS(3) (Sem: 1-4)

ENGL 202D GWS(3) (Sem: 1-4)

FIN 301(3), MKTG 301(3), MGMT 301(3) (Sem: 1-4)

B A 364Y US;IL(3), B A 462(3)[\[1\]](#), MIS 390(3), SCM 301(3) (Sem: 5-8)

ECON 104 GS(3), MIS 204(3) (Sem: 5-8)

ACCTG 310(3)[\[1\]](#), ACCTG 340(3)[\[1\]](#), ACCTG 403(3)[\[1\]](#), ACCTG 471(3)[\[1\]](#), ACCTG 472(3)[\[1\]](#), ACCTG 473(3)[\[1\]](#) (Sem: 5-8)

### ADDITIONAL COURSES (18 credits)

Select 4 credits from MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#) (Sem: 1-4)

Select 4 credits from SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#) (Sem: 1-4)

B A 243(4) or B A 241(2) and B A 242(2) (Sem: 5-6)

Select 6 credits [\[1\]](#) from the following: ACCTG 410(3), ACCTG 431(3), ACCTG 432(3), ACCTG 440(3), ACCTG 461 IL(3), ACCTG 462(3), ACCTG 463(3), ACCTG 489(3), ACCTG 494(1-12), ACCTG 496(1-18), ACCTG 497(1-9) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from 200-400 level business courses from: ACCTG, B A, ECON, FIN, MGMT, MIS, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests. (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Reviewed by the Department: Summer Session 2011

Blue Sheet Item #:40-01-044

Review Date: 8/16/2011

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

CL

## Accounting

University Park, Smeal College of Business (ACCTG)

PROFESSOR STEVEN HUDDART, *Chair of the Department of Accounting*

This major prepares students for careers in public, corporate, not-for-profit, and governmental accounting and also provides an appropriate background for those planning to enter law school or graduate school. Accountants develop and interpret historical and prospective financial data required for decision-making by managers, investors, regulators, and other stakeholders. To perform their functions, accountants must synthesize both numerical and qualitative information, communicate it clearly, and function effectively as individuals and in teams. The field of Accounting is diverse and offers students the opportunity to be generalists or concentrate in one of the following:

**Corporate Control & Financial Management** - Courses in this concentration prepare students for positions in industry, government, and business advisory services doing financial planning, analysis, control, and decision support. Students can obtain such designations as *Certified Management Accountant (CMA)*. Management accountants provide forecasts, compute costs and benefits, perform variance analysis, and review and monitor performance. Managerial accountants also design systems that provide information to decision makers.

**Internal Auditing & Assessment** - Courses in this concentration prepare students for positions in industry and government as internal auditors. Students can obtain such designations as *Certified Internal Auditor (CIA)*. Internal auditors are employed by the organization they audit. Internal auditing is a systematic approach to evaluating and improving the effectiveness of risk management, control, and governance processes. Internal auditors also review compliance with standards and assess the organization's risks.

**Public Accounting** - Public accounting is carried on by independent practitioners, most of whom are Certified Public Accountants (CPAs). In addition to statutory audits, CPAs render other assurance, tax, and management advisory services. To be licensed as a CPA in nearly every state, including Pennsylvania, individuals must complete 150 credit-hours of education, pass a demanding professional examination, and meet certain experience requirements. One way to accomplish this is to enroll in the Integrated B.S. in Accounting and Master of Accounting Program.

**Entrance Requirement:** To be eligible for entrance into the Accounting (ACCTG) major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

### Specific entrance requirements include:

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin, including approximately 60 credits of course work.
2. Complete the following entrance to major requirements: ACCTG 211(4) [\[1\]](#); ECON 102 GS(3); SCM 200 GQ(4) [\[1\]](#) or STAT 200 GQ(4) [\[1\]](#); ENGL 015 GWS(3) or ENGL 030 GWS(3); and MATH 110 GQ(4) [\[1\]](#) or MATH 140 GQ(4) [\[1\]](#); FIN 301(3) [\[1\]](#); MGMT 301(3) [\[1\]](#); and MKTG 301(3) [\[1\]](#). These courses must be completed by the end of the semester during which the entrance to major process is carried out.
3. In addition to the above requirements, the Executive Vice President and Provost of the University may approve administrative enrollment controls that limit the number of students who are admitted to majors in the Smeal College of Business. In each case, however, academic requirements are established for admission. For information on enrollment controls, consult the Smeal College of Business Web site (<http://www.smeal.psu.edu/>).

For the B.S. degree in Accounting, a minimum of 120 credits is required with at least 15 credits at the 400 level.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 11 credits

**REQUIREMENTS FOR THE MAJOR:** 76 credits  
(This includes 12 credits of General Education courses: 3 credits of GWS courses; 6 credits of GQ courses; 3 credits of GS courses)

**PRESCRIBED COURSES** (52 credits)  
ACCTG 211(4) [\[1\]](#), ECON 102 GS(3), FIN 301(3) [\[1\]](#), MGMT 301(3) [\[1\]](#), MKTG 301(3) [\[1\]](#) (Sem: 1-4)  
B A 342(3), B LAW 341(3), ECON 104 GS(3), ENGL 202 GWS(3) [\[1\]](#), MIS 204(3), SCM 301(3), (Sem: 5-6)  
ACCTG 403W(3), ACCTG 404(3), ACCTG 405(3) [\[1\]](#), ACCTG 471(3) [\[1\]](#), ACCTG 472(3) [\[1\]](#), B A 411(3) (Sem: 5-8)

**ADDITIONAL COURSES** (14 credits)  
MATH 110 GQ(4) [\[1\]](#) or MATH 140 GQ(4) [\[1\]](#) (Sem: 1-2)  
SCM 200 GQ(4) [\[1\]](#) or STAT 200 GQ(4) [\[1\]](#) (Sem: 1-2)  
Select 6 credits from the following: ACCTG 406(3), ACCTG 432(3), ACCTG 440(3), ACCTG 473(3), ACCTG 481(3), ACCTG 483(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (10 credits)  
Select 4 credits: Attainment of 12th credit level proficiency in a single foreign language. Proficiency must be demonstrated by either examination or course work. (Sem: 1-4)  
Select 6 credits of supporting coursework. See Department List. (Sem: 5-8)

### Integrated B.S. in Accounting and Masters in Accounting Program

The Department of Accounting offers an integrated program allowing students to receive a B.S. in Accounting and Master of Accounting (M.Acc.) degrees within a five-year period. Students typically are admitted into the integrated program in the spring of the second year of the undergraduate program and the program is completed in the subsequent three years. The program is designed to meet the educational requirements for becoming a certified public accountant in Pennsylvania as well as most other states. Certified public accountants conduct independent audits and provide accounting, tax, and management advisory services. The program prepares students to enter into careers in public accounting, corporate accounting, management accounting, governmental accounting, financial analysis, and law enforcement. In addition, the program is appropriate for students having an interest in entering law school and graduate programs in business, such as M.B.A. programs or doctoral programs.

#### Admissions Requirements

Students will generally apply for the program in the spring of their second year of undergraduate study. To apply for the program students must:

(1) be enrolled in the Smeal College of Business or Division of Undergraduate Studies and intend to complete the entrance-to-major requirements by the end of the spring semester in which they apply

and

(2) complete a Graduate School application for graduate study.

Although the program has no fixed minimum grade-point requirement, an applicant is generally expected to have grade-point average of at least 3.20 on Penn State's grading scale of A (4.00) to D (1.00).

In addition, the Department may request an interview with an applicant, or require a GMAT exam or other exam. Admissions decisions will be based upon the student's application, undergraduate record, SAT scores and, if applicable, interviews and examination results.

Admitted students must have completed ACCTG 211 with superior performance by the end of the spring semester in which they apply for admission to the program. A student who has not satisfied this requirement by the admissions deadline may be provisionally admitted pending completion of ACCTG 211 with a superior performance.

**Degree Requirements**

Students must complete the requirements for a B.S. in accounting with the following alterations:

Some of prescribed courses for the B.S. must be taken in sections that are available only to students enrolled in the program. These prescribed courses, which all count toward the undergraduate degree in accounting, are: ACCTG 403W, ACCTG 404, ACCTG 405, ACCTG 471, and ACCTG 472.

The student need not satisfy the requirement that 6 credit hours be completed from the following list of courses: ACCTG 406, ACCTG 432, ACCTG 473, and ACCTG 481.

The following courses cannot be used to satisfy the degree requirements of the integrated program: ACCTG 406, ACCTG 410, ACCTG 411, ACCTG 422, ACCTG 450, ACCTG 473, and ACCTG 481.

Students must complete the Master of Accounting Requirements, which total 30 credit hours of graduate instruction, in addition to completing 120 credit hours of undergraduate instruction.

The following courses, totaling 9 credit hours, will double-count towards both the B.S. and Master of Accounting degrees: B LAW 444(3), FIN 531(3), and ACCTG 881(3).

Students must complete a minimum of 30 credits hours of graduate instruction over and above the 120 credit hours required of the B.S. degree in accounting. All 30 of these credit hours must be earned in 400-level, 500-level, or 800-level courses. At least 18 of the 30 credit hours must be earned in 500-level and 800-level courses, and at least 6 of the 30 credit hours must be earned in 500-level courses.

Students must complete the following required courses as part of the 30 credit hours of graduate instruction: ACCTG 432(3), ACCTG 440(3), ACCTG 803(3), ACCTG 806(3), ACCTG 873(3), ACCTG 881(3), B A 517(3), B LAW 444(3), FIN 531(3).

These courses must be taken in sections that are available only to students enrolled in the integrated program. Note that these required courses satisfy 27 of the 30 credit hour minimum. In addition, after completing these courses, the student will have satisfied the requirement that 18 credit hours must be earned in 500-level or 800-level courses and the requirement that 6 credit hours must be earned in 500-level courses.

Student must have satisfactory academic performance to maintain enrollment in the program. A grade point average of 3.0 in the 30 credit hours of graduate instruction is required to receive the master's degree.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-026

Review Date: 04/09/2013

## Accounting

*Penn State Erie, The Behrend College (ACNTG)*

The Accounting major provides an opportunity to pursue a unique program that integrates knowledge and skill in accounting and information management. It helps prepare students for positions in public accounting firms, corporations, and government, where accounting skills are essential. In addition, the accounting major provides the necessary academic training for students interested in administrative responsibilities in the area of accounting.

### Entrance to Major Requirements:

Entry to the Accounting major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Accounting, a minimum of 120 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 1 credit

### REQUIREMENTS FOR THE MAJOR: 89 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

### PRESCRIBED COURSES (56 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)  
FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3), MKTG 301(3), SCM 301(3)[1] (Sem: 3-6)  
ACCTG 310(3)[1], ACCTG 312(3)[1], ACCTG 371(4)[1], ACCTG 472(3)[1] (Sem: 5-6)  
ACCTG 340(3)[1], ACCTG 403(3)[1], ACCTG 422(3)[1], ACCTG 450(3)[1], MGMT 471W(3)[1] (Sem: 7-8)

### ADDITIONAL COURSES (21 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)  
SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)  
B A 241(2) and B A 242(2) or B A 243(4) (Sem: 3-6)  
Select 3 credits from ECON 470(3), ECON 473 IL(3)[1], FIN 471 (3)[1], MGMT 461 IL(3)[1], MKTG 445(3)[1], or other 400-level international business course (Sem: 5-8)  
Select 6 credits from ACCTG 410(3)[1], ACCTG 411(3)[1], ACCTG 440(3)[1], ACCTG 495(1-18)[1], B LAW 444(3)[1], or other 300- to 400-level courses either within the major or from other business areas (see School list of approved courses) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits from the nonbusiness supporting course list for the major. (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-054

Review Date: 08/24/2010

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

BD

## Advertising/Public Relations

University Park, College of Communications (AD PR)

PROFESSOR ROBERT A. BAUKUS, *Head, Department of Advertising/Public Relations*

This major is designed to provide a balance of theory, research, and practice. The course sequence provides professional skills courses in conjunction with applied theory and critical evaluative courses. Students develop an understanding of the role and effect of advertising and public relations within the business, social, and political arenas. Students develop abilities and skills that prepare them for a wide range of professional opportunities that include: media planning and relations, research, client services. Analytical abilities are equally stressed throughout the curriculum. Critical thinking skills, creative problem-solving, and the need to justify decisions are developed. Theory and practice from a wide range of disciplines including business, behavioral sciences, and applied statistics are used to equip the students to make informed decisions in a dynamic environment.

**ADVERTISING OPTION:** All courses in the advertising major emphasize the critical importance of integrated communication. The objective of the curriculum is to prepare students for entry-level opportunities in the advertising profession and to prepare for eventual managerial roles where an understanding of integrated communication concepts is essential.

The program reflects an integrated marketing communications approach to the design implementation and evaluation of advertising messages. In addition to mastering the core professional courses, students are expected to have an understanding of the convergence of mass communication theory and practice and are encouraged to select from courses in communication theory, communication law, mass media history, ethics, and the impact of advertising and public relations on society.

**PUBLIC RELATIONS OPTION:** The public relations curriculum prepares students for the challenges of public relations practice in a highly competitive, technological, multicultural, and global environment. In their course of study, students study the role and function of public relations in building cooperative mutually beneficial relations between organizations and their constituent publics through understanding, credibility, and trust.

Students complete a core set of courses that includes news writing, introduction to public relations, public relations methods, mass communication research, and public relations problems (campaigns).

Because of the critical importance of journalistic writing skills and an understanding of news media ethics, public relations majors are encouraged to take additional journalism courses to fulfill their communication electives.

Advertising and public relations students are encouraged to choose a minor from outside the College of Communications. The majority of majors select minors in business, English, sociology, psychology, political science, information systems and statistical analysis, foreign language, and speech communication.

**STRATEGIC COMMUNICATIONS OPTION:** This online program is designed to be only available to World Campus students.

Strategic communications refer to a group of techniques used to design, implement, and evaluate the impact of messages on selected groups of people. The goal is to find solutions to complex advertising and public relations problems in the corporate, non-profit, and government sectors at both the domestic and international level.

The Strategic Communications online option explores the theories, methods, and tools used to structure persuasive messages. The option includes an overview of strategic communications principles and concepts that sets the stage for more advanced studies. Students learn about research and analytic techniques used to design and implement effective communication campaigns that are delivered via traditional and new media options. The use of digital technology and social media is emphasized. The program examines the dynamics of the political, legal, social, cultural environments that interact to define a communication task or problem. Students also learn techniques to benchmark and evaluate the effectiveness of strategic communications programs and understand how they apply to internal and external constituencies. Students studying strategic communications will refine their critical thinking skills and explore the nature and source of the information message content, medium of delivery, and the evaluation of the impact of the message on targeted groups.

An important aspect of the program is the examination of the ethical implications of strategic communication practices used in the marketing, advertising and public relations arena. Students will develop a framework that will help them to understand and evaluate supporters and critics of strategic communications practices.

*Students must select at least 80 credits in courses outside the College of Communications, including at least 65 in the liberal arts and sciences.*

For the B.A. degree in Advertising/Public Relations, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(10 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 26 credits

**COLLEGE OF COMMUNICATIONS BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 35 credits<sup>[1]</sup>  
(This includes 10 credits of General Education courses; 6 credits of GS courses; 4 credits of GQ courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 14 credits

**PRESCRIBED COURSES** (11 credits)  
COMM 160(1), ECON 102 GS(3), PSYCH 100 GS(3), STAT 200 GQ(4) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)  
Select 3 credits of COMM courses (other than COMM 100 GS or COMM 120) (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 21 credits

**ADVERTISING OPTION:** (21 credits)

**PRESCRIBED COURSES** (15 credits)  
COMM 320(3) (Sem: 3-6)  
COMM 420(3), COMM 421W(3), COMM 422(3) (Sem: 5-7)  
COMM 424(3) (Sem: 7-8)

**ADDITIONAL COURSES** (6 credits)  
Select 6 credits from COMM 370(3), COMM 373(3), COMM 410 IL(3), COMM 411(3), COMM 417(3), COMM 418(3), COMM 425(3), COMM 426(3), COMM

427(3), COMM 468(3), COMM 494H(1-6), COMM 496(3), COMM 499 IL(1-9) (Sem: 5-8)

**PUBLIC RELATIONS OPTION:** (21 credits)

**PRESCRIBED COURSES** (15 credits)

COMM 260W(3) (Sem: 3-4)

COMM 370(3) (Sem: 5-6)

COMM 420(3), COMM 471(3) (Sem: 5-8)

COMM 473(3) (Sem: 7-8)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from COMM 320(3), COMM 373(3), COMM 401(3), COMM 403(3), COMM 409(3), COMM 410 IL(3), COMM 417(3), COMM 418(3), COMM 425(3), COMM 426(3), COMM 427(3), COMM 462(3), COMM 464W(3), COMM 468(3), COMM 494H(1-6), COMM 496(3), or COMM 499 IL(1-9) (Sem: 5-8)

**STRATEGIC COMMUNICATIONS OPTION:** (21 credits)

**PRESCRIBED COURSES** (18 credits)

COMM 230W(3), COMM 428A(3), COMM 428B(3), COMM 428C(3), COMM 428D(3), COMM 428E(3) (Sem: 1-8)

**ADDITIONAL COURSES** (3 credits)

Select 3 credits from CC 401(3), CC 402(3), CC 403W(3), COMM 403(3), COMM 405(3), COMM 409(3), COMM 412(3), COMM 419 US;IL(3), or COMM 495(3) (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-014

Review Date: 11/19/2013

UCA Revision #1: 8/2/06

CM

## Agricultural and Extension Education

University Park, College of Agricultural Sciences (AEE)

PROFESSOR JOHN C. EWING, Program Coordinator

This major helps prepare students for positions in education in agriculture, including schools and colleges, Cooperative Extension, business, trade and professional associations, and government agencies. The Department administers a program approved by the Pennsylvania Department of Education for the preparation of agriculture teachers in public school systems. This includes programs in agricultural production, mechanics, supplies, resources, products, forestry, horticulture, and other agricultural areas.

Students take courses in agricultural and natural resource sciences, leadership and communications, natural science, social science and general education. Students seeking teacher certification schedule professional courses in education and psychology.

Pennsylvania Teacher certification regulations require students to have a GPA of 3.0; either pass a series of PECT PAPA/PRAXIS pre-certification teacher examinations or provide evidence of qualifying Scholastic Achievement Test or American College Test Plus Writing scores as specified by the Pennsylvania Department of Education; and complete an approved Educator Preparation Program. The Educator Preparation Program at Penn State includes documentation of at least 80 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach. At least 40 of these age-appropriate 80 hours must be with learners whose cultural, social, or ethnic backgrounds differ from the candidate's own; completion of an early field experience specified by the certification program; completion of at least 48 semester credit hours, including ENGL 015 or ENGL 030, 3 credits of literature, and 6 credits of quantification and secure occupational experience in the requested area of certification. (See also: [Teacher Education Programs](#))

For students seeking teacher certification, the B.S. degree in Agricultural and Extension Education, a minimum of 125-129 credits is required. For students selecting the Leadership Development and Communications option, a minimum of 122 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(13-22 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin for additional information)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 2-14 credits

**REQUIREMENTS FOR THE MAJOR:** 76-104 credits

(This includes 13-22 credits of General Education courses: 22 for the teacher certification options--6 credits of GS courses; 9 credits of GN courses; 4 credits of GQ courses; 3 credits of GWS courses; and 13 credits for the non-teacher certification option--6 credits of GS courses; 4 credits of GN courses; 3 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 19 credits

**PRESCRIBED COURSES** (19 credits)

AG BM 101 GS(3), BIOL 110 GN(4), ENGL 202C GWS(3) (Sem: 3-4)

AEE 311(3), INTAG 100 GS;IL(3) (Sem: 5-6)

AEE 495(3) (Sem: 7-8)

**REQUIREMENTS FOR THE OPTION:** 57-85 credits

**TEACHER CERTIFICATION OPTIONS**

**ENVIRONMENTAL SCIENCE OPTION:** (85 credits)

**PRESCRIBED COURSES** (48 credits)

AGRO 028(3), AN SC 201(4), ASTRO 001 GN(3), CHEM 101 GN(3), CHEM 202(3), PHYS 001 GN(3) (Sem: 1-2)

EDPSY 014(3) [\[11\]](#), EDTHP 115 US(3) [\[11\]](#), WF ED 413(3) (Sem: 2-7)

AEE 100(3), AEE 295(1) [\[11\]](#), SOILS 101 GN(3), STAT 200 GQ(4) (Sem: 3-4)

AEE 313(2) [\[11\]](#), AEE 412(4) [\[11\]](#), AEE 413(3) [\[11\]](#) (Sem: 5-8)

**ADDITIONAL COURSES** (7 credits)

BIOL 220W GN(4), BIOL 230W GN(4), or BIOL 240W GN(4) (Sem: 2-7)

A S M 101(3) or A S M 217(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (30 credits)

Select 3 credits of W courses offered in the College (Sem:1-7)

Select 6 credits in biological, physical ecosystems (Sem: 1-7)

Select 6 credits in environmental impact management (Sem: 1-7)

Select 6 credits in environmental learning (Sem: 1-7)

Select 6 credits in social, political, and legal aspects of environmental science (Sem: 1-7)

Select 3 credits in agricultural systems management (Sem: 3-4)

**PRODUCTION OPTION:** (80 credits)

**PRESCRIBED COURSES** (41 credits)

ASTRO 001 GN(3), CHEM 101 GN(3), CHEM 202(3), PHYS 001 GN(3) (Sem: 1-2)

AEE 100(3), AEE 295(1) [\[11\]](#), STAT 200 GQ(4) (Sem: 3-4)

EDPSY 014(3) [\[11\]](#), EDTHP 115(3) [\[11\]](#), SOILS 101 GN(3), WF ED 413(3) (Sem: 2-7)

AEE 313(2) [\[11\]](#), AEE 412(4) [\[11\]](#), AEE 413(3) [\[11\]](#) (Sem: 5-8)

**ADDITIONAL COURSES** (4 credits)

BIOL 220W GN(4), BIOL 230W GN(4), or BIOL 240W GN(4) (Sem: 2-7)

**SUPPORTING COURSES AND RELATED AREAS** (35 credits)

Select 3 credits of W courses offered in the College (Sem:1-7)

Select 14 credits in agriculture (Sem: 1-7)

Select 6 credits in animal science (Sem: 1-7)

Select 6 credits in plant/soil science (Sem: 1-7)

Select 6 credits in agricultural systems management (Sem: 3-6)

**NON-TEACHER CERTIFICATION OPTION**

**LEADERSHIP DEVELOPMENT AND COMMUNICATIONS OPTION:** (57 credits)

**PRESCRIBED COURSES** (9 credits)

AEE 360(3) [\[11\]](#), AEE 460(3) [\[11\]](#) (Sem: 5-6)



AEE 465(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS:** (48 credits)

Select 3 credits of W courses offered in the College (Sem:1-7)

*From an approved department list select the following:*

Select 6 credits of communications courses in consultation with adviser (Sem: 1-8)

Select 6 credits of moral and ethical dimensions of leadership courses in consultation with adviser (Sem: 1-8)

Select 6 credits of leadership style courses in consultation with adviser (Sem: 1-8)

Select 6 credits of global and multicultural perspective courses in consultation with adviser (Sem: 1-8)

Select 3 credits of Animal Science courses in consultation with adviser (Sem: 1-8)

Select 3 credits of Soil and Plant Science courses in consultation with adviser (Sem: 1-8)

Select 3 credits of Agricultural Business Management and/or Rural Sociology courses in consultation with adviser (Sem: 1-8)

Select 12 credits of Natural Resources courses in consultation with adviser (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-01-001

Review Date: 8/16/2011

R & T: 01/14/2014

UCA Revision #1: 8/2/06

AG

## Aerospace Engineering

University Park, College of Engineering (AERSP)

PROFESSOR GEORGE A. LESIEUTRE, Head, Department of Aerospace Engineering

This major emphasizes the analysis, design, and operation of aircraft and spacecraft. Students learn the theories and practices in the fundamental subjects of aeronautics, astronautics, aerodynamics and fluid dynamics, aerospace materials and structures, dynamics and automatic control, aircraft stability and control and/or orbital and attitude dynamics and control, air-breathing and rocket propulsion, aircraft systems design and /or spacecraft systems design. All of these place significant weight on the development and use of teamwork and communications skills for effective problem-solving. Graduates in aerospace engineering find employment in the customary settings such as government laboratories, large and small aerospace firms, and in nontraditional positions that also require the use of systems-engineering approaches to problem-solving; they can also pursue graduate study in aerospace engineering and related fields.

### Program Educational Objectives:

Two to three years after obtaining a B.S. in aerospace engineering, graduates will be

1. employed in the customary settings such as government laboratories, large and small aerospace firms, and nontraditional positions that also require the use of systems engineering approaches to problems-solving, or
2. pursuing graduate study in aerospace engineering and related fields.

### Program Outcomes (Student Outcomes)

The undergraduate program will provide students with the

- a.) ability to apply knowledge of mathematics, science and engineering to foundational subjects of aerospace engineering (aeronautics, astronautics, aerodynamics and fluid dynamics, aerospace materials and structures, dynamics and automatic control, stability and control of aircraft and/or spacecraft, air-breathing and rocket propulsion, and aircraft systems design and/or spacecraft systems design),
- b.) ability to design and conduct experiments, analyze and interpret data in aerodynamics, propulsion, structures, or control systems,
- c.) ability to design a system, component or process, integrating knowledge from relevant topics in astronautics and aeronautics, to meet desired needs in aircraft systems and/or in spacecraft systems,
- d.) ability to function on multi-disciplinary teams,
- e.) ability to identify, formulate, and solve engineering problems,
- f.) understanding of professional and ethical responsibility,
- g.) ability to communicate effectively,
- h.) broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context,
- i.) recognition of the need for, and an ability to engage in life-long learning,
- j.) knowledge of contemporary issues,
- k.) ability to use the techniques, skills, and modern engineering tools necessary for engineering practice, and
- l.) knowledge in all subjects in Category I or in Category II, and in some subjects in the other category:

(Category I: aerodynamics, aerospace materials, structures, propulsion, flight mechanics, and stability and control),

(Category II: orbital mechanics, space environment, attitude determination and control, telecommunications, space structures, and rocket propulsion).

The first two years of study are similar to those in other engineering majors and provide students with a basic education for the engineering profession. Students need to complete E MCH 212, CMPSC 201, MATH 220, MATH 230, and MATH 250 prior to the start of the junior year in order to meet graduation requirements in the following two years. Six of the nine technical-elective credits taken in the senior year must be aerospace engineering courses.

**ENTRANCE TO MAJOR** -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHSY 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Aerospace Engineering, a minimum of 131 credits is required. This baccalaureate program in Aerospace Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

### GENERAL EDUCATION: 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 113 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

### PRESCRIBED COURSES (72 credits)

CHEM 110 GN(3) [1], EDSGN 100(3), MATH 140 GQ(4) [1], MATH 141 GQ(4) [1], PHYS 211 GN(4) [1] (Sem: 1-2)  
E MCH 212(3) [1], M E 201(3), MATH 220 GQ(2-3), MATH 230(4), MATH 250(3), PHYS 212 GN(4), PHYS 214 GN(2) (Sem: 3-4)  
AERSP 301(3) [1], AERSP 304(3), AERSP 305W(3), AERSP 306(3) [1], AERSP 309(3) [1], AERSP 311(3) [1], AERSP 312(3), AERSP 313(3) [1], E MCH 315(2), E MCH 316(1) (Sem: 5-6)  
AERSP 410(3), ENGL 202C GWS(3) (Sem: 7-8)

### ADDITIONAL COURSES (29 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)  
ECON 102 GS(3), ECON 104 GS(3), or ECON 014 GS(3) (Sem: 1-2)  
Select 5 credits from E MCH 210(5), E MCH 211(3), E MCH 213(3) (Sem: 3-4)  
ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)  
CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 3-4)  
AERSP 401A(3), AERSP 401B(2); or AERSP 402A(3), AERSP 402B(2) (Sem: 7-8)  
AERSP 413(3) or AERSP 450(3) (Sem: 7-8)  
AERSP 440(3), E E 210(3), or E E 212(4) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 9 credits of Aerospace Technical Elective (ATE) courses from department list. (Sem: 7-8)

Select 3 credits of Limited Elective (LE) courses from department list. (Sem: 7-8)

(Students who complete Basic ROTC may substitute 6 of the ROTC credits for 3 credits of LE and 3 credits of GHA.)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2006

Blue Sheet Item #: 34-05-056

Review Date: 2/28/06

R & T: Approved 5/24/2013

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

EN

Publications updated accreditation statement, per COE: 8/15/11

## African American Studies

University Park, College of the Liberal Arts (AA ST)

PROFESSOR PAUL C. TAYLOR, Head

This major helps students achieve a critical understanding of the forms of knowledge, culture, and social organization that African-Americans have produced, and of the social conditions that have supported and constrained this work. Using interdisciplinary approaches as well as methods drawn from the traditional disciplines, the major exposes students to the ideas, institutions, movements, and practices that African-American peoples have used to survive and shape the modern world. The African American Studies curriculum promotes the critical faculties, cultural competencies, and historical sensibilities of its students, and thereby equips them for success in graduate school, professional school, and the workplace.

For the B.A. degree in African American Studies, a minimum of 125 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(4-10 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in the this bulletin)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 23-29 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits [\[1\]](#)

(This includes 3-9 credits of General Education courses: 0-6 credits of GS courses; and 3 credits of GH courses)

**PRESCRIBED COURSES** (9 credits)

AF AM 100 GS;US(3), AF AM 197 GS; IL(3), HIST 152 GH;US;IL(3) (Sem: 1-4)

**ADDITIONAL COURSES** (27 credits)

Select 3 credits from AF AM 101 GH;US(3), AF AM 102 GH;US(3), AF AM 103 GH;US(3) (Sem: 1-4)

Select 3 credits from AF AM 197 GH;US(3) or SOC 207 (3) (recommended for Political Science, Sociology and HHD-related double majors) (Sem: 1-4)

Select 3 credits from AF AM 401(3), AF AM 494(3), AF AM 495(3) (Sem: 4-8)

Select 12 credits from one of the following four areas of concentration, and 6 more credits from any of the other areas. A minimum of 12 credits should be AF AM courses, and at least 12 of these credits must be at the 400-level or above.

If you wish to receive credit for courses other than the ones noted below, you must seek permission from the AFAM undergraduate director.

### 1. Gender and Sexuality

AF AM 101 GH;US(3), AF AM 102 GH;US(3), AF AM 103 GH;US(3); AFR 202 GS;IL(3) (Sem: 1-4)

AF AM 364 GS;US(3), AF AM 410(3), AF AM 416(3) (Sem: 4-8)

Select 3 credits at the 400-level in consultation with your adviser (Sem: 4-8)

### 2. Humanities

AF AM 147 GH;US(3), AF AM 145 GH;US;IL(3), AF AM 146 GH;US(3), AF AM 208 GA;US;IL(3), AF AM 210 GH;US(3), AF AM 212 US(3), AF AM 235 US(3) (Sem: 1-4)

AF AM 412(3), AF AM 422(3), AF AM 460(3), AF AM 465(3), AF AM 469(3) (Sem: 4-8)

### 3. Social Sciences and Community Development

SOC 119 GS;US(3), PL SC 123 GS;US;IL(3) (Sem: 1-4)

AF AM 302 US(3), AF AM 409(3), AF AM 431(3), AF AM 432(3), AF AM 445Y(3), AFR 459(3), ECON 436W US(3), EDTHP 411(3), PL SC 490(3) ( Sem: 4-8)

### 4. Migration and Diaspora

AF AM 102 GH;US(3), AF AM 132 IL(3), AF AM 211 GH;US;IL(3), AF AM 250 GH;IL(3), AFR 110 GS;IL(3), AFR 192 GH;IL(3) (Sem: 1-4)

AF AM 431(3), AF AM 432(3), AFR 440(3), AFR 497(3), PL SC 453(3) (Sem 4-8)

[\[1\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-05-039

Review Date: 02/21/2012

## African Studies

*University Park, College of the Liberal Arts (AFRST)*

PROFESSOR IKUBOLAJEH LOGAN, Head

The major in African studies is a multidisciplinary program designed to offer students the opportunity to develop their understanding of various aspects of the African continent, including its socioeconomic conditions and global relations. The program utilizes historical, cultural, geographical, economic, and political approaches to equip students with skills to undertake research on issues pertinent to Africa and to prepare themselves for careers in a range of professions as well for post-graduate studies.

For the B.A. degree in African Studies, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(0-9 credits of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**ELECTIVES:** 9-18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 45 credits<sup>[1]</sup>

(This includes 0-9 credits of General Education courses; 3 credits of GA courses; 3 credits of GS courses; and 3 credits of GH courses)

**PRESCRIBED COURSES** (12 credits)

AFR 105 GN;IL(3), AFR 110 GS;IL(3), AFR 191 GH;IL(3), AFR 192 GH;IL(3) (Sem: 1-4)

**ADDITIONAL COURSES** (33 credits)

Select 15 credits from the following (100-300 level courses): AFR 150 GH;IL(3), AFR 197(3), AFR 199 IL(3), AFR 202 GS;IL(3); AFR 294(3-6), AFR 297(3-6); AFR 299 IL(3-6), AF AM 302 US(3), AFR 395(3), AFR 399(3), AF AM 100 GS;US(3), AF AM 211 GH;US;IL(3), ART H 335 GA;IL(3), ECON 102 GS(3), ECON 104 GS(3) (Sem: 1-4)

Select 18 credits with at least 12 from AFR or AFR cross-listed courses: AAA S 403 IL(3), AFR 405(3), AFR/PL SC 434(3), AFR/PL SC/IB 440(3), AFR/PL SC 443 IL(3), AFR/PL SC 454 IL(3), AFR/PL SC 459 IL(3), AFR 464 IL(3), AFR 494H(3), AFR 495(3), AFR 496(3), AFR 497(3), AFR 499 IL(3), GEOG 436(3), GEOG 444(3), GEOG/LER 475H(3), PL SC 481(3) (Sem: 5-8)

<sup>[1]</sup> A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-05-040

Review Date: 02/21/2012

## Agribusiness Management

University Park, College of Agricultural Sciences (AG BM)  
University Park, The Smeal College of Business  
World Campus

PROFESSOR SPIRO STEFANOU, Program Coordinator

Graduates can be found working in the food production, processing, financial services, wholesaling and retailing industries, both in the United States and abroad. A substantial number are employed by agricultural supply firms. Typically, B.S. degree holders begin their careers in sales or as management trainees, and then progress to management as they develop higher levels of expertise and experience. Penn State Agribusiness Management graduates chose careers in many other places. They also are employed in banking and the investment and mutual funds industries, and others have gone to law school, graduate school, or into rural development. The quality and diversity of the program enables Agribusiness majors to undertake a variety of jobs.

This major, which is offered jointly with The Mary Jean and Frank P. Smeal College of Business, includes a core of courses required of all business students. Combining the required specialization area with a minor or electives also allows a student to focus on a particular area of interest.

For the B.S. degree in Agribusiness Management, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 6-9 credits

### REQUIREMENTS FOR THE MAJOR: 81- 84 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

### PRESCRIBED COURSES (47 credits)

AG BM 102(3) [\[1\]](#), AG BM 106(3) [\[1\]](#), ECON 104 GS(3) (Sem: 1-4)

ACCTG 211(4), AG BM 302(3) [\[1\]](#), AG BM 308W(3) [\[1\]](#), AG BM 320(3) [\[1\]](#), AG BM 338 IL(3), ENGL 202D GWS(3), MIS 204(3), SCM 200 GQ(4) (Sem: 3-4)

FIN 301(3), SCM 301(3), MKTG 301(3), MGMT 301(3) (Sem: 5-6)

### ADDITIONAL COURSES (22-25 credits)

AG BM 101 GS(3) [\[1\]](#) or ECON 102 GS(3) [\[1\]](#) (Sem: 1-4) [\[77\]](#)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 3-4)

R SOC 011 GS(3) or SOC 001 GS(3) (Sem: 3-6) [\[78\]](#)

AG BM 407(3) or AG BM 408(3) (Sem: 5-8)

Take 3-6 credits in Social, Ethical and Legal Environment of Business from the following: B A 243(4); B LAW 341(3) and B A 342(3); B LAW 243(3) (Sem: 2-6)

Select 6 credits of AG BM 440(3), AG BM 420(3), AG BM 460(3) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits in a specialty area, in consultation with an adviser (at least 6 of these credits must be at the 300 or 400 level) (Sem: 5-8)

[\[1\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[\[77\]](#) AG BM 101 required unless ECON 102 was taken before entering the AG BM major.

[\[78\]](#) R SOC 011 required unless SOC 001 was taken before entering the AG BM major.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-001

Review Date: 04/12/2011

UCA Revision #1: 8/2/06

AG/BA

## Agricultural Science

University Park, College of Agricultural Sciences (AG SC)

PROFESSOR JOHN C. EWING, *Program Coordinator*

This major enables students to develop programs of study to serve their individual needs by assembling courses selected from various departments within the College of Agricultural Sciences. The student develops either a broad background in agriculture or a special program of study not currently offered within departments of the college. Students are expected to focus study on one or more disciplines of the agricultural sciences by selecting a minor from the approved list of minors offered by the College of Agricultural Sciences. The student, in consultation with an adviser, is given considerable flexibility for selecting courses to satisfy individual interests and aspirations.

Students can prepare themselves for careers in agricultural and natural resource related sales, and /or public relations; food, agricultural and natural resource commodity groups, agricultural finance; governmental and conservation agencies; the Cooperative Extension Service; land use and appraisal; and international agriculture agencies.

For the B.S. degree in Agricultural Science, a minimum of 123 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(18-30 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 6-26 credits

### REQUIREMENTS FOR THE MAJOR: 82-90 credits

(This includes 18-30 credits of General Education courses: 0-3 credits of GA courses; 0-3 credits of GHA courses; 9 credits of GN courses; 0-6 credits of GS courses; 9 credits of GWS courses.)

### PRESCRIBED COURSES (12 credits)

CAS 100 GWS(3), ENGL 015 GWS(3) (Sem: 1-2)

AEE 360(3), AEE 460(3) (Sem: 5-8)

### ADDITIONAL COURSES (43-48 credits)

BIOL 011 GN(3) and BIOL 012 GN(1), or BIOL 110 GN(4) or BI SC 003 GN(3) (Sem: 1-2)

CHEM 101 GN(3) or CHEM 110 GN(3) (Sem: 1-4)

Select 3 credits from ENGL 202C GWS(3), ENGL 202D GWS(3) (Sem: 3-4)

Select 3 credits from AEE 330W(3), AEE 440(3) (Sem: 4-7)

Select 3-4 credits in Crop Management: Any AGECO except X95 and X96, Any AGRO except X95, X96, Any ENT except X95, X96 (Sem: 5-6)

Select 3 credits in any HORT except X95, X96 (Sem: 5-6)

Select 3 credits in Agricultural Economics and Rural Sociology: Any AG BM except X95 and X96, Any CED except X95, X96, Any R SOC (Sem: 5-6)

Select 3 credits in International Agriculture: AEE 400(3), CED 450 IL(3), INTAG 100 GS;IL(3), INTAG 481(3), R SOC 420 US;IL(3), Any College of Agricultural Sciences international course (Sem: 5-6)

Take 1-2 credits in Careers in Agriculture: AEE 100(2), AG 100(1), AG 113(1), AN SC 290W(1), E R M 151(1) (Sem: 5-6)

Select 3-4 credits in any AN SC except 291, X95, X96 (Sem: 5-6)

Select 3 credits in Technology in Agriculture: A S M 217(3), AGECO 144 GN(3), AGECO 457(3); AN SC 207(2) and AN SC 208(1); , E R M 210 GN(3), FD SC 200(3) (Sem: 5-6)

Select 6 credits in Natural Resources/Ecology: from AGECO 122 GN(3), AGECO 201(3), EGEE 101 GN(3), FOR 470(3), R SOC 327(3), SOILS 071 GN;IL(3), SOILS 101 GN(3), SOILS 412W(3), W F S 209 GN(3) (Sem: 5-6)

Select 3 credits from AEE 311(3) or AEE 465(3) (Sem: 5-8)

Select 3 credits in Agricultural and Environmental Policy; AG 160 GH(3), AGECO 134 GN(3), CED 201(3), FD SC 105 GHA(3) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (27-30 credits)

Select 9 credits in Agriculture (Sem: 5-8)

Select 18-21 credits for College of Agricultural Sciences Minor [\[11\]](#) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-002

Review Date: 04/12/2011

UCA Revision #1: 8/2/06

AG

Air Force Aerospace Studies (AIR)

## Air Force Aerospace Studies (AIR)

The Air Force ROTC program trains qualified young men and women for service as commissioned officers in the United States Air Force.

The program is offered at the University Park campus and by special arrangement as follows: students attending Penn State Worthington Scranton, Penn State Hazleton, or Penn State Wilkes-Barre may complete freshman and sophomore requirements at Wilkes College, Wilkes-Barre, Pa.; students attending Penn State Abington or Penn State Brandywine may complete freshman and sophomore requirements at St. Joseph's University, Philadelphia, Pa.; students attending Penn State Altoona may complete freshman and sophomore requirements at the University Park campus. The junior and senior requirements may then be completed upon relocation to University Park campus.

Four-, three-, two-, and one-year (limited) scholarships are available to selected applicants. These scholarships provide \$250-\$400 per month along with full tuition and textbook allowance. Also, all cadets in the junior and senior courses are paid at the rate of \$350 to \$400 per month (tax free), respectively, even if not on scholarship. Uniforms and ROTC textbooks are provided for free by the Air Force.

**COURSE --** The instruction consists of a General Military Course (freshmen and sophomores) and a Professional Officer Course (juniors and seniors) of four semesters each. Subjects and credits appear under course descriptions (ROTC) in this bulletin. Students have an opportunity to visit Air Force bases throughout the school year and summer months, where they may receive instruction on parachuting, flying gliders, and other Air Force-related activities.

Completion of eight semesters and one four-week summer training period confers eligibility for a commission in the Air Force Reserve and assignment to active duty in the USAF with the rank of second lieutenant. For students graduating in fewer than four years, there is also a two-year program in which a six-week summer training period replaces both the General Military Course and the normal four-week summer training period. Those students not participating in the four-year program but who will have four or more full academic semesters available, either undergraduate or graduate, after completion of the six-week summer training period are eligible for this two-year program, which leads to an Air Force commission.

Effective Date: Current

Review Date: 4/19/04



## American Studies

Abington College (AMSAB)  
Penn State Harrisburg (AMSCA)  
University College (AMSCC): Penn State Brandywine

PROFESSOR SIMON J. BRONNER, *Chair, American Studies Program*

This interdisciplinary major is designed to provide students with an integrated and critical knowledge of American culture, drawing on courses in American Studies and in the traditional disciplines and culminating in two senior seminars. A number of interests may be pursued within the major, including popular culture, art, technology, business, law, archives, museology, and conservation. The major helps prepare students for careers in business, teaching, government, and a number of other areas, and for enrollment in law and other professional programs.

For entrance into the major, the following must be met:

1. At the end of the sophomore year, any student in good standing may gain entrance into the major without having completed specific courses.
2. Any student seeking entrance during the fifth semester will be granted entrance at the discretion of the American Studies Committee and/or Director following evaluation of the student's record.
3. Any student seeking entrance during or after the sixth semester will be expected to have completed at least 12 credits, which may be counted toward the major in American Studies.

For the B.A. degree in American Studies, a minimum of 123 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 21 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 33 credits<sup>[1]</sup>

**PRESCRIBED COURSES** (6 credits)  
AM ST 491W(6) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)  
AM ST 100 GH(3) or AM ST 100Y GH(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (24 credits)  
(Include 12 credits at the 400 level distributed in at least two of the areas.)  
Select 9 credits in each of two of the following areas; select 6 credits in one other of the areas: (Sem: 3-8)

- a. American literature
- b. American history
- c. American art, philosophy, and religion (humanities)
- d. American social sciences

### Integrated B.A./M.A. in American Studies

The American Studies Program offers an integrated B.A./M.A. program that is designed to allow academically superior baccalaureate students enrolled in the American Studies major to obtain both the B.A. and the M.A. degrees in American Studies within five years of study. The first two years of undergraduate coursework typically include the University General Education requirements and lower-level courses. In the third year, students typically take upper-division coursework in American Studies and define areas of interest. The fourth year involves graduate-level American Studies coursework including required courses in American Studies Theory and Methods (AM ST 500). The fifth and final year of the program typically consists of graduate coursework in American Studies including Seminar (AM ST 591) and identification of a research project that will culminate in the completion of a M.A. project (AM ST 580) or thesis (AM ST 600).

By encouraging greater depth and focus in the course of study beginning in the third undergraduate year, this program will help the student more clearly define his/her area of interest and expertise in the broad field of American Studies. As a result, long-range academic planning for exceptional students pursuing doctoral degrees or other professional goals after leaving Penn State will be greatly enhanced. For most students, the total time required to reach completion of the higher degree will be shortened by about a year. The student will have earlier contact with the rigors of graduate study and with graduate faculty. The resources of the Graduate School are accessible to students accepted into the IUG program. Students in their third and fourth year of study with IUG status benefit from their association with graduate students whose level of work parallel their own.

For the IUG American Studies B.A./M.A. degree, a minimum of 123 credits are required for the B.A. and a minimum of 30–33 credits for the M.A. (30 for non-thesis; 33 for thesis). Twelve credits at the 400 level or higher, in consultation with the adviser, can apply to both the B.A. and M.A. degrees; at least 6 of these 12 credits must be at the 500 level.

If for any reason a student admitted to the B.A./M.A. program is unable to complete the requirement for the Master of Arts degree program in American Studies, the student will be permitted to receive the B.A. degree assuming all degree requirements have been satisfactorily completed.

### Admission Requirements

The number of openings in the integrated B.A./M.A. program is limited. Admission will be selective based on specific criteria and the unqualified recommendation of faculty. Applicants to the integrated program:

1. Must be enrolled in the American Studies B.A. program and meet the admission requirements of the American Studies M.A. program.
2. Must apply and be admitted to the Graduate School.
3. Shall be admitted no earlier than the beginning of the third semester of undergraduate study at Penn State (regardless of transfer or AP credits accumulated prior to enrollment) and no later than the end of the second week of the semester preceding the semester of expected conferral of the undergraduate degree, as specified in the proposed IUG plan of study.
4. Must have completed at least one 400-level American Studies course (AM ST prefix) with a grade of A.
5. Must submit transcript(s) of previous undergraduate work, recommendations from two faculty members, writing sample, and statement of goals.
6. Must have an overall GPA at or above 3.3 (on a 4.0 scale) in undergraduate coursework and a GPA at or above 3.5 in all coursework completed for the American Studies major.
7. Must present a plan of study approved by the student's adviser in the application process.

### Course Load

As many as 12 of the credits required for the master's degree may be applied to both undergraduate and graduate degree programs. The courses to be double counted are:

AM ST 491W (two seminars on different topics)—6 credits during the student's fourth (senior) year

AM ST 500 —3 credits during the student's fourth (senior) year

AM ST 591—3 credits during the student's fifth year

With the approval of the student's adviser, students may take American Studies courses from the 100 to 400 levels at Penn State campuses other than Harrisburg, but 500-level courses must be taken at the Harrisburg campus.

#### Sample Sequence of Coursework

A typical sequence of coursework for the integrated program would appear as follows (AM ST 491W, AM ST 500, and AM ST 591 are applied to both undergraduate and graduate degree programs):

YEAR	FALL		SPRING	
3rd (Junior)	AM ST 100	3	AM ST supporting course	3
	AM ST supporting course	3	400-level AM ST course	3
	BA Requirement: Other Cultures	3	400-level AM ST course	3
	BA Requirement: Knowledge Domain	3	Elective	3
	Elective	3	Elective	3
	Total	15	Total	15
4th (Senior)	<b>AM ST 491W*</b>	3	<b>AM ST 491W*</b>	3
	400-level AM ST course	3	400 level AM ST course	3
	400-level AM ST supporting course	3	<b>AM ST 500*</b>	3
	Elective	3	500 level AM ST course	3
	Elective	3	Elective	3
	Total	15	Total	15
5th (Graduate)	500-level AM ST course	3	500-level AM ST course	3
	500-level AM ST course	3	AM ST 580 or AM ST 600	3 - 6
	500-level AM ST course	3	<b>AM ST 591*</b>	3
	Total	9	Total	9 - 12

\*Satisfies requirements for both the undergraduate and graduate program for a total of 12 credits

As stated in the Graduate Bulletin, a minimum grade-point average of 3.00 for work done at the University is required for graduation and to maintain good academic standing. See [http://bulletins.psu.edu/bulletins/whitebook/degree\\_requirements.cfm?section=masters](http://bulletins.psu.edu/bulletins/whitebook/degree_requirements.cfm?section=masters).

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-026

Review Date: 08/20/13

UCA Revision #2: 7/26/07

AB

## Animal Science

University Park, College of Agricultural Sciences (AN SC)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

DR. ROBERT MIKESELL, *Program Coordinator*

Animal Science may be defined as the study and integration of all disciplines that relate to the function and care of animals for the benefit of society by providing companionship, food, fiber, performance, and research. The Animal Science major includes references to all types of animals.

The educational experiences included in this major should prepare the student for a wide range of entry-level positions in production agriculture agribusiness, and related industries, and provide preparation for the pursuit of post-baccalaureate studies leading to professional or advanced degrees. The student is expected to develop a comprehensive understanding of the biological and physical sciences underlying the functioning of all types of animals.

Realizing the wide range of career possibilities requiring diverse types of academic preparation, two options of study are available: the Business/Management Option and the Science Option.

For the B. S. degree in Animal Science, a minimum of 124 credits is required.

**BUSINESS/MANAGEMENT OPTION:** The primary objective of this option is to prepare the student for entry-level positions in agribusiness organizations and in the animal and food industries. The student may develop a program with specie specialization or diversity. The student may develop a foundation in accounting, economics, finance, marketing, and other business-related areas. Graduates seek entry-level employment opportunities as loan officers with financial institutions; technical service and sales representatives for pharmaceutical, agri-chemical, feed or food producing companies; field representatives for breed organizations or producer cooperatives; public relations and human resources personnel for agribusiness companies; management trainees for numerous agribusiness firms; management trainees or assistant managers of animal production units, and roles in government agencies.

**SCIENCE OPTION:** The primary objective of this option is to prepare the student for entry into post-baccalaureate study programs in animal and related biological sciences. Graduates who have obtained the proper qualifications may pursue advanced studies in a wide variety of disciplines, including animal science, biotechnology, genetics, microbiology, nutrition, physiology, molecular biology, pharmaceutical research, and veterinary medicine. Graduates not desiring to pursue advanced studies seek entry-level employment opportunities as research technicians, technical service representatives for various industrial companies, food inspectors, laboratory animal caretakers, and public relations personnel.

TO VIEW THE [Animal Science Minor \(AN SC\)](#)

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(18-24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-13 credits

**REQUIREMENTS FOR THE MAJOR:** 90-100 credits

(This includes 18-24 credits of General Education courses: 0-3 credits of GA courses; 9 credits of GN courses; 3-6 credits of GS courses; 6 credits of GQ courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 42-47 credits

(Courses taken as common requirements can not be used to meet requirements within the option)

**PRESCRIBED COURSES** (24 credits)

AN SC 100 GN(3) (Sem: 1-2)

BIOL 110 GN(4) (Sem: 1-4)

AN SC 201(4) [11](#), AN SC 207(2) [11](#), AN SC 208(1) [11](#), AN SC 290W(1), AN SC 300 GN(3) [11](#) (Sem: 3-4)

AN SC 301(3) [11](#), B M B 211(3) (Sem: 3-6)

**ADDITIONAL COURSES** (15-18 credits)

AG BM 101 GS(3) or ECON 102 GS(3) (Sem: 1-2)

Select 6-8 credits from:

-- select 3-4 from MATH 021 GQ(3), MATH 022 GQ(3), MATH 110 GQ(4), or MATH 140 GQ(4) (Sem: 1-2)

-- select 2-4 from CMPSC 101 GQ(3), CMPSC 203 GQ(4), MATH 022 GQ(3), MATH 111 GQ(2), MATH 141 GQ(4), STAT 100 GQ(3), STAT 200 GQ(4), or STAT 250 GQ(3) (Sem: 1-2)

CHEM 202(3) or CHEM 210(3)

Select 3-4 credits [11](#) from AN SC 305(3), AN SC 306(3), AN SC 308(4), AN SC 309(4), AN SC 310(3), AN SC 311(4), AN SC 315(3), AN SC 324(3), or AN SC 327(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (3-5 credits)

Select 3-5 credits in communication skills courses from department list. Certain courses may double count as general education courses; consult with your adviser. (Sem: 7-8)

**REQUIREMENTS FOR THE OPTION:** 48-53 credits

**BUSINESS/MANAGEMENT OPTION:** (49-52 credits)

**PRESCRIBED COURSES** (7 credits)

ACCTG 211(4) (Sem: 3-4)

AN SC 322(3) (Sem: 5-6)

**ADDITIONAL COURSES** (19-22 credits)

CHEM 101 GN(3) or CHEM 110 GN(3) (Sem: 1-2)

AG BM 102(3) or MKTG 221(3) (Sem: 3-4)

AG BM 200(3) or MGMT 100(3) (Sem: 3-4)

MICRB 106 GN(3) and MICRB 107 GN(1); or MICRB 201(3) and MICRB 202(2) (Sem: 5-6)

Select 3-4 credits from AN SC 305(3), AN SC 306(3), AN SC 308(4), AN SC 309(4), AN SC 310(3), AN SC 311(4), AN SC 315(3), AN SC 324(3), AN SC 327(3), AN SC 405(3), AN SC 407(3), or AN SC 410(4) (Sem: 5-8)

Select 3-4 credits from AN SC 420(4), AN SC 423(3), AN SC 427(3), or AN SC 431W(4) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (23 credits)

Select 23 credits (at least 9 credits of business and 9 credits of production courses; 12 credits must be 400-level courses) from department list (Sem: 5-8)  
(Students may apply 6 credits of ROTC.)

**SCIENCE OPTION:** (48-53 credits)

**PRESCRIBED COURSES** (27 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1) (Sem: 1-2)

B M B 212(1), B M B 221(2) (Sem: 5-6)

MICRB 201(3), MICRB 202(2), PHYS 250 GN(4) (Sem: 5-6)

AN SC 423(3), AN SC 431W(4) (Sem: 7-8)

**ADDITIONAL COURSES** (16-19 credits)

CHEM 203(3) or CHEM 212(3) and CHEM 213(2) (Sem: 3-4)

Select 4 credits from BIOL 220W GN(4), BIOL 230W GN(4), or BIOL 240W GN(4) (Sem: 3-4)

Select 3 credits from AGRO 028(3), AN SC 211(3), AN SC 213(3), or SOILS 101 GN(3) (Sem: 5-6)

Select 3 credits from AN SC 322(3), BIOL 133 GN(3), or BIOL 222(3) (Sem: 5-6)

Select 3-4 credits from AN SC 305(3), AN SC 306(3), AN SC 308(4), AN SC 309(4), AN SC 310(3), AN SC 311(4), AN SC 315(3), AN SC 324(3), AN SC 327(3),

AN SC 405(3), AN SC 407(3), AN SC 410(4), or AN SC 413(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (5-7 credits)

Select 5-7 credits of 400-level courses from department list

(Students may apply 6 credits of ROTC.) (Sem: 7-8)

**Integrated B.S. in Animal Science and Master of Biotechnology in Biotechnology**

Qualified students should formally apply to the Master of Biotechnology degree when they have earned a minimum of 75 credits in their B.S. curriculum. To make sure students finish within the shortest time-to-degree, students intending to apply to the integrated program will be closely mentored by their respective undergraduate program coordinators to guide their progress through their B.S. curriculum. The undergraduate program coordinators will be directly consulted by the Director of the Master of Biotechnology in Biotechnology program regarding admission of a student applicant to the Master of Biotechnology in Biotechnology program.

Students admitted to the integrated program will follow their undergraduate curriculum until the beginning of their fourth year, at which time, they start taking courses required for the Master of Biotechnology degree. In the summer following the Spring semester of their fourth year, students will participate in off-campus internships and have the option of either continuing at their off-campus location for their research project in the following Fall semester, or coming back to campus to do a research project. The final Spring semester will be devoted to completing the course and credit requirements for the Master of Biotechnology degree. As designed, students can opt to graduate with a B.S. degree at the end of the Spring semester of their 4th year, when they should have completed the credit requirements of the B.S. degree program (124 credits). The following table outlines the program of study for students in this program:

Year	Semester	B.S. Animal Science (124 credits required) credits completed
<u>I</u>	<u>Fall</u>	<u>15</u>
	<u>Spring</u>	<u>16</u>
<u>II</u>	<u>Fall</u>	<u>15.5</u>
	<u>Spring</u>	<u>16</u>
<u>III</u>	<u>Fall</u>	<u>15</u>
	<u>Spring</u>	<u>15.5</u>
<u>IV</u>	<u>Fall</u>	<u>15*</u>
	<u>Spring</u>	<u>16*</u>
<b>Total credits for B.S.</b>		<b>124</b>

\* The following courses to be taken in these semesters will be cross-counted towards the B.S. and Master of Biotechnology degrees:

BIOTC 479. Methods in Biofermentation OR CH E 409 (3 credits)

B M B 400. Molecular Biology of the Gene (2-3 credits)

IBIOS 571. Current Issues in Biotechnology (2 credits)

IBIOS 591. Ethics in the Life Sciences (1 credit)

IBIOS 593. Molecular Biology Laboratory (3 credits)

**Total credits cross-counted**

**in B.S. and Master of Biotechnology degrees**      **12 credits, 6 of which are 500-level credits**

Master of Biotechnology in Biotechnology (30 credits required, 18 of which must be 500-level)

IV	Summer	IBIOS 595 or equivalent in AN SC (2 credits) Internship
V	Fall	IBIOS 594. Research Project (3-6 credits)
	Spring	IBIOS 590. Colloquium (1 credit)
		Electives, 500-level (3-6 credits)
Other graduate level electives (6 credits)		
<b>Minimum total credits earned for Summer and 5th year</b>		<b>18 credits, at least 12 of which are 500-level credits</b>

**Admission Requirements**

Students must have a GPA of 3.5 at the time of application to the integrated degree program when they have completed at least 75 credits of their B.S. curriculum. The GRE scores normally required in the Master of Biotechnology in Biotechnology program will be waived for applicants to the integrated B.S.-Master of Biotechnology degree.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013 (ANSCI); Summer Session 2006 (Integrated B.S./Master of Biotechnology in Biotechnology-Grad. Degree Name Change)

Blue Sheet Item #: 41-04-001 (AN SC); 34-06-001 (Integrated B.S./Master of Biotechnology in Biotechnology)

Last Revised by the Department: Fall Semester 2012

Review Date: 01/15/2013

AG

## Anthropology

University Park, College of the Liberal Arts (ANTH)

PROFESSOR GEORGE R. MILNER, *Head, Department of Anthropology*

Anthropology is a holistic scientific discipline having links to the humanities. Anthropologists document, describe, and explain the physical and cultural differences of societies, both past and present. Anthropology sees the individual as part of a larger social order that both impinges upon and is molded by those who belong to it. Anthropology investigates how cultures interact and relate within specific economic, political, and ecological frameworks over time.

The Bachelor of Arts major focuses on the biological and cultural variations of human populations through archaeology, biological anthropology, and cultural anthropology. In addition to class work, students receive practical training in laboratory and field work.

For the B.A. degree in Anthropology, a minimum of 121 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR.)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selections, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 16 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 40 credits [\[1\]](#)

(This includes 4 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (13 credits)

ANTH 002 GS(3), ANTH 021 GN(3), ANTH 045 GS;US;IL(3), STAT 200 GQ(4) (Sem: 1-6)

**ADDITIONAL COURSES** (27 credits)

Select 15 credits in ANTH courses other than ANTH 001 GS;US;IL(3) (no more than 6 credits from 190-199, 290-299, 390-399, and 490-499, other than 297 and 497) (Sem: 1-8)

Select 12 credits from the following ranges (at least 3 credits must be in each range):

- a. Archaeology: ANTH 420-439 (Sem: 3-6)
- b. Biological anthropology: ANTH 400-419, ANTH 460-473 (Sem: 3-6)
- c. Cultural anthropology: ANTH 440-459, ANTH 474-479 (Sem: 3-6)

### Integrated B.A./M.A in Anthropology Degree Requirements

The Department of Anthropology offers an integrated B.A./B.S./M.A. (IUG) program designed to allow academically superior students to obtain a B.A. or B.S. degree in Anthropology, a B.A. degree in Classics and Ancient Mediterranean Studies (CAMS), and a M.A. degree in Anthropology in five years of study. To complete the program in five years, students interested in the Integrated Undergraduate and Graduate degree in Anthropology must apply for admission to the Graduate School and the Integrated B.S./M.S. Program by the end of their junior year.

During the first three years, the student will follow course scheduling for the B.A. degree in CAMS and either the B.A. degree in Anthropology or the B.S. degree in Archaeological Science (see the Undergraduate *Bulletin*). Students who intend to enter the IUG program are encouraged to take upper level classes during their first three years whenever appropriate. By the end of the junior year, students normally apply for admission to both the IUG program and to the Graduate School. Acceptance decisions will be made prior to the beginning of the senior year and M.A. advisors will be appointed for successful applicants. During the senior year, IUG students follow the scheduling of the selected options for their B.A. or B.S. majors, with an emphasis on completing 500-level course work as appropriate. During the senior year, IUG students will start work on their thesis research to meet the M.A. thesis requirements. During the fifth year, IUG students take courses fulfilling the M.A. degree requirements and complete their M.A. thesis.

### Admission Requirements

Students who wish to complete the Integrated Undergraduate and Graduate Program in Anthropology should apply for admission to both the Graduate School and the IUG Anthropology Program no later than the end of their junior year. Successful students will be admitted formally into the graduate program in Anthropology just prior to their senior year, if their progress has been satisfactory. Admission prior to the senior year is also possible in some unusual circumstances. In all cases, admission to the program will be at the discretion of the joint Anthropology-CAMS admission committee. Criteria for admission include a minimum overall GPA of 3.4 in their majors, strong recommendation letters from faculty, and an excellent proposal for a research project with a specific adviser who has agreed to guide the student through to the completion of the M.A. thesis.

### Graduate Coursework

#### REQUIRED COURSES

##### ANTHROPOLOGY (ANTH)

- 493. Field Techniques (3)
- 521. Current Literature in Archaeology (2)
- 545. Seminar in Anthropology (6)
- 588. Method and Theory in Archaeology (3)
- 600. Thesis Research (6)

#### ADDITIONAL COURSES

Four required credits in ANTH 494(1-12) or CAMS 494(1-12)

Six required credits in CAMS 592(3), 593(3-6), or 596(1-9)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-096

Review Date: 08/20/13

Dept head updated by Publications: 10/19/11

LA

## Administration of Justice

Abington College (AJAAB)

University College (AJACC): Penn State Fayette, Penn State Schuylkill, Penn State Wilkes-Barre

The Bachelor of Arts degree in Administration of Justice provides students with a broadly based liberal education focused on the understanding and analysis of justice systems. Having grappled with the many dilemmas and controversies presented by the problems of administering justice in a complex society, graduates of this program are given the background to be educated, thoughtful, and intelligent citizens.

For the B.A. degree in Administration of Justice, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### **GENERAL EDUCATION:** 45 credits

(4-7 credits of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### **FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### **UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### **WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### **ELECTIVES:** 11-15 credits

### **BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

### **REQUIREMENTS FOR THE MAJOR:** 43-44 credits<sup>[1]</sup>

(This includes 4-7 credits of General Education courses; 0-3 credits of GH courses; 4 credits of GQ courses.)

### **PRESCRIBED COURSES** (13 credits)

CRIMJ 012 GS(3), CRIMJ 100(3), CRIMJ 221(3), STAT 200 GQ(4) (Sem: 3-4)

### **ADDITIONAL COURSES** (24-25 credits)

Select 3-4 credits in values and ethics from B A 243(4), or B A 241(2) and B A 242(2), CRIMJ 465(3), PHIL 003 GH(3), PHIL 103 GH(3), PHIL 105 GH(3), PHIL 106 GH(3), or PHIL/S T S 107 GH(3), S T S 100 GH(3), S T S 101 GH(3) or S T S/PHIL 107 GH(3) (Sem: 5-6)

Select 3 credits from CRIM J 451 US(3) or CRIM J 453 US(3) (Sem: 5-8)

Select 18 credits in CRIMJ, with at least 9 credits in the 400 level from: CRIMJ 013 GS(3), CRIMJ 083S GS(3), CRIMJ 113 US(3), CRIMJ 200(3), CRIMJ 201(3), CRIMJ 210(3), CRIMJ 220(3), CRIMJ 230(3), CRIMJ 234(3), CRIMJ 241(3), CRIMJ 296(1-18), CRIMJ 297(1-9), CRIMJ 300H(3), CRIMJ 301H(3), CRIMJ 302H(3), CRIMJ 304(3), CRIMJ 310(3), CRIMJ 311(3), CRIMJ 345(3), CRIMJ 389(3), CRIMJ 406(3), CRIMJ 407(3), CRIMJ 408(3), CRIMJ 410(3), CRIMJ 412(3), CRIMJ 413(3), CRIMJ 414(3), CRIMJ 415(3), CRIMJ 420(3), CRIMJ 421(3), CRIMJ 421(3), CRIMJ 422(3), CRIMJ 423(3), CRIMJ 424(3), CRIMJ 424(3), CRIMJ 425(3), CRIMJ 426(3), CRIMJ 430(3), CRIMJ 431(3), CRIMJ 432(3), CRIMJ 435(3), CRIMJ 439(3), CRIMJ 441(3), CRIMJ 450W(3), CRIMJ 460(3), CRIMJ 462(3), CRIMJ 467(3), CRIMJ 469(3), CRIMJ 471(3), CRIMJ 473(3), CRIMJ 482(3), CRIMJ 489W(3), CRIMJ 497(3), CRIMJ 497A(3) (Sem: 5-8)

### **SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits, in consultation with adviser, from University-wide offerings according to student's career plan (Sem: 5-8)

**[1]**A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-099

Review Date: 01/10/2012

UCA Revision #2: 7/26/07



## Administration of Justice

Abington College (AJSAB)

University College (AJSCC): Penn State Beaver, Penn State Fayette, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre

The Bachelor of Science degree is intended to prepare students for careers in the administration of justice. Two emphases are provided: (1) for students interested in entry-level employment in justice agencies; (2) for students interested in academic or research positions and who may seek graduate education before beginning employment.

For the B.S. degree in Administration of Justice, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(4-7 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 14-18 credits

### REQUIREMENTS FOR THE MAJOR: 64-65 credits<sup>[1]</sup>

(This includes 4-7 credits of General Education courses; 0-3 credits of GH courses; 4 credits of GQ courses.)

### PRESCRIBED COURSES (13 credits)

CRIMJ 012 GS(3), CRIMJ 100(3), CRIMJ 221(3), STAT 200 GQ(4) (Sem: 3-4)

### ADDITIONAL COURSES (39-40 credits)

(Some of the courses in this category may have prerequisites that are not included in the major.)

Select 3-4 credits in values and ethics from B A 243(4) or B A 241(2) and B A 242(2), CRIMJ 465(3), PHIL 003 GH(3), PHIL 103 GH(3), PHIL 105 GH(3), PHIL 106 GH(3), or PHIL/S T S 107 GH(3), S T S 100 GH(3), S T S 101 GH(3) or S T S/PHIL 107 GH(3) (Sem: 5-6)

Select 3 credits from CRIMJ 451 US(3) or CRIMJ 453 US(3) (Sem: 5-8)

Select 18 credits in CRIMJ, with at least 9 credits in the 400 level from: CRIMJ 013 GS(3), CRIMJ 083S GS(3), CRIMJ 113 US(3), CRIMJ 200(3), CRIMJ 201(3), CRIMJ 210(3), CRIMJ 220(3), CRIMJ 230(3), CRIMJ 234(3), CRIMJ 241(3), CRIMJ 296(1-18), CRIMJ 297(1-9), CRIMJ 300H(3), CRIMJ 301H(3), CRIMJ 302H(3), CRIMJ 304(3), CRIMJ 310(3), CRIMJ 311(3), CRIMJ 345(3), CRIMJ 389(3), CRIMJ 406(3), CRIMJ 407(3), CRIMJ 408(3), CRIMJ 410(3), CRIMJ 412(3), CRIMJ 413(3), CRIMJ 414(3), CRIMJ 415(3), CRIMJ 420(3), CRIMJ 421(3), CRIMJ 422(3), CRIMJ 423 US(3), CRIMJ 424(3), CRIMJ 425(3), CRIMJ 426(3), CRIMJ 430(3), CRIMJ 431(3), CRIMJ 432(3), CRIMJ 435(3), CRIMJ 439(3), CRIMJ 441(3), CRIMJ 450W(3), CRIMJ 460(3), CRIMJ 462(3), CRIMJ 467(3), CRIMJ 469(3), CRIMJ 471(3), CRIMJ 473(3), CRIMJ 482(3), CRIMJ 489W(3), CRIMJ 497(3), CRIMJ 497A(3) (Sem: 5-8)

Select 15 credits -- emphasis a or b:

a. Field Research emphasis: CRIMJ 240W(4), CRIMJ 290(1-3), CRIMJ 494(5), CRIMJ 495(5) (Sem: 5-8)

b. Research and Policy Analysis emphasis: Select 15 credits, at least 6 at the 400 level from: AM ST 491W(3-6), CRIMJ 424W(3), any CMPSC (3), ECON 104 GS(3), LER 100 GS(3), L ST 370(3), PL SC 002(3), PL SC 419 US(3), PL SC 490(3), SOC 409 US(3), SOC 419(3), SOC 422(3), or SOC 423(3) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits, in consultation with adviser, from University-wide offerings according to student's career plan (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-100

Review Date: 01/10/2012

UCA Revision #2: 7/26/07

## Applied Psychology

*Berks College (APSYC)*

This major is designed for students who are interested in a liberal arts degree with a concentration in applied psychology. The program features both active and collaborative classroom experiences in addition to intensive internship experiences, and is most appropriate for students who wish to develop a set of applied scientific and human relations skills that will prepare them for entry-level employment in a wide range of government and private human service organizations and agencies, and in business and industry. Because of the flexible and broad nature of the degree, students might also use this major as a preparation for graduate or professional school in business, human services, law, or the social sciences.

This program differs most notably from traditional majors in psychology in three ways: 1) it is intended for students who may not be planning to pursue a doctoral degree in psychology that would prepare them for a career as a psychologist; 2) it requires that students learn and apply skills during 12 credits of internship experiences; 3) it requires that students demonstrate skill proficiency in a comprehensive assessment in order to graduate.

For the B.A. degree in Applied Psychology, a minimum of 127 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

### **GENERAL EDUCATION:** 45 credits

(0-4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### **FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### **UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### **WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

### **ELECTIVES:** 8-24 credits

### **BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

### **REQUIREMENTS FOR THE MAJOR:** 50 credits<sup>[1]</sup>

(This includes 0-4 credits of General Education GQ courses.)

### **PRESCRIBED COURSES** (28 credits)

PSYCH 100 GS(3) (Sem: 1-2)  
PSYCH 212 GS(3), PSYCH 296(1) (Sem: 1-4)  
PSYCH 301W(4) (Sem: 3-6)  
PSYCH 404/EDPSY 450(3), PSYCH 495(12) (Sem: 5-8)  
PSYCH 496(2) (Sem: 7-8)

### **ADDITIONAL COURSES** (16 credits)

PSYCH 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

Select 12 credits from the following groups, including a minimum of 3 credits from each category (a total of 9 credits must be at the 400 level):

1. Abnormal, Clinical, Personality:  
PSYCH 238 GS(3) (Sem: 3-6)  
PSYCH 470(3), PSYCH 479 US(3), PSYCH 481(3) (Sem: 5-8)
2. Developmental, Cognitive, Learning:  
ED PSY 014(3), PSYCH 256 GS(3), PSYCH 261 GS(3), PSYCH 412(3), PSYCH 415(3), PSYCH 456(3) (Sem: 3-6)  
PSYCH 416/HD FS 445(3) (Sem: 5-8)
3. Industrial/Organizational, Social, Interpersonal:  
PSYCH 221 GS(3), PSYCH 281 GS(3), PSYCH 420(3) (Sem: 3-8)  
PSYCH 423(3), PSYCH 424(3) (Sem: 5-8)
4. Health, Wellness, Adjustment:  
PSYCH 243 GS(3) (Sem: 3-6)  
PSYCH 441(3), PSYCH 471(3) (Sem: 5-8)

### **SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 3 credits of 200-level psychology in consultation with an adviser (Sem: 1-2)

Select 3 credits in consultation with an adviser (Sem: 1-8)

**[1]**A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2003

Blue Sheet Item #: 31-04-017

Review Date: 1/14/03

UCA Revision #1: 8/14/06

BK-LV

## Art

*University Park, College of Arts and Architecture (ARBFA)*

PROFESSOR GRAEME SULLIVAN, *Director, School of Visual Arts*

The Bachelor of Fine Arts degree requires thorough preparation and is intended to develop a level of competence that will enable persons who wish to pursue professional careers in art to prepare themselves for specialized graduate studies, specialized professional training, and/or immediate participation in creative work.

Students enrolled in the School of Visual Arts may seek entrance into the B.F.A. program no earlier than the second semester and no later than the fourth semester.

There will be a continuous review of portfolio and performance of students enrolled in the B.F.A. program throughout the entire program. Students who do not meet the standards or who do not want to continue in the B.F.A. program may return to the B.A. program in art or choose another program of study.

For the B.F.A. degree in Art, a minimum of 122 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**GENERAL EDUCATION:** 45 credits  
(6 of these credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 83 credits  
(This includes 6 credits of General Education GA courses.)

**PRESCRIBED COURSES** (15 credits)[\[1\]](#)  
ART 110S(3), ART 111 (3) (Sem: 1-2)  
ART 122Y US(3), ART H 111 GA;IL(3), ART H 112 GA;IL(3) (Sem: 1-4)

**ADDITIONAL COURSES** (15 credits)[\[1\]](#)  
Select 15 credits at the beginning level from ART 201(3), ART 203(3), ART 211 US(3), ART 217(3), ART 220(3), ART 223(3), ART 230(3), ART 240(3), ART 250(3), ART 251(3), ART 260(3), ART 280(3), ART 296(3), ART 297(3), ART 299(3), PHOTO 100 GA(3), or PHOTO 201(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (53 credits)  
Select 47 credits in Art at the 300 or 400 level, 24 of which must be in an area of concentration from the following: ceramics, drawing and painting, new media, photography, printmaking, or sculpture[\[1\]](#) (Sem: 3-8)  
Select 6 credits in art history (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-06-013

Review Date: 4/15/08

AA

## Architecture

*University Park, College of Arts and Architecture (ARCBS and BARCH)*

PROFESSOR MEHRDAD HADIGHI, *Head, Department of Architecture*

The Department of Architecture is a member of the Association of Collegiate Schools of Architecture and the Bachelor of Architecture degree is accredited by the National Architectural Accrediting Board. The major provides for the education of architects at the professional and pre-professional levels.

"In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree."

The Pennsylvania State University, Department of Architecture offers the following NAAB-accredited degree program:

B.Arch. (162 undergraduate credits)

Next accreditation visit for the B.Arch. accredited degree program: 2022 (anticipated)  
(Excerpt from NAAB Conditions for Accreditation, 2009 Edition)

### Bachelor of Architecture

The professional program (BARCH) is a five-year curriculum leading to the Bachelor of Architecture degree requiring 162 credits. It prepares those who seek careers as practicing architects. It also provides professional preparation for those who wish to enter related design fields. Graduates of the Bachelor of Architecture program are eligible, after appropriate internship experience, to sit for the Architect Registration Examination. Successful completion of all parts of the Architect Registration Examination is required for registration as an architect. The Bachelor of Architecture curriculum includes coursework in architectural design, history, theory, structural systems, building materials, environmental control systems, visual communications, professional practice, and systems integration. Supporting courses provide students with the flexibility to explore a range of interests, develop concentrations, or pursue minors. A required semester abroad in Rome, Italy, is also a component of this program. All students admitted to the University in the Department of Architecture are enrolled in the five-year professional program leading to the Bachelor of Architecture degree.

Students may elect to leave Penn State after completing the requirements of the four-year (ARCBS) program and receive the Bachelor of Science degree.

### Bachelor of Science

The pre-professional Bachelor of Science degree program in Architecture (ARCBS) is a four-year curriculum which requires a minimum of 135 credits. The curriculum mirrors the first four years of the professional (BARCH) program. The ARCBS program prepares graduates to pursue careers in fields such as construction, real estate development, public administration, or historic preservation. Students may also continue their education at the graduate level in fields such as architecture, urban planning, or law. Enrollment in the pre-professional (ARCBS) program is limited to those students who transfer from the professional (BARCH) program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### Bachelor of Architecture

**GENERAL EDUCATION:** 45 credits  
(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 123 credits<sup>[1]</sup>  
(This includes 6 credits of General Education GA courses.)

**PRESCRIBED COURSES** (99 credits)  
A E 210(3), ARCH 121(2), ARCH 122(2), ARCH 131S(4), ARCH 132(4), ART H 201 GA;IL(3), ART H 202 GA;US;IL(3) (Sem: 1-2)  
A E 421(3), A E 422(3), ARCH 203(3), ARCH 204(3), ARCH 210(3), ARCH 231(6), ARCH 232(6) (Sem: 3-4)  
A E 211(3), A E 424(3), ARCH 311W(3), ARCH 331(6), ARCH 332(6) (Sem: 5-6)  
ARCH 431(6), ARCH 480(3), ARCH 499A(6), ARCH 499B IL(3), ARCH 499C IL(3) (Sem: 7-8)  
ARCH 451(3), ARCH 491(6 per semester, maximum of 12) (Sem: 9-10)

**ADDITIONAL COURSES** (6 credits)  
Select 6 credits from: ARCH 491(6, maximum 12), ARCH 492H(6), or ARCH 499F(6) (Sem: 9-10)

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)  
Select 3 credits in non-Western traditions in architecture from approved department list (Sem: 1-8)  
Select 15 credits in consultation with an academic adviser. This category of course work gives students the freedom to explore a range of academic interests, develop concentrations, or pursue minors (Sem: 3-10)

### Bachelor of Science

**GENERAL EDUCATION:** 45 credits  
(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 96 credits<sup>[1]</sup>  
(This includes 6 credits of General Education GA courses.)

**PRESCRIBED COURSES** (87 credits)  
A E 210(3), ARCH 121(2), ARCH 122(2), ARCH 131S(4), ARCH 132(4), ART H 201 GA;IL(3), ART H 202 GA;US;IL(3) (Sem: 1-2)  
A E 421(3), A E 422(3), ARCH 203(3), ARCH 204(3), ARCH 210(3), ARCH 231(6), ARCH 232(6) (Sem: 3-4)

A E 211(3), A E 424(3), ARCH 311W(3), ARCH 331(6), ARCH 332(6) (Sem: 5-6)  
ARCH 431(6), ARCH 499A(6), ARCH 499B IL(3), ARCH 499C IL(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 3 credits in non-Western traditions in architecture from approved department list (Sem: 1-8)

Select 6 credits in consultation with an academic adviser (Sem: 3-8)

**Integrated BARCH-MARCH Program**

The Department of Architecture offers a limited number of academically superior students enrolled in the fourth year of the program leading to the Bachelor of Architecture degree the opportunity to enroll in an integrated program leading to both the Bachelor of Architecture and the Master of Architecture degrees. The program permits the student to integrate the fifth year of study for the professional BARCH degree with the program of study for the post-professional MARCH degree into a continuous program of study culminating in both degrees. The ability to coordinate as well as concurrently pursue the two degree programs enables the student to achieve greater depth and comprehensiveness than if the degrees are pursued sequentially and to earn the two degrees in a shorter period. In particular, the program encourages students to integrate the undergraduate thesis design project with the master's thesis, thereby achieving a greater depth of inquiry.

The number of openings to this special program is limited; admission is by invitation of the faculty and is extremely selective.

**Admission Requirements**

Applicants to the integrated program must be enrolled in the fourth year of a BARCH program or otherwise qualified to apply for admission to the fifth year of the BARCH program at Penn State. To be admitted, applicants must be able to meet the following requirements:

--Must be unconditionally accepted into the MARCH program at Penn State (see application requirements for the MARCH degree in the Penn State *Graduate Degree Programs Bulletin*.)

--Must have a minimum 3.20 junior/senior overall grade-point average (on a 4.0 scale) as well as: (1) a minimum 3.20 GPA in architectural design courses (studio), and (2) a minimum 3.20 GPA in all course work except architectural design courses (studio).

--In addition to the normal application requirements for the MARCH degree, the student applicant shall provide a Plan of Study of not more than 1,500 words. The plan shall clearly describe the student's proposed general thesis topic and a strategy for pursuing it, including a list of proposed courses and a list of faculty whom the student foresees as contributing to the course of study.

The best-qualified students will be accepted up to the number of spaces available for new students. Acceptance to the program prior to the completion of all required course work is provisional, contingent upon meeting the previous requirements.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Lasted Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-011

Review Date: 04/08/2014

AA

## Army (ARMY)

The Army Reserve Officers' Training Corps (Army ROTC) is an elective program of instruction and training that offers qualified students the opportunity to earn a commission as an officer (Second Lieutenant) and to serve in the United States Army, Army National Guard, or United States Army Reserve while working toward a baccalaureate degree as a full-time student. The program emphasizes student learning and participation in applied leadership, leadership theory, decision making, management skills, time management, and military knowledge and skills. The four-year program is conducted in two successive phases--the Basic Course and Advanced Course (20 total credits). At least 6 Army ROTC credits may be applied toward baccalaureate degree requirements in all majors, usually as elective credits. Course subjects and credits appear under ROTC course descriptions in this bulletin.

The Basic Course is a four-course series, usually taken in the freshman and sophomore years. Freshman and sophomore courses are 2 credits each. The Basic Course trains the student in a variety of topics, including the national defense structure, leadership theory and principles, land navigation, small-unit operations and tactics, military history, and basic military skills and knowledge. The student incurs no military service obligation while enrolled in the Basic Course, and may dis-enroll at any time (except for sophomores on Army ROTC scholarships). Enrollment in the Basic Course is open to all Penn State full-time students. Also, uniforms, textbooks, and most equipment are furnished at no charge by the government to all enrolled students.

The Army ROTC program is much more than just taking classes. Each semester, the Army ROTC program consists of five activity segments: classroom lectures (one or two fifty-minute classes per week), a 100-minute Leadership Laboratory, Physical Training sessions, day trips and field training exercises, and extracurricular activities that include numerous clubs and social events. While the latter three activities are generally optional for enrolled Basic Course students, most students become progressively involved to enhance their training, develop esprit de corps, and take part for the social and fun aspects of the program.

The Advanced Course consists of a series of four courses, each for 3 credits. The Advanced Course instructs and evaluates in such areas as leadership and management, tactical operations, strategy, personnel administration, logistics, military justice, and ethics. Advanced Course students incur a service obligation when contracted, after which they receive a cash stipend of up to \$400 per month (tax free) up to \$4,000 per academic year. Normally, in the summer between the junior and senior years, students attend a five- to six-week National Advanced Leader's Course, for which salary and travel expenses are paid for the student. National Advanced Leader's Course is a critical hurdle that students must pass to receive a commission. In addition, students must complete at least one University course in each of five areas prior to commissioning: written communications, human behavior, computer literacy, mathematical reasoning, and American military history. These courses may also fulfill the student's General Education or academic major curriculum requirements.

Students may enter Army ROTC during their baccalaureate studies up until the start of their junior year via several lateral entry methods. These methods include compressing the Basic Course into one year (for sophomores), attending a four-week summer training program called Army ROTC Leader's Training Course, or by receiving constructive credit for prior military service. Entry after this time is possible only when an enrolling student will be continuing his/her education after baccalaureate graduation. Contracted students who wish to continue their education at a graduate level may request an education delay before starting their service obligation.

Three-year Army ROTC scholarships are available to students on a competitive basis. These merit scholarships pay full tuition, a book allowance (\$600 per year), and a tax-free subsistence stipend of up to \$400 per month up to \$4,000 per academic year. Four-year scholarships are available only through competition in the high school senior year. Army ROTC scholarships are awarded in five major categories: engineering, analytic/physical sciences, nursing, technical/management, and generalists (all other majors except theology). In particular, Army ROTC has a strong program for Nursing majors with numerous scholarship and enrollment options.

Penn State Army ROTC is one of the largest and most successful ROTC programs in the United States. Army ROTC is offered at the following campuses: Abington, Altoona, Hazleton, and University Park. However, only the University Park campus offers the complete four-year program within the Penn State Army ROTC system. Army ROTC is also available at most other campuses through cross-enrollment agreements with other colleges and universities. For additional information on Army ROTC, see the enrollment officer at 212 Wagner Building on the University Park campus or call 814-863-0368 (toll free: 1-866-558-3513) or visit us at [www.psu.edu/dept/armyrotc](http://www.psu.edu/dept/armyrotc) on the Web.

Effective Date: Current

Review Date: 4/19/04

## Archaeological Science

University Park, College of the Liberal Arts (ARSCI)

PROFESSOR GEORGE R. MILNER, *Head, Department of Anthropology*

(The Bachelor of Science degree in Archaeological Science is offered by the Archaeology Program in the Department of Anthropology.)

This degree provides the opportunity to develop a strong foundation in research methods, quantification, field methods, and laboratory science. It prepares students with the skills and competencies needed to pursue careers in cultural resource management. Students contemplating futures in nonacademic archaeology should consider this degree or some of its recommended courses.

For the B.S. degree in Archaeological Science, a minimum of 120 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

**GENERAL EDUCATION:** 45 credits

(10 of these 45 credits are included in REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 3 credits

**REQUIREMENTS FOR THE MAJOR:** 82 credits<sup>[1]</sup>

(This includes 10 credits of General Education courses; 4 credits of GQ courses; 6 credits of GN courses.)

**PRESCRIBED COURSES** (52 credits)

ANTH 002 GS(3), ANTH 011 GS:IL(3), ANTH 021 GN(3), ANTH 045 GS:US:IL(3), ANTH 421(3), ANTH 423(3), ANTH 426W(3), ANTH 428(3), ANTH 431(3), ANTH 432(3), ANTH 433(3), ANTH 456(3), 3 credits from ANTH 492(3-6), 3 credits from ANTH 493(3-6), GEOSC 001(3), SOILS 101 GN(3), STAT 200 GQ(4) (Sem: 1-6)

**ADDITIONAL COURSES** (30 credits)

Select 3 credits from ANTH 146 GS:US(3) or ANTH 152(3) (Sem: 3-8)

Select 3 credits from the following: BIOL 110 GN(4), CHEM 101 GN(3) (Sem: 3-8)

Select 3 credits from GEOSC 320(3), GEOSC 340(3), SOILS 416(4) (Sem: 3-8)

Select 3 credits from ANTH 380(3), ANTH 410(4) or ANTH 411(3) (Sem: 3-8)

Select 9 credits in consultation with adviser from the following ranges: ANTH 320-339 or ANTH 420-439 (Sem: 3-8)

Select 6 credits in consultation with adviser either in ANTH electives (other than ANTH 001, ANTH 492, ANTH 493, ANTH 494) or carry out a senior project

under ANTH 496(6) (Sem: 3-8)

Select 3 credits from ANTH 494(3) or ANTH 495(3) (Sem: 6-8)

### Integrated B.S. in Archaeological Science and B.A. in Classics and Ancient Mediterranean Studies/M.A. in Anthropology Degree Requirements

The Department of Anthropology offers an integrated B.A./B.S./M.A. (IUG) program designed to allow academically superior students to obtain a B.A. or B.S. degree in Anthropology, a B.A. degree in Classics and Ancient Mediterranean Studies (CAMS), a B.S. degree in Archaeological Science and a M.A. degree in Anthropology in five years of study. To complete the program in five years, students interested in the Integrated Undergraduate and Graduate degree in Anthropology must apply for admission to the Graduate School and the Integrated B.S./M.S. Program by the end of their junior year.

During the first three years, the student will follow course scheduling for the B.A. degree in CAMS and either the B.A. degree in Anthropology or the B.S. degree in Archaeological Science (see the Undergraduate *Bulletin*). Students who intend to enter the IUG program are encouraged to take upper level classes during their first three years whenever appropriate. By the end of the junior year, students normally apply for admission to both the IUG program and to the Graduate School. Acceptance decisions will be made prior to the beginning of the senior year and M.A. advisors will be appointed for successful applicants. During the senior year, IUG students follow the scheduling of the selected options for their B.A. or B.S. majors, with an emphasis on completing 500-level course work as appropriate. During the senior year, IUG students will start work on their thesis research to meet the M.A. thesis requirements. During the fifth year, IUG students take courses fulfilling the M.A. degree requirements and complete their M.A. thesis.

### Admission Requirements

Students who wish to complete the Integrated Undergraduate and Graduate Program in Anthropology should apply for admission to both the Graduate School and the IUG Anthropology Program no later than the end of their junior year. Successful students will be admitted formally into the graduate program in Anthropology just prior to their senior year, if their progress has been satisfactory. Admission prior to the senior year is also possible in some unusual circumstances. In all cases, admission to the program will be at the discretion of the joint Anthropology-CAMS admission committee. Criteria for admission include a minimum overall GPA of 3.4 in their majors, strong recommendation letters from faculty, and an excellent proposal for a research project with a specific adviser who has agreed to guide the student through to the completion of the M.A. thesis.

### Graduate Coursework

#### REQUIRED COURSES

##### ANTHROPOLOGY (ANTH)

493. Field Techniques (3)

521. Current Literature in Archaeology (2)

545. Seminar in Anthropology (6)

588. Method and Theory in Archaeology (3)

600. Thesis Research (6)

##### ADDITIONAL COURSES

Four required credits in ANTH 494(1-12) or CAMS 494(1-12)

Six required credits in CAMS 592(3), 593(3-6), or 596(1-9)

NOTE: Internships will be counted as elective credits.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-097

Review Date: 08/20/13

UCA Revision #1: 8/2/06

Dept head updated by Publications: 10/19/11





## Art History

*University Park, College of Arts and Architecture (ART H)*

PROFESSOR CRAIG ZABEL, *Head, Department of Art History*

The art history major is designed to provide students with a solid background in the history of art. The histories of painting, sculpture, architecture, design, and the graphic arts are examined in relation to such contextual issues as religion, politics, society, gender, economics, philosophy, and culture. Students who pursue the Bachelor of Arts in art history will acquire a thorough humanistic education that involves writing, speaking, and participating in group discussions, as well as developing a facility in at least one foreign language. Majors are also encouraged to pursue a study abroad experience.

The major provides students with a solid liberal arts background and is an excellent preparation for the further study of art history or other related fields in graduate school. With a B.A. in art history, graduates have found employment in museums, galleries, publishing, arts agencies, visual resources, archives/libraries, archaeology, historic preservation, and historic sites. The two most common careers for art historians are teaching at the college level or working in a museum (as a curator, registrar, director, etc.). These careers typically require graduate degrees.

For the B.A. degree in Art History, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 19 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits [\[1\]](#)

**PRESCRIBED COURSES** (9 credits)

ART H 111 GA;IL(3), ART H 112 GA;IL(3) (Sem: 1-4)

ART H 350W(3) (Sem: 5-8)

**ADDITIONAL COURSES** (15 credits)

(At least 12 credits must be taken at the 400 level, ART H 297, ART H 397, and ART H 497 also may be used to fulfill the additional course requirements when the subject matter is appropriate. Any one course may not be double counted for more than one category.)

Select 3 credits (Non-Western Intro) from ART H 120 GA;IL(3), ART H 130 GA;US;IL(3), ART H 140 GA;IL(3) (Sem: 1-4)

Select 3 credits (Architectural History Intro) from ART H 201 GA;IL(3), ART H 202 GA;US;IL(3), or ART H 330 GA;IL(3) (Sem: 1-4)

Select 3 credits (Africa/Asia/Oceania/Pre-Columbian Americas) from ART H 120 GA;IL(3), ART H 130 GA;US;IL(3), ART H 140 GA;IL(3), ART H 315 GA;IL(3), ART H 320 GA;IL(3), ART H 330 GA;IL(3), ART H 335 GA;IL(3), ART H 440 IL(3-9), ART H 445 IL(3), ART H 446 IL(3), ART H 447 IL(3) or ART H 460 IL(3) (Sem: 3-8)

Select 3 credits (Ancient/Byzantine/Medieval) from ART H 301 GA;IL(3), ART H 302 GA;IL(3), ART H 311 GA;IL(3), ART H 312 GA;IL(3), ART H 401 IL(3-9), ART H 402 IL(3), ART H 411 IL(3), ART H 412 IL(3), ART H 420 IL(3), ART H 422 IL(3), ART H 426 US;IL(3), ART H 442 IL(3), or ART H 452 IL(3) (Sem: 3-8)

Select 3 credits (Renaissance/Baroque/Modern/Contemporary) from ART H 225 GA;GH(3), ART H 250(3), ART H 303 GA;IL(3), ART H 304 GA;IL(3), ART H 305 GA;IL(3), ART H 307 GA;US(3), ART H 313 GA;IL(3), ART H 314 GA;IL(3-6), ART H 325 GA;IL(3), ART H 326 GA;IL(3), ART H 405 US;IL(3-6), ART H 410(3), ART H 414 IL(3), ART H 415 US(3), ART H 416 US(3), ART H 420 IL(3), ART H 423 IL(3-9), ART H 424 IL(3), ART H 426 US;IL(3), ART H 429 IL(3), ART H 435 IL(3-6), ART H 450 US;IL(3), ART H 456 IL(3), ART H 458 IL(3), ART H 462 IL(3), ART H 464 IL(3), ART H 470 US;IL(3), ART H 475 US(3) or ART H 476(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits of art history (excluding ART H 100 GA;IL) (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-013

Review Date: 04/10/2012

AA

## Art

Abington College (ARTAB)  
University Park, College of Arts and Architecture (ARTBA)

PROFESSOR GRAEME SULLIVAN, *Director, School of Visual Arts*

The B.A. degree in art provides a comprehensive liberal education coupled with professional resident instruction in art. Depending on each student's objectives and course choices, this degree provides preparation for a professional career, a foundation for graduate studies, or a liberal arts education in art. Each student must elect an area of concentration from one of the following: ceramics, drawing and painting, new media, photography, printmaking, or sculpture. In addition, a concentration in new media and in photography is available at the University Park Campus.

For a B.A. degree in Art, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR. See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 6 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 51 credits

(This includes 6 credits of General Education GA courses.)

**PRESCRIBED COURSES** (15 credits) [\[1\]](#)

ART 110S(3), ART 111(3) (Sem: 1-2)

ART 122Y US(3) (Sem: 1-4)

ART H 111 GA;IL(3), ART H 112 GA;IL(3) (these credits may also be counted toward the General Education Arts requirement) (Sem: 1-4)

**ADDITIONAL COURSES** (15 credits) [\[1\]](#)

Select 15 credits from ART 201(3), ART 203(3), ART 211 US(3), ART 217(3), ART 220(3), ART 223(3), ART 230(3), ART 240(3), ART 250(3), ART 251(3), ART 260(3), ART 280(3), ART 296(3), ART 297(3), ART 299 IL(3), PHOTO 100 GA(3), or PHOTO 201(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

(Include at least 15 credits at the 300 or 400 level.)

Select 15 credits from one of the following areas of concentration: ceramics, drawing and painting, new media, photography (only available at University Park), printmaking, and sculpture [\[1\]](#) (Sem: 3-8)

Select 6 credits in art history (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 39-01-014

Review Date: 8/24/2010

AA

## Arts Administration

*Penn State Erie, The Behrend College (ARTSA)*

The Penn State Erie Arts Administration program is intended for students with an interest in the arts and a desire to pursue careers in the administration or management of arts organizations such as museums, theatre companies, orchestras and choruses. The program combines a broad exposure to the arts with significant training in management, marketing, event planning, strategic planning, writing, development, and digital communication.

The interdisciplinary Arts Administration program answers the growing need for leaders and administrators of arts organizations that must compete, survive, and thrive in a corporate world. Recognizing that these organizations have missions that are different from business corporations, the Arts Administration program aims to produce capable arts administrators, managers, and entrepreneurs with both aesthetic sensibilities and business acumen. Successful arts administration is crucial to the continued vitality of modern cultural institutions, creative enterprises, and arts organizations. If the public is to benefit, skilled arts administrators must facilitate the work of artists to realize their artistic vision and share it with the public, by executing the necessary financial, legal, and organizational decisions. In short, talented arts administrators are partners in a collaborative artistic process. The major includes the following options:

Digital Media Option - emphasizes design and social media engagement, so that student may create and manage online content for cultural organizations. Students develop proficiency in web writing, image editing, layout, and communication-based advertising.

Marketing Option - provides a business core for careers that emphasize fiscal planning with arts organizations. The coursework includes statistics, marketing research, and services marketing which is specific to arts and cultural organizations.

For the B.A. degree in Arts Administration, a minimum of 120 credits is required. Students must earn C or better in ART H 111 GA;IL(3) or ART H 112 GA;IL(3), MUSIC 005 GA(3), THEA 105 GA(3) to be eligible for entrance to the major.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(15-18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of Bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-12 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.) (See description of Bachelor of Arts Degree Requirements in this bulletin.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** (69-73 credits)

(This includes 15-18 credits of General Education courses: 6 credits of GA courses; 3-6 credits of GQ courses; 3 credits of GS courses, 3 credits of GWS courses.)

**PRESCRIBED COURSES:** (42 credits)

ECON 102 GS(3), MUSIC 005 GA(3)[\[1\]](#), THEA 105 GA(3)[\[1\]](#) (Sem: 1-2)

ACCTG 211(4), B A 241(2), MIS 204(3), MKTG 301(3) (Sem: 3-4)

ENGL 202D GWS(3) (Sem: 4)

ARTSA 301(3)[\[1\]](#), ARTSA 495A(3)[\[1\]](#), (Sem: 5-6)

ARTSA 401(3)[\[1\]](#), ARTSA 402W(3)[\[1\]](#), ARTSA 495B(3)[\[1\]](#), ENGL 479(3) (Sem: 7-8)

**ADDITIONAL COURSES** (9 credits)

MATH 021 GQ(3) or higher (Sem: 1-2)

ART H 111 GA;IL(3)[\[1\]](#) or ART H 112 GA;IL(3)[\[1\]](#) (Sem: 5)

COMM 370(3) or MKTG 310(3) (Sem: 5-6)

**REQUIREMENTS FOR THE OPTION** (18-22 credits)

**DIGITAL MEDIA OPTION** (18 credits)

**PRESCRIBED COURSES** (6 credits)

COMM 320(3), ENGL 420(3)

**ADDITIONAL COURSES** (6 credits)

COMM 270(3) or GD 100(3) (Sem: 4-7)

Select 3 credits from ART H 111 GA;IL(3), ART H 112 GA;IL(3), MUSIC 007 GA(3), MUSIC 009 GA(3), THEA 102 GA(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from program approved list in Music, Theatre or Visual Arts in consultation with adviser and according to student interest (Sem: 4-7)

**MARKETING OPTION** (22 CREDITS)

**PRESCRIBED COURSES** (9 credits)

MKTG 330(3), MKTG 342(3), MKTG 440(3) (Sem: 5-6)

**ADDITIONAL COURSES** (7 credits)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

Select 3 credits from ART H 111 GA;IL(3), ART H 112 GA;IL(3), MUSIC 007 GA(3), MUSIC 009 GA(3), THEA 102 GA(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from program approved list in Music, Theatre or Visual Arts in consultation with adviser and according to student interest (Sem: 4-7)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-05-014

Review Date: 02/25/2014

## Astronomy and Astrophysics

University Park, Eberly College of Science (ASTRO)

PROFESSOR DONALD P. SCHNEIDER, *Head*

Astronomy involves the study of the properties, physical nature and origins of the planets, stars, galaxies and universe as a whole. It involves development of instrumentation, observations of celestial objects with ground- and space-based telescopes, and interpretation of findings using the mathematical laws of physics such as gravity, electromagnetism and quantum mechanics. The undergraduate major provides a strong and broad foundation in mathematics, physical science and computation as well as a detailed understanding of modern astronomy. Many research opportunities are available to complement the formal classwork. Graduates proceed to advanced degrees in astronomy and other sciences, and into a wide variety of technical professions.

In order to be eligible for entrance to the Astronomy and Astrophysics major, a student must have: 1) Attained at least a 2.00 cumulative grade-point average. 2) Completed ASTRO 291 GN(3), CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), PHYS 211 GN(4), and PHYS 212 GN(4); and earned a grade of C or better in each of these courses.

For the B.S. degree in Astronomy and Astrophysics, a minimum of 125 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 98 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 64 credits

**PRESCRIBED COURSES** (49 credits)

ASTRO 291 GN(3) [\[1\]](#), ASTRO 292 GN(3) [\[1\]](#), ASTRO 320 GN(2), ENGL 202C GWS(3), MATH 230(4), MATH 251(4), PHYS 237(3) (Sem: 3-4)  
CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1), CHEM 112 GN(3), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), PHYS 211 GN(4) [\[1\]](#), PHYS 212 GN(4) [\[1\]](#), PHYS 213 GN(2) [\[1\]](#), PHYS 214 GN(2) [\[1\]](#) (Sem: 1-4)

**ADDITIONAL COURSES** (3 credits)

CMPSC 121 GQ(3), CMPSC 201 GQ(3), or CMPSC 202 GQ(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits [\[1\]](#) from 400-level ASTRO courses except 496 (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 34 credits

**GRADUATE STUDY OPTION:** (34 credits)

**PRESCRIBED COURSES** (10 credits)

PHYS 400(3), PHYS 410(3-4), PHYS 419(3) (Sem: 5-8)

**ADDITIONAL COURSES** (9-10 credits)

Select 3 credits from MATH 405(3), MATH 411(3), or MATH 417(3) (Sem: 3-4)

Select 6-7 credits from PHYS 401(3), PHYS 402(4), PHYS 406(3), PHYS 411(3), PHYS 420(3), PHYS 457(1-3), PHYS 457W(3), PHYS 461(3), and E E 471(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (14-15 credits)

Select 3 additional credits from advanced courses in computer science and engineering, mathematics, or statistics (Sem: 5-6)

Select 11-12 credits in consultation with adviser from department list (Sem: 3-8)

**COMPUTER SCIENCE OPTION:** (34 credits)

**PRESCRIBED COURSES** (9 credits)

CMPSC 122(3), CMPSC 221(3) (Sem: 5-6)

CMPSC 451(3) (Sem: 6-8)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from STAT 318(3), STAT 319(3), STAT 401(3), or STAT 414(3) (Sem: 5-6)

Select 6 credits from CMPEN 271(3), CMPEN 331(3), CMPSC 360(3), or CMPSC 465(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (16 credits)

Select 3 additional credits from advanced courses in computer science and engineering, mathematics, or statistics (Sem: 5-8)

Select 13 credits in consultation with adviser from department list (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-03-069

Review Date: 11/27/07

UCA Revision #1: 8/14/06

UCA Revision #2: 7/26/07

[Comments](#)

SC

Dept head updated by Publications: 8/2/11

## Athletic Training

University Park, College of Health and Human Development (ATHTR)

Not all majors are available at every campus. The Athletic Training major will only be offered at University Park campus.

PROFESSOR NANCY I. WILLIAMS, *Head, Department of Kinesiology*

The Athletic Training major provides a concentrated program of courses designed to prepare students for a career in the profession of athletic training. This major has been designed to meet the standards for national certification by the Board of Certification (BOC) and legal certification by the Commonwealth of Pennsylvania.

Students are admitted into the program on a competitive basis following completion of prerequisite courses (see requirements for admission). Students must also meet the "Technical Standards for the Undergraduate Athletic Training Program at Penn State University" related to the physical and psycho-emotional demands placed upon students in the major. Upon admission, students complete a 5-semester sequence of coursework and supervised clinical rotations. Students typically commit 200 to 300 hours to clinical practical experiences in each of the last 4 semesters of the program. The Technical Standards course sequencing and prerequisite courses can be found at [http://www.hhdev.psu.edu/kines/undergrad/docs/Athletic\\_Training\\_Technical\\_Standards.pdf](http://www.hhdev.psu.edu/kines/undergrad/docs/Athletic_Training_Technical_Standards.pdf) or obtained through the Department of Kinesiology. Full course descriptions are found in the University *Bulletin*.

Students seeking to transfer from other colleges or universities will have their transcripts evaluated after acceptance to Penn State to identify those courses and credits that will be applied to completion of degree requirements. Coursework specific to athletic training will not be considered for transfer unless completed in a Commission on Accreditation of Athletic Training Education (CAATE) accredited athletic training education program.

The Athletic Training major requires a minimum of 120 credits for graduation. Upon graduation and successful completion of the national BOC examination, students may seek employment in various professional settings including: professional sports, colleges and universities, secondary schools, hospitals, sports medicine clinics, industrial settings plus many more.

Minimum Requirements for Admission to the Athletic Training major (admission is competitive--meeting minimum requirements does not assure admission into the major):

1. Submission of printable online KINES 231 Waitlist Application
2. Cumulative grade-point average of 2.5.
3. 3.0 grade-point average in KINES 135(3), KINES 202(4), KINES 231(3), KINES 233(3).
4. Completion of entrance interview with Athletic Training Program Director or designee.
5. Evidence of ability to meet the physical and psycho-emotional standards as outlined in the "Technical Standards for the Undergraduate Athletic Training Program at Penn State."

Additional information about the major, including Technical Standards, the KINES 231 Waitlist Application, course sequencing, and prerequisites can be found at: <http://www.hhdev.psu.edu/kines/undergraduate/athletic-training> or obtained through the Department of Kinesiology. Full course descriptions are found in the University *Bulletin*.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(21 of these credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 95 credits

(This includes 21 credits of General Education courses; 6 credits of GQ courses; 9 credits of GN courses; 3 credits of GS courses; 3 credits of GHA courses).

**ELECTIVES:** 1 credit

**PRESCRIBED COURSES** (95 credits)

MATH 022 GQ(3), CHEM 110 GN(3), CHEM 111 GN(1), KINES 135(3), PSYCH 100 GS(3) (Sem: 1-2)

BIOL 141 GN(3) [11](#), KINES 141 US:IL(3) [11](#), KINES 180(3) [11](#) (Sem: 1-4)

KINES 231(3) [11](#), KINES 233(3) [11](#) (Sem: 3)

KINES 202(4) [11](#), NUTR 251 GHA(3) [11](#), PHYS 250 GN(4), STAT 200 GQ(4) (Sem: 3-4)

KINES 321(3) [11](#), KINES 345(3) [11](#), KINES 350(3) [11](#), KINES 360(3) [11](#), KINES 384(3) [11](#) (Sem: 3-6)

KINES 232(3) [11](#), KINES 334(3) [11](#) (Sem: 4)

KINES 335(3) [11](#), KINES 395F(3) [11](#), KINES 434(3) [11](#) (Sem: 5)

KINES 336(3) [11](#), KINES 395G(3) [11](#), KINES 435(3) [11](#), KINES 436(4) [11](#) (Sem: 6)

KINES 395I(3) [11](#), KINES 438W(3) [11](#) (Sem: 7)

KINES 495F(3) [11](#) (Sem: 8)

[11](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-02-016

Review Date: 09/28/2010

## Biological Engineering

University Park, College of Agricultural Sciences  
University Park, College of Engineering (B E)

PROFESSOR PAUL H. HEINEMANN, *Head of the Department of Agricultural and Biological Engineering*

This major helps prepare students for careers involving the application of engineering principles to agricultural and biological production systems, processing systems, and conservation of land and water resources. Education in mathematics, physics, and engineering sciences common to all engineering disciplines is provided along with specialized training in biological and agricultural sciences. The curriculum covers all areas of biological engineering, including development of machines for biological processing and agriculture, postharvest handling and processing of natural resource management and utilization, biological processes, food engineering, and structures and their environmental modifications. A student must select the Agricultural Engineering option, Food and Biological Engineering option or the Natural Resources Engineering option.

### Program Educational Objectives:

Early career Biological Engineering graduates will be expected to:

1. Demonstrate proficiency in basic and engineering sciences related to biological processing, natural resource, and agricultural engineering fields;
2. Effectively identify, analyze and design sustainable solutions to address issues and opportunities throughout the world;
3. Have the ability to work in teams and effectively communicate within and outside the profession;
4. Demonstrate strong leadership skills, ethical integrity, and professional engagement

### Program Outcomes (Student Outcomes):

Upon graduation Biological Engineering students will be able to:

1. Technical Knowledge
  - A. Demonstrate proficiency in mathematics, physics, chemistry, and biology
  - B. Demonstrate proficiency in engineering sciences
  - C. Demonstrate proficiency in communications and information tools
2. Analytical and Problem Solving
  - A. Understand scientific and engineering fundamentals and can apply them to solving problems
  - B. Solve open-ended, real-world problems by applying fundamentals and principles of biological engineering
  - C. Work in teams to solve problems
3. Human Relations and Leadership
  - A. Value cross-cultural and cross-disciplinary activities and to recognize the rights of others.
  - A. Involved in and able to assume leadership in professional and community activities.
4. Professional Responsibility
  - A. Remain abreast of major contemporary issues.
  - B. Remain abreast of developments, technology, and tools in the Biological Engineering profession.
  - C. Understand how the engineering profession relates to societal problems and issues and to understand social and ethical implications or the solutions that are generated in Goal II.B.
  - D. Know how to make informed ethical decisions.
  - E. Assume, over time, greater responsibility in their profession/career.

Principles of engineering design experiences are integrated throughout the junior-year curriculum by having students solve problems typical of those encountered in the agricultural and biological engineering profession. A minimum requirement of three major design experiences in the senior year emphasize that biological engineers must learn not only how to develop engineering solutions to unique, practical problems using the newest technology, but also to assess and integrate the social and ethical implications of their solutions.

Careers for graduates include design, development, and research engineering positions involving biological processes, machinery development, natural resources management, materials handling, biological product development, and structural systems for animals, plants, and crop storage. Biological engineers are employed in industry, consulting firms, and governmental agencies in the United States and abroad. Graduates deal with the various engineering aspects associated with production and processing of food, fiber, and other biological materials, within the constraints of environmental protection and natural resource conservation.

**ENTRANCE TO MAJOR** -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHSY 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Biological Engineering, a minimum of 130 credits is required. The baccalaureate program in Biological Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(27-28.5 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 112-113.5 credits  
(This includes 27-28.5 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses; and 1.5 credits of GHA courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 79 credits

**PRESCRIBED COURSES** (72 credits)  
CHEM 110 GN(3) [\[11\]](#), CHEM 111 GN(1), E MCH 211(3) [\[11\]](#), EDSGN 100(3), ENGL 015 GWS(3), MATH 140 GQ(4) [\[11\]](#), MATH 141 GQ(4) [\[11\]](#), PHYS 211 GN(4) [\[11\]](#) (Sem: 1-2)  
E MCH 212(3) [\[11\]](#), E MCH 213(3) [\[11\]](#), M E 300(3) [\[11\]](#), MATH 231(2), MATH 251(4), PHYS 212 GN(4) (Sem: 3-4)  
B E 300(3) [\[11\]](#), B E 301(3) [\[11\]](#), B E 302(3) [\[11\]](#), B E 304(3) [\[11\]](#), B E 305(3) [\[11\]](#), B E 308(3) [\[11\]](#), B E 391 GWS(2), I E 424(3), (Sem: 5-6)  
B E 392 GWS(2), B E 469W(3) (Sem: 7-8)

**ADDITIONAL COURSES** (7 credits)

CAS 100A GWS(3) or CAS 100B GWS(3)

Select 1 credit of First-Year Seminar (Sem: 1-2)

AG BM 101 GS(3) or ECON 102 GS(3), or ECON 104 GS(3) (Sem: 3-4)

**REQUIREMENTS FOR THE OPTION:** 33-34.5 credits**AGRICULTURAL ENGINEERING OPTION:** (33 credits)**PRESCRIBED COURSES** (3 credits)C E 360(3)[\[11\]](#) (Sem: 5-6)**SUPPORTING COURSES AND RELATED AREAS** (30 credits)Select 3 credits in math/basic science[\[26\]](#) (Sem: 3-6)Select 6 credits from B E 303(3)[\[11\]](#), B E 306(3)[\[11\]](#), B E 307(3)[\[11\]](#) (Sem: 5-6)Select 6 credits in engineering science/design[\[26\]](#) (Sem: 5-8)Select 3 credits in agricultural/biological science[\[26\]](#) (Sem: 7-8)Select 6 credits in biological engineering[\[26\]](#) (Sem: 7-8)Select 6 credits in technical selection[\[26\]](#) (Sem: 7-8)

(Students may apply 3 credits of ROTC to the technical selection category and 3 credits to the GHA category upon completion of the ROTC program.)

**FOOD AND BIOLOGICAL PROCESSING ENGINEERING OPTION:** (34.5 credits)**PRESCRIBED COURSES** (16.5 credits)B M B 211(3), CHEM 202(3), M E 320(3)[\[11\]](#), NUTR 100 GHA(1.5) (Sem: 5-6)

B E 465(3), B E 468(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)Select 6 credits in emphasis technical elective[\[26\]](#) (Sem: 7-8)Select 6 credits in any engineering science/design[\[26\]](#) (Sem: 7-8)Select 6 credits in technical selection[\[26\]](#) (Sem: 7-8)

(Students may apply 3 credits of ROTC to the technical selection category and 3 credits to the GHA category upon completion of the ROTC program.)

**NATURAL RESOURCES ENGINEERING OPTION:** 33 credits**PRESCRIBED COURSES** (21 credits)

SOILS 101 GN(3) (Sem: 1-4)

A S M 309(3)[\[11\]](#), B E 307(3)[\[11\]](#), C E 360(3)[\[11\]](#) (Sem: 5-6)

B E 467(3), B E 477(3), B E 487(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)Select 6 credits in engineering science/design[\[26\]](#) (Sem: 5-8)Select 3 credits in biological/environmental sciences[\[26\]](#) (Sem: 7-8)Select 3 credits in technical selection[\[26\]](#) (Sem: 7-8)

(Students may apply 3 credits of ROTC to the technical selection category and 3 credits to the GHA category upon completion of the ROTC program.)

**[11]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.**[26]** Courses to be selected from a list approved by the Agricultural and Biological Engineering faculty. These courses must be chosen so that the engineering design and engineering science requirements for the major are met.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-05-035

Review Date: 02/23/2010

R &amp; T: Approved 5/24/2013

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

[Comments](#)

EN

Dept head updated by Publications: 7/16/10

Accreditation statement updated by Publications, per COE: 8/15/11



## Biochemistry and Molecular Biology

University Park, Eberly College of Science (B M B)

PROFESSOR Wendy Hanna-Rose, *in charge*

Students in this major apply basic principles of chemistry and physics to the study of living cells and their components to explain biology at molecular, genetic, and cellular levels. Students will develop a strong foundation in quantitative and analytical biological sciences, including molecular biology, biochemistry, enzymology, metabolism, cell biology, and molecular genetics. The Biochemistry Option is offered for students who have interests in the structures, properties and functions of macromolecules, and in the quantitative and analytical techniques used to characterize these macromolecules. The Molecular and Cell Biology Option is available to students whose interests relate to the growth, reproduction and differentiation of cells and to signaling processes that occur in multicellular systems that activate and modulate these processes. The curriculum is designed to prepare students for advanced study leading to careers in research, medicine, and education, or to secure employment in biotechnology and health-related industries, including government, academic, and private laboratories.

In order to be eligible for entrance to the Biochemistry and Molecular Biology major, a student must have: 1) attained at least a 2.00 cumulative grade-point average, and 2) completed CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), and MATH 140 GQ(4); and 3) earned a grade of C or better in each of these courses.

For the B.S. degree in Biochemistry and Molecular Biology, a minimum of 125 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 95 credits<sup>[86]</sup>  
(This includes 15 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 55 credits

**PRESCRIBED COURSES** (53 credits)  
CHEM 110 GN(3)<sup>[11]</sup>, CHEM 111 GN(1)<sup>[11]</sup>, CHEM 112 GN(3)<sup>[11]</sup>, CHEM 113 GN(1), MATH 140 GQ(4)<sup>[11]</sup>, MATH 141 GQ(4), PSU 016(1) (Sem: 1-2)  
B M B 251(3)<sup>[85]</sup>, B M B 252(3)<sup>[85]</sup>, B M B 442(3), BIOL 322(3), CHEM 210(3), CHEM 212(3), CHEM 213(2), MICRB 201(3)<sup>[85]</sup>, MICRB 202(2) (Sem: 3-4)  
B M B 400(2), B M B 401(3), B M B 402(3), B M B 443W(3) (Sem: 5-6)

**ADDITIONAL COURSES** (2 credits)  
B M B 445W(2) or B M B 448(2) (Sem: 7-8)

**REQUIREMENTS FOR THE OPTION:** 40 credits

**BIOCHEMISTRY OPTION:** (40 credits)

**PRESCRIBED COURSES:** (21 credits)  
PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 2-4)  
CHEM 450(3), CHEM 452(3) (Sem: 5-8)  
B M B 474(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS:** (19 credits)  
Select 7-9 credits from any 400-level B M B/CHEM/MICRB course with a total maximum of 4 credits in B M B 488 and/or B M B 496 (Sem: 5-8)  
Select 2-3 credits in the mathematical sciences from department list B (Sem: 5-8)  
Select 7-10 credits from department list C (Sem: 5-8)

**MOLECULAR AND CELL BIOLOGY OPTION:** (40 credits)

**PRESCRIBED COURSES:** (9 credits)  
B M B 430(3), B M B 460(3) (Sem: 5-8)  
MICRB 410(3) (Sem: 5-8)

**ADDITIONAL COURSES:** (11-18 credits)  
PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2); or PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 1-4)  
CHEM 450(3), CHEM 452(3); or B M B 428(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS:** (13-20 credits)  
Select 5-6 credits from any 400-level B M B/MICRB course with total maximum of 4 credits in B M B 488 and/or B M B 496 (Sem: 5-8)  
Select 2-3 credits in the mathematical sciences from department list B (Sem: 5-8)  
Select 4-13 credits from department list C (Sem: 5-8)

<sup>[11]</sup> A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

<sup>[85]</sup> To graduate, a grade of C or better is required in two of the following courses: MICRB 201, B M B/MICRB 251, B M B/MICRB 252.

<sup>[86]</sup> To graduate, a grade of C or better is required in 9 credits of any B M B or MICRB 400-level course except B M B 442, B M B 443W, B M B 445W, B M B 446, B M B 448, B M B 488, B M B 496, MICRB 421W, MICRB 422, MICRB 447.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-110

Review Date: 08/20/13

UCA Revision #1: 8/2/06

SC



## Bachelor of Philosophy Degree

*Intercollege Program (B PH)*

*OFFICE OF THE VICE PRESIDENT AND DEAN FOR UNDERGRADUATE EDUCATION*

The Bachelor of Philosophy degree is designed to allow students to plan their own programs in conjunction with a faculty mentor and is intended for those few students for whom the present degree requirements are restrictive and not responsive to their needs. While the educational goals of most students are adequately met by existing degree programs, those who can demonstrate that the usual requirements of conventional programs prevent them from adequately meeting their goals may apply. An important standard for admission to the Bachelor of Philosophy degree program will be the ability of students to demonstrate that their stated goals are viable and worthy of a college degree.

The faculty mentor is responsible for assisting the student in planning the program and in achieving the proposed goals. The mentor must be able to certify to the Bachelor of Philosophy Degree Committee that the student has achieved the stated goals. The basis of this certification might be a comprehensive examination (written or oral), a written report, a public seminar or performance, or the presentation of a paper to a national meeting of a professional society, etc. A faculty member may serve as mentor for only one student at any given time.

The program is administered by an intercollege committee under the Office of the Vice President and Dean for Undergraduate Education. The Bachelor of Philosophy Degree Committee is responsible for selecting the students and their faculty mentors for the program, annually examining the progress of all students in the program, and approving the completion of the degree based on the certification made by the faculty mentor.

### *Requirements for Admission*

1. An entry interview with the candidate, the faculty mentor, and the members of the Bachelor of Philosophy Degree Committee is required prior to admission to the program. This preliminary interview provides an opportunity for the candidate to discuss and justify the intended use of the Bachelor or Philosophy degree program, and the unique circumstances that surround the applicant.
2. Second-, third-, and fourth-semester students may apply; those selected will begin their programs the following semester. Exceptions may be approved by the committee.
3. Evidence of successful completion of course work requiring independent research is required. In addition, the committee will consider the applicant's cumulative grade-point average as an index of academic performance and responsibility. Applicants must possess the capability of performing at a **3.0** minimum level.
4. Approval of the student's program by the committee is required.

### *Requirements for Graduation*

1. Satisfactory completion of a program approved by the committee: (a) a minimum of 120 credits to include at least 18 credits at the 400 or 500 level; (b) certification by the faculty mentor; (c) and approval of a capstone, thesis or equivalent, by the faculty mentor.
2. Approval by the committee for graduation following presentation and defense of the capstone, thesis or equivalent.

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-05-060

Review Date: 02/25/2014

Last updated by Publications: 2/22/10

## Biological Anthropology

University Park, College of the Liberal Arts (BANTH)

PROFESSOR GEORGE R. MILNER, *Head, Department of Anthropology*

(The Bachelor of Science degree in Biological Anthropology is offered by the Biological Anthropology Program in the Department of Anthropology.)

The Bachelor of Science degree provides the opportunity to develop a strong foundation in research methods, quantification, and laboratory science. It prepares students with the skills and competencies needed to pursue graduate study or careers in professions associated with biological anthropology. Students contemplating futures in biomedical or forensic sciences should consult with Penn State's Premedicine Office or the specific forensic science graduate program to make certain that additional courses in organic chemistry and physics that are required for admission are completed.

For the B.S. degree in Biological Anthropology, a minimum of 125 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

**GENERAL EDUCATION:** 45 credits

(18 of these credits are included in REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 12-15 credits

**REQUIREMENTS FOR THE MAJOR:** 83-86 credits [\[1\]](#)

(This includes 18 credits of General Education courses: 9 credits GN courses; 6 credits GQ courses; 3 credits GH courses.)

**PRESCRIBED COURSES** (51 credits)

ANTH 002 GS(3), ANTH 021 GN(3), ANTH 045 GS;US;IL(3), BIOL 110 GN(4), BIOL 129 GN(4), BIOL 240W GN(4), B M B 251(3), CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4), MATH 141 GQ(4), PHYS 250 GN(4), STAT 200 GQ(4) STAT 460(3) (Sem: 1-6)

**ADDITIONAL COURSES** (32-35 credits)

Select 3-4 credits from ANTH 460(3) or ANTH 460H(4) (Sem: 3-8)

Select 15 additional credits in consultation with adviser from the following ranges: ANTH 401-419(3) or ANTH 460-473(3) (Sem: 3-8)

Select 3-4 credits from the following: BIOL 230W GN(4), BIOL 141 GN(3), or CHEM 202(3) (Sem: 3-8)

Select 2-3 credits from the following: B M B 401(3), BIOL 411(3), or KINES 202(4) (Sem: 3-8)

Select 3 credits from the following: PHIL 011 GH(3), PHIL 116 GH(3), PHIL 132 GH(3), PHIL 221 GH(3) (Sem: 3-8)

Select 6 additional credits in consultation with adviser either in ANTH electives other than ANTH 001, or carry out a senior project under ANTH 496(6), as advised (Sem: 3-8)

*NOTE: Internships will be counted as elective credits.*

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2003

Blue Sheet Item #: 30-07-105

Review Date: 4/8/03

UCA Revision #1: 8/2/06

Dept head updated by Publications: 10/19/11

LA

## Biobehavioral Health

University Park, College of Health and Human Development (BB H)

PROFESSOR COLLINS O. AIRHIHNBWA, Head of the Department

This major provides interdisciplinary training designed to integrate biological, behavioral, and social science approaches to the study of human health and illness. Emphasis is placed on the study of physical health. The goal of this major is to help students gain working familiarity with multiple perspectives, approaches, and methods needed to address and solve problems of human health and illness. Students may select courses in the supporting courses category that will fulfill requirements for admission to graduate and professional programs. This major helps prepare graduates for entry-level jobs in a range of biomedical and health-related areas, including roles as research assistants, laboratory managers, biomedical product representatives, technical support positions in biomedical and health-related fields. This major also will provide excellent preparation for advanced study in natural and social science disciplines and related professional areas such as epidemiology, public health, environmental health and safety, and human services.

For the B.S. degree in Biobehavioral Health, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(22 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 3 credits

**REQUIREMENTS FOR THE MAJOR:** 94 credits

(This includes 22 credits of General Education courses: 4 credits of GQ courses; 9 credits of GN courses; 6 credits of GS courses; 3 credits of GHA courses.)

**PRESCRIBED COURSES** (38 credits)

BIOL 110 GN(4), CHEM 110 GN(3) [\[1\]](#) (Sem: 1-2)

BB H 101 GHA(3) [\[1\]](#), BIOL 141 GN(3) [\[1\]](#), NUTR 251 GHA(3), PSYCH 100 GS(3) [\[1\]](#), STAT 200 GQ(4) [\[1\]](#) (Sem: 1-4)

BB H 310(3) [\[1\]](#), BB H 311(3) [\[1\]](#), BB H 316(3) [\[1\]](#), BB H 411W(3) [\[1\]](#), BB H 440 US;IL(3) [\[1\]](#) (Sem: 5-8)

**ADDITIONAL COURSES** (45 credits)

BIOL 033 GN(3) or BIOL 222(3) (Sem: 1-2)

**Select 12 credits from:** CHEM 112 GN(3), CHEM 111 GN(1), CHEM 113 GN(1) (Sem: 1-2)

CHEM 202(3), CHEM 203(3), CHEM 213(2), CHEM 2108(3), CHEM 212(3), MICRB 106 GN(3), MICRB 107 GN(1), PSY 203(3) (Sem: 3-4)

B M B 211(3), BIOL 055 GN(3), BIOL 129 GN(4), BIOL 142(1), BIOL 230W GN(4), BIOL 341 GN(3), BIOL 422(3), BIOL 409(3), BIOL 479(3), PHYS 250 GN(4), PHYS 251 GN(4), PSYCH 453(3), PSYCH 461(3), PSYCH 460(3), PSYCH 470(3), PSYCH 462(3), PSYCH 463(3) (Sem: 5-8)

**Select 15 credits from:** BB H 302 US(3) [\[1\]](#), BB H 315 US(3) [\[1\]](#), BB H 368(3) [\[1\]](#), BB H 410(3) [\[1\]](#), BB H 416(3) [\[1\]](#), BB H 417(3), BB H 432(3) [\[1\]](#), BB H 446(3) [\[1\]](#), BB H 451(3) [\[1\]](#), BB H 452(3) [\[1\]](#), BB H 458 GS(3) [\[1\]](#), BB H 469(3) [\[1\]](#), BB H 470(3) [\[1\]](#) (Sem: 5-8)

**Select 9 credits from:** H P A 057 GHA(3), H P A 101(3), H P A 310(3), HD FS 311(3), HD FS 315 US(3), HD FS 418(3); HD FS 428(3) or HD FS 429(3); HD FS 433(3) or HD FS 445(3); HD FS 468(3), NURS 401(3), NURS 452(3), NUTR 358(2), PSYCH 441(3) (Sem: 5-8)

**Select 3 credits from:** HD FS 129 GS(3), HD FS 229 GS(3), HD FS 239 GS(3), or HD FS 249 GS(3) (Sem: 5-8)

**Select 3 credits from:** BB H 301(3), PHIL 110 GH(3), PHIL 132 GH(3), PHIL 221 GH(3), PHIL 432(3), S T S 122 GH(3), S T S 123 GH(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (11 credits)

(Must include at least 6 credits at the 400 level)

Select 3 credits in health promotion from approved list, in consultation with adviser (Sem: 5-8)

Select 8 credits in University-wide offerings from approved list, in consultation with advisor (Students may apply 6 credits of ROTC.) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2004

Blue Sheet Item #: 32-01-073

Review Date: 9/2/03

UCA Revision #1: 9/20/06

HH

Dept head updated: 9/9/10

## Business Economics

*Penn State Erie, The Behrend College (BECON)*

Business Economics is a quantitatively-oriented program of study in applied economics. Leading to a B.S. degree, this major combines in-depth study of economics with a general business background, the latter including courses in accounting, finance, management, management information systems, marketing, and quantitative business analysis. Students may choose upper-division economics courses in business and economic forecasting, econometrics, economic theory, industrial organization, international economics, labor economics, managerial economics, and urban and regional economics. Use of computers as analytical and problem-solving tools is emphasized in the program. The major also includes several non-business supporting areas of study from which students may choose courses.

### Entrance to Major Requirements:

Entry to the Business Economics major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. Degree in Business Economics, a minimum of 120 credits is required.

Each student enrolled in this major must earn at least a grade of C in each 300- and 400-level course.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 2 credits

### REQUIREMENTS FOR THE MAJOR: 88 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

### PRESCRIBED COURSES (43 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)  
FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3), MKTG 301(3)[1], SCM 310(3)[1] (Sem: 3-6)  
ECON 302 GS(3)[1], ECON 304 GS(3)[1], ECON 485(3)[1] (Sem: 5-6)  
ECON 470(3)[1] (Sem: 5-8)  
MGMT 471W(3)[1] (Sem: 7-8)

### ADDITIONAL COURSES (24 credits)

[Some courses in this category have prerequisites that are not required in the program.]

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)  
SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)  
B A 241(2) and B A 242(2) or B A 243(4) (Sem: 3-6)  
Select 12 credits from ECON 342(3)[1], ECON 410(3)[1], ECON 430(3)[1], ECON 442(3)[1], ECON 481(3)[1], or ECON 482(3)[1] (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (21 credits)

Select 9 credits of 300- or 400-level economics or other business courses [1] (see school list of approved courses) (Sem: 5-8)  
Select 12 credits from the non-business supporting course list for the major. (Sem: 1-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-055

Review Date: 08/24/2010

UCA Revision #1: 8/3/06

UCA Revision #2: 7/26/07

BD

## Biomedical Engineering

University Park, College of Engineering (BME)

PROFESSOR CHENG DONG, *Head of the Department of Biomedical Engineering*

The Biomedical Engineering curriculum emphasizes the continuous integration of classical and modern engineering principles with the life sciences and health care. Biomedical Engineers apply these skills to innovation in the health care industry, basic biological sciences, and the underpinning of medical practice.

Consistent with the mission of Penn State University and the College of Engineering, the Penn State Bachelor of Science program in Biomedical Engineering aims to create world-class engineers who will, after graduation, contribute to social and economic development through the application of engineering to the solution of problems in medicine and biology.

### Program Educational Objectives

Three to five years after graduation, we expect our graduates to be:

- employed in industry and government positions which include, but are not limited to, research and development, regulation, manufacturing, quality assurance and sales and marketing, or,
- enrolled in graduate school, continuing education, or other professional development programs related to biomedical sciences and engineering, or,
- enrolled in medical school, dental school, or other health-related professional training programs.

### Program Outcomes (Student Outcomes)

Upon graduation from the Biomedical Engineering program, students will have:

1. An ability to apply knowledge of advanced mathematics, (including differential equations and statistics), science, and engineering to solve problems at the interface of engineering and biology
2. An ability to design and conduct experiments, as well as to analyze and interpret data from living and non-living systems
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. An ability to function on multi-disciplinary teams
5. An ability to identify, formulate, and solve engineering problems
6. An understanding of professional and ethical responsibility
7. An ability to communicate effectively
8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. A recognition of the need for, and an ability to engage in, life-long learning
10. A knowledge of contemporary issues
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
12. An understanding of physics, chemistry, and of physiology at molecular, cellular and organ levels
13. An ability to address problems associated with the interaction between living and non-living materials and systems

**ENTRANCE TO MAJOR** -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHYS 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Biomedical Engineering, a minimum of 130-131 credits are required. The baccalaureate program in Biomedical Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

Students in residence at the Commonwealth campuses may satisfy the course requirements for semesters 1-3. They should then transfer to University Park to begin studies in their major beginning with semester 4.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of the *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 112-113 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 89 credits

#### PREScribed COURSES (72 credits)

EDSGN 100(3) (Sem: 1-2)  
CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1) (Sem: 1-2)  
MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), PHYS 211 GN(4) [\[1\]](#) (Sem: 1-2)  
CMPSC 200 GQ(3), E MCH 210(5), MATH 230(4), MATH 251(4) [\[1\]](#), PHYS 212 GN(4) [\[1\]](#) (Sem: 3-4)  
BME 201(3) [\[1\]](#) (Sem: 4)  
BME 301(4) [\[1\]](#), BME 303(3) [\[1\]](#), BME 313(3) [\[1\]](#), BME 401(3) [\[1\]](#), BME 402(3) [\[1\]](#), BME 403(1) (Sem: 5-6)  
ENGL 202C GWS(3) (Sem: 5-6)  
BME 429(2), BME 440(1), BME 450W(3) (Sem: 7-8)

#### ADDITIONAL COURSES (14 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)  
ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
ECON 102 GS(3), or ECON 104 GS(3) (Sem: 1-2)  
BIOL 141 GN(3) [\[1\]](#), BIOL 142(1) [\[1\]](#), or BIOL 240W(4) [\[1\]](#) (Sem: 3-4)  
CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 4-8)

#### SUPPORTING COURSES AND RELATED AREAS (3 credits)

Select 3 credits of Science or Engineering Elective courses from departmental list (Sem: 7-8)

#### REQUIREMENTS FOR THE OPTION: 23-24 credits

#### BIOCHEMICAL OPTION: (24 credits)

**PRESCRIBED COURSES** (9 credits)  
BME 409(3), BME 413(3) (Sem: 5-6)  
BME 423(3) (Sem: 7-8)

**ADDITIONAL COURSES** (3 credits)  
CHEM 202(3) or CHEM 210(3) (Sem: 4-6)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)  
Select 9 credits from Biochemical Option department list (Sem: 6-8)  
Select 3 credits from Related Electives department list (Sem: 6-8)

**MEDICAL IMAGING AND DEVICES OPTION:** (23 credits)

**PRESCRIBED COURSES** (7 credits)  
E E 210(4) (Sem: 3-4)  
BME 406(3) (Sem: 5-6)

**ADDITIONAL COURSES** (4 credits)  
CMPEN 271(3) and CMPEN 275(1) or CMPEN 270(4) or E E 310(4) or E E 330(4) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)  
Select 6 credits from the Related Electives department list (Sem: 6-8 )  
Select 6 credits from Medical Imaging and Device Option department list (Sem: 7-8)

**BIOMATERIALS OPTION:** (24 credits)

**PRESCRIBED COURSES** (12 credits)  
MATSE 201(3), BME 409(3), BME 443(3) (Sem: 5-6)  
BME 446(3) (Sem: 7-8)

**ADDITIONAL COURSES** (3 credits)  
CHEM 202(3) OR CHEM 210(3) (Sem: 4-6)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)  
Select 3 credits from Related Electives department list (Sem: 6-8)  
Select 6 credits from Biomaterials Option department list (Sem: 7-8)

**BIOMECHANICS OPTION:** (24 credits)

**PRESCRIBED COURSES** (9 credits)  
E MCH 212(3), E MCH 315(2), E MCH 316(1) (Sem: 4-6)  
BME 409(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)  
Select 9 credits from Biomechanics Option department list (Sem: 6-8)  
Select 6 credits from Related Electives department list (Sem: 6-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-040

Review Date: 11/19/2013

R & T: Approved 5/24/2013

UCA Revision #1: 8/2/06  
UCA Revision #2: 7/26/07

EN

Accreditation statement updated by Publications, per COE: 8/15/11

## Biology

*Penn State Erie, The Behrend College (BIOBD)*

The curriculum in Biology is designed to provide students with a strong background in the biological sciences. It provides preparation for students who intend to secure advanced degrees through graduate study, students who intend to prepare for careers in medicine or health-related fields, and students preparing for careers with companies or agencies requiring employees with biological backgrounds. The curriculum has six options allowing students to choose an area of specialization that will best meet their career goals. In addition to selecting an option, students are strongly encouraged to participate in faculty-supervised research. The options are *General Biology* - various areas of modern biology; *Ecology, Evolution, and Behavior* - theoretical, practical, and applied ecology and evolution of plants and animals; *Genetics and Developmental Biology* - genetics and developmental biology of plants and animals; *Molecular and Cellular Biology and Biochemistry* - molecular and cellular mechanisms of biology; *Medical Technology* - prepares students for careers in clinical laboratories; and *Health Professions* - prepares students for careers in medicine and veterinary sciences; this option also allows exceptional students, who gain early admission to a professional school, to fulfill option requirements with a set number of academic credits taken during the first professional year.

For the B.S. degree in Biology, a minimum of 124 credits is required. Each student must earn at least a grade of C in each 200-, 300-, and 400-level BIOL, B M B, MICRB, PPEM and W F S course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 97-99 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 42 credits

**PRESCRIBED COURSES** (42 credits)

CHEM 110 GN(3), CHEM 111 GN(I), CHEM 112 GN(3), CHEM 113 GN(I) (Sem: 1-2)

BIOL 110 GN(4), BIOL 220W GN(4)[\[11\]](#), BIOL 230W GN(4)[\[11\]](#), BIOL 240W GN(4)[\[11\]](#), MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-4)

ENGL 202C GWS(3), STAT 250 GQ(3) (Sem: 3-6)

BIOL 223(1)[\[11\]](#), BIOL 322(3)[\[11\]](#), (Sem: 5-6)

**REQUIREMENTS FOR THE OPTION:** 55-57 credits

**ECOLOGY, EVOLUTION, AND BEHAVIOR OPTION:** (55 credits)

Students can select courses in theoretical or applied ecology, evolution, field biology and animal behavior to build strength in ecological science. The option prepares students for graduate study in ecology and evolution, or careers in zoo science, environmental consulting, environmental management, environmental education or positions with regulatory agencies.

**PRESCRIBED COURSES** (3 credits)

BIOL 427(3)[\[11\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (26-30 credits)

STAT 301 GQ(3) or STAT 401(3) (Sem: 5-8)

Select 6-8 credits from one of the following sequences:

a. CHEM 202(3), CHEM 203(3) (Sem: 3-4)

b. CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

Select 8-10 credits from one of the following sequences:

a. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-8)

b. PHYS 211 GN(4), PHYS 212 GN(4); PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 5-8)

Select 9 credits from the following:

BIOL 428(3)[\[11\]](#), BIOL 429(3)[\[11\]](#), BIOL 435(3)[\[11\]](#), BIOL 438(3)[\[11\]](#), BIOL 446(3)[\[11\]](#), BIOL 463(3)[\[11\]](#) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (22-26 credits)

Select 6 credits of 400-level BIOL, B M B, MICRB, PPEM, or W F S courses excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499 (Sem: 5-8)

Select 7 credits in GEOG 160 GS(3), GEOG 161(1), and GEOG 363(3) and 9-13 credits from school approved list (Sem: 1-8)

OR

Select 16-20 credits from school approved list (Sem: 1-8)

**GENERAL BIOLOGY OPTION:** (55 credits)

Students can select courses from a variety of areas of contemporary biology. The option provides the flexibility to enable students to tailor their program for graduate study in many fields of biology or careers requiring broad backgrounds and diverse skills in the biological sciences.

**PRESCRIBED COURSES** (3 credits)

BIOL 427(3)[\[11\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (14-18 credits)

Select 6-8 credits from one the following sequences:

a. CHEM 202(3), CHEM 203(3) (Sem: 3-4)

b. CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

Select 8-10 credits from one of the following sequences:

a. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-8)

b. PHYS 211 GN(4), PHYS 212 GN(4); PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (34-38 credits)

Select 15 credits of 400-level BIOL, B M B, MICRB, PPEM, or W F S courses excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499 (Sem: 5-8)

Select 19-23 credits from school approved list (Sem: 1-8)

**GENETICS AND DEVELOPMENTAL BIOLOGY OPTION:** (55 credits)

Students can select courses to develop strengths in various areas of transmission, medical, population or molecular genetics and/or study the developmental process at the organismal, histological or molecular levels. The option prepares students for admission to professional programs in the health sciences, graduate programs in genetic counseling, plant or animal breeding, developmental biology, or careers in research or biotechnology.

**PRESCRIBED COURSES** (16 credits)

CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

MICRB 201(3)[\[11\]](#), MICRB 202(2)[\[11\]](#) (Sem 3-6)

BIOL 427(3)[\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (17-19 credits)

Select 9 credits from the following:

B M B 406(3)[\[1\]](#), BIOL 410(3)[\[1\]](#), BIOL 422(3)[\[1\]](#), BIOL 428(3)[\[1\]](#), BIOL 430(3)[\[1\]](#), BIOL 460(3)[\[1\]](#), (Sem: 5-8)

Select 8-10 credits from one of the following sequences:

a. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-8)

b. PHYS 211 GN(4), PHYS 212 GN(4); PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (20-22 credits)

Select 6 credits of 400-level BIOL, B M B, MICRB, PPEM, or W F S courses excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499 (Sem: 5-8)

Select 14-16 credits from school approved list (Sem: 1-8)

**MEDICAL TECHNOLOGY OPTION:** (55-57 credits)

Students spend approximately twelve months at an affiliated hospital[\[12\]](#) during their senior year to complete the clinical phase of their baccalaureate studies. A fixed number of spaces are available on a competitive basis of grade-point average and hospital approval. The Bachelor of Science degree in Biology is awarded upon successful completion of the clinical study. The graduate is also eligible to take the national examination for certification and registry as a medical technologist.

**PRESCRIBED COURSES** (44 credits)

MICRB 201(3)[\[1\]](#), MICRB 202(2)[\[1\]](#) (Sem: 3-4)

PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-6)

MICRB 405A(8)[\[1\]](#), MICRB 405B(1)[\[1\]](#), MICRB 405C(6)[\[1\]](#), MICRB 405D(5)[\[1\]](#), MICRB 405E(7)[\[1\]](#), MICRB 405F(3)[\[1\]](#), MICRB 408(1)[\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (8-10 credits)

Select 8-10 credits from one the following sequences:

a. CHEM 202(3), CHEM 203(3), CHEM 221(4) (Sem: 3-4)

b. CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)

Select 3 credits of 400-level BIOL from:

B M B 402(3)[\[1\]](#), B M B 406(3)[\[1\]](#), BIOL 460(3)[\[1\]](#), BIOL 472(3)[\[1\]](#), or MICRB 415(3)[\[1\]](#) (Sem: 5-6)

**MOLECULAR AND CELLULAR BIOLOGY AND BIOCHEMISTRY OPTION:** (55 credits)

Students can select courses to develop strengths in the study of biology at the cellular and molecular levels, including basic metabolism and its regulations, DNA recombinant technology, bioinformatics and genomics. The option prepares students for admission to professional programs in the health sciences, graduate study, or careers in biotechnology or research.

**PRESCRIBED COURSES** (26 credits)

CHEM 210(3), CHEM 212(3), CHEM 213(2), MICRB 201(3)[\[1\]](#), MICRB 202(2)[\[1\]](#) (Sem 3-6)

B M B 401(3)[\[1\]](#), B M B 402(3)[\[1\]](#), B M B 403(1)[\[1\]](#), B M B 406(3)[\[1\]](#) (Sem: 5-8)

BIOL 427(3)[\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (11-13 credits)

Select 8-10 credits from one of the following sequences:

a. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-8)

b. PHYS 211 GN(4), PHYS 212 GN(4); PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 5-8)

Select 3 credits from B M B 465(3)[\[1\]](#), BIOL 404(3)[\[1\]](#), BIOL 439(3)[\[1\]](#), BIOL 441(3)[\[1\]](#), MICRB 410(3)[\[1\]](#), MICRB 412(3)[\[1\]](#), or MICRB 415(3)[\[1\]](#) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (16-18 credits)

Select 3 credits of 400-level BIOL, B M B, MICRB, PPEM, or W F S courses excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499 (Sem: 5-8)

Select 13-15 credits from school approved list (Sem: 1-8)

**HEALTH PROFESSIONS OPTION:** (55 credits)

Students can prepare for the rigors of advanced health professions education by following the course of study outlined in this option. This option is also provided for exceptional students who are admitted into a "3+4" accelerated or early acceptance program at an approved or affiliated professional school. Students are granted 21 credits toward the Bachelor of Science degree following the successful completion of the first professional academic year. The Health Professions Committee will work with such students to develop an appropriate program of study.

**PRESCRIBED COURSES** (29 credits)

MICRB 201(3)[\[1\]](#), MICRB 202(2)[\[1\]](#) (Sem: 1-2)

CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

B M B 402(3)[\[1\]](#), B M B 403(1)[\[1\]](#), BIOL 421(4)[\[1\]](#), BIOL 472(3)[\[1\]](#), BIOL 473(2)[\[1\]](#) (Sem: 5-8)

BIOL 427(3)[\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (11-13 credits)

Select 8-10 credits from one of the following sequences:

a. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-8)

b. PHYS 211 GN(4), PHYS 212 GN(4); PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 5-8)

Select 3 credits from: B M B 401(3)[\[1\]](#) or CHEM 472(3)[\[1\]](#) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (13-15 credits)

Select 10-12 credits from school approved list (Sem: 1-8)

Select 3 credits of 400-level BIOL, B M B, MICRB, PPEM, or W F S courses excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499 (Sem: 5-8)

[\[1\]](#)A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[\[12\]](#)Current affiliation is with St. Vincent Health Center, School of Medical Technology, Erie, PA.

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-05-015

Review Date: 02/25/2014

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

BD



## Biology

Abington College (BIOAB)  
 Altoona College (BIOAL)  
 Berks College (BIOBL)  
 University Park, Eberly College of Science (BIOL)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR DOUGLAS CAVENER, *Head*

The curriculum in Biology is planned for preparation for professions requiring competence in biological science or for gaining an understanding of the world of living things. The professional group includes students who intend to secure advanced degrees through graduate study, students who are interested in work with various governmental agencies or industries having biological responsibilities, and students who want to prepare for careers in medicine or other health-related professions. Students whose interests are not professional select the curriculum because its broad approach can result in an educated view of the structure and function of living things. Achievement of these goals, including a special interest in a particular area of biology, can be met by selecting one of five options offered by the Department of Biology that will lead to the B.S. degree in Biology. The options and their key areas are 1) Plant Biology--morphology, systematics, and physiology of plants and fungi; 2) Ecology--behavior, and population and community biology of plants and animals; 3) General Biology--all aspects of modern biology; 4) Genetics and Developmental Biology--genetics, genetic engineering, and plant and animal development; 5) Neuroscience--development, biochemistry, physiology and aging of the central and peripheral nervous system; 6) Vertebrate Physiology--pre-medicine, pre-dentistry, pharmacology, and animal physiology.

In order to be eligible for entrance to the Biology major, a student must have: 1) attained at least a 2.00 cumulative grade point average; 2) completed BIOL 110 GN(4), CHEM 110 GN(3), MATH 140 GQ(4), and earned a grade of C or better in each of these courses; and 3) completed at least one of the following courses with a grade of C or better: BIOL 220W GN(4), BIOL 230W GN(4), or BIOL 240W GN(4).

### TO VIEW THE [Biology Minor \(BIOL\)](#)

For the B.S. degree in Biology, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
 (15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
 (See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
 (Included in GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
 (Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
 (Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 94 credits  
 (This includes 15 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses.)

**COMMON REQUIREMENTS FOR MAJOR (ALL OPTIONS):** 40-44 credits

**PRESCRIBED COURSES** (32 credits)  
 CHEM 110 GN(3) [\[11\]](#), CHEM 111 GN(1), CHEM 112 GN(3) [\[11\]](#), CHEM 113 GN(1), MATH 140 GQ(4) [\[11\]](#), MATH 141 GQ(4) (Sem: 1-2)  
 BIOL 110 GN(4) [\[11\]](#), BIOL 220W GN(4) [\[11\]](#), BIOL 230W GN(4) [\[11\]](#), BIOL 240W GN(4) [\[11\]](#) (Sem: 1-4)

**ADDITIONAL COURSES** (8-12 credits)  
 PHYS 250 GN(4), PHYS 251 GN(4); or PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 5-6)

**REQUIREMENTS FOR THE OPTION:** 50-54 credits

**ECOLOGY OPTION:** (50-54 credits)

**ADDITIONAL COURSES** (30-33 credits)  
 CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)  
 Select 3-4 credits from STAT 200 GQ(4) or STAT 240 GQ(3) or STAT 250 GQ(3) (Sem: 3-4)  
 Select 3 credits from STAT 462(3) or STAT 464(3) (Sem: 7-8)

Select a minimum of 18 credits of 400-level biology courses, with at least 3 credits from each of the following groups (courses in Group IV--except BIOL 496, SC 295, SC 395, SC 495--may be used to satisfy requirements in other groups) (Sem: 5-8)

Group I: BIOL 412(3), BIOL 419(3), BIOL 435(3), BIOL 436(3), BIOL 444(3), BIOL 450W(3-5), BIOL 463(3), BIOL 482(3-4), BIOL 499A IL(3)

Group II: BIOL 414(3), BIOL 427(3), BIOL 428(3), BIOL 429(3), BIOL 448(3), BIOL 464(3), BIOL 474(3)

Group III: BIOL 406(3), BIOL 415(3), BIOL 417(4), BIOL 446(3), PPEN 425(4)

Group IV: BIOL 414(3), BIOL 417(4), BIOL 419(3), BIOL 444(3), BIOL 448(3), BIOL 450W(3-5), BIOL 482(3-4), BIOL 496(3), BIOL 499A IL(3), PPEN 425(4), SC 295(1-3), SC 395(1-3), SC 495(1-3) (A maximum of 3 credits of BIOL 496 or 4 credits of SC 295, SC 395, SC 495 may be used to fulfill the 18-credit minimum in the 400-level biology course requirement.)

**SUPPORTING COURSES AND RELATED AREAS** (17-24 credits)  
 Select 17-24 credits from department list (Sem: 1-8)

**GENERAL BIOLOGY OPTION:** (50-54 credits)

**ADDITIONAL COURSES** (24-27 credits)  
 CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)  
 Select 3-4 credits from STAT 200 GQ(4), STAT 240 GQ(3), or STAT 250 GQ(3) (Sem: 3-4)

Select a minimum of 18 credits of 400-level biology courses, with at least 3 credits from each of the following groups (each course may be used to satisfy a requirement in only one group) (Sem: 5-8)

Group I -- BIOL 407(3), BIOL 410(3), BIOL 414(3), BIOL 441(3), BIOL 443(3), BIOL 444(3), BIOL 446(3), BIOL 448(3), BIOL 499A IL(3), HORT 407(3), HORT 440W(3), PPEN 416(2-4), PPATH 425(4)

Group II -- BIOL 405(3), BIOL 411(3), BIOL 414(3), BIOL 417(4), BIOL 420(3), BIOL 421(4), BIOL 425(4), BIOL 427(3), BIOL 428(3), BIOL 438(3), BIOL 443(3), BIOL 460(3), BIOL 474(3)

Group III -- AN SC 442(3), B M B 400(2-3), B M B 450(2), BIOL 404(3), BIOL 405(3), BIOL 407(3), BIOL 410(3), BIOL 411(3), BIOL 416(3), BIOL 422(3), BIOL 426(3), BIOL 428(3), BIOL 430(3), BIOL 432(3), BIOL 439(3), BIOL 443(3), BIOL 448(3), BIOL 460(3), BIOL 499A IL(3), HORT 407(3)

Group IV -- BIOL 406(3), BIOL 412(3), BIOL 414(3), BIOL 415(3), BIOL 417(4), BIOL 419(3), BIOL 428(3), BIOL 429(3), BIOL 435(3), BIOL 436(3), BIOL 444(3) BIOL

446(3), BIOL 448(3), BIOL 450W(3-5), BIOL 463(3), BIOL 464(3), BIOL 474(3), BIOL 499A IL(3),

Group V -- BIOL 404(3), BIOL 406(3), BIOL 409(3), BIOL 411(3), BIOL 413(3), BIOL 416(3), BIOL 421(4), BIOL 426(3), BIOL 430(3), BIOL 432(3), BIOL 437(4), BIOL 443(3), BIOL 446(3), BIOL 460(3), BIOL 469(3), BIOL 470(3), BIOL 472(3), BIOL 479(3)

Group VI -- BIOL 400(1-3), BIOL 407(3), BIOL 414(3), BIOL 417(4), BIOL 419(3), BIOL 421(4), BIOL 437(4), BIOL 439(3), BIOL 444(3), BIOL 448(3), BIOL 450W(3-5), BIOL 461(3), BIOL 471(3), BIOL 473(2), BIOL 496(1-3), PPEM 425(4), SC 295(1-3), SC 395(1-3), SC 495(1-3)

**SUPPORTING COURSES AND RELATED AREAS** (23-30 credits)  
Select 23-30 credits from department list (Sem: 1-8)

**GENETICS AND DEVELOPMENTAL BIOLOGY OPTION:** (50-54 credits)

**PRESCRIBED COURSES** (19 credits)  
CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)  
BIOL 322(3), BIOL 430(3) (Sem: 5-6)  
B M B 401(2), B M B 402(3) (Sem: 5-8)

**ADDITIONAL COURSES** (17-21 credits)  
Select 2-5 credits from MATH 220 GQ(2-3), MATH 231(2), MICRB 201(3), MICRB 202(2) (Sem: 3-6)  
Select 3-4 credits from STAT 200 GQ(4), STAT 240 GQ(3), STAT 250 GQ(3), or STAT 319(3) (Sem: 5-6)

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from Group I, 3 credits from Group II, and 3 credits from Group III (Sem: 5-8)

Group I -- B M B 400(2-3), B M B 450(2), BIOL 404(3), BIOL 405(3), BIOL 407(3), BIOL 410(3), BIOL 411(3), BIOL 413(3), BIOL 416(3), BIOL 422(3), BIOL 426(3), BIOL 427(3), BIOL 428(3), BIOL 432(3), BIOL 437(4), BIOL 439(3), BIOL 443(3), BIOL 448(3), BIOL 460(3), BIOL 469(3), HORT 407(3), MICRB 410(3)

Group II -- BIOL 405(3), BIOL 411(3), BIOL 414(3), BIOL 417(4), BIOL 420(3), BIOL 421(4), BIOL 425(4), BIOL 427(3), BIOL 428(3), BIOL 438(3), BIOL 443(3), BIOL 460(3), BIOL 474(3)

Group III -- BIOL 400(1-3), BIOL 407(3), BIOL 437(4), BIOL 439(3), BIOL 448(3), BIOL 461(3), BIOL 471(3), BIOL 473(2), BIOL 496(1-3), BIOL 499A IL(3), B M B 442(3), PPEM 425(4), SC 295(1-3), SC 395(1-3), SC 495(1-3)

**SUPPORTING COURSES AND RELATED AREAS** (10-18 credits)  
Select 10-18 credits from department list (Sem: 1-8)

**NEUROSCIENCE OPTION:** (50-54 credits)

**PRESCRIBED COURSES** (19 credits)  
B M B 401(2), B M B 402(3) (Sem: 5-8)  
BIOL 469(3), BIOL 470(3) (Sem: 5-8)  
CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

**ADDITIONAL COURSES** (15-16 credits)  
Select 3-4 credits from STAT 200 GQ(4), STAT 240 GQ(3), or STAT 250 GQ(3) (Sem: 3-4)

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from Group I, 3 credits from Group II, and 3 credits from Group III (Sem: 5-8)

Group I -- B M B 400(2-3), BIOL 404(3), BIOL 409(3), BIOL 411(3), BIOL 413(3), BIOL 421(4), BIOL 426(3), BIOL 430(3), BIOL 437(4), BIOL 443(3), BIOL 460(3), BIOL 471(3), BIOL 472(3), BIOL 473(2), BIOL 479(3) (may select up to 6 credits from department list)

Group II -- BIOL 405(3), BIOL 411(3), BIOL 414(3), BIOL 417(4), BIOL 420(3), BIOL 421(4), BIOL 425(4), BIOL 427(3), BIOL 428(3), BIOL 438(3), BIOL 443(3), BIOL 460(3), BIOL 474(3)

Group III -- BIOL 400(1-3), BIOL 414(3), BIOL 417(4), BIOL 419(3), BIOL 421(4), BIOL 437(4), BIOL 439(3), BIOL 444(3), BIOL 448(3), BIOL 450W(3-5), BIOL 461(3), BIOL 471(3), BIOL 473(2), BIOL 496(1-3), BIOL 499A IL(3), SC 295(1-3), SC 395(1-3), SC 495(1-3)

**SUPPORTING COURSES AND RELATED AREAS** (15-20 credits)  
Select 15-20 credits from department list (Sem: 1-8)

**PLANT BIOLOGY OPTION:** (50-54 credits)

**PRESCRIBED COURSES** (22 credits)  
CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)  
B M B 401(2), B M B 402(3), BIOL 407(3), BIOL 414(3), BIOL 441(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12-13 credits)  
Select 3-4 credits from STAT 200 GQ(4), STAT 240 GQ(3), STAT 250 GQ(3), or an advanced statistics course (Sem: 3-4)

Select a minimum of 9 credits of 400-level biology courses, with at least 6 credits from Group I and 3 credits from Group II (Sem: 5-8)

Group I -- BIOL 410(3), BIOL 413(3), BIOL 427(3), BIOL 430(3), BIOL 443(3), BIOL 444(3), BIOL 446(3), BIOL 448(3), BIOL 499A IL(3), BIOTC 459(3), HORT 407(3), HORT 440W(3), PPEM 416(2-4), PPEM 425(4)

Group II -- BIOL 400(1-3), BIOL 414(3), BIOL 419(3), BIOL 439(3), BIOL 444(3), BIOL 448(3), BIOL 450W(3-5), BIOL 461(3), BIOL 496(1-3), BIOL 499A IL(3), SC 295(1-3), SC 395(1-3), SC 495(1-3)

**SUPPORTING COURSES AND RELATED AREAS** (15-20 credits)  
Select 15-20 credits from department list (Sem: 1-8)

**VERTEBRATE PHYSIOLOGY OPTION:** (50-54 credits)

**PRESCRIBED COURSES** (18 credits)  
CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)  
B M B 401(2), B M B 402(3), BIOL 472(3), BIOL 473(2) (Sem: 5-8)

**ADDITIONAL COURSES** (15-16 credits)  
Select 3-4 credits from STAT 200 GQ(4), STAT 240 GQ(3), or STAT 250 GQ(3) (Sem: 5-8)

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from Group I, 3 credits from Group II, and 3 credits from Group III (Sem: 5-8)

Group I -- BIOL 404(3), BIOL 406(3), BIOL 409(3), BIOL 411(3), BIOL 412(3), BIOL 413(3), BIOL 416(3), BIOL 421(4), BIOL 426(3), BIOL 430(3), BIOL 432(3), BIOL 437(4), BIOL 443(3), BIOL 446(3), BIOL 460(3), BIOL 469(3), BIOL 470(3), BIOL 471(3), BIOL 479(3) (may select up to 6 credits from department list)

Group II -- BIOL 405(3), BIOL 411(3), BIOL 414(3), BIOL 417(4), BIOL 420(3), BIOL 421(4), BIOL 425(4), BIOL 427(3), BIOL 428(3), BIOL 438(3), BIOL 443(3), BIOL 460(3), BIOL 474(3)

Group III -- BIOL 400(1-3), BIOL 414(3), BIOL 417(4), BIOL 419(3), BIOL 421(4), BIOL 437(4), BIOL 439(3), BIOL 444(3), BIOL 448(3), BIOL 450W(3-5), BIOL 461(3), BIOL 471(3), BIOL 473(2), BIOL 496(2), BIOL 499A IL(3), SC 295(1-3), SC 395(1-3), SC 495(1-3)

**SUPPORTING COURSES AND RELATED AREAS** (16-21 credits)  
Select 16-21 credits from department list (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2007

Blue Sheet Item #: 35-06-520

Review Date: 4/10/07

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

SC

## Biotechnology

University Park, Eberly College of Science (BIOTC)

PROFESSOR Wendy Hanna-Rose, *in charge*

Biotechnology may be broadly defined as the application of principles of molecular and cell science in the production of biologically important or industrially useful products. Therefore, students in the Biotechnology major will (1) acquire a strong foundation in the life and chemical sciences, (2) learn how fundamental science is applied to problems through biotechnology, (3) develop basic laboratory skills, perform standard techniques, work with state-of-the-art instrumentation, describe and evaluate analytical methodology used in biotechnology, and (4) become familiar with societal concerns and governmental regulations regarding the biotechnology industry. One very important strength of this major is the extensive laboratory experience each student receives. In the General option, students are very strongly encouraged to consider Cooperative Education with industry as an integral part of their curriculum. In addition to the General option in Biotechnology, the major also offers the Clinical Laboratory Science option.

In order to be eligible for entrance to the Biotechnology major, a student must have: (1) attained at least a 2.00 cumulative grade-point average, and (2) completed CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), and MATH 140 GQ(4) and earned a grade of C or better in each of these courses.

For the B.S. degree in Biotechnology, a minimum of 125 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 95 credits<sup>[87]</sup>

(This includes 15 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses.)

**COMMON REQUIREMENTS FOR MAJOR (ALL OPTIONS):** 42 credits

**PRESCRIBED COURSES** (42 credits)

CHEM 110 GN(3)<sup>[11]</sup>, CHEM 111 GN(1)<sup>[11]</sup>, CHEM 112 GN(3)<sup>[11]</sup>, CHEM 113 GN(1), MATH 140 GQ(4)<sup>[11]</sup>, MATH 141 GQ(4), PSU 016(1) (Sem: 1-2)

PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 1-4)

B M B 251(3)<sup>[85]</sup>, B M B 252(3)<sup>[85]</sup>, BIOL 322(3), MICRB 201(3)<sup>[85]</sup>, MICRB 202(2) (Sem: 3-4)

MICRB 421W(3) (Sem: 5-6)

**REQUIREMENTS FOR THE OPTION:** 53 credits

**GENERAL BIOTECHNOLOGY OPTION:** (53 credits)

**PRESCRIBED COURSES** (25 credits)

B M B 211(3), B M B 221(2), B M B 442(3), MICRB 410(3) (Sem: 5-6)

BIOTC 416(2), BIOTC 459(3), BIOTC 479(3), BIOTC 489(3), STAT 250 GQ(3) (Sem: 5-8)

**ADDITIONAL COURSES** (6-8 credits)

CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (20-22 credits)

Select 14-16 credits from department list (Sem: 3-8)

Select 6 credits from any 400-level B M B/BIOTC/MICRB lecture course, FD SC 408(2) (Sem: 5-8)

**CLINICAL LABORATORY SCIENCE OPTION:** (53 credits)

This option provides both the academic and clinical preparation for students interested in a career as a clinical laboratory scientist. Positions are found in hospital, physician-office, reference, industrial, and research laboratories. To complete baccalaureate degree requirements, students enter a ten-month clinical practicum (MICRB 405A-F) at an affiliate hospital for the senior year. (Current affiliations are with Mount Nittany Medical Center, State College and Pennsylvania Hospital, Philadelphia.) Students are recommended for a fixed number of hospital positions on a competitive basis. Cumulative grade-point average and hospital school admission requirements serve as criteria for recommendation. The B.S. degree is awarded at the first commencement following completion of the clinical practicum.

**PRESCRIBED COURSES** (44 credits)

B M B 211(3), B M B 212(1), B M B 221(2), MICRB 410(3), MICRB 412(3), MICRB 422(2) (Sem: 5-6)

MICRB 405A(8), MICRB 405B(1), MICRB 405C(6), MICRB 405D(5), MICRB 405E(7), MICRB 405F(3) (Sem: 7-8)

**ADDITIONAL COURSES** (6-8 credits)

CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (1-3 credits)

Select 1-3 credits from department list (Sem: 3-8)

## Integrated B.S. in Biotechnology - Master of Biotechnology in Biotechnology

PROFESSOR Loida Escote-Carlson, *in charge*

The integrated B.S. in Biotechnology-Master of Biotechnology degree program is designed to enable qualified undergraduate students in the B.S. Biotechnology program to graduate in five years with the Master of Biotechnology degree. The requirements of the Master of Biotechnology degree are designed to prepare students for diverse career opportunities in the burgeoning biotechnology industry. The integrated B.S. Biotechnology-Master of Biotechnology program will enhance the preparation and qualifications of B.S. Biotechnology students seeking entry-level positions in biotechnology and related industries. At the same time, students develop a practical knowledge of the laboratory techniques that underlie current research in the life sciences that will serve as excellent preparation for those students in the Master of Biotechnology program who later decide to pursue further graduate degrees.

A maximum of 12 credits will be cross-counted towards the B.S. and Masters degrees, from the following courses:

B M B 400(2-3), BIOTC 479(3), IBIOS 571(2), IBIOS 591(1), and IBIOS 593(3).

**B.S. Biotechnology Requirements:**

Total credits required: 125

GENERAL EDUCATION: 46 credits (15 of these are included in the REQUIREMENTS FOR THE MAJOR)

REQUIREMENTS FOR THE MAJOR: 94-95 credits

Prescribed courses: 67 credits

Additional courses: 6-9 credits

Supporting courses and related areas: 18-21 credits

**Master of Biotechnology Requirements:**

Total credits required: 30 (18 of which must be from 500-level courses)

Required courses: 16-19 credits

Electives: 11-14 credits

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[85] To graduate with a B.S. degree in Biotechnology, a grade of C or better is required in two of the following courses: MICRB 201, B M B/MICRB 251, B M B/MICRB 252.

[87] To graduate with a B.S. degree in Biotechnology, a grade of C or better is required in 9 credits of any BIOTC, B M B, or MICRB 400-level course except B M B 442, B M B 443W, B M B 445W, B M B 448, B M B 488, B M B 496, MICRB 421W, MICRB 422, MICRB 447.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-111

Review Date: 08/20/13

UCA Revision #1: 8/3/06

SC

PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: July 20, 2012

## Business, Liberal Arts, and Science

*Penn State Erie, The Behrend College (BLASC)*

This interdisciplinary major provides students with considerable flexibility for customizing a program of study designed to meet individual interests and career goals. Depth of knowledge is achieved through the selection of modules that form the basis of the major. Students select three modules, each of which contains 15 or 16 credits and encompasses a discrete subject area. One of the modules involves course work in business disciplines; the other two modules involve course work in nonbusiness disciplines. Proper selection of modules helps provide strong preparation for careers in business and government or for entry into graduate school.

### Entry to Major Requirements:

Entry to the Business, Liberal Arts, and Science major requires the completion of 8 entry-to-major courses: ACCTG 211(4); B A 243(4) or B A 241(2) and B A 242(2); ECON 102 GS(3), ECON 104 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); MIS 204(3); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Business, Liberal Arts, and Science, a minimum of 122 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 1 credit

### REQUIREMENTS FOR THE MAJOR: 91-92 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

### PRESCRIBED COURSES (31 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3), MIS 204(3) (Sem: 3-4)

FIN 301(3), MGMT 301(3), MKTG 301(3), SCM 310(3) (Sem: 5-6)

MGMT 471W(3) (Sem: 7-8)

### ADDITIONAL COURSES (15 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

B A 243(4) or B A 241(2) and B A 242(2) (Sem: 3-4)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

Select 3 credits from ECON 470(3), MGMT 461 IL(3), MKTG 445 IL(3), or other 400-level international business course (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (45-46 credits)

[Some courses in this category may have prerequisites that are not required for the major.]

Select one module from Modules 1-5 (15-16) (Sem: 5-8)

Select one module from Modules 8, 11, 12, or 14 (15) (Sem: 5-8)

Select one module from Modules 6-18 (15) (Sem: 5-8)

Except where noted, courses taken to satisfy General Education requirements may not be used to satisfy module requirements.

### Module 1 ACCOUNTING (16 credits)

ACCTG 310(3) Federal Income Taxation

ACCTG 340(3) Cost Accounting

ACCTG 371(4) Intermediate Accounting I

Select 6 credits in ACCTG (including at least 3 credits at the 400 level)

Completion of this module in addition to ACCTG 211(4) fulfills the requirements for a minor in Accounting.

### Module 2 ECONOMIC ANALYSIS AND POLICY (15 credits)

Select 15 credits in ECON or ECNS (including at least 6 credits at the 400 level)

Completion of this module in addition to ECON 102 GS(3) and ECON 104 GS(3) fulfills the requirements for a minor in Economics.

### Module 3 LABOR RELATIONS AND HUMAN RESOURCES MANAGEMENT (15 credits)

Select 15 credits from:

ECON 410(3) Economics of Labor Markets

LER 100 GS(3) Labor and Industrial Relations

MGMT 331(3) Organizational Processes and Structure

MGMT 341 US(3) Introduction to Human Resource Management

MGMT 420(3) Conflict Management

MGMT 440(3) Advanced Human Resource Management

Completion of 12 credits of MGMT courses in addition to MGMT 301(3) and MGMT 471W(3) fulfills the requirements for a minor in Management.

### Module 4 QUANTITATIVE METHODS FOR BUSINESS (15 credits)

Select 15 credits from:

ECON 481(3) Business Forecasting Techniques

ECON 482(3) Advanced Business Forecasting Techniques

ECON 485(3) Econometric Techniques

MGMT 350(3) Problem Solving and Models for Management

SCM 445(3) Operations Planning and Control

SCM 455(3) Logistics Systems Analysis and Design

SCM 460(3) Purchasing and Material Management

Completion of 12 credits of MGMT courses in addition to MGMT 301(3) and MGMT 471W(3) fulfills the requirements for a minor in Management.

### Module 5 MANAGEMENT INFORMATION SYSTEMS (15 credits)

Select 15 credits from:

MIS 336(3) Data Management Systems

MIS 430(3) Systems Analysis

Select 9 credits in CMPBD, CMPSC, or MISBD (including at least 3 credits at the 400 level)

Completion of this module in addition to MIS 204(3) fulfills the requirements for a minor in MISBD.

**Module 6 COMMUNICATIONS** (15 credits)

Select 15 credits in COMM, COMMU, or SPCOM (including at least 6 credits at the 400 level)

**Module 7 ENGLISH** (15 credits)

Select 15 credits in ELISH or ENGL (beyond the Writing/Speaking area of General Education, and including at least 6 credits at the 400 level)

**Module 8 FOREIGN LANGUAGE** (15 credits)

Select 12 credits in one foreign language

Select 3 credits in a corresponding area studies course in consultation with adviser [e.g., GER 200 GH;IL(3), HIST 179 GH;IL(3), PL SC 020 GS;IL(3)]

**Module 9 HISTORY** (15 credits)

Select 15 credits in HIST or HSTRY (including at least 6 credits at the 400 level)

**Module 10 POLITICAL SCIENCE** (15 credits)

PL SC 001 GS(3) Introduction to American National Government

PL SC 003 GS;IL(3) Introduction to Comparative Politics

Select 9 credits in PL SC or POLSC (including at least 6 credits at the 400 level)

**Module 11 INTERNATIONAL CULTURAL STUDIES** (15 credits)

CAS 471 US;IL(3) International and Intercultural Communication

INTST 100 GS;IL(3) Introduction to International Studies

INTST 400 IL(3) Seminar in International Studies

Select 6 credits from:

FR 139 GH;IL(3) France and the French-speaking World

GER 200 GH;IL(3) Contemporary German Culture

RL ST 001 GH;US;IL(3) Introduction to World Religions

RL ST 004 GH;US;IL(3) Jewish and Christian Foundation

RUS 100 GH;IL(3) Russian Culture and Civilization

RUS 130 IL(3) Women in Russian Literature

SPAN 130 GH;IL(3) Iberian Civilization

SPAN 131 GH;IL(3) Ibero-American Civilization or other international cultures courses in consultation with adviser

**Module 12 INTERNATIONAL POLICY STUDIES** (15 credits)

Select 15 credits from:

PL SC 003 GS;IL(3) Introduction to Comparative Politics

PL SC 014 GS;IL(3) International Relations

PL SC 020 GS;IL(3) Comparative Politics--Western Europe

PL SC 022 GS;IL(3) Politics of the Developing Areas

PL SC 452(3) Government and Politics of Central Europe

PL SC 423(3) Post-Soviet Politics

PL SC 487(3) International Law and Organizations

PL SC 488(3) Comparative Public Policy

**Module 13 PSYCHOLOGY** (15 credits)

PSYCH 100 GS(3) Psychology

Select 12 credits in PSY or PSYCH (including at least 6 credits at the 400 level)

**Module 14 EDUCATION ABROAD** (15 credits)

Select an Education Abroad Program in consultation with adviser

**Module 15 COMPUTER STUDIES** (15 credits)

Select 15 credits in CMPSC or CMPBD (including at least 6 credits at the 400 level)

**Module 16 MATHEMATICS** (15 credits)

Select 15 credits in MATH or MTHBD (including at least 6 credits at the 400 level)

**Module 17 SCIENCE** (15 credits)

Select 15 credits in the natural sciences (including at least 6 credits at the 400 level)

**Module 18 STATISTICS AND QUALITY CONTROL** (15 credits)

MATH 482(3) Mathematical Methods of Operations Research

Q C 450(3) Introduction to Quality Control Engineering

STAT 461(3) Analysis of Variance

STAT 460(3) Intermediate Applied Statistics

STAT 462(3) Applied Regression Analysis

STAT 464(3) Applied Nonparametric Statistics or other courses in MATH, MTHBD, Q C, or STAT in consultation with adviser

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-03-029

Review Date: 11/21/06

UCA Revision #1: 8/3/06

UCA Revision #2: 7/26/07

BD

## BioRenewable Systems

University Park, College of Agricultural Sciences (BRS)

PROFESSOR Paul Heinemann, Head, Department of Agricultural and Biological Engineering

The BioRenewable Systems Major is an applied major that intertwines the study of engineering technology, natural resources, and agriculture with fundamentals of business, entrepreneurship, and management. Administered through the Department of Agricultural and Biological Engineering, the BioRenewable Systems (BRS) program uniquely prepares students to solve 21st century problems and attain careers in both traditional sectors and those relating to the emerging bioeconomy. Students in this program will secure: (1) knowledge of fundamental sciences related to resources, processes, and products in biorenewable systems; (2) communication and managerial skills relevant to careers in product development, technology, sales, marketing and management; and (3) the ability to apply systems analysis skills, positioning them for effective problem solving and leadership in the agricultural and bioproducts industries.

Graduates are typically employed as sales and field representatives, financial and technical consultants, and technical service or quality assurance personnel in renewable bioproducts or related agricultural sectors such as: power and machinery systems, forest products, food production, bioprocessing, environmental systems, wood structures, bioenergy, co-product development, and agrochemicals. Graduates may continue their education in a graduate program with a science, engineering, or business orientation.

The BRS major has two options: Agricultural Systems Management (ASM) and BioProducts (BP).

### Agricultural Systems Management Option

This option applies a technological approach to understanding and managing agricultural production systems to meet economical and sustainable needs. Basic study is emphasized in the agricultural and business management sciences, along with the application of the technical results of engineering research, design, and manufacturing. Graduates of this option apply their technology and management training to the diverse areas of food and fiber production; bioprocessing; and land, water, and air resources.

### BioProducts Option

The scientific nature of biobased resources—their unique design, sustainability, and renewability—constitutes the core of this option. Building upon that foundation, students will learn techniques for converting and efficiently utilizing these materials to maximize product life cycles, while simultaneously exploring relevant marketing and management strategies. Technical electives for this option emphasize material sciences, engineering, and/or business. Career tracks are broad, ranging from traditional forest products companies to emerging sectors, including bioenergy co-products.

For the B.S. degree in BioRenewable Systems, a minimum of 120 credits is required for the BioProducts Option and minimum of 122 credits is required for the Agricultural Systems Management Option.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(30 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 105-109 credits

(This includes 30 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 73-75 credits

#### PRESCRIBED COURSES (45 credits)

ACCTG 211(4), CHEM 110 GN(3), CHEM 111 GN(1), EDSGN 100(3)[\[1\]](#), ENGL 015 GWS(3) (Sem: 1-2)  
A S M 391 GWS(2), AG BM 106(3)[\[1\]](#), BRS 221(3)[\[1\]](#), BRS 300(3)[\[1\]](#), BRS 437(4)[\[1\]](#) (Sem: 5-6)  
A S M 392 GWS(2), BRS 393(1), BRS 422(3), BRS 426(3), BRS 428(3), BRS 429W(3), BRS 490(1) (Sem: 7-8)

#### ADDITIONAL COURSES (28-30 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)  
E B F 200 GS(3) or ECON 104 GS(3) (Sem: 1-2)  
MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)  
PHYS 211 GN(4) or PHYS 250 GN(4) (Sem: 1-2)  
AG BM 101 GS(3) or ECON 102 GS(3) (Sem: 3-4)  
BIOL 110 GN(4) or BIOL 011 GN(3) and BIOL 012 GN(1) (Sem: 3-4)  
CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)  
STAT 200 GQ(4) or STAT 240 GQ(3) (Sem: 3-4)  
B A 241(2) and B A 242(2); or B A 243(4) or B LAW 243(3) (Sem: 3-4)

### REQUIREMENTS FOR THE OPTIONS: 32-34 credits

#### AGRICULTURAL SYSTEMS MANAGEMENT OPTION: 34 credits

##### PRESCRIBED COURSES (16 credits)

SOILS 101 GN(3) (Sem: 3-4)  
A S M 310(3)[\[1\]](#), A S M 327(3)[\[1\]](#), A S M 425(3), AN SC 201(4) (Sem: 5-6)

##### ADDITIONAL COURSES (3 credits)

AGRO 028(3) or HORT 101 GN(3) (Sem: 3-4)

##### SUPPORTING COURSES AND RELATED AREAS (15 credits)

Select 15 credits of specialization courses in consultation with an advisor. At least 9 credits must be at 200-400 level. (Sem: 5-8)

#### BIOPRODUCTS OPTION: 32credits

##### PRESCRIBED COURSES (17 credits)

BRS 411(4), ENGR 310(3)[\[1\]](#), W P 417(4) (Sem: 5-6)  
BRS 423(3), E R M 402(3)[\[1\]](#) (Sem: 7-8)

##### SUPPORTING COURSES AND RELATED AREAS (15 credits)

Select 15 credits of specialization courses in consultation with an advisor. At least 9 credits must be at 200-400 level. (Sem: 4-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-002

Review Date: 02/19/2013





**FINANCIAL SERVICES OPTION CURRENTLY ON HOLD at PENN STATE Brandywine;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: October 16, 2013**

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## Business

Abington College (BSBAB)

Altoona College (BSBAL)

Berks College (BSBBL)

University College (BSBCC): Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York

University College (BSBIC) via the World Campus

The Bachelor of Science in Business (B.S.B.) is a professionally oriented business degree program that combines the theoretical underpinnings of core business disciplines, notably management, marketing, finance, and supply chain management, with applied study in a practical setting. Through the choice of an 18-credit option, students specialize in a key business sector. Students also develop written and oral communication skills throughout the program, acquire contemporary technology skills, and engage in active and collaborative learning. The degree allows students to become familiar with the unique business environments of their local communities, a design that sets the degree apart from other business degrees offered within the University and throughout the Commonwealth.

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

**ACCOUNTING OPTION:** This option prepares students to pursue careers in business with an emphasis on the areas of financial and managerial accounting, systems and controls, auditing, and taxation.

**ENTREPRENEURSHIP OPTION:** This option prepares students to pursue entrepreneurial careers with emphasis on idea generation, opportunity analysis, new product creation, and business plan development.

**FINANCIAL SERVICES OPTION:** This option prepares students to pursue careers in financial organizations with emphasis on wealth management, tax planning, risk management, and financial analysis.

**HEALTH SERVICES OPTION:** This option prepares students to pursue careers in the health services sector with emphasis on the financial and administrative aspects of health care enterprises.

**INDIVIDUALIZED BUSINESS OPTION:** This option provides the opportunity for students to pursue an approved business-focused interdisciplinary program of study.

**MARKETING AND MANAGEMENT OPTION:** This option prepares students to pursue careers in business organizations with an emphasis on the skills and knowledge necessary for the business professional to function in community and regional centers of commerce.

**Entrance Requirement:** Completion of MATH 022 or MATH 040, 041, 110, 140.

For the B.S. degree in Business, a minimum of 120 credits is required, 15 of which must be at the 400 level.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 10 credits

**REQUIREMENTS FOR THE MAJOR:** 77 credits

(This includes 12 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 59 credits

**PRESCRIBED COURSES** (41 credits)

ECON 102 GS(3) (Sem: 1-4)

ACCTG 211(4), ECON 104 GS(3), MIS 204(3) (Sem: 3-4)

B A 321(3) [11](#), B A 322(3) [11](#), B A 420(1) [11](#), FIN 301(3) [11](#), MGMT 301(3) [11](#), MKTG 301(3) [11](#), SCM 301(3) [11](#) (Sem: 5-6)

I B 303 IL(3) [11](#) (Sem: 5-8)

B A 421(3) [11](#), B A 422W(3) [11](#) (Sem: 7-8)

**ADDITIONAL COURSES** (15-18 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-4)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 1-4)

B A 243(4) or B A 241(2) and B A 242(2) (Sem: 3-4)

Select 3 or 6 credits from B A 495A(3 or 6) [11](#), B A 495B(3 or 6) [11](#) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (0-3 credits)

Select 0-3 credits from 400-level business courses from: ACCTG, B A, ECON, ENTR, FIN, FINSV, H P A, I B, MGMT, MIS, MKTG, R M, or SCM [11](#) (Sem: 7-8)

**REQUIREMENTS FOR THE OPTION:** 18 credits [11](#)

**ACCOUNTING OPTION:** (18 credits)

**PRESCRIBED COURSES** (9 credits)

ACCTG 404(3), ACCTG 471(3), ACCTG 472(3) (Sem: 5-6)

**ADDITIONAL COURSES** (6 credits)

ACCTG 403(3) or 403W(3) (Sem: 7-8)

ACCTG 405(3) or FINSV 411(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)

Select 3 credits of 400-level courses from: ACCTG, B A, ECON, ENTR, FIN, FINSV, H P A, I B, MGMT, MIS, MKTG, R M, or SCM (Sem: 7-8)

**ENTREPRENEURSHIP OPTION:** (18 credits)

**PRESCRIBED COURSES** (9 credits)

ENTR 300(3), ENTR 320(3) (Sem: 5-6)  
ENTR 400(3) (Sem: 7-8)

**ADDITIONAL COURSES** (0-3 credits)  
Select 0-3 credits in CAS 352(3) or ENGL 419(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (6-9 credits)  
Select 6 to 9 credits of 400-level ENTR courses in consultation with your advisor (Sem: 5-8)

**FINANCIAL SERVICES OPTION:** (18 credits)

**PRESCRIBED COURSES** (3 credits)  
FIN 420(3) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)  
Select 3 credits from ACCTG 405 or FINSV 411 (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)  
Select 12 credits in 300 or 400-level (with at least 3 credits at the 400-level) from ACCTG, FIN, FINSV or RM (Sem: 5-8)

**HEALTH SERVICES OPTION:** (18 credits)  
(Minimum 6 credits at the 400-level)

**PRESCRIBED COURSES** (6 credits)  
H P A 101(3) (Sem: 5-6)  
H P A 332(3) (Sem: 5-8)

**ADDITIONAL COURSES** (0-3 credits)  
Select 0-3 credits from BB H 302(3), CAS 352(3), CAS 404(3), ENGL 416(3), ENGL 419(3), LER 424(3), LER 472(3), PSYCH 281 GS(3), PSYCH 484(3), or PSYCH 485(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9-12 credits)  
Select 3-9 credits from 300 or 400-level H P A courses (Sem: 5-8)  
Select 0-6 credits of 300-400-level courses from ACCTG, B A, ECON, ENTR, FIN, FINSV, H P A, I B, MGMT, MKTG, MIS, R M or SCM (Sem: 6-8)

**INDIVIDUALIZED BUSINESS OPTION:** (18 credits)  
Select 18 credits of study (with at least 3 credits at the 400-level) as submitted by the student and approved by the campus BSB Program Coordinator (Sem: 5-8)

**MANAGEMENT AND MARKETING OPTION:** (18 credits)

**ADDITIONAL COURSES** (0-6 credits)  
Select 0-6 credits from the following: B A 250(3), ENGL 419(3), MKTG 220(3) or one of the following, CAS 250(3), CAS 252(3), CAS 352(3), CAS 404(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12-18 credits)  
A minimum of 3 credits of supporting courses must be selected at the 400-level.  
Select 3 credits from 300 or 400-level MGMT courses (Sem: 5-8)  
Select 3 credits from 300 or 400-level MKTG courses (Sem: 5-8)  
Select 6-12 additional credits in 300 or 400-level courses from MGMT or MKTG courses (Sem: 6-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-04-065

Review Date: 01/14/2014

UCA Revision #1: 8/3/06

[Comments](#)

## Civil Engineering

University Park, College of Engineering (C E)

PROFESSOR PEGGY JOHNSON, Head, Department of Civil and Environmental Engineering

The program in Civil and Environmental Engineering is designed to provide the basic undergraduate education required for private practice and public service in civil engineering, and/or continue formal education. Emphasis is placed on the fundamentals of civil engineering principles and design techniques. Students utilize basic engineering science concepts in several of the different specialty areas (e.g., construction/management, environmental, materials/pavement design/geotechnical, structures, transportation, and water resources). Finally the students are able to choose an area of specialization for professional practice or graduate studies.

### Program Educational Objectives:

The objective of the Civil Engineering program is to prepare students for a wide range of career paths that use civil engineering principles and methodologies. A curriculum is provided that prepares our recent graduates to:

- work in industries or state and federal government agencies such as departments of transportation and departments of environmental protection that design, implement, and maintain national and/or global infrastructure;
- effectively work in and lead interdisciplinary teams needed to design sustainable transportation, water, energy, environmental, and structural infrastructure; and
- stay current through continuing education opportunities, professional conferences, and other self-learning experiences; have the ability to obtain and maintain professional licensing; and have the ability to attend graduate school.

### Program Outcomes (Student Outcomes):

The undergraduate program will provide students with:

1. An ability to apply knowledge of mathematics, science, and engineering
2. Proficiency in at least four technical areas appropriate to Civil Engineering
3. An ability to pass the FE examination
4. An ability to design a system, component, or process to meet desired needs in more than one civil engineering context
5. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice
6. An ability to perform Civil Engineering design by means of design experiences integrated throughout the professional component of the curriculum
7. An ability to conduct civil engineering experiments and to analyze and interpret data
8. An ability to function on multi-disciplinary teams
9. An ability to identify, formulate, and solve engineering problems
10. An ability to communicate effectively
11. An understanding of professional and ethical responsibility
12. The broad education necessary to understand the impact of engineering solutions in a global and societal context
13. A knowledge of contemporary issues
14. Can explain the basic concepts in management, business, public policy, and leadership; and can explain the importance of professional licensure
15. A recognition of the need for, and an ability to engage in life-long learning

The program is broadened by courses in communication, arts, humanities, social and behavioral sciences, as well as other engineering disciplines. Students gain experience in working as members of a team and using interdisciplinary approaches to solve problems. These experiences, as well as those related to engineering principles and design, are provided through exercises in the classroom, laboratory, and field. The program culmination is a capstone design course wherein the students' knowledge and skills are applied to actual engineering problems.

**ENTRANCE TO MAJOR** -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHSY 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Civil Engineering, a minimum of 130 credits is required. The baccalaureate program in Civil Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**GENERAL EDUCATION:** 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 112 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

**PRESCRIBED COURSES** (71 credits)

CHEM 110 GN(3)[1], CHEM 111 GN(1), E MCH 211(3)[1], EDSCN 100(3), MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], PHYS 211 GN(4)[1] (Sem: 1-2)

E MCH 212(3)[1], E MCH 213(3)[1], STAT 401(3), GEOSC 001(3), MATH 220 GQ(2), MATH 251(4), PHYS 212 GN(4) (Sem: 3-4)

C E 310(3)[1], C E 321(3)[1], C E 332(3)[1], C E 335(3)[1], C E 336(3)[1], C E 340(3)[1], C E 360(3)[1], C E 370(3)[1], ENGL 202C GWS(3) (Sem: 5-6)

**ADDITIONAL COURSES** (32-35 credits)

C E 100S(1) or 1 credit of First-Year Seminar or elective (Sem: 1-2)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)

CMPSC 200 GQ(3) or CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 3-4)

ECON 102 GS(3), ECON 104 GS(3), or ECON 014 GS(3) (Sem: 3-4)

M E 201(3) or CH E 220(3)[30] (Sem: 5-6)

C E 337(1) or C E 475(4) (Sem: 5-6)[+]

E E 211(3) or E E 212(3)[30] (Sem: 7-8)

Select 9 credits from C E 341(3), C E 342(3), C E 371(3), C E 422(3), C E 423(3), C E 424(3), C E 432(3), C E 435(3), C E 436(3), C E 441(3), C E 447(3), C E

461(3), C E 462(3), C E 475(4), C E 476(3), C E 479(3) (Sem: 5-8)[#1]

Select 3 credits of C E 410W(3), C E 421W(3), C E 438W(3), C E 448W(3), C E 465W(3), C E 472W(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS:** (9 credits)

Select 9 credits of technical elective from C E 300-level courses, C E 400-level courses, or department list. (Sem: 7-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[30]** Students may substitute 6 credits of ROTC for 3 credits of GHA courses and 3 credits of M E or E E .

**[+]** If C E 475 is taken, one credit goes toward lab requirement and remaining three go towards C E or general technical electives.

**[#]** Two of those courses must be selected from at least 2 of the 3 remaining technical areas in the Civil Engineering program-- structures (x40), hydrosystems (x60), and environmental (x70).

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-105

Review Date: 4/13/10

R & T: Approved 5/24/2013

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

EN

Accreditation statement updated by Publications, per COE: 8/15/11

## Classics and Ancient Mediterranean Studies

University Park, College of the Liberal Arts (CAMS)

PROFESSOR PAUL B. HARVEY, *Head, Department of Classics and Ancient Mediterranean Studies*

Classics and Ancient Mediterranean Studies is concerned with the civilizations of the ancient Mediterranean world, including the ancient Greeks, Romans, and the peoples of Egypt and the Near East. The study of these civilizations includes their languages and literatures, history and politics, religion and mythologies, philosophies, and material culture. Students electing the CAMS major follow one of three options. The Ancient Languages Option requires study of Greek or Latin, one or more of the languages of the ancient Near East, or a combination of languages, and is recommended especially for students planning to pursue any classical, Near Eastern, or Egyptian subject in graduate school; planning rabbinic or seminary study; or preparing to teach Latin or Greek at the secondary level. Students in the Language Option are urged to schedule at least one course in historical linguistics or comparative grammar. The Ancient Mediterranean Archaeology (AMA) Option is designed for students interested in the physical evidence for ancient Mediterranean cultures, including the rise and development of settlements and cities; ceramics, metals, stone, and organic remains; and population changes over time. The Classics and Ancient Mediterranean Studies (CAMS) Option is suitable for students interested in a broadly interdisciplinary study of the cultures of the ancient Mediterranean and does not require study of language, although students are encouraged to study the appropriate ancient languages. All students in the major are particularly encouraged to participate in one of the Penn State Education Abroad Programs and/or archaeological field schools in the Mediterranean area. Approved archaeological fieldwork is required for the AMA Option. Up to 15 credits of appropriate education abroad courses may be applied to requirements for the major.

For the B.A. degree in Classics and Ancient Mediterranean Studies, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selections)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selections, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 20-24 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 30-34 credits<sup>[1]</sup>

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 18 credits

No more than 15 credits in courses numbered 099, 199, 299, 399, or 499 may count toward the requirements for the major.

**PRESCRIBED COURSES** (6 credits)

CAMS 005 GH;IL(3) (Sem: 1-6)

CAMS 400W(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 3 credits in Greek or Roman literature and language, civilization, or archaeology from approved department list (Sem: 1-8)

Select 3 credits in Near Eastern literature and language, civilization, or archaeology from approved department list (Sem: 1-8)

Select 6 credits, at or above the 100 level, from appropriate offerings in ancient Near Eastern languages and literatures, ancient history, anthropology, art history, classics and ancient Mediterranean studies, Greek, Hebrew, Jewish studies, Latin, linguistics, philosophy, or religious studies from approved department list (Sem: 1-8)

**REQUIREMENTS FOR THE OPTION:** 12-16 credits

**ANCIENT MEDITERRANEAN ARCHAEOLOGY OPTION:** (15-16 credits)

Students in this option must complete one season of approved archaeological fieldwork at an ancient Mediterranean or related site. Up to 6 credits of fieldwork may be applied to the COMMON REQUIREMENTS FOR THE MAJOR.

**ADDITIONAL COURSES** (3 credits)

CAMS 440W(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12-13 credits)

Select 6 credits from the following courses: CAMS 492(3), CAMS 493(3), or other 400-level fieldwork course in an approved archaeological project in the Mediterranean region or Near East in consultation with major adviser. (Sem: 5-8)

Select 3 credits from the following course list:

CAMS 090 GH;IL(3) or J ST 090 GH;IL(3) or RL ST 090 GH;IL(3); CAMS 104 GH(3) or HIST 104 GH(3) or RL ST 104 GH;US;IL(3); CAMS 133 GH(3) or J ST 133 GH(3) or RL ST 133 GH(3); CAMS 134 GH;IL(3) or J ST 134 GH;IL(3) or RL ST 134 GH;IL(3); CAMS 140 GH;IL(3), or CAMS 150 GH;IL(3) (Sem: 3-6)

Select 3-4 credits from the following course list:

ANTH 410(4), ANTH 420(3) or J ST 420(3); ANTH 426W(3) or ANTH 428(3) (Sem: 5-8)

**ANCIENT LANGUAGES OPTION:** (12 credits)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

*At least 6 credits must be in one language.*

Select 12 credits at the 400 level in either Greek or Latin or in Akkadian, Aramaic, Biblical Hebrew, Egyptian, Hittite, Sumerian, or other ancient Near Eastern language in consultation with major adviser. (Sem: 1-8)

**CLASSICAL AND ANCIENT MEDITERRANEAN STUDIES OPTION:** (12 credits)

**SUPPORTING COURSES AND RELATED AREAS:** 12 credits

Select 6 credits at the 400 level from Classics and Ancient Mediterranean Studies (CAMS), ancient Near Eastern languages, Greek, or Latin courses (Sem: 5-8)

Select 6 credits at the 400 level from appropriate courses in ancient Near Eastern languages and literature, ancient history, anthropology, Classics and Ancient Mediterranean Studies, Jewish studies, linguistics, philosophy, or religious studies from approved department list (Sem: 5-8)

**Integrated B.S. in Archaeological Science and B.A. in Classics and Ancient Mediterranean Studies/M.A. in Anthropology Degree Requirements**

The Department of Anthropology offers an integrated B.A./B.S./M.A. (IUG) program designed to allow academically superior students to obtain a B.A. or B.S. degree in Anthropology, a B.A. degree in Classics and Ancient Mediterranean Studies (CAMS), and a M.A. degree in Anthropology in five years of study. To complete the program in five years, students interested in the Integrated Undergraduate and Graduate degree in Anthropology must apply for admission to

the Graduate School and the Integrated B.S./M.S. Program by the end of their junior year.

During the first three years, the student will follow course scheduling for the B.A. degree in CAMS and either the B.A. degree in Anthropology or the B.S. degree in Archaeological Science (see the Undergraduate *Bulletin*). Students who intend to enter the IUG program are encouraged to take upper level classes during their first three years whenever appropriate. By the end of the junior year, students normally apply for admission to both the IUG program and to the Graduate School. Acceptance decisions will be made prior to the beginning of the senior year and M.A. advisors will be appointed for successful applicants. During the senior year, IUG students follow the scheduling of the selected options for their B.A. or B.S. majors, with an emphasis on completing 500-level course work as appropriate. During the senior year, IUG students will start work on their thesis research to meet the M.A. thesis requirements. During the fifth year, IUG students take courses fulfilling the M.A. degree requirements and complete their M.A. thesis.

#### **Admission Requirements**

Students who wish to complete the Integrated Undergraduate and Graduate Program in Anthropology should apply for admission to both the Graduate School and the IUG Anthropology Program no later than the end of their junior year. Successful students will be admitted formally into the graduate program in Anthropology just prior to their senior year, if their progress has been satisfactory. Admission prior to the senior year is also possible in some unusual circumstances. In all cases, admission to the program will be at the discretion of the joint Anthropology-CAMS admission committee. Criteria for admission include a minimum overall GPA of 3.4 in their majors, strong recommendation letters from faculty, and an excellent proposal for a research project with a specific adviser who has agreed to guide the student through to the completion of the M.A. thesis.

#### **Graduate Coursework**

##### **REQUIRED COURSES**

##### **ANTHROPOLOGY (ANTH)**

493. Field Techniques (3)  
521. Current Literature in Archaeology (2)  
545. Seminar in Anthropology (6)  
588. Method and Theory in Archaeology (3)  
600. Thesis Research (6)

##### **ADDITIONAL COURSES**

Four required credits in ANTH 494(1-12) or CAMS 494(1-12)  
Six required credits in CAMS 592(3), 593(3-6), or 596(1-9)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-098

Review Date: 08/20/13

LA

## Communication Arts and Sciences

Abington College (CASAB)

Berks College (CASBL)

University College (CASC): Penn State Brandywine, Penn State York

University Park, College of the Liberal Arts (CAS)

Contacts: Abington College, Tom Smith, [trs8@psu.edu](mailto:trs8@psu.edu); Berks College, Catherine Catanach, [cdc18@psu.edu](mailto:cdc18@psu.edu); Penn State Brandywine, Wayne McMullen, [wim11@psu.edu](mailto:wim11@psu.edu); Penn State Fayette, Deborah Eicher-Catt, [dle4@psu.edu](mailto:dle4@psu.edu); College of the Liberal Arts, Peter Miraldi, [pnm10@psu.edu](mailto:pnm10@psu.edu)

This major provides increased understanding and practice in the ways humans use symbols to influence people and the world around them. The ability to communicate effectively with others in personal, social, work and multicultural situations is essential in modern society. A student of Communication Arts and Sciences will learn to think critically, analyze and solve problems, understand and manage conflict, argue persuasively, influence people, form and keep relationships, give effective presentations, and participate in the civic and political life of a community. The flexibility of the program offers preparation for a variety of careers such as administration, law, business, health, and human services fields. A CAS degree also lends itself well to a concurrent degree program in which students prepare themselves in several fields of study.

For the B.A. degree in Communication Arts and Sciences, a minimum of 124 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 25 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in front of *Bulletin*.)

**REQUIREMENTS FOR THE MAJOR:** 30 credits [\[1\]](#)

**PRESCRIBED COURSES** (9 credits)

CAS 201 GH(3), CAS 202 GS(3), CAS 204(3) (Sem: 3-6)

**ADDITIONAL COURSES** (6 credits)

Select 3 credits of skills courses from CAS 203 GS(3), CAS 205(3), CAS 211(3), CAS 213(3), CAS 214W(3), CAS 215(3), CAS 216(2), CAS 250(3), CAS 252(3), CAS 271 US;IL(3), CAS 280W(3), or CAS 283(3) (Sem: 3-8)

Select 3 credits of 300-level courses from CAS 302(2), CAS 311(3), CAS 321(3), CAS 352(3), CAS 373(3), CAS 375(3), CAS 383(3), CAS 398(1-9), CAS 399 IL(1-12) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits of other CAS courses; at least 12 credits must be at the 400 level. A maximum of 6 credits from CAS 494, 495, 496, and 499(IL) may satisfy this requirement. CAS 126(3) and CAS 195(1) may not be counted as part of the major (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-118

Review Date: 04/13/2010

LA



## Corporate Communication

Abington College (CCBA)  
Penn State Lehigh Valley(CCCC)

PROFESSOR THOMAS R. SMITH, *Head, Division of Arts and Humanities*

Building on the interdisciplinary strengths of Penn State Abington, the Corporate Communication B.A. program prepares students for public information and media relations positions in profit and non-profit organizations. The program is distinguished by its cross-disciplinary course work in business, information systems, human behavior, and oral, written, and visual communication. In addition, there is a required field experience. The B.A. provides a broad foundation in business principles, including team projects and problem solving; ethics; oral, written and visual communication skills; and psychology. The major is designed to prepare students for a variety of career fields including human resources, public relations, training and development, and public information.

For the B. A. degree in Corporate Communication, a minimum of 122 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(See description of General Education in this bulletin)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES or GENERAL EDUCATION courses)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-13 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 49-50 credits<sup>[1]</sup>

**PRESCRIBED COURSES** (31 credits)  
ACCTG 211(4), IST 110 GS(3), MIS 204(2) (Sem: 1-2)  
COMM 100 GS(3) (Sem: 1-4)  
IST 250(3), MKTG 301(3), MGMT 301(3) (Sem: 3-4)  
MKTG 310(3) (Sem: 5-6)  
CC 403W(3), CC 495A(3) (Sem: 7-8)

**ADDITIONAL COURSES** (18-19 credits)  
B A 243(4) or PHIL 103 GH(3) (Sem: 1-4)  
MGMT 321(3) or PSYCH 221 GS(3) (Sem: 3-6)  
CAS 252(3) or CAS 352(3), CC 401(3) or CC 402(3), ENGL 417(3) or ENGL 419(3), MGMT 424(3) or PSYCH 423(3) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2002

Blue Sheet Item #: 30-05-001

Review Date: 10/06/05

Publications update of division head: 09/15/06

UCA Revision #1: 8/3/06

AB

## Civil Engineering

Capital College (CE CA)

PROFESSOR JOSEPH J. CECERE, Ph.D., CPC, *Program Chair*

PROFESSOR SEROJ MACKERTICH, *Program Coordinator*

The program in Civil and Environmental Engineering is designed to provide the basic undergraduate education required for private practice and public service in civil engineering, and/or continue formal education. Emphasis is placed on the fundamentals of civil engineering principles and design techniques. Students utilize basic engineering science concepts in several of the different specialty areas (e.g., construction/management, environmental, materials/pavement design/geotechnical, structures, transportation, and water resources). Finally the students are able to choose an area of specialization for professional practice or graduate studies.

The objective of the Civil Engineering program is to prepare students for a wide range of career paths that use civil engineering principles and methodologies. A curriculum is provided that prepares our recent graduates to:

- work in industries or state and federal government agencies such as departments of transportation and departments of environmental protection that design, implement, and maintain national and/or global infrastructure;
- effectively work in and lead interdisciplinary teams needed to design sustainable transportation, water, energy, environmental, and structural infrastructure;
- stay current through continuing education opportunities, professional conferences, and other self-learning experiences; have the ability to obtain and maintain professional licensing; and have the ability to attend graduate school.

The program is broadened by courses in communication, arts, humanities, social and behavioral sciences, as well as other engineering disciplines. Students gain experience in working as members of a team and using interdisciplinary approaches to solve problems. These experiences, as well as those related to engineering principles and design, are provided through exercises in the classroom, laboratory, and field. The program culmination is a capstone design course wherein the students' knowledge and skills are applied to actual engineering problems.

**ENTRANCE TO MAJOR** -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ) and PHYS 211 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Civil Engineering, a minimum of 130 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**GENERAL EDUCATION:** 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 112 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

**PRESCRIBED COURSES** (71 credits)

CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1), E MCH 211(3) [\[1\]](#), EDSCN 100(3), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), PHYS 211 GN(4) [\[1\]](#) (Sem: 1-2)

E MCH 212(3) [\[1\]](#), E MCH 213(3) [\[1\]](#), STAT 401(3), GEOSC 001(3), MATH 220 GQ(2), MATH 251(4), PHYS 212 GN(4) (Sem: 3-4)

C E 310(3) [\[1\]](#), C E 321(3) [\[1\]](#), C E 332(3) [\[1\]](#), C E 335(3) [\[1\]](#), C E 336(3) [\[1\]](#), C E 340(3) [\[1\]](#), C E 360(3) [\[1\]](#), C E 370(3) [\[1\]](#), ENGL 202C GWS(3) (Sem: 5-6)

**ADDITIONAL COURSES** (32-35 credits)

C E 100S(1) or 1 credit of First-Year Seminar or elective (Sem: 1-2)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)

CMPSC 200 GQ(3) or CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 3-4)

ECON 102 GS(3), ECON 104 GS(3), or ECON 014 GS(3) (Sem: 3-4)

M E 201(3) or CH E 220(3) [\[30\]](#) (Sem: 5-6)

C E 337(1) or C E 475(4) (Sem: 5-6) [\[+\]](#)

E E 211(3) or E E 212(3) [\[30\]](#) (Sem: 7-8)

Select 9 credits from C E 341(3), C E 342(3), C E 371(3), C E 422(3), C E 423(3), C E 424(3), C E 432(3), C E 435(3), C E 436(3), C E 441(3), C E 447(3), C E 461(3), C E 462(3), C E 475(4), C E 476(3), C E 479(1) (Sem: 5-8) [\[#\]](#)

Select 3 credits of C E 410W(3), C E 421W(3), C E 438W(3), C E 448W(3), C E 465W(3), C E 472W(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS:** (9 credits)

Select 9 credits of technical elective from C E 300-level courses, C E 400-level courses, or department list. (Sem: 7-8)

[\[1\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[\[30\]](#) Students may substitute 6 credits of ROTC for 3 credits of 400-level C E courses and 3 credits of M E or E E.

[\[+\]](#) If C E 475 is taken, one credit goes toward lab requirement and remaining three go towards C E or general technical electives.

[\[#\]](#) Those courses must be selected from at least 4 of the 5 technical areas in the Civil Engineering program--transportation (x20), construction (x30), structures (x40), hydrosystems (x60), and environmental (x70).

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-105

Review Date: 4/13/10

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

EN

## Childhood and Early Adolescent Education

Penn State Abington  
 Penn State Altoona  
 Penn State Berks  
 Penn State Erie, The Behrend College  
 University College: Penn State Lehigh Valley  
 University Park, College of Education (CEAED)

PROFESSOR STEPHANIE SERRIERE, Undergraduate Programs Coordinator

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

**CHILDHOOD AND EARLY ADOLESCENT EDUCATION.** Students successfully completing this major will have met all of the requirements for the PK-4, ENGLISH EDUCATION 4-8, or SOCIAL STUDIES EDUCATION 4-8 College Instructional 1 certificate issued by the Pennsylvania Department of Education. Students must apply for admission to the major. Students interested in the major should contact their advisor and enroll in a C I 295 field experience, which features participation in the classroom.

Baccalaureate degree candidates must meet the following requirements 1-3 by the end of their third semester:

1. A minimum cumulative grade point average of 3.00.
2. Either qualifying scores from the PECT PAPA for Reading, Writing and Mathematics; or qualifying SAT scores for the combined and individual Critical Reading, Writing, and Mathematics sections; or qualifying American College Test Plus Writing composite and individual English/Writing score and Math score as specified by the Pennsylvania Department of Education.

Requirements 3-8 must be met by the end of the fourth semester when students typically participate in the Entrance to Major process.

3. A grade of "C" or better in all specified courses.
4. Completion of an early field experience specified by the certification program.
5. Completion of a core of Education courses specified by the certification program.
6. Completion of additional credits as specified by the certification program.
7. Completion of at least 48 semester credit hours, including ENGL 015 GWS(3) or ENGL 030 GWS(3), six credits of quantification, three credits of natural science, and three credits of literature for Early Education PK-4 Option or three credits of literature for Social Studies 4-8 Option or six credits of literature for English 4-8 Option.
8. Approval from the professional education adviser or the head of the pertinent certification program.

For the B.S. degree in Education with an option in Early Education PK-4, a minimum of 127 credits is required; with an option in English 4-8, a minimum of 128 credits is required; with an option in Social Studies Education 4-8, a minimum of 127 credits is required. (See also Teacher Education Programs.)

**GENERAL EDUCATION:** 45 credits  
 (27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
 (See description of General Education in this bulletin.)

**FIRST YEAR SEMINAR:** 1 credit  
 (Included in GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
 (Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
 (Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 109-111 credits [\[1\]](#)  
 (This includes 27 credits of General Education courses: Early Education PK-4 Option – 6 credits of GH courses, 9 credits of GN courses, 6 credits of GQ courses, 6 credits of GS courses. English 4-8 Option – 6 credits of GH courses, 9 credits of GN courses, 6 credits of GQ courses, 6 credits of GS courses. Social Studies 4-8 Option – 6 credits of GH courses, 9 credits of GN courses, 6 credits of GQ courses, 6 credits of GS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 64-65 credits

**PRESCRIBED COURSES** (55 credits)  
 C I 280 GH(3), EDPSY 014(3), EDTHP 115 US(3), MATH 200 GQ(3) (Sem: 1-4)  
 C I 495D(12), C I 495F(3), KINES 126(1.5), KINES 127(1.5), LL ED 400(3), LL ED 401(3), LL ED 402(3), MTHED 420(3), SCIED 458(3), SPLED 400(4), SPLED 403A(3), SS ED 430W(3) (Sem: 5-8)

**ADDITIONAL COURSES** (6-7 credits)  
 STAT 100 GQ(3), STAT 200 GQ(4), or EDPSY 101 GQ(3) (Sem: 1-4)  
 Any MATH GQ course (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)  
 Select 3 credits in literature (GH) (Sem: 1-4)

**REQUIREMENTS FOR THE OPTION:** 45-46 credits

**EARLY EDUCATION PK-4 OPTION:** (45 credits)

**PRESCRIBED COURSES** (21 credits)  
 C I 295A(3), HD FS 229 GS(3) (Sem: 3-4)  
 A ED 303(3), C I 495A(3) E C E 451(3), E C E 479(3), MUSIC 241(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (24 credits)  
 Select 3 credits of Economic Geography (GS;US;IL) (Sem: 1-4)  
 Select 3 credits of US History (GS;US;IL) (Sem: 1-4)  
 Select 9 credits: 3 credits each (including one course with a lab) from biological science, earth science, and physical science (GN courses) (Sem: 1-6)

**Select 3 credits on family and relationships from:**  
 E C E 453(3), HD FS 315(3), HD FS 415(3), HD FS 418(3), HD FS 424 US(3), HD FS 431(3), HD FS 469U IL(3), SOC 030 GS(3), or WL ED 444(3) (Sem: 1-4)

**Select 6 credits of educational selections from:**  
 APLNG 493 IL(3), E C E 452(3), E C E 454(3), HD FS 250 US(3), HD FS 330(6), HD FS 415(3), HD FS 427(3), HD FS 428(3), HD FS 429(3), HD FS 430(6), HD FS 432(3), LL ED 450(3), LL ED 467(3), WL ED 400(3), or WL ED 483(3) (Sem: 5-8)

**ENGLISH 4-8 OPTION:** (46 credits)

**PRESCRIBED COURSES** (19 credits)  
 C I 295B(3), HD FS 239 GS(3), SOC 119 GS;US(4) (Sem: 1-4)  
 C I 495B(3), LL ED 412W(3), LL ED 450(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (27 credits)  
 Select 9 credits: 3 credits each (including one course with a lab) from biological science, earth science, and physical science (GN courses) (Sem: 1-6)

Select 3 credits of British Literature from:  
 ENGL 221(3), ENGL 222(3), ENGL 440(3), ENGL 441(3), ENGL 442(3), ENGL 443(3), ENGL 444(3), ENGL 445(3), ENGL 446(3), ENGL 447(3), ENGL 448(3), ENGL

449 US;IL(3), ENGL 450(3), ENGL 451(3), ENGL 452(3), ENGL 453(3), ENGL 454(3), ENGL 455(3), ENGL 456(3), ENGL 457(3), or ENGL 458(3) (Sem: 1-6)

Select 3 credits of American Literature from:

ENGL 231(3), ENGL 232(3), ENGL 432(3), ENGL 433(3), ENGL 434(3), ENGL 435(3), ENGL 436(3), ENGL 437(3), ENGL 438(3), or ENGL 439(3) (Sem: 1-6)

Select 3 credits of Comparative Literature from:

ENGL 135 GH;US(3), ENGL 139 GH;US(3), ENGL 194 GH;US;IL(3), ENGL 226 GH;US;IL(3), ENGL 235 US(3), ENGL 245 GH;US(3), ENGL 431 US(3), ENGL 461 US(3), ENGL 462 US(3), ENGL 463 US(3), ENGL 466 US(3), ENGL 467 US(3), ENGL 468 US(3), ENGL 469 US(3), CMLIT 101 GH;US;IL(3), CMLIT 109 GH;US;IL(3), CMLIT 110 GH;US;IL(3), CMLIT 111 GH;IL(3), CMLIT 404 IL(3), CMLIT 422 IL(3), or CMLIT 423 IL(3) (Sem: 1-6)

Select 3 credits of Writing from:

ENGL 212(3), ENGL 213(3), ENGL 215(3), ENGL 281(3), ENGL 412(3), ENGL 413(3), ENGL 414(3), or ENGL 415(3) (Sem: 1-6)

Select 6 credits of Media Literacy from:

COMM 100 GS(3), COMM 120(3), COMM 150 GA(3), COMM 180 GS(3), COMM 205 US(3), COMM 250 GA(3), COMM 453 IL(3), COMM 454(3), CAS 211(3), CAS 213(3), CAS 215(3), CAS 250(3), CAS 271 US;IL(3), CAS 280W(3), CAS 375(3), CAS 422 US(3), or CAS 480(3) (Sem: 1-6)

**SOCIAL STUDIES 4-8 OPTION:** (45 credits)

**PRESCRIBED COURSES** (24credits)

C I 295B(3), PL SC 001 GS(3), HIST 020 GH;US(3), GEOG 010 GN(3), GEOG 020 GS;US;IL(3), HD FS 239 GS(3) (Sem: 1-6)

C I 495B(3), LL ED 412W(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Select 6 credits: 3 credits each (including one course with a lab) from biological science, and physical science (GN courses) (Sem: 1-6)

Select 15 credits from social sciences with at least 6 credits taken at the 100-level or above:

At least 3 credits in Economic Policy Issues from:

ECON 102 GS(3), ECON 104 GS(3), ECON 014 GS(3), GEOG 123 GS;IL(3), GEOG 126 GS;US;IL(3), HIST 155 GS;US(3), HIST 156 US(3), PL SC 135 GS(3), or WMNST 456(3) (Sem: 3-8)

At least 6 credits in Civics and Society from:

AF AM/RL ST 145 GH;US;IL(3), AF AM/ENGL 235 US(3), AF AM/SOC 409 US(3), GEOG 130 GS(3), HIST 158 US;IL(3), PL SC 002(3), PL SC 003 GS;IL(3), PL SC 007 GS(3), PL SC 014 GS;IL(3), PL SC 017 GS(3), PL SC 110 GS;US(3), PL SC 123 GS;US;IL(3), PL SC 125(3), PL SC 130 GS;US(3), SOC 119 GS;US(3), S T S 130(3), S T S/PL SC 135 GS(3), S T S 151 GS;US(3), S T S 200S GS(3), WMNST/AM ST 104 GH;US(3), WMNST/AM ST 430 US(3), WMNST 432 US(3), or WMNST 466 US;IL(3) (Sem: 3-8)

At least 6 credits in Historical and Geographical Perspectives from:

AF AM 100 GS;US(3), AF AM/WMNST 101 GH;US(3), AF AM/HIST 210 GH;US(3), GEOG 030 GS;IL(3), GEOG 040 GS;IL(3), GEOG 110 GN(3), GEOG 115 GN(3), GEOG 122 GH;US(3), GEOG 160 GS(3), HIST 010 GH;IL(3), HIST 011 GH;IL(3), HIST 012 (3), HIST 021(3), HIST 100(3), HIST 101(3), HIST 104(3), HIST 107(3), HIST 115(3), HIST 120 GS;IL(3), HIST 121 GH;IL(3), HIST 127 US(3), HIST 130 GH;US(3), HIST 144 GH;US;IL(3), HIST 150 US(3), HIST 152 GH;US;IL(3), HIST 153 GH;US(3), HIST 158 US;IL(3), HIST 161 US(3), HIST 165 IL(3), HIST 174 GH;IL(3), HIST 175 GH;IL(3), HIST 176 GH;IL(3), HIST 179 GH;IL(3), HIST 180 GH;IL(3), HIST 181 GH;IL(3), HIST 191 GH;IL(3), S T S/HIST 123 GH(3), WMNST/AAA S 102 GH;IL(3), WMNST/HIST 117 GH;US;IL(3), WMNST/GEOG 426Y US;IL(3) (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Lastest Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-052

Review Date: 04/08/2014

R & T: 01/14/2014

ED

## Community, Environment, and Development

University Park, College of Agricultural Sciences (CED)

PROFESSOR LELAND GLENNA, Program Coordinator

The principal goal of the Community, Environment, and Development (CED) major is to develop the knowledge and skills of undergraduate students to enable them to assist local people, their communities, and institutions effectively understand, respond to and ultimately shape economic and social changes, including those that pose risks to the environment. The CED major focuses on the fields of community and economic development, environment and natural resources, and the critically important interactions between these fields, both locally and globally. Building skills and knowledge to tackle important environment and development issues facing communities today requires a multidisciplinary or transdisciplinary program; the major bridges the disciplines of agricultural, environmental and regional economics on the one hand and rural sociology on the other. Foundation (Level I) courses introduce students to key concepts in economics and sociology, and examine how these disciplines contribute to the basic content knowledge encompassing community and economic development and environmental economics and sociology. Level II courses build on the Foundation courses by extending the content knowledge to address the interrelationship between environment and natural resources and community and economic development. Coursework in Methods, Quantification and Communication is also required, including methods and techniques such as Geographical Information Systems and Geographical Information Analysis, statistics and survey research methods. Finally, students select among three options: (1) Community and Economic Development, (2) Environmental Economics and Policy, and (3) International Development. Students specialize in an option that further allows them to develop skills and competencies matching their specific education and career goals. It is expected that some students completing the program will choose to attend graduate school or law school, while others will choose employment after graduation.

For the B.S. degree in Community, Environment, and Development, a minimum of 120 credits is required.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

### GENERAL EDUCATION: 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selections)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION, or REQUIREMENTS FOR THE MAJOR course selections)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 6-8 credits

### REQUIREMENTS FOR THE MAJOR: 88-90 credits

(This includes 21 credits of General Education courses: 6 credits of GQ courses, 6 credits of GS courses, 9 credits of GWS.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 58-60 credits

#### PRESCRIBED COURSES (40 credits)

CED 152(3) [\[1\]](#), CED 201(3) [\[1\]](#), CED 230(3) [\[1\]](#), ENGL 015 GWS(3) (Sem: 2)  
ECON 104 GS(3), GEOG 160 GS(3) (Sem: 3)  
CAS 100 GWS(3), CED 309(3) [\[1\]](#), CED 427W(3) [\[1\]](#), STAT 200 GQ(4) (Sem: 4)  
CED 417(3) (Sem: 5)  
CED 404(3) (Sem: 6)  
CED 475(3) (Sem: 8)

#### ADDITIONAL COURSES (18-20 credits)

AG BM 101 GS(3) or ECON 102 GS(3) (Sem: 1)  
R SOC 011 GS:US(3) or SOC 001 GS(3) (Sem: 1)  
MATH 022 GQ(3) or MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1)  
CMPSC 101 GQ(3) or CMPSC 203 GQ(4) (Sem: 3)  
PL SC 001 GS(3) or PL SC 003 GS (3) or PL SC 014 GS(3) (Sem: 3)  
ENGL 202A GWS(3), ENGL 202B GWS:IL(3), ENGL 202C GWS:IL(3), or ENGL 202D GWS(3) (Sem: 5)

### REQUIREMENTS FOR THE OPTION: 30 credits

#### COMMUNITY AND ECONOMIC DEVELOPMENT OPTION (30 credits)

##### PRESCRIBED COURSES (9 credits)

SOC 023 GS(3) (Sem:5)  
AEE 460(3) (Sem:7)  
CED 409(3) (Sem: 8)

##### ADDITIONAL COURSES (9 credits)

CED 430(3) or CEDEV 430(3) (Sem: 5)  
CEDEV 452(3) or R SOC 452(3) (Sem:6)  
E R M 411(3) or B LAW 425(3) (Sem: 7)

##### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credit in specialization (Sem: 5-8)

#### ENVIRONMENTAL ECONOMICS AND POLICY (30 credits)

##### PRESCRIBED COURSES (12 credits)

ECON 302 GS(3) (Sem:5)  
CED 431W(3), ECON 428(3) (Sem:7)  
CED 429(3) (Sem: 8)

##### ADDITIONAL COURSES (3 credits)

E R M 411(3) or B LAW 425(3) (Sem:7)

##### SUPPORTING COURSES AND RELATED AREAS (15 credits)

Select 3 credits of Environmental Science from approved department list.  
Select 12 credits in specialization (Sem: 5-8)

#### INTERNATIONAL DEVELOPMENT OPTION (30 credits)

##### PRESCRIBED COURSES (18 credits)

SOC 023 GS(3), R SOC 470(3) (Sem: 5)  
CED 410(3) (Sem: 6)  
CED 425(3), CED 450 IL(3) (Sem: 7)  
CED 420 US:IL(3) (Sem: 8)

##### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credit in specialization (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-001

Review Date: 08/20/13

[Comments](#)

AG

Publications updated coordinator: 3/1/12

## Computer Engineering

*Penn State Erie, The Behrend College (CENBD)*

This major provides students with a strong foundation in computer engineering through a combination of classroom study, design projects, and laboratory experience. Analysis and design of computer hardware and software systems are stressed. Built upon a core of science and mathematics courses, this major has the objective of educating graduates to be problem solvers. Students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them for industry or further study in graduate school. In addition, written and oral communication skills are developed from an early stage, culminating in a senior design project that stresses communication as well as engineering content.

In addition to completing a broad-based science core in mathematics, chemistry and physics, students pursue their interest in computer engineering by studying principles in digital hardware design, computer architecture, computer software, microelectronics, and computer data communications. The student will be required to analyze and solve a significant computer engineering design problem during the senior year.

**Entrance Requirement:** In addition to the Carnegie unit and minimum GPA requirements described by University policies, all students applying for entrance to any of the engineering majors at Behrend College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), and PHYSICS 211 GN(4). These courses must be completed by the end of the semester during which the admission to major process is carried out.

For the B.S. degree in computer engineering, a minimum of 130 credits is required. Each student must earn at least a grade of C in each 300-and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(21 of the 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 1 credit

**REQUIREMENTS FOR THE MAJOR:** 105 credits

(This includes 21 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses; 3 credits of GS courses)

**PRESCRIBED COURSES** (93 credits)

CHEM 110 GN(3)[\[1\]](#), CHEM 111 GN(1)[\[1\]](#) (Sem: 1-2)

CMPEN 271(3)[\[1\]](#), CMPSC 121 GQ(3), CMPSC 122(3)[\[1\]](#), CMPSC 275(1)[\[1\]](#), CMPSC 360(3)[\[1\]](#), E E 210(4)[\[1\]](#), ENGL 202C GWS(3), MATH 140 GQ(4)[\[1\]](#), MATH

141 GQ(4)[\[1\]](#), MATH 220 GQ(2-3)[\[1\]](#), MATH 230(4)[\[1\]](#), MATH 250(3)[\[1\]](#), PHYS 211 GN(4)[\[1\]](#), PHYS 212 GN(4), PHYS 214 GN(2) (Sem: 1-4)

CMPEN 411(3)[\[1\]](#), CMPEN 352W(3)[\[1\]](#), CMPEN 371(3)[\[1\]](#), CMPEN 431(3)[\[1\]](#), CMPSC 465(3)[\[1\]](#), E E 310(4)[\[1\]](#), CMPEN 351(3)[\[1\]](#), E E 352(4)[\[1\]](#), STAT 301(3)[\[1\]](#)

(Sem: 5-6)

CMPEN 461(3)[\[1\]](#), CMPEN 441(3)[\[1\]](#), CMPEN 480(3)[\[1\]](#), CMPEN 481(3)[\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (3 credits)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-6)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits of technical elective courses from school-approved list. (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-4.

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-01-016

Review Date: 01/17/02

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

BD

## Chemical Engineering

University Park, College of Engineering (CH E)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR ANDREW L. ZYDNEY, *Head, Department of Chemical Engineering*

Chemical Engineering is one of the most versatile professions--you'll find Chemical Engineers employed in a broad array of industries ranging from pharmaceutical and biotechnical companies to semiconductor manufacturing to start-up companies converting the latest laboratory discoveries to large-scale commercial production. Chemical Engineers work with catalysts to develop new ways to manufacture medicines and plastics; they develop control systems that enable the safe production of products from semiconductors to household soap; they design chemical and petroleum plants; they research the effects of artificial organs on blood flow; and they develop the equipment and processes necessary for advances in biotechnology. While chemistry emphasizes the facts and principles of science, chemical engineering emphasizes its practical application for the development of new products and processes.

The undergraduate program in Chemical Engineering provides students with fundamental skills in problem solving, analysis, and design, along with hands-on experience in practical applications. The curriculum builds upon the traditional foundation in the chemical and energy-related industries and introduces new material in the life sciences, polymers, and environmental fields. Students have numerous opportunities to pursue more specialized areas including formal options in Bioprocess and Biomolecular Engineering, Energy and Fuels, and Polymer Engineering.

### Program Educational Objectives:

The educational objectives of the undergraduate program in Chemical Engineering are specifically designed to produce graduates who will be able to:

1. identify and pursue their personal and professional goals using the foundation provided by the breadth of educational opportunities in chemical and biomolecular engineering offered at Penn State
2. pursue careers as practicing chemical engineers in traditional chemical and energy-related industries as well as in expanding areas of materials, environmental, biomedical, and biotechnology
3. apply their broad chemical engineering education--including their problem solving, analytical, design, research, and communication skills--in industry, government agencies, financial institutions, consulting firms, educational institutions, business, law, and medicine
4. provide the technical, educational, business, and political leadership needed in today's rapidly changing, increasingly technological, global society.

### Program Outcomes (Student Outcomes):

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multidisciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) a recognition of the need for, and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

**ENTRANCE TO MAJOR** -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHSY 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

For the B.S. degree in Chemical Engineering, a minimum of 134 credits is required. This baccalaureate program in Chemical Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**GENERAL EDUCATION:** 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 116 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 98 credits

**PRESCRIBED COURSES** (88 credits)

CHEM 110 GN(3)[\[11\]](#), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), EDSGN 100(3), MATH 140 GQ(4)[\[11\]](#), MATH 141 GQ(4)[\[11\]](#), PHYS 211 GN(4)[\[11\]](#) (Sem: 1-2)

B M B 251(3), CH E 210(3)[\[11\]](#), CH E 220(3)[\[11\]](#), CH E 300(1), CH E 320(3)[\[11\]](#), CH E 330(3)[\[11\]](#), CH E 340(3), CH E 350(3)[\[11\]](#), CH E 360(3), CHEM 210(3), CHEM 212(3), CHEM 213(2), CHEM 457(1-2), MATH 230(4), MATH 251(4), PHYS 212 GN(4) ENGL 202C GWS(3) (Sem: 3-6)

CHEM 466(3) (Sem: 6)

CH E 410(3)[\[11\]](#), CH E 430(3)[\[11\]](#), CH E 470(3), CH E 480W(3) (Sem: 7-8)

**ADDITIONAL COURSES** (10 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

ECON 102 GS(3), ECON 104 GS(3), or ECON 014 GS(3) (Sem: 1-6)

CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)

**REQUIREMENTS FOR THE OPTION:** 18 credits

**BIOPROCESS AND BIOMOLECULAR ENGINEERING OPTION:** 18 credits

**PRESCRIBED COURSES** (9 credits)

B M B 401(3), CH E 438(3), CH E 449(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 3 credits from: B M B 442(3), BIOTC 479(3), BIOTC 489(3) (Sem: 5-8)

Select 6 credits from: B E 468(3), B M B 252(3), B M B 400-level, BME 419(3), BME 443(3), BIOL 472(3), CH E 501(3)[\[911\]](#), MATSE 403(3), MICRB 201(3) (Sem: 7-8)



**ENERGY AND FUELS OPTION:** 18 credits**PRESCRIBED COURSES** (3 credits)

EGEE 411(3) (Sem: 6)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 3 credits from: F SC 401(3), I H S 400(3) (Sem: 5)

Select 12 credits from: EGEE 420(3), EGEE 430(3), F SC 431(3), CH E/F SC 432(3), ENVSE 427(3), F SC 435(3), I H S 420(3), I H S 445(3), I H S 447(3), I H S 450(3), I H S 470(3), P N G 410(3), P N G 480(3) (Sem: 7-8)

**GENERAL OPTION:** 18 credits**ADDITIONAL COURSES** (18 credits)

Select 6 credits in 400-level CH E courses from department list (Sem: 5-8)

Select 6 credits of approved Engineering electives (Sem: 5-8)

Select 6 credits of approved Technical/Professional electives [\[31\]](#) (Sem: 5-8)**POLYMER ENGINEERING OPTION** (18 credits)**PRESCRIBED COURSES** (9 credits)

MATSE 441(3), MATSE 443(3), MATSE 446(3) (Sem: 5-8)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from: MATSE 444(3), MATSE 445(3) (Sem: 5-8)

Select 6 credits from CH E 441(3), MATSE 447(3), MATSE 448(3) (Sem: 5-8)

**RESEARCH INTENSIVE OPTION** (18 credits)**ADDITIONAL COURSES** (18 credits)

Select 3 credits from: CH E 446(3) or CH E 544(3) (Sem: 7)

CH E 494(6) or CH E 494H(6) (Sem: 7-8)

Select 6 credits of approved Technical/Professional electives [\[31\]](#) (Sem: 7-8)Select 3 credits from any CH E 5XX-level course (Sem: 8) [\[91\]](#)[\[1\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.[\[31\]](#) Students may substitute 6 credits of ROTC for part of this requirement in consultation with department.[\[91\]](#) "...senior, undergraduate students with an average of at least 3.5, and certain other students with averages of at least 3.00 who have been granted special permission to enroll through the Office of Graduate Enrollment Services." Penn State University 2003-2004 Graduate Degree Programs Bulletin. Instructor approval is also required.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-088

Review Date: 02/19/2013

R &amp; T: Approved 5/24/2013

UCA Revision #1: 8/3/06

UCA Revision #2: 7/26/07

EN

Accreditation statement updated by Publications, per COE: 8/15/11

## Chemistry

University Park, Eberly College of Science (CHEM)

PROFESSOR Mark Maroncelli, Assistant Head for Undergraduate Education

This major provides a strong foundation in the theory and practice of chemistry. Mathematics and physics are emphasized, since these subjects are essential to the understanding of chemistry. Courses in English and electives ensure study in non-technical subjects which broaden the student's general education and enables him or her to relate the major to other fields of knowledge.

In order to be eligible for entrance to the Chemistry major, a student must have: 1) Attained at least a 2.00 cumulative grade-point average. 2) Completed CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 210(3), MATH 140 GQ(4), and MATH 141 GQ(4); earned a grade of C or better in each of these courses; and earned a combined grade point average of at least 2.50 in these courses. (Note: If courses are repeated, only the better grade will be used in this calculation.)

For the B.S. degree in Chemistry, a minimum of 125 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:** 1-3 credits

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 94 credits

(This requirement includes 15 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses.)

**PRESCRIBED COURSES** (54 credits)

CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1) [\[1\]](#), CHEM 112 GN(3) [\[1\]](#), CHEM 113 GN(1) [\[1\]](#), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#) (Sem: 1-2)

PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 1-4)

MATH 231(2) (Sem: 3-4)

CHEM 210(3) [\[1\]](#), CHEM 212(3) [\[1\]](#), CHEM 213(2) [\[1\]](#), CHEM 227(4) [\[1\]](#), CHEM 310(3) [\[1\]](#), CHEM 316(1), CHEM 450(3) [\[1\]](#), CHEM 452(3) [\[1\]](#), CHEM 457(2) [\[1\]](#) (Sem: 5-6)

**ADDITIONAL COURSES** (23 credits)

Select 3 credits from MATH 250(3) or STAT 401(3) (Sem: 5-8)

Select 4 credits from advanced laboratory courses: CHEM 423W(4) [\[1\]](#), CHEM 431W(4) [\[1\]](#), CHEM 459W(4) [\[1\]](#) (Sem: 5-8)

Select 16 credits of chemistry at the 400 level. Up to 6 co-op credits (2 each of SC 295, SC 395, SC 495) may be used in this category. Chemical Research, CHEM 494(1-10) may be used, but the total of CHEM 494 credits plus co-op credits may not exceed 8. (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (17 credits)

These 17 credits may include any courses not on the Chemistry Department list of excluded courses except that CHEM 494 may not be used, and only one credit of each SC 295, SC 395, and SC 495 is allowed in this category. (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-04-088

Review Date: 01/12/2010

UCA Revision #1: 8/3/06

SC

## Chemistry

*Penn State Erie, The Behrend College (CHMBD)*

This major provides a strong foundation in chemistry and prepares students for graduate or professional programs and for careers with companies and agencies requiring chemistry or related areas. The major has four options that allow students to choose an area of specialization to meet their career goals. These options are: general chemistry, biochemistry, business, and chemistry education pre-certification. Students have the opportunity to participate in research with faculty members.

**Entrance Requirement:** In order to be eligible for entrance to the CHMBD major (all options), a student must have: (1) attained more than 27 credits and (2) earned at least a 2.00 cumulative grade-point average.

For the B.S. degree in Chemistry, a minimum of 124 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field and must have earned a minimum 2.00 grade-point average.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(18-21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-6 credits

**REQUIREMENTS FOR THE MAJOR:** 92-102 credits

(This includes 18-24 credits of General Education courses. For the General Chemistry Option, and Biochemistry Option, 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses. For the Business Option, 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses. For the Chemistry Education Pre-Certification Option, 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 54 credits

**PRESCRIBED COURSES** (54 credits)

CHEM 110 GN(3)[\[1\]](#), CHEM 111 GN(1)[\[1\]](#), CHEM 112 GN(3)[\[1\]](#), CHEM 113 GN(1)[\[1\]](#), MATH 140 GQ(4)[\[1\]](#), MATH 141 GQ(4)[\[1\]](#), PHYS 211 GN(4)[\[1\]](#), PHYS 212 GN(4)[\[1\]](#) (Sem: 1-4)

CHEM 210(3)[\[1\]](#), CHEM 212(3)[\[1\]](#), CHEM 213(2)[\[1\]](#), CHEM 221(4)[\[1\]](#), CHEM 316(1) (Sem: 3-6)

CHEM 400(1), CHEM 413(4), CHEM 431W(3), CHEM 440(3), CHEM 441(1), CHEM 443(1), CHEM 457(1), and CHEM 472(3) (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 38-48 credits

**GENERAL CHEMISTRY OPTION:** (38 credits)

**PRESCRIBED COURSES** (14 credits)

CHEM 450(3), CHEM 452(3) and CHEM 457(1), ENGL 202C GWS(3)[\[1\]](#), MATH 230(4)[\[1\]](#) (Sem: 3-8)

**ADDITIONAL COURSES** (12 credits)

Select 3 credits from MATH 250(3)[\[1\]](#) or STAT 401(3) (Sem: 3-6)

Select 6 credits of 400-level CHEM courses (excluding CHEM 494, CHEM 495, and CHEM 496) (Sem: 5-8)

Select 3 credits from CHEM 494(1-12) or CHEM 496(1-18) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits from school-approved list. (Students may apply up to 6 credits of ROTC.) (Sem: 1-8)

**BIOCHEMISTRY OPTION:** (44 credits)

**PRESCRIBED COURSES** (26 credits)

B M B 402(3), BIOL 110S GN(4)[\[1\]](#), BIOL 230W GN(4)[\[1\]](#) (Sem: 3-8)

ENGL 202C GWS(3)[\[1\]](#), MATH 230(4)[\[1\]](#) (Sem: 3-8)

B M B 403(1), CHEM 450(3), CHEM 452(3) and CHEM 457(1) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 3 credits from B M B 406(3), B M B 465(3), BIOL 322(3), MICRB 201(3) (Sem: 3-8)

Select 3 credits from MATH 250(3)[\[1\]](#) or STAT 401(3) (Sem: 3-6)

Select 3 credits of 400-level CHEM courses (excluding CHEM 494, CHEM 495, and CHEM 496) (Sem: 5-8)

Select 3 credits from CHEM 494(1-12) or CHEM 496(1-18) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from school-approved list. (Students may apply up to 6 credits of ROTC.) (Sem: 1-8)

**BUSINESS OPTION:** (46-47 credits)

**PRESCRIBED COURSES** (22 credits)

ECON 102 GS(3)[\[1\]](#), ENGL 202D GWS(3)[\[1\]](#), MGMT 301(3), MKTG 301(3) (Sem: 3-8)

CHEM 496(3) (Sem: 5-8)

SCM 200 GQ(4)[\[1\]](#), STAT 401(3) (Sem: 3-6)

**ADDITIONAL COURSES** (18-19 credits)

CHEM 450(3) or CHEM 452(3) (Sem: 5-6)

Select 6 credits of 400-level CHEM courses (excluding CHEM 494, CHEM 495, and CHEM 496) (Sem: 5-8)

Select 9-10 credits in one of the following sequences:

a) SCM 310(3), MGMT 331(3), MGMT 410(3), MGMT 420(3) (Sem: 5-8)

b) MKTG 342(3), MKTG 330(3), MKTG 327(3), MKTG 410(3), MKTG 428(3) (Sem: 5-8)

c) CMPSC 203 GQ(4), MIS 204(3), MIS 336(3), MIS 430(3), MIS 445(4) (Sem: 5-8)

d) One selection each from a), b), and c) above (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from school-approved list. (Students may apply up to 6 credits of ROTC.) (Sem: 1-8)

**CHEMISTRY EDUCATION PRE-CERTIFICATION OPTION:** (47-48 credits)

This option helps prepare students for chemistry education teaching positions in secondary schools. It includes the academic requirements for the Chemistry Education Instructional I certificate issued by the Pennsylvania Department of Education.

**PRESCRIBED COURSES** (26-27 credits)

CHEM 450(3), CHEM 452(3) and CHEM 457(1), ENGL 202C GWS(3)[\[1\]](#), MATH 230(4)[\[1\]](#), PSYCH 100 GS(3)[\[1\]](#) (Sem: 3-8)  
EDPSY 014(3) taken concurrently with C I 295(1), EDTHP 115 US(3) taken concurrently with C I 295(1) (Sem:3-8)  
CHEM 395(1-2) (Sem: 5-8)

**ADDITIONAL COURSES** (15 credits)

Select 3 credits from MATH 250(3)[\[1\]](#) or STAT 401(3) (Sem: 3-6)  
Select 6 credits of 400-level CHEM courses (excluding CHEM 494, CHEM 495, and CHEM 496) (Sem: 5-8)  
Select 3 credits from CHEM 494(1-12) or CHEM 496(1-18) (Sem: 5-8)  
HD FS 129 GS(3)[\[84\]](#) or PSYCH 212 GS(3)[\[84\]](#) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from school-approved list. (Students may apply up to 6 credits of ROTC.) (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-017

Review Date: 01/10/2012

ETM revision: 1/15/2013

UCA Revision #1: 10/10/06

UCA Revision #2: 7/26/07

BD

# Chinese

University Park, College of the Liberal Arts (CHNS)

PROFESSOR ERIC HAYOT, *Director of the Asian Studies Program, in charge*

Currently more than a billion people speak Chinese, making it one of the most widely spoken languages in the world. As a rising superpower with an increasingly global impact, China is a major international presence. The major in Chinese is designed to develop skills in speaking, understanding, reading, and writing Chinese, as well as to promote an understanding of the diverse literatures, cultures, and traditions of the Chinese-speaking world, ranging from China itself to Chinese-speaking America. The major can help students prepare for professional careers in which knowledge of Chinese, especially Mandarin, is useful. Students are strongly encouraged to study abroad.

Students planning to teach in public schools should schedule the appropriate courses leading to certification in consultation with an adviser in the College of Education.

For the B.A. degree in Chinese, a minimum of 124 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 45 credits

(0-9 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 20-28 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in front of *Bulletin*.)

**REQUIREMENTS FOR THE MAJOR:** 35 credits<sup>[1]</sup>

(This includes 0-9 credits of General Education GA, GH, or GS courses.)

(At least 21 credits must be at the 400 level.)

(Students are strongly encouraged to take at least 12 of their credits as part of a study abroad program in a Chinese-speaking location. For curricular sequencing, the program encourages students to pursue this Education Abroad experience in the summer or fall semester of the junior year.)

**PRESCRIBED COURSES** (20 credits)

CHNS 110 IL(4) (Sem: 3-4)

CHNS 401 IL(4), CHNS 402 IL(4) (Sem: 5-6)

CHNS 403W(4), CHNS 404 IL(4) (Sem: 7-8)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from CHNS 120 GH;IL(3) or CHNS 121 GH;IL(3) (Sem: 1-6)

Select 3 credits from the CHNS 420-429 level (3) (Sem: 1-8)

Select 3 credits from the CHNS 450-459 level (3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits pertaining to China, such as courses in art history, Asian studies, comparative literature, economics, geography, history, philosophy, political science, religious studies, theatre arts, or other fields, selected from departmental list. (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-03-052

Review Date: 11/08/2011

LA

## Criminal Justice

Altoona College (CJBA)

PROFESSOR TIMOTHY SLEKAR, *in charge*

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is excellent preparation for a career in criminal justice, graduate, or professional study, or informed citizenship.

For the B.A. degree in Criminal Justice, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(10-13 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 20-24 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 48 credits<sup>[1]</sup>

(This includes 10-13 credits of General Education courses: 0-3 credits of GH courses; 4 credits of GQ courses; 6 credits of GS courses.)

**PRESCRIBED COURSES** (36 credits)

CRIMJ 100(3), SOC 012 GS(3), SOC 119 GS:US(4), SOC 207(3), STAT 200 GQ(4) (Sem: 1-4)

CRIMJ 210(3), CRIMJ 220(3), CRIMJ 230(3), CRIMJ 290(1)(Sem: 3-6)

CRIMJ 441(3), CRIMJ 450W(3), CRIMJ 495(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

PHIL 103 GH(3) or CRIMJ 465(3) (Sem: 1-4)

Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major. (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2009

Blue Sheet Item #: 37-06-010

Review Date: 4/14/09

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

AL

## Criminal Justice

Altoona College (CJBS)

PROFESSOR TIMOTHY SLEKAR, *in charge*

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is excellent preparation for a career in criminal justice, graduate, or professional study, or informed citizenship.

For the B.S. degree in Criminal Justice, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(10-13 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 32-36 credits

**REQUIREMENTS FOR THE MAJOR:** 60 credits<sup>[1]</sup>

(This includes 10-13 credits of General Education courses; 0-3 credits of GH courses; 4 credits of GQ courses; 6 credits of GS courses.)

**PRESCRIBED COURSES** (36 credits)

CRIMJ 100(3), SOC 012 GS(3), SOC 119 GS;US(4), SOC 207(3), STAT 200 GQ(4) (Sem: 1-4)

CRIMJ 210(3), CRIMJ 220(3), CRIMJ 230(3), CRIMJ 290(1)(Sem: 3-6)

CRIMJ 441(3), CRIMJ 450W(3), CRIMJ 495(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

PHIL 103 GH(3) or CRIMJ 465(3) (Sem: 1-4)

Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major. (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits, in consultation with the adviser, in one or two of the following skill enhancement areas: accounting, computers, composition and rhetoric, counseling, education, law and legal studies, foreign language, management, public speaking, research methods and statistics, science and engineering, biobehavioral health; or in the following topics: adolescence, deviant behavior, drugs, minorities (Sem: 3-6)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2009

Blue Sheet Item #: 37-06-011

Review Date: 4/14/09

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

AL

## Criminology

*University Park, College of the Liberal Arts (CRMBA)*

PROFESSOR JOHN ICELAND, *Head, Department of Sociology, and Crime, Law, and Justice*

(The Bachelor of Arts degree in Criminology is offered by the Criminology Program in the Department of Sociology.)

This major provides students with a broadly based liberal education focused on the understanding and analysis of crime and justice systems. Students obtain a foundation of knowledge of the basic components of the criminal justice and legal systems as well as abilities to solve problems, think and read critically, and write effectively within the context of criminal justice and criminological research and theory.

The B.A. degree is suitable for students seeking entry-level positions in the criminal justice system and for students interested in graduate and law school. Students interested in acquiring strong quantitative skills should consider the B.S. degree.

For the B.A. degree in Criminology, a minimum of 121 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 21 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 34 credits<sup>[1]</sup>

(This includes 4 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (13 credits)

CRIM 100 GS(3)/CRIMJ 100 GS(3), CRIM 012 GS(3)/CRIMJ 012 GS(3)/SOC 012 GS(3) (Sem: 1-4)

STAT 200 GQ(4), CRIM 250W(3) (Sem: 1-8)

**ADDITIONAL COURSES** (21 credits)

Select 3 credits from: CAS 283(3), CMPSC 100(3), CMPSC 101 GQ(3) (Sem: 1-8)

Select 3 credits from: SOC 001 GS(3), SOC 003 GS(3), or SOC 005 GS(3) (Sem: 1-8)

Select 6 credits from: CRIM 430(3), CRIM 432(3), CRIM 435(3), CRIM 451 US(3), CRIM 453 US(3), CRIM 467(3), CRIM 490(3) (Sem: 5-8)

Select 6 credits from: CRIM 406(3), CRIM 407(3), CRIM 413(3), CRIM 414(3), CRIM 421(3), CRIM 422(3), CRIM 423(3), CRIM 424(3), CRIM 425(3), CRIM 441(3) (Sem: 5-8)

Select 3 additional credits at the 400 level in Criminology (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-144

Review Date: 04/10/2012

UCA Revision #2: 7/27/07

LA

Publications updated department head: 12/02/11



## Criminology

University Park, College of the Liberal Arts (CRMBS)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR JOHN ICELAND, *Head, Department of Sociology, and Crime, Law, and Justice*

This major provides the opportunity to develop a stronger foundation in research methods, quantification, and the sciences. It prepares students with relevant aptitudes for pursuing further studies or finding employment where such knowledge is advantageous. Students contemplating futures in social science research, business, forensics, public service, and paralegal positions should consider this degree or some of its recommended courses.

Either the B.A. or B.S. degree is suitable for students seeking entry level positions in the criminal justice system and for students interested in graduate and law school. Students interested in acquiring strong quantitative skills should consider the B.S. degree.

For the B.S. degree in Criminology, a minimum of 121 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 17-19 credits

**REQUIREMENTS FOR THE MAJOR:** 61-63 credits<sup>[1]</sup>

(This includes 4 credits of GENERAL EDUCATION GQ courses)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 40 credits

**PRESCRIBED COURSES** (13 credits)

CRIM 012 GS(3)/CRIMJ 012 GS(3)/SOC 012 GS(3), CRIM 100(3)/CRIMJ 100(3) (Sem: 1-2)

STAT 200 GQ(4) (Sem: 1-8)

CRIMJ 250W(3) (Sem: 2-4)

**ADDITIONAL COURSES** (27 credits)

Select 3 credits from: CAS 283(3), CMPSC 100(3), CMPSC 101 GQ(3) (Sem: 1-8)

Select 3 credits from: SOC 001 GS(3), SOC 003 GS(3), or SOC 005 GS(3) (Sem: 1-8)

Select 6 credits in race, ethnicity and gender:

AF AM 100 GS;US(3), AF AM 101 GH;US(3), AF AM/SOC/WMNST 103 US(3), AF AM 103 US(3)/SOC 103 US(3)/WMNST 103 US(3), AM ST/WMNST 104 GH;US(3), AM ST 105 GH;US(3), AM ST 432(3), ANTH 146 GS;US(3), CAS 271 US;IL(3), CAS 422 US(3), CAS 455 US(3), CAS 471 US;IL(3), CMLIT 101 GH;US;IL(3), CRIM 451(3), CRIMJ/WMNST 453 US(3), ENGL 135 GH;US(3), ENGL 139 GH;US(3), ENGL 462 US(3), HIST 154 GH;US(3), LER/WMNST 136 US(3), PHIL 009 GH(3), PSYCH 432 US(3), SOC 119 GS;US(4), SOC 409 US(3), SOC 419(3), SOC 429(3) or WMNST 001 GS;US;IL(3) (Sem: 1-8)

Select 6 credits from the core courses CRIMJ 430(3), CRIM 432(3), CRIM 435(3), CRIM 451(3), CRIM 453(3), CRIM 467(3), CRIM 490(3) (Sem: 5-8)

Select 6 credits from CRIM 406(3), CRIM 407(3), CRIM 413(3), CRIM 414(3), CRIM 421(3), CRIM 422(3), CRIM 423(3), CRIM 424(3), CRIM 425(3), CRIM 441(3) (Sem: 5-8)

Select 3 additional credits at the 400-level in Criminology (CRIM) (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 21-23 credits

**BUSINESS/PUBLIC ADMINISTRATION OPTION:** (21 credits)

**PRESCRIBED COURSES** (6 credits)

ECON 102 GS(3), ECON 104 GS(3) (Sem: 1-8)

**ADDITIONAL COURSES** (15 credits)

Select 15 credits with at least 3 credits each from groups a, b, c, d (Sem: 3-8)

a) ECON 302 GS(3), FIN 100(3)

b) MGMT 100(3), MKTG 221(3), PSYCH 281 GS(3), PSYCH 482(3), PSYCH 484(3), PSYCH 485(3)

c) B LAW 243(3), LER 401(3), LER 411(3), LER 434(3), LER 435(3), LER 437(3), SOC 444(3), SOC 455(3)

d) Select 3 credits from CAS 404(3), CAS 450W(3), CAS 452(3), CAS 471 US;IL(3), CAS 483(3), ENGL 418(3), ENGL 419(3), ENGL 421(3), FR 408(3), GER 408 IL(3), HIST 425 IL(3), HIST 458W(3), LER 400-level course(s), PL SC 412(3), PL SC 417(3), PL SC 419(3), PL SC 490(3), PL SC 444(3), PSYCH 482(3), PSYCH 484(3), PSYCH 485(3), SOC 444(3), SOC 455(3), SOC 456(3), SPAN 412(3)

**COMPUTING AND STATISTICS OPTION:** (21 credits)

**PRESCRIBED COURSES** (5 credits)

SOC 470(4), STAT 480(1) (Sem: 5-8)

**ADDITIONAL COURSES** (16 credits)

Select 16 credits from CAS 483(3), CMPSC 203 GQ(4), MATH 110 GQ(4) and MATH 111 GQ(2) or MATH 140 GQ(4) and MATH 141 GQ(4); MIS 204(3); STAT 460(3), STAT 462(3) or STAT 464(3) (Sem: 1-8)

**LEGAL STUDIES OPTION:** (21 credits)

**PRESCRIBED COURSES** (3 credits)

PHIL 012 GQ(3) (Sem: 1-8)

**ADDITIONAL COURSES** (18 credits)

Select 3 credits from CAS 213(3), CAS 215(3), CAS 321(3) or CAS 250(3) (Sem: 3-8)

Select 12 credits from B LAW 243(3), B LAW 410(3), CRIM 432(3) or CRIM 467(3)/SOC 467(3), CRIM 469(3), COMM 403(3), L ST 470(3), PHIL 105 GH(3), PHIL 108 GH(3), PHIL 408(3), PL SC 403(3), PL SC 431(3), PL SC 432(3), PL SC 471(3), PL SC 472(3), SOC 405(3) (Sem: 5-8)

Select 3 credits from HIST 449 US(3), HIST 450 US(3), PL SC 474(3) (Sem: 5-8)

**SOCIAL SCIENCE RESEARCH OPTION:** (22-23 credits)

**PRESCRIBED COURSES** (5 credits)

SOC 470(4), STAT 480(1) (Sem: 5-8)

**ADDITIONAL COURSES** (17-18 credits)

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Select 8-9 credits from MATH 110 GQ(4) and MATH 111 GQ(2) or MATH 140 GQ(4) and MATH 141 GQ(4), STAT 460(3), STAT 462(3), STAT 464(3) (Sem: 1-8)  
Select 9 credits from HD FS 401(3), PL SC 490(3), any 400-level STAT course (Sem: 5-8)

NOTE: Internships will be counted as elective credits (CRIM 395).

NOTE: The following themes should be incorporated into all CRIM classes, as appropriate: ethical issues, ethnicity and gender issues, and theory.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-099

Review Date: 08/20/13

Publications updated department head: 12/02/11

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

LA

## Comparative Literature

University Park, College of the Liberal Arts (CMLIT)

PROFESSOR CAROLINE D. ECKHARDT, *Head*

Approaching literature with an interdisciplinary and global perspective, the major in Comparative Literature crosses the boundaries of geography, time, nationalities, languages, and cultures. The world of literature taught draws upon readings from the Americas, Europe, Africa, Asia, and the Middle East, and from a wide range of historical periods. The range includes recognized great books along with less-known works, including women's literature, colonial and postcolonial literatures, indigenous literatures, testimonies, legends, myths, and folktales, banned books, literatures of the occult, science and detective fictions, virtual worlds, and cultural theory. Students learn to appreciate different languages and cultures, develop the critical skills for literary and cultural analysis, and relate literature to other media, including film and digital media. The major also encourages students to explore the relationship between literature and ethics through course offerings focused on transnational identities, human rights, cultures of globalization, and the problem of violence. A senior seminar clarifies the mysteries of literary theory and provides opportunities for individual projects.

Students majoring in Comparative Literature take courses in the Department of Comparative Literature and in other literature departments. They also develop competence in a foreign language. Study abroad is encouraged: Students may count up to 18 Education Abroad credits toward the major.

Graduates of the Department of Comparative Literature have undertaken careers in teaching, completed advanced degrees in literature, librarianship, law, and similar fields, entered the Peace Corps or other types of government service, and pursued careers in writing and communications.

The department offers a minor in World Literature as well as the major in Comparative Literature.

For the B.A. degree in Comparative Literature, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 24 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits<sup>[1]</sup>

(This includes 6 credits of GH General Education courses.)

**PRESCRIBED COURSES** (9 credits)

CMLIT 010 GH;IL(3), CMLIT 100 GH;IL(3) (Sem: 1-4)

CMLIT 400Y IL(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (27 credits)

(Must include at least 15 credits at the 400 level)

a. Language: select at least 6 and no more than 18 credits in the study of a single foreign language and/or literature beyond the 12th credit level. See department list. (Sem: 1-8)

b. Literatures: select at least 6 and no more than 18 credits in courses on literature. Up to 12 of these credits can be taken through departments other than Comparative Literature and the department used to fulfill the "Language" requirement in (a) above. Up to 12 credits may be taken as courses offered through an Education Abroad program with departmental approval. (Sem: 1-8)

c. 3 credits in Comparative Literature at the 400 level. (Sem: 4-8)

### Integrated B.A./M.A. Program in Comparative Literature (CMLIT)

The Department of Comparative Literature offers an integrated B.A./M.A. program that is designed to allow academically superior baccalaureate students to obtain both the B.A. and the M.A. degrees in Comparative Literature within five years of study. The first two years of undergraduate coursework include the University General Education and Liberal Arts requirements in addition to language and literature study in the major. In the third year, students are expected to define areas of interest in two primary literatures in different languages. In addition, students in the B.A./M.A. program should begin to undertake work in a second foreign language. The fourth year includes graduate-level work in methodology and the student's selection of primary literatures which replaces comparable 400-level senior year courses. The fifth and final year of the program typically consists of graduate work in Comparative Literature courses as well as the chosen literatures. The program culminates with an M.A. paper.

By encouraging greater depth and focus in the course of study beginning in the third undergraduate year, this program will help students more clearly define their area of interest and expertise in the otherwise vast field of international literatures. As a result, long-range academic planning for exceptional students pursuing doctoral degrees after leaving Penn State, or other professional goals, will be greatly enhanced. The student may also be more competitive in applying for admission to Ph.D. programs as well as for institutional and national grant monies and scholarships.

#### Admission Requirements

The number of openings in the integrated B.A./M.A. program is limited. Admission will be selective based on specific criteria and the unqualified recommendation of faculty. Applicants to the integrated program:

1. Must be enrolled in the Comparative Literature B.A. program<sup>[1]</sup>.
2. Must have completed 60 credits of the undergraduate degree program (it is strongly suggested that students apply to the program prior to completing 100 credits).
3. Must be accepted without reservation into the M.A. program in Comparative Literature.
4. Should have a recommended overall GPA of 3.2 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
5. Must present a departmentally approved plan of study in the application process.
6. Must be recommended by the chairs of the Department's undergraduate and graduate committees.

A typical sequence of coursework for the integrated program would appear as follows:

**Year One:** 6 credits: CMLIT 010  
CMLIT 100

**Year Two:** 6 credits: Foreign Language (beyond the 12-credit level)  
6 credits: Courses in Literature

**Year Three:** 9 credits: 400-level courses in Literature, including CMLIT 400Y  
(variable credits) Work in foreign language (credits do not count towards the major, but reading proficiency is required for the M.A. degree)

**Year Four:** 3 credits: CMLIT 501, 502 and/or 503  
6 credits: Comparative Literature courses  
6-9 credits: 500-level courses in Literatures (at least 3 credits in non-Anglophone literature)

<b><u>Year Five</u></b>	3 credits:	CMLIT 501, 502, and/or 503
	9-12 credits	500-level courses in Literatures (at least 3 credits in non-Anglophone literature)
	6 credits	500-level Comparative Literature Courses M.A. paper

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010 (CMLIT); Spring Semester 2012 (Integrated B.A./M.A.)

Blue Sheet Item #: 38-05-099 (CMLIT); 40-06-143 (Integrated B.A./M.A.)

Review Date: 04/10/2012

LA

## Computer Science

*Penn State Erie, The Behrend College (CMPBD)*

The goal of the Computer Science major at Behrend is to produce graduates with a firm foundation in the fundamentals of computer science along with a significant background in one or more of the natural sciences to provide context. Students are encouraged to pursue a minor in one of the natural sciences (biology, chemistry), math, or statistics. Students prepare for the major by taking lower-division courses in programming, discrete math, computer organization, and data communications. They then complete upper-division courses in data structures and algorithms, data base management systems, net-centric programming, programming language fundamentals, and operating systems, and systems programming.

Graduates of this program will be prepared for a wide variety of computer-oriented careers in business, industry, and government, particularly in areas that require the practical application of computer science concepts and techniques to solving problems in the natural sciences. In addition, graduates will be prepared to pursue graduate study in computer science or in computationally intensive sub-disciplines of the natural sciences, such as bio-informatics, computational biology, computational physics, or computational chemistry.

**Entrance Requirement:** To be eligible for entrance to the Computer Science (CMPBD) major, a student must have completed MATH 140 GQ(4), MATH 141 GQ(4), CMPSC 121 GQ(3), CMPSC 122(3), and one of the following: BIOL 110 GN(4), or CHEM 110 GN(3) and CHEM 111 GN(1) or PHYS 211 GN(4) with a grade of C or better in each of these courses.

For a B.S. degree in Computer Science, a minimum of 122-123 credits is required. A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendations by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 1 credit

**REQUIREMENTS FOR THE MAJOR:** 97-98 credits

(This includes 21 credits of General Education courses: 6 credits of GQ courses, 6 credits of GWS courses, 9 credits of GN courses.)

**PRESCRIBED COURSES** (57 credits)

CMPSC 121 GQ(3) [\[1\]](#), CMPSC 122(3) [\[1\]](#), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), MATH 220 GQ(2) (Sem: 1-2)  
CMPSC 221(3), CMPSC 312(3) [\[1\]](#), CMPSC 335(3) [\[1\]](#), CMPSC 360(3) [\[1\]](#), CAS 100A GWS(3), ENGL 202C GWS(3) (Sem: 3-4)  
CMPSC 465(3) [\[1\]](#), CMPSC 471(3) [\[1\]](#), MIS 336(3), STAT 301(3) [\[1\]](#) (Sem: 5-6)  
CMPSC 461(3) [\[1\]](#), CMPSC 474(3) [\[1\]](#), CMPSC 484(2) [\[1\]](#), CMPSC 485W(3) [\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (25-26 credits)

Select one of the following sequences (10-11 credits):

- CHEM 110 GN(3), BIOL 110 GN(4), BIOL 220W GN(4) or BIOL 230 GN(4) or BIOL 240 GN(4) (Sem:1-2)
- CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 210(3) (Sem: 1-2)
- PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 1-2)

Select at least 15 additional science credits from department approved list (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 6 credits from the school approved list [Students may apply 6 credits of ROTC] [Students may apply 6 credits of internship CMPSC 495] (Sem: 3-8)  
Select 9 additional credits from CMPSC 302 or higher, CMPEN, SWENG. (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2009

Blue Sheet Item #: 37-06-016

Review Date: 4/14/09

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

BD

## Computer Engineering

University Park, College of Engineering (CMPEN)

PROFESSOR RAJ ACHARYA, *Head of the Department of Computer Science and Engineering*

The mission of the faculty of the undergraduate computer engineering program at Penn State is to provide students with the knowledge and experience needed to pursue a productive lifelong career in industry or to engage in further study at the graduate level. Students participate in a balanced program of instruction covering the basic principles of the design and application of computer systems. The program includes coverage in breadth and depth of basic science, engineering, and abstract concepts of information handling. Students specialize in and are prepared for careers in the design, analysis and use of hardware, software and systems. The program is structured to ensure that graduates have a clear understanding of the design and the applications of computers, as well as the ability to apply this knowledge throughout their professional careers.

### Program Educational Objectives:

In particular, within a few years after graduation, graduates in computer engineering should be able to:

1. Work in industry or government producing or evaluating components of computer hardware and/or software systems.
2. Work in teams to design, implement, and/or maintain components of computer hardware and/or software systems.
3. Stay current through professional conferences, certificate programs, post-baccalaureate degree programs, or other professional educational activities.

### Program Outcomes (Student Outcomes):

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multidisciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) a recognition of the need for, and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

**ENTRANCE TO MAJOR --** In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHSY 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Computer Engineering, a minimum of 128 credits is required. This baccalaureate program in Computer Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

### GENERAL EDUCATION: 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 110 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

### PRESCRIBED COURSES (78 credits)

CHEM 110 GN(3) [1], CMPSC 121 GQ(3) [1], MATH 140 GQ(4), MATH 141 GQ(4) [1], PHYS 211 GN(4) [1], PHYS 212 GN(4) (Sem: 1-2)  
CMPSC 122(3) [1], CMPSC 221(3) [1], CMPSC 360(3) [1], CMPEN 362(3), E E 210(4) [1], MATH 220 GQ(2-3), MATH 231(2), MATH 250(3), PHYS 214 GN(2) (Sem: 3-4)  
CMPEN 331(3) [1], CMPEN 431(3) [1], CMPSC 311(3) [1], CMPSC 465(3) [1], E E 310(4) [1], E E 353(3) [1], ENGL 202C GWS(3), STAT 418(3) (Sem: 5-6)  
CMPEN 482W(3), CMPSC 473(3) (Sem: 7-8)

### ADDITIONAL COURSES (26 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)  
ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)  
CMPEN 270(4) [1] or CMPEN 271(3) [1] and CMPEN 275(1) (Sem: 3-4)  
ECON 014 GS(3), ECON 102 GS(3), ECON 104 GS(3), or E B F 200 GS(3) (Sem: 3-4)  
Select 6 credits from CMPEN 411(3), CMPEN 416(3), CMPEN 417(3), CMPEN 454(3), CMPEN 455(3), CMPEN 471(3), CMPEN 472(3), CMPEN 473(3), CMPEN 475(3), E E 453(3), E E 456(3) (Sem: 5-8)  
Select 6 credits from any 400-level CMPEN or CMPSC course (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from department list (Students may apply up to 3 credits of Co-op. Students who complete ROTC may apply up to 3 credits of ROTC as department list credits and 3 credits of ROTC as GHA credits.)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2012

Blue Sheet Item #: 41-01-036

Review Date: 8/14/2012

R & T: Approved 5/24/2013

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

EN

Accreditation statement updated by Publications, per COE: 8/15/11



## Computer Science

University Park, College of Engineering (CMPSC)

PROFESSOR RAJ ACHARYA, Head, Department of Computer Science and Engineering

Computer Science is concerned with the analysis, design, and applications of computing software and systems. It includes a core foundation in computer hardware and software with emphasis on the design of efficient, fault-free software. It includes programming languages, data structures, compilers, operating systems, databases, and artificial intelligence.

The major is designed to provide fundamental training in preparing graduates for positions in schools, commerce, industry, and government. Students should consult their advisers in formulating suitable programs.

**ENTRANCE TO MAJOR** -- In addition to the minimum grade point average (GPA) requirements described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CMPSC 122, MATH 140 (GQ), MATH 141 (GQ), MATH 230 (GQ), PHYS 211 (GN), and PHYS 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Computer Science, a minimum of 126 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 105-106 credits

(This includes 24 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 9 credits of GWS courses.)

**PRESCRIBED COURSES** (64 credits)

CMPSC 121 GQ(3) [\[1\]](#), CMPSC 122(3) [\[1\]](#), CMPSC 360(3) [\[1\]](#), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), MATH 220 GQ(2), PHYS 211 GN(4) [\[1\]](#), PHYS 212 GN(4) (Sem: 1-2)

CMPEN 271(3) [\[1\]](#), CMPEN 331(3) [\[1\]](#), CMPSC 221(3) [\[1\]](#), CMPSC 311(3) [\[1\]](#), MATH 230(4), STAT 318(3) (Sem: 3-4)

CMPSC 461(3) [\[1\]](#), CMPSC 464(3), CMPSC 465(3) [\[1\]](#), CMPSC 473(3) [\[1\]](#), ENGL 202C GWS(3), STAT 319(3) (Sem: 5-6)

**ADDITIONAL COURSES** (19 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)

Select 6 credits from CMPEN 362(3), CMPEN 431(3), CMPEN 454(3), CMPSC 442(3), CMPSC 444(3), CMPSC 450(3), CMPSC 451(3), CMPSC 455(3), CMPSC 456(3), CMPSC 458(3), CMPSC 466(3), CMPSC 467(3), CMPSC 468(3), CMPSC 471(3), CMPSC 475(3), E E 456(3) (Sem: 7-8)

Select 3 credits from any 400-level CMPEN or CMPSC course (Sem: 7-8)

Select 3 credits from CMPSC 431W(3), or CMPSC 483W(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (22-23 credits)

Select 2-3 credits from PHYS 213 GN(2), PHYS 214 GN(2), or 3 credits from the approved list of natural sciences courses (Sem: 3-4)

Select 0-4 credits in a foreign language (second-semester proficiency) (Sem: 5-6)

Select 10-14 credits from department list (Students may apply up to 3 credits of ROTC as department list credits and 3 credits of ROTC as GHA credits) (Sem: 7-8)

Select 6 credits in 400-level non-CMPEN or CMPSC courses in consultation with adviser (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-089

Review Date: 02/19/2013

UCA Revision #2: 7/27/07

EN



## Communications

### *Altoona College (COMAL)*

The curriculum of this B.A. in Communications provides a general grounding in traditional media forms along with work in the area of media convergence. Students must do coursework at both the practical and theoretical level. On the theory side, coursework will be offered in the areas of media criticism and theory, visual communications, and media history at the introductory and advanced levels. On the applied side, coursework will be offered in video and audio production, news writing and photojournalism, radio and television studio production, and public relations and advertising at the introductory and advanced levels. In the Convergent Media News Service courses, which form the most distinctive component of the program, students will actually produce and deliver a college news service in print, broadcasting (TV and streaming radio), and a multimedia online format. This hands-on experience will provide students an opportunity to create materials suitable for inclusion in a portfolio. Although not required, students will be strongly encouraged to do an internship sometime during their junior or senior years. Finally, the capstone Convergent Media Seminar will bring seniors together to consider the larger, theoretical issues related to the fast-paced changes in communications today and into the future. With a degree in this program, students will be well-positioned to go right into industry, where they will be able to compete in a number of different job markets, or to graduate school for advanced training.

For the B.A. in Communications, a minimum of 123 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in front of *Bulletin*)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES OR GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 12 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in front of *Bulletin*.)

**REQUIREMENTS FOR THE MAJOR:** 42 credits [\[1\]](#)

**PRESCRIBED COURSES** (12 credits)

COMM 100 GS(3), COMM 150 GA(3) (Sem: 1-3)

COMM 260W(3) (Sem: 2-3)

COMM 490(3) (Sem: 7-8)

**ADDITIONAL COURSES** (30 credits)

Select 12 credits from the following, including 6 credits at 400-level: COMM 001(1-3) [\[2\]](#), COMM 002(1-3) [\[2\]](#), COMM 215(3), COMM 241(3), COMM 242(3), COMM 251(3), COMM 269(3), COMM 270(3), COMM 296(1-6), COMM 337W(3), COMM 345(3), COMM 346(3), COMM 347(3), COMM 374(3) (Sem: 3-6)

COMM 360(3), COMM 374(3), COMM 415(3), COMM 421W(3), COMM 447(3), COMM 448(3), COMM 460W(3), COMM 461(3), COMM 462(3), COMM 467(3), COMM 468(3), COMM 469(3), COMM 471(3) (Sem: 5-8)

COMM 436(3), COMM 472(3), COMM 481(3), COMM 495(1-9), COMM 496(1-18) (Sem: 7-8)

Select 12 credits from the following, including 6 credits at 400-level: COMM 180 GS(3), COMM 205 US(3), COMM 250 GA(3), COMM 261 GH(3), COMM 292(3), COMM 296(1-6), COMM 294(1-3), COMM 320(3), COMM 331(3), COMM 370(3) (Sem: 3-6)

COMM 401(3), COMM 403(3), COMM 408(3), COMM 409(3), COMM 411(3), COMM 412(3), COMM 413W(3), COMM 454(3) (Sem: 5-8)

COMM 417(3), COMM 451(3), COMM 452(3), COMM 494(1-3), COMM 496(1-18) (Sem: 7-8)

Select 6 credits from COMM 470A(3), COMM 470B(3), COMM 470C(3)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[2]** A student may apply only 6 credits total of COMM 001 and COMM 002 towards the requirements of the Communications degree.

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-01-002

Review Date: 8/28/07

[Comments](#)

AL

## Communication

*Penn State Erie, The Behrend College (COMBA)*

The B.A. major in Communication offers a liberal arts background with emphasis in mass media studies and corporate communication. It prepares students for careers in corporate communication, print and broadcast journalism, multi-media and video production, and advertising/public relations by providing an interdisciplinary study of spoken, written, visual, and technically mediated messages.

For the B.A. degree in Communication, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(3 of these credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 6-18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 45 credits

**PRESCRIBED COURSES** (13 credits)[\[1\]](#)

CAS 202 GS(3), COMM 160(1), COMM 251(3) (Sem: 1-4)

CAS 204(3), COMM 315(3) (Sem: 5-6)

**ADDITIONAL COURSES** (14 credits)

COMM 242(3) or COMM 270(3) (Sem: 1-4)

CAS 211(3), CAS 212(3), CAS 213(3), CAS 215(3), CAS 252(3) or CAS 280W(3) (Sem: 5-6)

CAS 271 US;IL(3), or COMM 410 IL(3)

COMM 494(3) or COMM 495(3-6) (Sem: 7-8)

COMM 001(1-3), COMM 002(1-3), COMM 003(1-3), or COMM 004(1-3) (2 credits total) (Sem: 1-8)[\[1\]](#)

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

COMBA students are required to complete 18 credits of supporting coursework, from department approved list. Nine of these credits must be at the 400-level. In consultation with an academic advisor, students will select 9 credits from 2 of 3 Concentrations; 1. Communication Studies, 2. Strategic Communication, and 3. Journalism/Media Production.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-01-018

Review Date: 08/14/2012

UCA Revision #2: 7/27/07

BD

## Communications

*University College (COMCC): Penn State Beaver, Penn State Brandywine, Penn State Greater Allegheny, Penn State New Kensington*

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

With the rapid development of digital technologies over the last decade, the field of communications has seen unprecedented growth and convergence of medium in media both technologically and structurally. The communications degree program addresses strongly articulated employer requirements for the workplace through an integrated program model. The degree provides the basic theoretical foundations of the discipline, allows for appropriate branching outside the traditional curriculum, and permits a drawing from appropriate courses in the disciplines of information sciences and technology, communications, arts and sciences, English, and business.

The degree in communications provides two options for students who wish to develop their written and verbal skills in an effort to gain professional employment in fields such as public relations, publishing, speech writing, video and multimedia, production, and/or journalism.

**CORPORATE COMMUNICATIONS OPTION:** In extending traditional organizational communication and public relations to the digital age, this option prepares public relations specialists to compete in a global society. The program is also effective as preparation for e-commerce.

**JOURNALISM OPTION:** In today's workplace, journalism graduates are required to regularly engage rapidly converging media in their work. This option offers graduates a competitive advantage by complementing traditional options (newspaper, magazine, radio, TV) with convergent course work designed to prepare students for professional journalism in the digital age.

For a B.A. degree in Communications, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(6-10 credits of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 4-9 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 52-53 credits  
(This includes 6-10 credits of General Education courses: 0-6 credits of GS; 0-6 credits of GH; 0-4 credits GQ courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 25 credits

**PRESCRIBED COURSES** (13 credits)[\[1\]](#)

COMM 160(1) (Sem: 1-2)  
COMM 260W(3), COMM 270(3) (Sem: 3-4)  
COMM 494(3), COMM 495(3) (Sem: 7-8)

**ADDITIONAL COURSES** (12 credits)

COMM 100 GS(3) or COMM 110 GH(3) (Sem: 1-2)[\[1\]](#)  
Select 3 credits from the following (may double count with general education courses): AM ST 105 GH;US(3), ECON 102GS(3), ECON 104 GS(3), PHIL 103 GH(3), PSYCH 100 GS(3), SOC 001 GS(3), SOC 005 GS(3) (Sem: 1-2)  
CAS 201 GH(3)[\[1\]](#) or CAS 202 GS(3)[\[1\]](#) (Sem: 3-4)  
Select 3 credits from the following in Communications Research Methods/Theory (may not double count with option additional courses requirement): CAS 204(3), COMM 304(3), CAS 352(3), CAS 471 US;IL(3) (Sem: 5-6)

**REQUIREMENTS FOR THE OPTION:** 27-28 credits

**CORPORATE COMMUNICATIONS OPTION:** (27-28 credits)

**PRESCRIBED COURSES** (9 credits)[\[1\]](#)

CAS 252(3) (Sem: 3-4)  
COMM 370(3) (Sem: 5-6)  
COMM 471(3) (Sem: 7-8)

**ADDITIONAL COURSES** (18-19 credits)[\[1\]](#)

(Some courses in this category have prerequisites that are not required in the program. Credits applied may not double count with any other major or option requirements. Only 3 credits combined maximum or COMM 001, 002, 003 may apply. Only 3 credits maximum of COMM 297 may apply. Only 3 additional credits of COMM 495 may apply. STAT 200 may double count as GQ. Courses may double count toward IL and US requirements.)

MKTG 301(3) or MKTG 301W(3) (Sem: 5-6)  
Select 15 credits from the following (at least 3 credits must be at the 400 level):  
B A 100 GS(3) or B A 243(4); CAS 203 GS(3), CAS 204(3), CAS 214W(3), CAS 271 US;IL(3), CAS 352(3), CAS 404(3), CAS 452W(3), CAS 471 US;IL(3), COMM 001(1-3), COMM 002(1-3), COMM 003(1-3), COMM 205 US(3), COMM 241(3), COMM 251(3), COMM 282(3), COMM 292 GH(3), COMM 297(1-9), COMM 304(3), COMM 320(3), COMM 350 IL(3), COMM 403(3), COMM 409(3), COMM 410 IL(3), COMM 413W(3), COMM 462(3), COMM 468(3), COMM 473(3), COMM 476(3), COMM 495(3), COMM 496(3), ENGL 215(3), ENGL 420(3), MKTG 310(3), STAT 200 GQ(4) (Sem: 5-8)

**JOURNALISM OPTION:** (27-28 credits)

**PRESCRIBED COURSES** (12 credits)[\[1\]](#)

COMM 403(3), COMM 409(3), COMM 460W(3), ENGL 420(3) (Sem: 5-8)

**ADDITIONAL COURSES** (15-16 credits)[\[1\]](#)

(Some courses in this category have prerequisites that are not required in the program. Credits applied may not double count with any other major or option requirements. Only 6 credits combined maximum of COMM 001, 002, 003, may apply. Only 6 credits maximum of COMM 297 may apply. Only 3 additional credits of COMM 495 may apply. STAT 200 may double count as GQ. Courses may double count toward IL and US requirements.)

Select 15 credits from the following: CAS 203 GS(3), CAS 271 US;IL(3), CAS 404(3), CAS 471 US;IL(3), COMM 001(1), COMM 002(2-3), COMM 003(3), COMM 205 US(3), COMM 241(3), COMM 251(3), COMM 261 GH(3), COMM 269(3), COMM 282(3), COMM 292 GH(3), COMM 297(3), COMM 350(3), COMM 370, COMM 401(3), COMM 410 IL(3), COMM 413W(3), COMM 461(3), COMM 462(3), COMM 464(3), COMM 464W(3), COMM 467(3), COMM 468(3), COMM 470A(3), COMM 470B(3), COMM 470C(3), COMM 476(3), COMM 495(3), COMM 496(3), ENGL 215(3), STAT 200 GQ(4) (Sem: 3-8)

[\[1\]](#)A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Reviewed by the Department: Summer Session 2011

Blue Sheet Item #:40-01-087

Review Date: 8/16/2011



## Communications

*Capital College (COMCL)*

ASSOCIATE PROFESSOR CATHERINE RIOS, *Program Coordinator, Communications, School of Humanities*

Communications is an interdisciplinary program that combines practical, professional instruction with critical and cultural examinations of mass media. Our interdisciplinary and theoretical approach enables our students to understand the contextual relationships between contemporary media and ethics, history, drama, and art, as well as the mechanics of emerging information technologies. We feature small classes, a multidisciplinary faculty with real-world professional experience, high-technology laboratories, and an excellent location for media internships. This major prepares students for careers in areas such as public relations, journalism, graphic design, photography, new media, advertising, media production, and telecommunications. Because of our analytical approach, students can use the major to prepare for postgraduate studies.

### **Entry to Major Requirements:**

Entry to the Communications major requires a 2.00 or higher cumulative grade-point average.

For a B.Hum. degree in Communications, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

### **FIRST-YEAR SEMINAR:**

(Included in ELECTIVES)

### **UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### **WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

### **ELECTIVES:** 13-15 credits

(These elective credits may be applied to a minor in consultation with an academic adviser. The number of elective credits needed varies depending on whether the student participates in an internship.)

### **BACHELOR OF HUMANITIES DEGREE REQUIREMENTS:** 18 credits

(See description of Bachelor of Humanities Degree Requirements in this bulletin.)

### **REQUIREMENTS FOR THE MAJOR:** 42-44 credits

*At least 12 credits of Communications courses must be taken at the 400 level.*

### **PRESCRIBED COURSES** (6 credits) [\[1\]](#)

COMM 251(3), COMM 456(3) (Sem: 5-8)

### **ADDITIONAL COURSES** (18-20 credits) [\[1\]](#)

COMM 230W(3) or COMM 260W(3) (Sem: 3-8)

Select two courses (6-8 credits) in visual communication from the following: COMM 215(3), COMM 241(3), COMM 363(3), COMM 371(4), COMM 415(3), COMM 441(3), COMM 482(4) (Sem: 3-8)

Select 9 credits in Communications from the following: COMM 215(3), COMM 241(3), COMM 250(3), COMM 320(3), COMM 332(3), COMM 346(3), COMM 350(3), COMM 360(3), COMM 363(3), COMM 370(3), COMM 374(3), COMM 414(3), COMM 415(3), COMM 430(3), COMM 457(3), COMM 458(3), COMM 459(3), COMM 462(3), COMM 474(3), COMM 488(3), COMM 495(1-6) (Sem: 5-8)

### **SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 6 additional credits in Communications (Sem: 5-8)

Select 12 credits from the School of Humanities approved list in consultation with an academic adviser. These credits may be applied to a minor in support of the student's interests (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2007

Blue Sheet Item #: 35-07-130

Review Date: 6/12/07

CL

## Computer Science

*Capital College (COMP)*

PROFESSOR THANG N. BUI, *Program Chair, School of Science, Engineering, and Technology*

This program is designed to prepare students for employment as computer scientists in engineering, scientific, industrial, and business environments as software developers, programmers, and systems analysts. While most students will enter the job market directly upon graduation, graduate school in computer science or related areas is also an option. Selection of electives can be tailored for students pursuing this path.

The Computer Science major provides a solid foundation in the areas of systems programming, algorithm design, artificial intelligence, and engineering large software systems using state-of-the-art methodologies and programming languages.

Students may expect to: develop a solid foundation in mathematical studies relevant to computer science; master skills in computer science; enjoy possibilities for internships and part-time employment with local companies; and become problem solvers. These goals are consistent with the goals outlined by the Association of Computing Machinery.

For a B.S. degree in Computer Science, a minimum of 120 credits is required.

### Entry to Major Requirements:

Entry to the Computer Science major requires that the student has earned a C or better in the following courses: MATH 140 GQ(4), MATH 141 GQ(4), CMPSC 121(3), and CMPSC 122(3). A 2.00 or higher cumulative grade-point average is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2).*

### GENERAL EDUCATION: 45 credits

(13 of these 45 credits are included in REQUIREMENTS FOR THE MAJOR.)

(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

Incoming first-year students are required to complete a course with the suffix S, T, or X, or the PSU abbreviation.

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 88 credits

(This includes 13 credits of General Education courses: 3 credits of GWS courses, 6 credits of GQ courses, and 4 credits in GN courses.)

### PRESCRIBED COURSES (59 credits) [2]

MATH 140 GQ(4)[1], MATH 141 GQ(4)[1] (Sem: 1-2)

CMPSC 121 GQ(3)[1], PHYS 211 GN(4) (Sem: 2)

CMPSC 122(3)[1], CMPSC 360(3)[1] (Sem: 3)

CMPSC 221(3), CMPSC 312(3), MATH 220(2) (Sem: 4)

CMPSC 430(3), CMPSC 460(3), CMPSC 462(3), CMPSC 463(3), CMPSC 469(3), CMPSC 470(3), CMPSC 472(3), CMPSC 487W(3), CMPSC 488(3), ENGL 202C GWS(3) (Sem: 5-8)

### ADDITIONAL COURSES (18 credits)

MATH 318(3), STAT 301 GQ(3), or STAT 318(3) (Sem: 5-8)

Select 15 credits from the following (9 of which must have a CMPSC prefix): CMPSC 313(3), CMPSC 412(1.5), CMPSC 413(1.5), CMPSC 426(3), CMPSC 428(3), CMPSC 438(3), CMPSC 441(3), CMPSC 444(3), CMPSC 455(3), CMPSC 457(3), CMPSC 475(3), CMPSC 496(1-9), CMPSC 497(1-9), MATH 401(3), MATH 411(3), MATH 412(3), MATH 425(3), MATH 430(3), MATH 431(3), MATH 435(3), MATH 449(3), MATH 450(3), MATH 455(3), MATH 465(3), MATH 468(3), MATH 496(1-9), MATH 497(1-9) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (11 credits)

Select 6 credits of 300-400 level courses in consultation with an academic adviser and in support of the student's interests. (Sem: 5-8)

Select 5 credits of 100-400 level courses (Sem: 5-8)

## Integrated B.S./M.S. Program in Computer Science

The Computer Science program offers a limited number of academically superior Bachelor of Science candidates the opportunity to enroll in an integrated, continuous program of study leading to both the Bachelor of Science and the Master of Science in Computer Science. The ability to coordinate as well as concurrently pursue the two degree programs enables the student to earn the two degrees in five years.

Students in the IUG program must satisfy the degree requirements for both Bachelor of Science and Master of Science degrees. However, the total course load is reduced due to the maximum of 12 credits that can count towards both degrees. A minimum of 6 credits proposed to count for both degrees must be at the 500 level. Thesis credits may not be double counted. The first two years of the IUG program are identical to the first two years of the Bachelor of Science program. The third and fourth years of the IUG program differ from those of the Bachelor of Science program due to the courses that count toward the Master of Science degree requirements. Student performance will be monitored on an on-going basis. In addition, a formal evaluation of student academic performance will be performed when the student has completed 100 to 105 credits, which is at the end of the first semester of the senior year for a typical student in the program.

Students who have not maintained a 3.5 GPA in their Math and Computer Science courses will be put on probationary status with respect to the IUG program. Their ability to continue in the IUG program will be based on their academic performance in the last semester of their senior year. As part of the review in the senior year, students will be advised about the paper option and thesis option in the graduate program. Students intending to pursue the thesis option would be advised to do so only if they have been doing very well in the program and are in no danger of not being able to continue into the fifth year. A minimum grade point average of 3.5 must be earned in all math and computer science course work that is applied toward the graduate degree. This includes any courses that count toward both the undergraduate and graduate degrees, as well as all courses taken during the fifth year.

Students have the choice of receiving the B.S. degree at the end of the fourth year or waiting until the end of the fifth year to receive both degrees. Students who elect to receive the B.S. degree at the end of the fourth year will pay graduate tuition for courses taken in the fifth year; students opting to receive both degrees at the end of the fifth year will pay undergraduate tuition for all five years. Note that students who are awarded a graduate assistantship must elect to receive the B.S. degree at the end of the fourth year. If for any reason a student admitted to the IUG program is unable to complete the requirements for the Master of Science degree, the student will be permitted to receive the Bachelor of Science degree assuming all the undergraduate degree requirements have been satisfactorily completed. Students who successfully complete the courses listed in the recommended schedule will satisfy the requirements for the Bachelor of Science degree by the end of their fourth year.

## Admission Requirements

To initiate the application process, students must submit an Integrated Undergraduate-Graduate (IUG) Degree in Computer Science Application Form, a transcript, and a faculty recommendation, in addition to applying for admission to the Graduate School. A faculty adviser will help undergraduate candidates determine a sequence of courses that will prepare them for acceptance into the Integrated Undergraduate-Graduate (IUG) degree program. In order to apply for the IUG program, students must have completed a minimum of 45 credits. A typical student would apply after completing between 45 to 60 credits, that is, after the fourth semester and before the end of the fifth semester. For consideration for acceptance into the program, students must have completed and earned a minimum grade point average of 3.0 in the following Computer Science and Mathematics courses: MATH 140, MATH 141, MATH 220, CMPSC 121, CMPSC 122, and CMPSC 360. Student applications will be evaluated based on their overall academic performance, in addition to the above requirements. In all cases, admission to the program will be at the discretion of the Graduate Admissions Committee in Computer Science.

## Degree Requirements

Students in the IUG program must satisfy the degree requirements for both Bachelor of Science and Master of Science degrees. The total course load is reduced due to the maximum of 12 credits that can count towards both degrees. The minimum of 6 credits double-counted must be at the 500 level. Thesis credits may not be double counted.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[2]** Students must earn a 2.5 or higher grade point average in the following courses: CMPSC 221, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 470, CMPSC 472, CMPSC 487W, and CMPSC 488.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-032

Review Date: 04/09/2013

Retention and Transfer # 236 updated 5/22/13

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

CL

## Criminal Justice

*Capital College (CRIMJ): Penn State Harrisburg  
World Campus*

PROFESSOR SHAUN GABBIDON, *Program Chair, School of Public Affairs*

The Bachelor of Science degree program in Criminal Justice helps provide its graduates with the communications and analytical skills critical to succeed in criminal justice and related careers. Through an interdisciplinary approach to the problems of crime and society, the program also equips students to pursue graduate study in criminal justice or related disciplines, and educates students to become effective problem-solvers as professionals in the field of criminal justice.

The study of criminal justice is approached as an applied interdisciplinary science, teaching students both the theoretical and the practical aspects of crime control and the administration of justice. The Criminal Justice curriculum provides students with the opportunity and assistance to acquire knowledge of the roles of policing, courts, laws, and corrections as they relate to both the adult and juvenile justice system. Students also gain knowledge of the history, concepts, and critical issues related to the role of gender and race/ethnicity in the criminal justice system, victimology, and ethics in criminal justice. The curriculum further provides a theoretical foundation of the discipline, combined with a thorough understanding of the scientific method as it applies to criminal justice. This combination is expected to sharpen the students' talents of reasoning and judgment, qualities imperative to rational functioning in criminal justice and related professions.

For a B.S. degree in Criminal Justice, a minimum of 120 credits is required.

### Admission Requirements for Transfer Students:

Transfer applicants must have at least a 2.0 cumulative grade-point average (4.0 scale). The evaluation of prior college work is conducted on an individual basis by the Office of Enrollment Services at both campuses.

### Entry to Major Requirements:

The student must have a 2.00 cumulative grade-point average and an average of C (2.00) or better in any course already taken in the major.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(0-4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 13-17 credits

### REQUIREMENTS FOR THE MAJOR: 62 credits

(This includes 0-4 credits of General Education courses: 0-4 credits of GQ courses.)

### PRESCRIBED COURSES (25 credits)<sup>[1]</sup>

CRIMJ 012 GS(3), CRIMJ 100 GS(3), CRIMJ 210(3), CRIMJ 220(3), CRIMJ 230(3), CRIMJ 250W(3), CRIMJ 450W(4), CRIMJ 465(3) (Sem: 5-8)

(At least 9 credits in Additional Courses and/or Supporting Courses must be at the 400 level.)

### ADDITIONAL COURSES (16 credits)

Select 4 credits from CRIMJ 260(3)/PUBPL 320(4) or STAT 200 GQ(4) (Sem: 5-8)

Select 6 credits from the following: CRIMJ 201(3), CRIMJ 220(3), CRIMJ 221(3), CRIMJ 234(3), CRIMJ 241(3) (Sem: 5-8)

Select 6 credits from the following: CRIMJ 300H(3-6), CRIMJ 301H(3-6), CRIMJ 304(3), CRIMJ 389(3), CRIMJ 406(3), CRIMJ 407 US(3), CRIMJ 408(3), CRIMJ 410(3), CRIMJ 413(3), CRIMJ 414(3), CRIMJ 415(3), CRIMJ 421(3), CRIMJ 423 US(3), CRIMJ 425(3), CRIMJ 426(3-6), CRIMJ 430(3), CRIMJ 431(3), CRIMJ 441 US(3), CRIMJ 453 US(3), CRIMJ 460(3), CRIMJ 462(3), CRIMJ 489W(3), CRIMJ 495(3-12), CRIMJ 496(1-18), CRIMJ 497(1-9) (Sem: 5-8)

Or Select 12 credits from the following: CRIMJ 300H(3-6), CRIMJ 301H(3-6), CRIMJ 304(3), CRIMJ 389(3), CRIMJ 406(3), CRIMJ 407 US(3), CRIMJ 408(3), CRIMJ 410(3), CRIMJ 413(3), CRIMJ 414(3), CRIMJ 415(3), CRIMJ 421(3), CRIMJ 423 US(3), CRIMJ 425(3), CRIMJ 426(3-6), CRIMJ 430(3), CRIMJ 431(3), CRIMJ 441 US(3), CRIMJ 453 US(3), CRIMJ 460(3), CRIMJ 462(3), CRIMJ 489W(3), CRIMJ 495(3-12), CRIMJ 496(1-18), CRIMJ 497(1-9) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (21 credits)

Select 6 credits: 3 credits at the 200 level and 3 credits at the 300 and 400 level or 6 credits at the 300 and 400 level from the following: AFRAS, BE SC, PL SC, PUBPL, PSYCH, SOC (Sem: 5-8)

Select 15 credits in consultation with an academic adviser and in support of the student's interests. For information about specific courses in this area, contact the School of Public Affairs. (Sem: 5-8)

**[1]**A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-04-018

Review Date: 01/14/2014

UCA Revision #1: 8/20/06

UCA Revision #2: 7/27/07



## Communication Sciences and Disorders

University Park, College of Health and Human Development (CSD)

PROFESSOR GORDON W. BLOOD, *Head of the Department*

This major offers a comprehensive program of study for preparing students who want to become speech-language pathologists or audiologists. The curriculum is specifically designed for the sole purpose of preparing undergraduate students for graduate study in communication sciences and disorders or related areas. This occurs because state licensure laws and professional certifications require that a speech-language pathologist or audiologist must have a master's degree, pass a national test, and complete a clinical fellowship year.

Overall, the curriculum enables students to develop fundamental knowledge based on scientific principles, skills, and attitudes required for habilitating and rehabilitating persons of all ages with a wide range of speech, language, and hearing problems. Further, the curriculum allows students an opportunity to explore all aspects of communication sciences and disorders as well as elect courses of special interest.

The first two years of study emphasize general education and background study. The last two years of study emphasize normal and disordered aspects of speech, language, and hearing as well as professional management, concerns, and obligations. Clinical observation and diversity focused course work are included in the curriculum.

For the B.S. degree in Communication Sciences and Disorders, a minimum of 120 credits is required. (To satisfy graduation requirements, students must have completed 6 credits from courses offered in the college and outside the department in which the major is offered.)

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(6-10 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 27-30 credits

**REQUIREMENTS FOR THE MAJOR:** 54-55 credits

(This includes 6 -10 credits of General Education courses: 3-6 credits of GS courses; 3-4 credits of GQ courses.)

**PRESCRIBED COURSES** (42 credits)

CSD 146 US;IL(3) [\[1\]](#), CSD 230(3) [\[1\]](#), CSD 269 US;IL(3) [\[1\]](#), PSYCH 100 GS(3) (Sem: 1-4)

CSD 300 US;IL(3) [\[1\]](#), CSD 301(3) [\[1\]](#), CSD 311(3) [\[1\]](#), CSD 331(3) [\[1\]](#) (Sem: 3-6)

CSD 433(3) [\[1\]](#), CSD 442(3) [\[1\]](#), CSD 444(3) [\[1\]](#), CSD 451(3) [\[1\]](#), CSD 459W(3) [\[1\]](#), CSD 462 US;IL(3) [\[1\]](#) (Sem: 5-8)

**ADDITIONAL COURSES** (12-13 credits)

Select 3 credits from EDPSY 014(3) or PSYCH 261 GS(3) (Sem: 1-4)

Select 3 credits from HD FS 129 GS(3) or PSYCH 212 GS(3) (Sem: 1-4)

Select 3-4 credits from EDPSY 101 GQ(3), PSYCH 200 GQ(4), or STAT 200 GQ(4) (Sem: 3-4)

Select 3 credits from HD FS 229 GS(3), HD FS 249 GS(3), HD FS 315 US(3), HD FS 411(3), HD FS 418(3), HD FS 432(3), PSYCH 470(3), or PSYCH 471(3) (Sem: 3-6)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-077

Review Date: 11/19/2013

UCA Revision #1: 8/20/06

HH

## Creative Writing

*Penn State Erie, The Behrend College (CWRIT)*

The major will allow students to develop their writing skills through craft classes, literature classes, and writing workshops, in preparation for a variety of post-graduation options, from continuing on to M.F.A. degree programs to various positions in the publishing or editing fields. The program recognizes students must understand the relationship between tradition and individual talent, and provides a required sequence of literature courses designed to give students an overview of the historical literary traditions as well as the traditions of both modern and contemporary prose and poetry, options for additional literature courses (to broaden and/or deepen the nature of that relationship), and a course in creative writing theory. The program also includes a course which has students attending readings by Visiting Writers, and provides further professional development in a variety of ways. The program culminates in a capstone experience, the senior thesis, a collection of poetry or prose of publishable quality, with a critical preface to the collection demonstrating the students' ability to discuss the nature of their own writing and to place it in a literary context.

For the B.F.A. degree in Creative Writing, a minimum of 124 credits is required. A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 79 credits

**PRESCRIBED COURSES** (58 credits)

CMLIT 010 GH;IL(3)[\[1\]](#), ENGL 006(1-8)\*, ENGL 100(3)[\[1\]](#), ENGL 200(3)[\[1\]](#), ENGL 212(3)[\[1\]](#), ENGL 213(3)[\[1\]](#), ENGL 215(3)[\[1\]](#)

(Sem: 1-4)

ENGL 312(3)[\[1\]](#), ENGL 424(3)[\[1\]](#), ENGL 433(3)[\[1\]](#), ENGL 434(3)[\[1\]](#) (Sem: 4-6)

ENGL 420(3)[\[1\]](#), ENGL 436(3)[\[1\]](#), ENGL 437(3)[\[1\]](#), ENGL 439(3), ENGL 458(3)[\[1\]](#) (Sem: 5-8)

ENGL 401W(3)[\[1\]](#), ENGL 494(6)[\[1\]](#) (Sem: 7-8)

\*Students planning to major in creative writing should enroll in this course every semester (typically 8 semesters). A student is required to take this course a minimum of four times.

**ADDITIONAL COURSES** (21 credits)

Foreign Language Requirement (proficiency of 12 credits of coursework or equivalent)

Select one of the following: ENGL 443(3)[\[1\]](#) or ENGL 444(3)[\[1\]](#)

Students must complete one of the following genre sequences (6 credits):

ENGL 412(3)[\[1\]](#) and ENGL 422(3)[\[1\]](#) (Sem: 4-8)

ENGL 413(3)[\[1\]](#) and ENGL 423(3)[\[1\]](#) (Sem: 4-8)

ENGL 415(3)[\[1\]](#) and ENGL 425(3)[\[1\]](#) (Sem: 4-8)

In addition to the requirements above, for enrichment, students in the B.F.A. degree program have the opportunity of taking ENGL 209, Literary Magazine Practicum, and serving as genre editors or assistant editors on the staff of *Lake Effect*, the national literary journal published by the School of Humanities and Social Sciences at Penn State Erie, The Behrend College. This is a 1-credit course in which students may enroll for up to 8 credits over their time in the degree program.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-043

Review Date: 04/10/2012

BD

## Electrical Engineering

University Park, College of Engineering (E E)

PROFESSOR KULTEGIN AYDIN, *Head of the Department of Electrical Engineering*

Electrical Engineering (E E) is one of the broadest of all engineering majors and is much more than just building electrical circuits. Electrical engineering is the application of electronics, electrical science and technology, and computer systems to the needs of society. An electrical engineer is responsible for designing and integrating electronic/electrical systems in diverse industries such as defense, communications, transportation, manufacturing, health care, construction, and entertainment.

The mission of our undergraduate program is to provide a high-quality education in electrical engineering for our students and to instill in them the attitudes, values, and vision that will prepare them for lifetimes of success, continued learning, and leadership in their chosen careers. A combination of required and elective courses ensures that students acquire a broad knowledge base in electrical circuits, digital systems, electronic devices, electromagnetics, and linear systems, as well as expertise in one or more areas of specialization. Additional problem-solving skills and practical experience are developed through design projects and laboratory assignments, which also provide opportunities for developing team-building and technical communication skills.

### Program Educational Objectives:

The BSEE Program provides undergraduates with a broad technical education important for employment in the private or public sector, and it teaches them fundamentals, current issues, and creative problem solving skills essential for future years of learning. Several years after earning their degrees, our graduates should be able to accomplish the following:

1. Electrical engineering practice in technical assignments such as design, product development, research, manufacturing, consulting, testing, sales, and management;
2. Participation and leadership on teams comprised of individuals with diverse professional and cultural backgrounds;
3. Continued learning and professional development through such activities as graduate school, distance education, professional training, and membership in professional societies.

### Program Outcomes (Student Outcomes):

At the time of graduation, our students are expected to have attained the following:

1. A fundamental background in mathematics, the natural sciences, and computer programming necessary for further study in electrical engineering;
2. A broad knowledge base in both the quantitative and physical aspects of electrical engineering;
3. The design skills necessary for electrical engineering practice;
4. An ability to apply the core electrical engineering knowledge base to the solution of more advanced engineering problems;
5. Development of interpersonal and communication skills in a professional context;
6. The perspective of electrical engineering as a profession.

**ENTRANCE TO MAJOR** -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHSY 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Electrical Engineering, a minimum of 130 credits is required. This baccalaureate program in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 112-113 credits  
(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

**PRESCRIBED COURSES** (68 credits)  
CHEM 110 GN(3) [1], CHEM 111 GN(1), EDSGN 100(3), MATH 140 GQ(4) [1], MATH 141 GQ(4) [1], PHYS 211 GN(4) [1], PHYS 212 GN(4) (Sem: 1-2)  
E E 200(3), E E 210(4) [1], E E 310(4) [1], MATH 220 GQ(2), MATH 230(4), MATH 250(3), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 3-4)  
E E 300W(3), E E 330(4) [1], E E 340(4) [1], E E 350(4) [1] (Sem: 5-6)  
E E 403W(3), ENGL 202C GWS(3) (Sem: 7-8)

**ADDITIONAL COURSES** (20-21 credits)  
Select 1 credit of First-Year Seminar (Sem: 1-2)  
ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
CMPSC 201 GQ(3) or CMPSC 121 GQ(3) (Sem: 1-2)  
CMPEN 270(4) [1] or CMPEN 271(3) [1] and CMPEN 275(1) (Sem: 3-4)  
CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)  
ECON 102 GS(3) or ECON 104 GS(3) (Sem: 3-4)  
Select 3-4 credits from I E 424(3), PHYS 410(3-4), STAT 401(3), STAT 414(3), or STAT 418(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (24 credits)  
Select 6 credits from program-approved list of 300-level courses (Sem: 5-6)  
Select 3 credits from program-approved lists of 300-level or 400-level courses (Sem: 5-6)  
Select 6 credits from program-approved list of 400-level courses (Sem: 7-8)  
Select 3 credits of engineering/science courses from a program-approved list (Sem: 7-8)  
Select 6 additional credits, which may include up to 6 credits of ROTC, up to 6 co-op credits, and others from a program-approved list (Sem: 7-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-027

Review Date: 01/10/2012

R & T: Approved 5/24/2013

UCA Revision #1: 8/16/06

UCA Revision #2: 7/27/07

Accreditation statement updated, per COE: 8/15/11

EN

## Electrical Engineering Technology

Capital College (E E T)  
University College, Penn State Wilkes-Barre

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

AB SHAFAYE, *Program Chair, School of Science, Engineering, and Technology*

The Bachelor of Science graduate with a major in Electrical Engineering Technology (E E T) is an engineering technologist who can bridge the gap between scientific advancement and practical electrical devices and systems. Research in all fields of electrical engineering has produced an abundance of new knowledge in recent years. Many of these advanced scientific achievements have been unused due to the shortage of engineering technologists specifically educated to convert scientific information into practical devices and systems.

The E E T major helps equip students with the various skills necessary to adapt new scientific knowledge to new products. Technical selections are offered in the senior year to provide some degree of specialization, but all graduates receive a well-rounded basic education in electrical and electronic design principles. The strengths of the program include: an applied hands-on program; extensive laboratory experience; promising job placement; and accreditation by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone 410-347-7700, Web at [www.abet.org](http://www.abet.org).

E E T graduates who wish to continue their professional development can take the Fundamentals of Engineering examination in Pennsylvania, a prerequisite for taking the Professional Engineering examination.

For a B.S. degree in Electrical Engineering Technology, a minimum of 128 credits is required.

### Admission Requirements for Transfer Students:

Applicants must have earned a high school diploma or equivalent and have attempted at least 18 semester credits at a regionally accredited college or university with at least a 2.0 cumulative grade-point average (4.0 scale). The evaluation of prior college work is done on an individual basis by the Office of Enrollment Services at Penn State Harrisburg.

### Entry to Major Requirements:

Entry to the Electrical Engineering Technology major requires a 2.00 or higher cumulative grade-point average.

### Re-enrollment:

Associate degree students should file a re-enrollment form during the final semester of their associate degree. Students re-enrolling from an associate's degree into the bachelor's degree should run a degree audit from eLion, using the E E T major code, to determine their curriculum requirements. Similar considerations apply to students changing majors from programs in science or engineering.

Students are directed to <http://www.psu.edu/bulletins/bluebook/gened/> for an explanation of the Penn State General Education requirements.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 5-16 credits

### REQUIREMENTS FOR THE MAJOR: 85-96 credits

(This includes 18 credits of General Education courses: 3 credits of GWS courses; 9 credits of GN courses; 6 credits of GQ courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 59-70 credits

#### PRESCRIBED COURSES (27 credits)

CHEM 110 GN(3), CHEM 111 GN(1), MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-6)  
EET 312(4) [11](#), EET 331(4) [11](#), ENGL 202C GWS(3) (Sem: 5-6)  
EET 419(1), EET 420W(3) [11](#) (Sem: 7-8)

#### ADDITIONAL COURSES (32-43 credits)

Select 2\*-3 credits from: EG T 101(1) and EG T 102(1) or EDSGN 100(3) (Sem: 1-2)  
Select 3 credits from: CMPSC 101 GQ(3), CMPSC 121 GQ(3) or CMPSC 201 GQ(3) (Sem: 1-5)

Select 6\*-8 credits from sequence a or b:

a.) PHYS 150 GN(3) and PHYS 151 GN(3) (Sem: 3-4)

b.) PHYS 211 GN(4) and PHYS 212 GN(4) (Sem: 1-4)

Select 3-4 credits from MATH 230(4), MATH 250(3), MATH 336(3), MATH 408(3), MATH 411(3), MATH 444(3), MATH 446(3), or STAT 200 GQ(4) (Sem: 5-6)

Select 5-8\* credits from course sequence a, b, or c:

a.) EET 114(4) and EET 311(4) [11](#) (Sem: 1-6)

b.) E E 210(4) [11](#) and E E 314(3) [11](#) (Sem: 3-6)

c.) E E 315(5) [11](#) (Sem: 5-6)

Select 4\* credits from: CMPEN 271(3) and CMPEN 275(1) or CMPET 117(3) and CMPET 120(1) (Sem: 1-4)

Select 3\*-4 credits from: CMPEH 472(4) or CMPET 211(3) (Sem: 3-6)

Select 3\*-4 credits from: EET 205(1) and EET 210(2) or E E 310(4) (Sem: 3-6)

Select 3-5\* credits from: EET 213W(5) or E E 485(3) (Sem: 3-6)

\*Courses required by PSU 2 EET programs

### REQUIREMENTS FOR THE OPTION: 26 credits

#### COMPUTER ENGINEERING TECHNOLOGY OPTION: (26 credits)

##### PRESCRIBED COURSES (11 credits)

CMPEN 431(3), CMPET 403(4), CMPET 401(3), CMPET 402(1) (Sem: 5-8)

##### ADDITIONAL COURSES (15 credits)

2nd Programming Elective: Select 3 credits from: CMPSC 305(3), CMPSC 402(3), CMPSC 422(3), CMPSC 122(3) (Sem: 7-8)

Applications Elective: Select 4 credits of technical electives from: CMPET 412(4), EET 423(4), EET 456(4) (Sem: 7-8)

CMPET Technical Electives: Select 8 credits from CMPEH 449(3), E E 341(3), E E 418(3), E E 453(3), EET 402(4), EET 408(4), EET 413(4), EET 414(4), EET 431(4), EET 433(4), EET 478(4), ET 496(1) (Sem: 7-8)

### GENERAL ELECTRICAL ENGINEERING TECHNOLOGY OPTION: (26 credits)

#### ADDITIONAL COURSES (26 credits)

System Elective: Select 8 credits of technical electives from: EET 408(4), EET 409(4), EET 433(4) (Sem: 7-8)

Electronics Elective: Select 4 credits from: EET 402(4), EET 423(4), EET 431(4) (Sem: 7-8)

GEET Technical Electives: Select 8 credits of GEET technical electives from: CMPEH 449(3), CMPET 401(3), CMPET 402(1), CMPEN 431(3), E E 418(3), E E 453(3), E E 458(3), EET 401(4), CMPET 403(3), EET 410(4), CMPET 412(4), EET 413(4), EET 414(4), EET 456(4), EET 478(4), ET 496(1) (Sem: 7-8)

Select 6 credits from any previous elective list plus CMPSC 452(3), E MCH 211(3), E MCH 212(3), M E 201(3) (Sem: 6-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-06-217

Review Date: 2/20/08

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

CL

## Environmental Resource Management

University Park, College of Agricultural Sciences (E R M)

PROFESSOR ROBERT D. SHANNON, *Program Coordinator*

Environmental Resource Management (E R M) is an interdisciplinary, science-based major designed to prepare students to understand and critically analyze environmental problems ranging from local to global in scale, identify solutions, and communicate ideas related to environmental and natural resource issues. The E R M major also focuses on human interactions with the environment by emphasizing the management of environmental resources. The E R M curriculum begins with foundation course work in the biological, physical and social sciences. Later courses apply these principles to the management and sustainability of the environment, and include environmental problem-solving, ecosystem management and environmental law. The third tier, offered through three options, affords considerable flexibility and the opportunity to specialize.

The major prepares students for employment in a variety of environmental positions, including environmental consulting, public agencies, and nonprofit organizations. Students are also prepared for graduate school or law school upon graduation. Realizing the wide range of career possibilities requiring diverse types of academic preparation, three options of study are available: the Environmental Science Option, the Soil Science Option and the Water Science Option.

In the Environmental Science Option, students select a minor or choose a group of courses (totaling at least 18 credits) that focus on a particular aspect of the environment. Examples include watersheds and water resources, climate change impacts, geographic information systems, energy and air pollution, sustainability leadership, ecology, environmental engineering, wildlife and fisheries science, and others. Courses and minors from across the University can be selected to develop a student's area of specialization in the Environmental Sciences Option.

In the Soil Science Option, students take courses in soil composition and properties, conservation, nutrient management, soil ecology, GIS and mapping. This option also allows the student to choose courses that support their strengths and interests. The option prepares students for positions with private, public, and non-profit firms that evaluate soils for various uses, delineate wetlands, perform environmental assessments, and identify and remediate contaminated soils.

In the Water Science Option, students take courses in hydrologic measurements, wetland conservation, stream restoration, stream and lake ecology, watershed management, and land use practices to control runoff and erosion. The option also prepares students for positions with private, public, and non-profit firms that evaluate water quality and quantity issues, delineate wetlands, perform environmental and hydrological assessments, and identify and remediate contaminated aquatic resources.

For the B.S. degree in Environmental Resource Management, a minimum of 121 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(27-30 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:** 1-3 credits

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-7 credits

**REQUIREMENTS FOR THE MAJOR:** 93-108 credits

(This includes 27-30 credits of General Education courses; 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 47-48 credits

**PRESCRIBED COURSES** (33 credits)

CAS 100 GWS(3), ENGL 015 GWS(3), E R M 151(1)[\[11\]](#) (Sem: 1-2)  
CHEM 110 GN(3)[\[11\]](#), CHEM 111 GN(1)[\[11\]](#), CHEM 112 GN(3), CHEM 202(3) (Sem: 1-4)  
SOILS 101 GN(3)[\[11\]](#), SOILS 102(1) (Sem: 3-4)  
A S M 327(3)[\[11\]](#), ENGL 202C GWS(3), E R M 300(3)[\[11\]](#), E R M 411(3) (Sem: 5-8)

**ADDITIONAL COURSES** (14-15 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)  
AG BM 101 GS(3) or ECON 102 GS(3) (Sem: 1-2)  
PHYS 211 GN(4) or PHYS 250 GN(4); STAT 200 GQ(4) or STAT 240 GQ(3) or STAT 250 GQ(3) (Sem: 3-4)

**REQUIREMENTS FOR THE OPTION:** 46-60 credits

**ENVIRONMENTAL SCIENCE OPTION:** (58-60 credits)

**PRESCRIBED COURSES** (20 credits)

BIOL 110 GN(4)[\[11\]](#), BIOL 220W GN(4), GEOG 160 GS(3) (Sem: 3-4)  
CED 201(3) (Sem: 5-6)  
E R M 412(3)[\[11\]](#), E R M 413W(3)[\[11\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (14-16 credits)

MATH 111 GQ(2) or MATH 141 GQ(4) (Sem: 1-2)  
AG BM 200(3) or E R M 402(3) or MGMT 215(3) (Sem: 3-8)  
GEOSC 001(3) or GEOSC 303(3) (Sem: 5-6)  
Select 6 credits from any 400-level E R M courses (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (24 credits)

Select 3 credits in communications/entrepreneurship/leadership (Sem: 3-8)  
Select 3 credits in ecology (Sem: 5-6)  
Select 18 credits of specialization/minor courses in consultation with adviser (Sem: 5-8)

**SOIL SCIENCE OPTION:** (45-46 credits)

**PRESCRIBED COURSES** (12 credits)

SOILS 403(2), SOILS 412W(3), SOILS 416(4)[\[11\]](#) (Sem: 3-6)  
SOILS 450(3) (Sem: 5-8)

**ADDITIONAL COURSES** (18-20 credits)

BIOL 110 GN(4) or BIOL 127 GN(3) (Sem: 1-4)  
GEOSC 001(3) or GEOSC 020 GN(3) (Sem: 1-4)  
Select 3-4 credits from AGRO 028(3), BIOL 220W GN(4), FOR 203(3), HORT 101 GN(3), TURF 235(3) (Sem: 3-6)  
Select 3 credits from E R M 433(3), E R M 440(3), SOILS 402(3), SOILS 419(3), SOILS 420(3) (Sem: 3-8)  
Select 3 credits from SOILS 401(3), SOILS 405(3), GEOSC 452(3) (Sem: 3-8)  
Select 3 credits from E R M 444(3), FOR 475(3), SOILS 404(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 18 credits of supporting courses in consultation with adviser. (Sem: 5-8)

**WATER SCIENCE OPTION:** (58-60 credits)

**PRESCRIBED COURSES** (35 credits)

BIOL 110 GN(4) [\[1\]](#), BIOL 220W GN(4), GEOG 160 GS(3) (Sem: 3-4)

CED 201(3), E R M/A S M 309(3) (Sem: 5-6)

E R M 412(3) [\[1\]](#), E R M 413W(3) [\[1\]](#), E R M/W F S 435(3), E R M 447(3), E R M 450(3), FOR 470(3) (Sem: 5-8)

**ADDITIONAL COURSES** (8-10 credits)

MATH 111 GQ(2) or MATH 141 GQ(4) (Sem: 1-2)

SOILS 401(3), SOILS 405(3) or GEOSC 452(3) (Sem: 5-8)

C E 370(3), E R M 440(3), ENT 425(3), FOR 303(3), FOR 403(3), W F S 410(3), or W F S 422(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 3 credits in communications/entrepreneurship/leadership (Sem: 3-8)

Select 12 credits of supporting courses in consultation with adviser (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Lasted Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-004

Review Date: 04/08/2014

UCA Revision #1: 8/4/06

AG



## Engineering Science

University Park, College of Engineering (E SC)

PROFESSOR JUDITH A. TODD, *Department Head; P. B. Breneman Chair and Professor of Engineering Science and Mechanics*

Engineering Science is a multidisciplinary honors program that emphasizes enhanced understanding and integrated application of engineering, scientific, and mathematical principles. The program is unique because it provides a broad foundation in the sciences and associated mathematics that underlie engineering and provides students the opportunity to obtain a depth of knowledge in an area of their choosing through technical electives and a research and design honors thesis. The curriculum is designed for students who seek to link the engineering disciplines with science. In addition to taking core courses in mathematics, physics and chemistry - (and biology for students in premedicine), students study thermodynamics, heat transfer, electromagnetics, solid and fluid mechanics, electrical devices, materials science, and topics selected as foundational and technical electives. During the junior year, students investigate a variety of research fields and identify a topic for their honor thesis research and design project. During the senior year, all students complete a capstone project on their chosen topic by writing a thesis that applies the scientific principles of research, design and analysis to engineering. Focus areas of study include, but are not limited to: electrical, mechanical, civil, biomedical, and materials engineering and are expected to be interdisciplinary. Hence, Engineering Science students achieve both depth and breadth in engineering and science, are able to function across disciplines, and graduate well prepared for advanced studies as well as professional employment.

The specific program objectives are tied to the mission of the program as described above. They target the major outcomes expected of Engineering Science students and are flexible and readily adaptable to meet changing constituent needs.

### Program Educational Objectives

The expected accomplishments of Engineering Science graduates in the first several years following graduation are:

1. participate in lifelong learning activities including, but not limited to, masters, doctorate, medical, and law degrees, continuing education, leadership development, management training, and global involvement/awareness.
2. engage in practice in a wide variety of fields including, but not limited to, electrical systems, electronics, mechanical systems, materials development, forensics, biomaterials, medicine, law, and business.
3. research, develop, design and/or utilize new products, processes, materials, devices, systems, and/or tools.
4. communicate findings and best practices at conferences and meetings, and to the general public through presentations, technical publications (journals, reports, memoranda), and patents.
5. use state-of-the-art tools for the benefit of society.
6. participate in and promote the values of diversity and sustainability in society; and
7. encourage and foster future generations of engineers through mentoring, service, and outreach.

### Program Outcomes (Student Outcomes)

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multidisciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) a recognition of the need for, and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Enrollment is limited to students who have demonstrated that they can benefit from the advanced courses of the curriculum; therefore a minimum grade-point average of 3.0 is required. Qualified students can participate in the integrated undergraduate graduate (IUG) program to streamline the process of earning B.S. and M.S. degrees.

**ENTRANCE TO MAJOR** -- In addition to the minimum grade-point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHYS 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*Since Engineering Science is an honors program, admission is limited to students who attain a cumulative GPA of at least 3.0 by the end of the entrance to major semester. In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the non-Honors B.S. degree in Engineering Science, 131 credits and a 2.50 grade-point average are required. The Honors degree requires the same number of total credits but a minimum of 16 honors Jr./Sr. year credits and a higher grad-point average as determined by the faculty. The baccalaureate program in Engineering Science is accredited by the Engineering Accreditation Commission of ABET, Inc. [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

### GENERAL EDUCATION: 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 113 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

### PRESCRIBED COURSES (65 credits)

CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1), EDSCN 100(3), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), PHYS 211 GN(4) [\[1\]](#) (Sem: 1-2)  
MATH 220 GQ(2-3), MATH 230(4), MATH 251(4), M E 302(4), PHYS 212 GN(4), PHYS 214 GN(2) (Sem: 3-4)  
E E 210H(4), E SC 312(3), E SC 407H(3) [\[1\]](#), E SC 409H(1), E SC 414M(3) [\[1\]](#), E SC 433H(1) (Sem: 5-6)  
E SC 404H(3) [\[1\]](#), E SC 410H(3), E SC 411H(2), ENGL 202C GWS(3) (Sem: 7-8)

### ADDITIONAL COURSES (21 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)  
ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
E SC 261M(3) or CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 1-2)  
ECON 102 GS(3), ECON 104 GS(3), or ECON 014 GS(3) (Sem: 1-2)  
CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)  
E MCH 210H(5) [\[1\]](#) or E MCH 210(5) [\[1\]](#); E MCH 212H(3) [\[1\]](#) or E MCH 212(3) [\[1\]](#) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (27 credits)

Select 15 credits from the department Foundational Elective List (Sem:5-6)

Select 12 credits from the department Technical Elective List (Students may apply 3 credits of ROTC or 3 credits of co-op experience.) (Sem: 7-8)

**Integrated Undergraduate/Graduate Study - B.S. Engineering Science - M.S. Engineering Science and Mechanics**

The flexibility and strength in fundamentals of the Engineering Science curriculum provides an opportunity for Engineering Science undergraduate students to participate in the ESM Integrated Undergraduate/Graduate (IUG) program. Application for IUG status may be made in the fifth or subsequent semesters.

The IUG program promotes the interchange of ideas across all branches of the scientific and engineering disciplines from both theoretical and experimental perspectives. Students in the composite degree program are expected to pursue interdisciplinary studies in areas that encompass nano- and bionanotechnology, advanced materials, electromagnetic, mechanics, microelectronics, nanoelectronics and bioelectronics, neural engineering, photonics and photovoltaics (among others) and they are expected to embrace multidisciplinary perspectives across departmental, College, and University boundaries.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2006 (E SC); Spring Semester 2012 (Integrated B.S./E.Sc.-M.S./E.Mch. & Integrated B.S./E.Sc.-M.S./E.Sc. AND Program Description)

Blue Sheet Item #: 42-04-021 (E SC); 33-04-176, 40-05-034 (Add Integrated B.S./E.Sc.-M.S./E.Mch. & Integrated B.S./E.Sc.-M.S./E. Sc.)

Last Revised by the Department: Fall Semester 2013

Review Date: 01/14/2014

R & T: Approved 5/24/2013

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

EN

Accreditation statement updated, per COE: 2/27/13

## Asian Studies

*University Park, College of the Liberal Arts (ASIA)*

PROFESSOR ERIC HAYOT, *Director of Asian Studies, in charge*

This is an interdisciplinary major, with a strong disciplinary core, for students who want a basic understanding of the background and contemporary aspect of East, Southeast, or South Asia. Students are expected to focus their coursework largely on one major Asian area.

For the B.A. degree in Asian Studies, a minimum of 124 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 24 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 31 credits<sup>[1]</sup>

**PRESCRIBED COURSES** (6 credits)

ASIA 100 GH;IL(3) (Sem: 1-4)

ASIA 405Y IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (7 credits)

Select 4 credits beyond the 12-credit level of proficiency in an Asian language:

CHNS 110(4), JAPNS 110 IL(4), or the equivalent (Sem: 3-6)

Select 3 credits from the following: HIST 174 GH;IL(3), HIST 175 GH;IL(3), or HIST 176 GH;IL(3) (Sem 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 18 credits from a department list with at least 12 credits of which are to be at the 400-level; independent study credits selected in consultation with adviser; additional further credits in language studies may be permitted up to 6 credits (credit received for a specific course will not count in more than one category) (Sem: 1-8)

Courses not on the list that deal substantially with some aspect of Asia in any discipline may also count, pending approval of an adviser.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2009

Blue Sheet Item #: 37-06-054

Review Date: 4/14/09

UCA Revision #2: 7/27/07

LA

## Earth Science and Policy

University Park, College of Earth and Mineral Sciences (EARSP)

PROFESSOR PETER J. HEANEY, Associate Head for Undergraduate Programs

Global climate change and environmental change on a more local scale present major challenges for our future. The solution to these problems requires people with a solid scientific understanding of natural earth/environmental systems, and also an understanding of the social, economic, and political dimensions of these problems. This major is intended to bridge the gap between the physical, natural sciences (the earth sciences) and the social sciences, with the understanding that intelligent, effective solutions to environmental problems will require people who grasp the scientific and social dimensions of environmental problems. This major is intended to produce graduates who not only grasp these problems, but who can also apply a wide array of quantitative tools and fundamental principles to generate practical solutions.

Students develop a sense of community through a set of common upper level courses and they gain practical experience through a mandatory internship course. A variety of options are offered to enable greater depth of study in aspects of science and policy related to water and land use, climate change, and energy; a general option is also available.

This major will provide an excellent preparation for careers in environmental law, environmental consulting, and non-profit organizations engaged in the science and policy of environmental issues. This major will also serve as a strong basis for postgraduate studies in environmental science and policy.

**WATER AND LAND USE OPTION:** This option is intended to develop a focus on the role of water and land in environmental issues, encompassing scientific, economic, and policy dimensions of groundwater and surface water resources and of land use. The Water and Land Use option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to enter the work force.

**CLIMATE CHANGE OPTION:** This option is intended for students who want to focus on the science and policy related to climate change, including the scientific basis for identifying, understanding, and potentially mitigating climate change. The option also develops a basis for understanding the economic costs and risks related to climate change, as well as the political dimensions. This option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to enter the work force.

**ENERGY OPTION:** This option is designed to provide a focus on aspects of Earth science and policy related to energy, including the origins of energy and mineral resources, the future of these resources, and the alternatives for meeting future needs. This option also provides a focus on the economics of energy systems and the political dimensions of the challenges related to our energy future. The Energy option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to enter the work force.

**GENERAL OPTION:** This option is intended for students who desire a broad sampling of Earth science as it relates to policy or those who desire to design their own focus within Earth science in consultation with an academic adviser. The General option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to enter the work force.

For the B.S. degree in Earth Science and Policy, a minimum of 120 credits is required.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 45 credits (33 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR) (See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:** (Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:** (Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:** (Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-2 credits

**REQUIREMENTS FOR THE MAJOR:** 106-108 credits (This includes 33 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 9 credits of GWS courses; 3 credits of GH courses; 6 credits of GS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 79-81 credits

### **PRESCRIBED COURSES** (49 credits)

BIOL 110 GN(4), CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), ECON 102 GS(3), EM SC 100S GWS(3)[71], GEOG 126 GS;US;IL(3), PHIL118 GH(3), PL SC 001 GS(3), STAT 200 GQ(4) (Sem: 1-4)  
EARTH 202(3)[11] (Sem: 6)  
E B F 472(3) [11], GEOG 364(3), GEOSC 450(3)[11] (Sem: 6-8)  
EARTH 400(3), EARTH 495(3) (Sem: 7-8)

### **ADDITIONAL COURSES** (30-32 credits)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
MATH 083 GQ(4)[11] or MATH 110 GQ(4)[11] or MATH 140 GQ(4)[11] (Sem: 1-2)  
GEOSC 001(3) or GEOSC 020 GN(3) (Sem: 1-4)  
MATH 111 GQ(2) or MATH 141 GQ(4) (Sem: 2-3)  
PHYS 211(4) or PHYS 250(4) (Sem: 2-3)  
CAS 100 GWS(3) or ENGL 202C GWS(3) (Sem: 2-5)  
CED 201(3) or E B F 200 GS(3) (Sem: 2-5)  
Select 8 credits from: GEOSC 201(4)[11], GEOSC 202(4)[11], GEOSC 203(4)[11] (Sem: 3-6)

**REQUIREMENTS FOR THE OPTION:** 27 credits

**WATER AND LAND USE OPTION:** (27 credits)

### **ADDITIONAL COURSES** (27 credits) Must include one W course

Select 3 credits from: EARTH 111 GN;US(3), GEOG 160 GS(3), SOILS 101 GN(3) (Sem: 2-5)  
Select 12 credits from: E R M 300(3), FOR 455(3), FOR 470(3), GEOG 363(3), GEOSC 340(3), GEOSC 402Y IL(3), GEOSC 409W(3), GEOSC 413W(3), GEOSC 452(3), GEOSC 483(3), SOILS 415(3), SOILS 422(3), SOILS 450(3) (Sem: 3-8)  
Select a total of 12 credits from the following:  
3 to 6 credits from: CED 429(3), CED 431W(3), ECON 302 GS(3) (Sem: 4-8)  
6 to 9 credits from: CED 309(3), CED 409(3), CED 410(3), GEOG 430(3), GEOG 431(3), GEOG 434(3), GEOG 439(3), PL SC/S T S 460(3), PUBPL 481(3) (Sem: 4-8)

**CLIMATE CHANGE OPTION:** (27 credits)

### **ADDITIONAL COURSES:** (27 credits) Must include one W course

Select 3 credits from: EARTH 002 GN(3), GEOG 110 GN(3), METEO 003 GN(3), METEO 004 GN(3) (Sem: 2-5)  
Select 12 credits from: GEOG 310W(3), GEOG 412W(3), GEOSC 320(3), GEOSC/METEO 475W(3), METEO 201(3), METEO 466(3) (Sem: 4-8)  
Select a total of 12 credits from the following:  
3 to 6 credits from: CED 429(3), CED 431W(3), ECON 302(3) (Sem: 4-8)  
6 to 9 credits from: CED 230(3), CED 410(3), EM SC/S T S/SOC 420(3), GEOG 430(3), GEOG 434(3), GEOG 438W(3), PL SC/S T S 460(3), S T S 201(3) (Sem: 4-8)

4-8)

**ENERGY OPTION:** (27 credits)**ADDITIONAL COURSES:** (27 credits) Must include one W course

Select 3 credits from: EARTH 100 GN(3), EGEE 101 GN(3), EGEE 102 GN(3) (Sem: 2-5)

Select 9 credits from: EGEE 302(3), EGEE 401(3), EGEE 412(3), GEOSC 451(3), GEOSC 454(3), GEOSC 483(3) (Sem: 4-8)

Select 3 credits from: E B F 484(3), GEOG 424 US:IL(3) (Sem: 4-8)

Select 12 credits from: CED 230(3), CED 410(3), EM SC/S T S/SOC 420(3), GEOG 430(3), GEOG 434(3), GEOG 438W(3), GEOG 439(3), PL SC/S T S 460(3), S T S 201 GN(3) (Sem: 4-8)

**GENERAL OPTION:** (27 credits)**ADDITIONAL COURSES:** (27 credits) Must include one W course

Select 3 credits from: EARTH 002 GN(3), EARTH 100 GN(3), EARTH 111 GN:US(3), EGEE 101 GN(3), GEOG 010 GN (3), GEOG 030 GS(3), GEOG 160 GS(3), METEO 003 GN(3), METEO 004 GN(3), SOILS 101 GN(3) (Sem: 2-5)

Select 12 credits from: E R M 300(3), EGEE 302(3), EGEE 412(3), FOR 455(3), FOR 470(3), GEOG 310W(3), GEOG 363(3), GEOG 412W(3), GEOSC 320(3), GEOSC 340(3), GEOSC 402Y IL(3), GEOSC 409W(3), GEOSC 413W(3), GEOSC 451(3), GEOSC 452(3), GEOSC 454(3), GEOSC 475W(3), GEOSC 483(3), METEO 466(3), SOILS 415(3), SOILS 422(3), SOILS 450(3) (Sem: 4-8)

Select a total of 12 credits from the following:

3 to 6 credits from: CED 429(3), CED 431W(3), E B F 484(3), ECON 302 GS(3), GEOG 424 US:IL(3), (Sem: 4-8)

6 to 9 credits from: CED 230(3), CED 309(3), CED 409(3), CED 410(3), E R M 411(3), GEOG 130 GS(3), GEOG 430(3), GEOG 431(3), GEOG 434(3), GEOG 438W(3), GEOG 439(3), EM SC/S T S/SOC 420(3), PL SC 403(3), PL SC 412(3), PL SC 426(3), PL SC/S T S 460(3), PL SC 471(3), PL SC 490(3), S T S 201(3) (Sem: 4-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[71] The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS or ENGL 202C GWS can be substituted for EM SC 100S GWS.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-01-052

Review Date: 08/16/2011

## Earth Sciences

University College: Penn State DuBois  
University Park, College of Earth and Mineral Sciences (EARTH)

PROFESSOR PETER J. HEANEY, Associate Head for Undergraduate Programs

This major provides a comprehensive program in environmental sciences based on a strong emphasis in earth sciences. It is especially directed toward study of the problems that arise from the complex interaction of man's technological and social activities with the natural environment. Graduates are in demand for positions in government, industry, and consulting. Professional activities include gathering and evaluating data on environments; management and coordination of specialized programs in environmental control and modification; and industrial and government planning. Suitable choices of courses may qualify students for graduate work in several fields.

For the B.S. degree in Earth Sciences, a minimum of 123 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 99-101 credits

(This includes 21 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GWS courses.)

**PRESCRIBED COURSES** (31 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), EM SC 100S GWS(3) [\[71\]](#), MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-2)

PHYS 211 GN(4), PHYS 212 GN(4) (Sem: 1-4)

BIOL 110(4) (Sem: 3-4)

**ADDITIONAL COURSES** (36 credits)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

Select 15 credits of introductory earth science from the following list (courses may not double count with minor requirements): EARTH 002 GN(3), EARTH 101 GN(3), EARTH 103 GN(3), EARTH 105 GN(3), METEO 003 GN(3), METEO 022(2), GEOG 030 GS;IL(3), GEOG 110 GN(3), GEOG 111 GN(3), GEOG 115 GN(3), GEOG 160(3), GEOSC 001(3), GEOSC 021 GN(3), SOILS 101 GN(3) (Sem: 1-6)

Select 15 credits [\[1\]](#) of advanced earth science from the following list (courses may not double count with minor requirements): GEOG 430(3), GEOG 438W(3), GEOG 412W(3), GEOSC 204(4), GEOSC 320(3), GEOSC 340(3), GEOSC 402W(3), GEOSC 416(3), METEO 300(4), METEO 431(3), METEO 475(3) (Sem: 3-8)

Select 3 credits of writing-intensive courses from within Earth and Mineral Sciences to include, but not limited to: GEOG 412W(3), GEOG 310W(3), GEOSC 402W(3), GEOSC 470W(3), METEO 471W(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (32-34 credits)

Select 3-4 credits of advanced math, statistics, computer science in consultation with an adviser (Sem: 5-8)

Select 3 credits of field, laboratory experience in consultation with an adviser (Sem: 5-8)

Select 8-9 credits in other approved courses (Students may apply 6 credits of ROTC) (Sem: 5-8)

Select 18 credits [\[1\]](#), in consultation from an adviser, from one of the following Earth and Mineral Sciences interdisciplinary minors:

CLIMATOLOGY

MARINE SCIENCE

WATERSHEDS & WATER RESOURCES

EARTH SYSTEMS

GLOBAL BUSINESS STRATEGIES FOR EARTH AND ENVIRONMENTAL INDUSTRIES

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[71]** The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS or ENGL 202C GWS can be substituted for EM SC 100S GWS.

Last Revised by the Department: Summer Session 2000

Blue Sheet Item #: 28-05-017

Review Date: 1/20/04

UCA Revision #1: 8/3/06

Department Head Change: 4/12/05

EM

## Energy Business and Finance

University Park, College of Earth and Mineral Sciences (EBF)  
University Park, Smeal College of Business

The major in Energy Business and Finance, offered jointly by the College of Earth and Mineral Sciences and the Smeal College of Business, combines training in business, economics, finance, and the physical sciences with a core of courses focusing on energy and related industries. The major helps students prepare for careers in the energy industry, as well as financial institutions, nonprofit groups, and international organizations dealing with energy issues. The curriculum also provides a strong base for further study in business, economics, law, and social sciences.

Entrance Requirement: To be eligible for entrance into the Energy Business and Finance major, a degree candidate must satisfy requirements for entrance to major. Specific entrance requirements include:

1. The degree candidate must have completed more than 27.1 credits of course work.
2. The degree candidate must have a cumulative grade point average of at least 2.0.
3. Complete the following entrance to major requirements: ECON 102 GS(3)[1], MATH 140 GQ(4)[1]. These courses must be completed by the end of the semester during which the entrance to major process is carried out.

### GENERAL OPTION

The General option of the Energy Business and Finance major is appropriate for students who want a broad understanding of the earth and environmental sciences in preparation for careers in industry, commerce, and government.

### ENERGY LAND MANAGEMENT OPTION

The Energy Land Management Option in the major of Energy Business and Finance focuses on issues in the acquisition of sub-surface exploration rights. Thus, it is designed to prepare students for a career as a landman in an energy exploration company. The curriculum, designed in consultation with the American Association of Professional Landmen, requires courses in real estate fundamentals, energy law, geographic information sciences, petroleum engineering and petroleum geology.

### GEOGRAPHIC INFORMATION SYSTEMS OPTION

This option in the major in Energy Business and Finance is appropriate for students who want a broad understanding of the earth and environmental sciences in preparation for careers in industry, commerce, and government. Such an understanding is available through the designated course work in Geographic Information Systems. The option is designed to develop competence in description, analysis, explanation, and management of problems arising from human use of natural resources and natural systems. GIS is an important tool that can be used to assess natural resources and environmental impacts across various geographic environments. Using GIS brings further depth to the analysis of the impacts of a variety of policy measures. These issues are of great prominence in the energy and natural resource industries, and the regulation of those industries. This curriculum also provides a strong base for further study in business, economics, law, and social sciences.

### ENERGY SYSTEMS OPTION

EBF graduates will spend much of their professional careers working with engineers on a variety of energy related projects, or will desire a strong understanding of energy technologies and processes in order to make good financial and management decisions. The Energy Systems Option is designed to give EBF graduates a more rigorous background in engineering principles and applications together with a demanding economics and business curriculum. The option will give students a basic understanding of chemistry, physics, and other engineering principles critical to energy industries and technologies. Students will also take advanced courses in both energy engineering and economics.

### Integrated B.S. in Energy Business and Finance (EBF) and M.S. in Energy and Mineral Engineering (EME)

The integrated undergraduate-graduate (IUG) program between the Energy Business and Finance undergraduate program and the Energy and Mineral Engineering graduate program enables academically superior and research-focused EBF undergraduate students to also obtain an M.S. degree in Energy and Mineral Engineering in five years of study. Students should refer to the Energy and Mineral Engineering graduate program in the Graduate Program Bulletin for the IUG admission and degree requirements.

([http://bulletins.psu.edu/bulletins/whitebook/graduate\\_degree\\_programs.cfm?letter=E&program=grad\\_eme.htm](http://bulletins.psu.edu/bulletins/whitebook/graduate_degree_programs.cfm?letter=E&program=grad_eme.htm))

For the B.S. degree in Energy Business and Finance, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(24-30 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 8-21 credits

### REQUIREMENTS FOR THE MAJOR: 87-101 credits

(This includes 24-30 credits of General Education Courses: 3-9 credits of GN courses, 9 credits of GWS courses, 6 credits of GQ courses, and 6 credits of GS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 60-61 credits

#### PRESCRIBED COURSES (42 credits)

MATH 140 GQ(4)[11] (Sem: 1)  
ECON 102 GS(3)[11], EM SC 100S GWS(3) (Sem: 1)  
MATH 141 GQ(4)[11] (Sem: 2)  
E B F 200 GS(3)[11] (Sem: 3)  
ACCTG 211(4), ECON 302 GS(3)[11] (Sem: 3-4)  
E B F 301(3)[11], E B F 304W(3)[11] (Sem: 5-6)  
EME 460(3)[11], I B 303 IL(3) (Sem: 5-8)  
E B F 401(3)[11], E B F 473(3) (Sem: 7-8)

#### ADDITIONAL COURSES (18-19 credits)

CMPSC 101 GQ(3), CMPSC 200 GQ(3), CMPSC 201 GQ(3), CMPSC 202 GQ(3) (Sem: 1-2)  
ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
B A 243(4), B LAW 243(3), or E R M 411(3) (Sem: 3-4)  
E B F 472(3)[11], STAT 301 GQ(3)[11], or STAT 401(3)[11] (Sem: 3-4)  
E B F 483(3)[11] or E B F 484(3)[11] (Sem: 7-8)  
ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 7-8)

### REQUIREMENTS FOR THE OPTION: 27-40 credits

### ENERGY LAND MANAGEMENT OPTION (30 credits)



**PRESCRIBED COURSES** (27 credits)

GEOSC 001(3)[1], PHYS 211 GN(4)[1] (Sem: 1-2)  
 ECON 104 GS(3), EGEE 120 US;IL(3), MNG 223(2)[1] (Sem: 3-4)  
 R M 302(3) (Sem: 5-8)  
 E B F 402(3), GEOSC 454(3), P N G 405(3) (Sem: 7-8)

**ADDITIONAL COURSES** (3 credits)

GEOG 160(3) or GEOG 469(3)[1]

**GENERAL OPTION:** (27 credits)**PRESCRIBED COURSES** (9 credits)

ECON 104 GS(3), EME 460(3) (Sem: 3-4)  
 R M 302(3) (Sem: 5-8)

**ADDITIONAL COURSES** (18 credits)

Select 9 credits from: EARTH 100 GN(3), EARTH 101 GN;US(3), EARTH 103 GN(3), EARTH 111 GN;US(3), EARTH 150 GN(3), EGEE 101 GN(3), EGEE 102 GN(3), EGEE 120 GS;US;IL(3), GEOG 110 GN(3), GEOG 115 GN(3), GEOSC 002 GN(3), GEOSC 010 GN(3), GEOSC 020 GN(3), GEOSC 021 GN(3), GEOSC 040 GN(3), MATSE 081 GN;IL(3), METEO 003 GN(3), METEO 101 GN(3) (Sem: 3-6)  
 Select 9 credits from: CED 404(3), CED 429(3), CED 431W(3), ECON 428(3), ECON 490(3), GEOG 424 US;IL(3), GEOG 430(3), GEOG 431(3), GEOG 444(3), GEOG 493(3), GEOSC 402Y IL(3), GEOSC 454(3), METEO 473(3), PL SC 490(3) (Sem: 5-8)

**GEOGRAPHIC INFORMATION SYSTEMS OPTION** (30 credits)**PRESCRIBED COURSES** (12 credits)

GEOG 126 GS;US;IL(3)[1] (Sem: 3-4)  
 GEOG 160 GS(3)[1], GEOG 363(3) (Sem: 3-4)  
 R M 302(3) (Sem: 5-8)

**ADDITIONAL COURSES** (18 credits)

Select 6 credits from: EARTH 100 GN(3), EARTH 101 GN;US(3), EARTH 103 GN(3), EARTH 111 GN;US(3), EARTH 150 GN(3), EGEE 101 GN(3), EGEE 102 GN(3), EGEE 120 GS;US;IL(3), GEOG 110 GN(3), GEOG 115 GN(3), GEOSC 002 GN(3), GEOSC 010 GN(3), GEOSC 020 GN(3), GEOSC 021 GN(3), GEOSC 040 GN(3), MATSE 081 GN;IL(3), METEO 003 GN(3), METEO 101 GN(3) (Sem: 3-6)  
 Select 3 credits from GEOG 361(3), GEOG 362(3), GEOG 464(3) (Sem: 5-6)  
 Select 9 credits from GEOG 461W(3), GEOG 463(3), GEOG 464(3), GEOG 467(3), GEOG 468(3), GEOG 485(3) [if not taken for requirement above] (Sem: 6-8)  
 (Advanced GIS Elective)

**ENERGY SYSTEMS OPTION** (40 credits)**PRESCRIBED COURSES** (28 credits)

CHEM 110 GN(3)[1], CHEM 111 GN(1)[1], CHEM 112 GN(3)[1] (Sem: 1-2)  
 PHYS 211 GN(4)[1] (Sem: 3)  
 PHYS 212 GN(4)[1] (Sem: 4)  
 EME 301(3)[1], EME 460(3)[1] (Sem: 5)  
 EME 303(3)[1], MATH 251(4)[1] (Sem: 5-6)

**ADDITIONAL COURSES** (12 credits)

Select 3 credits in Engineering Principles:  
 EGEE 302(3)[1], EGEE 304(3)[1], EGEE 430(3)[1], or M E 430(3)[1] (Sem: 5-6)  
 Select 9 credits in Engineering Applications from:  
 EGEE 420(3), EGEE 430(3) or M E 430(3) [if not taken for requirement above], EGEE 437(3), EGEE 438(3), EGEE 441(3), EGEE 451(3), EGEE 470(3) or M E 470(3), F SC 431(3), F SC 432(3) (Sem: 5-8)

**Course Substitutions for the Integrated B.S. in Energy Business and Finance (EBF) and M.S. in Energy and Mineral Engineering (EME)**

As many as twelve of the credits required for the master's degree may be applied to both the B.S. and M.S. degrees. A minimum of six credits counted for both the B.S. and M.S. degrees must be at the 500-level. Thesis and culminating/capstone experience credits may not be double counted. The undergraduate degree program officer will determine the specific undergraduate required courses for which the 500-level courses may be used to substitute to meet institutional and accreditation requirements.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-037

Review Date: 04/09/2013

Minor editorial changes to comply with University editorial style (Publications): 8/23/06

EM



## Electrical and Computer Engineering Technology

*Penn State Erie, The Behrend College (ECET)*

This major prepares graduates for careers in such varied areas as electronics, microprocessors, computer hardware and software, communications, instrumentation and control, and power. The major consists of two options, one in Electrical Engineering Technology, the other in Computer Engineering Technology. Both options provide education in applied mathematics, physics, electrical and electronic circuit analysis and design, microprocessors, instrumentation and quality control. The Electrical Engineering Technology option provides specialty education in control theory, communication systems, and power systems. The Computer Engineering Technology option provides specialty education in software development, embedded computer systems, and networking. Both options in the major culminate with a capstone design project involving an actual design or manufacturing problem, often sponsored by industry. Graduates may qualify as engineering technologists working side-by-side with engineers, scientists, and other skilled workers in these capacities. Occupations include electrical and electronic systems design, microprocessor applications, instrumentation and control, computer programming, electrical testing, plant engineering, quality control, management, and technical sales and service.

### Entrance to Major Requirements:

To be eligible for entrance to the Electrical and Computer Engineering Technology major, a student must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed MATH 081 or MATH 026, and MATH 082 or MATH 022, and MATH 083 or MATH 140, and PHYS 250, and earned a grade of C or better in each of these courses.

For the B.S. degree in Electrical and Computer Engineering Technology, a minimum of 128 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

This program is accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in PRESCRIBED COURSES course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 107 credits

(This includes 24 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GWS courses; and 3 credits of GS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 89 credits

#### PRESCRIBED COURSES (57 credits)

CMPET 005(1), CMPET 117(3)[\[1\]](#), CMPET 120(1), CMPET 211(3), EET 101(3), EET 109(1), EET 114(4)[\[1\]](#), EET 118(1)[\[1\]](#), EET 212W(4), EET 214(3), EET 215(1)  
(Sem: 1-4)

CAS 100 GWS(3), ENGL 202C GWS(3) (Sem: 3-6)

MATH 210 GQ(3), MATH 211 GQ(3) (Sem: 4-6)

EET 280(1) (Sem: 4-8)

CMPET 301(3)[\[1\]](#), CMPET 355(3)[\[1\]](#), EET 315(3)[\[1\]](#), EET 341(3)[\[1\]](#) (Sem: 5-6)

MGMT 409(3)[\[1\]](#) (Sem: 5-8)

EET 480(1)[\[1\]](#), EET 490W(3)[\[1\]](#) (Sem: 7-8)

#### ADDITIONAL COURSES (32 credits)

EET 002S(1) or ET 002(1) (Sem: 1-4)

EG T 101(1) and EG T 102(1) or EG T 119(2) (Sem: 1-4)

MATH 026 GQ(3)[\[1\]](#) or MATH 081 GQ(3)[\[1\]](#), MATH 022 GQ(3)[\[1\]](#) or MATH 082 GQ(3)[\[1\]](#), MATH 083 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#) (Sem: 1-4)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-8)

CHEM 110 GN(3), CHEM 111 GN(1), PHYS 250 GN(4)[\[1\]](#), and 2 credits of science GN(2) or PHYS 150 GN(3)[\[1\]](#), PHYS 151 GN(3)[\[1\]](#), and 4 credits of science

GN(4), EET 450(3) or Q C 450(3) (Sem: 5-8)

EET 275(3) or EET 220(2) and 1 credit in 200 level or higher of technical electives from school-approved list (Sem: 4-8)

### REQUIREMENTS FOR THE OPTION: 18 credits

#### ELECTRICAL ENGINEERING TECHNOLOGY OPTION: (18 credits)

##### PRESCRIBED COURSES (9 credits)

EET 330(3)[\[1\]](#) (Sem: 5-6)

EET 416(3)[\[1\]](#), EET 440(3)[\[1\]](#) (Sem: 7-8)

##### SUPPORTING COURSES AND RELATED AREAS (9 credits)[\[1\]](#)

Select 9 credits of technical electives at the 300 or 400 level from school-approved list (Students may apply 6 credits of ROTC.) (Sem: 7-8)

#### COMPUTER ENGINEERING TECHNOLOGY OPTION: (18 credits)

##### PRESCRIBED COURSES (9 credits)

CMPET 333(3)[\[1\]](#) (Sem: 5-6)

CMPET 456(3)[\[1\]](#), CMPET 457(3)[\[1\]](#) (Sem: 7-8)

##### SUPPORTING COURSES AND RELATED AREAS (9 credits)[\[1\]](#)

Select 9 credits of technical electives at the 300 or 400 level from school-approved list (Students may apply 6 credits of ROTC.) (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-02-010

Review Date: 10/08/2013

UCA Revision #1: 8/3/06

BD

## Economics

*University Park, College of the Liberal Arts (ECLBA)  
World Campus*

PROFESSOR ROBERT C. MARSHALL, *Head, Department of Economics*

This major is designed for those who seek a broad understanding of the operation of the economic system and training in the methods and uses of economic analysis. Graduates are equipped for employment in many areas of business operations, labor unions, and agencies of government at all levels; and to undertake the graduate work necessary to become professional economists.

Students may choose either a Bachelor of Arts or a Bachelor of Science program. An honors program is also offered.

For the B.A. degree in Economics, a minimum of 120 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

**Entrance Requirement:** To be eligible for entrance into the Economics (ECLBA) major, a degree candidate must satisfy requirements for entrance to the major.

Specific entrance requirements include:

The degree candidate must have completed the following entrance to major requirements with a grade of C or better: ECON 102 and ECON 104.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**ELECTIVES:** 15 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits [\[1\]](#)

**PRESCRIBED COURSES** (18 credits)  
ECON 102 GS(3), ECON 104 GS(3) (Sem: 3-4)  
ECON 106(3), ECON 302 GS(3), ECON 304 GS(3), ECON 306(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)  
Select 18 credits in Economics 300 or 400 level with department approval, including at least 9 credits at the 400 level (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-119

Review Date: 04/13/2010

UCA Revision #1: 8/3/06

LA

## Economics

*University Park, College of the Liberal Arts (ECLBS)  
World Campus*

PROFESSOR ROBERT C. MARSHALL, *Head, Department of Economics*

This major is designed for those who seek a broad understanding of the operation of the economic system and training in the methods and uses of economic analysis. Graduates are equipped for employment in many areas of business operations, labor unions, and agencies of government at all levels; and to undertake the graduate work necessary to become professional economists.

The B.S. degree program is intended for students with a strong interest in quantitative skills. An honors program is also offered.

For the B.S. degree in Economics, a minimum of 120 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

**Entrance Requirement:** To be eligible for entrance into the Economics (ECLBS) major, a degree candidate must satisfy requirements for entrance to the major.

Specific entrance requirements include:

The degree candidate must have completed the following entrance to major requirements with a grade of C or better: ECON 102 and ECON 104.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**ELECTIVES:** 26 credits

**REQUIREMENTS FOR THE MAJOR:** 55 credits<sup>[1]</sup>

(This includes 6 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (18 credits)

ECON 102 GS(3), ECON 104 GS(3) (Sem: 1-2)

ECON 302 GS(3), ECON 304 GS(3) (Sem: 3-4)

ECON 106(3), ECON 306(3) (Sem: 3-6)

**ADDITIONAL COURSES** (7 credits)

MATH 110 GQ(4) or MATH 140 GQ(4); CMPSC 101 GQ(3) or CMPSC 203 GQ(4) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (30 credits)

Select 3 credits in social and behavioral sciences from department list (Sem: 1-8)

Select 6 credits in arts, humanities, social and behavioral sciences from department list (Sem: 1-8)

Select 3 credits in quantification from department list (Sem: 1-8)

Select 18 credits in economics at the 300 or 400 level with department approval, including at least 9 credits at the 400 level (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-120

Review Date: 04/13/2010

LA

## Economics

*Penn State Erie, The Behrend College (ECNS)*

The Economics major is a program of study with a liberal arts orientation. The broad liberal arts background serves as a foundation for advanced study in the methods and techniques of economic analysis. Use of mainframe and microcomputers as analytical and problem-solving tools is emphasized in the program's upper-division courses. Students may choose upper-division courses in several areas of specialization, including business cycles and forecasting, economic theory, industrial organization, international economics, labor economics, managerial economics, and regional economics.

For the B.A. degree in Economics, a minimum of 122 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(3 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**ELECTIVES:** 19 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 37 credits

(This includes 3 credits of General Education GS courses.)

**PRESCRIBED COURSES** (19 credits)

ECON 102 GS(3), ECON 104 GS(3), ECON 302 GS(3), ECON 304 GS(3) (Sem: 1-6)

ENGL 202A GWS(3) (Sem: 3-6)

SCM 200(4) (Sem: 3-6)

**ADDITIONAL COURSES** (18 credits)

Select 18 credits in BECON, ECNS, or ECON above the 300 level, in consultation with an adviser. [Where appropriate toward a specialized undergraduate field of study, the student may petition the director of the School of Business to take up to a maximum of 6 credits in closely related fields toward a major.] (Sem: 3-8)

Last Revised by the Department: Summer Session 1998

Blue Sheet Item #: 26-02-034

Review Date: 01/30/01 (Editorial Change)

UCA Revision #1: 8/3/06

BD

## Electrical Engineering

*Penn State Erie, The Behrend College (EE BD)*

This major provides students with a strong foundation in electrical engineering through a combination of classroom study, projects, and laboratory experience. Analysis and design of electrical and computer systems are stressed. Built upon a core of science and mathematics courses, this major has the objective of educating graduates to be problem solvers. Students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them for work in industry, or further study in graduate school. In addition, written and oral communication skills are developed from an early stage, culminating in a senior design project that stresses communication as well as engineering content.

In addition to completing a broad-based science and mathematics core, students pursue their interest in electrical engineering by studying the principles of electrical circuits and microelectronics, digital and computer systems, control and communications systems, and electromagnetic fields and waves. Students obtain a broad-based electrical engineering education that is specialized through the selection of technical electives courses. The student will be required to analyze and solve a significant electrical engineering design problem during the senior year.

**Entrance Requirement:** In addition to the Carnegie unit and minimum GPA requirements described by University policies, all students applying for entrance to any of the engineering majors at The Behrend College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), and PHYS 211 GN(4). These courses must be completed by the end of the semester during which the admission to major process is carried out.

For the B.S. degree in Electrical Engineering, a minimum of 130 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 106 credits

(This includes 21 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses; 3 credits of GS courses.)

**PRESCRIBED COURSES** (91 credits)

CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1), EDSGN 100S(3), CMPSC 201 GQ(3) (Sem: 1-2)  
CMPEN 271(3) [\[1\]](#), CMPEN 275(1) [\[1\]](#), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), MATH 220 GQ(2-3) [\[1\]](#), MATH 230(4) [\[1\]](#), MATH 250(3) [\[1\]](#), PHYS 211 GN(4) [\[1\]](#),  
PHYS 212 GN(4), PHYS 214 GN(2) (Sem: 1-4)  
E E 210(4) [\[1\]](#), E MCH 211(3), ENGL 202C GWS(3) (Sem: 3-4)  
E E 310(4) [\[1\]](#), E E 312(3) [\[1\]](#), E E 313W(4) [\[1\]](#), E E 316(3) [\[1\]](#), E E 331(3) [\[1\]](#), E E 352(4) [\[1\]](#), E E 380(3) [\[1\]](#), E E 383(1) [\[1\]](#), STAT 301(3) [\[1\]](#) (Sem: 5-6)  
E E 360(3) [\[1\]](#), E E 387(3) [\[1\]](#), E E 400(3) [\[1\]](#), E E 401(3) [\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (6 credits)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-6)  
CMPSC 122(3) or E MCH 012(3) or M E 201(3) or M E 300(3) or PHYS 237(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits of technical courses from school-approved list.

(These credits must be selected to fulfill the engineering science and design requirements of the major.) (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-01-017

Review Date: 7/11/02

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

BD

## Electrical Engineering

*Capital College (E ENG)*

AB SHAFAYE, *Program Chair, School of Science, Engineering, and Technology*

The Bachelor of Science degree in Electrical Engineering provides a solid background in electrical engineering sciences. It also provides an opportunity for students to pursue interests in electrical and electronic circuits, including digital circuits and VLSI and its fabrication, microprocessors and their applications, electromagnetics, communications, control systems, and digital image processing and computer vision. Through participation in a senior capstone design, the curriculum emphasizes written as well as verbal communication and teamwork approach among the students to attain a common goal.

This program helps its graduates develop capabilities to analyze and design a variety of electrical and electronic systems found in many industrial and government settings as well as provide a foundation for further graduate studies. A strong background in the fundamentals is built through a broad base core in basic sciences (physics and chemistry) and mathematics as well as engineering sciences.

For a B.S. degree in Electrical Engineering a minimum of 134 credits is required.

### Entry to Major Requirements:

Entry to the Electrical Engineering major requires that the student has completed: MATH 140 GQ(4), MATH 141 GQ(4), PHYS 211 GN(4), and CHEM 110 GN(3), CHEM 111 GN(1). A 2.00 or higher cumulative grade-point average is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 0-4 credits

### REQUIREMENTS FOR THE MAJOR: 110-113 credits

(This includes 21 credits of General Education courses: 3 credits of GWS courses; 3 credits of GS courses; 9 credits of GN courses; 6 credits of GQ courses.)

### PRESCRIBED COURSES (87 credits)

CHEM 110 GN(3), CHEM 111 GN(1), EDSGN 100(3) (Sem: 1-2)

SSET 295(1) (Sem: 4)

MATH 140 GQ(4), MATH 141 GQ(4), MATH 220 GQ(2-3), MATH 230(4), MATH 250(3), PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 1-4)

CMPEN 271(3) [\[1\]](#), CMPEN 275(1) [\[1\]](#), E MCH 211(3), ENGL 202C GWS(3) (Sem: 3-4)

CMPEH 472(4), E E 310(4) [\[1\]](#), E E 330(4), E E 341(3), E E 352(4) [\[1\]](#), E E 485(3) (Sem: 5-6)

CMPSC 436(3), E E 311(3), E E 405(1), E E 406W(3) [\[1\]](#), E E 461(4), E E 481(4) (Sem: 7-8)

### ADDITIONAL COURSES (14-17 credits)

Select 3 credits from: ECON 102 GS(3) or ECON 104 GS(3) or ECON 014 GS(3) (Sem: 1-4)

Select 3 credits from: CMPSC 201 GQ(3), or CMPSC 121 GQ(3), or CMPSC 202 GQ(3) (Sem: 3-4)

Select 3-4 credits from MATH 444(3) [\[1\]](#) or MATH 446(3) [\[1\]](#) or STAT 200 GQ(4) [\[1\]](#) (Sem: 4-6)

Select 5-7 credits from E E 315(5) [\[1\]](#); or E E 210(4) [\[1\]](#) and E E 314(3) [\[1\]](#) (Sem: 4-5)

### SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits in consultation with an academic adviser and in support of the student's interests. (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-06-216

Review Date: 4/10/07

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

CA

**PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: September 10, 2010**

**\*\*Please Note:** Individuals interested in earning Pennsylvania teaching credentials for grades PK-8 should refer to the **Childhood and Early Adolescent Education** major.

## Elementary and Kindergarten Education

*Altoona College (EEDAL): Elementary Education Teaching Option*

*Berks College (EEDBL)*

*University College: Penn State Lehigh Valley (EEDCC): Elementary Education Teaching Option*

*University Park, College of Education (EK ED)*

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR STEPHANIE SERRIERE, *in charge*

This major offers teaching options in Early Childhood Education and in Elementary Education. Students successfully completing this major will have met all of the requirements for the N-3 or K-6 College Instructional I certificate issued by the Pennsylvania Department of Education. Students must indicate their choice of teaching option at the time they make application for admission to a teacher education major. Students who are undecided at this time about which teaching option to select should contact their adviser and enroll in a field experience featuring participation in the classroom.

**EARLY CHILDHOOD TEACHING OPTION:** Students successfully completing this option will have met all of the requirements for the N-3 Instructional I certificate issued by the Pennsylvania Department of Education. Special courses in both human development and education are used to integrate understanding of preschool programs with relevant theories of child development.

**ELEMENTARY EDUCATION TEACHING OPTION:** Students successfully completing this option will have met all of the requirements for the K-6 Instructional I certificate issued by the Pennsylvania Department of Education.

For the B.S. degree in Elementary and Kindergarten Education, a minimum of 129.5 credits is required for the Early Childhood Teaching Option and a minimum of 122 credits is required for the Elementary Education Teaching Option. (See also [Teacher Education Programs](#).)

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(27-30 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-3 credits

**REQUIREMENTS FOR THE MAJOR:** 101-117 credits

(This includes 27-30 credits of General Education courses: 6 credits of GS, 6 credits of GQ, 6 credits of GH, and 9 credits of GN courses for both options. The Early Childhood Teaching option permits 3 credits of GHA.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 84.5-85.5 credits<sup>[1]</sup>

**PRESCRIBED COURSES** (57.5 credits)

C I 295(2), EDPSY 014(3), ENGL 100(3), MATH 200 GQ(3) (Sem: 1-4)

A ED 303(3), C I 495B(3), C I 495D(12), C I 495F(3), KINES 126(1.5), LL ED 400(3), LL ED 401(3), LL ED 402(3), MTHED 420(3), MUSIC 241(3), SCIED 458(3),

SPLED 400(3), SS ED 430W(3) (Sem: 5-8)

**ADDITIONAL COURSES** (15-16 credits)

EDTHP 115 US(3) or EDTHP 115A GS:US(3) (Sem: 1-3)

HIST 020 GH:US(3) or HIST 021 GH:US(3) (Sem: 1-4)

STAT 100 GQ(3), STAT 200 GQ(4) or EDPSY 101 GQ(3) (Sem: 1-4)

ECON 102 GS(3), ECON 104 GS(3) or ECON 014 GS(3) (Sem: 1-8)

GEOG 020 GS:US:IL(3), GEOG 030 GS:IL(3), GEOG 126 GS:US:IL(3), GEOG 122 GH:US(3), GEOG 123 GS:IL(3), GEOG 120 GS:US:IL(3), GEOG 124 GS:IL(3), or GEOG 128 GS:IL(3) (Sem: 1-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 3 credits in literature GH (Sem: 1-4)

Select 9 credits: 3 credits each (including one course with a lab) from the following GN biological science, earth science and physical science (Sem: 1-6)

**REQUIREMENTS FOR THE OPTION:** 16.5-30 credits

**EARLY CHILDHOOD TEACHING OPTION:** (27-30 credits)<sup>[1]</sup>

**PRESCRIBED COURSES** (15 credits)

E C E 451(3), E C E 452(3), E C E 453(2), E C E 454(3), E C E 479(3), C I 495A(1) (Sem: 5-8)

**ADDITIONAL COURSES** (12-15 credits)

H P A 101(3) or NUTR 251 GHA(3) (Sem: 1-2)

HD FS 315 US(3) or SOC 030 GS(3) (Sem: 1-4)

HD FS 229 GS(3) or PSYCH 100 GS(3) and PSYCH 212 GS(3) (Sem: 1-4)

HD FS 428(3) or HD FS 429(3) (Sem: 5-8)

**ELEMENTARY EDUCATION TEACHING OPTION:** (16.5-19.5 credits)<sup>[1]</sup>

**PRESCRIBED COURSES** (1.5 credit)

KINES 127(1.5) (Sem: 5-8)

**ADDITIONAL COURSES** (3-6 credits)

HD FS 229 GS(3) or EDPSY 010 GS(3) or PSYCH 100 GS(3) and PSYCH 212 GS(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 3 credits in MATH or MTHED (Sem: 1-8)

Select 6 credits from EDTHP at the 400 level, ECE at the 400 level, SPLED at the 400 level, EDLDR 405(3), EDLDR 497(1-9), LL ED 497(1-9) (Sem: 5-8)

Select 3 credits in U.S. History (Sem: 1-8)

<sup>[1]</sup> A grade of C or better per course is required for teacher certification.

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 33-06-097

Review Date: 2/12/08

UCA Revision #1: 8/3/06

ED



## Elementary Education

Capital College (ELEM)

PROFESSOR JANE KEAT, *Elementary Education Coordinator, School of Behavioral Sciences and Education*

The Elementary Education program at Penn State Harrisburg embodies the four tenets of our conceptual framework: constructivism, authenticity, reflectivity, and standards-based curriculum. Constructivism entails a student-centered approach in which teachers help learners build their own understandings. Authenticity refers to developing professional and pedagogical skills in authentic classroom settings; for example, in the junior and senior years prior to student teaching, the program offers extensive field experiences in a variety of settings enrolling students with diverse backgrounds and needs. Reflectivity relates to consciously analyzing course content and one's own learning for the purpose of deeper understanding and self-improvement. Standards-based curriculum means that our candidates are steeped in Pennsylvania Academic Standards as well as the standards of relevant professional organizations. Taken together, these tenets enable our candidates to become *reflective professionals committed to the learning of all students*.

Students will choose one of four options for the degree: PK-4 Early Childhood Education, Grades 4-8 English/Language Arts and Reading, Grades 4-8 Mathematics, and Grades 4-8 Social Studies. Upon successful completion of this major, students will have met all of the requirements for either the Grades PK-4, Grades 4-8 English/Language Arts and Reading, Grades 4-8 Mathematics, or Grades 4-8 Social Studies Instructional I certification issued by the Pennsylvania Department of Education. Students must apply for admission to the major.

Prior to the full-time student teaching experience in the senior year, candidates are expected to complete all other courses required for certification, including two field placements. On-campus courses are scheduled three or four days a week, while field experiences in nearby schools are scheduled part-time, three or four days per week.

For a B. ELED. degree in Elementary Education, PK-4 Early Childhood Option a minimum of 129 credits are required; Grade 4-8 English/Language Arts and Reading Option a minimum of 129 credits are required; Grade 4-8 Mathematics Option a minimum of 129 credits are required; and Grade 4-8 Social Studies Option a minimum of 129 credits are required.

### Admission Requirements:

Applicants should have completed most of their first two years of college as well as the Entry to Major Requirements listed below with at least a 3.0 cumulative GPA (4.0 scale). The evaluation of prior college work is done on an individual basis by the Office of Enrollment Services at Penn State Harrisburg. Students admitted to the program must have the appropriate clearances. These include FBI fingerprint check, Act 151 child abuse history clearance, and Act 34 criminal record check.

### Entry to Major Requirements:

Entry to the Elementary Education major requires the completion of 57 or more credits in required courses and the state's minimum cumulative GPA criteria of 3.0. Candidates must complete, with a grade of "C" or better, six (6) credits of college-level mathematics (MATH prefix), three (3) credits of college-level English literature and three (3) credits of college-level English composition. Candidates must submit scores on any entrance testing requirements set out by the Pennsylvania Department of Education in force at the time of application for entrance to major. Candidates thinking seriously about education should plan their freshman and sophomore years carefully. Semesters 5 through 8 are very structured.

### Selective Retention:

Monitoring candidate progress in the elementary education program will occur each semester while the candidate is participating in the elementary education program. Candidates will be evaluated for retention in the program based on (1) maintaining a cumulative GPA of 3.0 or higher; (2) performance on any entrance test requirements set out by the Pennsylvania Department of Education in force at the time of application for entrance to major; (3) satisfactory completion of required courses, including the field experience component; (4) adequate writing and speaking skills as demonstrated in various classroom assignments; and (5) a positive rating on the Penn State Harrisburg Professional Dispositions for Teacher Education Programs monitoring form. Candidates must pass any entrance test requirements set out by the Pennsylvania Department of Education in effect at the time of application for entrance to the major.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(33 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education Course Requirements in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 117 credits<sup>[1]</sup>

(This includes 33 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3-6 credits of GH courses; 6 credits of GS courses; 6 credits of GWS)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 93 credits

#### PRESCRIBED COURSES (75 credits)

GEOG 040 GS;IL(3), C I 280(3), C I 295(2), EDPSY 014(3), EDTHP 115 US(3), ENGL 202A GWS(3), MATH 200 GQ(3) (Sem: 1-4)  
EDMTH 301(3), EDSCI 454(3), EDUC 302(3), EDUC 304(3), EDUC 305(3), EDUC 315 US(3), EDUC 320(3), EDUC 352(3), EDUC 495A(1) (Sem: 5-6)  
EDMTH 302(3), EDUC 303(3), EDUC 321(3), EDUC 353(3), EDUC 385(3), EDUC 490(12), EDUC 495B(1), HLTH 306(2) (Sem: 7-8)

#### ADDITIONAL COURSES (6 credits)

Select 3 credits from: ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
Select 3 credits from: ECON 102 GS(3), ECON 104 GS(3), or ECON 014 GS(3) (Sem: 1-4)

#### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 9 credits from GN courses from approved list: 3 credits each (including one with a lab) from biological science, earth science, and physical science.  
(Sem: 1-4)

Select 3 credits from any MATH (GQ) (Sem:1-4)

#### REQUIREMENTS FOR THE OPTION: 24 credits

#### PK-4 EARLY CHILDHOOD EDUCATION OPTION: (24 credits)

##### PRESCRIBED COURSES (18 credits)

HD FS 229 GS(3) (Sem:1-4)  
EDUC 402(3), EDUC 403(3), EDUC 404(3), EDUC 410(3), EDUC 421(3) (Sem: 5-7)

##### ADDITIONAL COURSES (6 credits)

Select 3 credits from: HIST 003 GH(3), HIST 012 GH;US(3), HIST 020 GH;US(3), or HIST 021 GH;US(3) (Sem: 1-4)  
Select 3 credits of literature from: CMLIT 001 GH;IL(3), CMLIT 002 GH;IL(3), CMLIT 003 GH;IL(3), CMLIT 004 GH;IL(3), CMLIT 005 GH;US;IL(3), CMLIT 006 GH;IL(3), CMLIT 010 GH;IL(3), CMLIT 011 GH;IL(3), CMLIT 100 GH;IL(3), CMLIT 101 GH;US;IL(3), CMLIT 105 GH;IL(3), CMLIT 106 GH;IL(3), CMLIT 107 GH;IL(3), CMLIT 108 GH;IL(3), CMLIT 110 GH;US;IL(3), CMLIT 111 GH;IL(3), CMLIT 141 GH;US;IL(3), CMLIT 184 GH;IL(3), CMLIT 185 GH;IL(3), CMLIT 189 GH;IL(3), ENGL 001 GH(3), ENGL 001W GH(3), ENGL 002 GH(3), ENGL 003 GH(3), ENGL 104 GH(3), ENGL 129 GH(3), ENGL 133 GH(3), ENGL 134 GH(3), ENGL 135 GH;US(3), ENGL 135S GH;US(3), ENGL 139 GH;US(3), ENGL 140 GH(3), ENGL 180 GH(3), ENGL 182A GH;US;IL(3), ENGL 182C GH;IL(3), ENGL 184 GH;IL(3), ENGL 184S GH(3), ENGL 185 GH;IL(3), ENGL 189 GH;IL(3), ENGL 191 GH(3), ENGL 194 GH;US;IL(3), ENGL 262 GH(3), ENGL 263 GH(3), ENGL 265 GH(3), ENGL 268 GH(3) (Sem: 1-4)

**ENGLISH/LANGUAGE ARTS AND READING (4-8) OPTION:** (24 credits)**PRESCRIBED COURSES** (15 credits)

HD FS 239 GS(3) (Sem:1-4)

EDUC 321(3), EDUC 322(3), EDUC 416(3), ENGL 470(3) (Sem: 5-7)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from: HIST 003 GH(3), HIST 012 GH;US(3), HIST 020 GH;US(3), or HIST 021 GH;US(3) (Sem: 1-4)

Select 3 credits of British Literature: ENGL 221(3), ENGL 222(3), ENGL 440(3), ENGL 441(3), ENGL 442(3), ENGL 443(3), ENGL 444(3), ENGL 445(3), ENGL 446(3), ENGL 447(3), ENGL 448(3), ENGL 449 US;IL(3), ENGL 450(3), ENGL 451(3), ENGL 452(3), ENGL 453(3), ENGL 454(3), ENGL 455(3), ENGL 456(3), ENGL 457(3), or ENGL 458(3) (Sem: 1-6)

Select 3 credits of American Literature: ENGL 231(3), ENGL 232(3), ENGL 432(3), ENGL 433(3), ENGL 434(3), ENGL 435(3), ENGL 436(3), ENGL 437(3), ENGL 438(3), or ENGL 439(3) (Sem: 1-6)

**MATHEMATICS (4-8) OPTION:** (24 credits)**PRESCRIBED COURSES** (18 credits)

HD FS 239 GS(3), MATH 022 GQ(3), MATH 026 GQ(3), MATH 140 GQ(4), MATH 220 GQ(2) (Sem: 1-4)

EDUC 417(3) (Sem: 6-7)

**ADDITIONAL COURSES** (6 credits)

Select 3 credits from: HIST 003 GH(3), HIST 012 GH;US(3), HIST 020 GH;US(3), or HIST 021 GH;US(3) (Sem: 1-4)

Select 3 credits of literature from: CMLIT 001 GH;IL(3), CMLIT 001H GH;IL(3), CMLIT 002 GH;IL(3), CMLIT 003 GH;IL(3), CMLIT 004 GH;IL(3), CMLIT 004H GH;IL(3), CMLIT 005 GH;US;IL(3), CMLIT 006 GH;IL(3), CMLIT 010 GH;IL(3), CMLIT 011 GH;IL(3), CMLIT 100 GH;IL(3), CMLIT 101 GH;US;IL(3), CMLIT 105 GH;IL(3), CMLIT 106 GH;IL(3), CMLIT 107 GH;IL(3), CMLIT 108 GH;IL(3), CMLIT 110 GH;US;IL(3), CMLIT 111 GH;IL(3), CMLIT 141 GH;US;IL(3), CMLIT 184 GH;IL(3), CMLIT 185 GH;IL(3), CMLIT 189 GH;IL(3), ENGL 001 GH(3), ENGL 001W GH(3), ENGL 002 GH(3), ENGL 003 GH(3), ENGL 104 GH(3), ENGL 129 GH(3), ENGL 129H GH(3), ENGL 133 GH(3), ENGL 134 GH(3), ENGL 135 GH;US(3), ENGL 135S GH;US(3), ENGL 139 GH;US(3), ENGL 140 GH(3), ENGL 180 GH(3), ENGL 182A GH;US;IL(3), ENGL 182C GH;IL(3), ENGL 184 GH;IL(3), ENGL 184S GH(3), ENGL 185 GH;IL(3), ENGL 189 GH;IL(3), ENGL 191 GH(3), ENGL 194 GH;US;IL(3), ENGL 194H GH;US;IL(3), ENGL 262 GH(3), ENGL 263 GH(3), ENGL 265 GH(3), ENGL 268 GH(3) (Sem: 1-4)

**SOCIAL STUDIES (4-8) OPTION:** (24 credits)**PRESCRIBED COURSES** (21 credits)

HD FS 239 GS(3), HIST 003 GH(3), HIST 012 GH;US(3), HIST 020 GH;US(3), HIST 320(3), PL SC 001 GS(3) (Sem:1-4)

EDUC 415(3) (Sem: 6-7)

**ADDITIONAL COURSES** (3 credits)

Select 3 credits of literature from: CMLIT 001 GH;IL(3), CMLIT 001H GH;IL(3), CMLIT 002 GH;IL(3), CMLIT 003 GH;IL(3), CMLIT 004 GH;IL(3), CMLIT 004H GH;IL(3), CMLIT 005 GH;US;IL(3), CMLIT 006 GH;IL(3), CMLIT 010 GH;IL(3), CMLIT 011 GH;IL(3), CMLIT 100 GH;IL(3), CMLIT 101 GH;US;IL(3), CMLIT 105 GH;IL(3), CMLIT 106 GH;IL(3), CMLIT 107 GH;IL(3), CMLIT 108 GH;IL(3), CMLIT 110 GH;US;IL(3), CMLIT 111 GH;IL(3), CMLIT 141 GH;US;IL(3), CMLIT 184 GH;IL(3), CMLIT 185 GH;IL(3), CMLIT 189 GH;IL(3), ENGL 001 GH(3), ENGL 001W GH(3), ENGL 002 GH(3), ENGL 003 GH(3), ENGL 104 GH(3), ENGL 129 GH(3), ENGL 129H GH(3), ENGL 133 GH(3), ENGL 134 GH(3), ENGL 135 GH;US(3), ENGL 135S GH;US(3), ENGL 139 GH;US(3), ENGL 140 GH(3), ENGL 180 GH(3), ENGL 182A GH;US;IL(3), ENGL 182C GH;IL(3), ENGL 184 GH;IL(3), ENGL 184S GH(3), ENGL 185 GH;IL(3), ENGL 189 GH;IL(3), ENGL 191 GH(3), ENGL 194 GH;US;IL(3), ENGL 194H GH;US;IL(3), ENGL 262 GH(3), ENGL 263 GH(3), ENGL 265 GH(3), ENGL 268 GH(3) (Sem: 1-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Lasted Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-037

Review Date: 04/08/2014

R &amp; T: 01/14/2014

UCA Revision #1: 8/3/06

[Comments](#)

CL

## English

*Penn State Erie, The Behrend College (ELISH)*

This major offers courses in literary and cultural studies, and in various forms of writing. Students majoring in English may select the Literature or the Professional Writing Option. Both options share a common core of 13 credits and provide a sound foundation in the liberal arts and opportunities to develop creative and analytical skills. Students in the Literature Option select courses from three separate areas--The Canon and Its Critics, Cultural Studies, and Globality and Literature--and develop a broad understanding of the ways in which literature works in various critical and cultural contexts. Students in the Professional Writing Option follow a sequence of courses designed to develop and enhance writing skills in areas directly relevant to business and technical applications.

For the B.A. degree in English, a minimum of 120 credits is required. Each student must earn at least a grade of C or above in all courses required under Common Requirements, Prescribed, Additional, and Supporting courses.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(See description of General Education in this bulletin)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**ELECTIVES:** 6 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin)

**REQUIREMENTS FOR THE MAJOR:** 45-48 credits

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 15 credits

**PRESCRIBED COURSES** (12 credits)  
ENGL 200(3) (Sem: 3-4)  
ENGL 312(3), ENGL 403(3) (Sem: 3-6)  
ENGL 482W(3) (Sem: 6-8)

**ADDITIONAL COURSES** (3 credits)  
ENGL 443(3) or ENGL 444(3) (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 30-33 credits

**LITERATURE, FILM, AND CULTURE OPTION:** 30-33 credits

**PRESCRIBED COURSES** (12-15 credits)  
CMLIT 453(3), ENGL 420(3), PHIL 409(3) (Sem: 4-8)  
ENGL 494(3-6)\* (Sem: 7-8)

\*If the 6-credit option is selected, 3 credits count toward the 400-level Additional Courses requirement.

**ADDITIONAL COURSES** (15 credits)  
Select 3 credits from COMM 150 GA(3) or INART 005 GA(3) or INART 110 GA(3) (Sem: 1-8)  
Select 6 credits at the 200 level or below from CMLIT or ENGL (except ENGL 050) (Sem: 1-8)  
Select 6 credits at the 400 level CMLIT or ENGL courses (except 400-level creative writing workshops) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)  
Select 3 credits from the following: ENGL 477(3), ENGL/WMNST 489(3), ENGL/WMNST 490 US;IL(3), ENGL 492/WMNST 491(3) (Sem: 5-8)

**REQUIREMENTS FOR THE PROFESSIONAL WRITING OPTION:** 30 credits

**PRESCRIBED COURSES** (12 credits)  
ENGL 100(3), ENGL 215(3), (Sem: 1-4)  
ENGL 417(3) (Sem: 5-8)  
ENGL 495(3) (Sem: 7-8)

**ADDITIONAL COURSES** (15 credits)  
ENGL 418(3) or ENGL 419(3) (Sem: 5-8)  
Select 12 credits from the following list, with at least 9 credits at the 400 level:  
COMM 260W(3); COMM 315(3), ENGL 262 GH(3) or ENGL 263 GH(3) or ENGL 265 GH(3);  
ENGL 415(3), ENGL 420(3), ENGL 425(3), ENGL 439(3), ENGL 479(1-3) (Sem: 3-8)

**SUPPORTING COURSES** (3 credits)  
COMM 001(1-3), COMM 002(1-3), COMM 320(3), COMM 370(3), COMM 406(3), COMM 460W(3), COMM 471(3), MKTG 301(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-044

Review Date: 04/10/2012

UCA Revision #2: 7/27/07

BC

## Electro-Mechanical Engineering Technology

Altoona College

Berks College

University College: Penn State New Kensington, Penn State York (EMET)

PROFESSOR SVEN BILÉN, Head, School of Engineering Design, Technology, and Professional Programs, College of Engineering, University Park  
 PROFESSOR IVAN M. ESPARRAGOZA, Director of Engineering Technology and Commonwealth Engineering, Penn State Brandywine  
 PROFESSOR IRENE FERRARA, Program Coordinator, Penn State Altoona  
 PROFESSOR TERRY SPEICHER, Program Coordinator, Penn State Berks  
 PROFESSOR RONALD LAND, Program Coordinator, Penn State New Kensington  
 PROFESSOR CHARLES GASTON, Program Coordinator, Penn State York

The Electro-Mechanical Engineering Technology (B.S. EMET) degree program provides the basic undergraduate education required for a career as an electro-mechanical engineering technologist. The program emphasizes a breadth of knowledge in all fields of engineering technology related to typical, highly-automated manufacturing, production, or assembly plant processes. Basic coverage is provided in all major areas to technology involved in the operation and control of manufacturing and production processes, including instrumentation and monitoring methods, principles of machine design, automated control techniques, thermal and fluid sciences, computerized manufacturing systems, principles of electrical and electronic circuit operation, computer-aided drafting and design, economics of production, and statistical analysis and quality control.

The primary aim of the EMET program is to provide graduates with the knowledge and skills necessary to apply current methods and technology to the development, design, operation, and management of electro-mechanical systems, particularly in those industries where automated systems are prevalent.

### Program Educational Objectives:

Specific educational objectives of the program expect that graduates of the program, within five years of graduation will be:

1. Capable of and actively involved in the specification, procurement, or integration of electromechanical systems
2. Capable of and actively involved in the operation, testing, or maintenance of electromechanical systems
3. Capable of and actively participating in project team activities
4. Capable of and actively involved in the preparation and delivery of technical documentation and communication

### Program Outcomes (Student Outcomes):

At graduation, EMET students should have:

- a) An ability to select and apply the knowledge, techniques, skills, and modern tools of their disciplines to broadly-defined engineering technology activities,
- b) An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies,
- c) An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes,
- d) An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives,
- e) An ability to function effectively as a member or leader on a technical team,
- f) An ability to identify, analyze, and solve broadly-defined engineering technology problems,
- g) An ability to communicate effectively regarding broadly-defined engineering technology activities,
- h) An understanding of the need for and an ability to engage in self-directed continuing professional development,
- i) An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity,
- j) A knowledge of the impact of engineering technology solutions in a societal and global context, and
- k) A commitment to quality, timeliness, and continuous improvement.

In addition, EMET graduates must demonstrate the knowledge and technical competency to:

- a) Use computer-aided drafting or design tools to prepare graphical representations of electromechanical systems.
- b) Use circuit analysis, analog and digital electronics, basic instrumentation, and computers to aid in the characterization, analysis, and troubleshooting of electromechanical systems.
- c) Use statics, dynamics (or applied mechanics), strength of materials, engineering materials, engineering standards and manufacturing processes to aid in the characterization, analysis, and troubleshooting of electromechanical systems.
- d) Use appropriate computer programming languages for operating electromechanical systems.
- e) Use electrical/electronic devices such as amplifiers, motors, relays, power systems, and computer and instrumentation systems for applied design, operation, or troubleshooting electromechanical systems.
- f) Use advanced topics in engineering mechanics, engineering materials, and fluid mechanics for applied design, operation, or troubleshooting of electromechanical systems.
- g) Use basic knowledge of control systems for the applied design, operation, or troubleshooting of electromechanical systems.
- h) Use differential and integral calculus, as a minimum, to characterize the static and dynamic performance of electromechanical systems.
- i) Use appropriate management techniques in the investigation, analysis, and design of electromechanical systems.

The major is organized as a four-year baccalaureate program with the corresponding Penn State admission requirements. Graduates of an associate degree in either electrical or mechanical engineering technology from Penn State may re-enroll in the EMET program. The College of Engineering ENGR students may enroll through "Change of Major" procedures. Students from an engineering technology program at another institution or community college accredited by TAC of ABET may transfer into the program with advanced standing.

For the B.S. degree in Electro-Mechanical Engineering Technology, a minimum of 130 credits is required. This program is accredited at Penn State Altoona, Penn State Berks, Penn State New Kensington, and Penn State York of the University College by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR) (See description of General Education in front of Bulletin.)

### FIRST-YEAR EXPERIENCE:

(Satisfied by the FYE program at the campus at which the student is enrolled in the EMET program)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 109-114 credits

(This includes 24 credits of General Education courses: 6 credits of GQ courses; 9 credits of GN courses; 6 credits of GWS courses; 3 credits of GH or GS courses.)

### PRESCRIBED COURSES (73 credits)

CMPET 117(3)[1], CMPET 120(1)[1], EDSGN 100(3), EET 105(3), IET 101(3), MCH T 111(3)[1] (Sem: 1-2)  
 EET 114(4)[1], EET 118(1)[1], EET 275(3), EG T 114(2), EMET 222(4)[1], ENGL 202C GWS(3), IET 215(2), IET 216(2), MCH T 214(1)[1] (Sem: 3-4)  
 CMPET 211(3), EET 212W(4)[1], EMET 230(3)[1], EMET 325(3), EMET 326(3), EMET 330(3)[1], EMET 350(3) (Sem: 5-6)  
 EMET 403(1), EMET 405(3), EMET 410(4), EMET 440(3), IET 333(2) (Sem: 7-8)

**ADDITIONAL COURSES (27-31 credits)**

Select 5-6 credits from MATH 040 GQ(5)[1]; or [MATH 022 GQ(3)[1] and MATH 026 GQ(3)[1]; or [MATH 081 GQ(3)[1] and MATH 082 GQ(3)[1] \* (Sem: 1-2)

Select 3 credits of GH or GS from: S T S 200 GS(3), S T S 233 GH(3), or S T S 245 GS;IL(3) (Sem: 2-8)

CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)

Select 4 credits from MATH 083 GQ(4)[1]\*\* or MATH 140 GQ(4)[1] (Sem: 3-4)

Select 3-4 credits from MATH 210 GQ(3)[1] or MATH 141 GQ(4)[1] (Sem: 3-4)

Select 3 credits from MATH 211 GQ(3)[1] or MATH 250(3)\*\*\* (Sem: 4-5)

Select 6-8 credits of GN courses from two of the following groups: PHYS 150 GN(3) or PHYS 211 GN(4) or PHYS 250 GN(4); PHYS 151 GN(3) or PHYS 212 GN(4) or PHYS 251 GN(4); CHEM 110 GN(3) and CHEM 111 GN(1) (Sem: 4-6)

**SUPPORTING COURSES AND RELATED AREAS (9-10 credits)**

Select 3-4 credits of science courses, in consultation with an adviser, from the approved department list (Sem: 4-6)

Select 6 credits of General Technical Elective courses, in consultation with an adviser, from the approved department list (Sem: 7-8)\_

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

\*students taking MATH 081 GQ(3) and MATH 082 GQ(3) must take MATH 083 GQ(4)

\*\*students taking MATH 083(4) must take MATH 210(3) and MATH 211(3)

\*\*\*Note that MATH 250 does not carry a C-requirement

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-03-047

Review Date: 11/13/2012

UCA Revision #1: 8/3/06 UCA Revision #2: 7/27/07

Comments

EN

Accreditation statement updated by Publications, per COE: 8/15/11

## Energy Engineering

University Park, College of Earth and Mineral Sciences (ENENG)

PROFESSOR SARMA V. PISUPATI, Undergraduate Program Chair

The undergraduate program in energy engineering is designed to reflect the growing impact and demand for energy in society and to equip students with the knowledge necessary to achieve the following career and professional goals: become valuable contributors in addressing society's energy needs and demands; successful leaders in advancing the technology and management of energy; innovators and entrepreneurs in the energy sector; and educators, practicing engineers, and national leaders on energy and associated environmental, health and safety, and policy and economics issues. The program integrates skill sets in the physical sciences (chemistry, engineering, mathematics, and physics) and social sciences (economics, policy, and management) to ensure successful career opportunities and growth within energy-related industries, government agencies, and academia.

The courses are structured to enable students to understand engineering fundamentals and apply the knowledge to solve problems in the production, processing, storage, distribution, and utilization of energy using multiple techniques as synthesis, analysis, design and case studies. Inquiry-based teaching methods and lab experiences are emphasized. The faculty research and scholarly activities are integrated into the curriculum. The program is designed to train students to be lifelong learners, problem solvers, and energy industry leaders. The educational opportunities are sufficiently flexible, broad, and diverse to enable students to tailor their educational experience to particular interests, background, and expected role in society. Flexibility in the curriculum allows other students in energy related programs such as agricultural and biological, chemical, civil, electrical, environmental, mechanical, mining, nuclear, and petroleum engineering, materials science and engineering, industrial health and safety, and energy business and finance to have dual or concurrent degrees, minors, or options (e.g., energy and fuels engineering option in chemical engineering).

The integration of knowledge and skills acquired during the course of study in the Energy Engineering program provides graduates with the following student outcomes:

1. An ability to apply knowledge of mathematics, science, and engineering
2. An ability to design and conduct experiments, as well as to analyze and interpret data
3. An ability to design a system, component, or process to meet desired needs
4. An ability to function on multi-disciplinary teams
5. An ability to identify, formulate, and solve engineering problems
6. An understanding of professional and ethical responsibility
7. An ability to communicate effectively
8. The broad education necessary to understand the impact of engineering solutions in a global and societal context
9. A recognition of the need for and an ability to engage in life-long learning
10. A knowledge of contemporary issues
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

### Energy Engineering Program Educational Objectives

Our graduates will be:

1. Employed in the public or private sectors in the areas of energy science, energy engineering or energy business management, or pursuing an advanced degree.
2. Contributing to development of solutions to society's current energy needs by integrating key science and engineering principles while being adaptable to changing organizational and societal needs;
3. Engaged in individual projects and multi-disciplinary teams designing, evaluating, and recommending methods and strategies for the efficient production, processing and utilization of renewable or non-renewable energy and addressing the associated environmental challenges;
4. Effectively communicating with management, coworkers, customers, clients and others in diverse environments;
5. Engaged in life-long learning process to maintain professional competency through training, participation in professional activities and leadership.

### Integrated B.S. in Energy Engineering (ENENG) and M.S. in Energy and Mineral Engineering (EME)

The integrated undergraduate-graduate (IUG) program between the Energy Engineering undergraduate program and the Energy and Mineral Engineering graduate program enables academically superior and research-focused ENENG undergraduate students to also obtain an M.S. degree in Energy and Mineral Engineering in five years of study. Students should refer to the Energy and Mineral Engineering graduate program in the Graduate Program Bulletin for the IUG admission and degree requirements. ([http://bulletins.psu.edu/bulletins/whitebook/graduate\\_degree\\_programs.cfm?letter=E&program=grad\\_eme.htm](http://bulletins.psu.edu/bulletins/whitebook/graduate_degree_programs.cfm?letter=E&program=grad_eme.htm))

For the B.S. in Energy Engineering, a minimum of 131 credits is required. This baccalaureate program in Energy Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

**GENERAL EDUCATION:** 45 credits

(30 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 116 credits

(This includes 30 credits of General Education courses: 3 credits of GH courses; 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

**PRESCRIBED COURSES** (89 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), EM SC 100S GWS(3) [\[88\]](#), MATH 140 GQ(4), MATH 141 GQ(4), PHYS 211 GN(4) (Sem: 1-2)

CHEM 210(3), E E 211(3), MATH 231(2), MATH 251(4), PHIL 103 GH(3), PHYS 212 GN(4) (Sem: 3-4)

EGEE 012(1), EGEE 302(3) [\[11\]](#), EGEE 304(3) [\[11\]](#), EGEE 411(3) [\[11\]](#), EGEE 430(3) [\[11\]](#), EGEE 438(3) [\[11\]](#), EME 301(3) [\[11\]](#), EME 303(3) [\[11\]](#), F SC 431(3), MATSE 201(3) (Sem: 5-6)

ENGL 202C GWS(3), EGEE 437(3), EGEE 441(3) [\[11\]](#), EGEE 451(3) [\[11\]](#), EGEE 464W(3) [\[11\]](#), EGEE 494(2) [\[11\]](#), F SC 432(3) (Sem: 7-8)

**ADDITIONAL COURSES** (12 credits)

E B F 200 GS(3) or ECON 102 GS(3) or ECON 014 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 3-4)

I E 302(3) or P N G 489(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 3 credits of EGEE electives from an approved list in consultation with an adviser.

Select 6 credits of professional courses from an approved list in consultation with an adviser. Other substitutions outside the approved list must be approved by petition.

Select 6 credits of technical electives from a broad list of energy related courses across colleges at Penn State. A list of suggested courses from energy-related departments at Penn State is provided. (Students may apply 6 credits of ROTC to some of the elective choices.) (Sem: 7-8)

**Course Substitutions for the Integrated B.S. in Energy Engineering (ENENG) and M.S. in Energy and Mineral Engineering (EME)**

As many as twelve of the credits required for the master's degree may be applied to both the B.S. and M.S. degrees. A minimum of six credits counted for both the B.S. and M.S. degrees must be at the 500-level. Thesis and culminating/capstone experience credits may not be double counted. The undergraduate degree program officer will determine the specific undergraduate required courses for which the 500-level courses may be used to substitute to meet institutional and accreditation requirements.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[88]** The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS can be substituted for EM SC 100S GWS; and an appropriate electrical circuits course may be approved as a substitute for E E 220.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-097

Review Date: 04/10/2012

EM

## English

*Capital College (ENGCL)*

PROFESSOR PATRICIA E. JOHNSON, *Program Coordinator, School of Humanities*

This English major, with its two options, offers students the unique opportunity to study literature in an interdisciplinary context where the relationships among literature and art, history, music, philosophy, media, and American Studies can be investigated. The major offers courses in American, British, and world literatures, emphasizing their cultural and historical contexts as well as teaching students to interpret them from a variety of critical perspectives. Small classes in both creative and expository writing encourage students to develop their writing skills by working closely with faculty.

For a B. HUM. degree in English, a minimum of 120 credits is required. For the B. HUM. degree in English with Secondary Education Option, a minimum of 122 credits is required.

**GENERAL ENGLISH OPTION:** With its emphases on interpretive skills, creativity, and writing, the General English Option provides a foundation for careers in such fields as publishing, public relations, communication, government and law, as well as a strong basis for graduate education.

### Entry to Major Requirements:

Entry to the English major requires a 2.00 or higher cumulative grade-point average.

**SECONDARY EDUCATION OPTION:** The Secondary Education Option enables the graduate to meet all the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Students admitted to the program must have the appropriate clearances. These include FBI fingerprint check, Act 151 child abuse history clearance, and Act 34 criminal record check.

Students thinking seriously about entering the education program should plan their freshman and sophomore years carefully. Semesters 5 through 8 are very structured.

### Entry to English Major, Secondary Education option requires the following additional requirements:

1. A minimum grade point average of 3.0.
2. Completion of ENGL 015 GWS(3) or ENGL 030 GWS(3) and three credits of literature from approved list with a C or higher grade.
3. Completion of six credits of college-level mathematics (MATH or STAT prefixes) with a C or higher grade.

### Selective Retention (Secondary Education Option):

Following entrance to the major, STUDENTS will be evaluated for retention in the program based on:

1. maintaining a cumulative GPA of 3.0 or higher;
2. completion of required courses with a C or higher grade;
3. an acceptable or above rating on the Penn State Harrisburg Professional Dispositions for Teacher Education.\*

To be eligible to student teach, STUDENTS must:

1. maintain a cumulative GPA of 3.0 or higher;
2. complete with a C or higher grade all required Content and Education Courses;
3. Satisfaction of any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for entrance to major;
4. submit and pass the Writing Proficiency Portfolio that demonstrates their proficiency as writers (see English Program Coordinator for specific instructions and deadlines);
5. be rated acceptable or above on the Penn State Harrisburg Professional Dispositions for Teacher Education.\*

In order to successfully complete the Secondary Education option, STUDENTS must:

1. complete EDUC 490 with a grade of C or higher;
2. maintain a cumulative GPA of 3.0 or higher;
3. complete with a grade of C or higher, all required Content and Education Courses;
4. complete a presentation portfolio; and
5. be rated acceptable or above on the Penn State Harrisburg Professional Dispositions for Teacher Education.\*

\*FOR MORE DETAILED INFORMATION SEE THE SECONDARY EDUCATION HANDBOOK.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(6-15 of these credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 0-18 credits

### BACHELOR OF HUMANITIES DEGREE REQUIREMENTS: 18 credits

(See description of Bachelor of Humanities Degree Requirements in *Bulletin*.)

### REQUIREMENTS FOR THE MAJOR: 45-65 credits

(This includes 6-15 of General Education courses: General English Option, 6 credits of General Education Arts (GA) and/or Social and Behavioral Science (GS) courses; Secondary Education Option, 6 credits of General Education Quantification (GQ) courses, 3 credits of General Education Social Sciences (GS) courses, and 6 credits of General Humanities (GH) courses.)

*At least 15 credits of Prescribed, Additional, and/or Supporting courses must be taken at the 400 level.*

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 21 credits

#### PREScribed COURSES (6 credits)[11](#)

ENGL 200W(3) (Sem: 5-6)

ENGL 444(3) (Sem: 7-8)

#### ADDITIONAL COURSES (3 credits)

Select 3 credits from the following: ENGL 221(3), ENGL 221W(3), ENGL 222(3), ENGL 222W(3), ENGL 231(3), ENGL 231W(3), ENGL 232(3), ENGL 232W(3) (Sem: 3-8)

#### SUPPORTING COURSES AND RELATED AREAS (12 credits) (At least 9 credits must be at the 300-400 level)

Select 3 credits in American ethnic literature or African-American literature from department list (Sem: 3-8)

Select 3 credits in world literature or comparative literature from department list (Sem: 3-8)



Select 3 credits in American literature at the 300 or 400 level from department list (Sem: 5-8)[\[1\]](#)

Select 3 credits in British literature at the 300 or 400 level from department list (Sem: 5-8)[\[1\]](#)

**REQUIREMENTS FOR THE OPTION: 24-53 credits**

**GENERAL ENGLISH OPTION: (24 credits)**

**ADDITIONAL COURSES (6 credits)**

Select 3 credits from the following: ENGL 050 GA(3), ENGL 210(3), ENGL 212(3), ENGL 213(3), ENGL 215(3), ENGL 250(3), ENGL 412(3), ENGL 413(3), ENGL 415(3), ENGL 416(3), ENGL 417(3), ENGL 418(3), ENGL 419(3), ENGL 420(3), ENGL 421(3), ENGL 422(3), ENGL 423(3), ENGL 425(3), ENGL 470(3), ENGL 491(3) (Sem: 3-[8](#)[1](#))

Select 3 credits from the following ENGL 100(3), ENGL 191 GH(3), ENGL 196 GH:US:IL(3), ENGL 261(3), ENGL 262 GH(3), ENGL 263 GH(3), ENGL 265 GH(3), ENGL 268 GH(3), ENGL 400(3), ENGL 401(3), ENGL 407(3), ENGL 458(3), ENGL 482(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS (18 credits)**

Select 12 credits in Literature, Writing, and/or Rhetoric (Sem: 3-8)

Select 6 credits from General Education Arts (GA) and/or Social and Behavioral Sciences (GS) (Sem: 3-8)

**SECONDARY EDUCATION OPTION: (53 credits)**

**PRESCRIBED COURSES (44 credits)**

HD FS 239 GS(3) (Sem: 1-2)

EDPSY 014(3) (Sem: 1-3)

C I 280 GH(3) (Sem: 3-4)

EDUC 313(2), EDUC 314(3), EDUC 315W US(3), EDUC 322(3), EDUC 416(3), EDUC 458(3), EDUC 490(12) (Sem: 5-8)

EDUC 459(3), ENGL 470W(3) (Sem: 6-7)[\[1\]](#)

**ADDITIONAL COURSES (9 credits)**

Select 6 credits of General Education Quantification courses (GQ) with a MATH or STAT prefix (Sem: 1-4)

Select 3 credits of GH literature from department list (Sem: 1-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-032A

Review Date: 04/09/2013

R & T: 01/14/2014

Program coordinator updated by Publications: 9/29/06

CL

# English

Abington College (ENGAB)

Altoona College (ENGAL)

University College (ENGCC): Penn State Brandywine, Penn State Greater Allegheny, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York  
University Park, College of the Liberal Arts (ENGL)

PROFESSOR MARK MORRISSON, *Interim Head*

Majors explore the imaginative and practical uses of English through courses in literature, writing, rhetoric, and language. They develop perspectives on human nature and cultural values through American, British, and other English literatures; they learn how to gather, analyze, synthesize, and communicate information; they gain mastery over their language. These skills help English majors find careers in such fields as publishing, business, industry, government, and teaching. English majors often go on to postgraduate study not only in English but in such areas as law, business, education, or other liberal disciplines.

Majors can emphasize writing, literature, or rhetoric, or a mix of literature, writing, and rhetoric. All provide a liberal education and all develop analytic and writing skills. Qualified students may participate in the career internship and in the English honors program.

Students interested in earning certification in secondary education should contact the College of Education, Department of Curriculum and Instruction. (See also Teacher Education Programs.)

For the B.A. degree in English, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 45 credits

(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in front of *Bulletin*.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits [\[1\]](#)

**PRESCRIBED COURSES** (6 credits)

ENGL 200(3), ENGL 201 GH(3) (Sem: 1-6)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from ENGL 221(3) or ENGL 221W(3) (Sem: 1-6)

Select 3 credits from ENGL 222(3), ENGL 222W(3), ENGL 231(3), ENGL 231W(3), ENGL 232(3), ENGL 232W(3), or ENGL 235 US(3) (Sem: 1-6)

Select 3 credits from ENGL 310H(3) or ENGL 487W(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Select 6 credits in literature, writing, or rhetoric (Sem: 1-8)

Select 3 credits at the 300 or 400 level in literature primarily before 1800 from department list (Sem: 5-8)

Select 3 credits at the 300 or 400 level in post-1800 multicultural/minority subject matter or in post-1800 sex and gender studies or in post-1800 postcolonial studies (Sem: 5-8)

Select 9 credits at the 300 or 400 level in literature, writing, or rhetoric (Sem: 5-8)

## Integrated B.A./M.A. Program in English

The BA in English requires a minimum of 123 credits, with 36 of those credits required for the English major—3 credits of English 200, 3 credits of English 201, 3 credits of English 221, 18 credits of English 300 level or above, 3 credits of pre-1800 300 level or above, 3 credits of post-1800 race, ethnic, or minority literatures 300 level or above, 3 credits of English 487W, senior seminar.

The B.A./M.A. consists of these 36 English credits of the B.A., plus an additional 24 English credits of M.A. work distributed as follows: 12 credits of English 512, 513, or 515. English 512, 513, and 515 can be repeated for credit. In addition, students will take 6 credits of a graduate-level literature and 6 credits of M.A. Master's paper, 596, to support work on a major project that will be the centerpiece of each student's culminating Master's paper. In the Master's paper, students receiving an M.A. in English with a creative writing concentration will append their Master's paper with a bibliographic essay referencing primary and/or secondary sources generated by their research for the paper. The essay can discuss the range of research modalities, including contextual background in the work itself as well as contemporary and historic literature that has influenced the style and form of the Master's paper. Sources consulted for contextual background can include library and database materials, historical research, oral history, interviews, and other bibliographic tools. 12 credits, 6 at the 400 level (412/413/415) and 6 at the 500 level (512/513/515), will be double counted between the B.A. and the M.A. The IUG B.A./M.A. consists of a total of 60 English credits.

A minimum of 141 credits are required to complete the IUG B.A./M.A. in English.

### Time of Admission to the Program

Students shall be admitted to the English IUG program no earlier than the beginning of the third semester of undergraduate study at Penn State (regardless of transfer or AP credits accumulated prior to enrollment) and no later than the end of the second week of the semester preceding the semester of expected conferral of the undergraduate degree, as specified in the proposed IUG plan of study.

Application to the English IUG would typically occur in the junior year after a student has completed 60 credits, enrolled in the English major, and completed two English courses in creative writing.

### Admission Requirements

Admission to the integrated B.A./M.A. program will be based on the submission of a portfolio of creative work and a plan of study to the department's Director of Graduate Studies and the Director of the B.A./M.A. program. Applications typically will be filed during the 5th or 6th semesters of study, and applicants must have achieved a minimum of 60 credits and a 3.3 overall GPA and 3.6 GPA in English to begin the program. The English Director of Graduate Studies will ensure that the applicant meets the minimum credit and GPA requirements for the program. The Director of the B.A./M.A. program will evaluate the quality of the student's creative work and the applicant's plan for fulfilling the requirements of the M.A. in English. The Director of the B.A./M.A.

program, in consultation with the Creative Writing faculty, will have final approval for what constitutes an acceptable level of creative work and an acceptable plan for the completion of the M.A.

The application procedure requires submission of the following:

- A. Support Letters from Faculty and Administrators (addressed to the department's Director of Graduate Studies and the Director of the B.A./M.A. program)
- B. A Personal Statement
- C. Portfolio of Creative Work
- D. A Plan of Study
- E. A transcript and degree audit printed from E-lion
- F. A current resume or curriculum vita
- G. A copy of the completed on-line Graduate School Application (GRE scores are not required).

#### **Plan of Study and Advising**

Prior to the application process, students should communicate their intent to enroll in the IUG to the English B.A. adviser and the Director of the B.A./M.A. program. The Director of the B.A./M.A. will help each student identify an appropriate series of English courses to properly prepare each student for the 500-level M.A. workshops and 500-level literature courses.

Students will be expected to maintain a minimum overall GPA of 3.3 for all undergraduate coursework and a GPA of 3.6 in English (ENGL) courses throughout the IUG program of study. Failure to do so will result in the student being advised that he/she must regain a GPA of 3.3 within one semester. If the GPA is not 3.3 or higher in general undergraduate coursework and 3.6 or higher in English coursework after that term, the student will be dropped from the IUG.

Each student enrolled in the B.A./M.A. will meet at the beginning of each term with the Director of the B.A./M.A. to discuss his or her progress through the M.A. degree and to make sure that he or she is following the plan established upon his or her admission to the B.A./M.A. program.

If the student decides not to continue on in the IUG, the student may, contingent on fulfilling all other requirements for the BA in English, graduate with a B.A. in English.

#### **Sequence of Courses**

The IUG B.A./M.A. consists of a total of 60 English credits. A minimum of 141 credits are required to complete the IUG B.A./M.A. in English.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-069

Review Date: 04/09/2013

[Comments](#)

LA

## Environmental Studies

Altoona College (ENVBS)

Professor Darin Zimmerman, *Head*

This interdisciplinary major is designed to provide students with an integrated and critical knowledge of the natural environment and human interactions with it. Students will receive a strong foundation in the natural and physical sciences, but will extend their studies across several disciplines, emphasizing both public policy issues and the role of the natural environment in literature, history, and culture. The goal of the program is "ecological literacy," which means that students will develop a broad-based understanding and awareness of environments and environmental issues, and they will develop the problem-solving and technical skills to address those issues. Program requirements include interdisciplinary courses in environmental studies and a broad array of courses in biology, geology, chemistry, physics, geography, economics, political science, English, history, and philosophy. By selecting appropriate electives to supplement the "additional courses" requirement of the major, students may develop an emphasis in either a specific field (i.e., biology) or in a general area of study (natural science, social science, and humanities).

The B.S. in Environmental Studies will better prepare our graduates for graduate studies and/or employment in the sciences (e.g., ecology, geosciences, environmental sciences, and physical geography). Many graduate programs require at least one semester of calculus, chemistry, and physics. Furthermore, the requirements of additional 400-level courses in the sciences will permit students to target their undergraduate studies in a particular area of science so that they are best prepared for graduate work in their area of choice and/or employment.

### Entrance to Major Requirements:

For entrance into the Environmental Studies B.S. program, students must have completed the following course ENVST 100(3) and have received a grade of C or better in the course.

For the B.S. degree in Environmental Studies, a minimum of 121 credits is required.

*Scheduling Recommendations by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selections or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 12 credits

### REQUIREMENTS FOR THE MAJOR: 88-90 credits

(This includes 24 credits of General Education courses as follows: 3 credits of GH courses; 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses.)

### PRESCRIBED COURSES (56 credits)

BIOL 110 GN(4) [\[1\]](#), BIOL 220W GN(4) [\[1\]](#), CHEM 020(3) [\[1\]](#), CHEM 021(1) [\[1\]](#), ENGL 180 GH(3) [\[1\]](#), ENVST 100 GS(3) [\[1\]](#) (Sem: 1-2)  
CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1) [\[1\]](#), ENVST 200(3) [\[1\]](#), GEOSC 001(3) [\[1\]](#), PHYS 250 GN(4) [\[1\]](#), SOILS 101 GN(3) [\[1\]](#) (Sem: 3-4)  
CHEM 202(3) [\[1\]](#), ECON 428(3) [\[1\]](#), GEOG 115 GN(3) [\[1\]](#), GEOG 160 GS(3) [\[1\]](#), HIST 453(3) [\[1\]](#), PHIL 403(3) [\[1\]](#) (Sem: 5-6)  
ENVST 400W(3) [\[1\]](#) (Sem: 7-8)

### ADDITIONAL COURSES (20-22 credits)

ECON 102 GS(3) [\[1\]](#) or ECON 104 GS(3) [\[1\]](#) (Sem: 1-2)  
MATH 110 GQ(4) [\[1\]](#) or MATH 140 GQ(4) [\[1\]](#) (Sem: 3-4)  
BIOL 222(3) [\[1\]](#) or BIOL 230W GN(4) [\[1\]](#) or BIOL 240W GN(4) [\[1\]](#) (Sem: 3-4)  
PL SC 135 GS(3) [\[1\]](#) or PL SC 425(3) [\[1\]](#) (Sem: 5-6)  
STAT 200 GQ(4) [\[1\]](#) or STAT 250 GQ(3) [\[1\]](#) (Sem: 3-6)  
Select ENVST 395(3) [\[1\]](#) and INTSP 370(1) [\[1\]](#); or ENVST 496(4) [\[1\]](#); or ENVST 296(1) [\[1\]](#) and ENVST 496(3) [\[1\]](#) (Sem: 7-8)

### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits from the three departmental lists (6 in natural science department list, 3 in social science department list, and 3 in arts and humanities department list in consultation with an academic adviser.)  
At least nine credits must be at the 400-level.

[\[1\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-014

Review Date: 04/09/2013

## Environmental Systems Engineering

University Park, College of Earth and Mineral Sciences (ENVSE)

PROFESSOR M. THADDEUS ITYOKUMBUL, Undergraduate Program Officer

It is an interdisciplinary program with two options. One option is Environmental Systems Engineering and it is concerned with the impact of industrial activities on the environment and the choice of cost-effective remediation strategies. The other option is Environmental Health and Safety Engineering and it is concerned with safe and healthful design of industrial systems such that workers are protected from potentially high risk exposures associated with today's industries. The program is unique as it is designed to address critical environmental, safety and health problems of the basic industries such as those involved in the extraction, conversion, and utilization of energy and mineral resources. The courses are sequenced so that students acquire an appropriate blend of theory, applications, and design and are equipped with the fundamentals necessary to maintain lifelong professional growth. Graduates are prepared to enter both the private and public sectors as environmental systems engineers or health and safety engineers or to pursue further education at the graduate level.

During the first two years, the program shares many common features (e.g., mathematics, chemistry, physics, and engineering mechanics) with other more traditional engineering disciplines. Students then take a series of special courses that introduce engineering concepts in the extractive and process industries. Process engineering and a variety of solid-solid, solid-fluid, and fluid-fluid separations play a major and often dominant role in the prevention and/or remediation of environmental damage or the prevention of health and safety hazards resulting from industrial activity. Students then specialize in the particular problems associated with air, land, or water, environmental health and safety engineering or select a hybrid program. Specialization is accomplished through a combination of additional designated courses and selection from an extensive list of relevant elective courses, which may include a senior thesis. The curriculum is structured so as to integrate design concepts into the various subject areas covered in the program.

The human, societal, economic, ethical, and regulatory aspects of the industrial impact on the environment and on the workers themselves are addressed through a combination of specific courses and components of other more general courses. This aspect of the program is designed to provide students with a deeper understanding, both of the impact of environmental degradation on society and of the effects on industrial activity of society's demands for protection of workers and the environment. The program culminates with the capstone design course, which is an integrated, problem-based, multi-faceted project in which students, working in a team setting, utilize fundamental concepts to design an environmental remediation system or an environmental health and safety protection system (or incorporate these design requirements into other associated designs).

The integration of knowledge and skills acquired during the course of study in the Environmental Systems Engineering program provides graduates with the following student outcomes:

- An ability to apply knowledge of mathematics, science, and engineering
- An ability to design and conduct experiments, as well as to analyze and interpret data
- An ability to design a system, component, or process to meet desired needs
- An ability to function on multi-disciplinary teams
- An ability to identify, formulate, and solve engineering problems
- An understanding of professional and ethical responsibility
- An ability to communicate effectively
- The broad education necessary to understand the impact of engineering solutions in a global and societal context
- A recognition of the need for and an ability to engage in life-long learning
- A knowledge of contemporary issues
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- An ability to integrate knowledge and minimize environmental impacts in resource recovery and the process industries

Environmental Systems Engineering Program Educational Objectives:

Our graduates will

- Enter the private or public sectors as environmental systems engineers to solve a broad range of environmental or health and safety problems associated with the resource recovery and general and process industries or pursue an advanced degree.
- Address critical environmental or health and safety problems of the basic industries, especially those involved with the extraction, conversion, and utilization of energy and mineral resources; design effective and economic engineering systems to alleviate such problems, individually and in a team setting; and communicate the results effectively.
- Determine the impact of environmental pollution control on the viability of industrial operations, including health and safety, social, and ethical aspects, and an awareness of environmental regulations; evaluate novel strategies for minimizing pollution control costs in the process industries.
- Recognize the need to maintain professional competency and the value of life-long learning.

### Entrance to Major Requirements:

In addition to the minimum grade point average (GPA) requirements described in the University Policies, the Environmental Systems Engineering entrance-to-major requirement must also be completed with a minimum grade of C: MATH 140 GQ(4). This course must be completed by the end of the semester during which the entrance-to-major process is carried out.

### Integrated B.S. in Environmental Systems Engineering (ENVSE) and M.S. in Energy and Mineral Engineering (EME)

The integrated undergraduate-graduate (IUG) program between the environmental systems engineering undergraduate program and the energy and mineral engineering graduate program enables academically superior and research-focused ENVSE undergraduate students to also obtain an M.S. degree in Energy and Mineral Engineering in five years of study. Students should refer to the Energy and Mineral Engineering graduate program in the Graduate Program Bulletin for the IUG admission and degree requirements.

([http://bulletins.psu.edu/bulletins/whitebook/graduate\\_degree\\_programs.cfm?letter=E&program=grad\\_eme.htm](http://bulletins.psu.edu/bulletins/whitebook/graduate_degree_programs.cfm?letter=E&program=grad_eme.htm))

For the B.S. in Environmental Systems Engineering, a minimum of 131 credits is required. This baccalaureate program in Environmental Systems Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 113-114 credits

(This includes 27 credits of General Education courses: 9 credits of GWS courses; 6 credits of GQ courses; 9 credits of GN courses; 3 credits of GS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 94-95 credits

**PRESCRIBED COURSES** (77 credits)

EM SC 100S GWS(3) [711](#) (Sem: 1-2)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 202(3), E MCH 211(3), E MCH 212(3), MATH 140 GQ(4) [111](#), MATH 141 GQ(4) [111](#), MATH 251(4),

PHYS 211 GN(4), PHYS 212 GN(4) (Sem: 1-4)  
 C E 370(3) [11], EME 301(3) [11], EME 303(3) [11] (Sem: 3-6)  
 ENGL 202C GWS(3) [11], GEOSC 452(3), MN PR 301(3) [11] (Sem: 5-6)  
 EME 460(3), ENVSE 404W(3), ENVSE 406(3), ENVSE 427(3) [11], ENVSE 450(3), ENVSE 480(3), MNG 401(1), P N G 411(1) (Sem: 5-8)

**ADDITIONAL COURSES** (11-12 credits)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
 CMPSC 201 GQ(3) or CMPSC 202 GQ(3), or CMPSC 203 GQ(4) (Sem: 3-4)  
 MATH 220 GQ(2) or MATH 231(2) (Sem: 3-4)  
 GEOSC 001(3) [11] or GEOSC 071(3) [11] (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits in consultation with adviser (Sem: 7-8) [2]

**REQUIREMENTS FOR THE OPTION:** 19 credits**ENVIRONMENTAL SYSTEMS ENGINEERING OPTION:** (19 credits)**PRESCRIBED COURSES** (10 credits)

GEOG 030 GS;IL(3), MICRB 106 GN(3) (Sem: 1-4)  
 EGEE 470(3), ENVSE 412(1) (Sem: 5-6)

**ADDITIONAL COURSES** (9 credits)

GEOSC 413W(3), SOILS 401(3), or METEO 455(3) (Sem: 7-8)  
 METEO 454(3), MN PR 425(3), or MN PR 426(3) (Sem: 7-8)  
 ENVSE 408(3), M E 433(3), or MN PR 401(3) (Sem: 7-8)

**ENVIRONMENTAL HEALTH AND SAFETY ENGINEERING OPTION:** (19 credits)**PRESCRIBED COURSES** (19 credits)

BIOL 141 GN(3), PSYCH 100 GS(3) (Sem: 1-4)  
 M E 405(3) (Sem: 5-6)  
 ENVSE 400(3), ENVSE 457(4), ENVSE 470(3) (Sem: 7-8)

**Integrated B.S. in Environmental Systems Engineering (ENVSE) and M.S. in Energy and Mineral Engineering (EME) Course Substitutions**

As many as twelve of the credits required for the master's degree may be applied to both the B.S. and M.S. degrees. A minimum of six credits counted for both the B.S. and M.S. degrees must be at the 500-level. Thesis and culminating/capstone experience credits may not be double counted. The undergraduate degree program officer will determine the specific undergraduate required courses for which the 500-level courses may be used to substitute to meet institutional and accreditation requirements.

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[2] Students who complete Basic ROTC may substitute 6 credits of ROTC for 3 credits of GHA courses and 3 credits of Supporting Courses and Related Areas.

[71] The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS or ENGL 202C GWS can be substituted for EM SC 100S GWS.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-021

Review Date: 11/19/2013

UCA Revision #1: 8/4/06

UCA Revision #2: 7/27/07

EM

## Environmental Studies

Altoona College (ENVBA)

PROFESSOR DARIN ZIMMERMAN, *Head*

This interdisciplinary major is designed to provide students with an integrated and critical knowledge of the natural environment and human interactions with it. Students will receive a strong foundation in the natural sciences but will extend their studies across several disciplines, emphasizing both public policy issues and the role of the natural environment in history and culture. The goal of the program is "ecological literacy," which means that students will develop a broad-based understanding and awareness of environments and environmental issues, and they will develop the problem-solving skills to address those issues. Program requirements include interdisciplinary courses in environmental studies and a broad array of courses in biology, geology, chemistry, geography, economics, political science, English, history, and philosophy. By selecting appropriate electives to supplement the "additional courses" requirement of the major, students may develop an emphasis in either a specific field (i.e., biology, English) or in a general area of study (natural science, social science, and humanities). Graduates are equipped for employment as environmental consultants in business or with governmental agencies and public interest groups. Many may go on to postgraduate study in environmental science, public policy, or the humanities, or to law school.

A student wishing to transfer into the Environmental Studies program must have completed the following course ENVST 100(3) and have received a grade of C or better in the course.

For the B.A. degree in Environmental Studies, a minimum of 120 credits is required.

*Scheduling Recommendations by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selections or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 10-11 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 64-65 credits [\[1\]](#)

(This includes 21 credits of General Education courses as follows: 3 credits of GH courses; 9 credits of GN courses; 3 credits of GQ courses; 6 credits of GS courses.)

**PRESCRIBED COURSES** (39 credits)

BIOL 110 GN(4), BIOL 220W GN(4), ENVST 100(3), ENGL 180 GH(3), GEOSC 001(3) (Sem: 1-2)

CHEM 020(3), CHEM 021(1), ENVST 200(3), GEOG 115 GN(3) (Sem: 3-4)

ECON 428(3), GEOG 160 GS(3), PHIL 403(3) (Sem: 5-6)

ENVST 400W(3) (Sem: 7-8)

**ADDITIONAL COURSES** (16-17 credits)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-2)

PL SC 135 GS(3) or PL SC 425(3) (Sem: 5-6)

STAT 200 GQ(4) or STAT 250 GQ(3) (Sem: 5-8)

GEOG 407(3) or HIST 453(3) (Sem: 7-8)

Select ENVST 395(1-18) and INTSP 370(1); or ENVST 496(4); or ENVST 296(1) and ENVST 496(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits (3 in each departmental list) in consultation with an academic adviser.

At least six credits must be at the 400-level. (Sem: 3-8)

a. Natural Sciences

b. Social Sciences

c. Arts and Humanities

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-006

Review Date: 04/10/2012

UCA Revision #1: 8/4/06

UCA Revision #2: 7/27/07

AL

Publications updated head: 3/21/11



## Education and Public Policy

University Park, College of Education (EPP)

PROFESSOR DANA MITRA, *In charge*

The Education and Public Policy major (EPP) offers an interdisciplinary program for mission-driven students who want to make a difference in society by building democratic participation and improving civic capacity in and through educational institutions and communities.

The EPP major prepares students to work in political and economic global systems for the betterment of a diverse and democratic society. EPP students become discerning research consumers and policy analysts in order to work for educational reform and social justice. The EPP major blends core courses in educational policy with foundations courses in sociology, political science, economics, business, race and class, and research methods. Elective courses within the major include policy problems, public systems, leadership, ethics, diversity, equality, and equity. In addition to academic studies, the EPP major includes a semester field experience culminating in a real-world, meaningful research project. Opportunities for internships include organizations in State College, Harrisburg, Philadelphia, and Washington, D.C. Graduates of the EPP program will enter professional careers in educational organizations, government, community development, public service, non-profits, consulting, philanthropy, and interest groups.

Baccalaureate degree candidates must have a minimum 2.0 GPA by the end of their fourth semester to be admitted to the Education and Public Policy (EPP) major; thereafter, students must earn a C or better in all prescribed and required courses necessary for the major.

For the B.S. degree in Education and Public Policy, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

### GENERAL EDUCATION: (45 credits)

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR. See description of General Education in the *Bulletin*.)

### FIRST-YEAR SEMINAR

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### ELECTIVES: 1-3 credits

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 90-91 credits

(This includes 12 credits of General Education courses: 6 credits of GS courses; 3 credits of GQ courses; and 3 credits of GH courses.)

### PRESCRIBED COURSES (39 credits)

PL SC 001 GS(3), PL SC 003 GS:IL(3), ECON 102 GS(3), ECON 104 GS(3), EDTHP 115 US(3), HIST 021 GH:US(3), SOC 005 GS(3) (Sem: 1-4)  
CAS 222/CIVCM 211 GS:US(3), EDTHP 200 GS(3), EDTHP 420(3) (Sem: 3-6)  
EDTHP 394(3) (Sem: 5-6)  
EDTHP 395(3), EDTHP 420(3) (Sem: 7-8)

### ADDITIONAL COURSES (9-10 credits)

EDPSY 101 GQ(3), STAT 100 GQ(3) [\[1\]](#) or STAT 200 GQ(4) [\[1\]](#) (Sem: 1-3)  
SOC 001 GS(3) [\[1\]](#) or R SOC 011 GS:US(3) [\[1\]](#) (Sem: 1-3)  
EDPSY 400(3), EDPSY 406(3), SOC 023 GS(3), SOC 207(3) (Sem: 3-8)

### SUPPORTING COURSES AND RELATED AREAS (42 credits)

Select 9 credits of Educational Theory and Policy Studies at the 400 level (Sem: 3-8)  
Select 15 credits of Policy Problems and Public Systems from approved department list (Sem: 3-8) [\[1\]](#)  
Select 6 credits of Leadership and Citizenship from approved department list (Sem: 3-8) [\[1\]](#)  
Select 6 credits of Diversity and Equity from approved department list (Sem: 3-8) [\[1\]](#)  
Select 6 credits of Major-related courses in consultation with EDTHP adviser. (Sem: 3-8)

A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-038

Review Date: 04/09/2013

ED



## Energy and Sustainability Policy

University Park, College of Earth and Mineral Sciences offered via the World Campus

VERA COLE, Program Officer

The Bachelor of Arts degree in Energy and Sustainability Policy (ESP) is an interdisciplinary program, preparing students for careers in the evolving policy sector of the energy and sustainability fields. ESP will help students achieve five broad educational objectives: (1) energy industry knowledge; (2) a sustainability ethic; (3) analytical skills; (4) communication skills; and (5) global perspective. Graduates will be prepared to act as agents for stakeholders, facilitating communication, design, and planning between the executive wing and operations wing of organizations, including commercial firms, NGOs, and governmental bodies. The BA in ESP is designed for students having completed two years of a bachelor's degree or an associate's degree. The online program serves a national market of adult learners who need to participate part-time and at a distance.

For the B.A. degree in Energy and Sustainability Policy a minimum of 121 credits is required.

*Scheduling recommendation by semester standing given as (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(30 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR). (See description of General Education in this bulletin)

**FIRST-YEAR SEMINAR:** 1 credit

Undergraduate programs delivered through the World Campus are exempt from the FYS requirement. However, the B.A. in ESP program will require a comparable 1-credit Program Orientation course (EM SC 302) that introduces students to program objectives and advising resources.

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:** (Included in GENERAL EDUCATION course selections or REQUIREMENTS FOR THE MAJOR.)

**WRITING ACROSS THE CURRICULUM:** (Included in the REQUIREMENTS FOR THE MAJOR.)

**BACHELOR OF ARTS REQUIREMENTS:** 24 credits

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**ELECTIVES:** 0-9

**REQUIREMENTS FOR THE MAJOR:** 82 credits

(This includes 30 credits of General Education Courses: 9 credits of GN courses, 9 credits of GWS courses, 6 credits of GQ courses, and 6 credits of GS courses.)

**PRESCRIBED COURSES:** 76 credits

CAS 100 GWS(3), CHEM 101 GN(3) [\[1\]](#), ECON 102 GS(3), ENGL 015 GWS(3), PL SC 001 GS(3) (Sem: 1-2)  
ACCTG 211(4), ECON 104 GS(3), ENGL 202D GWS(3), MATH 110 GQ(4) [\[1\]](#), STAT 200 GQ(4) [\[1\]](#) (Sem: 3-4)  
E B F 200 GS(3) [\[1\]](#), EGEE 102 GN(3) [\[1\]](#), EM SC 302(1), GEOG 030 GS:IL(3) [\[1\]](#) (Sem: 5)  
EGEE 120 GS:IL:US(3), METEO 469(3) [\[1\]](#), EME 444(3) [\[1\]](#), GEOG 469(3) [\[1\]](#) (Sem: 6)  
B A 250(3), EGEE 401(3), GEOG 432(3) [\[1\]](#), PL SC 490(3) [\[1\]](#) (Sem: 7)  
EME 466(3) [\[1\]](#), ENGR 312(3) [\[1\]](#), GEOG 438W(3) (Sem: 8)

**ADDITIONAL COURSES:** 6 credits

METEO 003 GN(3) or METEO 101 GN(3) (Sem: 5)  
EGEE 299 IL(3) or EGEE 495(3) (Sem: 8)

[\[1\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-05-029

Review Date: 02/23/2010

## Food Science

University Park, College of Agricultural Sciences (FD SC)

PROFESSOR STEPHANIE DOORES, Program Coordinator

Food science involves the application of science and technology to food product manufacture, storage, and distribution to consumers. Food scientists are especially concerned with food safety, nutritional values, managing food quality, food plant management, and development of new products and processes. They are employed by manufacturers and distributors of food products; by chemical, packaging, and other industries that supply goods and services; by colleges and universities in teaching and research; and by government agencies concerned with food regulations and the health and well-being of the general public.

Students must complete at least one 3-credit writing-intensive course, selected from "W" courses offered in the major or college of enrollment, 3 credits of United States Cultures courses, and 3 credits of International Cultures courses prior to graduation.

For the B.S. degree in Food Science, a minimum of 128 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 10 credits

**REQUIREMENTS FOR THE MAJOR:** 91 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

**PRESCRIBED COURSES** (64 credits)

BIOL 110 GN(4), CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), FD SC 200(3)[\[1\]](#) (Sem: 1-2)

B M B 211(3), FD SC 201(1)[\[1\]](#), MICRB 201(3), MICRB 202(2), PHYS 250 GN(4) (Sem: 3-4)

B M B 212(1), FD SC 400(4)[\[1\]](#), FD SC 405(3)[\[1\]](#), FD SC 406(3)[\[1\]](#), FD SC 408(2)[\[1\]](#), FD SC 409W(3)[\[1\]](#), FD SC 410(3)[\[1\]](#), STAT 250 GQ(3) (Sem: 5-6)

FD SC 411(2), FD SC 413(3), FD SC 414(3), FD SC 415(3), FD SC 430(3) (Sem: 7-8)

**ADDITIONAL COURSES** (13-15 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (12-14 credits)

To reflect the student's career interests, select 12-14 credits from department list or in consultation with adviser (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-05-003

Review Date: 02/25/2014

01/19/00 (General Education information updated)

UCA Revision #1: 8/4/06

AG

## Film-Video

*University Park, College of Communications (FILM)*

PROFESSOR ANTHONY OLORUNNISOLA, *Head, Department of Film-Video and Media Studies*

The Film-Video major is designed to serve students whose primary interest is the art of film and video practice. It offers an integrated curriculum in which historical, critical, and theoretical studies parallel the teaching of production and aesthetics.

The major serves students who wish to pursue careers in film, television, or related industries, as well as students planning to continue work in film and video at the graduate level.

The major includes a broad liberal arts background with introductory courses in the areas of film and video history, theory, and practice. Students have the flexibility to pursue an area of emphasis at the advanced level (narrative, alternative or documentary production).

Students must select at least 80 credits in courses outside the College of Communications, including at least 65 in the liberal arts and sciences.

Acceptance into the Film/Video major is determined by a successful portfolio review by faculty after the completion of COMM 242 with a grade of C or better as required of a major course. Students must also have earned fourth semester standing (43.5 credits completed and/or are in progress). The portfolio submission window is during finals week of Spring semester each academic year. Students are then notified via email on the decision by the first Friday in June of that year. Applicants who are not accepted into the major may re-apply the following year but must realize that this course of action could delay their graduation by at least one year.

For the B.A. degree in Film-Video, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES)

**ELECTIVES:** 18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 33 credits [\[1\]](#)

**PRESCRIBED COURSES** (15 credits)

COMM 150 GA(3) (Sem: 1-2)

COMM 242(3), (Sem: 2-4)

COMM 340(3), COMM 342W(3) (Sem: 5-6)

COMM 250(3) (Sem: 5-8)

**ADDITIONAL COURSES** (18 credits)

Select 6 credits from COMM 337W(3), COMM 338(3), COMM 339(3) (Sem: 5-6) \*

Select 3 credits from COMM 437(3)\*, COMM 438(3)\*, COMM 439(3)\*, COMM 448(3)\*\* (Sem: 7-8)

Select 9 credits from COMM 346(3), COMM 437(3)\*, COMM 438(3)\*, COMM 439(3)\*, COMM 440(3), COMM 443(3), COMM 444(3), COMM 445(3), COMM 446(3), COMM 449(3) (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

\* Neither COMM 437, COMM 438, nor COMM 448 may be taken concurrently.

\*\* Admittance to COMM 448 is by permission of instructor.

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-072

Review Date: 04/13/2010

Department head update by Publications: 1/16/07

Publications 02/17/05

CM

## Finance

University Park, Smeal College of Business (FIN)

PROFESSOR WILLIAM A. KRACAW, *Chair of the Department of Finance*

This major provides students with an opportunity to study investment analysis, management of banks and other financial institutions, and financial management of corporations and other businesses. Course coverage includes business finance, security markets, commercial bank management, investment valuations, portfolio management, futures and options markets, and capital budgeting.

**Entrance Requirement:** To be eligible for entrance into the Finance (FIN) major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

**Specific entrance requirements include:**

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin, including approximately 60 credits of course work.
2. Complete the following entrance to major requirements: ACCTG 211(4) [\[1\]](#); ECON 102 GS(3); SCM 200 GQ(4) [\[1\]](#) or STAT 200 GQ(4) [\[1\]](#); ENGL 015 GWS(3) or ENGL 030 GWS(3); and MATH 110 GQ(4) [\[1\]](#) or MATH 140 GQ(4) [\[1\]](#); FIN 301(3) [\[1\]](#); MGMT 301(3) [\[1\]](#); and MKTG 301(3) [\[1\]](#). These courses must be completed by the end of the semester during which the entrance to major process is carried out.
3. In addition to the above requirements, the Executive Vice President and Provost of the University may approve administrative enrollment controls that limit the number of students who are admitted to majors in the Smeal College of Business. In each case, however, academic requirements are established for admission. For information on enrollment controls, consult the Smeal College of Business Web site (<http://www.smeal.psu.edu>).

For the B.S. degree in Finance, a minimum of 120 credits is required with at least 15 credits at the 400 level.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 14 credits

**REQUIREMENTS FOR THE MAJOR:** 73 credits

(This includes 12 credits of General Education courses: 3 credits of GWS courses; 6 credits of GQ courses; 3 credits of GS courses.)

**PRESCRIBED COURSES** (46 credits)

ACCTG 211(4) [\[1\]](#), ECON 102 GS(3), FIN 301(3) [\[1\]](#); MGMT 301(3) [\[1\]](#); and MKTG 301(3) [\[1\]](#) (Sem: 1-4)

B A 342(3), B A 411(3), B LAW 341(3), ECON 104 GS(3), ENGL 202D GWS(3), FIN 305W(3) [\[1\]](#), FIN 406(3) [\[1\]](#), FIN 408(3) [\[1\]](#), MIS 204(3), SCM 301(3), (Sem: 5-6)

**ADDITIONAL COURSES** (14 credits)

MATH 110 GQ(4) [\[1\]](#) or MATH 140 GQ(4) [\[1\]](#) (Sem: 1-2)

SCM 200 GQ(4) [\[1\]](#) or STAT 200 GQ(4) [\[1\]](#) (Sem: 1-2)

Select 6 credits [\[1\]](#) from FIN 405(3), FIN 407(3), FIN 410(3), FIN 414(3), FIN 460(3) or R M 460(3), FIN 470(3) or R M 470(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (13 credits)

Select 4 credits: Attainment of 12th credit level proficiency in a single foreign language. (4 credits) Proficiency must be demonstrated by either examination or course work. (Sem: 1-4)

Select 3 credits of related coursework. See Department List. (Sem: 5-8)

Select 6 credits of supporting coursework. See Department List. (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-040

Review Date: 04/13/2010

UCA Revision #1: 8/4/06

BA

## Finance

*Capital College (FINCE)*

JANE S. KOCHANOV, *Director of Undergraduate Studies, School of Business Administration*

The finance major emphasizes analytic, problem solving, and computer skills which are necessary for finance and investment industry. The major prepares students for careers in corporate finance, investment and portfolio management, banking, public finance, and international finance. The major also prepares students who want to pursue graduate study in finance. Depending on their interests, graduates may then seek financial services credentials such as Certified Financial Planner (CFP) and Chartered Financial Analyst (CFA).

The requirements in the major complement basic business instruction in accounting, management, marketing, and information systems. With business and non-business electives, the program is designed to develop necessary skills to be an effective financial manager. Because the Harrisburg area is the center of industry and economic development for south-central Pennsylvania, students are provided with many opportunities to experience the world of business.

For a B.S. degree in Finance, a minimum of 120 credits is required. At least 50 percent of the business credit hours required for the degree must be taken at Capital College. No more than 60 credits should be from business and business-related courses.

### Entry to Major Requirements:

Entry to the Finance major requires the completion of 8 entry-to-major courses: ACCTG 211(4)[\[1\]](#); ECON 102 GS(3)[\[1\]](#); ENGL 015 GWS(3) or ENGL 030 GWS(3); FIN 301(3) [\[1\]](#); MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#); MGMT 301(3); MKTG 301(3); SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#); and a 2.00 or higher cumulative grade-point average. Additional information about this major is available in the office of the Director of Undergraduate Studies, School of Business at Penn State Harrisburg.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education Course Requirements in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** Select 8 credits of non-business courses.

### REQUIREMENTS FOR THE MAJOR: 79 credits

(This includes 12 credits of General Education Courses: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses)

### PRESCRIBED COURSES (49 credits)

ACCTG 211(4)[\[1\]](#); ECON 102 GS(3)[\[1\]](#); ENGL 202D GWS(3); FIN 301(3)[\[1\]](#); MGMT 301(3); MKTG 301(3) (Sem: 1-4)

ECON 104 GS(3)[\[1\]](#); ECON 351(3)[\[1\]](#); FIN 302(3)[\[1\]](#); MIS 204(3); MIS 390(3) (Sem: 5-6)

B A 364Y US;IL(3); FIN 420(3)[\[1\]](#); SCM 301(3) (Sem: 6-7)

B A 462(3)[\[1\]](#); FIN 475(3)[\[1\]](#) (Sem: 8)

### ADDITIONAL COURSES (21 credits)

Select 4 credits from MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#) (Sem: 1-4)

Select 4 credits from SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#) (Sem: 1-4)

Select 4 credits from B A 243(4) or B A 241(2) and B A 242(2) (Sem: 5-6)

Select 9 credits [\[1\]](#) from the following: ACCTG 481(3); FIN 305(3); FIN 306W(3); FIN 407(3); FIN 408(3); FIN 409(3); FIN 413(3); FIN 427(3); FIN 456 IL(3); FIN 461(3); FIN 489(3); FIN 496(3); or other finance courses approved by the Program (Sem: 6-8)

(For students considering CFA exam, FIN 407, FIN 427 and FIN 461 are recommended.)

### SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits from 200-400 level business courses from: ACCTG, B A, ECON, FIN, MGMT, MIS, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests. (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Reviewed by the Department: Spring Semester 2012

Blue Sheet Item #:40-06-060

Review Date: 04/10/2012

UCA Revision #1: 8/4/06

UCA Revision #2: 7/27/07

[Comments](#)

CL

## Finance

*Penn State Erie, The Behrend College (FNC)*

The Finance major is a unique program that provides the student with a firm foundation in the principles of finance and its major areas: financial management, investments, and financial markets. The coursework is designed to lead to professional certification in financial analysis. Students have job opportunities in a variety of positions with mutual funds, brokerage firms, banks, and insurance companies, as well as positions in corporate finance.

The program provides students with the depth and breadth of knowledge necessary to prepare them for Level I of the Chartered Financial Analysts (CFA) Exam. The rigorous curriculum, including courses in finance, accounting, and economics, is based on the CFA Body of Knowledge developed through surveys of professionals involved in the practice of investment management. Students will be encouraged to take Level I of the CFA exam after graduation.

### Entrance to Major Requirements:

Entry to the Finance major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Finance, 120 credits are required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 0-1 credit

### REQUIREMENTS FOR THE MAJOR: 89-92 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

### PRESCRIBED COURSES (43 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)  
FIN 301(3) [\[1\]](#), MGMT 301(3) [\[1\]](#), MIS 204(3) [\[1\]](#), MKTG 301(3) [\[1\]](#), SCM 301(3) [\[1\]](#) (Sem: 3-6)  
ACCTG 426(3) [\[1\]](#), FIN 420(3) [\[1\]](#), FIN 451(3) [\[1\]](#), FIN 471(3) [\[1\]](#) (Sem: 5-6)  
MGMT 471W(3) [\[1\]](#) (Sem: 7-8)

### ADDITIONAL COURSES (19-22 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)  
SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)  
B A 241(2) and B A 242(2) or B A 243(4) (Sem: 3-6)  
ACCTG 305(4) [\[1\]](#) or ACCTG 371(4) [\[1\]](#) and ACCTG 472(3) [\[1\]](#) (Sem: 5-6)  
Select 3 credits from: ECON 304(3) [\[1\]](#), ECON 351(3) [\[1\]](#), ECON 442(3) [\[1\]](#), ECON 481(3) [\[1\]](#), or ECON 485(3) [\[1\]](#) (Sem: 7-8)

### SUPPORTING COURSES AND RELATED AREAS (27 credits)

Select 15 credits from one of the non-business supporting course areas (see school list of approved courses). See the Admission section of the general information in the front of this *Bulletin* for the placement policy for Penn State foreign language courses. (Sem: 1-8)  
Select 6 credits from FIN or other business areas (see school list of approved courses). (Sem: 5-8)  
Select 6 additional credits from 400-level FIN courses, excluding FIN 494 and FIN 495 (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-056

Review Date: 08/24/2010

UCA Revision #1: 8/4/06

UCA Revision #2: 7/27/07

BD

## Forest Ecosystem Management

University Park, College of Agricultural Sciences (FOREM)

PROFESSOR ELLEN MANNO, Program Coordinator

The mission of the B.S. program in Forest Ecosystem Management is to help students develop the knowledge, skills, and professional ethics for understanding and managing forest ecosystems and living as responsible members of society.

The Forest Ecosystem Management major provides for the education necessary for students to pursue professional careers in one of the following options: (1) Forest Biology, (2) Forest Management, (3) Community and Urban Forest Management, and (4) Watershed Management. These options also will prepare students for graduate studies in continuing professional education.

**FOREST BIOLOGY OPTION:** This option provides a strong background in the biological and ecological aspects of contemporary forestry and establishes a sound foundation for professional employment and graduate-level study in forestry, ecology, and related disciplines.

**FOREST MANAGEMENT OPTION:** This option provides professional training in the management of forest lands consistent with the needs of ownership objectives. Employment opportunities include forest management positions with public agencies, industry, and private consulting.

**COMMUNITY AND URBAN FOREST MANAGEMENT OPTION:** This option helps prepare students to manage community trees and green spaces. It emphasizes technical expertise, communication abilities, and skills for working with diverse people. Employment opportunities include municipalities, arboricultural companies, utilities, and government agencies.

**WATERSHED MANAGEMENT OPTION:** This option focuses on water resources and the integrated management of natural resources with emphasis on water. Graduates qualify for federal employment as hydrologists and for water-related careers in municipal watershed management, state and local government, and environmental/engineering consulting.

For the B.S. degree in Forest Ecosystem Management, a minimum of 120 credits is required for the Forest Biology, Forest Management, and Watershed Management options, and a minimum of 123 credits for the Community and Urban Forest Management option. Students should be aware that, in most cases, completion of the Forest Ecosystem Management degree in four years requires enrollment at the University Park Campus beginning the fall semester of the sophomore year.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(21-27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-10 credits

**REQUIREMENTS FOR THE MAJOR:** 90-102 credits

(This includes 21-27 credits of General Education courses; 9 credits of GN courses; 6 credits of GQ courses; 3-6 credits of GS courses; 0-3 credits of GA courses; 3 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 35-36 credits

**PRESCRIBED COURSES** (29 credits)

CHEM 110 GN(3), CHEM 111 GN(1), ECON 102 GS(3) (Sem: 1-2)  
FOR 200(1) [\[1\]](#), FOR 203(3) [\[1\]](#), FOR 255(3) [\[1\]](#), FOR 266(4) [\[1\]](#), SOILS 101 GN(3) (Sem: 3-4)  
FOR 308(3) [\[1\]](#) (Sem: 5-6)  
FOR 400(2) [\[1\]](#), FOR 421(3) [\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (6-7 credits)

STAT 200 GQ(4) [\[1\]](#), STAT 240 GQ(3) [\[1\]](#), or STAT 250 GQ(3) [\[1\]](#) (Sem: 1-2)  
ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 5-6)

**REQUIREMENTS FOR THE OPTION:** 55-66 credits

**FOREST BIOLOGY OPTION:** (57-58 credits)

**PRESCRIBED COURSES** (34 credits)

BIOL 110 GN(4), BIOL 220W GN(4) (Sem: 1-2)  
CHEM 202(3) (Sem: 3-4)  
FOR 204(2) [\[1\]](#), FOR 350(3) [\[1\]](#), FOR 409(2) [\[1\]](#), SOILS 102(1) (Sem: 3-6)  
FOR 410(3) [\[1\]](#), FOR 430(3) [\[1\]](#), FOR 450W(3) [\[1\]](#), HORT 445(3), W F S 209(3) (Sem: 5-8)

**ADDITIONAL COURSES** (8-9 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) [\[1\]](#) (Sem: 1-2)  
Select 4-5 credits from ENT 313(2), FOR 403(3), PPEM 318(2) (Sem: 4-8)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits from department list in consultation with adviser (Sem: 5-8)

**FOREST MANAGEMENT OPTION:** (56-60 credits)

**PRESCRIBED COURSES** (32 credits)

FOR 204(2) [\[1\]](#), FOR 320(2) [\[1\]](#), FOR 350(3) [\[1\]](#) (Sem: 3-6)  
ENT 313(2), PPEM 318(2), W F S 209 GN(3) (Sem: 5-6)  
FOR/W F S 430(3) [\[1\]](#), FOR 440(3) [\[1\]](#), FOR 455(3) [\[1\]](#), FOR 466W(3) [\[1\]](#), FOR 470(3) [\[1\]](#), FOR 480(3) [\[1\]](#) (Sem: 5-8)

**ADDITIONAL COURSES** (12-16 credits)

BIOL 110 GN(4) or BIOL 127 GN(3) (Sem: 1-2)  
MATH 022 GQ(3) [\[1\]](#) and MATH 026 GQ(3) [\[1\]](#); or MATH 040 GQ(5) [\[1\]](#); or MATH 041 GQ(3) [\[1\]](#); or MATH 110 GQ(4) [\[1\]](#); or MATH 140 GQ(4) [\[1\]](#) (Sem: 1-2)  
FOR 409(2) [\[1\]](#) and SOILS 102(1) or FOR 475(3) [\[1\]](#) (Sem: 3-8)  
FOR 401(3) [\[1\]](#) or FOR 450W(3) [\[1\]](#) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

In consultation with adviser, select 12 credits from department list approved for the option. Six credits must be 300-to 400-level. (Sem: 5-8)

**COMMUNITY AND URBAN FOREST MANAGEMENT OPTION:** (61-66 credits)

**PRESCRIBED COURSES** (32 credits)

A S M 217(3), ENT 313(2), ENT 314(1), FOR 204(2), PPEM 318(2) (Sem: 3-6)  
FOR 401(3) [\[1\]](#), FOR 450W(3) [\[1\]](#), FOR 480(3) [\[1\]](#), GEOG 430(3), HORT 138(3), HORT 301(3), HORT 408(4) (Sem: 5-8)

**ADDITIONAL COURSES** (21-25 credits)

BIOL 110 GN(4) or BIOL 127 GN(3) (Sem: 1-2)

MATH 022 GQ(3) [\[1\]](#) and MATH 026 GQ(3) [\[1\]](#); or MATH 040 GQ(5) [\[1\]](#); or MATH 041 GQ(3) [\[1\]](#); or MATH 110 GQ(4) [\[1\]](#); or MATH 140 GQ(4) [\[1\]](#) (Sem: 1-2)

ARCH 316 GA(3) or LARCH 060 GA(3) or LARCH 065 GA(3) (Sem: 3-4)

FOR 409(2) [\[1\]](#) and SOILS 102(1) or FOR 475(3) [\[1\]](#) (Sem: 3-8)FOR 495(3) [\[1\]](#) or FOR 496(3) [\[1\]](#) (Sem: 5-6)

RPTM 320(3) or RPTM 325(3) or RPTM 435(3) or RPTM 470(3) (Sem: 5-6)

FOR 455(3) or GEOG 363(3) or SOILS 450(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (8-9 credits)

Select 8-9 credits from department list In consultation with adviser (Sem: 5-8)

**WATERSHED MANAGEMENT OPTION:** (55-59 credits)**PRESCRIBED COURSES** (7 credits)FOR 450W(3) [\[1\]](#), FOR 470(3) [\[1\]](#), FOR 471(1) [\[1\]](#) (Sem: 6-8)**ADDITIONAL COURSES** (9-11 credits)MATH 110 GQ(4) or MATH 140 GQ(4) [\[1\]](#) (Sem: 1-2)

MATH 111 GQ(2) or MATH 141 GQ(4) (Sem: 3-4)

FOR 409(2) [\[1\]](#) and SOILS 102(1); or FOR 475(3) [\[1\]](#) (Sem: 3-8)**SUPPORTING COURSES AND RELATED AREAS** (39-41 credits)

Select 6 credits of GS social sciences from E B F 200 GS(3), ECON 302 GS(3), EGEE 211 GS(3), ENVST 100 GS(3), GEOG 020 GS(3), GEOG 030 GS(3), GEOG 130 GS(3), GEOG 160 GS(3), PL SC 001 GS(3), PL SC 135 GS(3) (Sem: 1-5)

Select 6 credits of physical sciences from EARTH 100 GN(3), EARTH 103 GN(3), EARTH 111 GN(3), GEOG 010 GN(3), GEOG 110 GN(3), GEOSC 001(3), GEOSC 010 GN(3), GEOSC 040 GN(3), METEO 003 GN(3), METEO 122 GN(3), MICRB 106 GN(3), MICRB 201(3) (Sem: 1-5)

Select 6-8 credits of GN from PHYS 001 GN(3), PHYS 150 GN(3), PHYS 151 GN(3), PHYS 211 GN(4), PHYS 213 GN(2), PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 3-4)

Select 3 credits in geospatial analysis from FOR 455(3), GEOG 362(3), GEOG 363(3), GEOG 364(3) or SOILS 450(3) (Sem: 5-6)

Select 6 credits of resources management from A S M 327(3), CED 201(3), CED 427W(3), CED 429(3), CED 431W(3), CED 450 IL(3), E R M 411(3), E R M 412(3), E R M 413W(3), FOR 410(3), FOR 440(3), GEOG 411W(3), GEOG 430(3), GEOG 431(3), SOILS 422(3) (Sem: 5-8)

Select 9 credits from water sciences from A S M 309(3), C E 360(3), C E 370(3), C E 371(3), E R M 435(3), E R M 447(3), E R M 450(3), ENVE 411(3), ENVE 415(3), ENVSE 408(3), GEOG 310W(3), GEOG 311(3), GEOG 412W(3), GEOSC 412(3), GEOSC 413W(3), GEOSC 440(3), GEOSC 452(3), METEO 451(3), METEO 454(3), SOILS 405(3), W F S 422(3) Three credits must be at the 400-level. (Sem: 5-8)

Select 3 additional credits at the 300-to 400-level from the lists above (Sem:7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-002

Review Date: 04/09/2013

UCA Revision #1: 8/4/06

AG



## French and Francophone Studies

University Park, College of the Liberal Arts (FR BA)

PROFESSOR BENEDICTE MONICAT, *Head*

The B.A. major in French and Francophone Studies encourages students to develop fluency in the language as well as an appreciation of francophone literature and culture. The major can also help to prepare students for interdisciplinary professional careers in which a knowledge of a foreign language is useful. At present, the B.A. major in French and Francophone Studies is available either as a Language and Culture option or as a Language and Literature option.

For the B.A. degree in French, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits [\[1\]](#)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 18 credits

**PRESCRIBED COURSES** (18 credits)

FR 201 IL(3), FR 202 IL(3), FR 331 IL(3), FR 332(3), FR 351 IL(3), FR 352 IL(3) (Sem: 1-6)

**REQUIREMENTS FOR THE OPTION:** 18 credits

**LANGUAGE AND CULTURE OPTION:** (18 credits)

**PRESCRIBED COURSES** (9 credits)

FR 316(3) or FR 417 IL(3) or FR 418 IL(3) or FR 419 IL(3), and FR 402Y IL(3), FR 430 IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (9 credits)

Select 9 credits in French literature at the 400 level (Sem: 5-8)

**LANGUAGE AND LITERATURE OPTION:** (18 credits)

**ADDITIONAL COURSES** (18 credits)

FR 316(3) or FR 417 IL(3) or FR 418 IL(3) or FR 419 IL(3) (Sem: 5-8)

Select 15 credits in French literature at the 400 level (Sem: 5-8)

**LANGUAGE AND LINGUISTICS OPTION:** (18 credits)

**PRESCRIBED COURSES** (15 credits)

FR 316(3), FR 402Y IL(3), FR 417(3), FR 418(3), FR 419(3) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)

LING 402, LING 404 or LING 449 (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-05-117

Review Date: 02/22/2011

LA

## French and Francophone Studies

University Park, College of the Liberal Arts (FR BS)

PROFESSOR BENEDICTE MONICAT, *Head*

The B.S. degree is designed to allow students to combine fluency in French with other academic disciplines. The Business option develops basic skills in French (speaking, understanding, reading, writing) and acquaints students with a number of fields essential to business, especially in the international area. The Engineering option has a required overseas study or work component. The Applied French option develops basic skills in French (speaking, understanding, reading, writing) as well as a basic knowledge of French literature and culture. At the same time, it provides a concentration in a professional area in which a command of French can be particularly relevant or useful. Courses in French culture and civilization are essential to all B.S. options, and students are encouraged to participate in the University's International Studies programs in France.

For the B.S. degree in French and Francophone Studies (all options) a minimum of 120 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(0-13 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 11-18 credits

### REQUIREMENTS FOR THE MAJOR: 57-77 credits<sup>[1]</sup>

(This includes 0-13 credits of General Education courses. For the French-Business Option, 0-4 credits of GQ courses; 6-9 credits of GS courses; 3 credits of GWS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 27 credits

#### PRESCRIBED COURSES (24 credits)

FR 201 IL(3), FR 202 IL(3), FR 331(3), FR 332(3), FR 351 IL(3), FR 352 IL(3) (Sem: 1-6)  
FR 401 IL(3), FR 402Y IL(3) (Sem: 5-8)

#### ADDITIONAL COURSES (3 credits)

FR 316(3) or FR 417 IL(3) or FR 418 IL(3) (Sem: 1-6)

### REQUIREMENTS FOR THE OPTION: 30-50 credits

#### FRENCH-BUSINESS OPTION: (50 credits)

##### PRESCRIBED COURSES (34 credits)

FR 407 IL(3) (Sem: 1-2)  
ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), I B 303 IL(3), MGMT 100(3) (Sem: 1-4)  
ENGL 202D GWS(3), FIN 100(3), FR 430 IL(3), MKTG 221(3) (Sem: 5-8)

##### ADDITIONAL COURSES (10 credits)

SCM 200(4) or STAT 200 GQ(4) (Sem: 3-4)  
ECON 333 GS(3) or MKTG 445 IL(3), or MGMT 461(3) (Sem: 5-8)  
MKTG 220(3) or I B 403(3) (Sem: 5-8)

#### SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 3 credits in French literature (Sem: 5-8)  
Select 3 credits in French at the 400 level (Sem: 5-8)

#### FRENCH-ENGINEERING OPTION: (33 credits)

(Open only to students enrolled in an engineering major.)

##### PRESCRIBED COURSES (6 credits)

FR 409 IL(3), FR 430 IL(3) (Sem: 5-8)

##### SUPPORTING COURSES AND RELATED AREAS (27 credits)

Select 21 credits of engineering courses, including ENGR 295(1-3) and ENGR 395(1-3), in consultation with the engineering adviser (Sem: 3-8)  
Select 6 credits in French at the 400 level (Sem: 5-8)

*Note:*All French-Engineering majors are required to participate in a one-semester engineering internship in France, arranged by the College of Engineering, during which up to 9 credits in French and up to 12 credits in engineering may be earned. The work experience may take the form of a professional internship (ENGR 195I) or be part of a cooperative education sequence (ENGR 295I, ENGR 395I, or ENGR 495I).

#### APPLIED FRENCH OPTION: (30 credits)

##### PRESCRIBED COURSES (3 credits)

FR 430(3) (Sem: 5-8)

##### SUPPORTING COURSES AND RELATED AREAS (27 credits)

Select 18 credits in related areas such as Hotel, Restaurant, and Institutional Management; Linguistics; Sociology; Economics; Science, Technology and Society, or in another professional areas where competency in French is desirable. The courses are to be selected in consultation with an adviser. At least six credits of such courses must be at the 400 level. (Sem: 1-8)  
Select 9 credits in French at the 400 level. (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-05-118

Review Date: 02/22/2011

UCA Revision #1: 8/8/06

LA



## Forensic Science

University Park, The Eberly College of Science (FRNSC)

Forensic Science is the application of scientific principles and methods to assist criminal and civil investigations and litigation. This major is an inter-college collaboration among academic units and provides students with a strong foundation in the biological, physical, and mathematical sciences. It introduces them to relevant topics in criminalistics forensic chemistry, forensic biology, crime scene investigation, and appropriate social sciences. Students are educated on the role of forensic scientists in the criminal justice system, the collection and analysis of scientific evidence, and the manner in which evidence is presented in court. Graduates of this major could pursue employment as a scientist in a federal, state, or private forensic laboratory or with insurance companies, homeland security agencies, or the judicial community. Graduates could also choose to pursue advanced degrees, for example, in forensic science, medicine, psychology, anthropology, pathology, odontology, entomology, toxicology, law, or in the general sciences.

In order to be eligible for entrance to the Forensic Science major, a student must have: (1) attained at least a 2.00 cumulative grade point average (2) completed CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), FRNSC 210(3), MATH 140 GQ(4), and earned a grade of C or better in each of these courses.

For the B.S in Forensic Science a minimum of 124-126 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin)

### FIRST YEAR SEMINAR:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 97-99 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GH courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 63 credits

#### PRESCRIBED COURSES: (52 credits)<sup>[1]</sup>

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 210(3), CHEM 212(3), CHEM 213(2), MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-4)

PHIL 132 GH(3) (Sem: 1-8)

FRNSC 100(3) (Sem: 2)

FRNSC 210(3) (Sem: 3)

FRNSC 410(2) (Sem: 4-6)

FRNSC 415W(2) (Sem: 5-6)

FRNSC 411(3), FRNSC 413(3) (Sem: 5-7)

FRNSC 400(1), FRNSC 485W(4) (Sem: 7-8)

STAT 250 GQ(3) (Sem: 5-8)

FRNSC 475(1) (Sem: 7-8)

#### ADDITIONAL COURSES: (11 credits)<sup>[1]</sup>

CRIM 100 GS(3) or CRIM 113 US(3) (Sem: 1-6)

PHYS 250 GN(4), PHYS 251 GN(4); or PHYS 211 GN(4), PHYS 212 GN(4) (Sem: 2-6)

### REQUIREMENTS FOR THE OPTION: 34-36 credits

#### FORENSIC BIOLOGY OPTION: (36 credits)

##### PRESCRIBED COURSES: (21 credits)<sup>[1]</sup>

B M B 251(3), MICRB 201(3), MICRB 202(2) (Sem: 1-4)

B M B 400(3) (Sem: 5-7)

B M B 401(3), B M B 442(3) (Sem: 5-7)

FRNSC 421W(4) (Sem: 7-8)

##### ADDITIONAL COURSES: (6 credits)<sup>[1]</sup>

BIOL 222(3) or BIOL 322(3) (Sem: 3-5)

Select 3 credits from B M B 402(3), B M B 428(3), B M B 433(3), BIOL 405(3), BIOL 422(3), BIOL 460(3) (Sem: 6-8)

#### SUPPORTING COURSES AND RELATED AREAS (9 credits)

*Up to 4 credits may be used to achieve the II level of foreign/second language (Spanish is recommended)*

Select 9 credits; including at least 3 credits at the 400 level. (Sem: 3-8)

#### FORENSIC CHEMISTRY OPTION: (34 credits)

##### PRESCRIBED COURSES: (19 credits)<sup>[1]</sup>

BIOL 110 GN(4), BIOL 230W GN(4) (Sem: 1-4)

CHEM 227(4) (Sem: 3-5)

CHEM 425(4) (Sem: 5-7)

FRNSC 427W(4) (Sem: 6-8)

##### ADDITIONAL COURSES: (6 credits)<sup>[1]</sup>

B M B 428(3), CHEM 402(3), CHEM 410(3), CHEM 412(3), CHEM 423W(3), CHEM 430(3), CHEM 431W(3), CHEM 450(3), CHEM 452(3) or 3 credits of 400-level biochemistry (Sem: 5-8)

#### SUPPORTING COURSES AND RELATED AREAS (9 credits)

*Up to 4 credits may be used to achieve the II level of foreign/second language (Spanish is recommended)*

Select 9 credits; including at least 3 credits at the 300-400 level (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-096A

Review Date: 01/10/2012

UCA Revision #1: 8/4/06

UCA Revision #2: 7/27/07

SC



## General Engineering (G E)

Abington College  
Penn State Great Valley  
University College, Penn State Brandywine, Penn State DuBois, Penn State Hazleton

PROFESSOR SVEN BILÉN, *Head of School of Engineering, Design, Technology and Professional Programs (SEDAPP)*  
PROFESSOR IVAN E. ESPARRAGOZA, *Director of Engineering Technology and Commonwealth Engineering*

PROFESSOR ROBERT AVANZATO, *Program Coordinator, Penn State Abington*  
PROFESSOR ASAD AZEMI, *Program Coordinator, Penn State Brandywine*  
PROFESSOR DAUDI WARYOBA, *Program Coordinator, Penn State DuBois*  
PROFESSOR KATHRYN W. JABLOKOW, *Program Coordinator, Penn State Great Valley*  
PROFESSOR WIESLAW GREBSKI, *Program Coordinator, Penn State Hazleton*

The General Engineering program provides students with a broad foundation in engineering with specialization in a technically and professionally relevant topic. Students must choose the Multidisciplinary Engineering Design option at Abington, Brandywine and Great Valley campuses, Applied Materials option at the DuBois campus or the Alternative Energy and Power Generation option at the Hazleton campus. From this degree program, students will acquire the ability to work as members of a team toward successful attainment of a common goal, thus preparing them to work in for-profit or nonprofit organizations, or to further their studies in graduate school. Typical employment for General Engineering graduates includes positions such as engineer, product engineer, process engineer, manufacturing engineer, development engineer, and materials engineer. With employment opportunities such as these and others, graduates of the General Engineering program can attain professional and economically sustaining employment in their desired regional area. This degree program develops written and oral communication skills, culminating in a two-semester senior design course sequence consisting of a project based largely on student interest and faculty input.

### Program Educational Objectives:

The educational objectives of the General Engineering program are designed to prepare graduates who, during the first few years of professional practice will

1. Be employed by industry or government in the fields, such as, design, research and development, experimentation and testing, manufacturing, and technical sales
2. Assume an increasing level of responsibility and leadership within their respective organizations
3. Communicate effectively and work collaboratively in multidisciplinary and multicultural work environments
4. Recognize and understand global, environmental, social, and ethical contexts of their work
5. Progress to an advanced degree and certificate programs and be committed to lifelong learning to enhance their careers and provide flexibility in responding to changing social and technical environments.

### Program Outcomes (Student Outcomes):

Graduates of the General Engineering program shall be able to:

- a) Apply knowledge of mathematics, science, and engineering
- b) Design and conduct experiments, as well as to analyze and interpret data
- c) Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- d) Function on multidisciplinary teams
- e) Identify, formulate, and solve engineering problems
- f) Demonstrate an understanding of professional and ethical responsibility
- g) Communicate effectively
- h) Demonstrate the understanding of the impact of engineering solutions in a global, economic, environmental, and societal context
- i) Recognize the need for, and an ability to engage in life-long learning
- j) Demonstrate knowledge of contemporary issues
- k) Use the techniques, skills, and modern engineering tools necessary for engineering practice.

In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHSY 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

For the B.S. degree in General Engineering, a minimum of 127 credits are required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR.)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection.)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR.)

### REQUIREMENTS FOR THE MAJOR: 109 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 71 credits

#### PREScribed COURSES: 45 credits

CHEM 110 GN(3)[\[11\]](#), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), EDSGN 100(3), MATH 140 GQ(4)[\[11\]](#), MATH 141 GQ(4)[\[11\]](#), PHYS 211 GN(4)[\[11\]](#) (Sem: 1-2)  
E MCH 211(3)[\[11\]](#), E MCH 213(3), MATH 231(2), MATH 251(4), PHYS 212 GN(4), PHYS 214 GN(2) (Sem: 3-4)  
ENGR 490W(1), ENGR 491W(3) (Sem: 7-8)

#### ADDITIONAL COURSES: 22 credits

Select 1 credit of First-Year Seminar (Sem:1-2)  
CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 1-2)  
ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
CMPSC 121 GQ(3) or CMPSC 201 GQ(3) (Sem: 3-4)  
ECON 102 GS(3) or ECON 104 GS(3) (Sem: 3-4)  
ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 3-4)  
M E 300(3)[\[11\]](#) or EME 301(3)[\[11\]](#) (Sem: 3-4)  
ENGR 350(3)[\[11\]](#), E MCH 407(3)[\[11\]](#), or E MCH 461(3)[\[11\]](#) (Sem: 5-6)

#### SUPPORTING COURSES AND RELATED AREAS: 4 credits

Select 4 credits in General Technical Electives from the program approved list.

#### REQUIREMENTS FOR THE OPTION: 38 credits

**APPLIED MATERIALS OPTION:** (38 credits)

**PRESCRIBED COURSES:** 38 credits

E MCH 212(3), ENGR 320(3), MATSE 201(3) [\[1\]](#), MATSE 400(3), MATSE 413(3), STAT 200 GQ(4) (Sem: 5-6)  
ENGR 421(4), ENGR 450(3), MATSE 402(3), MATSE 411(3), MATSE 417(3), MATSE 430(3) (Sem: 7-8)

**ALTERNATIVE ENERGY AND POWER GENERATION OPTION:** (38 credits)

**PRESCRIBED COURSES:** 38 credits

E E 210(4) [\[1\]](#) (Sem: 3-4)  
E E 314(3), EGEE 302(3), EME 303(3), M E 345(4), NUC E 401(3) (Sem: 5-6)  
E E 485(3), E E 488(3), EGEE 420(3), EGEE 437(3), EGEE 438(3), EGEE 441(3) (Sem: 7-8)

**MULTIDISCIPLINARY ENGINEERING DESIGN OPTION** (38 credits)

**PRESCRIBED COURSES:** 38 credits

CMPEN 271(3), E E 210(4), E MCH 212(3) [\[1\]](#) (Sem: 3-4)  
CMPEN 331(3), CMPEN 472(3), E E 310(4) [\[1\]](#), E E 352(4) [\[1\]](#) (Sem: 5-6)  
CMPEN 454(3), EDSGN 401(3), EDSGN 410(4) [\[1\]](#), EDSGN 495(1), ENGR 407(3) (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-03-033

Review Date: 11/08/2011

R & T: Approved 5/24/2013

## General Arts and Sciences

*Penn State Erie, The Behrend College (GAS)*

In this interdisciplinary major students may pursue broad interests and develop their own specialized programs when their interests are not congruent with established programs. The B.A. degree in General Arts and Sciences can be a terminal degree, or students can prepare for graduate school, professional school, or employment in business, government, or industry.

The Liberal Studies option provides the most flexible undergraduate degree program in the University except for the Bachelor of Philosophy degree. Students can use the Liberal Studies option to structure a program of study around their individual interests and career plans and can develop background in areas where Penn State Erie, The Behrend College, does not currently offer majors.

For further information and a complete list of courses, contact the head of the Division of Humanities and Social Sciences.

For the B.A. degree in General Arts and Sciences, a minimum of 124 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**ELECTIVES:** 19 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 12 credits

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 3 credits in each of the areas of arts, humanities, science/mathematics, and the social and behavioral sciences (Sem: 1-8)

**REQUIREMENTS FOR THE OPTION:** 24 credits

**HUMANITIES OPTION:** (24 credits)

**SUPPORTING COURSES AND RELATED AREAS** (24 credits)

Select 24 credits in humanities from those listed under humanities in the Bachelor of Arts Degree Requirements list, with at least 3 credits in each of three areas, including 15 credits at the 400 level (Sem: 1-8)

**LIBERAL STUDIES OPTION:** (24 credits)

**SUPPORTING COURSES AND RELATED AREAS** (24 credits)

(15 of these credits must be at the 400 level)

In this option, the student shall submit a proposal to the adviser listing his/her choice of subjects beyond those required in the Supporting Courses and Related Areas category. In consultation with the adviser and the General Arts and Sciences program head, the student may choose from any B.A. course offering of the University. Option must be approved no later than the end of the sixth semester. (Sem: 1-8)

**SCIENCE/MATHEMATICS OPTION:** (24 credits)

**SUPPORTING COURSES AND RELATED AREAS** (24 credits)

Select 24 credits in science/mathematics from those listed under science/mathematics in the Bachelor of Arts Degree Requirements list, with at least 3 credits in each of three areas, including 15 credits at the 400 level (Sem: 1-8)

**SOCIAL AND BEHAVIORAL SCIENCES OPTION:** (24 credits)

**SUPPORTING COURSES AND RELATED AREAS** (24 credits)

Select 24 credits in the social and behavioral sciences from those listed in the Bachelor of Arts Degree Requirements list, with at least 3 credits in each of three areas, including 15 credits at the 400 level (Sem: 1-8)

Last Revised by the Department: Summer Session 1988

Blue Sheet Item #: 16-08-166

Review Date: 01/30/01(Editorial changes)

BD



## Graphic Design

*University Park, College of Arts and Architecture (GD)*

PROFESSOR KEITH CUMMINGS, *Professor in Charge*

This degree is intended to prepare students for careers in graphic design. The program includes the technical skills and the creative and intellectual capacity essential to the practices of graphic design and is intended to prepare students for employment in design studios, advertising agencies, packaging, publications and corporate design, film and television graphics, and Web and interactive design.

Acceptance into the Graphic Design major is determined by a portfolio review by faculty after the completion of GD 001S(1), GD 100 GA(3), GD 101(2), GD 102(3), and PHOTO 100 GA(3) with grades of C or better in all of these courses. Typically, this review will take place in the second semester. Applicants who are not accepted into the major may re-apply the following year but must realize that this course of action could delay their graduation by at least one year.

For the B. Des. degree in Graphic Design, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(0-6 of these 45 credits are included in REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 6-12 credits

**REQUIREMENTS FOR THE MAJOR:** 69 credits<sup>[1]</sup>

(This includes 0-6 credits of General Education courses: 0-6 credits of GA courses.)

**PRESCRIBED COURSES** (51 credits)

GD 001S(1), GD 100(3), GD 101(2), GD 102(3), PHOTO 100 GA(3), PHOTO 200(3) (Sem: 1-2)

GD 200(3), GD 201(3), GD 202W(3) (Sem: 3-4)

GD 300(4), GD 301(4), GD 302(4), GD 303(4) (Sem: 5-6)

GD 400(4), GD 402(4), GD 495(3) (Sem: 7-8)

**ADDITIONAL COURSES** (18 credits)

Select 12 credits from "history of arts" coursework (6 of these credits may also be counted toward the General Education Arts requirement)

Select 6 credits from GD 304(3), GD 310(3-6), GD 401(3), GD 404(3), and GD 495(1-15) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-006

Review Date: 04/12/2011

R&T Revision 4/8/2014 SCR

AA

## Geography

University Park, College of Earth and Mineral Sciences (GEOBA)

PROFESSOR KARL S. ZIMMERER, *Head*

Penn State's College of Earth and Mineral Sciences offers a strong mix of human, physical, and technical components that comprise the core of the geography major. Undergraduate degrees in geography are offered in the Bachelor of Science (BS) and in the Bachelor of Arts (BA). Both programs offer an integrated course of study in which students learn fundamental concepts in physical and human geography while developing technical proficiency.

The Bachelor of Arts (BA) stresses the social and behavioral aspects of geography; the Bachelor of Science (BS) major stresses the discipline's environmental and technical perspectives. Both majors provide training in descriptive and analytical skills such as mapping and spatial analysis. Substantive course work in the Bachelor of Arts major focuses on the ways people have arranged themselves and their economic, social and political activities on the surface of the Earth. Combining geography with other areas of study allows students to choose from a broad range of topics in order to suit their individual interests. The BA Geography major is especially appropriate for students seeking a deeper understanding of the human experience and for students intending to pursue post-graduate work in geography or related disciplines.

Bachelor's degree program graduates may find employment in federal, state, and local administrative and planning agencies or in private firms that specialize in marketing and environmental research. Geographers make careers doing planning, environmental consulting, policy analysis, demographics, cartography, remote sensing, and geovisualization. They work for government agencies, non-profit and educational institutions, and industry.

Those students seeking a Bachelor of Arts degree in Geography may choose one of three areas of concentration:

**GENERAL OPTION:** This option is designed to serve the needs of students who want to learn about the various topics and perspectives that comprise the discipline of geography, with emphasis on social and behavioral components. The General option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to emphasize a topic for which no option exists.

**HUMAN GEOGRAPHY OPTION:** This option offers a program for students interested in a well-rounded education in geography that stresses the social and behavioral aspects of the discipline, including economic geography and political economy; urban/regional development and planning; and cultural/historical geography. The Human Geography option is appropriate both for students who intend to pursue postgraduate degrees and for students who wish to enter careers related to planning, policy, and development.

**NATURE-SOCIETY GEOGRAPHY OPTION:** This option offers a program for students interested in the interactions between people and their environment that emphasized the complex linkages and multi-scalar processes between the biophysical environment and human societies. The Nature-Society Geography option is appropriate both for students who intend to pursue postgraduate degrees and for students who wish to enter careers related to environmental governance, human dimensions of global change, including climate change, livelihood and ecological sustainability, and ecosystem service provision.

For the B.A. degree in Geography, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 9 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 52 credits [\[1\]](#)

(This includes 10 credits of General Education courses: 4 credits of GQ courses; 6 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 31 credits

**PRESCRIBED COURSES** (25 credits)

EM SC 100S GWS(3) [\[71\]](#) (Sem: 1-2)

GEOG 010 GN(3), GEOG 020 GS;US;IL(3), GEOG 030 GS;IL(3), GEOG 160 GS(3), STAT 200 GQ(4) (Sem: 1-4)

GEOG 301(3), GEOG 364(3) (Sem: 5-6)

**ADDITIONAL COURSES** (6 credits)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

Select 3 credits from GEOG 493(3), GEOG 494(3), or GEOG 495(3) (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 21 credits

**GENERAL OPTION:** (21 credits)

**ADDITIONAL COURSES** (21 credits)

**PHYSICAL GEOGRAPHY**

Select 3 credits from GEOG 110 GN(3), GEOG 111 GN(3), GEOG 115 GN(3), GEOG 310W(3), GEOG 311(3), GEOG 313(3), or GEOG 333(3) (Sem: 3-6)

Select 3 credits from GEOG 411(3), GEOG 411W(3), GEOG 412W(3), or GEOG 417(3) (Sem: 5-8)

**HUMAN GEOGRAPHY**

Select 3 credits from GEOG 120 GS;US;IL(3), GEOG 122 GH;US(3), GEOG 123 GS;IL(3), GEOG 124 GS;IL(3), GEOG 126 GS;US;IL(3), GEOG 128 GS;IL(3), or GEOG 130 GS(3) (Sem: 3-6)

Select 3 credits from GEOG 420Y US;IL(3), GEOG 423Y US(3), GEOG 424 US;IL(3), GEOG 425 US(3), GEOG 426Y US;IL(3), GEOG 427 US;IL(3), GEOG 428 US(3), GEOG 429 US;IL(3) (Sem: 5-8)

**NATURE-SOCIETY GEOGRAPHY**

Select 3 credits from GEOG 430(3), GEOG 431(3), GEOG 434(3), GEOG 436(3), GEOG 438W(3), GEOG 439(3), GEOG 444(3) (Sem: 5-8)

**GEOGRAPHIC INFORMATION SCIENCE**

Select 3 credits from GEOG 361(3), GEOG 362(3), GEOG 363(3), GEOG 364(3) (Sem: 3-6)

Select 3 credits from GEOG 461W(3), GEOG 463(3), GEOG 464(3), GEOG 467(3), GEOG 468(3) (Sem: 5-8)

**HUMAN GEOGRAPHY OPTION:** (21 credits)

**ADDITIONAL COURSES** (21 credits)

Select 9 credits from GEOG 120 GS;US;IL(3), GEOG 122 GH;US(3), GEOG 123 GS;IL(3), GEOG 124 GS;IL(3), GEOG 126 GS;US;IL(3), GEOG 128 GS;IL(3), or GEOG 130 GS(3) (Sem: 3-6)

Select 12 credits from GEOG 420Y US;IL(3), GEOG 423Y US(3), GEOG 424 US;IL(3), GEOG 425 US(3), GEOG 426Y US;IL(3), GEOG 427 US;IL(3), GEOG 428 US(3), or GEOG 429 US(3) (Sem: 5-8)

**NATURE-SOCIETY GEOGRAPHY OPTION:** (21 credits)

**PRESCRIBED COURSES** (9 credits)

GEOG 130 GS(3), GEOG 333(3) (Sem: 3-6)

GEOG 430(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 12 credits from GEOG 431(3), GEOG 434(3), GEOG 436(3), GEOG 438W(3), GEOG 439(3), GEOG 444(3) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[71]** The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS or ENGL 202C GWS can be substituted for EM SC 100S GWS.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-02-003

Review Date: 09/27/2011

EM (Transferred from the College of the Liberal Arts--effective FA2006)

Publications updated department head: 9/2/08

## Geobiology

University Park, College of Earth and Mineral Sciences (GEOBI)

PROFESSOR PETER J. HEANEY, Associate Head for Undergraduate Programs

Geobiology is the interdisciplinary study of the Earth and its biosphere. It embraces the history of life and its interactions with the Earth over geologic time; it also includes study of interactions between living organisms and physical and chemical processes in the modern environment on Earth, and possibly elsewhere in the universe. Thus, geobiology encompasses the fields of paleobiology and paleontology, biogeochemistry, geomicrobiology, and astrobiology. The degree program provides students with a strong background in general science and especially in Geosciences and Biology, with core selections from both disciplines. Students gain practical field experience in the study of the physical environment and ecological properties. The senior thesis provides students with hands-on research experience, as well as an emphasis on data synthesis and the written expression of scientific observations and ideas. Students will be well prepared for advanced studies in this emerging discipline, and for careers in the environmental sciences. Geobiology is critical to the study of environmental quality, global change and environmental-human health interactions, all of which have profound importance in legal, economic, and policy arenas.

For the B.S. degree in Geobiology, a minimum of 121 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES :

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 97 credits

(This includes 21 credits of General Education courses: 9 credits of GN courses, 6 credits of GQ courses, 6 credits of GWS courses.)

### PRESCRIBED COURSES (54 credits)

BIOL 110 GN(4)[\[1\]](#), BIOL 220W GN(4)[\[1\]](#), EM SC 100S GWS(3)[\[71\]](#), MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-2)  
CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), PHYS 211 GN(4), PHYS 213 GN(2) (Sem: 1-4)  
GEOSC 001(3) [if GEOSC 001 is not available, GEOSC 020 GN(3) may be substituted] (Sem: 1-6)  
GEOSC 201(4), GEOSC 204(4)[\[1\]](#) (Sem: 3-6)  
GEOSC 310(4)[\[1\]](#) (Sem: 5-6)  
GEOSC 494W(3), GEOSC 496(3) (Sem: 7-8)

### ADDITIONAL COURSES (13-14 credits)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
Select 4 credits from GEOSC 202(4), GEOSC 203(4) (Sem: 3-6)  
Select 3-4 credits from BIOL 230W GN(4), BIOL 240W GN(4), MICRB 201(3) (Sem: 3-6)  
Select 3 credits of field experience from BIOL 444(3), GEOSC 472A(3) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (29-30 credits)

Select 17-18 credits, in consultation with advisor, supportive of the student's interest. (Students may apply 6 credits of ROTC) (Sem: 3-8)  
Select 12 credits, at least 3 credits from each category, from the approved list of evolution, paleobiology and geology courses and biogeochemistry courses (Sem: 7-8)

[\[1\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[\[71\]](#) The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS or ENGL 202C GWS can be substituted for EM SC 100S GWS.

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-01-129

Review Date: 8/29/06

UCA Revision #1: 8/8/06

Department Head Changed: 4/12/05

EM

## Geography

University Park, College of Earth and Mineral Sciences (GE OBS)

PROFESSOR KARL S. ZIMMERER, *Head*

Penn State's College of Earth and Mineral Sciences offers a strong mix of human, physical, and technical components that comprise the core of the geography major. Combining geography with other areas of study allows students to choose from a broad range of topics in order to suit their individual interests. Undergraduate degrees in geography are offered in the Bachelor of Science (BS) and in the Bachelor of Arts (BA). Both programs offer an integrated course of study in which students learn fundamental concepts in physical and human geography while developing technical proficiency.

The Bachelor of Science (BS) major stresses the discipline's environmental perspectives, while the Bachelor of Arts (BA) stresses the social and behavioral aspects of geography. Both majors provide training in descriptive and analytical skills such as map reading, cartography, and statistics. Substantive course work in the Bachelor of Science major focuses on the ways people use environmental resources and how they arrange themselves and their economic, social, and political activities on the Earth's surface. The Geography major can provide preparation for a career in business, industry, or government. Geographers with bachelor's degrees are currently being placed in federal, state, and local administrative and planning agencies and in private firms that specialize in planning and development or in environmental and socioeconomic analysis.

Those students seeking a Bachelor of Science degree have a choice of one of three areas of concentration:

**GENERAL OPTION:** This option is designed to serve the needs of students who want to learn about the various topics and perspectives that comprise the discipline of geography. The General option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to emphasize a topic for which no option exists.

**GEOGRAPHIC INFORMATION SCIENCE OPTION:** This option helps prepare students for entry-level positions in public and private mapping/remote sensing agencies and firms. The student may specialize in one or all of the areas covered in the option. This option is appropriate for students intending to pursue advanced degrees with specialization in these fields.

**PHYSICAL/ENVIRONMENTAL GEOGRAPHY OPTION:** This option is appropriate for students who want a broad understanding of the earth and environmental sciences in preparation for careers in industry, commerce, and government. The option is designed to develop competence in description, analysis, explanation, and management of problems arising from human use of natural resources and natural systems.

Geography courses satisfying the United States Cultures and International Cultures requirement: GEOG 020 GS;US;IL(3), GEOG 040 GS;IL(3), GEOG 120 GS;US;IL(3), GEOG 123 GS;IL(3), GEOG 124 GS;IL(3), GEOG 126 GS;US;IL(3), GEOG 128 GS;IL(3), GEOG 420Y US;IL(3), GEOG 424Y US;IL(3), GEOG 426 IL(3), and GEOG 427 US;IL(3).

Geography courses satisfying the Writing requirement: GEOG 310W(3), GEOG 411W(3), GEOG 412W(3), GEOG 420Y US(3), GEOG 423Y US;IL(3), GEOG 424Y US;IL(3), GEOG 438W(3), and GEOG 461W(3). All students must satisfactorily complete at least one writing-intensive course in Geography.

For the B.S. degree in Geography, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 10 credits

**REQUIREMENTS FOR THE MAJOR:** 77 credits

(This includes 12 credits of General Education courses: 6 credits of GQ courses; 6 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 47 credits

**PRESCRIBED COURSES** (28 credits)

EM SC 100S GWS(3) [\[11\]](#) (Sem: 1-2)

GEOG 010 GN(3) [\[11\]](#), GEOG 020 GS;US;IL(3) [\[11\]](#), GEOG 030 GS;IL(3) [\[11\]](#), GEOG 130 GS(3) [\[11\]](#), GEOG 160 GS(3) [\[11\]](#), STAT 200 GQ(4) (Sem: 1-4)

GEOG 301(3) [\[11\]](#), GEOG 364(3) [\[11\]](#) (Sem: 5-6)

**ADDITIONAL COURSES** (19 credits)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

Select 4 credits from: MATH 083 GQ(4), MATH 110 GQ(4), or MATH 140 GQ(4) (Sem: 1-4)

**PHYSICAL GEOGRAPHY**

Select 3 credits from: GEOG 110 GN(3) [\[11\]](#), GEOG 111 GN(3) [\[11\]](#), or GEOG 115 GN(3) [\[11\]](#) (Sem: 3-6)

**HUMAN GEOGRAPHY**

Select 3 credits from: GEOG 120 GS;US;IL(3) [\[11\]](#), GEOG 122 GH;US(3) [\[11\]](#), GEOG 123 GS;IL(3) [\[11\]](#), GEOG 124 GS;IL(3) [\[11\]](#), GEOG 126 GS;US;IL(3) [\[11\]](#), or GEOG 128 GS;IL(3) [\[11\]](#) (Sem: 3-6)

**GEOGRAPHIC INFORMATION SCIENCE**

Select 3 credits from GEOG 361(3) [\[11\]](#), GEOG 362(3) [\[11\]](#), or GEOG 363(3) [\[11\]](#) (Sem: 3-6)

**PROFESSIONALISM**

Select 3 credits from : GEOG 493(3) [\[11\]](#), GEOG 494(3) [\[11\]](#), GEOG 495(3) [\[11\]](#), GEOG 495B(3) [\[11\]](#), or GEOG 495G(3) [\[11\]](#) (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 30 credits [\[11\]](#)

**GENERAL OPTION:** (30 credits) [\[11\]](#)

**ADDITIONAL COURSES** (30 credits)

Select 12 credits of 400-level courses from the following categories in the option

**PHYSICAL GEOGRAPHY**

Select 3 credits from GEOG 310W(3), GEOG 311(3), GEOG 313(3), GEOG 411(3), GEOG 411W(3), GEOG 412W(3), or GEOG 417(3) (Sem: 5-8)

**HUMAN GEOGRAPHY**

Select 3 credits from GEOG 420Y US;IL(3), GEOG 423Y US(3), GEOG 424 US;IL(3), GEOG 425(3), GEOG 426 US;IL(3), GEOG 427 U;IL(3), GEOG 428 US(3), or GEOG 429 US;IL(3) (Sem: 5-8)

**NATURE-SOCIETY GEOGRAPHY**

Select 3 credits from GEOG 333(3), GEOG 430(3), GEOG 434(3), GEOG 436(3), GEOG 438W(3), GEOG 439(3), or GEOG 444(3) (Sem: 5-8)

**GEOGRAPHIC INFORMATION SCIENCE**

Select 3 credits from GEOG 361(3), GEOG 362(3), or GEOG 363(3) (Sem: 3-6)

Select 15 credits from all remaining 300- and 400-level GEOG courses (Sem: 5-8)

**GEOGRAPHIC INFORMATION SCIENCE OPTION:** (30 credits) [\[1\]](#)

**PRESCRIBED COURSES** (12 credits)

GEOG 361(3), GEOG 362(3), GEOG 363(3) (Sem: 3-6)

GEOG 464(3) (Sem: 5-8)

**ADDITIONAL COURSES** (18 credits)

Select 18 credits from GEOG 313(3), GEOG 417(3), GEOG 461W, GEOG 463(3), GEOG 467(3), GEOG 468(3), GEOG 485(3), or GEOG 495G(3) (Sem: 5-8)

**PHYSICAL/ENVIRONMENTAL GEOGRAPHY OPTION:** (30 credits) [\[1\]](#)

**PRESCRIBED COURSES** (3 credits)

GEOG 313(3) (Sem: 5-8)

**ADDITIONAL COURSES** (27 credits)

Select 6 credits from GEOG 110 GN(3), GEOG 111 GN(3), or GEOG 115 GN(3) (Sem: 3-6)

Select 9 credits from GEOG 310W(3), GEOG 311(3), GEOG 333(3), or GEOSC 340(3) (Sem: 5-8)

Select 12 credits from GEOG 411(3), GEOG 412W(3), GEOG 417(3), GEOG 430(3), GEOG 431(3), GEOG 434(3), GEOG 438W(3), or GEOG 493(3) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[71]** The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS or ENGL 202C GWS can be substituted for EM SC 100S GWS.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-02-004

Review Date: 09/27/2011

EM

Publications updated department head: 9/2/08

## German

*University Park, College of the Liberal Arts (GERBA)*

PROFESSOR B. RICHARD PAGE, *Head*

For the B.A. degree in German, a minimum of 124 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 15-18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 37-40 credits<sup>[1]</sup>

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 19 credits

**PRESCRIBED COURSES** (15 credits)

GER 301 IL(3), GER 302W(3), GER 310 IL(3), GER 344 IL(3) (Sem: 3-6)

GER 401Y IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (4 credits)

GER 201 IL(4) or GER 208Y IL(4) (Sem: 1-4)

**REQUIREMENTS FOR THE OPTION:** 18-21 credits

**GERMAN STUDIES OPTION:** (21 credits)

The German Studies option is designed to acquaint the student with the development of the cultures and civilization in the German-speaking countries. The option's interdisciplinary approach provides a general background and specific language skills that can serve as a basis for careers in business, civil service, journalism, law, and graduate work in many areas.

**PRESCRIBED COURSES** (6 credits)

GER 200 GH;IL(3) (Sem: 1-4)

GER 440 IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (15 credits)

GER 431 IL(3) or GER 432 IL(3) (Sem: 5-8)

Select an additional 3 credits in German literature or culture at the 300 or 400 level (Sem: 5-8)

Select 9 credits related to German Studies at the 400 level, in consultation with the adviser, from history, philosophy, political science, or art history (Sem: 5-8)

**GERMAN LITERATURE OPTION:** (18 credits)

The German Literature option will serve students interested in the literatures of the German-speaking countries and is recommended for fields such as art, comparative literature, history, philosophy, and the performing arts.

**PRESCRIBED COURSES** (6 credits)

GER 431 IL(3), GER 432 IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select an additional 12 credits in German at the 300 or 400 level, including a minimum of 9 credits in German literature (Sem: 5-8)

**TEACHING OPTION:** (18 credits)

The Teaching option is designed to prepare students for the teaching of German in secondary schools. The number of elective credits enables students to study an additional foreign language, thus enhancing their teaching opportunities.

Students planning to teach in public schools should schedule the appropriate courses leading to certification in consultation with an adviser in the College of Education. For the Pennsylvania teaching certificate, additional credits, including 15 credits of student teaching, are required.

**PRESCRIBED COURSES** (6 credits)

GER 200 GH;IL(3) (Sem: 1-4)

GER 411(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

GER 412 IL(3) or GER 430 IL(3) (Sem: 5-8)

GER 431 IL(3) or GER 432 IL(3) (Sem: 5-8)

Select 6 additional credits in German at the 300 or 400 level (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-05-120

Review Date: 02/22/2011

LA

## German

University Park, College of the Liberal Arts (GERBS)

PROFESSOR RICHARD PAGE, *Head*

The B.S. degree in German is designed to allow students to combine fluency in the German language and culture with other academic disciplines. The German-Business option develops basic German business-communication skills as well as fundamental knowledge of German economics. The German-Engineering and Applied German options have a required overseas study and internship component.

Courses in German literature and culture are essential to all German B.S. options, and students in the German-Business option are encouraged to participate in the University's study abroad programs in Germany.

For the B.S. degree in German, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(0-13 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 23-25 credits

**REQUIREMENTS FOR THE MAJOR:** 55-66 credits<sup>[1]</sup>

(This includes 0-13 credits of General Education courses; 0-6 credits of GS courses; 0-3 credits of GWS courses; 0-4 credits of GQ courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 22 credits

**PRESCRIBED COURSES** (15 credits)

GER 301 IL(3), GER 302W(3), GER 310 IL(3), GER 344 IL(3) (Sem: 3-6)  
GER 401Y IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (7 credits)

GER 201 IL(4) or GER 208Y IL(4) (Sem: 1-4)  
GER 431 IL(3) or GER 432 IL(3) (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 33-44 credits

**APPLIED GERMAN OPTION:** (33 credits)

This option is designed to provide German majors with a background in an area of study where knowledge of German is useful. In consultation with an advisor, majors in this option are required to either study abroad or do an internship that corresponds with their related area of study.

**PRESCRIBED COURSES** (9 credits)

GER 200 GH:IL(3) (Sem: 1-4)  
GER 399 IL(3), GER 499 IL(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (24 credits)

Select 18 credits in related areas such as Hotel, Restaurant, and Institutional Management; Linguistics; Applied Linguistics; Sociology; Economics; Science, Technology and Society, or in another professional area where competency in German is desirable. The courses are to be selected in consultation with an advisor. At least six credits of such courses must be at the 400 level. (Sem: 1-8)

Select 6 credits in German at the 300 or 400 level. (Sem: 5-8)

*Note: A work experience in a German-speaking country may be substituted for GER 399 or GER 499. The work experience may take the form of an internship (LA 495 or GER 495). If the number of work-experience credits for which a student registered is less than 6, the difference in the number of credits must be earned by taking additional courses in consultation with the Department of Germanic and Slavic Languages and Literatures.*

**GERMAN BUSINESS OPTION:** (44 credits)

This option is designed to introduce German majors to the principles of business administration. The curriculum combines an exposure to managerial processes with foreign language competency in German.

**PRESCRIBED COURSES** (37 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), I B 303 IL(3), MGMT 100(3) (Sem: 3-4)  
ECON 333 GS(3), ENGL 202D GWS(3), FIN 100(3), GER 308Y IL(3), GER 408 IL(3), I B 403(3), MKTG 221(3) (Sem: 5-8)

**ADDITIONAL COURSES** (7 credits)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 1-8)  
Select an additional 3 credits of German courses at the 400 level (Sem: 5-8)

**GERMAN ENGINEERING OPTION:** (33 credits)

(Open only to students enrolled in an engineering major.)

This option is designed to combine the study of German and Engineering in order to internationalize and enhance the study and practice of the engineering profession.

**PRESCRIBED COURSES** (12 credits)

GER 308Y IL(3), GER 408 IL(3) (Sem: 5-8)  
GER 399 IL(3), GER 499 IL(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Select 21 credits of engineering courses in consultation with the engineering adviser (Sem: 3-10)

*Note: The German Engineering Option is open only to Engineering majors. A work experience in a German-speaking country may be substituted for GER 399 or GER 499. The work experience may take the form of an internship (ENGR 195I) or part of a cooperative education sequence (ENGR 295I, ENGR 395I, or ENGR 495I). If the number of work-experience credits for which a student registered is less than 6, the difference in the number of credits must be earned by taking additional courses in consultation with the Department of Germanic and Slavic Languages and Literatures.*

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011





## Global Studies

*Berks College (GLBST)*

PROFESSOR KIRWIN SHAFFER, *Program Coordinator*

This major is designed for students who are interested in a liberal arts degree with a concentration in global studies. Featuring both active and collaborative classroom experiences in addition to intensive study abroad/internship experiences, the program is designed for students who wish to develop a set of analytical and interpersonal skills that will prepare them for entry-level employment in a wide range of government and non-profit organizations and agencies and in businesses and industry. Because of the flexible and broad nature of the degree, students might also use this major as preparation for graduate or professional school in business, law, or the social sciences. This program differs most notably from traditional majors in international/global studies by requiring core courses in world literature and intercultural communication, while retaining the traditional foreign language, history, and political science emphasis of most other programs. Study abroad and an internship with an international organization are also important features of this degree.

For the B.A. degree in Global Studies, a minimum of 123 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in GENERAL EDUCATION)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 15 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 39 credits<sup>[1]</sup>

Including 24 credits at the 400 level (9-15 credits of which are included in the prescribed courses, the other 9-15 must be chosen from the option tracks below). A minimum of 3 credits of study abroad (meeting any requirement) and 3 credits of INTST 495 are required for the completion of this degree. Courses meeting major requirements may be taken abroad; however, typically courses taken abroad will qualify to meet a student's optino, internship, and/or language requirements.

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 18-24 credits

**PRESCRIBED COURSES** (18-24 credits)

PL SC 014 GS;IL(3) (Sem: 1-4)

HIST 320W(3) (Sem: 1-6)

CAS 271 US;IL(3) (Sem:3-4)

ENGL 403(3) (Sem: 3-6)

INTST 495 (3-9), PL SC 440(3) (Sem: 7-8)

**REQUIREMENTS FOR THE OPTION:** 15-21 credits

**LATIN AMERICAN CULTURE OPTION:** (15-21 credits)

**ADDITIONAL COURSES** (15-21 credits)

Select 15-21 credits from the following list of courses:

CAS 471 US;IL(3), CEDEV 430(3), CMLIT 153 GH;IL(3), ECON 333 GS(3), HIST 179 GH;IL(3), HIST 432 IL(3), HIST 467 US;IL(3), HIST 468 IL(3), I B 303(3), INTAG 100 GS;IL(3), SPAN 100(3) <sup>[83]</sup>, SPAN 131 GH;IL(3) or SPAN 131Y GH;US;IL(3), SPAN 200(3) <sup>[83]</sup>, SPAN 220(3) <sup>[83]</sup>, SPAN 253W(3) <sup>[83]</sup>, SPAN 300(3) <sup>[83]</sup>, SPAN 420(3) <sup>[83]</sup>, SPAN 476(3) <sup>[83]</sup>, SPAN 497(1-9) <sup>[83]</sup> (Sem: 1-8)

**CONTEMPORARY HISTORY AND POLITICS OPTION:** (15-21 credits)

**ADDITIONAL COURSES** (15-21 credits)

Select 15-21 credits from the following list of courses:

CAS 471 US;IL(3), CEDEV 430(3), CMLIT 153 GH;IL(3), ECON 333 GS(3), ENGL 182A GH;US;IL(3), FR 139 GH;IL(3), GER 100 GH;IL(3), HIST 120 GS;IL(3), HIST 175 GH;IL(3), HIST 179 GH;IL(3), HIST 181 GH;IL(3), HIST 192 GH;IL(3), HIST 435(3), HIST 467 US;IL(3), HIST 468 IL(3), HIST 488(3), I B 303(3), INTAG 100 GS;IL(3), PL SC 412(3), PL SC 413(3), PL SC 424(3), PL SC 443(3), PL SC 454 IL(3), PL SC 487(3), RUS 100 GH;IL(3), SPAN 131 GH;IL(3), UKR 100 GH;IL(3) (Sem: 1-8)

<sup>[1]</sup> A student enrolled in this major must maintain a grade-point average of C or better, as specified in Senate Policy 82-44.

<sup>[83]</sup> These courses also constitute the projected Spanish minor.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-020

Review Date: 01/10/2012

UCA Revision #2: 7/27/07

BK

## Global and International Studies

*University Park, College of the Liberal Arts (GLOBE)*

PROFESSOR CAROLINE ECKHARDT, *in charge*

The interdisciplinary major in Global and International Studies is intended to prepare students for lives and careers in a world that is increasingly interdependent. It reflects a "One World" concept that emphasizes the importance of global perspectives, foreign language study, and education or working experience abroad. The structure of the major also recognizes the fact that the majority of the world's people live in regions other than the European and North American sphere, and that a knowledge of non-Anglophone cultures is an important form of preparation for global citizenship. Because students need specific fields of knowledge as well as a global framework, this major is available only as a concurrent or sequential major, and students must first have a primary major. Some components of the Global and International Studies requirements may overlap with those of the primary major; for details, consult the adviser for the Global and International Studies major.

The degree (e.g., B.A., B.S., B.F.A., etc.) will normally match that of the student's first major.

Students in baccalaureate degree programs other than those leading to the B.A. who desire a B.A. degree in International Studies will receive concurrent degrees and have to fulfill all requirements for concurrent degrees and for the B.A. degree as indicated under "Concurrent Majors and Sequential Majors" in the GENERAL INFORMATION section of this bulletin and under "Baccalaureate Degree Requirements" at the beginning of this college section.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### **REQUIREMENTS FOR THE MAJOR: 30 credits**

This major also requires significant experience abroad, of at least 8 weeks in length. The requirement for experience abroad can be fulfilled by formal study abroad, and/or approved internship or employment or comparable experience (such as Peace Corps service).

### **PRESCRIBED COURSES (3 credits)**

CMLIT 010 GH;IL(3) (Sem: 1-6)

### **ADDITIONAL COURSES (3 credits)**

Select 3 credits in Global Approaches from the following: A&A 100 GA;IL(3), ANTH 045 GS;US;IL(3), CMLIT 013 GH;IL(3), CMLIT 143 GH;US;IL(3), ECON 004 GS(3), FR 139 GH;IL(3), GEOG 040 GS;IL(3), HIST 010 GH;IL(3), HIST 011 GH;IL(3), MUSIC 009 GA;IL(3), PL SC 003 GS;IL(3), PL SC 014 GS;IL(3), RL ST 001 GH;US;IL(3) (Sem: 1-6)

### **SUPPORTING COURSES AND RELATED AREAS (24 credits)**

(Must include at least 12 credits at the 400 level)

#### **A. Foreign Language**

Select 12 credits EITHER in a language beyond the 12th -credit-level proficiency OR in a second foreign language, or equivalent proficiencies.[Note; For foreign language majors, study must be in a foreign language other than primary major.] (Sem: 1-5)

#### **B. Global Perspectives (6 credits)**

Select from departmental list. One course in this area or in Area C must be a 400-level course in CMLIT.

#### **C. World Regions (6 credits)**

Select from departmental list. 6 credits in courses focused on one of the following world regions: Africa, Asia and the Pacific, Eastern European and Slavic Cultures, Latin America and the Caribbean, or the Middle East. Language courses beyond the sixth semester are eligible if they focus on significant content beyond language skills. One course in this area or in Area B must be a 400-level course in CMLIT.

Last Revised by the Department: Fall Semester 2009

Blue Sheet Item #: 38-05-100

Review Date: 02/23/2010

UCA Revision #2: 7/27/07

LA

## Geosciences

University Park, College of Earth and Mineral Sciences (GSCBA)

PROFESSOR PETER J. HEANEY, Associate Head for Undergraduate Programs

The geosciences are concerned with understanding earth processes and the evolutionary history of the Earth. Geoscientists work to discover and develop natural resources such as groundwater, metals, and energy sources; to solve technology-generated environmental problems such as acid mine drainage and waste disposal; to predict geological events, such as the occurrence of earthquakes and volcanism; and to solve fundamental questions concerning the origin and evolution of Earth and life. The Bachelor of Arts degree program stresses data collection; investigation, analysis and synthesis of information related to complex natural problems; rigor of thought and clarity of oral and written expression. The B.A. provides a basic education in geosciences, and is designed for students who wish to prepare themselves for careers that interface among science, social science, and business. Examples of these careers include environmental law, national and international planning or resource management, and K-12 teaching.

For the B.A. degree in Geosciences, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

### REQUIREMENTS FOR THE MAJOR: 72 credits

(This includes 21 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GWS courses.)

### PRESCRIBED COURSES (10 credits)

EM SC 100S GWS(3) [\[71\]](#) (Sem: 1-2)

GEO SC 001(3) [\[11\]](#) (if GEO SC 001 is not available, GEO SC 020 GN(3) may be substituted) (Sem: 1-6)

GEO SC 201(4) [\[11\]](#) (Sem: 3-6)

### ADDITIONAL COURSES (48-51 credits)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

MATH 140 GQ(4) or MATH 110 GQ(4) (Sem: 1-2)

GEO SC 310(4) [\[11\]](#) or GEO SC 320(3) [\[11\]](#) (Sem: 3-6)

GEO SC 202(4), GEO SC 203(4), or GEO SC 204(4) (Sem: 5-8)

Select 20 credits--two of the following sequences for 8 credits each and the third sequence for 4 credits:

-BIOL 110 GN(4), BIOL 220W GN(4) (Sem: 1-4)

-CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1) (Sem: 1-4)

-PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 1-4)

*Note: PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2) may substitute for up to 8 credits in Physics for students with MATH 140 GQ(4), MATH 141 GQ(4).*

Select 2-4 credits of advanced mathematics in consultation with an adviser; list includes MATH 111 GQ(2), MATH 141 GQ(4), STAT 200 GQ(4), STAT 250 GQ(3) (Sem: 2-6)

Select 6 credits from 300- and 400-level GEO SC courses (Sem: 5-8)

Select 3 credits of appropriate field/laboratory experience in consultation with adviser (Sem: 6-8)

Select 3 credits of writing-intensive courses from within Earth and Mineral Sciences to include, but not limited to: GEOG 412W(3), GEOG 310W(3), GEO SC 402W(3), GEO SC 470W(1-6), METEO 471W(3) (Sem: 6-8)

### SUPPORTING COURSES AND RELATED AREAS (11-14 credits)

Select 11-14 credits in consultation with adviser.

(Students may apply 6 credits of ROTC) (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[71]** The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS or ENGL 202C GWS can be substituted for EM SC 100S GWS.

Last Revised by the Department: Summer Session 2000

Blue Sheet Item #: 28-05-014

Review Date: 10/8/02

UCA Revision #1: 8/8/06

EM

## Geosciences

University Park, College of Earth and Mineral Sciences (GSCBS)

PROFESSOR PETER J. HEANEY, Associate Head for Undergraduate Programs

The geosciences are concerned with understanding earth processes and the evolutionary history of the Earth. Geoscientists work to discover and develop natural resources such as groundwater, metals, and energy sources; to solve technology-generated environmental problems such as acid mine drainage and waste disposal; to predict geological events, such as the occurrence of earthquakes and volcanism; and to solve fundamental questions concerning the origin and evolution of Earth and life. Our degree programs stress data collection; investigation, analysis and synthesis of information related to complex natural problems; and rigor of thought and clarity of oral and written expression. The B.S. provides a broad foundation in the physical and natural sciences for students who seek immediate employment or post-graduate education in several areas of the geosciences. Examples of careers include the petroleum and mining industries; local or federal resource management; water resources, treatment and management; energy and environmental industries; and academia. A senior thesis involving independent research is required of all students.

**GENERAL OPTION:** This option is designed to provide sufficient flexibility so that the student has the opportunity to prepare for graduate school by focusing on specialized areas in the geosciences. The option's flexibility also permits students to develop a broad background in the geosciences in preparation for post-graduate majors that require breadth, such as environmental law.

**HYDROGEOLOGY OPTION:** This option helps prepare the student for entry-level positions in environmental agencies and firms where a specialized knowledge of groundwater and related areas is required. The option is also appropriate for students wishing to pursue an advanced degree in the area of hydrogeology.

### Entrance to Major Requirements:

In addition to the minimum grade point average (GPA) requirements described in the University Policies, the Geosciences entrance-to-major requirement must also be completed with a minimum grade of C: MATH 140 GQ(4). This course must be completed by the end of the semester during which the entrance-to-major process is carried out.

For the B.S. degree in Geosciences, a minimum of 121 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

### GENERAL EDUCATION: 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 97 credits

(This includes 21 credits of General Education courses: 9 credits of GN courses, 6 credits of GQ courses, 6 credits of GWS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 69 credits

#### PREScribed COURSES (66 credits)

BIOL 110 GN(4), EM SC 100S GWS(3) [71], MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-2)  
CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), PHYS 211 GN(4), PHYS 213 GN(2) (Sem: 1-4)  
GEOSC 001(3) [if GEOSC 001 is not available, GEOSC 020 GN(3) may be substituted] (Sem: 1-6)  
GEOSC 201(4) [11], GEOSC 202(4) [11], GEOSC 204(4) (Sem: 3-6)  
GEOSC 203(4) [11], GEOSC 310(4) [11], GEOSC 465(4) [11], GEOSC 472A(3), GEOSC 472B(3) (Sem: 5-6)  
GEOSC 494W(3), GEOSC 496(1) (Sem: 7-8)

#### ADDITIONAL COURSES (3 credits)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

#### REQUIREMENTS FOR THE OPTION: 28 credits

#### GENERAL OPTION: (28 credits)

#### ADDITIONAL COURSES (14 credits)

Select 14 credits from 300- and 400-level GEOSC courses: GEOSC 303(3), GEOSC 340(3), GEOSC 402(3), GEOSC 416(3), GEOSC 421(3), GEOSC 422(3), GEOSC 423(4), GEOSC 424(3), GEOSC 426(3), GEOSC 434(3), GEOSC 439(3), GEOSC 440(3), GEOSC 451(3), GEOSC 452(3), GEOSC 454(3), GEOSC 461(3), GEOSC 470W(3), GEOSC 471(3), GEOSC 489(4) (Sem: 5-8)

#### SUPPORTING COURSES AND RELATED AREAS (14 credits)

Select at least 2 credits in physics from approved departmental list (Sem: 1-4)

Select 3 credits of computer science, mathematics [above the level of MATH 141 GQ(4)], or statistics (Sem: 3-6)

Select 9 credits, in consultation with advisor, supportive of the student's interest (Students may apply 6 credits of ROTC.) (Sem: 3-8)

#### HYDROGEOLOGY OPTION: (28 credits)

#### PREScribed COURSE (3 credits)

GEOSC 452(3) (Sem: 5-8)

#### ADDITIONAL COURSES (15 credits)

Select 3 credits from CMPSC 201 GQ(3), CMPSC 202 GQ(3), CMPSC 203 GQ(4), STAT 250 GQ(3) [if STAT 250 is not available, STAT 200 GQ(4) may be substituted] (Sem: 3-8)

Select 3 credits from A S M 327(3), E R M 450(3), SOILS 101 GN(3) (Sem: 5-8)

Select 9 credits from A and B. Students must select at least 3 credits from A and 3 credits from B.

A. CHEM 202(3), CHEM 450(3), E R M 433(3), GEOSC 413W(3), GEOSC 419(3) (Sem: 3-8)

B. ENVSE408(3), GEOG 362(3), GEOSC 340(3), GEOSC 439(3), GEOSC 454(3), GEOSC 483(3) (Sem: 5-8)

#### SUPPORTING COURSES AND RELATED AREAS (10 credits)

Select at least 2 credits in Physics from approved departmental list (Sem: 1-4)

Select 8 credits, in consultation with advisor, supportive of the student's interest. (Students may apply 6 credits of ROTC) (Sem: 3-8)

### Integrated B.S./M.S. Program in Geosciences

The Department of Geosciences offers an integrated B.S./MS. Program that is designed to allow academically superior students to obtain both the B.S. and the M.S. degree in Geosciences within 5 years of study. Students who wish to complete the Integrated B.S./M.S. Program in Geosciences must apply for admission to the Graduate School and the Integrated B.S./M.S. program by the end of their junior year.

During the first three years, the student follows the course scheduling of one of the options in Geosciences; however, if a student intends to enter the Integrated B.S./M.S. program, he/she would be encouraged to take, wherever appropriate, upper level classes. By the end of the junior year, the student normally would apply for admission to the program. A decision of acceptance would be made prior to the beginning of the senior year and a M.S. Advising

Committee appointed. During the senior year, the student would follow the scheduling of the B.S. Geosciences option he/she has selected, with an emphasis on completing 500-level coursework wherever appropriate. In place of the Senior Thesis, the student will complete a M.S. Thesis

During the fifth year the student will take courses fulfilling the departmental M.S. degree requirements and complete the M.S. Thesis.

**Admissions Requirements**

Students who wish to complete the Integrated B.S./M.S. Program in Geosciences must apply for admission to the Graduate School and the Integrated B.S./M.S. program by the end of their junior year. Typical tests scores of students admitted to the Geosciences Graduate Program are: GPA 3.5, and GRE's Verbal 570 and Quantitative 700. Three letters of recommendation by faculty members for admission to graduate studies are required. The applications are reviewed by the Admissions Committee of the Geosciences Graduate Program and acted upon by the Associate Head for Graduate Programs.

The details of the program requirements can be found in the *Graduate Degree Programs Bulletin*.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[71]** The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS or ENGL 202C GWS can be substituted for EM SC 100S GWS.

Last Revised by the Department: Summer Session 2008 (GSCBS); Summer Session 2005 (Integrated B.S./M.S.)

Blue Sheet Item #: 36-04-026 (GSCBS); 33-04-165 (Integrated B.S./M.S.)

Review Date: 1/15/08

R & T: 01/14/2014

UCA Revision #1: 8/8/06

UCA Revision #2: 7/27/07

EM

## Health Policy and Administration

University Park, College of Health and Human Development (H P A)

PROFESSOR DENNIS G. SHEA, *Head of the Department*

This major helps prepare students for management and policy positions or graduate study in the field of health care. Students in the major develop the skills and knowledge needed to understand the complex societal problem of providing access to quality health care at reasonable cost. All Health Policy and Administration students complete an internship in a health-care-related setting, giving them valuable experience and contacts in the industry. HPA students study a multidisciplinary curriculum that prepares them to work in many health care organizations including: (1) health care providers (hospitals, physician practices, nursing facilities, home health agencies, etc.); (2) health insurers (nonprofit and commercial insurers, health maintenance organizations, etc.); (3) health care consultants; (4) health care supply companies (pharmaceutical companies, medical device manufacturers, etc.); (5) health services research and policy organizations (health policy research groups, industry trade groups, etc.); and (6) local, state, and federal health agencies (local health departments, state Department of Health, federal Department of Health and Human Services, etc.). HPA students have also used the degree to prepare for graduate study in business, law, medicine or allied health fields, health administration, health services research or policy, and public health.

The requirements for the major are outlined below. Students may select courses in the Supporting Courses and Related Areas category to fulfill requirements for a minor, to develop a specialization, or to complete courses required for admission to medical, dental, law, or other graduate schools.

For the B.S. degree in Health Policy and Administration, a minimum of 120 credits is required.

The integrated B.S. in health policy and administration/Master of Health Administration (MHA) program allows qualified undergraduate students to earn both degrees in five calendar years of full time academic study.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-2 credits

**REQUIREMENTS FOR THE MAJOR:** (85-87 credits)

(This includes 12 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses.)

**PRESCRIBED COURSES** (31 credits)[\[1\]](#)

ACCTG 211(4), ECON 102 GS(3), PL SC 001 GS(3), SOC 023 GS(3) (Sem: 1-4)

H P A 101(3), H P A 301W(3), H P A 310(3), H P A 332(3), H P A 390(3), H P A 395(3) (Sem: 3-6)

**ADDITIONAL COURSES** (18-20 credits)[\[1\]](#)

STAT 200 GQ(4) or STAT 250 GQ(3) (Sem: 1-4)

FIN 100(3) or R M 302(3) (Sem: 1-6)

CMPSC 101 GQ(3) or CMPSC 203 GQ(4) (Sem: 3-4)

Select 9 credits from H P A 401(3), H P A 410(3), H P A 420(3), H P A 431(3), H P A 433(3), H P A 440 US;IL(3), H P A 442(3), H P A 445(3), H P A 447(3), H P A 450(3), H P A 455(3), H P A 460(3), H P A 470(3), or H P A 497 (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (36 credits)

(Must include at least 9 credits at the 400 level)

Select 30 credits from University-wide offerings on department list in consultation with adviser (Sem: 5-8)

Select 6 credits in economics and/or political science on department list in consultation with adviser (Sem: 5-8)

Integrated B.S. in Health Policy and Administration/Master of Health Administration (M.H.A.) Admission and Degree Requirements

The following credentials will be considered for admission:

- A demonstrated ability to communicate effectively, an advanced level of maturity, and high motivation to pursue a career in the health care field
- Academic references
- Successful completion of 60 credits having maintained a cumulative GPA of 3.4 or better

Students admitted to the B.S. in Health Policy Administration/MHA integrated program are able to earn both the B.S. and MHA in five calendar years of full time academic study.

A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2002 (H P A); Summer Session 2005 (Integrated B.S./H P A-M.H.A.)

Blue Sheet Item #: 30-07-092 (H P A); 38-06-114A (Integrated B.S./H P A-M.H.A.)

Review Date: 04/13/2010

HH

## Human Development and Family Studies

Penn State Altoona (HFSAL)

Penn State Harrisburg (HFSCA)

University College (HFSCC): Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Mont Alto, Penn State Shenango, Penn State Worthington-Scranton, Penn State York

College of Health and Human Development (HD FS)

World Campus

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR STEVEN H. ZARIT, *Head of the Department*

This major is a multidisciplinary program that examines the development of individuals and families across the life span. It enables students to prepare for professional, managerial, or scientific roles in health and human services professions, in public and nonprofit agencies, and in business and industry, as well as for advanced professional or graduate study. Students obtain a broad background in individual and family development across the life span. Courses emphasize biological, psychological, social/cultural, and economic aspects of development. Through course work and undergraduate internships or research projects, students develop skills relevant to career objectives, such as counseling, human assessment, program planning and evaluation, and research.

Two options are available within the major: (1) Life Span Human Services option and (2) Life Span Developmental Science option. The introductory paragraph to each of the options includes a brief list of career opportunities. More extensive descriptions of career opportunities in both public and private sectors are available for the program.

**LIFE SPAN HUMAN SERVICES OPTION:** This option focuses on the acquisition and application of scientific knowledge about development and family functioning across the life span for the purposes of enhancing personal and family development. Courses emphasize: (1) understanding the biological, psychological, and social development across the life span, and the structuring and functioning of families; (2) understanding basic theoretical and methodological issues; and (3) the development of applied skills in intervention and evaluation, prevention, and in the formulation of social policy. An approved field experience in a setting that serves children, youth, adults, or the aged is required for this option. Typical employment settings include preschools, daycare centers, hospital programs for children, youth, and families, institutional and community mental health programs for individuals and families, programs for abused or neglected children and adolescents, women's resource centers, human resources programs, employee assistance programs, nursing homes, area agencies on aging and other community settings for older adults, and public welfare and family service agencies. Typical postgraduate pursuits of students completing this option include graduate study in human development, family studies, psychology, or sociology, or advanced professional training in psychology, law, behavioral health, counseling or social work.

**LIFE SPAN DEVELOPMENTAL SCIENCE OPTION:** This option focuses on the understanding of contemporary methodological approaches to the acquisition of scientific knowledge about individual development over the life span and about family development. This option provides preparation for advanced training in careers in developmental or family research, teaching at a college or university, or for professional careers that require graduate training. Courses within this option emphasize a thorough understanding of the theory and methods of developmental and family theory and research. An approved, multi-semester research practicum is an integral component of this option. Typical postgraduate pursuits of students completing this option include graduate study in human development, family studies, psychology, or sociology, or advanced professional training in psychology, law, behavioral health, social work, or in other programs related to services for individuals and families.

For the B.S. degree in Human Development and Family Studies, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(3-4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selections, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 3-5 credits

**REQUIREMENTS FOR THE MAJOR:** 73-76 credits

(This includes 3-4 credits of General Education GQ courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 30-31 credits

**PRESCRIBED COURSES** (18 credits)[\[11\]](#)

HD FS 129 GS(3), HD FS 301(3), HD FS 311(3), HD FS 312W(3), HD FS 315 US(3)[\[93\]](#), HD FS 418(3) (Sem: 3-6)

**ADDITIONAL COURSES** (12-13 credits)[\[11\]](#)

Select 6 credits from HD FS 229 GS(3), HD FS 239 GS(3), HD FS 249 GS(3) (Sem: 1-4)

STAT 200 GQ(4) or EDPSY 101 GQ(3) (Sem: 1-4)

Select 3 credits of United States Cultures (US)[\[92\]](#) (Sem: 4-8)

**REQUIREMENTS FOR THE OPTION:** 43-45 credits

**LIFE SPAN HUMAN SERVICES OPTION:** (43-45 credits)

**PRESCRIBED COURSES** (9 credits)[\[11\]](#)

HD FS 411(3), HD FS 414(3), HD FS 455(3) (Sem: 5-8)

**ADDITIONAL COURSES** (22-24 credits)[\[11\]](#)

Select 3 credits from HD FS 428(3), HD FS 429(3), HD FS 433(3) or HD FS 445(3) (Sem: 5-8)

Select 6 credits from 300- or 400-level HD FS courses (Sem: 5-8)

Select 13-15 credits from (a) or (b)

(a) Approved field practice in a human service setting: HD FS 490(2), HD FS 495A(9), HD FS 495B(3) (Sem: 5-8)

(b) Approved group project or field practice in human service setting: HD FS 401(3), HD FS 402(4), HD FS 495C(6-8) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits (minimum of 6 credits at the 400 level) in consultation with adviser from University-wide offerings that develop competency in the option (a grade of C or better is required in any HD FS course taken to satisfy this requirement) (Sem: 5-8)

**LIFE SPAN DEVELOPMENTAL SCIENCE OPTION:** 45 credits

**PRESCRIBED COURSES** (6 credits)[\[11\]](#)

HD FS 494(6) or HD FS 494H(6) (Sem: 5-8)

**ADDITIONAL COURSES** (21 credits)[\[11\]](#)

Select 6 credits from HD FS 428(3), HD FS 429(3), HD FS 433(3), HD FS 445(3) (Sem: 5-8)

Select 15 credits (minimum of 9 credits at the 400-level) from HD FS courses (Sem: 5-8)



**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 18 credits (minimum of 9 credits at the 400 level) in consultation with adviser from University-wide offerings that develop competency in option (a grade of C or better is required in any HD FS course taken to satisfy this requirement) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[92]** This course is in addition to the 6 credits of United States Cultures and International Cultures.

**[93]** This course fulfills the University's United States Cultures requirement.

Last Revised by the Department: Summer Session 2006

Blue Sheet Item #: 34-02-111

Review Date: 10/11/05

HH

## History

*Altoona College (HISAL)*

This major provides a broad introduction to the history of the great civilizations of the world and specific areas of historical inquiry. Centered in one of the basic, traditional disciplines, the History major offers invaluable preparation for students interested in a career in government, international relations, law, or librarianship, as well as essential training for those interested in a professional career as an academic or public historian, archivist, or secondary school teacher. Along with the perspective on the present that a study of the past engenders, the program develops skills in research, analysis, and synthesis that have proved useful in commerce and industry. The History major combines easily with minors or even multiple majors, providing flexibility in one's career choice.

For a B.A. degree in History, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 37 credits [\[1\]](#)

**PRESCRIBED COURSES** (3 credits)

HIST 302W(3) (Sem: 5-6)

**ADDITIONAL COURSES** (16 credits)

Select 12 credits in two of the three focus areas: HIST 001 GH;IL(3) and HIST 002 GH;IL(3); HIST 010 GH;IL(3) and HIST 011 GH;IL(3); HIST 020 GH;US(3) and

HIST 021GH(3) (Sem: 1-8)

HIST 494(4) or HIST 495(4) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

*At least 8 credits must be at the 400-level*

Select 12 credits in history (Sem: 1-8)

Select 6 credits in non-Western history (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2005

Blue Sheet Item #: 33-01-010

Review Date: 2/26/07

AL

## History

Abington College (HSTAB)  
University Park, College of the Liberal Arts (HIST)

PROFESSOR MICHAEL KULIKOWSKI, Head

This major provides a broad introduction to the history of the great civilizations of the world and specific areas of historical inquiry. Centered in one of the basic, traditional disciplines, the History major offers invaluable preparation for students interested in a career in government, international relations, law, or librarianship, as well as essential training for those interested in a professional career as an academic or public historian, archivist, or secondary school teacher. Along with the perspective on the present that a study of the past engenders, the program develops skills in research, analysis, and synthesis that have proved useful in commerce and industry. The History major permits easy combination with minors, area studies, or even a concurrent major, providing flexibility in one's career choice.

For the B.A. degree in History, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits<sup>[1]</sup>

**PRESCRIBED COURSES** (3 credits)  
HIST 302W(3) (Sem: 5-6)

**ADDITIONAL COURSES** (6 credits)  
Choose one sequence from the following three:  
HIST 001 GH;IL(3), HIST 002 GH;IL(3) (Sem: 1-4)  
HIST 010 GH;IL(3), HIST 011 GH;IL(3) (Sem: 1-4)  
HIST 020 GH;US(3), HIST 021 GH;US(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (27 credits)  
Select 12 credits, in consultation with an advisor, at the 100-200-level, one course from **each** of the following field categories: Europe, United States, Global, Pre-Modern\* (Sem: 1-4)  
Select 3 credits at the 100-400-level (Sem: 1-8)  
Select 12 credits at the 400-level, at least one course which must be in Global History (Sem: 5-8)

\* Courses that appear in two History categories (such as HIST 174) cannot be double-counted to be applied to two field categories. However, the student may choose to which category to apply the course.

### Integrated B.A./M.A. Program in History

The Department of History offers an integrated B.A./M.A. program that is designed to allow academically superior baccalaureate students to obtain both the B.A. and the M.A. degrees in History within five years of study. The first two years of undergraduate coursework include the University General Education and Liberal Arts requirements in addition to introductory coursework in the major. In the third year, students are expected to take upper-level courses and the department's undergraduate capstone seminar. By the fourth year students should have selected the primary fields of study and be enrolled exclusively in 400 and graduate-level courses in those areas. The fifth and final year of the program typically consists purely of graduate seminars. The program culminates with an M.A. oral defense of seminar papers that best represents their interests and work written in two of the graduate seminars.

By encouraging greater depth and focus by the beginning of the third undergraduate year, this program will help the student more clearly define his/her area of interest among the four main primary areas of focus in the department's graduate program. As a result, long-range academic planning for exceptional students pursuing doctoral degrees after leaving Penn State, or other professional goals, will be greatly enhanced. With the IUG they would be highly qualified to enter directly into careers in secondary education, and other government positions that require graduate degrees. Students who have completed this program but wish to continue on to a Ph.D. will be more competitive in applying for admission to Ph.D. programs in History and Area Studies but also will be well placed to apply to other professional programs including library science, law, and museum studies.

### Admission Requirements

The number of openings in the integrated B.A./M.A. program is limited. Admission will be selective based on specific criteria and the unqualified recommendation of faculty. Applicants to the integrated program:

1. Must be enrolled in the History B.A. program<sup>[1]</sup>.
2. Must have completed 60 credits of the undergraduate degree program (it is strongly suggested that students apply to the program prior to completing 100 credits).
3. Must be accepted without reservation into the M.A. program in History.
4. Should have a recommended overall GPA of 3.2 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
5. Must present a departmentally approved plan of study in the application process.
6. Must be recommended by the chairs of the Department's undergraduate and graduate committees.

### Degree Requirements

Students must complete the requirements for a B.A. in history.

Students must complete the Master of History Requirements, which total 30 credit hours of graduate instruction, in addition to completing **123** credit hours of undergraduate instruction.

The 400-level courses, totaling 18 credit hours, can double-count towards both the B.A. and Master of History degrees.

Students must complete a minimum of 30 credit hours of graduate instruction over and above the **123** credit hours required of the B.A. degree in history. All 30 of these credit hours must be earned in 400-level, 500-level, or 600-level courses.

These 500-level courses must be grouped into two primary fields of study **with a minimum of 6 credit hours in each field.**

Student must have satisfactory academic performance to maintain enrollment in the program. A grade point average of 3.0 in the 30 credit hours of graduate instruction is required to receive the master's degree.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-070

Review Date: 04/09/2013

Department head updated by Publications: 3/23/11

## Hospitality Management

University Park, College of Health and Human Development (HM)

PROFESSOR JOHN O'NEILL, Director, School of Hospitality Management

This major helps provide preparation for management positions in hotels, restaurants, institutions, and other hospitality organizations. The program is designed to give the student a broad general education and a strong management and problem-solving orientation balanced with the requisite technical skills, all of them essential for career progression to upper-management positions in the hospitality professions. The program also helps prepare students for graduate study.

**HOSPITALITY MANAGEMENT OPTION:** This option helps prepare students for management positions in any segment of the hospitality industry, including hotels, restaurants, institutional or non-commercial operations, clubs, resorts, and casinos. The management focus helps provide students with the analytical, interpersonal, and organizational skills necessary to effectively function as hospitality professionals.

**MANAGEMENT DIETETICS OPTION:** This option helps prepare graduates for general management positions within the food services operated by or for medical organizations, health and life care facilities, college feeding, governmental agencies, and community feeding programs. The management dietitian is qualified to solve both nutrition and food service problems. Graduates may also choose to work in the management of commercial food service operations. Together with the necessary clinical experience, the option satisfies the eligibility requirements for membership in the American Dietetic Association.

For the B.S. degree in Hospitality Management, a minimum of 120 credits is required. The B.S. degree program consists of two options: (1) Hospitality Management and (2) Management Dietetics.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(8.5-20 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-7 credits

**REQUIREMENTS FOR THE MAJOR:** 76.5-95 credits<sup>[1]</sup>  
(For the HM option, this includes 8.5 credits of General Education courses; 4 credits of GQ courses; 3 credits of GS courses; 1.5 credit of GHA courses. For the Management Dietetics option, this includes 20 credits of General Education courses; 4 credits of GQ courses; 7 credits of GN courses; 6 credits of GS courses; 3 credits of GHA courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 54 credits

**PRESCRIBED COURSES** (51 credits)  
MKTG 221(3), STAT 200 GQ(4) (Sem: 1-4)  
HM 201(3), HM 202(1), HM 228(1), HM 271(3), HM 329(3), HM 330(2), HM 335(3), HM 336(3), HM 350(3), HM 365 IL(3), HM 380(3), HM 430(3), HM 435(3), HM 442(3), HM 466 US(3), HM 490W(3), HM 492(1) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)  
ECON 102 GS(3) or ECON 014 GS(3) (Sem: 1-4)

**REQUIREMENTS FOR THE OPTION:** 22.5-41 credits

**HOSPITALITY MANAGEMENT OPTION:** (22.5 credits)

**PRESCRIBED COURSES** (10.5 credits)  
HM 355(3), HM 480(3), NUTR 100 GHA(1.5), NUTR 119(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS:** (12 credits)  
Select 12 credits of HM courses from an approved department list, up to 4 credits of any foreign language, and other courses in consultation with an advisor.

**MANAGEMENT DIETETICS OPTION:** (41 credits)

**PRESCRIBED COURSES** (38 credits)  
B M B 211(3), BIOL 141 GN(3), CHEM 110 GN(3), CHEM 202(3), MICRB 106 GN(3), MICRB 107 GN(1) (Sem: 3-4)  
NUTR 120(3), NUTR 251 GHA(3), NUTR 370(1), NUTR 400(1), NUTR 445(3), NUTR 446(3), NUTR 452(3), NUTR 453(3), NUTR 456(2) (Sem: 5-8)

**ADDITIONAL COURSE** (3 credits)  
PSYCH 100 GS(3) or SOC 001 GS(3) (Sem: 1-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-041

Review Date: 08/20/13

UCA Revision #1: 8/8/06

HH

School director updated: 4/16/13

## History

*Penn State Erie, The Behrend College (HSTBA)*

The B.A. degree program in History focuses on the study of the evolution of American and European institutions. This program enables students to pursue history in the traditional mode as a study of written records.

For the B.A. degree in History, a minimum of 124 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(3 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in the MAJOR Requirements)

**ELECTIVES:** 19 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 39 credits

(This includes 3 credits of General Education GWS courses.)

**ADDITIONAL COURSES** (30 credits)

HIST 001 GH;IL(3) or HIST 010 GH;IL(3) (Sem: 1-2)

Select 9 credits from ANTH 002 GS(3), ANTH 009 GS;IL(3), HIST 001 GH;IL(3), HIST 002 GH;IL(3), HIST 010 GH;IL(3), HIST 020 GH;US(3), HIST 021 GH;US(3)  
(Sem: 1-8)

ENGL 202A GWS(3) or ENGL 202B GWS(3) (Sem: 3-6)

HIST 301W(3) or HIST 302W(3) (Sem: 5-6)

Select 12 credits of HIST at the 400-level or AM ST 491W(3), ANTH 420(3), ANTH 492(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 3 credits in each of the area categories - United States, Europe, and World from school-approved list (Sem: 1-8)

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-05-017

Review Date: 02/25/2014

BD

## Industrial Engineering

University Park, College of Engineering (I E)

PROFESSOR PAUL M. GRIFFIN, Head, Harold and Inge Marcus Department of Industrial and Manufacturing Engineering

The undergraduate program in industrial engineering, being the first established in the world, has a long tradition of providing a strong, technical, hands-on education in design, control, and operation of manufacturing processes and systems. The curriculum provides a broad-based education in manufacturing, operations research and ergonomics through a base of mathematics, physical and engineering sciences, and laboratory and industrial experiences. It builds a strong foundation for the development of a professionally competent and versatile industrial engineer, able to function in a traditional manufacturing environment as well as in a much broader economy, including careers in financial services, communication, information technology, transportation, health care, consulting, or academia.

### Program Educational Objectives:

We expect our graduates to:

- Participate in and lead cross-functionally defined project teams, designing, implementing and improving processes and systems in the manufacturing, service, or government sectors, using state-of-the-art tools and methodologies;
- Work effectively in managerial and leadership positions, to establish and execute engineering and business strategies;
- Work and communicate effectively with internal and external team members in the global environment, while satisfying engineering, business and financial goals and the end customers and
- Engage in continuous learning through varied work assignments, graduate school, professional training programs and independent study.

### Program Outcomes (Student Outcomes):

These are the specific competencies that our students are taught through the curriculum offered by the department. Our students are expected to know and be able to demonstrate these outcomes by the time they graduate. These relate to the skills, knowledge and behaviors that students acquire as they progress through the program. These are related to the ABET Outcomes (a) through (k). They are listed below.

- 1.1 Analyze and design both the job and the worksite in a cost-effective manner, as well as measure the resulting output.
- 1.2 Understand and apply cognitive systems engineering: identify visual, auditory, cognitive, perceptual and environmental aspects of human performance; Perform task analysis and evaluate human-computer interfaces.
- 1.3 Understand information contained in typical specifications and methods of product verification and conformance to specifications.
- 1.4 Program flexible manufacturing equipment and system controllers; design logical manufacturing layouts and implement contemporary systems issues.
- 1.5 Perform work measurement: develop an MTM analysis and carry out a work sampling study.
- 1.6 Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- 1.7 Understand and apply principles of effective human/interface design to address improved human performance, visual displays and software design.
- 2.1 Ability to apply time value of money and select cost-effective engineering solutions; understand cost-accounting principles.
- 2.2 Ability to apply probability concepts to solve engineering problems, including reliability issues.
- 2.3 Ability to apply statistical concepts to solve real life problems, such as hypotheses testing, design of experiments and statistical quality control methods such as process capability and control charts.
- 2.4 Formulate, solve and analyze the results of linear programming models of real-world applications.
- 2.5 Formulate, solve and analyze real problems using Markov chains, network models, dynamic programming, queuing theory and inventory models.
- 2.6 Gain in-depth knowledge of data storage, analysis and visualization related to manufacturing and service domains.
- 2.7 Ability to create simulation models of manufacturing and service systems and analyze simulation output.
- 2.8 Ability to apply mathematical models to optimally design and control service systems.
- 3.1 Present engineering study results in technical reports and orally.
- 3.2 Demonstrate life-long learning by synthesizing information from several sources.
- 4.1 Work effectively in groups on case studies and projects.
- 4.2 Demonstrate knowledge of contemporary issues.
- 4.3 Understand professional and ethical responsibility.
- 4.4 Understand the impact of engineering decisions in a global and societal context.

After completing courses required for the core and fundamental competencies in the major, students can choose two technical elective courses from the department list, out of which must be an I E course. In addition, the students must also complete the three-credit capstone design course.

**ENTRANCE TO MAJOR** -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHSY 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Industrial Engineering, a minimum of 129 credits is required. This baccalaureate program in Industrial Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

### GENERAL EDUCATION: 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 111 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

### PRESCRIBED COURSES (77 credits)

CHEM 110 GN(3) [1], CHEM 111 GN(1), EDSE 100(3), MATH 140 GQ(4) [1], MATH 141 GQ(4) [1], PHYS 211 GN(4) [1] (Sem: 1-2)  
E MCH 210(5) [1], ENGL 202C GWS(3), MATH 220 GQ(2), MATH 231(2), MATH 250(3), PHYS 212 GN(4) (Sem: 3-4)  
I E 302(3) [1], I E 305(3) [1], I E 322(3) [1], I E 323(3) [1], I E 327(3) [1], I E 330(3) [1], I E 405(3) [1], MATSE 259(3) (Sem: 5-6)  
I E 425(3), I E 453(3), I E 460(3), I E 470(3), I E 480W(3) (Sem: 7-8)

### ADDITIONAL COURSES (16 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)  
ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)

CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 1-2)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-2)

I E 408(3), I E 418(3), or I E 419(3) (Sem: 7-8) (*The courses not taken to satisfy this requirement can be taken as a track elective. Please see the department list*)

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 3 credits as a science selection from department list (Sem: 3-4)

Select 6 credits as non-major electives from department list (Sem: 3-8)

Select 3 credits in manufacturing processes from department list. (Sem: 5-6) (*The course not taken to satisfy this requirement can be taken as a technical elective. Please see the department list*)

Select 6 credits of technical electives from the department list, out of which at least 3 credits must be I E credits.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-090

Review Date: 02/19/2013

R & T: Approved 5/24/2013

UCA Revision #1: 8/8/06

UCA Revision #2: 7/27/07

EN

Accreditation statement updated by Publications, per COE: 8/15/11



## Interdisciplinary Humanities

*Capital College (I HUM)*

PROFESSOR PATRICIA E. JOHNSON, *Program Coordinator, School of Humanities*

This major helps students appreciate, understand, and interpret relationships among the arts, ideas, media, and values that have shaped Western and world cultures. Students are expected to be active learners who can synthesize, interpret, and communicate knowledge and experience through writing, speaking, and creative expression in a variety of media. The School helps students meet these goals by offering a range of interdisciplinary and discipline-based courses in the arts, art history, communication studies, English, history, literature, music, philosophy, theatre, and writing.

### Entry to Major Requirements:

Entry to the Interdisciplinary Humanities major requires the completion of 28 or more credits and a 2.00 or higher cumulative grade-point average.

For a B.HUM. degree in Interdisciplinary Humanities, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 11-15 credits

**REQUIREMENTS FOR THE MAJOR:** 60-64 credits

(At least 36 of the last 60 credits must be earned at Penn State, according to University Policy 83-80.)

### PRESCRIBED COURSES (6 credits)

I HUM 300W(3) [\[1\]](#), I HUM 400(3) [\[1\]](#) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (54-58 credits)

(At least 12 credits of supporting courses must be at the 400 level.)

Select 12-16 credits: 1 course each from 4 different major/program offerings in AMSTD, C ART, ART H, A&A, CAMS, CMSTD, COMM, HCOMM, CMLIT, ENGL, ENLSH, C HIS, HIST, HUM, LIT, C MUS, MUSIC, PHIL, PHLOS, RL ST, SPCOM, THTRE, or choice(s) from a School of Humanities approved list. (Sem: 3-8)

Select 15 credits from AM ST, AMSTD, C ART, CMSTD, COMM, HCOMM, CMLIT, ENGL, ENLSH, C HIS, HIST, HUM, LIT, C MUS, MUSIC, PHIL, PHLOS, RL ST, SPCOM, THTRE, or choice(s) from a School of Humanities approved list. (Sem: 3-8)

Select 9 credits [\[1\]](#) from Interdisciplinary Humanities (HUM or I HUM) courses (Sem: 4-8)

Select 18 credits from the School of Humanities approved list in consultation with an academic adviser or select a Capital College minor in support of the student's interests. (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-04-009

Review Date: 3/8/04

CL

## Interdisciplinary Business with Engineering Studies

*Penn State Erie, The Behrend College (IBE)*

This major provides students with an interdisciplinary program containing both business and engineering course content. The major includes a set of core courses in both business and engineering/engineering technology that should enable a graduate to function effectively in a technical business environment. In addition, a student will be able to choose, from a selection of modules, a set of courses designed to enable a student to function in a specific business or technical area. The modules provide an entry-level set of skills that will help graduates provide immediate value as an employee. The modules include Accounting/Finance, Supply Chain Management, Quality Control, Technical Sales, and Product Design & Manufacture.

In addition to completing the broad-based core in business, science, and engineering, students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them to work in businesses or to further their study in graduate school. The program develops written and oral communication skills from an early stage and culminates in a capstone course sequence consisting of a project that stresses communication, strategic product development, and product realization.

### Entrance to Major Requirements:

Entry to the Interdisciplinary Business with Engineering Studies (IBE) major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Interdisciplinary Business with Engineering Studies, a minimum of 127 credits are required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 106-107 credits

(This includes 24 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses, 6 credits of GS courses, 3 credits of GWS courses.)

### PRESCRIBED COURSES: (65 credits)

CHEM 110 GN(3), CMPSC 201 GQ(3) [\[1\]](#), EG T 120(3) [\[1\]](#), ECON 102 GS(3) [\[1\]](#), EDSGN 100S(3), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), (Sem: 1-2)

ACCTG 211(4) [\[1\]](#), ENGL 202C GWS(3), PHYS 211 GN(4), PHYS 212 GN(4) (Sem: 3-4)

ECON 104 GS(3) [\[1\]](#), FIN 301(3) [\[1\]](#), MGMT 301(3) [\[1\]](#), MIS 204(3) [\[1\]](#), MKTG 301(3) [\[1\]](#), SCM 301(3) [\[1\]](#) (Sem: 5-6)

MGMT 410(3) [\[1\]](#), MGMT 475W(3) [\[1\]](#), MGMT 476(3) [\[1\]](#) (Sem: 7-8)

### ADDITIONAL COURSES: (26 credits) [\[1\]](#)

E MCH 211(3) or MCH T 111(3), SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

B A 241(2) and B A 242(2) or B A 243(4) (Sem: 3-6)

E E 211(3) or EET 101(3) (Sem: 5-6)

CMPET 117(3) or CMPEN 271(3) (Sem: 5-6)

E MCH 213(3) or MCH T 213(3) (Sem: 5-6)

M E 300(3) or MET 330(3) (Sem: 5-6)

Select 3 credits from ECON 470 IL(3), ECON 473 IL(3), FIN 471(3), MKTG 445 IL(3), MGMT 461 IL(3) or other 400-level international business course. (Sem: 7-8)

### SUPPORTING COURSES AND RELATED AREAS: (15-16 credits)

Select one module from School Approved List of Modules 1-5 (15-16 credits) (Sem: 5-8)

Except where noted, courses taken to satisfy General Education requirements may not be used to satisfy module requirements.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-057

Review Date: 08/24/2010

BD

## Interdisciplinary Digital Studio

University Park, College of Arts and Architecture (IDS)

PROFESSOR GRAEME SULLIVAN, in charge

This degree represents an interdisciplinary approach to emerging technologies and the arts and design disciplines of the College of Arts and Architecture incorporating architecture, landscape architecture, graphic design, music, photography, theatre design, and visual arts. The IDS degree begins with a foundation in arts and design [ART 110S(3), ART 111(3)] a two semester sequence of linked studio practice and theory courses that cover fundamental ideas and skills in the arts and design disciplines such as drawing, color theory, and 2-d, 3-d, and 4-d design within the context of art and design history and theory. The IDS program builds on this foundational core utilizing selected courses from across the College of Arts and Architecture. These courses range from digital fabrication to sound design and composition in music, theatre, and art, to digitally-based art explorations, to digital photography, to the exploration of virtual architectural and built environment spaces, to digital art and design theory and criticism, to internet exhibitions and publishing. Concurrent with these courses, students progress through the series of IDS studio courses (A&A 110, 210, 310, 410 and 411) in which they will develop ways of learning that will enable them to understand how to work within collaborative professional environments. This will prepare students to meet the varying challenges they will face within client-based arts and design professions.

For the B.Des. Degree in Interdisciplinary Digital Studio, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**GENERAL EDUCATION:** 45 credits

(Up to 9 of these credits are included in the REQUIREMENTS FOR THE MAJOR. See description of General Education in the *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-9 credits

**REQUIREMENTS FOR THE MAJOR:** 75 credits

(This includes up to 6 credits of GA courses and 3 credits of GN courses)

**PRESCRIBED COURSES** (29 credits)[\[1\]](#)

A&A 110(3), ART 110S US(3), ART 111(3) (Sem: 1-2)

A&A 210(3), ART 211Y US(3) (Sem: 3-4)

A&A 310(3) (Sem: 5-6)

A&A 410(4), A&A 411(4), ART 476(3) (Sem: 7-8)

**ADDITIONAL COURSES** (40 credits)[\[1\]](#)

(Must include at least 6 credits at the 400 level)

Select 40 credits from ARCH 481(3), ART 101 GA(3), ART 201(3), ART 202(3), ART 203(3), ART 217(3), ART 314(4), ART 315(4), ART 316(4), ART 317(4), ART 318(4), ART 319(4), ART 343(4), ART 415(4), ART 416(4), ART 417(4), ART 419(4), GD 100 GA(3), GD 200(3), INART 050 GN(3), INART 258A GA(3), LARCH 450(3), MUSIC 455(1-3), MUSIC 458(3), PHOTO 100 GA(3), PHOTO 200(3), PHOTO 300(4), PHOTO 400(4), PHOTO 402(4), PHOTO 403(4), THEA 285(3), THEA 484(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)[\[1\]](#)

Select 6 credits from ART 220(3), ART 411 US(3), ART H 450 US;IL(3), ART H 470 US;IL(3), ART H 250(3) or PHOTO 201(3), INART 055 GA(3) (Sem: 3-8)

A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-06-012

Review Date: 4/15/08

AA

## Industrial Engineering

*Penn State Erie, The Behrend College IESBD*

The undergraduate program in industrial engineering, being the first established in the world, has a long tradition of providing a strong, technical, hands-on education in design, control, and operation of manufacturing processes and systems. The curriculum provides a broad-based education in manufacturing, operations research and ergonomics through a base of mathematics, physical and engineering sciences, and laboratory and industrial experiences. It builds a strong foundation for the development of a professionally competent and versatile industrial engineer, able to function in a traditional manufacturing environment as well as in a much broader economy, including careers in financial services, communication, information technology, transportation, health care, consulting, or academia.

We expect our graduates to:

1. Participate in and lead cross-functional teams, designing, implementing and improving processes and systems in the manufacturing, service, or government sectors;
2. Work effectively in managerial and leadership positions;
3. Work and communicate effectively with internal and external team members in the global environment; and
4. Engage in continuous learning through varied work assignments, graduate school, professional training programs, and independent study.

The following outcomes are included in the courses taught in the program:

1. Management and Information Systems for Industrial Engineering: apply time value of money to make financial decisions and understand cost-accounting principles; understand probability concepts applicable to solve engineering problems; including reliability issues; conduct tests of hypotheses, create regression models and understand and apply statistical quality control methods such as process capability and control charts; formulate, solve and analyze real problems using Markov chains, network models, dynamic programming, queuing theory and inventory models; create simulation models of manufacturing and service systems and analyze simulation output; and gain an in-depth knowledge of implementation-related issues and theoretical aspects of database and Web-based operations related to industrial engineering.
2. Manufacturing Engineering: understand information contained in typical specifications and methods of product verification and conformance to specifications; and program flexible manufacturing equipment and system controllers; design logical manufacturing layouts and implement contemporary systems issues.
3. Human Factors: analyze and design both the job and the work site in a cost-effective manner, as well as measure the resulting output; understand and apply cognitive systems engineering: identify visual, auditory, perceptual and environmental aspects of human performance, perform task analysis and evaluate human-computer interfaces; and perform work measurement, develop an MTM analysis and carry out a work sampling study
4. General: present engineering study results in technical reports and in oral presentations, demonstrate life-long learning by synthesizing information from several sources, work effectively in groups on case studies and projects, demonstrate knowledge of contemporary issues, understand professional and ethical responsibility and the impact of engineering decisions in a global and societal context; and design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.

After completing courses required for the core and fundamental competencies in the major, students can choose two technical elective courses from the department list, out of which must be an I E course. In addition, the students must also complete the three-credit capstone design course.

**ENTRANCE TO MAJOR** -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ) and PHYS 211 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Industrial Engineering, a minimum of 129 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**GENERAL EDUCATION:** 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 111 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

**PRESCRIBED COURSES** (77 credits)

CHEM 110 GN(3) [1], CHEM 111 GN(1), EDSE 100(3), MATH 140 GQ(4) [1], MATH 141 GQ(4) [1], PHYS 211 GN(4) [1] (Sem: 1-2)

E MCH 210(5) [1], ENGL 202C GWS(3), MATH 220 GQ(2-3), MATH 231(2), MATH 250(3), PHYS 212 GN(4) (Sem: 3-4)

I E 302(3) [1], I E 305(3) [1], I E 322(3) [1], I E 323(3) [1], I E 327(3) [1], I E 330(3) [1], I E 405(3) [1], MATSE 259(3) (Sem: 5-6)

I E 425(3), I E 453(3), I E 460(3), I E 470(3), I E 480W(3) (Sem: 7-8)

**ADDITIONAL COURSES** (16 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)

CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 1-2)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-2)

I E 408(3), I E 418(3), or I E 419(3) (Sem: 7-8) *(The course not taken to satisfy this requirement can be taken as a track elective. Please see the list in (iv) of section C.)*

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 3 credits as a science selection from department list (Sem: 3-4)

Select 6 credits as non-major electives from department list (Sem: 3-8)

Select 3 credits in manufacturing processes from department list. (Sem: 5-6) *(The courses not taken to satisfy this requirement can be taken as a technical elective. Please see the department list)*

Select 6 credits of technical electives from the department list, out of which at least 3 credits must be I E credits.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2009

Blue Sheet Item #: 37-06-041

Review Date: 4/14/09

UCA Revision #1: 8/8/06  
UCA Revision #2: 7/27/07

EN

Accreditation statement updated by Publications, per COE: 8/15/11

## Immunology and Infectious Disease

University Park, College of Agricultural Sciences (IID)

PROFESSOR PAMELA HANKEY, Program Coordinator

Immunology is the study of how animals and humans protect themselves from pathogens. Understanding basic mechanisms of immunity provides insights into how blood cells develop and how pathogens are recognized and attacked. Furthermore, understanding the concepts behind immunology is necessary for drug and vaccine design. Dysregulation of the processes that regulate immunity can contribute to uncontrolled inflammation, tissue destruction, autoimmunity, immunodeficiencies, leukemia and related cancers. Immunology includes a broad range of disciplines including but not limited to microbiology, virology, animal health, genetics, biochemistry, molecular and cell biology. Students enrolled in the Immunology and Infectious Disease Major will develop and understanding of normal immune responses to bacterial, fungal, and viral agents and appreciate the potential pathological outcomes of these responses. Students will learn about events that shape the immune response; the general biology of pathogens and the mechanisms by which they cause disease. In addition, basic skills in microbiology, molecular biology and biochemistry will be acquired. Students completing a B.S. degree in Immunology and Infectious Disease will be well prepared for veterinary, medical or other professional schools, Ph.D. graduate training in a wide variety of areas including immunology, microbiology, virology, molecular medicine, animal science, molecular biology and biochemistry or highly competitive jobs as research technicians, laboratory assistants or sales representatives with a pharmaceutical company.

In order to be eligible for entrance to the Immunology and Infectious Disease major, a student must have: (1) attained at least a 2.00 cumulative grade point average and (2) completed BIOL 110 GN(4) [\[1\]](#), BIOL 230W GN(4) [\[1\]](#), BIOL 220W GN(4) [\[1\]](#) or BIOL 240W GN(4) [\[1\]](#), CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1) [\[1\]](#), CHEM 112 GN(3) [\[1\]](#), CHEM 113 GN(1) [\[1\]](#), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#) and earned a grade of C or better in each of these courses

For the B.S. degree in Immunology and Infectious Disease, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 7-10 credits

**REQUIREMENTS FOR THE MAJOR:** 89-91 credits

(This includes 15 credits of GENERAL EDUCATION courses: 9 credits of GN courses; 6 credits of GQ courses)

**PRESCRIBED COURSES** (60 credits)

B M B 401(3) [\[1\]](#), B M B 402(3) [\[1\]](#), BIOL 110 GN(4) [\[1\]](#), BIOL 230W GN(4) [\[1\]](#), CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1) [\[1\]](#), CHEM 112 GN(3) [\[1\]](#), CHEM 113 GN(1) [\[1\]](#), CHEM 210(3), CHEM 212(3), CHEM 213(2), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), MICRB 201(3) [\[1\]](#), MICRB 202(2) [\[1\]](#), MICRB 410(3) [\[1\]](#), PHYS 250 GN(4), PHYS 251 GN(4), VB SC 211 GN(3) [\[1\]](#), VB SC 448W(3) (Sem: 1-8)

**ADDITIONAL COURSES** (20-22 credits)

Select 4 credits from BIOL 220W GN(4) [\[1\]](#) or BIOL 240W GN(4) [\[1\]](#) (Sem: 2-3)

Select 3-4 credits from STAT 200 GQ(4), STAT 240 GQ(3), STAT 250 GQ(3) (Sem: 3-4)

Select 3 credits from VB SC 444(3) [\[1\]](#) or BB H/H P A 440(3) [\[1\]](#) (Sem: 5-8)

Select 10-11 credits from VB SC 418(2) [\[1\]](#), VB SC/MICRB/B M B 432(3) [\[1\]](#), VB SC/MICRB 435(2) [\[1\]](#), VB SC 445(3) [\[1\]](#), VB SC 451(3) [\[1\]](#) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits of 400-level courses from departmental list [\[1\]](#) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Lasted Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-006

Review Date: 04/08/2014

UCA Revision #1: 8/8/06

HH

Program Coordinator updated: 6/19/12

## Integrative Arts

Abington College (IARAB)  
 Altoona College (IARAL)  
 University Park, College of Arts and Architecture (INART)

PROFESSOR JANET HARTRANFT, Ph.D., Program Coordinator, University Park

Integrative Arts is an interdisciplinary major available to students who desire a curriculum that crosses over traditional single discipline lines. The Integrative Arts student initially establishes an academic plan with the assistance of an approved adviser. The plan must contain a core component of 42 credits and an elective component of 15 credits. The two components combined must clearly illustrate that the plan has clarity, purpose, and cohesion. All Integrative Arts students must complete 6 credits of history of the arts. These credits may be counted as a part of the major or, if outside the major, may be counted under General Education and/or Bachelor of Arts degree requirements. Consult with advisor for course selection.

For the B.A. degree in Integrative Arts, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
 (6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
 (See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
 (Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
 (Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
 (Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 15 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
 (3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
 (See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 42 credits  
 (This includes 6 credits of General Education courses: 6 credits of GA)

**SUPPORTING COURSES AND RELATED AREAS:** 42 credits<sup>[1]</sup>  
 (Must include at least 15 credits at the 400 or equivalent level)  
 (Must include 6 credits in History of the Arts)

Select 24 credits from an arts area (Sem: 1-8)  
 Select 12 credits from other arts areas (Sem: 1-8)  
 Select 6 credits of GA (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-03-010

Review Date: 11/13/2012

## Information Systems

*Capital College (INFSY)*

JANE S. KOCHANOV, *Director of Undergraduate Studies, School of Business Administration*

This major prepares students to enter rapidly expanding fields associated with technology. This includes programming, systems analysis and design, database administration, network management, support services and training, and management of information resources. Students obtain competence both in information technology and in business theory. Thus, the curriculum combines technical content with managerial aspects of information systems. Each student's background is complemented with basic business instruction in accounting, marketing, management, and finance. With business and non-business electives, the program is designed to develop necessary skills to be an effective Information Systems employee. Because the Harrisburg area is the center of industry and economic development for South Central Pennsylvania, students are provided with many opportunities to experience the exciting and challenging world of business.

Students will obtain:

- Knowledge in technologies that support the information environment.
- Knowledge in business or organizational processes that are supported by technology.
- General skills and abilities that promote good communication, problem-solving and analytical abilities, and the ability to work in a team environment.
- Skills to participate in and lead multidisciplinary teams in the development, implementation, and management of information technology solutions.

The program meets the objectives through varied experiences and an emphasis on good communication skills.

### Entry to Major Requirements:

Entry to the Information Systems major requires the completion of 8 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); FIN 301(3); MATH 110 GQ(4) or MATH 140 GQ(4); MGMT 301(3); MKTG 301(3); SCM 200 GQ(4) or STAT 200 GQ(4); and a 2.00 or higher cumulative grade-point average. Additional information about this major is available in the office of the Director of Undergraduate Studies, School of Business Administration at Penn State Harrisburg.

For a B.S. in Information Systems, a minimum of 120 credits is required. At least 30 credits of the final 60 credits must be taken at the Capital College. At least 50 percent of the business credit hours required for the degree must be taken at the Capital College. No more than 60 credits should be from business and business-related courses.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education Course Requirements in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 8 credits

### REQUIREMENTS FOR THE MAJOR: 79 credits

(This includes 12 credits of General Education courses: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses)

### PRESCRIBED COURSES (49 credits)

ACCTG 211(4) (Sem: 1-4)

ECON 102 GS(3), FIN 301(3), MGMT 301(3), MKTG 301(3) (Sem: 1-4)

ENGL 202D GWS(3) (Sem: 3-4)

B A 364Y US;IL(3), B A 462(3), ECON 104 GS(3), MIS 204(3), MIS 307(3)[\[1\]](#), MIS 390(3)[\[1\]](#), MIS 448(3)[\[1\]](#), MIS 450(3)[\[1\]](#), MIS 465(3)[\[1\]](#), SCM 301(3) (Sem: 5-8)

### ADDITIONAL COURSES (24 credits)

Select 3 credits from CMPSC 101 GQ(3) or CMPSC 121 GQ(3) (Sem: 1-4)

Select 4 credits from MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-4)

Select 4 credits from SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 1-4)

Select 4 credits from B A 243(4) or B A 241(2) and B A 242(2) (Sem: 5-6)

Select 9 credits[\[1\]](#) from the following: IST 302(3), IST 451(3), IST 456(3), MIS 413(3), MIS 440(3), MIS 446(3), MIS 460(3), MIS 461(3), MIS 466(3), MIS 489(3) (Sem: 5-8).

### SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from 200-400 level business courses from: ACCTG, B A, ECON, FIN, MGMT, MIS, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests. (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Reviewed by the Department: Summer Session 2011

Blue Sheet Item #:40-01-046

Review Date: 8/16/2011

UCA Revision #1: 8/8/06

UCA Revision #2: 7/27/07

CL



## International Business

*Penn State Erie, The Behrend College (INT B)*

The International Business major is designed to prepare students for the increasingly international nature of business. Compared to other business majors, this one provides greater emphasis on knowledge and skills that are needed to conduct business in an international setting. This includes issues concerned with accomplishing organizational objectives through the coordination of human, material, information, and financial resources across national boundaries. In addition to studying the core business courses, students in this major will receive a broad exposure to the complexity of international business through required course work in international business, international culture, a foreign language, and a study abroad experience. In addition to preparing students for an international business environment, the major aims to provide them with knowledge of a specific business discipline by requiring the completion of all the requirements for a second business major. As a result, students meet the University requirements for a concurrent major. Graduates of the INT B major should be better prepared to function effectively as employees of small businesses with developing international operations or as members of larger business organizations with extensive global operations.

### Entrance to Major Requirements:

Entry to the International Business major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in International Business (in conjunction with a second business major), a minimum of 122 credits is required.

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION and REQUIREMENTS FOR THE MAJOR course selections)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR course selections)

### ELECTIVES: 1 credit

### REQUIREMENTS FOR THE MAJOR: 91 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses, 6 credits of GS courses, 3 credits of GWS courses.)

### PRESCRIBED COURSES (31 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)

FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3), MKTG 301(3)[1], SCM 301(3)[1] (Sem: 3-6)

MGMT 471W(3)[1] (Sem: 7-8)

### ADDITIONAL COURSES (24 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

B A 241(2) and B A 242(2) or B A 243(4) (Sem: 3-6)

Select 12 credits from ECON 470 IL(3)[1], ECON 473 IL(3)[1], FIN 471(3)[1], MGMT 461 IL(3)[1], MKTG 445 IL(3)[1], or other 300- or 400-level international business course [1] in consultation with adviser (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (36 credits)

Select 15 credits in a foreign language and culture (Sem: 1-6)

Select a minimum of 18 credits from one business supporting course group in consultation with adviser. Students must complete the requirements for a second School of Business major (Sem: 5-8)

Select 3 credits from school-approved, non-business Education Abroad courses (Sem: 5-8)

[**Note:** Students must attain third-level proficiency in a single foreign language (0-12 credits) and select 3-15 credits from the school-approved list of non-business international courses. See general information section of the *Bulletin* for the Penn State placement policy on foreign languages. Students receiving advanced placement in foreign language may substitute courses from school-approved foreign language and culture course list to complete the credits for this requirement.]

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-058

Review Date: 08/24/2010

UCA Revision #1: 8/8/06

UCA Revision #2: 7/27/07

BD

## International Politics

University Park , College of the Liberal Arts (INTPL)

PROFESSOR SCOTT BENNETT, Head

This major, administered within the Department of Political Science, is designed to provide students with a broad, comprehensive education in international politics by offering students options in International Relations, International Political Economy, and Security Studies. While most of the required courses are in the areas of international and comparative politics, the curriculum includes courses in economics, geography, risk analysis, and history. The major provides an opportunity to study in detail a variety of crucial contemporary issues--conflict among and within nations, democratization, economic and political globalization, regional conflicts and the emerging importance of non-state actors--as well as analysis of foreign and economic policy making and security issues in the United States and other nations.

The major prepares students for career opportunities with U.S. government executive agencies dealing with foreign affairs, international and homeland security, and the international economy; with relevant committees of the U.S. Congress; with multinational corporations, banks, and consulting firms; and with international organizations. The major also provides preparation for law and business schools and for graduate study in political science and international relations.

For the B. A. degree in International Politics, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(0-3 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**ELECTIVES:** 15-18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 39 credits [11](#)

(This includes 0-3 credits of GS General Education courses.)

**REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 9 credits

**PRESCRIBED COURSES** (3 credits)

PL SC 014 GS;IL(3) (Sem: 1-4)

**ADDITIONAL COURSES** (6 credits)

PL SC 001 GS(3) or PL SC 007 GS(3)\* (Sem: 1-4)

\* PL SC 007 is recommended for students choosing the National Security Option

**Select 3 credits** from PL SC 003 GS;IL(3), PL SC 020 GS;IL(3), PL SC 022 GS;IL(3), PL SC 150(3) (Sem: 1-4)

**REQUIREMENTS FOR THE OPTION:** 30 credits

**INTERNATIONAL RELATIONS OPTION:** (30 credits)

**ADDITIONAL COURSES** (18 credits)

**Select 3-6 credits** (no more than 3 credits may be below the 300 level) from HIST 120 GS;IL(3), HIST 142 GS;IL(3), HIST 143 GH;IL(3), HIST 144 GH;US;IL(3), HIST 173 GH;IL(3), HIST 175 GH;IL(3), HIST 179 GH;IL(3), HIST 181 GH;IL(3), HIST 192 GH;IL(3), HIST 320(3), HIST 420 IL(3), HIST 423 IL(3), HIST 427 IL(3), HIST 430 IL(3), HIST/AAA S 431 US;IL(3), HIST/AAA S 432 IL(3), HIST 434 IL(3), HIST 435 (3), HIST 446 US(3), HIST 447 US(3), HIST 452 US;IL(3), HIST 454 US(3), HIST 460 US;IL(3), HIST 467 US;IL(3), HIST 468 IL(3), HIST 473 IL(3), HIST 479 IL(3), HIST 481 IL(3), HIST 486 IL(3) (Sem: 1-8)

**Select 3-6 credits** (no more than 3 credits may be below the 300 level) from ECON 102 GS(3), ECON 104 GS(3), ECON 333 GS(3) or I B 303 IL(3) (Sem: 1-8)

**Select 3-6 credits** (no more than 3 credits may be below the 300 level) from GEOG 123 GS;IL(3), GEOG 124 GS;IL(3), GEOG 128 GS;IL(3), GEOG 364(3), GEOG 424 US;IL(3), GEOG 428 US(3), GEOG 430(3), GEOG 431(3), GEOG 438W(3), GEOG 444(3), GEOG 463(3), GEOG 464(3), GEOG 468(3) (Sem: 1-8)

**Select 6 credits** 3 credits from PL SC 412(3) or PL SC 481(3) and 3 credits from PL SC 418(3) or PL SC 442(3) (Sem: 4-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 Credits)

**Select 12 credits** from 400-level political science courses in International Relations, Comparative Politics, or Theory/Methodology (excluding courses taken to fulfill other requirements in the major) from an approved department list in consultation with an adviser. (Sem: 3-8)

and/or:

**Select 12 credits** of foreign language courses beyond the 12th-credit level (9 of these credits must be at the 400 level. With adviser approval, all 12 credits may be below the 400 level, but must be in addition to the language proficiency for BA requirements) (Sem: 3-8)

**NATIONAL SECURITY OPTION:** (30 credits)

**PRESCRIBED COURSES** (9 credits)

CRIM 406(3), SRA 111 GS(3), SRA 211(3) (Sem: 4-8)

**ADDITIONAL COURSES** (9 credits)

**Select 3 credits** from ECON 102 GS(3), ECON 104 GS(3), ECON 333 GS(3) or I B 303 IL(3), GEOG 123 GS;IL(3), GEOG 124 GS;IL(3), GEOG 128 GS;IL(3), GEOG 364(3), GEOG 424 US;IL(3), GEOG 428 US(3), GEOG 430(3), GEOG 431(3), GEOG 438W(3), GEOG 444(3), GEOG 463(3), GEOG 464(3), GEOG 468(3), HIST 120 GS;IL(3), HIST 142 GS;IL(3), HIST 143 GH;IL(3), HIST 144 GH;US;IL(3), HIST 173 GH;IL(3), HIST 175 GH;IL(3), HIST 179 GH;IL(3), HIST 181 GH;IL(3), HIST 192 GH;IL(3), HIST 320(3), HIST 420 IL(3), HIST 423 IL(3), HIST 427 IL(3), HIST 430 IL(3), HIST/AF AM 431 US; IL(3), HIST/AF AM 432 IL(3), HIST 434 IL(3), HIST 435 IL(3), HIST 446 US(3), HIST 447 US(3), HIST 452 US;IL(3), HIST 454 US(3), HIST 460 US;IL(3), HIST 467 US;IL(3), HIST 468 IL(3), HIST 473 IL(3), HIST 479 IL(3), HIST 481 IL(3), HIST 486 IL(3) (Sem: 1-8)

**Select 6 credits** from PL SC 412(3), PL SC 418(3), PL SC/CRIMJ 439(3), PL SC 442(3), PL SC 481(3) (Sem: 4-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 Credits)

**Select 12 credits** from 400-level political science courses in International Relations, Comparative Politics, or Theory/Methodology (excluding courses taken to fulfill other requirements in the major) from an approved department list in consultation with an adviser. (Sem: 3-8)

and/or:

**Select 12 credits** of foreign language courses beyond the 12th-credit level (9 of these credits must be at the 400 level. With adviser approval, all 12 credits may be below the 400 level, but must be in addition to the language proficiency for BA requirements) (Sem: 3-8)

**INTERNATIONAL POLITICAL ECONOMY OPTION:** (30 credits)

**ADDITIONAL COURSES** (18 credits)

**Select 6 credits** : 3 credits from PL SC 412(3) or PL SC 481(3) and 3 credits from PL SC 418(3) or PL SC 442(3) (Sem: 4-8)

**Select 9 credits** (no more than 3 credits may be below the 300 level) from ECON 102 GS(3), ECON 104 GS(3), ECON 333 GS(3), ECON 433(3), ECON 434(3), ECON 443(3), ECON 444(3), ECON 451(3), ECON 471(3), ECON 472(3), ECON 474(3), or I B 303 IL(3) (Sem: 1-8)

**Select 3 credits** from GEOG 123 GS;IL(3), GEOG 124 GS;IL(3), GEOG 364(3), GEOG 424 US;IL(3), GEOG 428 US(3), GEOG 430(3), GEOG 431(3), GEOG 438W(3), GEOG 444(3), GEOG 463(3), GEOG 464(3), GEOG 468(3), GEOG 475H(3) (Sem: 1-8)

AF AM/ HIST 431 US; IL (3), HIST 120 GS;IL(3), HIST 142 GS;IL(3), HIST 143 GH;IL(3), HIST 144 GH;US;IL(3), HIST 173 GH;IL(3), HIST 175 GH;IL(3), HIST 179 GH;IL(3), HIST 181 GH;IL(3), HIST 192 GH;IL(3), HIST 320(3), HIST 420 IL(3), HIST 423 IL(3), HIST 427 IL(3), HIST 430 IL(3), HIST/AF AM 432 IL(3), HIST 434 IL(3), HIST 435 IL(3), HIST 446 US(3), HIST 447 US(3), HIST 452 US;IL(3), HIST 454 US(3), HIST 460 US;IL(3), HIST 467 US;IL(3), HIST 468 IL(3), HIST 473 IL(3), HIST 479 IL(3), HIST 481 IL(3), HIST 486 IL(3) (Sem: 1-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

**Select 12 credits** from 400-level political science courses in International Relations, Comparative Politics, or Theory/Methodology (excluding courses taken to fulfill other requirements in the major) from an approved department list in consultation with an adviser. (Sem: 3-8)

### **Integrated Undergraduate/Graduate (IUG) Degree Program B.A. in International Politics and Master's in International Affairs (M.I.A.)**

The integrated undergraduate-graduate (IUG) degree program (B.A. in International Politics/M.I.A. in International Affairs) will provide an opportunity for strong students in International Politics to complete a Master's degree with 5 total years of study.

The demand for graduate training in international affairs will grow significantly in the near future along with the burgeoning requirements for international knowledge and professional experience in commerce, humanitarian service, and public affairs. The career choices for graduates with this training will also expand sharply. The integrated degree program would prepare students for a variety of careers requiring an interdisciplinary background in politics and international affairs. Examples of types of entities hiring in these areas are federal, state, and local governments, international organizations, multinational corporations, international banking and financial institutions, media organizations and journalism, consulting firms, policy research centers, and development assistance programs and foundations.

The IUG degree in International Affairs and International Politics is both timely and consistent with the tradition of interdisciplinary studies at other schools of international affairs. It will also strengthen the School of International Affairs' existing collaborations and interactions with the College of the Liberal Arts.

#### **Admission Requirements**

The number of openings in the integrated B.A./M.I.A. program is limited. Admission will be selective based on specific criteria set by the School of International Affairs. Students shall be admitted to an IUG program no earlier than the beginning of the third semester of undergraduate study at Penn State (regardless of transfer or AP credits accumulated prior to enrollment) and no later than the end of the second week of the semester preceding the semester of expected conferral of the undergraduate degree, as specified in the proposed IUG plan of study.

Specific requirements:

1. Must be enrolled in the International Politics B.A. program.
2. Must apply to and be accepted without reservation into The Graduate School and the M.I.A. program in the School of International Affairs. Students must complete the [Graduate School application](#). All applicants will submit GRE scores, two letters of recommendation and a personal statement addressing their reasons for pursuing a graduate degree in international affairs and discussing their plans and goals.
3. Although the program has no fixed minimum grade-point average, an applicant is generally expected to have a minimum overall GPA of 3.5 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
4. Must include a plan of study identifying undergraduate credits to be applied to the M.I.A. degree elective requirements.
5. Must provide written endorsement from the head of the undergraduate program/department.

#### **M.I.A. Requirements for the Integrated B.A./M.I.A.**

The M.I.A. portion of the integrated B.A./M.I.A. will require the completion of a **minimum of 42 credits at the 400 level or higher**, at least 18 of which are from six core courses consisting of INTAF 801(3), 802(3), 803(3), 804(3), 805(3) and INTAF 590(3). The remaining credits are attained through completion of the approved elective courses.

In addition to the core curriculum and elective courses, M.I.A. degree candidates must complete either: (i) a master's paper; or (ii) a supervised internship placement. If the first option is chosen and the candidate opts to complete a paper, he/she must complete 3 credits of INTAF 594. The master's paper will involve integrating and showing mastery of the subject matter of the student's curricular emphasis, and may also involve original research. If the second option is chosen, the candidate will complete 3 credits of INTAF 595. The student will participate in a supervised internship of sufficient depth and professionalism that will allow the student to experience the integration of his/her curricular studies in an actual professional environment. A reflective paper will be submitted as a part of this credit requirement.

In order to graduate, M.I.A. degree students also will need to demonstrate proficiency in a language other than English. Proficiency will be defined as follows: (i) four semesters of a Penn State language sequence or its equivalent (15 credits with a quality grade of C or better using a 4.0 scale); (ii) native acquisition, as shown by the candidate's personal history and approved by the SIA faculty; or (iii) performance on a proficiency evaluation sufficient to equal four semesters of language learning: for this purpose, either Penn State's proficiency certification process or another pre-approved proficiency assessment may be used. Language study does not provide credits towards the degree.

<b>M.I.A Degree</b> <b>Core Courses (18)</b> INTAF 801(3), INTAF 802(3), INTAF 803(3), INTAF 804(3), INTAF 805(3), INTAF 590(3) <b>Electives (21)</b> Course choices are from a pre-approved list in the SIA, or by SIA faculty approved substitution <b>Capstone (3)</b> Master's Paper (INTAF 594) or Internship (INTAF 595) <b>Total Degree Credits (42)</b>	<b>Integrated B.A./M.I.A. Degree</b> <b>Core Courses (18)</b> INTAF 801(3), INTAF 802(3), INTAF 803(3), INTAF 804(3), INTAF 805(3), INTAF 590(3) <b>Electives (21)</b> The following 12 credits may be double counted toward the B.A. and the M.I.A.: PL SC 415(3), PL SC 441(3), PL SC 550(3), PL SC 554(3). <b>Capstone (3)</b> Master's Paper (INTAF 594) or Internship (INTAF 595) <b>Total Degree Credits (42)</b>
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**Sample Program of Study**

A typical sequence of coursework for a student in the IUG program would appear as follows:

<b>Year One:</b>	International Politics	PL SC 003; PL SC 014 or PL SC 020
<b>Year Two:</b>	International Politics	PL SC 001 or PL SC 007; ECON 102 or ECON 104; lower-level history course
<b>Year Three:</b>	International Politics	Lower-level GEOG; GEOG/HIST or ECON requirement; PL SC 439 or PL SC 442 or other supporting course in PL SC
<b>Year Four:</b>	Fall Semester	INTAF 801, INTAF 802 and INTAF 803 are required. Additional 400-level PL SC, related course(s), or HIST/GEOG/Economics course(s) may be taken.
	Spring Semester	INTAF 804, INTAF 805 and INTAF 590 are required. Additional 400-level PL SC, related course(s), or HIST/GEOG/Economics course(s) may also be taken.
<b>Year Five:</b>	24 credits	The following 12 credits may be double counted toward the B.A. and the M.I.A.: PL SC 415(3), PL SC 441(3), PL SC 550(3), PL SC 554(3).

**Tuition Charges, Grant-in-Aid and Assistantships**

Students admitted to the School of International Affairs through the IUG with International Politics may be considered to receive financial assistance.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-080

Review Date: 11/19/2013

UCA Revision #2: 7/27/07

LA

Dept head last updated by Publications: 4/20/10

## Information Sciences and Technology

Abington College (ISSAB)

Berks College (ISSBL)

Capital College (ISSCA)

University College: Penn State Beaver, Penn State Brandywine, Penn State Greater Allegheny, Penn State Hazleton, Penn State New Kensington, Penn State Lehigh Valley, Penn State Mont Alto, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York (ISSCC)

World Campus

University Park, College of Information Sciences and Technology (ISTBS)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

This major is structured to provide students with the theoretical frameworks and skill sets necessary to compete and be productive in the information technology-intensive global context that defines the new "Information Age." Specifically, the degree will be focused on a program that will build an understanding of core information technologies and related areas of study; will prepare students for the practical application of various information sciences and related technologies; and engage students in sharpening their abilities to think critically and to work in teams. All this will be done with considerable interdisciplinary integration in order to expose students to the cognitive, social, institutional, and global environments of IST. Team projects in most courses, a required internship, and a senior capstone experience provide additional, focused venues for involving students in the cutting-edge issues and technologies of the field.

**INFORMATION SYSTEMS: DESIGN & DEVELOPMENT OPTION:** This option is focused on expanding the skills needed to develop advanced information technology systems using state-of-the-art tools and techniques. The emphasis is on providing the student with both knowledge in the design, implementation, testing and evolution of complex software systems as well as a set of project-oriented, team-programming experiences.

**INFORMATION TECHNOLOGY: INTEGRATION & APPLICATION OPTION:** This option is designed to prepare students to use information technology to realize a variety of system-based goals (e.g., reliability, accessibility, efficiency, etc.). It is focused on developing a theoretical foundation and the skill set needed for integrating information technology into different systems for the purpose of enhancing system performance. The emphasis is on providing the student with both the theoretical frameworks needed to use information technology as a system attribute as well as a set of application-oriented experiences and skills.

**INFORMATION CONTEXT: PEOPLE, ORGANIZATIONS, AND SOCIETY OPTION:** This option focuses on how information technology affects social change and the delivery of information to the consumer. This includes the human-machine interface; organization and retrieval of information; digital libraries; information and telecommunications services; information and media industry structures; software services and intermediaries; telecommunications and information law and policy; sociological aspects of technology change; multimedia; and art, design, and aesthetics.

**Entrance Requirements:** To be eligible for entrance to the Information Sciences and Technology (ISTBS) major, students must:

1. be taking, or have taken, a program appropriate for entry to the major as shown in the *Bulletin*, including approximately 60 credits of course work.
2. have completed the following entrance-to-major requirements with grades of C or better in each: IST 110(3); IST 210(4); and IST 220(3). These courses must be completed by the end of the semester during which the entrance-to-major procedure is carried out.
3. have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance-to-major procedure is carried out.

For the B.S. degree in Information Sciences and Technology, a minimum of 125 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of the *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 7 credits

**REQUIREMENTS FOR THE MAJOR:** 85 credits

(This includes 12 credits of General Education courses: 6 credits of GQ courses; 3 credits of GS courses; and 3 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 64 credits

**PRESCRIBED COURSES** (27 credits)

IST 110 GS(3) [\[1\]](#), IST 210(4) [\[1\]](#), IST 220(3) [\[1\]](#), IST 230(3) [\[1\]](#) (Sem: 1-4)

STAT 200 GQ(4) (Sem: 3-6)

IST 495(1) [\[1\]](#) (Sem: 3-8)

IST 301(3) [\[1\]](#), IST 331(3) [\[1\]](#) (Sem: 5-8)

IST 440W(3) [\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (16 credits)

CMPSC 101 GQ(3) [\[1\]](#), CMPSC 121 GQ(3) [\[1\]](#), or IST 140(3) [\[1\]](#) (Sem: 1-4)

IST 240(3) [\[1\]](#) or IST 242(3) [\[1\]](#) [\[2\]](#) (Sem: 1-4)

ECON 014 GS(3), ECON 102 GS(3), or ECON 104 GS(3) (Sem: 1-4)

ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 1-4)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Attainment of third-level proficiency in a single foreign language (12 credits). Proficiency must be demonstrated by either examination or course work. See the admission section of the general information in this *Bulletin* for the placement policy for Penn State foreign language courses. (Sem: 1-4)

Select 6 credits of international courses in foreign culture from College-approved list (Sem: 5-8)

Select 3 credits [\[1\]](#) at the 400 level in emerging issues and technologies from College-approved list (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 21 credits

**INFORMATION SYSTEMS: DESIGN & DEVELOPMENT OPTION:** 21 credits

**PRESCRIBED COURSES** (3 credits) [\[1\]](#)

IST 311(3) (Sem: 5-8)

**ADDITIONAL COURSES** (9 credits) [\[1\]](#)

Select 3 credits from IST 261(3) or IST 361(3) (Sem: 5-8)

Select 6 credits from IST 411(3), IST 412(3), or IST 413(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits from College-approved list (Sem: 5-8)

**INFORMATION TECHNOLOGY: INTEGRATION & APPLICATION OPTION: 21 credits**

**PRESCRIBED COURSES** (9 credits) [\[1\]](#)

IST 302(3), IST 420(3), IST 421(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits from College-approved list (Sem: 5-8)

**INFORMATION CONTEXT: PEOPLE, ORGANIZATIONS, AND SOCIETY OPTION: 21 credits**

**PRESCRIBED COURSES** (6 credits) [\[1\]](#)

IST 431(3) and IST 432(3) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits) [\[1\]](#)

IST 302(3) or IST 413(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits from College-approved list (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[2]** Students in the Information Systems: Design and Development Option are expected to take IST 242 prior to taking the prescribed and additional courses for that option.

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-05-054

Review Date: 02/25/2014

IS

## Information Sciences and Technology

*University Park, College of Information Sciences and Technology (ISTBA)*

The Bachelor of Arts in Information Sciences and Technology will provide students who are inherently independent and creative with new avenues of study. This degree will be one which will provide them with a thorough grounding in information sciences and technology but also the flexibility to design a curriculum of study to fit their interests and aspirations. Whether these students wish to blend information science and technology with the arts, the humanities, or with the sciences, this degree will provide them with the breadth of experience that they need to accomplish their goals. The core of the B.A. program in IST will parallel that of the B.S. degree, thus the B.A. student will be equipped with the same core expertise and tools sets that they need to be able to navigate through the increasingly complex technology landscape. However the flexibility of the curriculum will give them the opportunity to learn how to apply IT creatively. The B.A. in IST will be highly interdisciplinary, as is fitting for an expressly interdisciplinary college. The degree will be suitable for students who wish to be entrepreneurs, who seek to go on to law or medical school, or who want to acquire an advanced degree in graduate studies.

**Entrance Requirements:** To be eligible for entrance to the Information Sciences and Technology (ISTBA) major, students must:

1. have achieved at least third semester classification while pursuing a program of study that includes at least two of the following four courses with a grades of C or better in each: IST 110, IST 130, IST 210, IST 220.
2. have met with a member of the IST Advising staff, with the outcome being a workable academic plan selected either from a set of example templates (e.g., pre-law) or developed in consultation with the adviser. This meeting must take place prior to the completion of 60 credits. At campuses other than University Park, students will meet with a local IST adviser to develop their academic plans.

For the B.A. degree in Information Sciences and Technology, a minimum of 125 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in front of the *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 15 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 41 credits

**PRESCRIBED COURSES** (17 credits)

IST 110 GS(3)[\[1\]](#), IST 130 GA(3)[\[1\]](#), IST 210(4)[\[1\]](#), IST 220(3)[\[1\]](#) (Sem: 1-4)

IST 495(1)[\[1\]](#) (Sem: 3-8)

IST 440W(3)[\[1\]](#) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (24 credits)[\[1\]](#)

Select 24 credits of IST and IST-related courses in consultation with academic adviser. (At least 12 credits must be at the 400 level.)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2009

Blue Sheet Item #: 37-06-048

Review Date: 4/14/09

IS



## Italian

*University Park, College of the Liberal Arts (IT BA)*

PROFESSOR CHIP GERFEN, *Head*

The major offers training in the skills required for fluency in Italian and knowledge in Italian culture, civilization, and literature. Its aim is to open to the student both the traditions of one of the major formative components of the Western world and the continuing vitality of modern Italian and Italian-American life.

As one of the humanistic programs of the College of the Liberal Arts, the Italian major is not designed to be directly vocational. Nevertheless, rigorous training in either of the two Italian major options can prepare students for rewarding and unique careers in business, travel, ministry, banking, and education. In addition, the federal government employs liberal arts graduates with foreign-language skills in organizations including the National Security Agency, the Central Intelligence Agency, the U.S. Information Agency, and the Department of Labor. The Italian major is also preparatory for graduate work directed to the Ph.D. degree required for teaching and research in colleges and universities. Students with degrees in the humanities are particularly successful applicants to professional schools, such as law and medicine.

TO VIEW THE [Italian Minor \(IT\)](#).

For the B.A. degree in Italian, a minimum of 122 credits is required for the Italian Language and Literature option, or 123 credits minimum is required for the Italian Studies option.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 35 credits [\[1\]](#)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 9 credits

**PRESCRIBED COURSES** (3 credits)

IT 301(3) (Sem: 1-4)

**ADDITIONAL COURSES** (6 credits)

IT 130 GH;IL(3) or IT 131 GH;US(3) (Sem: 1-4)

IT 415(3) or IT 490(3) (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 26-27 credits

**LANGUAGE AND LITERATURE OPTION:** (26 credits)

**ADDITIONAL COURSES** (26 credits)

Select 18 credits of which at least 9 credits are courses taught in Italian, and at least 9 credits are at the 400-level (some courses will satisfy both conditions).

**For courses taught in Italian, select from:**

IT 320(3), IT 325(3), IT 330W(3), IT 412(3), IT 422(3) (Sem: 5-8)

or other courses taught in Italian in consultation with major advisor

**For courses at the 400-level, select from:**

IT 412(3), IT 422(3), IT 475(3), IT 480(3), IT 485(3), IT 497(1-9) (Sem: 5-8)

or other 400-level courses taught in Italian in consultation with major advisor

**Select 8 credits from one of the following a, b, c, d, or e:**

a) LATIN 001(4) and LATIN 002(4) (Sem: 1-4)

b) FR 001(4) and FR 002(4) (Sem: 1-4)

c) SPAN 001(4) and SPAN 002(4) (Sem: 1-4)

d) PORT 001(4) and PORT 002(4) (Sem: 1-4)

e) Foreign Study: IT 001(4), IT 002(4), IT 099(1-12), IT 399(1-12) (Sem: 1-8)

or other courses abroad in consultation with major advisor

**ITALIAN STUDIES OPTION:** (27 credits)

**ADDITIONAL COURSES** (27 credits)

Select 27 credits from categories a, b, and c:

**NOTE:** Courses in different categories in the Italian Studies option cannot double-count. Example: if a student uses IT 422 to satisfy category A requirements, IT 422 cannot count in category B. Also, in addition to the prescribed IT 415/490 course, Italian Studies majors must take a minimum of 12 credits at the 400-level in categories A, B, and C.

**a) Select 6 credits from:**

IT 320(3), IT 325(3), IT 330W(3), IT 412(3), IT 422(3) (Sem: 5-8)

or other 300 or 400-level courses taught in Italian in consultation with major advisor

**b) Select 12 credits from:**

IT 110(3), IT 230(3) (Sem: 1-4)

IT 320(3), IT 325(3), IT 330W(3), IT 399(1-12), IT 422(3), IT 475(3), IT 480(3), IT 485(3), IT 497(1-9) (Sem: 5-8)

or other courses in consultation with major advisor

**c) Select 9 credits of 400-level courses in related disciplines from:**

ART H 411(3-9), ART H 414(3), ART H 423(3-9), ART H 456 IL(3), ART H 458 IL(3), CAMS 410(3), CAS 471 US;IL(3), CMLIT 400W(3), CMLIT 401W(3), CMLIT 402W(3), LATIN 400(3), LATIN 402(3-12), LATIN 403(3-12), LATIN 404(3-12), LATIN 420(3-6), LATIN 450W(3), LING 447(3), LING 448(3), PHIL 437 IL(3), PHIL 454(3), PHIL 455(3-6), PHIL 464(3-6), PHIL 465(3-6), PL SC 431(3), PL SC 432(3) (Sem: 5-8)

or other courses in consultation with major advisor



**NOTE:** While some of the courses in related disciplines focus specifically on Italian or Roman topics, other courses on this list endeavor to provide a broader cultural or disciplinary context for students with an Italian Studies orientation. Students will be encouraged to suggest to their major advisor other relevant 400-level special topics courses in other disciplines to satisfy this requirement.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 33-03-288

Review Date: 11/23/04

UCA Revision #2: 7/27/07

LA

## Italian

*University Park, College of the Liberal Arts (ITBS)*

PROFESSOR CHIP GERFEN, *Head*

The major encourages students to prepare for careers in which fluency in Italian can be combined with training in other academic disciplines.

TO VIEW THE [Italian Minor \(IT\)](#)

For the B.S. degree in Italian, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits

**REQUIREMENTS FOR THE MAJOR:** 60-72 credits<sup>[1]</sup>

(This includes 0-12 credits of General Education Courses: 0-9 credits of GS courses, 0-3 credits of GWS courses.)

**PRESCRIBED COURSES** (15 credits)

IT 110(3), IT 301(3), (Sem: 1-4)

IT 320(3) (Sem: 3-8)

IT 412(3), IT 485(3) (Sem: 5-8)

**ADDITIONAL COURSES** (48 credits)

Select 15 credits (at least 6 of which must be at the 400-level) from:

IT 130 GH;IL(3), IT 131 GH;US(3), IT 230 GH(3) (Sem: 1-4)

IT 325(3), IT 330W(3) (Sem: 3-8)

IT 415(3), IT 422(3), IT 475(3), IT 480(3), IT 490(3), IT 497(1-9) (Sem: 5-8)

or other course in consultation with major advisor

Select 33 credits from:

CAS 200 US;IL(3), CAS 203(3), ECON 102 GS(3), ECON 104 GS(3); ENGL 202C GWS(3) or ENGL 202D GWS(3); HD FS 287W GS;US(3), LING 100 GS(3); PL SC 014 GS;IL(3) or PL SC 020 GS;IL(3); PSYCH 100 GS(3), S T S 100 GH(3) (Sem: 1-4)

ECON 333 GS(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits from one of the following two areas:

**(1)** Students must complete 9 credits as participants in a Penn State or Penn State-approved education abroad program of a minimum of six weeks in length. At least 3 of these 9 credits must be taught in Italian language.

Such as:

IT 001(4), IT 002(4), IT 099 IL(1-12) (Sem: 1-4)

IT 399 IL(1-12) (Sem: 1-8)

IT 496(1-18) (Sem: 5-8)

or other courses abroad in consultation with an advisor for the major.

**(2)** Select 9 credits of 400-level courses in related disciplines from the following or another 400-level course in consultation with an advisor for the major: AM ST 448(3), ART H 411(3-9), ART H 414(3), ART H 423(3-9), ART H 456 IL(3), ART H 458 IL(3), CAMS 410(3), CAS 471 US;IL(3), ENGL 416(3), ENGL 417(3), ENGL 418(3), ENGL 419(3), LATIN 420(3-6), LATIN 450W(3), LING 447(3), LING 448(3), PHIL 454(3-6), PHIL 455(3-6), PHIL 464(3-6), PHIL 465(3-6), PL SC 431(3), PL SC 432(3), PSYCH 457(3) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 33-03-289

Review Date: 11/23/04

UCA Revision #1: 8/8/06

UCA Revision #2: 7/27/07

LA

## Jewish Studies

*University Park, College of the Liberal Arts (J ST)*

The Jewish Studies major addresses the culture, history, literature, philosophy, language, and religious beliefs of the Jewish people across the thousands of years from Biblical times to the present. All students in the major must complete Jewish Studies 010, an introduction to Jewish Civilization, and select from approved lists four courses that are concerned with Jewish studies across its chronological and geographical expanse. Students in the major select one of two options. The Culture and Language option is intended to provide the opportunity for an integrated course of study leading to a second baccalaureate major. This option is recommended for students planning further academic work in Jewish Studies or professional study in a related field. It requires study of Hebrew at the 400 level, and additional language study is encouraged. The Interdisciplinary option is for students who have enrolled in Jewish Studies as a secondary major. This option is recommended for students planning specialized careers within such fields as communications, social service, politics, medicine, education, or law where a knowledge of Jewish history, traditions, and institutions would be important. All students in the major are particularly encouraged to participate in a relevant internship, education abroad program, or archaeological fieldwork. Penn State students also may enroll to study abroad at a university in Israel, and up to 15 credits of related education abroad courses may be applied to requirements for the major in consultation with the adviser.

For the B.A. degree in Jewish Studies, a minimum of 120 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**ELECTIVES:** 21 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 30 credits<sup>[1]</sup>

(No more than 15 credits in courses numbered 099, 199, 299, 399, or 499 may count toward the requirements for the major.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 15 credits

**PRESCRIBED COURSES** (3 credits)

J ST 010 GH;IL(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 3 credits in Jewish Studies in the ancient through medieval world from approved program list (Sem: 1-8)

Select 3 credits in Jewish Studies from the medieval through the contemporary period from approved program list (Sem: 1-8)

Select 3 credits in Jewish Studies concerned with archaeology, language and literature, history, philosophy, or religious studies in Israel from approved program list (Sem: 1-8)

Select 3 credits in Jewish Studies concerned with history, language and literature, philosophy, or religious studies in the Diaspora from approved program list (Sem: 1-8)

**REQUIREMENTS FOR THE OPTION:** 15 credits

**CULTURE AND LANGUAGE OPTION:** (15 credits)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 3 credits in Hebrew at the 400 level in consultation with adviser (Sem: 1-8)

Select 12 credits of courses at the 400 level from approved program list (Sem: 5-8)

**INTERDISCIPLINARY OPTION:** (15 credits)

(This option is to be taken only concurrently with another major.)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits at the 400 level from Jewish Studies, Hebrew, or appropriate courses in Anthropology, Classics and Ancient Mediterranean Studies, Comparative Literature, History, Philosophy, or Religious Studies from approved program list (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2004

Blue Sheet Item #: 32-06-179

Review Date: 4/13/04

LA

## Japanese

*University Park, College of the Liberal Arts (JAPNS)*

PROFESSOR ERIC HAYOT, *Director of the Asian Studies Program, in charge*

The major in Japanese strengthens students' overall skills in internationalism and provides a focus on one of the world's most important nations. The Japanese major is designed for students who want to develop proficiency in speaking, listening, reading, and writing Japanese, and acquire profound knowledge of Japanese culture, history, and civilization in the context of East Asia.

The Japanese major requires students to study abroad in order to deepen their understanding of the language, culture and contemporary society, and to develop intercultural and comparative perspectives.

The major can also help students prepare for graduate study in Japan-related fields and professional careers where proficiency in Japanese is required, such as government services, or multinational companies.

Students planning to teach in public schools should schedule the appropriate courses leading to certification in consultation with an adviser in the College of Education.

For the B.A. degree in Japanese, a minimum of 124 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(0-9 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVE or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**ELECTIVES:** 21-27 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 34 credits [\[1\]](#)

(This includes 0-9 credits of General Education GA, GH, or GS courses.)

(At least 21 credits must be at the 400 level.)

(Students are strongly encouraged to take at least 12 of their credits in Japan, either in a Penn State Education Abroad program or another program subject to departmental approval. For curricular sequencing, the program encourages students to pursue this Education Abroad experience in the fall semester of the junior year, unless the host institution runs on the Japanese academic schedule, in which case study abroad should be in the spring semester, or for the entire year.

**PRESCRIBED COURSES** (19 credits)

JAPNS 110 IL(4) (Sem: 3-4)

JAPNS 401 IL(4), JAPNS 402 IL(4) (Sem: 5-6)

JAPNS 403Y(4), JAPNS 404 IL(3) (Sem: 7-8)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from JAPNS 120 GH;IL(3) or JAPNS 121 GH;IL(3) (Sem:1-6)

Select 3 credits from the JAPNS 420-429 level (Sem: 1-8)

Select 3 credits from the JAPNS 450-459 level (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits pertaining to Japan, such as courses in art history, comparative history, geography, history, Japanese, philosophy, political science, religious studies, theatre arts, or other fields, selected from departmental list (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-03-053

Review Date: 11/08/2011

LA

## Journalism

University Park, College of Communications (JOURN)

PROFESSOR FORD RISLEY, Head, Department of Journalism

The goal of the major is to provide students with the critical thinking, ethical, legal and professional skills that will enable them to enter positions in all areas of journalism.

Students must select at least 80 credits in non-COMM courses, including at least 65 credits in the liberal arts and sciences.

### The following three options are offered:

**BROADCAST JOURNALISM OPTION:** This option is designed for students interested in radio, television, and/or multimedia journalism as a reporter, editor, or producer. Students are trained in the techniques of audio/video and online reporting and editing. They take two required courses that provide instruction in the basic skills of reporting and editing and choose two other courses that provide advanced instruction in these areas.

**DIGITAL AND PRINT JOURNALISM OPTION:** This option is designed for students interested in newspaper, magazine and/or multimedia journalism as a reporter, editor, or producer. Students are trained in the techniques of print and online reporting and editing. They take two required courses that provide instruction in the basic skills of reporting and editing and choose two other courses that provide advanced instruction in these areas.

**PHOTOJOURNALISM OPTION:** This option is designed for students interested in photo and/or multimedia journalism as a photographer, editor or producer. Students are trained in the techniques of still/video photography and editing. They take two required courses that provide instruction in the basic skills of photography and editing and choose two other courses that provide advanced instruction in these areas.

For the B.A. degree in Journalism, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 2 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 49 credits<sup>[1]</sup>

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 31 credits

**PRESCRIBED COURSES** (13 credits)

COMM 160(1) (Sem: 1-2)

COMM 260W(3) (Sem: 3-4)

COMM 271(3) (Sem: 3-6)

COMM 403(3), COMM 409(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 18 credits for completion of a University-approved minor (Sem: 1-8)

[Students majoring in journalism must take a University-approved minor outside the College of Communications. The minimum requirement for a minor is 18 credits. By careful planning, a student may use General Education and Bachelor of Arts courses to help fulfill this requirement. In lieu of a minor, students may take a concurrent major or concurrent degree, as long as it is outside the College of Communications. Students should consult with their adviser as soon as possible about this requirement.] (Sem: 1-8)

**REQUIREMENTS FOR THE OPTION:** 18 credits

Options can be combined but only with the consent of a student's adviser.

**BROADCAST JOURNALISM OPTION** (18 credits)

**PRESCRIBED COURSES** (6 credits)

COMM 360(3), COMM 465(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 6 credits from COMM 400(3), COMM 402(3), COMM 466(3), COMM 475(3), COMM 480(6), COMM 481(3), COMM 495(1-3)[17] (Sem: 5-8)

Select 6 credits from COMM 180 GS(3), COMM 205 US(3), COMM 381(3), COMM 401(3), COMM 405(3), COMM 407A(3), COMM 407B(3), COMM 407C(3), COMM 410 IL(3), COMM 411(3), COMM 412(3), COMM 419 US;IL(3), COMM 494H(1-6), COMM 496(1-18), COMM 499 IL(1-12) (Sem: 5-8)

**DIGITAL AND PRINT JOURNALISM OPTION** (18 credits)

**PRESCRIBED COURSES** (6 credits)

COMM 460W(3), COMM 467(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 6 credits from COMM 269(3), COMM 402(3), COMM 461(3), COMM 462(3), COMM 463(3), COMM 464W(3), COMM 474(3), COMM 475(3), COMM 481(3), COMM 495(1-3)[17] (Sem: 5-8)

Select 6 credits from COMM 180 GS(3), COMM 205 US(3), COMM 381(3), COMM 401(3), COMM 405(3), COMM 407A(3), COMM 407B(3), COMM 407C(3), COMM 410 IL(3), COMM 411(3), COMM 412(3), COMM 419 US;IL(3), COMM 494H(1-6), COMM 496(1-18), COMM 499 IL(1-12) (Sem: 5-8)

**PHOTOJOURNALISM OPTION** (18 credits)

**PRESCRIBED COURSES** (6 credits)

COMM 269(3), COMM 469(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 6 credits from COMM 402(3), COMM 463(3), COMM 467(3), COMM 468(3), COMM 475(3), COMM 481(3), COMM 495(1-3)[17] (Sem: 5-8)

Select 6 credits from COMM 180 GS(3), COMM 205 US(3), COMM 381(3), COMM 401(3), COMM 405(3), COMM 407A(3), COMM 407B(3), COMM 407C(3), COMM 410 IL(3), COMM 411(3), COMM 412(3), COMM 419 US;IL(3), COMM 494H(1-6), COMM 496(1-18), COMM 499 IL(1-12) (Sem: 5-8)

<sup>[1]</sup> A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

<sup>[17]</sup> Internship in news with newspaper, radio, or TV. See the director of the internship program for specifics.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-015

Review Date: 11/19/2013

CM

## Kinesiology

Berks College (KINBL)  
University Park, College of Health and Human Development (KINES)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR NANCY I. WILLIAMS, Head, Department of Kinesiology

Kinesiology offers a comprehensive program of study in the science of human movement and is designed for students who want to prepare for professions involving physical activity and for graduate study in related areas. The Kinesiology major options are: Movement Science; Physical & Health Education Teacher Education; and Exercise Science (only offered at Penn State Berks). All options require a minimum of 120 credits for graduation, with the exception of Physical and Health Education Teacher Education, which requires 128 credits. Information about the major and its options can be found at <http://www.hhdev.psu.edu/kines/index.html>

All options require a culminating practicum or research experience. First Aid, CPR, and Water Safety Instructor (WSI) certification are highly recommended for the Physical & Health Education Teacher Education Option. (See additional requirements for student teaching under General Information, Special Academic Programs.) Relocation away from the University Park campus is generally necessary for student teaching and may be necessary for practicums in other options.

Students who have completed a minimum of 28 credits and have a 2.00 cumulative grade-point average are eligible for entrance into the major after completing an Entrance to Major form. Students who are interested in Health Education Teacher Education must meet additional criteria in order to enter this option (see information on Physical & Health Education Teacher Education Option).

**MOVEMENT SCIENCE OPTION:** This option provides interdisciplinary training that utilizes movement for diagnosis, rehabilitation, and/or theoretical study. Course work is designed to help prepare graduates for a broad range of careers in biomedical and health-related fields. The option can also prepare students for graduate studies in the health professions. Students may select supporting courses that will fulfill requirements for advanced study in scientific disciplines and a variety of professional areas such as physical therapy, cardiac rehabilitation, and physician's assistant.

**PHYSICAL & HEALTH EDUCATION TEACHER EDUCATION OPTION:** This option is designed to prepare students to become licensed K-12 Health and Physical Education teachers. The licensure certifies them to teach elementary, middle or high school Health and Physical Education. The program includes all the academic requirements for the Instructional I Certificate in these fields issued by the Pennsylvania Department of Education. The entrance requirements for all University teacher preparation programs include:

1. A minimum cumulative grade-point average of 3.00.
2. Either qualifying scores from the PECT PAPA for Reading, Writing and Mathematics; or qualifying SAT scores for the combined and individual Critical Reading, Writing, and Mathematics sections; or qualifying American College Test Plus Writing composite and individual English/Writing score and Math score as specified by the Pennsylvania Department of Education.
3. ENGL 015 or ENGL 030.
4. 6 credits of quantification.
5. 3 credits of literature.
6. 48 credits minimum.
7. Completion of an Education Core: EDPSY 014(3) and EDTHP 115 US(3).
8. An early field experience, preferably in a diverse setting (one with at least 25 percent minority students): for KINES majors, KINES 295A(1).
9. 6 credits of required coursework in the teaching field: for KINES majors, KINES 141 US;IL(3) and KINES 180(3).
10. Documented evidence showing completion of at least 80 hours of paid or volunteer work in a setting with an age-appropriate population, including a minimum of 40 hours of work in each of two settings, one of which should involve students from an underrepresented group, or who are from rural or urban areas, but different from the candidate's own background.
11. Approval by the Teacher Preparation option coordinator.

**EXERCISE SCIENCE OPTION:** (offered only at the Penn State Berks) This option is a program of study in the science of exercise. This program offers Kinesiology background and applied experience in fitness assessment, exercise physiology, exercise psychology, motor skill development, nutrition and healthy living skills. Graduates will be able to scientifically assess fitness levels of individuals. Analyzing those assessments, graduates will then be capable of designing and implementing appropriate exercise programs.

Students in the Business Emphasis can obtain a Business Minor through this program. Students acquire basic business skills in accounting, marketing, management and entrepreneurial skills.

Students choosing the Science Emphasis will select courses from a department list that will enhance their opportunity for graduate studies in Kinesiology related fields, Physical Therapy and Medical schools.

The completion of the Exercise Science Option will enable graduates to compete for employment in the corporate fitness arena, private fitness clubs, community-based fitness organizations, hospital and university settings or possibly to operate their own health and fitness company.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 45 credits  
(15-21 of these credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES :**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-2 credits

**REQUIREMENTS FOR THE MAJOR:** 90-101 credits  
(This includes 15-21 credits of General Education courses: Movement Science Option--9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GHA courses. Physical & Health Education Teacher Education Option--6 credits of GN courses; 3 credits of GH courses; 3 credits of GQ courses; 3 credits of GS courses; 3 credits of GHA courses. Exercise Science Option--6-7 credits of GN courses; 6 credits of GQ courses; 3 credits of GHA courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 31 credits

**PRESCRIBED COURSES** (31 credits)<sup>[1]</sup>  
BIOL 141 GN(3), KINES 141 US;IL(3), KINES 180(3) (Sem: 1-4)  
KINES 202(4), NUTR 251 GHA(3) (Sem: 3-4)  
KINES 321(3), KINES 345(3), KINES 350(3), KINES 360(3), KINES 384(3) (Sem: 3-6)

**REQUIREMENTS FOR THE OPTION:** 59-70 credits

**MOVEMENT SCIENCE OPTION:** (63 credits)

**PRESCRIBED COURSES** (36 credits)<sup>[1]</sup>  
BIOL 110 GN(4), BIOL 142(1), CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112(3), CHEM 113(1), KINES 295B(1) (Sem: 1-4)  
PHYS 250 GN(4), PHYS 251 GN(4), PSYCH 100 GS(3), STAT 200 GQ(4) (Sem: 3-6)

KINES 395B(1) (Sem: 5-8)  
KINES 495B(6) (Sem: 7-8)

**ADDITIONAL COURSES** (18 credits)

a. MATH 026 GQ(3) OR satisfactory performance on the MATH placement examination--i.e., placement beyond the level of MATH 026 (Sem: 1-4)

b. Select an additional 15 credits from approved 400-level KINES courses:

KINES 410(3), KINES 411(3), KINES 420(3), KINES 421(3), KINES 422(3), KINES 423(3), KINES 424 US(3), KINES 425W(3), KINES 427(3), KINES 428(3), KINES 429(3), KINES 439W(3), KINES 440(3), KINES 441 US(3), KINES 442 IL(3), KINES 443 IL(3), KINES 444 US(3), KINES 446 IL(3), KINES 447W(3), KINES 450(3), KINES 452(3), KINES 453(3), KINES 454(3), KINES 456(4), KINES 457(3), KINES 460(3), KINES 463(3), KINES 465(3), KINES 481W(3), KINES 483(3), KINES 484(3), KINES 485(3), KINES 488(3), KINES 492W(3), KINES 493(3), KINES 499 IL(1-12) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits in University-wide offerings from an approved list, in consultation with advisor. (Sem: 1-8)

**PHYSICAL & HEALTH EDUCATION TEACHER EDUCATION OPTION:** (70 credits)[\[18\]](#)**PRESCRIBED COURSES** (70 credits)

C I 280 GH(3), CHEM 101 GN(3), EDPSY 010 GS(3), EDPSY 014(3), EDTHP 115 US(3), KINES 165(3), KINES 261(1), KINES 262(1), KINES 264(1), KINES 266(1), KINES 268(1), KINES 295A(1), MATH 022 GQ(3) (Sem: 1-4)

BB H 146 GHA(3), KINES 362(1.5), KINES 364(1.5), KINES 366(3), KINES 395A(1), KINES 400(3), KINES 445(3), KINES 464(3), KINES 466(2), KINES 468(3), KINES 469W(3), SPLED 400(4) (Sem: 5-8)

KINES 495A(12) (Sem: 8-9)

**EXERCISE SCIENCE OPTION:** (59-60 credits)**PRESCRIBED COURSES** (34 credits)

STAT 200 GQ(4) (Sem: 1-2)

KINES 200(3)[\[11\]](#), KINES 201(3)[\[11\]](#), KINES 260(3)[\[11\]](#), KINES 295B(1)[\[11\]](#) (Sem: 3-4)

KINES 356(3)[\[11\]](#), KINES 358(I)[\[11\]](#) (Sem: 5-6)

KINES 420(3)[\[11\]](#), KINES 456(4)[\[11\]](#), KINES 457(3)[\[11\]](#), KINES 495C(6)[\[11\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (9-10 credits)

a. CHEM 101 GN(3) or CHEM 110 GN(3) and CHEM 111 GN(1) (Sem: 1-2)

b. MATH 022 GQ(3) or satisfactory performance on the MATH placement examination--i.e., placement beyond the level of MATH 022 (Sem: 1-2)

c. Select 3 credits from KINES 001 GHA(1.5) to KINES 099(3) (Sem: 1-2)

**SUPPORTING COURSES AND RELATED AREAS** (16 credits)

Select 16 credits from one of the following emphasis area from an approved list, in consultation with advisor. At least 3 credits must be at the 400 level.

a. Business Emphasis (Sem: 1-8)

b. Science Emphasis (Sem: 1-8)

[\[11\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[\[18\]](#) A grade of C or better per course is required for Physical & Health Education Teacher Education (PHETE).

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-04-027

Review Date: 01/14/2014

UCA Revision #1: 8/8/06

HH



## Liberal Arts and Earth and Mineral Sciences Concurrent Degree Program

## Liberal Arts and Engineering Concurrent Degree Program

These programs require ten semesters of study, concurrently in the College of the Liberal Arts (during which the student completes 70 credits in General Education and Bachelor of Arts requirements and 33 to 37 basic engineering or science requirements), and in either the College of Earth and Mineral Sciences or the College of Engineering (during which the student completes the credits required in the selected major in Earth and Mineral Sciences or Engineering).

Upon completion of the program, the B.A. in General Arts and Sciences will be awarded by the College of the Liberal Arts and the B.S. by the College of Earth and Mineral Sciences or the College of Engineering. The majors available in the College of Earth and Mineral Sciences are Environmental Systems Engineering, Geosciences, Mining Engineering, Polymer Science, Mineral Economics, Petroleum and Natural Gas Engineering, Ceramic Science and Engineering, Metals Science and Engineering, or Meteorology. The majors available in the College of Engineering are Aerospace, Agricultural, Chemical, Civil, Electrical, Environmental, Industrial and Management Systems, Mechanical, or Nuclear Engineering, or Engineering Science<sup>[44]</sup>.

To be eligible for this program, a student must file an application for entrance with the associate dean for undergraduate studies, College of the Liberal Arts, not later than the third semester. Entrance to the program requires that the student satisfy all regular requirements of the College of the Liberal Arts and the College of Earth and Mineral Sciences or the College of Engineering. In addition, special requirements may need to be satisfied when enrollment controls are imposed on programs in any of the colleges because of space limitations. Once a student has met all the requirements for entrance to this program, transfer from the College of the Liberal Arts to the College of Earth and Mineral Sciences or the College of Engineering, with enrollment in one of the majors listed, will be approved automatically at the end of the sixth semester if the student continues to make normal progress toward the concurrent degree and has maintained a cumulative average of 2.00 or higher. Students entering majors in the College of Engineering must complete the following courses with a grade of C or higher: CHEM 110 GN(3) and CHEM 111 GN(1), MATH 140 GQ(4), MATH 141 GQ(4), and PHYS 201 GN(4), and meet the required cumulative grade-point average for the requested engineering major.

Students are advised of the absolute necessity for scheduling classes in exact sequence during the first six semesters of Concurrent Degree study. It is imperative that students obtain, from the Liberal Arts Undergraduate Studies Office, 101 Sparks Building, a copy of the Concurrent Degree requirements worksheet that enumerates the specific course requirements for the two programs for semesters one through six.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description for General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

### REQUIREMENTS FOR THE MAJOR: 12 credits

### EARTH AND MINERAL SCIENCES OR ENGINEERING COMPONENT: 89-91 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses and 9 credits of GN courses.)

### SEMESTERS ONE THROUGH SIX (33-34 credits)<sup>[45]</sup>

#### PRESCRIBED COURSES (27 credits)

CHEM 111 GN(1), CHEM 113 GN(1), MATH 220 GQ(2-3), MATH 230(4), MATH 250(3) (Sem: 1-4)

E G 010(1), E G 011(1) (Sem: 3-4)

PHYS 201 GN(4), PHYS 202 GN(4) (Sem: 3-6)

E MCH 211(3), E MCH 212(3) (Sem: 5-8)

#### ADDITIONAL COURSES (6-7 credits)

PHYS 203 GN(3) or PHYS 204 GN(4) (Sem: 3-6)

B.S. requirements<sup>[46]</sup>(3) (Sem: 5-6)

### SEMESTERS SEVEN THROUGH TEN (56-57 credits)

Credits required in the selected major in Earth and Mineral Sciences or Engineering (56-57) (Sem: 7-10)

### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 3 credits from each of the following areas: arts, humanities, science/mathematics, social and behavioral sciences. (Sem: 9-10)

<sup>[44]</sup> Enrollment in the Engineering Science program is limited to those students attaining an average of B or higher during their first six semesters and to those specially chosen by the College of Engineering faculty on the basis of evidence that they will benefit from the advanced courses.

<sup>[45]</sup> Concurrent Degree candidates should consult the individual program requirements in the College of Engineering and the College of Earth and Mineral Sciences to ascertain which combinations of CHEM, E G, E MCH, MATH, and PHYS are required.

<sup>[46]</sup> Concurrent Degree candidates should select a course in this category appropriate for the requirements for their program in either Earth and Mineral Sciences or Engineering.

Last Revised by the Department: Summer Session 1991

Blue Sheet Item #: 16-10-030

Review Date: 5/22/08

UCA Revision #1: 8/8/06

## Landscape Architecture

University Park, College of Arts and Architecture (LARCH)

PROFESSOR ELIZA PENNYPACKER, *Interim Head, Department of Landscape Architecture*

Landscape architecture is the art of design, planning, or management of the land and of the natural and built elements upon it. As an academic discipline, it embodies creative, cultural, philosophical, and scientific knowledge bases. As a professional discipline, the practice of landscape architecture includes site design, urban design, master planning, community planning, regional planning, resource conservation, and stewardship.

For those selected to major in this field, the program is a five-year curriculum leading to a professionally accredited Bachelor of Landscape Architecture degree. A minor is strongly encouraged. One semester of the curriculum is spent in a required semester abroad. The program helps prepare graduates for either advanced study or professional careers. The curriculum develops both the creative disciplines and the technical skills essential to practice, as well as to the pursuit of interests in related fields. With appropriate work experience with a registered practitioner, graduates are eligible to take the state licensing examinations.

For the Bachelor of Landscape Architecture degree, a minimum of 151 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 17-18 credits

**REQUIREMENTS FOR THE MAJOR:** 103-104 credits

(This includes 15 credits of General Education courses: 3 credits of GQ courses; 9 credits of GN courses; 3 credits of GS courses.)

**PRESCRIBED COURSES** (91 credits)

LARCH 060 GA;US;IL(3) [1], LARCH 065 GA;US;IL(3) [1], LARCH 112(3) [1], LARCH 121S(1) [1], LARCH 151(3) [1], SOILS 101 GN(3) (Sem: 1-2)  
 LARCH 211(4) [1], LARCH 212(4) [1], LARCH 221(1) [1], LARCH 222(1) [1], LARCH 231(3) [1], LARCH 241(3) [1], LARCH 251(3) [1], LARCH 272(1) [1] (Sem: 3-4)  
 LARCH 311(4) [1], LARCH 312(4) [1], LARCH 321(1) [1], LARCH 322(1) [1], LARCH 331 IL(3) [1], LARCH 332(3) [1], LARCH 341(3) [1], LARCH 361W(3) [1] (Sem: 5-6)  
 LARCH 382(3) [1], LARCH 414(5 per semester maximum of 15) [1], LARCH 424(3) [1], LARCH 431(3) [1], LARCH 499A IL(1) [1], LARCH 499B IL(5) [1], LARCH 499D IL(3) [1] (Sem: 7-10)

**ADDITIONAL COURSES** (12-13 credits)

MATH 026 GQ(3) or higher (except MATH 034 and MATH 035); BIOL 011 GN(3) and BIOL 012 GN(1) or BIOL 127 GN(3) (Sem: 1-2)

GEOG 020 GS;US;IL(3) or GEOG 030 GS;IL(3) (Sem: 1-2)

EARTH 100 GN(3) or GEOG 115 GN(3) or GEOSC 010 GN(3) (Sem 1-2)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011(LARCH); Fall Semester 2009 (Integrated B.L.A./M.L.A.)

Blue Sheet Item #: 40-01-015(LARCH); 37-07-002 and 37-07-000 (Integrated B.L.A./M.L.A.)

Review Date: 08/16/2011

AA

**PROGRAM CURRENTLY ON HOLD at PENN STATE York;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: October 16, 2013**

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## Letters, Arts, and Sciences

*Abington College (LASAB)*

*Altoona College (LASAL)*

*Penn State Harrisburg (LASCA)*

*University College (LASCC): Penn State Brandywine, Penn State DuBois, Penn State Greater Allegheny, Penn State Hazleton, Penn State Mont Alto, Penn State Shenango, Penn State Worthington Scranton, Penn State York*

*University Park, College of the Liberal Arts (LAS)*

*World Campus*

Letters, Arts, and Sciences is a multi-disciplinary, theme-oriented, and student-designed major leading to a bachelor of arts degree. The major consists of 36 credits, divided into two sections. The core (12 credits) consists of 3 credits each in the following: research methods/projects; communication skills; theory/application; and critical analysis. The additional courses (24 credits) consist of courses directed toward the student's theme, 15 credits of which must be at the 400 level.

In order to be eligible for entrance to the major, the student must submit a proposal. In consultation with an LAS adviser, the student formulates a proposal designing a program that investigates a theme from the viewpoint of at least three different subject areas. Students may not duplicate existing majors from any academic area. An important standard for entrance to the Letters, Arts, and Sciences major is the student's ability to design a program with academic integrity worthy of a bachelor of arts degree.

For the B.A. degree in Letters, Arts, and Sciences, a minimum of 120 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

**Early Admission Program for Professional Schools:** If a student is accepted and enrolled as a degree candidate in a professional postgraduate degree program requiring three years or more to complete (such as medical school, dental school, law school, theological seminary, etc.) and if that student completes 94 undergraduate credits at Penn State including General Education, B.A. requirements, and the LAS 12-credit core requirements, that student may use up to 30 credits from the professional school to complete the B.A. in LAS.

It must be emphasized that only top students are accepted into professional school programs on such an early admission basis and that not every professional school has such a policy. Students must have enrolled in LAS prior to attending the professional school to request graduation in LAS.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 15 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits<sup>[1]</sup>

**ADDITIONAL COURSES** (24 credits)

In consultation with adviser, select 24 credits from University-wide offerings to include:

- a) 12 credits at the 400 level representing at least three different subject areas;
- b) a 3 credit 400-level capstone course (to be selected in consultation with adviser);
- c) at least 9 credits (of the 24 total) from the humanities and social sciences. (Sem: 1-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

In consultation with adviser, select 3 credits in research methods/projects from courses that involve research methodology or that focus on a research project; select 3 credits in communication skills from courses that focus on expression including those in verbal, symbolic, and written skills; select 3 credits in theory/application from courses that focus on theory, principle, central concepts, or fundamental issues; select 3 credits in critical analysis from courses that focus on evaluation, synthesis, and analysis. (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-04-042

Review Date: 1/15/08

Reviewed by Publications: 06/23/06

LA

## Latin American Studies

*University Park, College of the Liberal Arts (LATAM)*

PROFESSOR MATTHEW RESTALL, *in charge*

This interdisciplinary major is designed for students who want a basic understanding of Latin America. The program is organized so that it may be combined with a second major or a minor subject.

For the B. A. degree in Latin American Studies, a minimum of 121 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

To view the [Latin American Studies Minor \(LATAM\)](#)

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 45 credits

(9-12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 21-24 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 40 credits<sup>[1]</sup>

(This includes 9-12 credits of General Education courses; 6 credits of GH courses; 3-6 credits of GS courses.)

**PRESCRIBED COURSES** (22 credits)

PORT 001(4), SPAN 200(3) (Sem: 1-4)

ANTH 045 GS;US;IL(3), HIST 178 GH;IL(3), HIST 179 GH;IL(3), SPAN 131 GH;US;IL(3) (Sem: 3-6)

PL SC 456(3) (Sem: 5-8)

**ADDITIONAL COURSES** (18 credits)

Select 18 credits from the following:

AAA S/SPAN 132 IL(3), AAA S 200 US(3), ANTH 008 GS;IL(3), ANTH 422(3), ANTH 440(3), CMLIT 405 US;IL(3), ECON 014 GS(3)<sup>[2]</sup>, ECON 102 GS(3), ECON 104 GS(3) (Sem: 3-8)

ECON 333 GS(3), ECON 433(3), HIST 467 US;IL(3), HIST 468 IL(3), PL SC 422(3), PL SC 442(3), PL SC 457(3-6), SPAN 300(3), SPAN 305(3), SPAN 410(3), SPAN 412(3), SPAN 472(3), SPAN 476(3) (Sem: 5-8)

PORT 002(4), PORT 003(4), PORT 405(3), PORT 456(3) (Sem: 1-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[2] Choose only one course from ECON 102, ECON 104, or ECON 014.

Last Revised by the Department: Summer Session 2004

Blue Sheet Item #: 32-01-079

Review Date: 9/2/03

## Law and Society

*University Park, College of the Liberal Arts (LAWSC): offered via World Campus*

DIANA R. GRUENDLER, *Faculty-in-Charge*

The College of the Liberal Arts Law and Society program is an undergraduate major that provides a comprehensive liberal arts education across multiple disciplines. The program focuses on understanding how social, cultural, economic, and political forces treat the law within the context of historical and contemporary trends. Socio-legal theory will provide a framework for understanding the increasing importance of programs that accentuate the study of law, and legal institutions.

The Law and Society program has six prescribed classes. In addition, a student will complete five supporting courses that incorporate the student's degree goals and can be tailored to his or her special interests. Students will consider the relationship between law, legal processes, human behavior, and legal and social institutions. The conventions of reading, argument, logic, and program solving will be used to explore issues.

Law and Society provides excellent preparation for higher schooling, such as law school or graduate study in sociology, criminology, or criminal justice. The major enhances career options in law enforcement, regulatory agencies, social service agencies, non-profit agencies, non-government agencies (NGO), and organizations that determine public policy. Law and Society also provides valuable knowledge for the small business owner.

For the B.A. degree in Law and Society, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12-15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*)

**FIRST-YEAR SEMINAR:**

(Included in the ELECTIVES or GENERAL EDUCATION course selections)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in the ELECTIVES or GENERAL EDUCATION course selections, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 30-36 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in front of *Bulletin*.)

**REQUIREMENTS FOR THE MAJOR:** 33-36 credits<sup>[1]</sup>

(This includes 12-15 Credits of General Education courses; 6 credits of GH courses; 0-3 credits of GQ courses; 6 credits of GS courses)

**PRESCRIBED COURSES** (18 credits)

HIST 020 GH;US(3), HIST 021 GH;US(3), L A 100S(3), PL SC 001 GS(3), PL SC 110 GS;US(3), PL SC 472(3) (Sem: 3-8)

**ADDITIONAL COURSES** (3-6 credits)

PHIL 010 GH(3) or PHIL 012 GQ(3); or PHIL 010 GH(3) and PHIL 012 GQ(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (12-15 credits)

Select 12 credits from CAS 404(3), CRIM/SOC 467(3), L A 495(3), L A 496(3), LER 401(3), LER 458Y(3), PL SC 471(3) (Sem: 3-8)

Select 0-3 credits from CAS 321(3), CRIM 100 GS(3), CRIM 113 US(3), L ST 370(3), L A 295(3), L A 296(3), LER 201 GS(3), PHIL 105 GH(3) (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-071

Review Date: 04/09/2013

UCA Revision #2: 7/27/07

LA

## Labor Studies and Employment Relations

University Park, College of the Liberal Arts (LERBA)  
World Campus

PROFESSOR PAUL CLARK, *Head*

This major permits students to undertake a study of work and the employment relationship in the context of a liberal arts education. A broad foundation of theoretical and professional knowledge is provided through a multidisciplinary approach. The B.A. and B.S. degrees draw on the perspectives of disciplines such as industrial relations, economics, history, law, sociology, and psychology. This focus includes the nature and functions of the institutions involved in the employment relationship. The B.S. degree requires more course work in quantification than the B.A. degree.

Graduates of Labor Studies and Employment Relations are equipped for employment in business, government, and labor organizations as labor relations specialists, personnel and human resource specialists, researchers, organizers, consultants, and professionals in mediation and arbitration. The degree is also appropriate preparation for graduate study and law school.

For the B.A. degree in Labor Studies and Employment Relations, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 20-21 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 39-40 credits<sup>[1]</sup>

(This includes 6 credits of GS General Education courses.)

**PRESCRIBED COURSES** (15 credits)

ECON 102 GS(3), ECON 315 GS(3), LER 100 GS(3), PSYCH 281 GS(3), (Sem: 3-8)

LER 458Y(3) (Sem: 5-8)

**ADDITIONAL COURSES** (9-10 credits)

LER 201 GS(3) or LER 401(3) (law) (Sem: 5-8)

LER 136 US(3) or LER 400 IL(3) (diversity) (Sem: 5-8)

LER 312(4) or LER 414W(3) (analytical thinking) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 9-12 credits of LER courses, at least 3 at the 400 level (only 3 credits of LER 495 and 3 credits of LER 496 may be used to satisfy this requirement)  
(Sem: 3-8)

Select 3-6 credits in consultation with adviser from department list, at least 3 at the 400 level (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2007

Blue Sheet Item #: 35-06-462

Review Date: 4/10/07

UCA Revision #1: 8/8/06

LA

## Labor Studies and Employment Relations

University Park, College of the Liberal Arts (LERBS)  
World Campus

PROFESSOR PAUL CLARK, *Head*

This major permits students to undertake a study of work and the employment relationship in the context of a liberal arts education. A broad foundation of theoretical and professional knowledge is provided through a multidisciplinary approach. The B.A. and B.S. degrees draw on the perspectives of disciplines such as industrial relations, economics, history, law, sociology, and psychology. This focus includes the nature and functions of the institutions involved in the employment relationship. The B.S. degree requires more course work in quantification than the B.A. degree.

Graduates of Labor Studies and Employment Relations are equipped for employment in business, government, and labor organizations as labor relations specialists, personnel and human resource specialists, researchers, organizers, consultants, and professionals in mediation and arbitration. The degree is also appropriate preparation for graduate study and law school.

For the B.S. degree in Labor Studies and Employment Relations, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(6-10 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 21-26 credits

**REQUIREMENTS FOR THE MAJOR:** 62-63 credits<sup>[1]</sup>

(This includes 6-10 credits of General Education courses; 6 credits of GS courses; 0-4 credits of GQ courses.)

**PRESCRIBED COURSES** (16 credits)

(Some courses in this category have prerequisites that are not included in the major.)

ECON 102 GS(3), ECON 315 GS(3), PSYCH 281 GS(3) (Sem: 1-8)

LER 100 GS(3), LER 312(4) (Sem: 3-8)

**ADDITIONAL COURSES** (13 credits)

(Some courses in this category have prerequisites that are not included in the major.)

LER 201 GS(3) or LER 401(3) [law] (Sem: 3-8)

SCM 200(4) or STAT 200 GQ(4) (Sem: 3-8)

LER 136 US(3) or WMNST 136 US(3) or LER 400 IL(3) (diversity) (Sem: 5-8)

LER 458Y US(3) or HIST 458Y US(3) or LER 414W(3) (analytical writing) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (33-34 credits)

(LER courses that are used in the Additional Courses category may not be double-counted to satisfy this requirement. Some courses in this category have prerequisites that are not included in the major.)

Select 15-21 credits from appropriate LER courses, at least 9 at the 400 level (only 3 credits of LER 495 or 3 credits of LER 496 may be used to satisfy this requirement) (Sem: 5-8)

Select 12-19 credits in consultation with adviser from the department list, at least 6 at the 400 level, 3 each from 3 categories:

--a. ECON 342 GS(3), ECON 370 GS(3), ECON 412(3), ECON 436W US(3), ECON 445(3) (Sem: 5-8)

--b. MGMT 100(3), MGMT 321(3), MGMT 331(3), MGMT 341(3), MGMT 424(3) (Sem: 3-8)

--c. PL SC 424(3), PL SC 471(3), PL SC 474(3) (Sem: 5-8)

--d. PSYCH 482(3), PSYCH 484(3), PSYCH 485(3) (Sem: 5-8)

--e. SOC 119 GS;US(4), SOC 409 US(3), SOC 444(3), SOC 455(3), SOC 456(3) (Sem: 3-8)

--f. ACCTG 211(4), CAS 352(3), H P A 460(3), HD FS 425 US(3), HIST 155 GH;US(3), PHIL(S T S) 407(3) (Sem: 5-8)

## Integrated B.S. in Labor Studies and Employment Relations and M.S. in Human Resources and Employment Relations (LRHRER)

PROFESSOR PAUL F. CLARK, *Head*

The integrated LER B.S. and HRER M.S. is a five-year program designed for academically talented baccalaureate students to obtain both the B.S. and the M.S. degrees in LER and HRER with five years of study. Students will develop expertise in the human resources and labor relations fields beyond the B.S. degree. The undergraduate curriculum educates students about (1) the roles of employers, employees, employee organizations and public policy makers play in the employment relationship, (2) the complex personal and organizational issues inherent in the employment relationship (3) and how to systematically analyze those complex issues and evaluate research relevant to those analyses. The graduate curriculum provides for more individualized, focused learning in a concentrated sub-area of the HRER field. The program culminates with an M.S. research paper. Upon completion of the integrated degree, students will enter the workforce with advanced knowledge and expertise gained from conducting and analyzing empirical work and participating in seminar-style classes.

### Admission Requirements

The number of openings in the integrated B.S./M.S. program will be limited to undergraduates with strong academic records. Applicants to the integrated program:

1. must be enrolled in the LER B.S. program;
2. must complete the Penn State graduate degree application form and pay the application fee
3. must have completed 60 credits of the undergraduate degree program when they officially apply for the M.S. (it is strongly suggested that students apply to the program prior to completing 100 credits)
4. should have an overall GPA of 3.2 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in the major;
5. must obtain letters of recommendation from the chairs of the Department's undergraduate and graduate committees, and
6. must submit a writing sample, 2 transcripts, 1 letter of recommendation (in addition to those from the chairs of the Department's undergraduate and graduate committees), and a career statement.

No GRE or GMAT scores are required for admission to the program.

### Degree Requirements



**Bachelor of Science**

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(10 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits**REQUIREMENTS FOR THE MAJOR:** 98-99 credits

[12 credits may be double counted, 6 must be at the 500 level]

**B.S. REQUIREMENTS:** 62-63 credits

(This includes 10 credits of General Education courses)

**PRESCRIBED COURSES:** (16 credits)

(Some courses in this category have prerequisites that are not included in the major)

ECON 102 GS(3), ECON 315 GS(3), PSYCH 281 GS(3) (Sem: 1-8)

LER 100 GS(3), LER 312(4) (Sem: 3-8)

**ADDITIONAL COURSES:** (13 credits)

(Some courses in this category have prerequisites that are not included in the major)

LER 201 GS(3) or LER 401(3) (Sem: 3-8)

SCM 200(4) or STAT 200 GQ(4) (Sem: 3-8)

LER 136 US(3) or WMNST 136 US(3) or LER 400 IL(3) (Sem: 5-8)

LER 458Y US(3) or HIST 458Y US(3) or LER 414W(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS:** (33-34 credits)

(LER courses that are used in the Additional Courses category may not be double counted to satisfy this requirement. Some courses in this category have prerequisites that are not included in the major.)

Select 15-21 credits from appropriate LER courses, at least 9 must be at the 400 level (only 3 credits of LER 495 or 3 credits of LER 496 may be used to satisfy this requirement) (Sem: 5-8)

Select 12-19 credits from the department list in consultation with an adviser, at least 6 credits must be at the 400 level, 3 each from 3 categories:

1. ECON 342 GS(3), ECON 370 GS(3), ECON 412(3), ECON 436(3), ECON 445(3) (Sem: 5-8)
2. MGMT 100(3), MGMT 321(3), MGMT 331(3), MGMT 341(3), MGMT 424(3) (Sem: 3-8)
3. PL SC 424(3), PL SC 471(3), PL SC 474(3) (Sem: 5-8)
4. PSYCH 482(3), PSYCH 484(3), PSYCH 485(3) (Sem: 5-8)
5. SOC 119 GS;US(4), SOC 409 US(3), SOC 444(3), SOC 455(3), SOC 456(3) (Sem: 3-8)
6. ACCTG 211(4), CAS 352(3), H P A 460(3), HD FS 425 US(3), HIST 155 GH(3), S T S 407(3) (Sem: 5-8)

**M.S. REQUIREMENTS:** 36 credits

[12 credits may be double counted, 6 must be at the 500 level]

**PRESCRIBED COURSES:** (21 credits)

HRER 501(3), HRER 502(3), HRER 504(3), HRER 505(3), HRER 512(3)\*, HRER 513(3)\*\*, HRER 516(3)

\*or other statistics course approved in advance by graduate director

\*\*or other methods course approved in advance by graduate director

**ADDITIONAL COURSES:** (15 credits)

Select 15 credits from the following list in consultation with adviser (only 6 credits may be at the 400 level).

LER 400 IL(3), LER 401(3), LER 414W(3), LER 424(3), LER 434(3), LER 435(3), LER 437(3), LER 444(3), LER 458Y US(3), LER 460(3), LER 465(3), LER 470(3), HRER 500(3), HRER 535(3), HRER 536(3), HRER 594(1-6), HRER 595(1-6), HRER 596(1-6), HRER 597(1-3), HRER 600(3-6)

**Emphasis Courses (6 credits)**

An emphasis is an area of study related to a particular aspect or domain of industrial relations and human resources. Select 6 credits from the M.S. prescribed or additional courses in consultation with their adviser.

**Masters Research Paper or a Masters Thesis (6 credits)**

Students must complete either a Masters Research Paper or a Masters Thesis. Students choosing the Thesis option must complete 6 thesis credits (HRER 600). These credits can be counted towards the 15 credits required from the M.S. Additional Courses section above.

## Integrated B.S. in Labor Studies and Employment Relations and M.P.S. in Human Resources and Employment Relations

The integrated LER B.S. and HRER M.P.S. is a five-year program designed for academically talented World Campus baccalaureate students to obtain both the B.S. and the M.P.S. degrees in LER and HRER in an intense, accelerated program of study. Students will develop expertise in the human resources and employment relations field beyond the B.S. degree. The undergraduate curriculum introduces students to (1) the roles employers, employees, employee organizations and public policy makers play in the employment relationship, (2) the complex personal and organizational issues inherent in the employment relationship (3) the laws that form the legal framework for the employee-employer relationship, and (4) the tools needed to systematically analyze those complex issues and evaluate research relevant to those analyses. The graduate curriculum provides for a more intensive, individualized, and focused examination of the human resources and employment relations field. It also provides an opportunity for students to explore a concentrated sub-area of the HRER field in depth. The program culminates with a research project which is completed through the capstone course, HRER 894. Upon completion of the integrated degree, students will have gained advanced knowledge and expertise from conducting and analyzing empirical work and participating in online classes that can be directly applied to the workplace.

A minimum of 33 credits is needed to complete the MPS degree in HRER. Nine credits (400 level and above) can apply to both undergraduate and graduate degrees; six of these must be at a 500 or 800 level.

## Admission Requirements

Admissions decisions for the B.S./M.P.S. program are based on the quality of the applicant's credentials. The decisions are made after a review of the complete application portfolio. The integrated B.S./M.P.S. program will be limited to highly talented undergraduates. Applicants to the integrated program:

- must be enrolled in the LER B.S. program;
- must complete the Penn State graduate degree application and pay the application fee
- shall be admitted no earlier than the beginning of the third semester of undergraduate study at Penn State (regardless of transfer or AP credits accumulated prior to enrollment) and no later than the end of the second week of the semester preceding the semester of expected conferral of the undergraduate degree, as specified in the proposed IUG plan of study;
- must have an overall GPA of 3.4 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.6 in the major;



- must submit 2 letters of recommendation from current or previous Penn State instructors and 1 additional letter of recommendation (should be professional or academic);
- must submit a writing sample, a resume, and 2-3 page essay articulating career and educational goals that demonstrates the applicant's written communication skills;
- must present an approved plan of study (to be determined in consultation with the student's undergraduate adviser and the Graduate Director, and to be signed by both); and
- must possess the equivalent of two years of full-time work experience prior to admission.

No GRE or GMAT scores are required for admission to the program.

## Degree Requirements

The M.P.S. requires 33 credits at the 400 level or higher; at least 6 credits must be at the 500 level.

Nine (9) of 33 credits can be double counted for B.S. and M.P.S. At least 6 of these must be at the 500 or 800 level.

## Prescribed Courses (24 credits)

### Human Resources and Employment Relations (HRER)

- 501. Labor and Employment Law (3 credits)
- 504. Seminar in Industrial Relations (3 credits)
- 505. Seminar in Human Resources (3 credits)
- 800. International Context of HRER (3 credits)
- 802. Organizations in the Workplace (3 credits)
- 816. Labor Market Analysis (3 credits)
- 836. Diversity in the Workplace (3 credits)
- 894. Research Project (3 credits)

## Areas of Concentration (6 credits)

Select 6 credits in area of concentration.

### Benefits and Compensation

- LER 424. Employment Compensation (3 credits)
- LER 425. Employment Benefits (3 credits)

### Employment and Labor Law

- LER 401. Law of Labor-Management Relations (3 credits)
- HRER 811. Labor and Employment Law II (3 credits)

### Labor and Collective Bargaining

- LER 401. Law of Labor-Management Relations (3 credits)
- LER 435. Labor Relations in the Public Sector (3 credits)

### Staffing, Training, and Development

- LER 426 Staffing and Training (3 credits) or WF ED 471 Training in Industry and Business (3 credits)
- WF ED 573 Needs Assessment for Industrial Trainers (3 credits)

## Elective Courses (3 credits)

Select an additional 3-credit course from the following list of LER, HRER, and WF ED courses.

### Labor and Employee Relations (LER)

- 401. Law of Labor-Management Relations (3 credits)
- 424. Employment Compensation (3 credits)
- 425. Employment Benefits (3 credits)
- 426. Staffing and Training (3 credits)
- 435. Labor Relations in the Public Sector (3 credits)
- 444. Occupational Health: Policy and Practice (3 credits)
- 445Y. Politics of Affirmative Action (3 credits)
- 460. Human Resource Ethics (3 credits)
- 464. Communication Skills for Leaders in Groups and Organizations (3 credits)
- 465. Collective Decision Making (3 credits)
- 472. Work-Life Practices and Policies (3 credits)

### Human Resources and Employee Relations (HRER)

- 811. Labor and Employment Law II (3 credits)

### Workforce Education and Development (WF ED)

- 471. Training in Industry and Business (3 credits)
- 573. Needs Assessment for Industrial Trainers (3 credits)

### Student Aid

Fellowships, traineeships, graduate assistantships, and other forms of financial aid are described in the [STUDENT AID](#) section of the *Graduate Bulletin*.

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

[HUMAN RESOURCES AND EMPLOYMENT RELATIONS \(HRER\) course list](#)  
[LABOR STUDIES AND EMPLOYMENT RELATIONS \(LER\) course list](#)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 35-06-463; IUG 41-05-127

Review Date: 02/19/2013

UCA Revision #1: 8/8/06

UCA Revision #2: 7/27/07

LA

## Landscape Contracting

University Park, College of Agricultural Sciences (LSCPE)

PROFESSOR DAN T. STEARNS, Program Coordinator

Landscape contracting involves constructing, establishing, and maintaining landscapes from small residential projects to large commercial and industrial projects, as well as producing plans for small-scale residential and commercial sites. Students develop skills in construction, site design, plant material usage, plant establishment, and landscape maintenance. Students are also educated in areas such as graphics, surveying, soils, turfgrass management, weed and pest management, and in business operations.

Students are encouraged to obtain on-the-job experience in landscape contracting by working with a landscape maintenance or construction firm, or other related business. Credits for this experience are available for those who choose to enroll in an internship.

A wide variety of opportunities exist for landscape contracting graduates. They may be employed by design/build firms, landscape management firms, nurseries, or garden centers. Others may choose to work for municipalities, golf courses, parks, or botanical gardens.

**DESIGN/BUILD OPTION:** This option focuses on the development of skills in the planning and implementation of landscape projects. Employment opportunities exist with landscape contracting companies, irrigation companies, and retail centers.

**MANAGEMENT OPTION:** This option provides professional education in the management of landscapes. Employment opportunities include positions with landscape management companies and golf courses.

For the B.S. degree in Landscape Contracting, a minimum of 120 credits is required.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 3-15 credits

**REQUIREMENTS FOR THE MAJOR:** 81-93 credits

(This includes 21-24 credits of General Education courses; 3 credits of GWS courses; 3-6 credits of GA courses; 3 credits of GQ courses; 9 credits of GN courses; 3 credits of GS courses)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 67-68 credits

**PRESCRIBED COURSES** (51 credits)

HORT 410W(3), HORT 468(2) [\[1\]](#), LARCH 060 GA:US:IL(3), MATH 026 GQ(3) (Sem: 1-2)

A S M 217(3), ACCTG 211(4), B A 250(3), B LAW 243(3), CHEM 101 GN(3), ENGL 202D GWS(3), HORT 101 GN(3) [\[1\]](#), HORT 120(2) [\[1\]](#), HORT 131(3) [\[1\]](#), HORT

137(3) [\[1\]](#), HORT 138(3) [\[1\]](#), HORT 408(4) [\[1\]](#) (Sem: 5-6)

SOILS 101 GN(3) (Sem: 7-8)

**ADDITIONAL COURSES** (16-17 credits)

AG BM 101 GS(3), ECON 014 GS(3), ECON 102 GS(3), or ECON 104 GS(3) (Sem: 3-4)

BIOL 110 GN(4) or BIOL 127 GN(3) (Sem: 3-4)

SPAN 001(4) or SPAN 002(4) or SPAN 105(4) (Sem: 3-4)

MKTG 220(3) or AG BM 220(3) (Sem: 5-6)

TURF 100(3) or TURF 235(3) (Sem: 5-6)

**REQUIREMENTS FOR THE OPTION:** 14-26 credits

**DESIGN/BUILD OPTION:** (25-26 credits)

**PRESCRIBED COURSES** (23 credits)

ART 020 GA(3), EDSGN 010(1), HORT 220(3) [\[1\]](#) (Sem: 3-4)

HORT 269(3) [\[1\]](#), HORT 464(4) [\[1\]](#) (Sem: 5-6)

HORT 368(4) [\[1\]](#), HORT 466(5) [\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (2-3 credits)

Select 2-3 credits from ENT 313(2), ENT 314(1), HORT 238(3), PPEM 300(3) or PPEM 318(2) (Sem: 5-6)

**MANAGEMENT OPTION:** (14-15 credits)

**PRESCRIBED COURSES** (12 credits)

ENT 313(2), ENT 314(1), HORT 238(3) [\[1\]](#), HORT 250(3) [\[1\]](#), SOILS 401(3) (Sem: 7-8)

**ADDITIONAL COURSES** (2-3 credits)

PPEM 300(3) or PPEM 318(2) (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-03-003

Review Date: 11/13/2012

UCA Revision #1: 8/8/06

AG

## Mechanical Engineering

University Park, College of Engineering (M E)

PROFESSOR KAREN A. THOLE, *Head, Department of Mechanical and Nuclear Engineering*

Mechanical Engineering is one of the broadest engineering disciplines and is central in many new technological developments. Mechanical engineers create things that help improve the health, happiness and safety of our everyday lives such as biomedical devices, aircraft propulsion, and ways to store renewable energies. Mechanical engineering is divided into two broad areas: mechanical systems and thermal systems. Mechanical systems include the design of mechanisms and the analysis of the strength and wear of materials. Thermal systems include methods of energy conversions, heat transfer and fluid flow.

### Program Educational Objectives:

The objective of the Mechanical Engineering program is to prepare students for a wide range of career paths that use mechanical engineering principles and methodology. We will maintain and provide a curriculum that prepares our recent graduates for:

1. working in industry and government including computer-aided design, simulation and analysis of products or systems, experimentation and testing, manufacturing, and technical sales.
2. assuming increasing levels of responsibility in project, personnel, and budget management.
3. working and leading effectively in multi-disciplinary and multi-cultural teams.
4. communicating effectively and recognizing the global, social and ethical contexts of their work.
5. entering into graduate and professional studies.

### Program Outcomes (Student Outcomes):

The Program outcomes are knowledge, skills, and/or behavior that are derived from the program educational objectives.

1. Students will demonstrate a knowledge of chemistry, physics, and mathematics
2. Students will be able to apply fundamentals of mathematics, physics, and engineering to mechanical engineering analysis and design involving both mechanical and thermal/fluids systems.
3. Students will demonstrate the ability to operate in a modern, diverse working environment in which they will work in multidisciplinary teams on multidisciplinary problems, communicate effectively and recognize the economic, global, social, and ethical contexts of their work.
4. Students will demonstrate the ability to use appropriate methods and technology for 1) measurement and analysis of data, and 2) analysis and design.

The program offers a balance of engineering applications and theory with an emphasis on design from the first year through the industry-based capstone design experience in the senior year. In addition, mechanical engineering students find it easy to incorporate co-operative educational experiences as well as many minors into their program.

ENTRANCE TO MAJOR -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHSY 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Mechanical Engineering, a minimum of 131 credits is required. This baccalaureate program in Mechanical Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

### GENERAL EDUCATION: 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 113 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

### PRESCRIBED COURSES (83 credits)

CHEM 110 GN(3) [\[1\]](#), EDSGN 100(3), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), PHYS 211 GN(4) [\[1\]](#) (Sem: 1-2)  
CMPSC 200 GQ(3), E MCH 211(3) [\[1\]](#), E MCH 212(3) [\[1\]](#), E MCH 213(3) [\[1\]](#), M E 300(3) [\[1\]](#), MATH 220 GQ(2-3), MATH 231(2), MATH 251(4), PHYS 212 GN(4), PHYS 214 GN(2) (Sem: 3-4)  
E E 212(3), E MCH 315(2), ENGL 202C GWS(3), M E 320(3) [\[1\]](#), M E 340(3) [\[1\]](#), M E 345(4) [\[1\]](#), M E 360(3) [\[1\]](#), M E 370(3) [\[1\]](#), M E 410(3) [\[1\]](#), MATSE 259(3) (Sem: 5-6)  
I E 312(3), M E 450(3) [\[1\]](#) (Sem: 7-8)

### ADDITIONAL COURSES (18 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)  
CHEM 112 GN(3), or BIOL 141 GN(3) (Sem: 1-2)  
ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
ECON 102 GS(3), ECON 104 GS(3), ECON 014 GS(3), or ENNEC 100 GS(3) (Sem: 1-2)  
CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)  
M E 440W(3) or M E 441W(3) (Sem: 7-8)  
Select 2 credits from M E 325(1), M E 315(1), M E 375(1), M E 355(1), or E MCH 316(1) (Sem: 7-8)

### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 3 credits in a 400-level M E Technical Elective course excluding M E 410(3), M E 440W(3), M E 441W(3), M E 450(3), M E 494(1-9), and M E 496(1-18) (Sem: 5-8)

Select 6 credits in Engineering Technical Elective courses, any 400-level courses in the College of Engineering not required for a B.S. in M.E. (Sem: 5-8)

Select 3 credits in General Technical Elective courses from department list (Sem: 7-8)

(Students who complete Basic ROTC may substitute 6 of the ROTC credits for 3 credits of GTE and 3 credits of GHA.)

Three rotations of Engr Co-op (ENGR 295, ENGR 395, and ENGR 495) can be used as 3 credits of GTE.

## Integrated B.S. and M.S. in Mechanical Engineering

A limited number of undergraduate students in the B.S.M.E. program will be considered for admission to the integrated undergraduate/graduate program leading to the B.S.M.E. and the M.S.M.E. degrees. Students with a junior standing in the B.S.M.E. degree program may be admitted to the integrated B.S.M.E./M.S.M.E. program, following a positive review of an application specific to this program by the faculty committee on graduate admissions. Students must have attained a GPA of at least 3.0. Students admitted to the integrated program must maintain a GPA in all classes used toward the M.S.M.E. degree of at least 3.0.

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-05-038

Review Date: 02/23/2010

R & T: Approved 5/24/2013

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

Dept Head updated by Publications: 8/1/06

[Comments](#)

EN

Accreditation statement updated by Publications, per COE: 8/15/11

## Mechanical Engineering Technology

*Capital College (M E T)*

PROFESSOR MICHAEL DIDEBAN, *Program Coordinator, School of Science, Engineering, and Technology*

The goal of the Mechanical Engineering Technology program is to provide our students with the necessary training and education so that they can provide high-level technical support to a variety of industrial, commercial, consulting, and governmental organizations. The emphasis of our program is in the application of scientific and engineering principles. Technical communication in oral and written form is also emphasized. Our graduates are expected to appreciate the ethical and societal responsibilities of a technologist, the concepts of Continuous Quality Improvement and the continuing impact of globalization of design, manufacturing and marketing of technical goods and services. Our graduates are trained to deal with choice of materials and methods that are safe, environmentally and aesthetically acceptable and economically competitive. Typical responsibilities that may be assigned to our graduates are the development and evaluation of machines and mechanisms; development, organization and supervision of manufacturing processes and procedures; the instrumentation, control and testing of a process; quality control; technical marketing and sales; design of mechanical systems for heating and cooling and energy management.

The strengths of our program include: hands-on training; extensive laboratory experience; state of the art computer methods, excellent job placement and accreditation by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

Graduates who wish to continue their professional development can take the Fundamentals of Engineering exam in Pennsylvania, a prerequisite for taking the Professional Engineering exam.

### Entry to Major Requirements:

Entry to the Mechanical Engineering Technology major requires a 2.00 or higher cumulative grade-point average.

### Re-enrollment:

Associate degree students should file a re-enrollment form during the final semester of their associate degree. Students re-enrolling from an associate's degree into the bachelor's degree should run a degree audit from eLion, using the M E T major code, to determine their curriculum requirements.

For a B.S. degree in Mechanical Engineering Technology, a minimum of 128 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in GENERAL EDUCATION or REQUIREMENTS FOR THE MAJOR course selection including Supporting Courses and Related Areas)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 101 credits

(This includes 18 credits of General Education courses: 3 credits of GWS courses; 9 credits of GN courses; 6 credits of GQ courses.)

### PRESCRIBED COURSES (48 credits)

CHEM 110 GN(3), CHEM 111 GN(1) (Sem: 1-4)

MATH 140 GQ(4) (Sem: 1-5)

ENGL 202C GWS(3) (Sem: 3-4)

ENGR 420Y US/IL(3) [\[1\]](#), I E 303(2), IET 308(3), MET 321(2), MET 332(3) [\[1\]](#), MET 336(3) [\[1\]](#), MET 341(3) [\[1\]](#), MET 358(3), MET 431(3) [\[1\]](#), MET 438(3), MET 448(2), MET 454(3), MET 481(1), MET 486(3) (Sem: 5-8)

### ADDITIONAL COURSES (35-39 credits)

Select 3 credits from: EDSGN 100(3) or EG T 120(3) (Sem: 1-2)

Select 3-4 credits from: PHYS 150 GN(3) or PHYS 211 GN(4) (Sem: 1-2)

Select 3 credits from: E MCH 211(3) or ET 300(3) or MCH T 111(3) [\[1\]](#) (Sem: 2-3)

Select 3-4 credits from: PHYS 151GN(3) or PHYS 212 GN(4) (Sem: 2-4)

Select 3 credits from: IET 101(3) or IET 311(3) (Sem: 2-5)

Select 3-4 credits from: IET 215(2) and IET 216(2) or IET 321(3) (Sem: 2-5)

Select 4 credits from: STAT 200 GQ(4) or MATH 141 GQ(4) (Sem: 2-6)

Select 3 credits from: E MCH 212(3), ET 321(3), or MET 206(3) [\[1\]](#) (Sem: 3-4)

Select 3 credits from: ET 322(3), E MCH 213(3), or MCH T 213(3) [\[1\]](#) (Sem: 3-4)

Select 1 credit from: ET 323(1) or MCH T 214 (1) (Sem: 3-6)

Select 3 credits from: MET 210W(3) or MET 365(3) (Sem: 3-6)

Select 3-4 credits from: EET 101(3) and EET 109(1); or EET 320(3) (Sem: 3-7)

### SUPPORTING COURSES AND RELATED AREAS (14-18 credits)

Select 5-9 credits from the department approved list of courses. (Sem: 5-8)

Select 9 credits from 300-400 level technology and engineering elective courses in consultation with an academic adviser and in support of the student's interests. (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2008

Blue Sheet Item #: 36-03-004

Review Date: 11/27/07

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

[Comments](#)

CL

## Management Information Systems

University Park, Smeal College of Business (M I S)

PROFESSOR JOHN E. TYWORTH, *Chair of the Department of Supply Chain and Information Systems*

The Management Information Systems major focuses on IT-supported techniques for exploring, analyzing, integrating, and reporting business data to facilitate fact-based decisions and enterprise-wide management. The framework encompasses the concepts, principles, and methods for (1) collecting, transforming, and managing data, (2) doing business analytics, (3) communicating and sharing the results, (4) aligning IT-enabled business analytics with business strategy. Students in this major have the opportunity to take nine credits of supporting work in functional business areas such as accounting, finance, marketing, risk management, and supply chain management. Graduates develop cross-functional literacy in how techniques and technologies help achieve business objectives, along with competency in applying business analytics methods on behalf of the business and in a supporting business area. Thus, graduates are well-prepared for careers in industry, consulting, and government sectors as business analytics professionals.

More information about the broad range of career opportunities is available at <http://www.smeal.psu.edu/scis/recruit>.

**Entrance Requirement:** To be eligible for entrance into the Management Information Systems (M I S) major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

**Specific entrance requirements include:**

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin, including approximately 60 credits of course work.
2. Complete the following entrance to major requirements: ACCTG 211(4)[\[1\]](#); ECON 102 GS(3); SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#); ENGL 015 GWS(3) or ENGL 030 GWS(3); and MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#); FIN 301(3)[\[1\]](#); MGMT 301(3)[\[1\]](#); and MKTG 301(3)[\[1\]](#). These courses must be completed by the end of the semester during which the entrance to major process is carried out.
3. In addition to the above requirements, the Executive Vice President and Provost of the University may approve administrative enrollment controls that limit the number of students who are admitted to majors in the Smeal College of Business. In each case, however, academic requirements are established for admission. For information on enrollment controls, consult the Smeal College of Business Web site (<http://www.smeal.psu.edu>).

For the B.S. degree in Management Information Systems, a minimum of 120 credits is required (at least 15 credits must be taken at the 400 level).

**GENERAL EDUCATION: 45 credits**

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES :**

(Included in ELECTIVES or GENERAL EDUCATION selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES: 14 credits**

**REQUIREMENTS FOR THE MAJOR: 73 credits**

(This includes 12 credits of General Education: 3 credits of GWS courses; 6 credits of GQ courses; 3 credits of GS courses.)

**PRESCRIBED COURSES (52 credits)**

ACCTG 211(4)[\[1\]](#), ECON 102 GS(3), FIN 301(3)[\[1\]](#), MGMT 301(3)[\[1\]](#), MKTG 301(3)[\[1\]](#) (Sem: 1-4)

MIS 204(3)[\[1\]](#), MIS 301(3)[\[1\]](#), SCM 301(3) (Sem: 3-5)

B A 342(3), B A 411(3), B LAW 341(3), ECON 104 GS(3), ENGL 202D GWS(3), MIS 431(3)[\[1\]](#), MIS 432(3)[\[1\]](#), MIS 446(3)[\[1\]](#), MIS 479W(3)[\[1\]](#) (Sem: 5-8)

**ADDITIONAL COURSES (11 credits)**

MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#) (Sem: 1-2)

SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#) (Sem: 1-2)

MIS 434(3)[\[1\]](#) or MIS 441(3)[\[1\]](#) (Sem: 6-8)

**SUPPORTING COURSES AND RELATED AREAS (10 credits)**

Select 4 credits: Attainment of 12th-credit-level proficiency in a single foreign language(4 credits) Proficiency must be demonstrated by either examination or course work (Sem: 1-4)

Select 6 credits of supporting coursework. See department list (Sem: 5-8)

**[1]**A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Lasted Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-025

Review Date: 04/08/2014

UCA Revision #1: 8/9/06

BA

## Project and Supply Chain Management

*Penn State Erie, The Behrend College (PSCM)*

The Project and Supply Chain Management major concentrates on developing knowledge, skills, and abilities in project management, a dynamic and important discipline in modern corporations. These project management skills include the development of new projects, and coordinating procurement and project delivery systems. The major also emphasizes the integration of manufacturing and service operations, logistics, purchasing, and distribution that enable organizations to develop value-creating supply chain networks. The major provides students with an opportunity to develop the quantitative and people skills necessary to design and operate today's complex management systems. Students learn how to manage critical components in organizational supply chains, and apply business analytic methods for organizing and fully integrating supply chain practices throughout the organization.

Graduates are uniquely well-prepared for careers in some of the highest in-demand professions in the modern business and government environments, managing the supply chain and projects initiative in world-class business firms, public sector organizations, construction, IT organizations, third-party logistics providers, and goods and services distribution operations.

### Entry to Major Requirements:

Entry to the Management major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Project and Supply Chain Management, a minimum of 120 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 2 credits

### REQUIREMENTS FOR THE MAJOR: 88 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

### PRESCRIBED COURSES (52 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)

FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3), MKTG 301(3)[1], SCM 301(3)[1] (Sem: 3-6)

MGMT 341 US(3)[1], MGMT 410(3)[1] (Sem: 5-6)

MGMT 415(3)[1], MGMT 418(3)[1], SCM 445(3)[1], SCM 455(3)[1], SCM 460(3)[1] (Sem: 6-8)

MGMT 471W(3)[1] (Sem: 7-8)

### ADDITIONAL COURSES (24 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

B A 241(2) and B A 242(2); or B A 243(4) (Sem: 3-6)

Select 3 credits from ECON 470(3)[1], FIN 471(3)[1], MGMT 461 IL(3)[1], MKTG 445 IL(3)[1], or other 400-level international business courses[1] (Sem: 5-8)

Select 6 credits of 300- or 400-level courses in one business supporting area or PSCM electives from MGMT 420(3), MGMT 431(3), MGMT 432(3), or MGMT 440(3) (Sem: 5-8)

Select 3 credits from ECON 481(3)[1] or MIS 336(3)[1] (Sem: 6-8)

### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits from one of the following nonbusiness supporting course areas: psychology, international studies, education abroad, or foreign language (see school list of approved courses) (See the admission section in the general information section in the this bulletin for the placement policy for Penn State foreign language courses.) (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-019

Review Date: 04/09/2013

UCA Revision #1: 8/8/06

UCA Revision #2: 7/27/07

BD



## Mathematical Sciences

*Capital College (MA SC)*

PROFESSOR THANG N. BUI, *Program Chair, School of Science, Engineering, and Technology*

The two options and the variety of the course offerings provide concentrations in various areas such as actuarial science, management science/operation research, statistics, education, and preparation for graduate studies.

Small classes, excellent faculty, opportunities to work with faculty on projects, and strong employment prospects are just some of the strengths of the program. Students will be helped to develop: a solid foundation in mathematical studies; an awareness of the utility of mathematics, statistics, and computers; skills in translating practical problems into mathematical terms; a competency in the use of modern mathematical tools; problem-solving skills; and an awareness of the importance of mathematics in society.

The program is designed to prepare students for employment in business, industry, government, and education immediately after graduation, but graduate study in mathematics or related disciplines is also a viable alternative. Mathematical modeling is emphasized, and all students are required to take courses in statistics and computer science.

### Entry to Major Requirements:

Entry to the Mathematical Sciences major requires that the student has completed with a grade of C or higher: MATH 140 GQ(4), MATH 141 GQ(4). A 2.00 or higher cumulative grade-point average is required.

The Mathematical Sciences Secondary Education Option prepares students to meet the requirements, as established by the Pennsylvania Department of Education, to be certified for the Instructional I Certificate in Mathematics at the secondary level.

Students admitted to the program must have the appropriate clearances. These include FBI fingerprint check, Act 151 child abuse history clearance, and Act 34 criminal record check.

Students thinking seriously about entering the education program should plan their freshman and sophomore years carefully. Semesters 5 through 8 are very structured.

### Entry to the Mathematical Sciences Secondary Education option requires the following additional requirements:

1. a minimum cumulative grade-point average of 3.0
2. completion of ENGL 015 GWS(3) or ENGL 030 GWS(3) and three credits of literature from approved list with a C or higher grade

### Selective Retention:

Following entrance to the major, students will be evaluated for retention in the program based on:

1. maintaining a cumulative GPA of 3.0 or higher;
2. completion of required courses with a C or higher grade;
3. an acceptable or above rating on the Penn State Harrisburg Professional Dispositions for Teacher Education.\*

To be eligible to student teach, students must:

1. maintain a cumulative GPA of 3.0 or higher;
2. complete all required Content and Education Courses with a C or higher grade;
3. satisfaction of any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for entrance to major;
4. be rated acceptable or above on the Penn State Harrisburg Professional Dispositions for Teacher Education.\*

In order to successfully complete the Secondary Education Mathematics Program, students must:

1. complete EDUC 490 with a grade of C or higher;
2. maintain a cumulative GPA of 3.0 or higher;
3. complete all required Content and Education Courses with a C or higher grade;
4. pass the Penn State Harrisburg Mathematics Content Exam with an 80% or higher
5. complete a presentation portfolio; and
6. be rated acceptable or above on the Penn State Harrisburg Professional Dispositions for Teacher Education.\*

For a B. S. degree in Mathematical Sciences, a minimum of 120 credits is required.

For a B. S. degree in Mathematical Sciences with the Secondary Education option, a minimum of 121 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(9 to 18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 84-94 credits

(This includes 9-18 credits of General Education courses: 3 credits of GWS courses; 6 credits of GQ courses. In addition, the Secondary Education option includes 6 credits of GH courses and 3 credits of GS courses)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 20 credits

#### PRESCRIBED COURSES (20 credits)

MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#) (Sem: 1-2)

ENGL 202C GWS(3) (Sem: 4)

MATH 315(3) [\[1\]](#), MATH 430(3) [\[1\]](#) (Sem: 5)

MATH 401(3) [\[1\]](#) (Sem: 6)

### REQUIREMENTS FOR THE OPTION: 64-74 credits

#### GENERAL MATHEMATICAL SCIENCES OPTION: (64 credits)

#### PRESCRIBED COURSES (31 credits)

CMPSC121 GQ(3), MATH 230(4) (Sem: 3)

MATH 220 GQ(2), MATH 251(4) (Sem: 4)

MATH 318(3) (Sem: 5)

MATH 455(3) [\[1\]](#), STAT 301GQ(3) (Sem: 6)

MATH 435(3), MATH 475W US;IL(3) (Sem: 7)

MATH 449(3) (Sem: 8)

#### SUPPORTING COURSES AND RELATED AREAS (33 credits)

Select 6 credits of 200 level or above courses. (Sem: 5-6)



Select 18 credits of 300-400 level Mathematics courses or SSET 295 in consultation with an academic adviser. Up to 6 of these credits may be replaced by any 200 or greater level CMPSC courses or CMPSC 122. (Sem: 5-8)

Select 9 credits of 300-400 level courses in consultation with an academic adviser and in support of the student's interests. (Sem: 5-8)

**SECONDARY EDUCATION IN MATHEMATICAL SCIENCES OPTION:** (74 credits)

**PRESCRIBED COURSES** (62 credits)

HD FS 239 GS(3) (Sem: 1-4)

CMPSC121 GQ(3) [\[1\]](#), EDPSY 014(3) [\[1\]](#), MATH 230(4) [\[1\]](#) (Sem: 3)

C I 280 GH(3) [\[1\]](#), MATH 220 GQ(2) [\[1\]](#), MATH 250(3) [\[1\]](#) (Sem: 4)

EDUC 313(2) [\[1\]](#), EDUC 314(3) [\[1\]](#) (Sem: 5)

EDUC 315W US(3) [\[1\]](#), EDUC 458(3) [\[1\]](#), MATH 427(3) [\[1\]](#), STAT 301GQ(3) [\[1\]](#) (Sem: 6)

EDUC 417(3) [\[1\]](#), EDUC 459(3) [\[1\]](#), MATH 435(3) [\[1\]](#), MATH 475W US;IL(3) [\[1\]](#) (Sem: 7)

EDUC 490(12) [\[1\]](#) (Sem: 8)

**ADDITIONAL COURSES** (3 credits)

Select 3 credits from MATH 425(3) or MATH 449(3) [\[1\]](#) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 3 credits of literature (GH) from department list. [\[1\]](#) (Sem: 1-3)

Select 3 credits of 100-400 level courses (Sem: 4)

Select 3 credits of 300-400 level courses in Mathematics, Computer Science, Statistics, or Education. [\[1\]](#) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-034

Review Date: 04/09/2013

R & T: 01/14/2014

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

CL

## Materials Science and Engineering

University Park, College of Earth and Mineral Sciences (MATSE)

PROFESSOR GARY L. MESSING, *Head, Department of Materials Science and Engineering*

PROFESSOR R. ALLEN KIMMEL, *Associate Head of Undergraduate Studies, Materials Science and Engineering*

Materials, like ceramics, metals, polymers, and composites, are critical to the growth and success of many industries and key to most engineering disciplines. Graduates of Materials Science and Engineering are employed, or proceed to graduate studies, in many fields such as energy, medicine, sustainability, electronics, communications, transportation, aerospace, defense, and infrastructure industries.

The mission of the Department is to provide students with a well-rounded engineering education, with specific emphasis on materials science and engineering in order to meet the needs of industry, academia, and government; to conduct research at the frontiers of the field; and to provide an integrating and leadership role to the broad multi-disciplinary materials community.

The integration of knowledge and skills acquired during the course of study in the Materials Science and Engineering program provides graduates with the following student outcomes:

- a) Graduates will be able to apply knowledge of mathematics and advanced science and engineering principles to materials systems.
- b) Graduates will be able to design and conduct experiments and to analyze and interpret data.
- c) Graduates will be able to design a process, a microstructure, or a component to satisfy system needs.
- d) Graduates will be able to function on multi-disciplinary teams.
- e) Graduates will be able to identify, formulate, and solve engineering problems.
- f) Graduates will understand professional and ethical responsibility.
- g) Graduates will be able to communicate effectively, both in writing and in speech.
- h) Graduates will possess the broad education necessary to understand the impact of engineering solutions in a global and societal context.
- i) Graduates will recognize the need for, and be able to engage in, lifelong learning.
- j) Graduates will have a knowledge of contemporary issues.
- k) Graduates will be able to use the experimental, analytical, statistical, and computational tools for engineering practice in the materials discipline.
- l) Graduates will be able to apply the fundamental principles underlying and connecting the structure, processing, properties, and performance of materials systems.

The educational objectives of the undergraduate program are embedded into our mission statement. We will provide and maintain a curriculum that will prepare our recent graduates to accomplish the following Program Educational Objectives:

1. Our graduates provide science and engineering leadership in international industrial, governmental, and academic settings, while serving both their profession and the public.
2. Our graduates are innovators in a wide variety of technical fields including, but not limited to, materials, energy, electronics, medicine, communications, transportation, and recreation.
3. Our graduates excel in careers relating to the entire life cycle of materials, from synthesis and processing, through design and development, to manufacturing, performance, reclamation, and recycling.
4. Our graduates engage in lifelong learning activities which enhance their careers and provide flexibility to respond to changing professional and societal needs.

We achieve these objectives by providing a rigorous but flexible curriculum that allows the student to design their degree in materials science and engineering to achieve their specific academic and professional career interests.

In addition to the cutting edge curriculum, we provide many opportunities to strengthen the student's undergraduate studies through research experiences. For example, over 60% of the undergraduates are members of a research group and participate in the extensive materials research programs at Penn State. Further, we provide opportunities for International Internships in Materials, where our students go abroad to perform research at one of the many internationally recognized partner universities in Europe and Asia.

The B.S. degree in Materials Science and Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: 410.347.7700 or [www.abet.org](http://www.abet.org).

For the B.S. in Materials Science and Engineering, a minimum of 131 credits is required. This baccalaureate program in Materials Science and Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION 45 credits

(24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of *Bulletin*. Note: The Accreditation Board for Engineering and Technology (ABET) does not permit the use of skills courses to satisfy the Arts category of General Education.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 110 credits

(This includes 24 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 9 credits of GWS courses.)

### PRESCRIBED COURSES (79 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 113 GN(1), CHEM 202 GN(3), CMPSC 200 GQ(3), EM SC 100S GWS(3) [71], MATH 140G GQ(4), MATH 141G GQ(4), MATH 220 GQ(2), MATH 231(2), MATH 251(4), MATSE 112 GN(3), PHYS 211 GN(4), PHYS 212 GN(4), I E 424(3) (Sem: 1-4)  
 MATSE 201(3) [11], MATSE 202(3) [11], MATSE 413 GN(3) (Sem: 3-4)  
 ENGL 202C GWS(3), MATSE 400(3) [11], MATSE 401(3) [11], MATSE 402(3) [11], MATSE 419(3), MATSE 430(3) [11], MATSE 436(3), MATSE 460(1), MATSE 462(1), MATSE 492W(3) [11] (Sem: 5-6)

### ADDITIONAL COURSES (19 credits)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-4)

Select 3 or 6 credits from Synthesis and Processing: MATSE 411(3), MATSE 422(3), MATSE 425(3), MATSE 441(3), MATSE 448(3), MATSE 450(3) (Sem: 6-8)

Select 3 or 6 credits from Structure and Characterization: MATSE 410(3), MATSE 415(3), MATSE 421(3), MATSE 444(3), MATSE 445(3), MATSE 455(3) (Sem: 6-8)

Select 3 or 6 credits from Properties: MATSE 412(3), MATSE 417(3), MATSE 435(3), MATSE 446(3), MATSE 447(3) (Sem: 6-8)

Select 1 credit from Processing Laboratory: MATSE 463(1), MATSE 468(1), MATSE 472(1), MATSE 474(1) (Sem: 7)

Select 3 credits from Senior Capstone Experience: MATSE 493W(3) or MATSE 494W(3) (Sem: 7-8)

**SUPPORTING COURSE AND RELATED AREAS** (12 credits)

Select 12 credits of approved Science or Engineering Elective courses in consultation with advisor (Sem: 6-8)\_

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[71]** The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS or ENGL 202C GWS can be substituted for EM SC 100S GWS.

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-01-033

Review Date: 08/14/2012

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

EM

## Mechanical Engineering

*Penn State Berks (ME BL)*

*Penn State Erie, The Behrend College (ME BD)*

*Penn State Harrisburg (ME CA)*

Built upon a broad foundation in physics, chemistry, and mathematics, this major has the objective of educating graduates to be problem solvers. Graduates of this program will have had opportunities to learn about applying scientific principles, engineering analysis, and engineering design to solve unstructured problems that are typical of those found in mechanical engineering. The major helps prepare graduates for a lifelong productive career, whether they choose professional practice, graduate school, or some other career path. Graduates will have had opportunities to learn how to work with others toward a common goal, to clearly express their ideas in written and verbal form, and to be independent and capable of adapting to the continuously changing technology of the work environment.

After completing the fundamental science core, students may pursue their interest in mechanical engineering by studying fluid and solid mechanics, engineering materials and their properties, thermodynamics and heat transfer, computer-aided design, kinematics and dynamics of machine elements, machine design, finite elements, control systems, electricity, and electronic instrumentation and machinery. The students will be required to analyze and solve a significant mechanical engineering design problem during their senior year.

**Entrance Requirement:** In addition to the Carnegie unit and minimum GPA requirements described by University policies, all students applying for entrance to any of the engineering majors at either Behrend or Capital college must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), and PHYS 211 GN(4). These courses must be completed by the end of the semester during which the admission to major process is carried out.

For the B.S. degree in Mechanical Engineering, a minimum of 131 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 107-108 credits

(This includes 21 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses.)

**PRESCRIBED COURSES** (88-89 credits)

CHEM 110 GN(3) [\[1\]](#), EDSGN 100S(3) (Sem: 1-2)

E E 211(3), E MCH 211(3) [\[1\]](#), E MCH 212(3) [\[1\]](#), E MCH 213(3) [\[1\]](#), M E 300(3) [\[1\]](#), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), MATH 220(2-3) [\[1\]](#), MATH 230(4),

MATH 251(4) [\[1\]](#), PHYS 211 GN(4) [\[1\]](#), PHYS 212 GN(4) (Sem: 1-4)

CMPS 200 GQ(3), ENGL 202C GWS(3) (Sem: 3-6)

M E 320(3) [\[1\]](#), M E 345W(4) [\[1\]](#), M E 349(3) [\[1\]](#), M E 357(3) [\[1\]](#), M E 365(1) [\[1\]](#), M E 367(3) [\[1\]](#), M E 380(3) [\[1\]](#), M E 410(3) [\[1\]](#) (Sem: 5-6)

M E 448(3) [\[1\]](#), M E 449(3) [\[1\]](#), M E 468(3) [\[1\]](#), MATSE 259(3) [\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (6 credits)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-6)

CHEM 111 GN(1) and PHYS 214(2); or CHEM 112 GN(3), or BIOL 141 GN(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (13 credits)

Select 13 credits of program elective courses [\[1\]](#) from school-approved list. (These credits must be selected to fulfill the thematic requirements of the major.) (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-04-098

Review Date: 01/11/2011

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

BD

## Media Studies

University Park, College of Communications (MEDIA)

PROFESSOR ANTHONY OLORUNNISOLA, *Head, Department of Film-Video and Media Studies*

This major is designed for students who want to pursue an academic rather than professional program of media studies. Students are exposed first to the breadth of approaches to understanding the mass media (e.g., aesthetic, cultural, humanistic, social-behavioral) and then, by selecting one of four options, go into depth in a specialized area of media studies. All options within the major are closely intertwined with the liberal arts and sciences. Therefore, students who successfully complete this major must have a strong foundation in the liberal arts and well-developed language and analytical skills. That foundation should include courses such as ART H 100 GA(3), ECON 102 GS(3), HIST 002 GH(3), PSYCH 100 GS(3), and SOC 001 GS(3).

The following four options are offered:

**FILM AND TELEVISION STUDIES OPTION:** This option is designed for students interested in studying the art, history, and criticism of film and television. Electives offer students the opportunity to pursue a related field, such as art, art history, creative writing, speech communication, or theatre arts. This option merges aesthetics and social sciences and is appropriate for those seeking a more theoretical/critical approach to the study of film and video.

**INTERNATIONAL COMMUNICATIONS OPTION:** This option is designed for students who want to study the mass media systems of the world and their role in international affairs. The option offers students an opportunity to enhance their occupational opportunities in international business, organizations, or government and to be better prepared to participate in the world community. Students must select either a University-approved minor in a foreign language, area studies, or international studies; a University-approved education abroad program; or other international-related courses or programs with prior departmental approval.

### MEDIA EFFECTS OPTION:

This option focuses on the social and psychological effects of media messages and technologies. Students progress through a general introduction to problems and issues, such as the effects of televised sex and violence, to courses that emphasize more theoretical approaches and advanced applications. A minor in a complementary area of study, such as Psychology or Sociology, is encouraged.

**SOCIETY AND CULTURE OPTION:** In this option, a student and faculty adviser work together to tailor a program of courses to meet the student's individual interest in a coherent theme in media studies. These courses are usually selected in tandem with a minor or other supporting cluster of non-major courses in the area of specialization. Examples of themes include, but are not limited to, communication and the environment, communication and health campaigns, sports and the media, minorities and the media, and gender and the media. A minor in an area of specialization is encouraged.

Students must select at least 80 credits in courses outside the College of Communications, including at least 65 in the liberal arts and sciences.

For the B.A. degree in Media Studies, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 6-15 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36-45 credits [\[1\]](#)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 15 credits

**PRESCRIBED COURSES** (15 credits)  
COMM 100 GS(3), COMM 304(3), COMM 405(3), COMM 411(3), COMM 413W(3) (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 21-30 credits

**FILM AND TELEVISION STUDIES OPTION:** (21 credits)

**PRESCRIBED COURSES** (9 credits)  
COMM 150 GA(3), COMM 242(3), COMM 250 GA(3) (Sem: 3-4)

**ADDITIONAL COURSES** (12 credits)  
Select 9 credits from COMM 451(3), COMM 452(3), COMM 453 IL(3), COMM 454(3), COMM 455(3), COMM 495(1-3), or COMM 496(1-3) (Sem: 5-8)  
Select 3 credits from CAS 415(3), CHNS 121 GH;IL(3), CMLIT 153 GH;IL(3), ENGL 403(3), FR 138 GH(3), FR 487 IL(3), FR 488 IL(3), IT 475(3), JAPNS 453 IL(3), MUSIC 004 GA(3), PHIL 005 GH(3) (Sem: 5-8)

**INTERNATIONAL COMMUNICATIONS OPTION:** (21-30 credits)

**PRESCRIBED COURSES** (9 credits)  
COMM 110 GH(3), COMM 410 IL(3), COMM 419 US;IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)  
Select 3 credits from COMM 118 GS(3), COMM 150 GA(3), COMM 205 US(3), COMM 320(3), COMM 381(3), or COMM 452(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (9-18 credits)  
Select at least one of the following for a minimum of 9 credits and a maximum of 18 credits, no more than 9 credits in COMM. (Sem: 1-8)

University approved minor in foreign language, area studies or international studies

University approved education abroad program

Other international related courses or programs with prior departmental approval

*More than one of the above is strongly recommended.*

**MEDIA EFFECTS OPTION:** (21 credits)

**PRESCRIBED COURSES** (9 credits)  
COMM 118 GS(3), COMM 418(3), PSYCH 100 GS(3)

**ADDITIONAL COURSES** (9 credits)

Select 6 credits from COMM 110 GH(3), COMM 150 GA(3), COMM 180(3), COMM 205 US(3), COMM 320(3), COMM 403(3) or COMM 412(3) (Sem: 3-4)  
 Select 3 credits from PSYCH 221 GS(3) or PSYCH 256 GS(3)

#### **SUPPORTING COURSES AND RELATED AREAS (3 credits)**

Select 3 credits in research methods from an approved department list (Sem: 1-8)

*A minor in a complementary area of study is encouraged (e.g. Psychology or Sociology) (Sem: 1-8)*

#### **SOCIETY AND CULTURE OPTION: (21 credits)**

##### **ADDITIONAL COURSES (21 credits)**

Select 6 credits from COMM 110 GH(3), COMM 118 GS(3), COMM 150 GA(3), or COMM 205 US(3) (Sem: 3-4)

Select 15 credits in communication theory from COMM 110 GH(3), COMM 118 GS(3), COMM 150 GA(3), COMM 170(3), COMM 180(3), COMM 408(3), COMM 409(3), COMM 410 IL(3), COMM 412(3), COMM 417(3), COMM 418(3), COMM 419 US;IL(3), COMM 451(3), COMM 452(3), COMM 453 IL(3), COMM 454(3), COMM 455(3) [At least 9 credits must be at the 400-level] (Sem: 5-8)

A minor in an area of specialization is encouraged.

### **Integrated B.A./M.A. in Media Studies**

The College of Communications offers academically qualified students enrolled in a Bachelor of Arts program in the College of Communications the opportunity to earn both the B.A. and the M.A. upon completion of five years of study. The Integrated Undergraduate-Graduate Program in Media Studies would facilitate the advanced study of communications research and thesis development through a carefully organized selection of undergraduate courses, graduate seminars and directed research projects. The program would accelerate and enhance undergraduate students' appreciation for graduate level scholarship by involving them in the seminars, research activities and the scholarly discourse of the College's community of Masters and Doctoral-level scholars.

For the IUG Media Studies B.A./M.A. degree, a minimum of 120 credits are required for the B.A. and 36 credits for the M.A. Twelve graduate level credits, in consultation with the adviser, can apply to both the B.A. and M.A. degrees. Six of these must be at the 500 level.

If for any reason a student admitted to the B.A./M.A. program is unable to complete the requirements for the Master of Arts degree program in Media Studies, the student will be permitted to receive the BA degree assuming all degree requirements have been satisfactorily completed.

#### **Application Process and Admissions Requirements**

Applicants must complete 6 credits from the following lists of courses with a minimum GPA of 3.5 in order to be admitted: 3 credits from COMM 100, COMM 150, COMM 180, COMM 320, or COMM 370 and 3 credits from COMM 205, COMM 250, COMM 381, COMM 401, COMM 403, COMM 404, COMM 405, COMM 407, COMM 408, COMM 409, COMM 410, COMM 411, COMM 413, COMM 417, COMM 418, COMM 419, COMM 451, COMM 452, COMM 453, COMM 454, COMM 455, COMM 484, or COMM 485. The minimum overall GPA required of applicants is 3.2. Admission to the program is based on the evaluation of the student's transcript, examples of completed writing and research projects, a narrative statement of objectives, and two letters of support from faculty with whom they have worked. One faculty member must be from the College of Communications. Students are expected to apply after completing 60 credits but before the completion of 100 credits. Candidates are expected to present records of outstanding scholarly achievement to qualify. Applications will be reviewed by the appropriate subset of members of the Graduate Committee of the College.

#### **Applicants to the integrated program:**

1. Must be enrolled in a B.A. program in the College of Communications.
2. Must have completed 60 credits of the undergraduate degree program. (It is recommended that students apply prior to completing 100 credits.)
3. Must provide a narrative statement of objectives and two letters of endorsement from faculty with whom they have worked. One faculty member must be from the College of Communications.
4. Must present an approved plan of study in the application process.

#### **Program of Study**

The Integrated B.A./M.A. degree in Media Studies is an academic program that involves students in the systematic study of media. The objective of the course of study is to enable students to achieve a comprehensive understanding of the systems, networks, cultures, and information associated with media. The program prepares students for doctoral study in communications and for professional positions in business and government requiring a comprehensive understanding of the historical, social, and political implications of the media. This program helps prepare students to organize research projects, critically evaluate research reports, and directly influence media practices by the application of research findings. The program is specifically not intended for advanced professional education.

Undergraduate tuition rates will apply as long as the student is in undergraduate status, unless the student receives financial support, such as an assistantship requiring the payment of graduate tuition.

#### **Degree Requirements**

For the IUG Media Studies M.A. degree, a minimum of 120 credits are required for the B.A. and 36 credits for the M.A. At least 18 of the required 36 credits must be at the 500 level. Twelve graduate level credits, in consultation with the adviser, can apply to both the B.A. and M.A. degrees. Six of these double-counted credits must be at the 500 level. A minimum of 12 credits of coursework, as opposed to research credits, must be completed in Communications. COMM 515 and COMM 506 or COMM 511 are required. IUG students will prepare a thesis proposal in consultation with their advisers and are required to present the final thesis in a formal oral defense meeting to a committee of at least 3 members of graduate faculty, two of whom must be members of the College faculty. It is encouraged that one member of the committee be from outside the College.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012 (MEDIA); Summer Session 2005 (Integrated B.A./M.A.)

Blue Sheet Item #: 40-06-078 (MEDIA); 33-04-161 (Integrated B.A./M.A.)

Review Date: 04/10/2012

UCA Revision #1: 8/20/06

UCA Revision #2: 7/30/07

Department head updated by Publications: 1/16/07

CM

## Medieval Studies

University Park, College of the Liberal Arts (MEDVL)

PROFESSOR NORRIS LACY, *in charge*

This is an interdisciplinary program of study designed to give students an integrated knowledge of medieval civilization. While the main area of study is the fifth to sixteenth centuries in Europe, a global perspective is offered with particular attention to the Near East and the Pacific Rim.

For the B.A. degree in Medieval Studies, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 24 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 30 credits [\[1\]](#)

**PRESCRIBED COURSES** (6 credits)

MEDVL 107 GH(3) or HIST 107 GH(3), MEDVL 108 GH(3) (Sem: 3-4)

**ADDITIONAL COURSES** (24 credits)

(A minimum of 12 credits must be in 400-level courses.)

Select 24 credits from the program list of courses dealing with the Middle Ages from no less than three of the following areas:

### Art

ART H 201 GA(3) (Sem: 1-8)

ART H 312 GA(3) (Sem: 3-8)

ART H 402(3), ART H 412(3), ART H 422(3-9), ART H 442(3), ART H 452(3) (Sem: 5-8)

### History

HIST 105 GH;IL(3), HIST 108 GH;IL(3), HIST 141 GH;IL(3), HIST 165(3) (Sem: 1-8)

HIST 407 IL(3), HIST 408 IL(3), HIST 411(3), HIST 412 IL(3), HIST 413(3), HIST 471W(3), HIST 480 IL(3) (Sem: 5-8)

### Literature and Language

CMLIT 001 GH(3), CMLIT 106 GH;IL(3), ENGL 221W(3), GER 175 GH;IL(3), HEBR 010 GH;IL(3), SPAN 130 GH;IL(3) (Sem: 1-8)

FR 351(3), IT 350(3), SPAN 353(3) (Sem: 3-8)

CMLIT 401Y IL(3), CMLIT 408 IL(3), ENGL 441(3), ENGL 442(3), FR 422(3), GER 430 IL(3), GER 431 IL(3), IT 415(3), IT 490(3), LATIN 420(3-6), SPAN 418(3) (Sem: 5-8)

### Medieval Studies

MEDVL 187(3) (Sem: 1-2)

MEDVL 197(1-9), MEDVL 199 IL(1-12), MEDVL 294(1-12), MEDVL 299 IL(1-12) (Sem: 1-8)

MEDVL 395(1-18), MEDVL 399 IL(1-12) (Sem: 3-8)

MEDVL 411(3), MEDVL 413(3), MEDVL 494(1-12), MEDVL 496(1-18), MEDVL 497(1-9), MEDVL 499 IL(1-12) (Sem: 5-8)

### Philosophy and Religious Studies

RL ST 120 GH(3), PHIL 207 GH(3) (Sem: 1-8)

PHIL 454(3-6), RL ST 420(3) (upon advising) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 1999

Blue Sheet Item #: 27-07-065

Review Date: 4/8/03

LA

## Mechanical Engineering Technology

*Penn State Erie, The Behrend College (METBD)*

This major may be taken either as a four-year baccalaureate program or in a "2+2" degree format. The latter allows graduates of associate degree programs in mechanical engineering technology or related areas to gain greater breadth and depth of knowledge in mechanical engineering technology. The baccalaureate program emphasizes applied design and analysis, complementing a hands-on manufacturing and materials focus. The graduate gains valuable knowledge of total manufacturing processes ranging from applied design to manufacture.

This major includes instruction in materials engineering, thermodynamics, heat transfer, hydraulics, finite-element analysis, and use of parametric solids modeling design packages, as well as supporting course work in mathematics and science. Oral and written communications are stressed, as is the ability to work within a team-oriented environment. The major culminates with a capstone design project involving an actual design or manufacturing problem sponsored by regional industry. This program is accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

Graduates have qualified for careers in a wide variety of industries that manufacture or use mechanical systems. Careers include positions in applied product design, manufacturing process development, field service support, supervision of manufacturing facilities, tool and die design, quality control, plant supervision and management, and technical sales.

### Entrance to Major Requirements:

To be eligible for entrance to the Mechanical Engineering Technology major, a student must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed MATH 081 or MATH 026, and MATH 082 or MATH 022, and MATH 083 or MATH 140, and PHYS 250, and earned a grade of C or better in each of these courses.

For the B.S. degree in Mechanical Engineering Technology, a minimum of 131 credits is required. A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in GENERAL EDUCATION course selection)

### ELECTIVES: 0-1 credit

### REQUIREMENTS FOR THE MAJOR: 103-106 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

### PRESCRIBED COURSES (73 credits)

ENGL 202C GWS(3), MCH T 111(3)[\[1\]](#), MET 107(3), PHYS 250 GN(4)[\[1\]](#), PHYS 251 GN(4) (Sem: 1-4)

MCH T 213(3)[\[1\]](#), MCH T 214(1), IET 215(2), IET 216(2), MET 206(3)[\[1\]](#), MATH 210 GQ(3)[\[1\]](#), MET 210W(3)[\[1\]](#) (Sem: 3-4)

CHEM 110 GN(3), CHEM 111 GN(1), MATH 211 GQ(3), MET 306(3)[\[1\]](#), MET 320(3)[\[1\]](#), MET 330(3)[\[1\]](#), MET 331W(4)[\[1\]](#), MET 341(3)[\[1\]](#), MET 415(3)[\[1\]](#) (Sem: 5-6)

MET 425(3)[\[1\]](#), MET 432(3)[\[1\]](#), MET 470(3)[\[1\]](#), MET 480(1)[\[1\]](#), MET 485(3)[\[1\]](#) (Sem: 7-8)

### ADDITIONAL COURSES (22-24 credits)

EET 100(3); or EET 101(3); or EET 105(3) and EET 109(1); IET 101(3)[\[1\]](#) or MET 105(3)[\[1\]](#) (Sem: 1-4)

MATH 026 GQ(3)[\[1\]](#) or MATH 081 GQ(3)[\[1\]](#), MATH 022 GQ(3)[\[1\]](#) or MATH 082 GQ(3)[\[1\]](#), MATH 083 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#) (Sem: 1-4)

EG T 120(3) and EG T 121(3); or EG T 101(1), EG T 102(1), EG T 114(2), EG T 201(2), and EG T 205(1) (Sem: 1-5)

### SUPPORTING COURSES AND RELATED AREAS (8-9 credits)

Select 6 credits of technical electives from school-approved list (Sem: 7-8)

Select 2-3 credits of business electives from school-approved list (Sem: 6-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-03-028

Review Date: 11/9/2010

UCA Revision #1: 8/18/06

BD



## Meteorology

University Park, College of Earth and Mineral Sciences (METEO)

PROFESSOR WILLIAM H. BRUNE, *Head of the Department*

Meteorology is a rigorous scientific discipline devoted to the attainment of an increased understanding of the atmosphere and the development of methods for applying that knowledge to practical problems. Although this field is usually associated with weather prediction, it also has significance in environmental, energy, agricultural, oceanic, and hydrological sciences. For students wishing to pursue many of these areas, the department offers several options within the major.

The major requires a solid foundation in mathematics and the physical sciences, and it provides a comprehensive survey of the fundamentals of atmospheric science. It has sufficient flexibility to permit intensive advanced study in such related areas as mathematics, earth sciences, or engineering. The department has particular strengths in weather analysis and prediction, including forecast uncertainty and severe weather; physical meteorology, including radar meteorology, instrumentation and atmospheric measurements; and applied areas, including atmospheric diffusion, air pollution chemistry, dynamic meteorology, tropical meteorology, climate, weather risk, and remote sensing.

Graduating meteorologists are prepared for professional employment with industry, private consulting firms, government, and the armed forces or for further study toward graduate degrees normally required for research, university, or management positions.

The freshman and sophomore years are largely devoted to preparatory work in science, mathematics, and the liberal arts. The junior and senior years involve a core of basic courses in applied and theoretical topics and a choice of courses offering specialized training. The courses unique to each option are normally taken in the junior and senior years.

### Entry to Major Requirements:

In addition to the minimum grade point average (GPA) requirements described in the University Policies, the Meteorology entrance-to-major requirement must also be completed with a minimum grade of C: MATH 140 GQ(4). This course must be completed by the end of the semester during which the entrance-to-major process is carried out.

**ATMOSPHERIC SCIENCES OPTION:** This option challenges students to strengthen and broaden their understanding of the physics and chemistry of both the atmosphere and oceans. It helps prepare them for employment in the diverse field of the atmospheric sciences and for graduate study in the atmospheric or related disciplines. Students are encouraged to participate in undergraduate research projects under the supervision of atmospheric and oceanic scientists in the department college.

**ENVIRONMENTAL METEOROLOGY OPTION:** Environmental Meteorology prepares the student for understanding the impact of the weather and climate on the environment, which is to say the impacts of air and water on natural and human-altered ecosystems. In order to do this, the option establishes links between atmospheric physics and a variety of environmental disciplines pertaining to land, water, soils, and plants. Depending on his/her interests, the student will select courses in the Air Quality and Dispersion, Ecology, Environmental Chemistry, Geographic Information Systems or Hydrology.

**GENERAL OPTION:** This option has sufficient flexibility to serve the needs of students who wish to pursue topics chosen broadly from subdisciplines of meteorology or from related areas in consultation with the academic adviser. The General option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to emphasize a topic for which no option exists.

**WEATHER FORECASTING AND COMMUNICATIONS OPTION:** This option prepares students for careers in which their skills as weather forecasters are effectively used in a variety of ways, from science reporting and television broadcasting to web design and computer-based weather graphics production, and developing innovative applications of weather and climate data to industry.

**WEATHER RISK MANAGEMENT OPTION:** The option combines study of meteorology and atmospheric sciences with training in risk, finance, and quantitative decision-making. Weather affects a wide range of industries, including energy, agriculture, insurance, construction, retail, and transport, among others. Weather and climate variation play central roles in the availability of water resources, the spread of disease, and an array of other processes vital for human welfare. There are, consequently, many organizations that confront risks related to weather, and that have a demand for experts who can help them manage these risks. The option in Weather Risk Management is designed for students who wish to work professionally at this intersection of meteorology and risk management.

For a Meteorology course to serve as a prerequisite for any subsequent prescribed or supporting Meteorology course in the major, a grade of C or better must be earned in the prerequisite course.

For the B.S. degree in Meteorology, a minimum of 121 credits is required.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 45 credits

(23-26 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 6-8 credits

**REQUIREMENTS FOR THE MAJOR:** 93-95 credits

(This includes 23-26 credits of General Education courses: 8 credits of GN courses; 6 credits of GQ courses; 0-3 credits of GS courses; 9 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 66 credits

**PRESCRIBED COURSES** (47 credits)

CHEM 110 GN(3), EM SC 100S GWS(3) [\[71\]](#), MATH 140 GQ(4) [\[11\]](#), MATH 141 GQ(4) [\[11\]](#), PHYS 211 GN(4) (Sem: 1-2)

MATH 251(4), PHYS 212 GN(4) (Sem: 3-4)

METEO 300(4) [\[11\]](#), METEO 411(4) [\[11\]](#), METEO 421(4) [\[11\]](#), METEO 431(3) [\[11\]](#), METEO 440W(3) [\[11\]](#) (Sem: 5-6)

METEO 470(3) [\[11\]](#) (Sem: 6-8)

**ADDITIONAL COURSES** (19 credits)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

METEO 101 GN(3) [\[11\]](#) or METEO 200A(1.5) [\[11\]](#) and METEO 200B(1.5) [\[11\]](#) or METEO 201(3) [\[11\]](#) (Sem: 1-5)

CMPSC 101 GQ(3) or CMPSC 200 GQ(3) or CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 3-4)

MATH 230(4) [\[11\]](#) or MATH 231(2) [\[11\]](#) and MATH 232(2) [\[11\]](#) (Sem: 3-4)

E B F 472(3) or STAT 301 GQ(3) or STAT 401(3) (Sem: 3-6)

CAS 100 GWS(3) or ENGL 202C GWS(3) (Sem: 3-8)

**REQUIREMENTS FOR THE OPTION:** 27-29 credits

**ATMOSPHERIC SCIENCES OPTION:** (27-28 credits)

**PRESCRIBED COURSES** (3 credits)

METEO 422(3) (Sem: 6-8)

**ADDITIONAL COURSES** (21-22 credits)

Select 3-6 credits from METEO 473(3)[1] and METEO 474(3)[1] (Sem: 5-8)

Select 6-9 credits from METEO 436(3)[1], METEO 437(3)[1], and METEO 454(3)[1] (Sem: 5-8)

Select 6-13 credits from METEO 414(4), METEO 434(3), METEO 451(3), METEO 452(3), METEO 455(3), METEO 465(3), METEO 466(3), METEO 470(3), METEO 471W(3), METEO 477(3), METEO 480W(3) (Up to 9 of these credits in relevant courses in Acoustics, Chemistry, Engineering, Mathematics, and Physics may be substituted with the approval of the student's adviser.) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)

Select 3 credits of W courses or their equivalent in addition to METEO 440W. (Sem: 7-8)

**ENVIRONMENTAL METEOROLOGY OPTION:** (27-29 credits)**PRESCRIBED COURSES** (9 credits)

C E 370(3), METEO 454(3)[1], METEO 455(3) (Sem: 2-8)

**ADDITIONAL COURSES** (18-20 credits) (May apply to General Education)

Select 15-17 credits from BIOL 110 GN(4), C E 360(3), C E 461(3), C E 475(4), C E 479(3), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 450(3), CHEM 457(2), CHEM 464(3), E R M 430(3), E R M 435(3), E R M 447(3), E R M 450(3), GEOG 111 GN(3), GEOG 311(3), GEOG 313(3), GEOG 361(3), GEOG 362(3), GEOG 363(3), GEOG 417(3), GEOG 463(3), M E 405(3), M E 433(3), METEO 437(3) (Sem: 2-8)

Select 3 credits from METEO 473(3)[1] or METEO 474(3)[1] (Sem: 5-8)

**GENERAL OPTION:** (27 credits)**ADDITIONAL COURSES** (6 credits)

Select 3 credits from METEO 436(3)[1] or METEO 437(3)[1] or METEO 454(3)[1] (Sem: 5-8)

Select 3 credits from METEO 473(3)[1] or METEO 474(3)[1] (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Select 21 credits in consultation with advisor from 400-level METEO courses and/or 300-, or 400-level courses from the Colleges of Agricultural Sciences, Earth and Mineral Sciences, Engineering, and/or Science. With the approval of a meteorology adviser, some 200-level courses from those Colleges may also be used. (Sem: 7-8)

**WEATHER FORECASTING AND COMMUNICATIONS OPTION:** (28 credits)**PRESCRIBED COURSES** (13 credits)

METEO 481(3), METEO 482(3) (Sem: 5-6)

METEO 414(4), METEO 415(3) (Sem: 6-8)

**ADDITIONAL COURSES** (15 credits)

Select 3 credits from METEO 436(3)[1] or METEO 437(3)[1] (Sem: 5-8)

Select 3-6 credits from METEO 473(3)[1] and METEO 474(3)[1] (Sem: 5-8)

Select 6-9 credits from CAS 211(3), E E 477(3) or METEO 477(3); ENGL 416(3), GEOG 333(3), GEOG 361(3), GEOG 362(3), GEOG 363(3), GEOG 417(3), GEOG 467(3), GEOSC 402Y IL(3), METEO 413(3), METEO 416(3), METEO 418W(3), METEO 419(3), METEO 422(3), METEO 451(3), METEO 452(3), METEO 454(3), METEO 471W(3), METEO 483(3), METEO 486(1-2, max 3), any two from METEO 495A(3), METEO 495B(3), METEO 495C(3), METEO 495D(3) or METEO 495E(3) (Sem: 5-8)

**WEATHER RISK MANAGEMENT OPTION:** (27 credits)**PRESCRIBED COURSES** (12 credits) (May apply to General Education)

E B F 200 GS(3) (Sem: 1-2)

E B F 301(3), E B F 473(3) (Sem: 3-6)

METEO 460(3) (Sem: 7-8)

**ADDITIONAL COURSES** (15 credits)

Select 6 credits from METEO 415(3), METEO 473(3)[1] or METEO 474(3)[1] (Sem: 5-8)

Select 3 credits from METEO 436(3)[1], METEO 437(3)[1] or METEO 454(3)[1]\*\* (Sem: 5-8)

Select 3 credits from E B F 483(3), E B F 484(3), or EME 460(3) (Sem: 6-8)

Select 3 credits from ECON 490(3), STAT 318(3), STAT 319(3), STAT 414(3), STAT 415(3), STAT 460(3) or STAT 462(3) (Sem: 6-8)

\*\*Preferred choice

**Integrated B.S./M.S. Program in Meteorology**

The Department of Meteorology offers an integrated B.S./M.S. (IUG) Program that is designed to allow academically superior students to obtain both the B.S. and the M.S. degree in Meteorology in five years of study. In order to complete the program in five years, students interested in the Integrated B.S./M.S. Program in Meteorology must apply for admission to the Graduate School and the Integrated B.S./M.S. Program by the end of their junior year.

During the first three years, the student will follow the course scheduling of one of the options in the B.S. degree, normally the Atmospheric Sciences or the General option (see the Undergraduate *Bulletin*). Students who intend to enter the Integrated B.S./M.S. program are encouraged to take upper level classes during their first three years whenever appropriate. By the end of the junior year, students normally apply for admission to both the IUG program and to the Graduate School. Acceptance decisions will be made prior to the beginning of the senior year and M.S. advising committees appointed for successful applicants. During the senior year, IUG students follow the scheduling of the selected B.S. Meteorology option, with an emphasis on completing 500-level course work as appropriate. During the senior year, IUG students will start work on their theses or papers that are designed to meet the requirements of the M.S. degree in Meteorology. During the fifth year, IUG students take courses fulfilling the departmental M.S. degree requirements and complete their M.S. theses or papers. Typical scheduling plans for students pursuing the General or Atmospheric Sciences options are given on the departmental Web site <http://www.met.psu.edu>. Undergraduate tuition rates will apply as long as the student is an undergraduate, unless the student receives financial support, for example, via an assistantship requiring the payment of graduate tuition.

**Admission Requirements**

Students who wish to complete the Integrated B.S./M.S. Program in Meteorology should apply for admission to both the Graduate School and the Integrated B.S./M.S. Program by no later than the end of their junior year. In this case, successful students will be admitted formally into the graduate program in Meteorology just prior to their senior year, if their progress has been satisfactory. Admission prior to the senior year is also possible in some unusual circumstances. In all cases, admission to the program will be at the discretion of the Graduate Admissions Officer for the Department of Meteorology, who will determine the necessary criteria for all applicants. These criteria include the setting of the minimum required scores on the GRE and the minimum cumulative GPA for consideration, the receipt of sufficiently strong recommendation letters from three faculty and a strong letter of support from the department head, and the writing of an excellent proposal for a workable research project with a specific adviser; normally, evidence of significant research progress must be provided in the application as well.

The details of the program requirements can be found in the Graduate Degree Programs *Bulletin*.

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[71] The following substitutions are allowed for students attending campuses where the indicated courses is not offered: CAS 100 GWS or ENGL 202C GWS can be substituted for EM SC 100S GWS.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-022

Review Date: 11/19/2013



## Management

University Park, Smeal College of Business (MGMT)

PROFESSOR DENNIS GIOIA, *Chair, Department of Management and Organization*

This major provides students with knowledge and skills managers need to deal with contemporary management challenges, such as leading and motivating people of different ages and backgrounds, developing strategies for competing in the global economy, and balancing the interest of multiple stakeholders in a complex legal, political, and ethical environment. The management core provides a general overview of the knowledge and skills required for effectively managing people and organizations. Students then supplement that overview with either the human resources management concentration or the entrepreneurship concentration. Career opportunities are in management trainee positions, human resources, customer service, consulting, family business, and entrepreneurship.

**Human Resources Management Concentration** - The HRM concentration prepares students for a professional career in human resources management, and develops skills and expertise in areas such as planning, staffing, job design, employee development, performance management, compensation, change management, and managing diversity.

**Entrepreneurship Concentration** - The ENTR concentration provides students with broad knowledge about business start-ups in a global competitive environment. Students develop skills in conflict and resolution management, negotiations, moving technology from development to commercialization and defining new business ventures.

**Entrance Requirement:** To be eligible for entrance into the Management (MGMT) major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

**Specific entrance requirements include:**

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin, including approximately 60 credits of course work.
2. Complete the following entrance to major requirements: ACCTG 211(4)[\[1\]](#); ECON 102 GS(3); SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#); ENGL 015 GWS(3) or ENGL 030 GWS(3); and MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#); FIN 301(3)[\[1\]](#); MGMT 301(3)[\[1\]](#); and MKTG 301(3)[\[1\]](#). These courses must be completed by the end of the semester during which the entrance to major process is carried out.
3. In addition to the above requirements, the Executive Vice President and Provost of the University may approve administrative enrollment controls that limit the number of students who are admitted to majors in the Smeal College of Business. In each case, however, academic requirements are established for admission. For information on enrollment controls, consult the Smeal College of Business Web site (<http://www.smeal.psu.edu>).

For the B.S. degree in Management, a minimum of 120 credits is required (at least 15 credits must be taken at the 400 level).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 14 credits

**REQUIREMENTS FOR THE MAJOR:** 73 credits

(This includes 12 credits of General Education courses: 3 credits of GWS courses; 6 credits of GQ courses; 3 credits of GS courses.)

**PRESCRIBED COURSES** (46 credits)

ACCTG 211(4)[\[1\]](#), ECON 102 GS(3), FIN 301(3)[\[1\]](#), MGMT 301(3)[\[1\]](#), and MKTG 301(3)[\[1\]](#) (Sem: 1-4)

B A 342(3), B A 411(3), B LAW 341(3), ECON 104 GS(3), ENGL 202D GWS(3), MIS 204(3), SCM 301(3), MGMT 326(3)[\[1\]](#), MGMT 451W(3)[\[1\]](#), MGMT 471(3)[\[1\]](#) (Sem: 5-8)

**ADDITIONAL COURSES** (17 credits)

MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#) (Sem: 1-2)

SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#) (Sem: 1-2)

Select 9 credits from one of the following two areas of concentration:

**A. Human Resources Management Concentration** (9 credits)

MGMT 341(3)[\[1\]](#) (Sem: 5-6)

Select six credits[\[1\]](#) from the following: MGMT 441(3), MGMT 443(3), MGMT 445(3) (Sem: 6-8)

**B. Entrepreneurship Concentration** (9 credits)

MGMT 461(3)[\[1\]](#)

Select six credits[\[1\]](#) from the following: MGMT 341(3), MGMT 420(3), MGMT 425(3), MGMT 426(3), MGMT 427(3) (Sem: 6-8)

**SUPPORTING COURSES AND RELATED AREAS** (10 credits)

Select 4 credits: Attainment of 12th-credit-level proficiency in a single foreign language. (4 credits) Proficiency must be demonstrated by either examination or course work (Sem: 1-4)

Select 6 credits of supporting coursework from an approved department list. (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-042

Review Date: 04/13/2010

Dept head update: 6/9/05

BA

## Microbiology

University Park, Eberly College of Science (MICRB)

PROFESSOR Wendy Hanna-Rose, *in charge*

Microbiology is the science of the "simple" forms of life and of the response of more complex life forms to their presence and activities. Students in the Microbiology major will (1) complete a comprehensive study of life processes at the molecular and cellular level, with particular emphasis on prokaryotes, and (2) perform basic and advanced techniques in laboratory methodology. Through advanced course study, the many subdisciplines of microbiology such as molecular genetics, immunology, and virology may be explored more fully. Ample opportunities exist for participation in faculty-initiated research projects. Extensive laboratory experience is a particular strength of the major. Courses in such applied areas as industrial, medical, and food microbiology help prepare students for careers in the pharmaceutical, biotechnical, and agricultural industries.

In order to be eligible for entrance to the Microbiology major, a student must have: (1) attained at least a 2.00 cumulative grade-point average and (2) completed CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), and MATH 140 GQ(4) and earned a grade of C or better in each of these courses.

For the B.S. degree in Microbiology, a minimum of 125 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 95 credits<sup>[86]</sup>

(This includes 15 credits of General Education courses; 9 credits of GN courses; 6 credits of GQ courses.)

**PRESCRIBED COURSES** (64 credits)

CHEM 110 GN(3)<sup>[1]</sup>, CHEM 111 GN(1)<sup>[1]</sup>, CHEM 112 GN(3)<sup>[1]</sup>, CHEM 113 GN(1), MATH 140 GQ(4)<sup>[1]</sup>, MATH 141 GQ(4), PSU 016(1) (Sem: 1-2)

PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 1-4)

B M B 442(3), BIOL 322(3), CHEM 210(3), CHEM 212(3), CHEM 213(2), MICRB 201(3)<sup>[85]</sup>, MICRB 202(2), MICRB 251(3)<sup>[85]</sup>, MICRB 252(3)<sup>[85]</sup> (Sem: 3-4)

B M B 400(2), B M B 401(3), B M B 402(3), MICRB 421W(3) (Sem: 5-6)

B M B 428(3) (Sem: 5-8)

**ADDITIONAL COURSES** (21-23 credits)

Select any four of the following: MICRB 401(3), MICRB 410(3), MICRB 412(3), MICRB 415(3), or MICRB 450(2) (Sem: 5-6)

Select 3 credits from B M B 445W(2), B M B 448(2), MICRB 422(2), MICRB 447(1) (Sem: 5-8)

Select 6-7 credits from FD SC 408(2), B M B 488(2), B M B 496(1-18) or any other MICRB 400-level course, with a total maximum of 4 credits in B M B 488 and/or B M B 496 (1-18) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9-11 credits)

Select 9-11 credits from department list (Sem: 5-8)

*Note:* A student enrolled in an ROTC program may, after consultation with the head of the microbiology program, substitute up to 6 credits of ROTC in the categories of Additional Courses and Supporting Courses and Related Areas.

<sup>[1]</sup> A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

<sup>[85]</sup> To graduate, a grade of C or better is required in two of the following courses: MICRB 201, B M B/MICRB 251, B M B/MICRB 252.

<sup>[86]</sup> To graduate, a grade of C or better is required in 9 credits of any B M B, or MICRB 400-level course except B M B 443W, B M B 445W, B M B 448, B M B 488, B M B 496, MICRB 421W, MICRB 422, MICRB 442, MICRB 447.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-112

Review Date: 08/20/13

UCA Revision #1: 8/9/06

SC

## Management Information Systems

*Penn State Erie, The Behrend College (MISBD)*

The MIS Major prepares students for typical IT-related jobs such as programmer/analyst, systems analyst, data analyst, database administrator, team leader, project manager, consultant, and MIS manager. Since the focus of such jobs is on the application of information technology to business problems and opportunities, the MIS curriculum integrates three main areas of study.

In the first area, students take core business courses in order to understand organizational processes and user requirements. In the second area, students take computer science courses in order to understand information technologies and to develop technical competencies. In the third area, students take core MIS courses in the areas of database management systems, systems analysis, and systems design and development where the focus is on learning tools, processes, and techniques required for successful application of information technology to business problems. These core courses are supplemented with a variety of electives and a required, and very useful, internship experience.

### Entrance to Major Requirements:

Entry to the Management Information Systems major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Management Information Systems, a minimum of 120 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 0-1 credits

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 88-91 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

### PRESCRIBED COURSES (40 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3) (Sem: 3-6)  
FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3), MKTG 301(3)[1], SCM 301(3)[1] (Sem: 3-6)  
MIS 336(3)[1], MIS 430(3)[1] (Sem: 5-6)  
MGMT 410(3)[1], MGMT 471W(3)[1], MIS 495(3)[1] (Sem: 7-8)

### ADDITIONAL COURSES (18 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)  
SCM 200 GQ(4) or STAT 200 GQ(4); ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 3-4)  
B A 241(2) and B A 242(2) or B A 243(4) (Sem: 3-6)  
Select 3 credits from ECON 470 IL(3)[1], ECON 473 IL(3)[1], FIN 471(3)[1], MGMT 461 IL(3)[1], MKTG 445 IL(3)[1], or other 400-level international business courses [1] (Sem: 7-8)

### REQUIREMENTS FOR THE OPTION (31-34 credits)

#### BUSINESS ANALYST OPTION: 31 credits

##### PRESCRIBED COURSES (7 credits)

MIS 404 (3)[1], MIS 445 (4)[1]

##### SUPPORTING COURSES AND RELATED AREAS (24 credits)

Select 3 credits from MIS 387 (3)[1] or MIS 470 (4)[1]  
Select any combination of 6 credits from the non-business supporting course list for the major. (Sem: 1-8)  
Select 3 credits in programming courses (Sem: 3-8)  
Select 12 credits[1] from 300- or 400-level MIS, or other business supporting course areas (see school list of approved courses) (Sem: 5-8)

#### SYSTEMS ANALYST OPTION: 31-34 credits

##### PRESCRIBED COURSES (4 credits)

MIS 435 (4)[1]

##### SUPPORTING COURSES AND RELATED AREAS (27-30 credits)

Select any combination of 6-7 credits from the non-business supporting course list for the major. (Sem: 1-8)  
Select 9 credits in programming courses taken from two different languages (Sem: 3-8)  
Select 6-7 credits[1] of 300- or 400-level courses in Computer Science, or MIS in consultation with adviser (see school list of approved courses) (Sem: 5-8)  
Select 6-7 credits[1] from 300- or 400-level MIS, or other business supporting course areas (see school list of approved courses) (Sem: 5-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-03-014

Review Date: 11/08/2011

UCA Revision #1: 8/20/06

UCA Revision #2: 7/27/07

BD

## Marketing

University Park, Smeal College of Business (MKTG)

PROFESSOR DUNCAN FONG, *Chair of the Department of Marketing*

This major provides professional education leading to positions in business, government, and other organizations, and helps prepare the student for advanced study at the graduate level. Career opportunities are in marketing management, sales management, advertising, marketing research, retailing, public policy, and consumer affairs. In addition to following a planned course sequence in general marketing management, the students may elect course work that focuses on their interests in consumer or business-to-business marketing, physical goods or services marketing, retail marketing and for-profit or not-for-profit marketing.

The Marketing major is designed to be integrated with the college's professional education in business and builds on that program and on education in the social sciences.

**Entrance Requirement:** To be eligible for entrance into the Marketing (MKTG) major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

**Specific entrance requirements include:**

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin, including approximately 60 credits of course work.
2. Complete the following entrance to major requirements: ACCTG 211(4)[11]; ECON 102 GS(3); SCM 200 GQ(4)[11] or STAT 200 GQ(4)[11]; ENGL 015 GWS(3) or ENGL 030 GWS(3); and MATH 110 GQ(4)[11] or MATH 140 GQ(4)[11]; FIN 301(3)[11]; MGMT 301(3)[11]; and MKTG 301(3)[11]. These courses must be completed by the end of the semester during which the entrance to major process is carried out.
3. In addition to the above requirements, the Executive Vice President and Provost of the University may approve administrative enrollment controls that limit the number of students who are admitted to majors in the Smeal College of Business. In each case, however, academic requirements are established for admission. For information on enrollment controls, consult the Smeal College of Business Web site (<http://www.smeal.psu.edu>).

For the B.S. degree in Marketing, a minimum of 120 credits is required with at least 15 credits at the 400 level.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 14 credits

**REQUIREMENTS FOR THE MAJOR:** 73 credits

(This includes 12 credits of General Education courses; 3 credits of GWS courses; 6 credits of GQ courses; 3 credits of GS courses.)

**PRESCRIBED COURSES** (46 credits)

ACCTG 211(4)[11], ECON 102 GS(3), FIN 301(3)[11], MGMT 301(3)[11], MKTG 301(3)[11] (Sem: 1-4)  
B A 342(3), B A 411(3), B LAW 341(3), ECON 104 GS(3), ENGL 202D GWS(3), MIS 204(3), SCM 301(3), MKTG 330(3)[11], MKTG 342(3)[11], MKTG 450W(3)[11]  
(Sem: 5-8)

**ADDITIONAL COURSES** (17 credits)

MATH 110 GQ(4)[11] or MATH 140 GQ(4)[11] (Sem: 1-2)  
SCM 200 GQ(4)[11] or STAT 200 GQ(4)[11] (Sem: 1-2)  
Select 9 credits [11] from MKTG 327(3), MKTG 410(3), MKTG 422(3), MKTG 426(3), MKTG 428(3), MKTG 435(3), MKTG 437(3), MKTG 440(3), MKTG 443(3), MKTG 445 IL(3) (Sem: 6-8)

**SUPPORTING COURSES AND RELATED AREAS** (10 credits)

Select 4 credits: Attainment of 12th credit level proficiency in a single foreign language. (4 credits) Proficiency must be demonstrated by either examination or course work (Sem: 1-4)

Select 6 credits of supporting course work. See Department List. (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-027

Review Date: 04/09/2013

UCA Revision #1: 8/9/06

BA



## Mining Engineering

University Park, College of Earth and Mineral Sciences (MNG E)

PROFESSOR JAMAL ROSTAMI, Undergraduate Program Chair

The undergraduate curriculum in mining engineering has been designed to enable students to apply the fundamentals necessary to achieve lifelong professional growth. Upon completion of the program, graduates will be able to pursue employment opportunities in both the private and public sectors as mining engineers, or will be able to pursue advanced education.

The courses are sequenced so that an appropriate blend of theory, applications, and project design is achieved. This enables the mining engineering student to appreciate and comprehend that a successful engineering design project requires a sound theoretical foundation, supported by experimentation and good engineering judgment. The program is designed such that the fundamentals of mathematics, earth, and engineering sciences are integrated into traditional mining engineering topics. Design projects, culminating in the capstone design project, are required throughout the curriculum. The proper execution of these projects requires an awareness of acceptable problem-formulation strategies, the testing of alternative design methodologies, feasibility studies, environmental impacts, and overall economic considerations.

Graduates of the program will be prepared to perform in the various steps of mineral extraction, including exploration, evaluation, development, recovery, and processing. The mining engineering faculty is committed to an interactive teaching and learning environment to ensure that the student plays an active role in the learning process. The general education opportunities are sufficiently broad and diverse in nature and scope to enable the student to tailor the educational experience to particular interests, backgrounds, and expected roles in society.

The integration of knowledge and skills acquired during the course of study in the Mining Engineering program provides graduates with the following student outcomes:

1. An ability to apply knowledge of mathematics, science, and engineering
2. An ability to design and conduct experiments, as well as to analyze and interpret data
3. An ability to design a system, component, or process to meet desired needs
4. An ability to function on multi-disciplinary teams
5. An ability to identify, formulate, and solve engineering problems
6. An understanding of professional and ethical responsibility
7. An ability to communicate effectively
8. The broad education necessary to understand the impact of engineering solutions in a global and societal context
9. A recognition of the need for and an ability to engage in life-long learning
10. A knowledge of contemporary issues
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Mining Engineering graduates will be:

1. Employed in mining or related industries or agencies in technical, research, safety, or managerial roles;
2. Qualified and competent to sit for the professional engineer exam;
3. Solving design and project-related problems based on sound, state-of-the-art mining engineering principles and practices;
4. Engaged in solitary assignments and multi-disciplinary teams addressing economic, budgeting, planning, regulatory, labor, safety and health, environmental, legal and ethical issues in mining-related fields;
5. Effective written and oral communicators; and
6. Pursuing continued learning through education, professional training, and participation in professional activities.

**STUDENT-TRAINEE PROGRAM:** A five-year work-study plan is available to incoming students in Mining Engineering. Alternating periods of employment in industry and schooling at Penn State, the student-trainee obtains the BS degree in five years instead of four, following a rearranged major. Numerous mining and manufacturing companies as well as governmental agencies are cooperating with the University in providing employment during work periods. In addition to earning sufficient funds to finance their education, student-trainees acquire two years of valuable, practical, and professional experience. Additional information can be obtained from the department.

### Integrated B.S. in Mining Engineering (MNG E) and M.S. in Energy and Mineral Engineering (EME)

The integrated undergraduate-graduate (IUG) program between the Mining Engineering undergraduate program and the Energy and Mineral Engineering graduate program enables academically superior and research-focused MNG E undergraduate students to also obtain an M.S. degree in Energy and Mineral Engineering in five years of study. Students should refer to the Energy and Mineral Engineering graduate program in the Graduate Program Bulletin for the IUG admission and degree requirements. ([http://bulletins.psu.edu/bulletins/whitebook/graduate\\_degree\\_programs.cfm?letter=E&program=grad\\_eme.htm](http://bulletins.psu.edu/bulletins/whitebook/graduate_degree_programs.cfm?letter=E&program=grad_eme.htm))

For the B.S. in Mining Engineering, a minimum of 131 credits is required. This baccalaureate program in Energy Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 113 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 6 credits of GWS courses; 3 credits of GH courses.)

**PRESCRIBED COURSES** (84 credits)

CHEM 110 GN(3), CHEM 111 GN(1), EM SC 100S GWS(3) [\[71\]](#) (Sem: 1-2)  
ECON 102 GS(3), EDSGN 100(3) (Sem: 1-4)  
MATH 140 GQ(4), MATH 141 GQ(4), MATH 250(3), STAT 301 GQ(3) (Sem: 1-6)  
E MCH 210(5), GEOSC 001(3) [\[11\]](#), PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2) (Sem: 3-4)  
E E 211(3), MNG 230(3) [\[11\]](#), MNG 331(3), MNG 422(3), (Sem: 3-8)  
EME 460(3), MN PR 301(3) [\[11\]](#), MN PR 413(1) [\[11\]](#), MNG 404(2), (Sem: 5-6)  
GEOSC 201(4), MNG 223(2), MNG 410(3), MNG 411(2), MNG 441(3) [\[11\]](#), MNG 451W(4) [\[11\]](#) (Sem: 5-8)

**ADDITIONAL COURSES** (23 credits)

Select 23 credits, one course from each category a, b, c, d, e, f, g, or h:

- a. ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)
- b. PHIL 103 GH(3) or PHIL 106 GH(3) or PHIL 107 GH(3)  
or PHIL 233 GH(3)/S T S 233 GH(3) (Sem: 1-4)
- c. CMPSC 201 GQ(3) or CMPSC 202 GQ(3)
- d. MATH 220 GQ(2) or MATH 231(2) (Sem: 3-4)



- e. E MCH 212(3) or E MCH 212H(3) (Sem: 3-4)
- f. EME 301(3) or M E 300(3) (Sem: 4-6)
- g. EME 303(3) or C E 360(3) (Sem: 5-6)
- h. MNG 470(3) or GEOSC 470W(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits in consultation with adviser (Students may apply 6 credits of ROTC.) (Sem: 5-8)

**Course Substitutions for the Integrated B.S. in Mining Engineering (MNG E) and M.S. in Energy and Mineral Engineering (EME)**

As many as twelve of the credits required for the master's degree may be applied to both the B.S. and M.S. degrees. A minimum of six credits counted for both the B.S. and M.S. degrees must be at the 500-level. Thesis and culminating/capstone experience credits may not be double counted. The undergraduate degree program officer will determine the specific undergraduate required courses for which the 500-level courses may be used to substitute to meet institutional and accreditation requirements.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[71]** The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS or ENGL 202C GWS can be substituted for EM SC 100S GWS.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-100

Review Date: 04/10/2012

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

EM

## Management

Capital College (MNGMT)

JANE S. KOCHANOV, *Director of Undergraduate Studies, School of Business Administration*

This major provides students with the knowledge and skills managers need in today's dynamic business environments. Core management courses provide a general overview of key management competencies including effective leadership, team building, managing and motivating human resources, facilitating organizational change and learning, and fostering and applying organizational knowledge for competitive advantage. Students complement this general management foundation with a human resource management, entrepreneurship, supply chain management, or individualized concentration.

**HUMAN RESOURCE MANAGEMENT CONCENTRATION:** This concentration prepares students for a career in human resource management by developing skills and competencies in managing diversity and equal opportunity, ethical and fair treatment of employees, human resource planning and staffing, employee training and development, compensation and benefits, performance management, labor relations, and protecting employee safety and health. Students completing this concentration would be prepared to demonstrate their knowledge of the core principles of human resource practices and the application of those principles for potential certification as a Professional in Human Resources (PHR), Senior Professional in Human Resources (SPHR), or Global Professional in Human Resources (GPHR).

**ENTREPRENEURSHIP CONCENTRATION:** The Entrepreneurship concentration is designed to introduce undergraduate students to the process of new venture development. Topics covered in the concentration include business plan development, the nature of management in small business, and the role of creativity and innovation in the entrepreneurial process. Opportunities are provided for student participation in the development of an actual new business venture.

**SUPPLY CHAIN MANAGEMENT CONCENTRATION:** The Supply Chain Management concentration prepares students for a professional career in managing supply chain activities by developing knowledge, skills, and competencies in the areas of logistics, procurement, inventory, transportation, and warehouse management. Students learn analytical techniques including trade-off analysis, construction and evaluation of networks, and optimization methods. Emphasis is placed on attaining an in-depth understanding of both inter-functional and inter-firm collaboration, whereby supply chains become the basis of competitive advantage.

**INDIVIDUALIZED CONCENTRATION:** The Individualized concentration is designed to provide students with a customized specialization that enables them to develop their own concentration in a management field of their choice. It allows flexibility in developing student knowledge and competencies in accordance with their personal, professional, and career interests.

### Entry to Major Requirements:

Entry to the Management major requires the completion of 8 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); FIN 301(3); MATH 110 GQ(4) or MATH 140 GQ(4); MGMT 301(3) [\[1\]](#); MKTG 301(3); SCM 200 GQ(4) or STAT 200 GQ(4); and a 2.00 or higher cumulative grade-point average. Additional information about this major is available in the office of the Director of Undergraduate Studies, School of Business Administration at Penn State Harrisburg.

For a B.S. degree in Management, a minimum of 120 credits is required. At least 50 percent of the business credit hours required for the degree must be taken at the Capital College. No more than 60 credits should be from business and business-related courses.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** Select 8 credits of non-business courses.

### REQUIREMENTS FOR THE MAJOR: 79 credits

(This includes 12 credits of General Education Courses: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses.)

### PRESCRIBED COURSES (46 credits)

ACCTG 211(4) (Sem: 1-4)

ECON 102 GS(3), FIN 301(3), MGMT 301(3) [\[1\]](#), MKTG 301(3) (Sem: 1-4)

ENGL 202D GWS(3) (Sem: 3-4)

B A 364Y US:IL(3), B A 462(3) [\[1\]](#), ECON 104 GS(3), MGMT 341(3) [\[1\]](#), MGMT 433(3) [\[1\]](#), MGMT 466(3) [\[1\]](#), MIS 204(3), MIS 390(3), SCM 301(3) (Sem: 5-8)

### ADDITIONAL COURSES (21 credits)

Select 4 credits from MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-4)

Select 4 credits from SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 1-4)

B A 243(4) or B A 241(2) and B A 242(2) (Sem: 5-6)

**Select 9 credits from one of the following four areas of concentration A, B, C, D:**

#### A. HUMAN RESOURCE MANAGEMENT CONCENTRATION

MGMT 440(3) [\[1\]](#), MGMT 450(3) [\[1\]](#) (Sem: 5-8)

Select 3 credits in MGMT [\[1\]](#) at the 300-400 level from department list in consultation with academic adviser (Sem: 5-8)

#### B. ENTREPRENEURSHIP CONCENTRATION

MGMT 431(3) [\[1\]](#), MGMT 453(3) [\[1\]](#) (Sem: 5-8)

Select 3 credits in MGMT [\[1\]](#) at the 300-400 level from department list in consultation with academic adviser (Sem: 5-8)

#### C. SUPPLY CHAIN MANAGEMENT CONCENTRATION

Select 6 credits from SCM 320(3) [\[1\]](#), SCM 416(3) [\[1\]](#), SCM 445(3) [\[1\]](#) (Sem: 5-8)

Select 3 credits in SCM [\[1\]](#) or MGMT [\[1\]](#) at the 300-400 level from department list in consultation with academic adviser (Sem: 5-8)

#### D. INDIVIDUALIZED CONCENTRATION

Select 9 credits in MGMT [\[1\]](#) at the 300-400 level from department list in consultation with academic adviser (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits from 200-400 level business courses from: ACCTG, B A, ECON, FIN, MIS, MGMT, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests. (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Reviewed by the Department: Summer Session 2011

Blue Sheet Item #:40-01-048

Review Date: 8/16/2011

UCA Revision #1: 8/8/06



## Marketing

*Capital College (MRKT)*

JANE S. KOCHANOV, *Director of Undergraduate Studies, School of Business Administration*

This major is designed for students interested in careers involving sales, promotion, services, distribution, research, and planning for business and the public sector. The major provides students with key concepts and methods of analysis in marketing. It focuses on understanding customer needs, developing products or services, creating and implementing marketing plans, monitoring customer responses, and projecting marketing activities for the future.

### Entry to Major Requirements:

Entry to the Marketing major requires the completion of 8 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); FIN 301(3); MATH 110 GQ(4) or MATH 140 GQ(4); MGMT 301(3); MKTG 301(3) [\[1\]](#); SCM 200 GQ(4) or STAT 200 GQ(4); and a 2.00 or higher cumulative grade-point average. Additional information about this major is available in the office of the Director of Undergraduate Studies, School of Business at Penn State Harrisburg.

For the B.S. degree in Marketing, a minimum of 120 credits is required. At least 50 percent of the business credit hours required for the degree must be taken at the Capital College. No more than 60 credits should be from business and business-related courses.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** Select 8 credits of non-business courses.

### REQUIREMENTS FOR THE MAJOR: 79 credits

(This includes 12 credits of General Education Courses: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses.)

### PRESCRIBED COURSES (46 credits)

ACCTG 211(4) (Sem: 1-4)

ENGL 202D GWS(3), ECON 102 GS(3), FIN 301(3), MGMT 301(3), MKTG 301(3) [\[1\]](#) (Sem: 1-4)

B A 364Y US:IL(3), B A 462(3), ECON 104 GS(3), MIS 204(3), MIS 390(3), SCM 301(3) (Sem: 5-8)

MKTG 330(3) [\[1\]](#), MKTG 342(3) [\[1\]](#), MKTG 450W(3) [\[1\]](#) (Sem: 5-8)

### ADDITIONAL COURSES (21 credits)

Select 4 credits from MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-4)

Select 4 credits from SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 1-4)

B A 243(4) or B A 241(2) and B A 242(2) (Sem: 5-6)

Select 9 credits [\[1\]](#) from the following: ECON 342(3), MKTG 302(3), MKTG 327(3), MKTG 422(3), MKTG 445 IL(3), MKTG 476(3), MKTG 478(3), MKTG 485(3) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits from 200-400 level business courses from: ACCTG, B A, ECON, FIN, MIS, MGMT, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests. (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Reviewed by the Department: Summer Session 2011

Blue Sheet Item #:40-01-049

Review Date: 8/16/2011

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

CL

## Marketing

*Penn State Erie, The Behrend College (MRKTG)*

The objective of the Marketing major is to provide professional education to students leading to careers in business, government, and non-profit organizations. Typically, graduates are employed in marketing management, sales management, retailing, marketing research, and brand management. The major provides a solid foundation in marketing practice, such as analyzing and understanding the needs and wants of present and potential customers, designing appropriate product offerings, establishing pricing policies, developing communication strategies, devising efficient distribution strategies, researching marketing data for the above functions, and coordinating marketing programs with other functional areas of business. Because of the tremendous growth in the service sector, the major emphasizes the marketing of services. Marketing majors may also choose from additional business courses that allow greater specialization on quantitative (marketing research) or management perspectives while the non-business supporting courses allow for additional study in written and oral communication, psychology, foreign language, quantitative methods, or international studies.

### Entrance to Major Requirements:

Entry to the Marketing major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Marketing, a minimum of 120 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendations by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 2 credits

### REQUIREMENTS FOR THE MAJOR: 88 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

### PRESCRIBED COURSES (40 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)

FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3), MKTG 301(3)[1], SCM 301(3)[1] (Sem:3-6)

MKTG 330(3), MKTG 342(3), MKTG 440(3) (Sem: 5-6)

MGMT 471W(3) (Sem: 7-8)

### ADDITIONAL COURSES (27 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

B A 241(2) and B A 242(2) or B A 243(4) (Sem: 3-6)

Select 3 credits from: ECON 470 IL(3)[1], ECON 473 IL(3)[1], FIN 471(3)[1], MGMT 461 IL(3)[1],

MKTG 445 IL(3)[1], or other 400-level international business courses (Sem: 5-8)

Select 12 credits from: ECON 481(3)[1], ECON 482(3)[1], ECON 485(3)[1], MIS 336(3)[1],

MKTG 327(3)[1], MKTG 410(3)[1], MKTG 422(3)[1], MKTG 475(3)[1], MKTG 485(3)[1], MKTG 494(1-12)[1], MKTG 495(1-18)[1], or MKTG 497(1-9)[1], SCM

455(3)[1] (with at least 6 credits from 400-level MKTG courses)[1] (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (21 credits)

Select 18 credits from the following non-business supporting course areas (with at least 12 credits from the same area): education abroad, foreign language, international studies, psychology, quantitative methods, or written and oral communication (Sem: 1-8)

Select 3 credits of 300- or 400-level courses from one business supporting course area[1] (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-061

Review Date: 08/24/2010

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

BD

## Mathematics

Altoona College (MTAAL)  
University Park, Eberly College of Science (MTHBA)

PROFESSOR YUXI ZHENG, *Chair, Department of Mathematics*

Two degrees are offered in mathematics: the Bachelor of Arts and the Bachelor of Science. Both programs have a common core of mathematics courses; both programs prepare students for graduate work in mathematics. In addition, the Bachelor of Arts degree is oriented toward applications of mathematics in the arts and the humanities. The Bachelor of Science degree has a number of options. These options are oriented toward actuarial science, applied and industrial mathematics, computational mathematics, graduate study and systems analysis.

Many of the options are designed for students who want to use mathematics in industry, commerce, or government. In short, the degree requirements have the flexibility to fit many individual interests. The student, with the assistance of a faculty adviser, should select an option by the end of the sophomore year.

In order to be eligible for entrance to the Mathematics major, a student must have: 1) attained at least a 2.00 cumulative grade point average; and 2) completed MATH 140 GQ(4) and MATH 141 GQ(4) and earned a grade of C or better in each of these courses.

For the B.A. degree in Mathematics, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selections)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in GENERAL EDUCATION or BACHELOR OF ARTS DEGREE REQUIREMENTS course selections)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-1 credit

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 56 credits  
(This includes 6 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (27-29 credits)  
MATH 140 GQ(4) [1], MATH 141 GQ(4) [1], MATH 220 GQ(2-3) [1], MATH 230(4) [1], MATH 311W(3-4) [1], MATH 312(3) [1], STAT 200 GQ(4) (Sem: 1-4)  
MATH 403(3) [1] (Sem: 5-8)

**ADDITIONAL COURSES** (18-19 credits)  
CMPSC 101 GQ(3) or CMPSC 121 GQ(3) or CMPSC 201 GQ(3) (Sem: 1-2)  
MATH 250(3) [1] or MATH 251(4) [1] (Sem: 3-4)  
MATH 435(3) [1] or MATH 436(3) [1] (Sem: 5-8)  
Select 3 credits [1] from MATH 411(3), MATH 412(3), MATH 417(3), MATH 419(3), or MATH 421(3) (Sem: 5-8)  
Select 6 credits [1] of 400-level MATH courses except MATH 401(3), MATH 405(3), MATH 406(3), MATH 441(3), MATH 470(3), MATH 471(4) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (8-11 credits)  
Select 8-11 credits from department list (Sem: 3-8)

### Integrated B.A. in Mathematics and Master of Applied Statistics (M.A.S.)

The Integrated Undergraduate-Graduate (IUG) degree with B.A. in Mathematics and Master of Applied Statistics (M.A.S.) is designed to be completed in five years. This integrated degree will enable a select number of highly qualified and career oriented students to obtain training in statistics focused on developing data analysis skills, and exploration of core areas of applied statistics at the graduate levels in addition to an undergraduate degree in Mathematics. The M.A.S. degree is a professional masters degree that emphasizes applications. The degree prepares students with interests in mathematics, computation, and the quantitative aspects of science for careers in industry and government as statistical analysts. Research divisions in the pharmaceutical industry, quality control, and quality engineering divisions in manufacturing companies, clinical research units, corporate planning and research units, and other data intensive positions require persons with training in mathematics, computation, database management, and statistical analysis, which this program will provide.

### Application Process

The number of openings in the integrated B.A. in Mathematics and M.A.S. program is limited. Admission will be based on specific criteria and the recommendation of faculty. Applicants to the integrated program:

- Must be enrolled in the Mathematics B.A. program.
- Must have completed at least 60 credits of the undergraduate degree program including the two courses: STAT 414 and STAT 415 and the students must apply to the integrated program prior to completing 110 credits.
- Must submit a transcript and a statement of purpose.
- Must present a departmental approved plan of study in the application process in consultation with the M.A.S. program director.
- Must be recommended by the chair of Mathematics Department's undergraduate program committee. Two additional recommendation letters must be sent to the M.A.S. admissions committee.
- Must submit the GRE to the M.A.S. admissions committee.
- Must apply to the M.A.S. program in Statistics.

For the IUG B.A. in Mathematics and M.A.S. degree, 120 credits are required for the B.A. and 30 credits for the M.A.S. The following twelve graduate level credits (number of credits in parentheses) can apply to both B.A. and M.A.S. degrees, six of these are at the 500 level: STAT 414(3), STAT 415(3), STAT 501(3), STAT 502(3).

Assuming all requirements for the B.A. in Mathematics are completed, students in the program can complete the B.A. degree and not advance to the M.A.S. degree if they desire.

### Degree Requirements

IUG Math B.A. students must fulfill the Math B.A. requirement while counting these prescribed Statistics courses (15 credits)  
STAT 220(3)\*, STAT 414(3), STAT 415(3), STAT 501(3), STAT 502(3)

**IUG M.A.S. Requirements** (30 credits)  
STAT 414(3), STAT 415(3), STAT 501(3), STAT 502(3), STAT 580(2) and STAT 581(1)\*\*

**Electives:** (15 credits)  
Select from STAT 464(3), STAT 503(3), STAT 504(3), STAT 505(3), STAT 506(3), STAT 507(3), STAT 508(3), STAT 509(3), STAT 510(3) and the departmental

list of additional courses for the M.A.S. program with the approval of the adviser.

For the IUG B.A. in Mathematics and M.A.S. degree, the four courses: STAT 414(3), STAT 415(3), STAT 501(3) and STAT 502(3) can apply to both the B.A. and M.A.S. degrees.

\*Can be waived for students with an equivalent course, e.g. STAT 250 GQ(3) or STAT 301 GQ(3).

\*\* For all students in the M.A.S. program, the STAT 581(1) course will have a comprehensive written project report required as part of the course, which serves as the culminating experience.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-097

Review Date: 01/10/2012

UCA Revision #1: 8/18/06

UCA Revision #2: 7/30/07

SC

## Mathematics

*Penn State Erie, The Behrend College (MTHBD)*

This major builds a foundation in mathematics with emphasis on the applications of mathematics and to the development of problem-solving skills. The major has four options that share a common core of mathematics courses for the first two years. The options are Applied Mathematics, Business, Computer Science, and Pure Mathematics. They allow students to concentrate on developing mathematical skills suitable either for entry level positions in areas including applied mathematics, actuarial sciences, statistics and computer programming, or for graduate studies in mathematics and related fields. Students, with the assistance of a faculty adviser, should select an option in their sophomore year. In addition, students are strongly encouraged to participate in faculty supervised research.

### Entrance to Major Requirements

In order to be eligible for entrance to the Mathematics major, a student must have: 1) attained at least a 2.00 cumulative grade point average; and 2) completed MATH 140 GQ(4) and MATH 141 GQ(4) and earned a grade of C or better in each of these courses.

For the B.S. degree in Mathematics, a minimum of 120 credits is required. A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course in the major.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(18-24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this *bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR or in ELECTIVES)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selections)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 7-11 credits

### REQUIREMENTS FOR THE MAJOR: 85-92 credits

(This includes 18-24 credits of General Education courses; 9 credits of GN courses; 6 credits of GQ courses; 0-6 credits of GS courses; 3 credits of GWS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 49 credits

#### PRESCRIBED COURSES (40 credits)

CMPSC 121 GQ(3) [\[1\]](#), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#) (Sem: 1-2)

CMPSC 122 GQ(3) [\[1\]](#), MATH 311W(4) [\[1\]](#) (Sem: 3-4)

STAT 301(3) [\[1\]](#) (Sem: 3-6)

MATH 220 GQ(2) [\[1\]](#), MATH 230(4) [\[1\]](#), MATH 251(4) [\[1\]](#) (Sem: 3-8)

ENGL 202C GWS(3) (Sem: 5-6)

MATH 312(3) [\[1\]](#), STAT 401(3) [\[1\]](#) (Sem: 5-8)

#### ADDITIONAL COURSES (9 credits)

Select 1 credit of GN designated course and 8 additional credits in one of the following sequences:

a. BIOL 110 GN(4), BIOL 220W GN(4) (Sem: 1-4)

b. CHEM 110 GN(3), CHEM 111 GN(I), CHEM 112 GN(3), CHEM 113 GN(I) (Sem: 1-4)

c. PHYS 211 GN(4), PHYS 212 GN(4) (Sem: 1-4)

d. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 1-4)

### REQUIREMENTS FOR THE OPTION: 36-43 credits [\[1\]](#)

#### APPLIED MATHEMATICS OPTION: (36 credits) [\[1\]](#)

#### ADDITIONAL COURSES (27 credits)

Select 6 credits from: CMPSC 221(3) or higher, except CMPSC 360 (Sem: 3-8)

Select 15 credits from MATH 310(3), MATH 412(3), MATH 449(3), MATH 455(3), MATH 456(3), MATH 482(3), STAT 414(3), STAT 461(3), STAT 462(3), STAT 464(3), STAT 466(3) (Sem: 5-8)

Select 6 credits from MATH 421(3), MATH 426(3), MATH 427(3), MATH 429(3), MATH 435(3), MATH 436(3), MATH 465(3) (Sem: 5-8)

#### SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits from a school-approved list (Sem: 3-8)

#### BUSINESS OPTION: (43 credits) [\[1\]](#)

(A maximum of 30 credits through the School of Business may be used to fulfill General Education, Major Requirements and Option Requirements.)

#### PRESCRIBED COURSES (13 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3) (Sem: 1-6)

MIS 204(3) (Sem: 3-6)

#### ADDITIONAL COURSES (24 credits)

Select 6 credits from ECON 481(3), ECON 485(3), FIN 301(3), FIN 405(3), FIN 420(3), FIN 427(3), MGMT 301(3), MGMT 331(3), MGMT 341(3), MKTG 301(3), SCM 310(3) (Sem: 3-8)

Select 6 credits from CMPSC 221(3) or higher, except CMPSC 360, and MIS 336(3) (Sem: 3-8)

Select 6 credits from MATH 482(3), MIS 336(3), MIS 430(3), MIS 435(4), MIS 445(3), STAT 414(3), STAT 461(3), STAT 462(3), STAT 464(3), STAT 466(3) (Sem: 3-8)

Select 6 credits from MATH 421(3), MATH 426(3), MATH 427(3), MATH 429(3), MATH 435(3), MATH 436(3), MATH 465(3) (Sem: 3-8)

#### SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from a school-approved list (Sem: 3-8)

#### COMPUTER SCIENCE OPTION: (36 credits) [\[1\]](#)

#### PRESCRIBED COURSES (6 credits)

CMPSC 455(3), CMPSC 465(3) (Sem: 5-8)

#### ADDITIONAL COURSES (18 credits)

CMPSC 221(3) or SWENG 311(3) (Sem: 3-6)

CMPSC 312(3) or CMPEN 351(3) (Sem: 3-6)

Select 12 credits from CMPSC courses at the 300- and 400-level (Sem: 3-8)

#### SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits from a school-approved list (Sem: 3-8)

#### PURE MATHEMATICS OPTION: (36 credits) [\[1\]](#)



**ADDITIONAL COURSES** (27 credits)

Select 18 credits from MATH 310(3), MATH 412(3), MATH 421(3), MATH 426(3), MATH 427(3), MATH 429(3), MATH 435(3), MATH 436(3), MATH 455(3), MATH 456(3), MATH 465(3), MATH 482(3), STAT 414(3), STAT 461(3), STAT 462(3), STAT 464(3), and STAT 466(3) (Sem: 3-8)  
Select 9 credits from MATH 403(3), MATH 421(3), MATH 429(3), MATH 435(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits from a school-approved list (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-023

Review Date: 08/20/13

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

BD

## Mathematics

Altoona College (MTSAL)  
University Park, Eberly College of Science (MTHBS)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR YUXI ZHENG, *Chair, Department of Mathematics*

Two degrees are offered in mathematics: the Bachelor of Arts and the Bachelor of Science. Both programs have a common core of mathematics courses; both programs prepare students for graduate work in mathematics. In addition, the Bachelor of Arts degree is oriented toward applications of mathematics in the arts and the humanities. The Bachelor of Science degree has a number of options. These options are oriented toward actuarial science, applied and industrial, computational mathematics, graduate study and systems analysis.

Many of the options are designed for students who want to use mathematics in industry, commerce, or government. In short, the degree requirements have the flexibility to fit many individual interests. The student, with the assistance of a faculty adviser, should select an option by the end of the sophomore year.

In order to be eligible for entrance to the Mathematics major, a student must have: 1) attained at least a 2.00 cumulative grade point average; and 2) completed MATH 140 GQ(4) and MATH 141 GQ(4) and earned a grade of C or better in each of these courses.

For the B.S. degree in Mathematics, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selections)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-1 credit

**REQUIREMENTS FOR THE MAJOR:** 80-83 credits

(This includes 6 General Education GQ courses)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 30-32 credits

**PRESCRIBED COURSES** (24-25 credits)

MATH 140 GQ(4)[\[1\]](#), MATH 141 GQ(4)[\[1\]](#), STAT 200 GQ(4) (Sem: 1-4)  
MATH 220 GQ(2)[\[1\]](#), MATH 230(4)[\[1\]](#), MATH 311W(3-4)[\[1\]](#), MATH 312(3)[\[1\]](#) (Sem: 3-4)

**ADDITIONAL COURSES** (6-7 credits)

CMPSC 101 GQ(3) or CMPSC 121 GQ(3) or CMPSC 201 GQ(3)(Sem: 1-2)  
MATH 250(3)[\[1\]](#) or MATH 251(4)[\[1\]](#) (Sem: 3-4)

**REQUIREMENTS FOR THE OPTION:** 50-51 credits

**ACTUARIAL MATHEMATICS OPTION:** (50-51 credits)

**PRESCRIBED COURSES** (30 credits)[\[1\]](#)

I E 425(3), MATH 414(3), MATH 415(3), MATH 416(3), MATH 484(3), R M 302(3), R M 410(3), R M 411(3), R M 412(3), STAT 462(3) (Sem: 5-8)

**ADDITIONAL COURSES** (6 credits)[\[1\]](#)

MATH 451(3) or MATH 486(3) (Sem: 5-8)

Select 3 credits from STAT 463 or 400-level MATH courses except MATH 401(3), MATH 405(3), MATH 406(3), MATH 441(3), MATH 470(3), MATH 471(4) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (14-15 credits)

Select 14-15 credits from department list (Sem: 1-8)

**APPLIED AND INDUSTRIAL MATHEMATICS OPTION:** (50-51 credits)

**PRESCRIBED COURSES** (21 credits)[\[1\]](#)

MATH 403(3), MATH 412(3), MATH 414(3), MATH 415(3), MATH 436(3), MATH 450(3), MATH 455(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)[\[1\]](#)

Select 12 credits from MATH 411(3), MATH 416(3), MATH 417(3), MATH 419(3), MATH 421(3), MATH 456(3), MATH 461(3), MATH 467(3), MATH 468(3), MATH 479(3), MATH 484(3), MATH 485(3), MATH 486(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (17-18 credits)

Select 17-18 credits from department list (Sem: 1-8)

**COMPUTATIONAL MATHEMATICS OPTION:** (50-51 credits)

**PRESCRIBED COURSES** (24 credits)

CMPSC 122(3) (Sem: 3-4)

CMPSC 465(3), MATH 414(3)[\[1\]](#), MATH 415(3)[\[1\]](#), MATH 455(3)[\[1\]](#), MATH 456(3)[\[1\]](#), MATH 467(3)[\[1\]](#), MATH 484(3)[\[1\]](#) (Sem: 5-8)

**ADDITIONAL COURSES** (9 credits)[\[1\]](#)

Select 3 credits from MATH 411(3), MATH 412(3), or MATH 417(3) (Sem: 5-8)

Select 6 credits from CMPSC 468(3), MATH 310(3), MATH 468(3), or MATH 485(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (17-18 credits)

Select 17-18 credits from department list (Sem: 1-8)

**GENERAL MATHEMATICS OPTION:** (50-51 credits)

**PRESCRIBED COURSE** (9 credits)[\[1\]](#)

MATH 403(3), MATH 414(3), MATH 415(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)[\[1\]](#)

MATH 435(3) or MATH 436(3) (Sem: 5-8)

Select 3 credits from MATH 411(3), MATH 412(3), MATH 417(3), MATH 419(3), or MATH 421(3) (Sem: 5-8)

Select 6 credits of 400-level MATH courses except MATH 401(3), MATH 405(3), MATH 406(3), MATH 441(3), MATH 470(3), MATH 471(4) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (29-30 credits)

Select an approved sequence of 12 credits in MATH or a related area or an area of application (Sem: 1-8)

Select 17-18 credits from department list (Sem: 1-8)

**GRADUATE STUDY OPTION: (50-51 credits)**

**PRESCRIBED COURSES (24 credits)**<sup>[1]</sup>

MATH 403(3), MATH 404(3), MATH 414(3), MATH 415(3), MATH 421(3), MATH 429(3), MATH 435(3), MATH 436(3) (Sem: 5-8)

**ADDITIONAL COURSES (9 credits)**<sup>[1]</sup>

Select 9 credits of 400-level MATH courses except MATH 401(3), MATH 405(3), MATH 406(3), MATH 441(3), MATH 470(3), MATH 471(4) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS (17-18 credits)**

Select 17-18 credits from department list (Sem: 1-8)

**SYSTEMS ANALYSIS OPTION: (50-51 credits)**

**PRESCRIBED COURSES (12 credits)**<sup>[1]</sup>

MATH 414(3), MATH 415(3), MATH 436(3), MATH 484(3) (Sem: 5-8)

**ADDITIONAL COURSES (9 credits)**<sup>[1]</sup>

Select 6 credits from MATH 310(3), MATH 451(3), MATH 485(3), or MATH 486(3) (Sem: 5-8)

Select 3 credits from 400-level MATH courses except MATH 401(3), MATH 405(3), MATH 406(3), MATH 441(3), MATH 470(3), MATH 471(4) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS (29-30 credits)**

Select an approved sequence of 12 credits in an area of application; possible areas include business, economics, industrial engineering, social sciences (Sem: 1-8)

Select 17-18 credits from department list (Sem: 1-8)

**Integrated B.S. in Mathematics and Master of Applied Statistics (M.A.S.)**

The Integrated Undergraduate-Graduate (IUG) degree with B.S. in Mathematics and Master of Applied Statistics (M.A.S.) is designed to be completed in five years. This integrated degree will enable a select number of highly qualified and career oriented students to obtain training in statistics focused on developing data analysis skills, and exploration of core areas of applied statistics at the graduate levels in addition to an undergraduate degree in Mathematics. The M.A.S. degree is a professional masters degree that emphasizes applications. The degree prepares students with interests in mathematics, computation, and the quantitative aspects of science for careers in industry and government as statistical analysts. Research divisions in the pharmaceutical industry, quality control, and quality engineering divisions in manufacturing companies, clinical research units, corporate planning and research units, and other data intensive positions require persons with training in mathematics, computation, database management, and statistical analysis, which this program will provide.

**Application Process**

The number of openings in the integrated B.S. in Mathematics and M.A.S. program is limited. Admission will be based on specific criteria and the recommendation of faculty. Applicants to the integrated program:

- Must be enrolled in the Mathematics B.S. program.
- Must have completed at least 60 credits of the undergraduate degree program including the two courses: STAT 414 and STAT 415 and the students must apply to the integrated program prior to completing 110 credits.
- Must submit a transcript and a statement of purpose.
- Must present a departmental approved plan of study in the application process in consultation with the M.A.S. program director.
- Must be recommended by the chair of Mathematics Department's undergraduate program committee. Two additional recommendation letters must be sent to the M.A.S. admissions committee.
- Must submit the GRE to the M.A.S. admissions committee.
- Must apply to the M.A.S. program in Statistics.

For the IUG B.S. in Mathematics and M.A.S. degree, 120 credits are required for the B.S. and 30 credits for the M.A.S. The following twelve graduate level credits (number of credits in parentheses) can apply to both B.S. and M.A.S. degrees, six of these are at the 500 level: STAT 414(3), STAT 415(3), STAT 501(3), STAT 502(3).

Assuming all requirements for the B.S. in Mathematics are completed, students in the program can complete the B.S. degree and not advance to the M.A.S. degree if they desire.

**Degree Requirements**

IUG Math B.S. students must fulfill the Math B.S. requirement while counting these prescribed Statistics courses (15 credits)

STAT 220(3)\*, STAT 414(3), STAT 415(3), STAT 501(3), STAT 502(3)

**IUG M.A.S. Requirements (30 credits)**

STAT 414(3), STAT 415(3), STAT 501(3), STAT 502(3), STAT 580(2) and STAT 581(1)\*\*

**Electives: (15 credits)**

Select from STAT 464(3), STAT 503(3), STAT 504(3), STAT 505(3), STAT 506(3), STAT 507(3), STAT 508(3), STAT 509(3), STAT 510(3) and the departmental list of additional courses for the M.A.S. program with the approval of the adviser.

For the IUG B.S. in Mathematics and M.A.S. degree, the four courses: STAT 414(3), STAT 415(3), STAT 501(3) and STAT 502(3) can apply to both the B.S. and M.A.S. degrees.

\*Can be waived for students with an equivalent course, e.g. STAT 250 GQ(3) or STAT 301 GQ(3).

\*\* For all students in the M.A.S. program, the STAT 581(1) course will have a comprehensive written project report required as part of the course, which serves as the culminating experience.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-098

Review Date: 01/10/2012

UCA Revision #1: 8/16/06

UCA Revision #2: 7/30/07

SC

## Music Education

University Park, College of Arts and Architecture (MU ED)

PROFESSOR SUE HAUG, Director, School of Music

The Bachelor of Music Education (B.M.E.) degree is a professional program that helps prepare students for teaching in elementary and secondary schools. Students are expected to meet all requirements for Entrance to Teacher Certification Program in Music, must pass the piano proficiency, complete all music courses, SPLED 400 and SPLED 403A or 403B, prior to student teaching. Graduates of this program are prepared to receive the Pennsylvania Instructional I certificate for teaching music K-12. (See also Teacher Education Programs.)

The goal of the Penn State Music Teacher Education Program is to prepare exemplary music teachers for K-12 music programs. Such individuals can provide outstanding personal and musical models for children and youth and have a firm foundation in pedagogy on which to build music teaching skills. Penn State B.M.E. graduates exhibit excellence in music teaching as personal and musical models as well as emerging pedagogues.

All candidates seeking entrance to the Bachelor of Music Education (B.M.E.) must meet the following entrance to major criteria:

1. Minimum 3.00 cumulative GPA by the end of the semester prior to ETM semester and at least 48 credits completed by the end of the semester prior to ETM semester.
2. Either qualifying scores from the PECT PAPA for Reading, Writing and Mathematics; qualifying Scholastic Achievement Test scores for the combined and individual Critical Reading, Writing, and Mathematics sections; or qualifying American College Test Plus Writing composite and individual English/Writing score and Math score as specified by the Pennsylvania Department of Education.
3. Complete 6 credits in quantification (GQ) ("C" or higher required).
4. Complete 3 credits in literature (GH) ("C" or higher required).  
See <http://www.ed.psu.edu/currentstudents/undergraduate/certification/literature>
5. Complete ENGL 015 or ENGL 030 ("C" or higher required).
6. Complete early field experience ("C" or higher required).  
Course List: MUSIC 295A
7. Complete EDPSY 010 and 3 additional credits of the education core ("C" or higher required).  
Course List: EDPSY 010, PSYCH 100, HD FS 229, HD FS 239
8. Complete 15 credits of required courses in teaching area ("C" or higher required).  
Course List: MUSIC 112, 151, 153, 154, 162, 216, 222, 261, 262, 331.
9. Complete primary level IV on applied instrument ("C" or higher required)
10. Complete and document a minimum of 80 hours of paid or volunteer work with age-appropriate population. At least 40 hours of these age-appropriate 80 hours would be satisfied by working with "under-represented learners."
11. Complete additional requirements: Voice Requirement (MUSIC 116 or VOICE 270J), Piano Requirement (MUSIC 270 or KEYBD 270J), and Percussion Requirement (MUSIC 152 or PERCN 270J) ("C" or higher required).
12. Approval from the professional education adviser or the head of the pertinent certification program.

For the B.M.E., a minimum of 139 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

### GENERAL EDUCATION: 45 credits

(10-12 of these credits are included in the REQUIREMENTS FOR THE MAJOR. 18 of these credits are required for Entrance to Teacher Certification. See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 104-106 credits<sup>[1]</sup>

(This includes 10-12 credits of General Education - 6 credits of GS, 1-3 credits of GA, and 3 credits of GH)

### PRESCRIBED COURSES (49 credits)

MUSIC 040S(1), MUSIC 121(1), MUSIC 122(1), MUSIC 131(2), MUSIC 132(2), MUSIC 162 IL(2) (Sem: 1-6)  
MUSIC 112(.5), MUSIC 151(1), MUSIC 153(1), MUSIC 154(1), MUSIC 216(.5), MUSIC 221(1), MUSIC 222(1), MUSIC 231(2), MUSIC 261 IL(3), MUSIC 262 IL(3), MUSIC 266(1), MUSIC 295A(1), MUSIC 331(2), MUSIC 366(1) (Sem: 3-4)  
C I 280 GH(3), EDPSY 010 GS(3), MUSIC 332(2), MUSIC 340(2), MUSIC 341(2), MUSIC 345(2), MUSIC 395A(1), MUSIC 395B(1), SPLED 400(4) (Sem: 5-6)  
MUSIC 101(1) (Sem: 7)

### ADDITIONAL COURSES (45-47 credits)

Select 1-3 credits from INART 258A GA(3) or INART 258B GA(1) (Sem: 1-2)  
Select 7 credits of ensembles as follows: MUSIC 076(1), MUSIC 077 GA(1), MUSIC 078 GA(1), MUSIC 080 GA(1), MUSIC 081 GA(1), MUSIC 082 GA(1), MUSIC 084 GA(1), MUSIC 086 GA(1), MUSIC 087 GA(1), MUSIC 089 GA(1), MUSIC 090 GA(1), MUSIC 091 GA(1), MUSIC 092 GA(1), MUSIC 093 GA;US;IL(1), MUSIC 094 GA(1), MUSIC 103 GA(1), MUSIC 104 GA(1), MUSIC 190 GA(1), MUSIC 191 GA (1), MUSIC 192 GA(1), MUSIC 193(1), MUSIC 194(1) (Sem: 1-7)  
Select 14 credits in applied music through Primary Level VII (Sem: 1-7)  
Select 3 credits from HD FS 229 GS(3), HD FS 239 GS(3) or PSYCH 100 GS(3) (Sem: 1-4)  
Select 3 credits from SPLED 403A(3) or SPLED 403B(3) (Sem: 6-7)  
Select 2 credits from MUSIC 181(2), MUSIC 267(2) (Sem: 5-6)  
Select 3 credits from MUSIC 441W(3), MUSIC 444W(3), MUSIC 445W(3), MUSIC 446W(3) (Sem: 7)  
Select 12 credits from MUSIC 495A, MUSIC 495B, MUSIC 495C, as follows:  
- 5 or 7 credits of MUSIC 495A (Sem: 8)  
- 5 or 7 credits of MUSIC 495B or MUSIC 495C (Sem: 8)

### SUPPORTING COURSES AND RELATED AREAS (10 credits)

Select 10 credits for the Individualized Emphasis, an individualized cluster of courses approved in advance by the Music Education Faculty, from an approved department list.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-05-012

Review Date: 02/25/2014



## Musical Arts

*University Park, College of Arts and Architecture (MUBMA)*

PROFESSOR SUE HAUG, *Director, School of Music*

The Bachelor of Musical Arts degree is a multidisciplinary or interdisciplinary program that is intended to prepare students for careers in performance, while developing a secondary area of emphasis outside of music, as determined for each student on the basis of an advising process. Completion of this program requires that the student achieve a high level of competence in order to begin professional work or pursue further studies at the graduate level.

Entrance into this program will be determined by departmental evaluation. All students are required to pass a piano proficiency examination.

For the Bachelor of Musical Arts, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

GENERAL EDUCATION: 45 credits

(1-15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES :

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 0-1 credits

REQUIREMENTS FOR THE MAJOR: 88-90 credits<sup>[1]</sup>

(This includes 1-15 credits of General Education courses: 1-3 credits of GA; 0-12 credits in the area of SUPPORTING COURSES AND RELATED AREAS)

PRESCRIBED COURSES (27 credits)

MUSIC 121(1), MUSIC 122(1), MUSIC 129S(3), MUSIC 131(2), MUSIC 132(2), MUSIC 162 IL(2) (Sem: 1-2)

MUSIC 221(1), MUSIC 222(1), MUSIC 231(2), MUSIC 261 IL(3), MUSIC 262 IL(3), MUSIC 266(1) (Sem: 3-4)

MUSIC 331(2), MUSIC 332(2) (Sem: 5-6)

MUSIC 101(1) (Sem: 7-8)

ADDITIONAL COURSES (4-6 credits)

INART 258A GA(3) or INART 258B GA(1) (Sem: 3-6)

Select 3 credits from MUSIC 461W(3), MUSIC 462W(3), MUSIC 463W(3), or MUSIC 464W(3) (Sem: 5-6)

SUPPORTING COURSES AND RELATED AREAS (57 credits)

Select 21 credits in applied music through Level VIII of performance (Sem: 1-8)

Select 8 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)

Select 4 credits in music in consultation with an adviser (Sem: 1-8)

Select 24 credits in consultation with adviser in an area of study other than music, at least 12 credits must be at the 400 level.

*This list of courses must be approved by the College of Arts and Architecture's Dean of Undergraduate Studies.*

*(0-12 of these 24 credits may be included in GENERAL EDUCATION) (Sem: 1-8)*

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 39-01-017

Review Date: 8/24/2010

Director name last updated: 01/13/06

AA

## Music

*University Park, College of Arts and Architecture (MUSBA)*

PROFESSOR SUE HAUG, *Director, School of Music*

The Bachelor of Arts degree in Music combines a broad liberal education with a selection of courses in Music. The degree is designed to develop basic musicianship, the ability to perform, and a set of principles that leads to a fuller intellectual grasp of the art.

The B.A. in Music degree program includes a General Music Studies Option and an additional option in Music Technology.

Students are required to pass a piano proficiency examination, enroll in a core ensemble for two semesters, and satisfactorily complete a senior project. Application for admittance into the program requires completion of a two-year core of music and General Education courses.

For the B.A. degree in Music, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**GENERAL EDUCATION:** 45 credits

(1-21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES :**

(Included in the REQUIREMENTS FOR THE MAJOR, ELECTIVE, or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-1 credit

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 51-74 credits [\[1\]](#)

(This includes 1-21 credits of General Education courses - General Music Studies Option: 1-3 credits of GA courses; Music Technology Option: 6 credits of GA courses, 6 credits of GQ courses, 9 credits of GN courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 38 credits

**PRESCRIBED COURSES** (28 credits)

MUSIC 119S(2), MUSIC 121(1), MUSIC 122(1), MUSIC 131(2), MUSIC 132(2), MUSIC 162 IL(2) (Sem: 1-2)

MUSIC 221(1), MUSIC 222(1), MUSIC 231(2), MUSIC 261 GA;IL(3), MUSIC 262 GA;IL(3), MUSIC 331(2) (Sem: 3-4)

MUSIC 332(2) (Sem: 5-6)

MUSIC 101(1), MUSIC 476W(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (10 credits)

Select 6 credits in applied music through Level IV of Primary (Sem: 1-8)

Select 4 credits of ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)

**REQUIREMENTS FOR THE OPTION:** 13-36 credits

**GENERAL MUSIC STUDIES OPTION:** (13-15 credits)

**ADDITIONAL COURSES** (1-3 credits)

INART 258A GA(3) or INART 258B GA(1) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits of 400-level music courses (see School of Music Handbook for specific requirements) (Sem: 5-8)

**MUSIC TECHNOLOGY OPTION (34-36 credits)**

**PRESCRIBED COURSES** (28 credits)

INART 258A GA(3), INART 050 GN(3), INART 055 GA(3), MATH 140 GQ(4), MATH 220 GQ(2) (Sem: 1-6)

MUSIC 453(1) (Sem: 3-4)

MUSIC 452(3), MUSIC 458(3), THEA 484(3) (Sem: 5-6)

MUSIC 451(3) (Sem: 7-8)

**ADDITIONAL COURSES** (6-8 credits)

PHYS 250 GN(4) or PHYS 211 GN(3), PHYS 251 GN(4) or PHYS 212 GN(3) (Sem: 1-2)

### Integrated B.A. in Music - M.A. in Music Theory

The School of Music offers a limited number of academically superior students enrolled in the Bachelor of Arts in Music the opportunity to enroll in an integrated program leading to both the B.A. in Music and the Master of Arts in Music Theory in a continuous program of study culminating in both degrees. The ability to coordinate as well as concurrently pursue the two degree programs enables the student to achieve greater depth and comprehensiveness than if the degrees are pursued sequentially and to earn the two degrees in five years. In particular, the program encourages the student to integrate the undergraduate thesis with the master's thesis thereby achieving a greater depth of inquiry.

#### Application Process

To initiate the application process, students must submit a transcript, faculty recommendation, writing sample, and statement of goals. A faculty adviser will help undergraduate candidates determine a sequence of courses that will prepare them for acceptance into the IUG program. Normally a student would apply after the fourth semester and before the end of the sixth semester. For acceptance into the program students must successfully complete the following courses or their equivalent with a minimum average of 3.5 in their music courses, and a minimum GPA of 3.0.

4 semesters of music theory (MUSIC 131, MUSIC 132, MUSIC 231, MUSIC 331)

4 semesters of musicianship (MUSIC 121, MUSIC 122, MUSIC 221, MUSIC 222)

3 semesters of music history (MUSIC 162, MUSIC 261, MUSIC 262)

#### Reduced Course Load

As many as twelve of the credits required for the master's degree may be applied to both undergraduate and graduate degree programs. A minimum of 50% of the courses proposed to count for both degrees must be at the 500 level. Thesis credits may not be double counted.

B.A. Senior Project (Music 476W) / M.A. Thesis (Music 600)

Students will be encouraged to select a B.A. Senior Project topic (Music 476W) that will later develop into the M.A. Thesis. It is expected that the Master's Thesis consist of greater depth and specialization than the Senior Project.

**Eligibility for a Graduate Assistantship**

Students in the IUG program will be eligible for a graduate assistantship starting in the beginning of the fifth year.

**Tuition Charges**

Undergraduate tuition rates will apply as long as the student is an undergraduate, unless the student received financial support, for example, an assistantship requiring the payment of graduate tuition (from "Information and Guidelines for Establishing Integrated Undergraduate-Graduate Degree Programs" - approved by the Graduate Council, May 8, 1996).

**Integrated B.A. in Music - M.A. in Music Theory and History**

The School of Music offers a limited number of academically superior students enrolled in the Bachelor of Arts in Music the opportunity to enroll in an integrated program leading to both the B. A. in Music and the Master of Arts in Music Theory and History in a continuous program of study culminating in both degrees. The ability to coordinate as well as concurrently pursue the two degree programs enables the student to achieve greater depth and comprehensiveness than if the degrees are pursued sequentially and to earn the two degrees in five years. In particular, the program encourages the student to integrate the undergraduate thesis with the master's thesis thereby achieving a greater depth of inquiry.

**Application Process**

To initiate the application process, students must submit a transcript, faculty recommendation, writing sample, and statement of goals. A faculty adviser will help undergraduate candidates determine a sequence of courses that will prepare them for acceptance into the IUG program. Normally a student would apply after the fourth semester and before the end of the sixth semester. For acceptance into the program students must successfully complete the following courses or their equivalent with a minimum average of 3.5 in their music courses, and a minimum GPA of 3.0.

4 semesters of music theory (MUSIC 131, MUSIC 132, MUSIC 231, MUSIC 331)

4 semesters of musicianship (MUSIC 121, MUSIC 122, MUSIC 221, MUSIC 222)

3 semesters of music history (MUSIC 162, MUSIC 261, MUSIC 262)

**Reduced Course Load**

As many as twelve of the credits required for the master's degree may be applied to both undergraduate and graduate degree programs. A minimum of 50% of the courses proposed to count for both degrees must be at the 500 level. Thesis credits may not be double counted.

B.A. Senior Project (Music 476W) / M.A. Thesis (Music 600)

Students will be encouraged to select a B.A. Senior Project topic (Music 476W) that will later develop into the M.A. Thesis. It is expected that the Master's Thesis consist of greater depth and specialization than the Senior Project.

**Eligibility for a Graduate Assistantship**

Students in the IUG program will be eligible for a graduate assistantship starting in the beginning of the fifth year.

**Tuition Charges**

Undergraduate tuition rates will apply as long as the student is an undergraduate, unless the student received financial support, for example, an assistantship requiring the payment of graduate tuition (from "Information and Guidelines for Establishing Integrated Undergraduate-Graduate Degree Programs" - approved by the Graduate Council, May 8, 1996).

**Integrated B.A. in Music - M.A. in Musicology**

The School of Music offers a limited number of academically superior students enrolled in the Bachelor of Arts in Music the opportunity to enroll in an integrated program leading to both the B.A. in Music and the Master of Arts in Musicology in a continuous program of study culminating in both degrees. The ability to coordinate as well as concurrently pursue the two degree programs enables the student to achieve greater depth and comprehensiveness than if the degrees are pursued sequentially and to earn the two degrees in five years. In particular, the program encourages the student to integrate the undergraduate thesis with the master's thesis thereby achieving a greater depth of inquiry.

**Application Process**

To initiate the application process, students must submit a transcript, faculty recommendation, writing sample, and statement of goals. A faculty adviser will help undergraduate candidates determine a sequence of courses that will prepare them for acceptance into the IUG program. Normally a student would apply after the fourth semester and before the end of the sixth semester. For acceptance into the program students must successfully complete the following courses or their equivalent with a minimum average of 3.5 in their music courses, and a minimum GPA of 3.0.

4 semesters of music theory (MUSIC 131, MUSIC 132, MUSIC 231, MUSIC 331)

4 semesters of musicianship (MUSIC 121, MUSIC 122, MUSIC 221, MUSIC 222)

3 semesters of music history (MUSIC 162, MUSIC 261, MUSIC 262)

**Reduced Course Load**

As many as twelve of the credits required for the master's degree may be applied to both undergraduate and graduate degree programs. A minimum of 50% of the courses proposed to count for both degrees must be at the 500 level. Thesis credits may not be double counted.

B.A. Senior Project (Music 476W) / M.A. Thesis (Music 600)

Students will be encouraged to select a B.A. Senior Project topic (Music 476W) that will later develop into the M.A. Thesis. It is expected that the Master's Thesis consist of greater depth and specialization than the Senior Project.

**Tuition Charges**

Undergraduate tuition rates will apply as long as the student is an undergraduate, unless the student received financial support, for example, an assistantship requiring the payment of graduate tuition (from "Information and Guidelines for Establishing Integrated Undergraduate-Graduate Degree Programs" - approved by the Graduate Council, May 8, 1996).

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013(MUSBA); Fall Semester 2002 (Integrated Programs)

Blue Sheet Item #: 42-03-003 (MUSBA); 30-07-036, 30-07-038, 30-07-040 (Integrated Programs)

Review Date: 11/19/2013

Director name last updated: 01/13/06

AA



## Music

*University Park, College of Arts and Architecture (MUSBM)*

PROFESSOR SUE HAUG, *Director, School of Music*

The Bachelor of Music degree program is intended to prepare students for careers in composition or performance. Completion of this program requires that the student achieve a high level of competence in order to begin professional work or pursue further studies at the graduate level.

Entrance into this program will be determined by departmental evaluation.

For the B.M. degree in Music with an option in Composition, a minimum of 123 credits is required; with an option in Keyboard Instruments, a minimum of 126 credits is required; with an option in Strings, Winds, Brass and Percussion Instruments, a minimum of 125 credits is required; and with an option in Voice, a minimum of 129 credits is required. All students are required to pass a piano proficiency examination.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(1-3 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 79-88 credits

(This includes 3 credits of General Education GA courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 34 credits<sup>[1]</sup>

**PRESCRIBED COURSES** (24 credits)

MUSIC 121(1), MUSIC 122(1), MUSIC 131(2), MUSIC 132(2), MUSIC 162 IL(2) (Sem: 1-2)  
MUSIC 221(1), MUSIC 222(1), MUSIC 231(2), MUSIC 261 IL(3), MUSIC 262 IL(3), MUSIC 266(1) (Sem: 3-4)  
MUSIC 331(2), MUSIC 332(2) (Sem: 5-6)  
MUSIC 101(1) (Sem: 7-8)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from MUSIC 461W(3), MUSIC 462W(3), MUSIC 463W(3), MUSIC 464W(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (4 credits)

Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)

**REQUIREMENTS FOR THE OPTION:** 47-56 credits

**COMPOSITION OPTION:** (47-49 credits)

**PRESCRIBED COURSES** (34-36 credits)<sup>[1]</sup>

INART 258A GA(3), MUSIC 173S(2), MUSIC 174J(2) (Sem: 1-2)  
MUSIC 273J(2), MUSIC 274J(2) (Sem: 3-4)  
MUSIC 336(2), MUSIC 373J(3), MUSIC 374J(3), MUSIC 458(3), MUSIC 472(2) (Sem: 5-6)  
MUSIC 431(2-3), MUSIC 433(2-3), MUSIC 473J(3), MUSIC 474J(3) (Sem: 7-8)

**ADDITIONAL COURSES** (13 credits)<sup>[1]</sup>

Select 11 credits of Applied MUSIC courses (Sem: 1-7)

Select 2 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)

**KEYBOARD INSTRUMENTS OPTION:** (48-53 credits)

**PRESCRIBED COURSES** (6 credits)

MUSIC 129S(3) (Sem: 1)  
MUSIC 481(3) (Sem: 5-7)

**ADDITIONAL COURSES** (3-6 credits)

INART 258A GA(3) or 258B GA(1) (Sem: 3-6)  
Select 2-3 credits from MUSIC 181(2), MUSIC 182(2), MUSIC 267(2), MUSIC 336(2), MUSIC 422(3), MUSIC 431(2-3), MUSIC 432(2-3), MUSIC 433(2-3), MUSIC 438(2), MUSIC 471(2), MUSIC 472(2) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (39-41 credits)

Select 4 credits in a secondary instrument<sup>[1]</sup> (Sem: 1-8)

Select 4 credits in music in consultation with adviser<sup>[1]</sup> (Students may apply 2 credits of ROTC.) (Sem: 1-8)

Select 4-6 credits in consultation with adviser<sup>[1]</sup> (Students may apply 4 credits of ROTC.) (Sem: 1-8)

Select 21 credits in applied music through Level VIII of performance<sup>[1]</sup> (Sem: 2-8)

Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 5-8)

Select 2 credits from MUSIC 419(2) or MUSIC 424(2) (Sem: 5-8)

**STRINGS, WINDS, BRASS AND PERCUSSION INSTRUMENTS OPTION:** (47-52 credits)

**PRESCRIBED COURSES** (3 credits)

MUSIC 129S(3) (Sem: 1)

**ADDITIONAL COURSES** (9-12 credits)

(MUSIC 336 and MUSIC 422 may fulfill the requirement of Additional Courses or Supporting Courses and Related Areas in the option, but not both.)

Select 2 credits from MUSIC 086(1), MUSIC 087(1), MUSIC 181(2), MUSIC 190(1), MUSIC 191(1), MUSIC 192(1), MUSIC 336(2), MUSIC 366(2), MUSIC 421(1), MUSIC 422(3), MUSIC 466(2), MUSIC 485(3), MUSIC 487(3) (Sem: 1-8)

INART 258A GA(3) or INART 258B GA(1) (Sem: 1-8)

Select 2-3 credits from MUSIC 181(2), MUSIC 182(2), MUSIC 267(2), MUSIC 336(2), MUSIC 422(3), MUSIC 431(2-3), MUSIC 432(2-3), MUSIC 433(2-3), MUSIC 438(2), MUSIC 472(2) (Sem: 5-8)

Select 1 credit from MUSIC 414(1-2), MUSIC 415(1-2), MUSIC 416(1-2), or MUSIC 417(1-2) (Sem: 5-8)

Select 3 credits from MUSIC 485(3) or MUSIC 487(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (35-37 credits)

Select 4 credits in a secondary instrument<sup>[1]</sup> (Sem: 1-8)

Select 4 credits in music in consultation with adviser<sup>[1]</sup> (Students may apply 4 credits of ROTC.) (Sem: 1-8)

Select 2-4 credits in consultation with adviser<sup>[1]</sup> (Students may apply 2 credits of ROTC.) (Sem: 1-8)

Select 21 credits in applied music through Level VIII of performance<sup>[1]</sup> (Sem: 2-8)

Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 5-8)

**VOICE OPTION:** (51-56 credits)

**PRESCRIBED COURSES** (8 credits)

MUSIC 129S(3) (Sem: 1)  
MUSIC 387(1), MUSIC 388(1), MUSIC 389(1) (Sem: 1-8)  
MUSIC 418(2) (Sem: 7)

**ADDITIONAL COURSES** (3-6 credits)

INART 258A GA(3) or 258B GA(1) (Sem: 3-6)  
Select 2-3 credits from MUSIC 181(2), MUSIC 182(2), MUSIC 267(2), MUSIC 336(2), MUSIC 422(3), MUSIC 431(2-3), MUSIC 432(2-3), MUSIC 433(2-3), MUSIC 438(2), or MUSIC 472(2) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (40-42 credits)

Select 3-5 credits in consultation with adviser [11](#) (Students may apply 2 credits of ROTC.) (Sem: 1-8)  
Select 8 credits in one foreign language: French, German or Italian (Sem: 1-8)  
Select 4 credits in a secondary instrument [11](#) (Sem: 1-8)  
Select 21 credits in applied music through Level VIII of performance [11](#) (Sem: 2-8)  
Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 5-8)

### Integrated B.M. in Performance - M.A. in Music Theory

The School of Music offers a limited number of academically superior students enrolled in the Bachelor of Music the opportunity to enroll in an integrated program leading to both the B.M. in Performance and the Master of Arts in Theory in a continuous program of study culminating in both degrees. The ability to coordinate as well as concurrently pursue the two degree programs enables the student to achieve greater depth and comprehensiveness than if the degrees are pursued sequentially and to earn the two degrees in five years.

#### Application Process

To initiate the application process, students must submit a transcript, faculty recommendation, writing sample, and statement of goals. A faculty adviser will help undergraduate candidates determine a sequence of courses that will prepare them for acceptance into the IUG program. Normally a student would apply after the fourth semester and before the end of the sixth semester. For acceptance into the program students must successfully complete the following courses or their equivalent with a minimum average of 3.5 in their music courses, and a minimum GPA of 3.0.

4 semesters of music theory (MUSIC 131, MUSIC 132, MUSIC 231, MUSIC 331)  
4 semesters of musicianship (MUSIC 121, MUSIC 122, MUSIC 221, MUSIC 222)  
3 semesters of music history (MUSIC 162, MUSIC 261, MUSIC 262)

#### Reduced Course Load

As many as twelve of the credits required for the master's degree may be applied to both undergraduate and graduate degree programs. A minimum of 50% of the courses proposed to count for both degrees must be at the 500 level. Thesis credits may not be double counted.

#### Eligibility for a Graduate Assistantship

Students in the IUG program will be eligible for a graduate assistantship starting in the beginning of the fifth year.

#### Tuition Charges

Undergraduate tuition rates will apply as long as the student is an undergraduate, unless the student received financial support, for example, an assistantship requiring the payment of graduate tuition (from "Information and Guidelines for Establishing Integrated Undergraduate - Graduate Degree Programs" - approved by the Graduate Council, May 8, 1996).

### Integrated B.M. in Performance - M.A. in Music Theory and History

The School of Music offers a limited number of academically superior students enrolled in the Bachelor of Music the opportunity to enroll in an integrated program leading to both the B.M. in Performance and the Master of Arts in Music Theory and History in a continuous program of study culminating in both degrees. The ability to coordinate as well as concurrently pursue the two degree programs enables the student to achieve greater depth and comprehensiveness than if the degrees are pursued sequentially and to earn the two degrees in five years.

#### Application Process

To initiate the application process, students must submit a transcript, faculty recommendation, writing sample, and statement of goals. A faculty adviser will help undergraduate candidates determine a sequence of courses that will prepare them for acceptance into the IUG program. Normally a student would apply after the fourth semester and before the end of the sixth semester. For acceptance into the program students must successfully complete the following courses or their equivalent with a minimum average of 3.5 in their music courses, and a minimum GPA of 3.0.

4 semesters of music theory (MUSIC 131, MUSIC 132, MUSIC 231, MUSIC 331)  
4 semesters of musicianship (MUSIC 121, MUSIC 122, MUSIC 221, MUSIC 222)  
3 semesters of music history (MUSIC 162, MUSIC 261, MUSIC 262)

#### Reduced Course Load

As many as twelve of the credits required for the master's degree may be applied to both undergraduate and graduate degree programs. A minimum of 50% of the courses proposed to count for both degrees must be at the 500 level. Thesis credits may not be double counted.

#### Eligibility for a Graduate Assistantship

Students in the IUG program will be eligible for a graduate assistantship starting in the beginning of the fifth year.

#### Tuition Charges

Undergraduate tuition rates will apply as long as the student is an undergraduate, unless the student received financial support, for example, an assistantship requiring the payment of graduate tuition (from "Information and Guidelines for Establishing Integrated Undergraduate - Graduate Degree Programs" - approved by the Graduate Council, May 8, 1996).

### Integrated B.M. in Performance - M.A. in Musicology

The School of Music offers a limited number of academically superior students enrolled in the Bachelor of Music the opportunity to enroll in an integrated program leading to both the B.M. in Performance and the Master of Arts in Musicology in a continuous program of study culminating in both degrees. The ability to coordinate as well as concurrently pursue the two degree programs enables the student to achieve greater depth and comprehensiveness than if the degrees are pursued sequentially and to earn the two degrees in five years.

#### Application Process

To initiate the application process, students must submit a transcript, faculty recommendation, writing sample, and statement of goals. A faculty adviser will help undergraduate candidates determine a sequence of courses that will prepare them for acceptance into the IUG program. Normally a student would apply after the fourth semester and before the end of the sixth semester. For acceptance into the program students must successfully complete the following courses or their equivalent with a minimum average of 3.5 in their music courses, and a minimum GPA of 3.0.

4 semesters of music theory (MUSIC 131, MUSIC 132, MUSIC 231, MUSIC 331)  
4 semesters of musicianship (MUSIC 121, MUSIC 122, MUSIC 221, MUSIC 222)  
3 semesters of music history (MUSIC 162, MUSIC 261, MUSIC 262)

#### Reduced Course Load

As many as twelve of the credits required for the master's degree may be applied to both undergraduate and graduate degree programs. A minimum of 50% of the courses proposed to count for both degrees must be at the 500 level. Thesis credits may not be double counted.

#### Eligibility for a Graduate Assistantship

Students in the IUG program will be eligible for a graduate assistantship starting in the beginning of the fifth year.

Tuition Charges

Undergraduate tuition rates will apply as long as the student is an undergraduate, unless the student received financial support, for example, an assistantship requiring the payment of graduate tuition (from "Information and Guidelines for Establishing Integrated Undergraduate-Graduate Degree Programs" - approved by the Graduate Council, May 8, 1996).

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011 (MUSBM); Fall Semester 2002 (Integrated Programs)

Blue Sheet Item # 40-01-016 (MUSBM); 30-07-037, 30-07-039, 30-07-041 (Integrated Programs)

Review Date: 08/16/2011

Director name last updated: 01/13/06

AA

## Naval Science (NAVSC)

The Naval ROTC trains qualified young men and women at the University Park campus for service as commissioned officers in the Navy, the Navy Nurse Corps, or the Marine Corps.

Entering freshmen may be accepted into the Naval ROTC through the Four-Year College Program or in the Four-Year Scholarship Program. Freshmen who are not on scholarship may join NROTC and be eligible to compete for the Scholarship Program. Qualified sophomores either in attendance or planning to commence studies at University Park Campus with their junior year, or who have applied for transfer to Penn State from another institution, may compete for the special Two-Year College Program and the Two-Year Scholarship Program. Navy, Nurse, and Marine Corps scholarships provide full tuition, book allotment, laboratory and instructional fees, and a \$250-350 per month subsistence allowance. In addition, Nurse scholarship students are issued special equipment required by the BSN curriculum.

Students who receive the baccalaureate degree and complete the NROTC program receive commissions as ensigns or second lieutenants. College Program commissionees are required to serve at least three years of active duty. Scholarship Program commissionees are committed to four years of active duty.

**COURSES**--All students must complete at least 18 credits of Naval Science (NAVSC) courses; subjects and credits appear under course descriptions (ROTC/NAVSC) later in this bulletin. College Program students must participate in one active duty training period (cruise) during the summer between junior and senior years. Scholarship students are required to participate in either two (Nurse) or three (Navy and Marine Corps) summer cruises prior to commissioning.

In addition, all Navy scholarship students must complete University courses in calculus, physics, national security policy, and American military affairs. Requirements for Nurse and Marine Corps scholarship students are somewhat less. College Program students must complete University courses in national security policy and American military affairs.

Effective Date: Current

Review Date: 4/19/04

## Nuclear Engineering

University Park, College of Engineering (NUC E)

PROFESSOR KAREN A. THOLE, *Head, Department of Mechanical and Nuclear Engineering*  
 PROFESSOR ARTHUR T. MOTTA, *Program Chair, Nuclear Engineering Program*

The overall educational objective of the Nuclear Engineering program is to help prepare our graduates to function effectively in the marketplace in a wide range of career paths in Nuclear Engineering. The technical part of the curriculum, emphasizes nuclear power engineering, which refers to complex systems used to generate electricity. Because of our strong educational and research emphasis in nuclear power engineering is strong, and because a shortage for this expertise exists in the industry, generally the industry values our graduates highly. We recognize that nuclear science, including nuclear security and non-proliferation, is an important growth area. We constantly assess and review the needs of our undergraduate students and their most frequent employers and use this feedback to consider revisions to our curriculum so that it is responsive to the needs of our constituents.

### Program Educational Objectives:

Accordingly, we will endeavor to maintain and provide a curriculum that prepares our graduates such that:

- Within two to three years of graduation, we expect the majority of our B.S. graduates to:
  - be working in industry, especially related to nuclear power engineering,
  - be working in government agencies or national laboratories,
  - be pursuing advanced degrees.
- We expect that our students will continue to develop professionally and establish themselves in their careers and in this way may take the opportunity to further their education and training by attending graduate school or by pursuing other professional development.

### Program Outcomes (Student Outcomes):

The Program outcomes are knowledge, skills, and/or behavior that are derived from the program educational objectives.

1. Students will demonstrate a knowledge of the fundamentals in mathematics, physics, chemistry and the engineering sciences necessary to the nuclear engineering profession.
2. Students will demonstrate an ability to apply the fundamentals to understand, analyze and design nuclear systems; demonstrate knowledge of the contemporary issues affecting the nuclear engineering profession.
3. Students will demonstrate the ability to use appropriate methods and technology for detection and measurement of radiation and for nuclear science.
4. Students will be proficient in the oral and written communication of their work and ideas; show the ability to learn independently using appropriate technology; show ability to work well in teams.
5. Students will demonstrate the ability to operate in a modern, diverse work environment; understand their professional and ethical responsibilities; and be aware of the safety, environmental, and societal consequences of their work in a global context.

The first two years of the program stress fundamentals in mathematics, chemistry, physics, computer programming, and engineering sciences such as mechanics, materials, and thermodynamics. The last two years provide the breadth and depth in nuclear science, behavior of heat and fluids, reactor theory and engineering, and radiation measurement. The laboratory work includes experiments using the University's 1,000-kilowatt research reactor. Engineering design is incorporated in many courses from the freshman year to the senior year, but is particularly emphasized in the senior capstone design course, which integrates the critical elements of reactor theory, reactor engineering, safety considerations and economic optimization into a reactor design.

Many graduates are employed by electric power companies that use nuclear power plants, or by companies that help service and maintain those plants. They use their knowledge of engineering principles, radioactive decay, interactions of radiation with matter, and nuclear reactor behavior to help assure that the power plants meet the demand for reliable, economic electricity while ensuring a safe environment. To do this, graduates must be problem solvers who can develop and use complex computer models and sophisticated monitoring systems, design systems to handle radioactive waste, determine if the materials in the plant are becoming brittle or corroded, or manage the fuel in the reactor to get the maximum energy from it. Other graduates work in industries that use radioactivity or radiation to detect problems or monitor processes. Jobs are also found in branches of the government as designers of the next generation of reactors for submarines, aircraft carriers, or space probes, or to manage and clean up contaminates wastes. They could also be involved with regulation of nuclear power or radiation uses, or in research to develop advanced technologies that will be used in next-generation power plants. Graduates who want to further their education in the fields of health physics, radiation biology, or nuclear medical applications find this degree to be a useful preparation.

ENTRANCE TO MAJOR -- In addition to the minimum grade point average (GPA) requirements\* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ), MATH 250 or MATH 251, PHYS 211 (GN) and PHSY 212 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

\*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Nuclear Engineering, a minimum of 129 credits is required. This baccalaureate program in Nuclear Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

Scheduling Recommendation by Semester Standing given like (Sem:1-2)

### GENERAL EDUCATION: 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
 (See description of General Education in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 111 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

### PRESCRIBED COURSES (89 credits)

CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1), EDSGN 100(3), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#), PHYS 211 GN(4) [\[1\]](#), PHYS 212 GN(4) (Sem: 1-2)  
 E MCH 211(3), E MCH 212(3), E MCH 213(3), M E 300(3), MATH 230(4), MATH 251(4) [\[1\]](#), PHYS 214 GN(2) (Sem: 3-4)  
 E E 212(3), E MCH 315(2), E MCH 316(1), M E 320(3), M E 410(3), NUC E 301(4) [\[1\]](#), NUC E 302(4) [\[1\]](#), NUC E 309(3) [\[1\]](#), NUC E 450(3) [\[1\]](#) (Sem: 5-6)  
 ENGL 202C GWS(3), NUC E 310W(2), NUC E 403(3), NUC E 430(3) [\[1\]](#), NUC E 431W(4), NUC E 451(3) (Sem: 7-8)

### ADDITIONAL COURSES (19 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)  
 ECON 102 GS(3), ECON 104 GS(3), ECON 014 GS(3) or E B F 200 GS(3) (Sem: 1-2)  
 ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
 CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)  
 CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 3-4)  
 Select 6 credits, of which 3 credits must be designated as design, from BME 406(3), NUC E 405, NUC E 407(3), NUC E 408, NUC E 409, NUC E 420, NUC E 428, NUC E 444, NUC E 445, NUC E 460(3), NUC E 470(3), NUC E 490, NUC E 496(1-18), NUC E 497(1-9) or 500-level NUC E courses with approval of adviser (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)

(These courses may have to be chosen so that the engineering design or engineering science requirements for the major are met.)

Select 3 credits in General Technical Elective (GTE) courses from department list. (Sem: 7-8)

(Students who complete Basic ROTC may substitute 6 of the ROTC credits for 3 credits of GTE and 3 credits of GHA.)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2008

Blue Sheet Item #: 36-01-040

Review Date: 8/28/07

R & T: Approved 5/24/2013

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

[Comments](#)

EN

Accreditation statement updated by Publications, per COE: 8/15/11

## Nursing

Altoona College

Penn State Abington

Penn State Erie, The Behrend College

Penn State Harrisburg

University College: Penn State Fayette, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Worthington Scranton

University Park, School of Nursing (NURN)

World Campus

PROFESSOR PAULA MILONE-NUZZO, *Dean, School of Nursing*

This major prepares registered nurse students as professional practitioners in areas of health promotion and maintenance, illness care, and rehabilitation. The major in Nursing is accredited by the Accreditation Commission for Education in Nursing (ACEN), 3343 Peachtree Road NE, Suite 8500, Atlanta, GA 30326 (404-975-5000), [www.acenursing.org](http://www.acenursing.org); and the Commission on Collegiate Nursing Education (CCNE), One DuPont Circle, NW Suite 530, Washington, DC 20036 (202-463-6930). Part-time or full-time study is available at any of the campus sites. The University Park site is a blended program, which includes resident instruction and online nursing courses. The World Campus site is completely online.

Senate legislation 42-97 *Credit by Portfolio Assessment* enables students to receive credit for certain prescribed nursing courses based on their RN licensure.

Students must meet all requirements of the clinical institutions that provide preceptors and clinical experiences. These requirements may include CPR certification, professional liability insurance, health examination, drug testing, criminal background check (State and Federal) and child abuse history clearances. Students also are responsible for their own transportation to and from clinical settings and may need the use of a car.

Graduates of this major may qualify for admission to a graduate nursing program.

For the B.S. degree in Nursing, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 3-5 credits

**REQUIREMENTS FOR THE MAJOR:** 91-93 credits [\[1\]](#)

(This includes 21 credits of General Education courses: 3 credits of GHA courses; 9 credits of GN courses; 3 credits of GQ courses; 6 credits of GS courses.)

**PRESCRIBED COURSES** (76 credits)

BIOL 129 GN(4), BIOL 141 GN(3), BIOL 142(1), HD FS 129 GS(3), MICRB 106 GN(3), MICRB 107 GN(1), NUTR 251 GHA(3), PSYCH 100 GS(3) (Sem: 1-4)

NURS 200W(3) [\[38\]](#), NURS 251(3) [\[38\]](#), NURS 357(3) [\[38\]](#), NURS 390 US(3) [\[38\]](#) (Sem: 3-4)

NURS 225(3) [\[37\]](#), NURS 230(4) [\[37\]](#), NURS 250 US(2) [\[37\]](#), NURS 301(4) [\[37\]](#), NURS 305(3) [\[37\]](#), NURS 306(3) [\[37\]](#),

NURS 310(3) [\[37\]](#), NURS 320(3) [\[37\]](#), NURS 405B(4) [\[37\]](#), NURS 420(4) [\[37\]](#), (Sem: 5-6)

NURS 417 US/IL(4) [\[38\]](#), NURS 465(3) [\[38\]](#), NURS 475(3) [\[38\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (9-11 credits)

CHEM 101 GN(3); or CHEM 110 GN(3) and CHEM 111 GN(1) (Sem: 1-4)

SOC 001 GS(3) or SOC 005 GS(3) (Sem: 1-4)

STAT 200 GQ(4) or STAT 250 GQ(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from courses on school-approved list in consultation with adviser (3 credits of which must be at the 400 level)

[\[1\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[\[37\]](#) Credit by Portfolio Assessment

[\[38\]](#) Due to restricted enrollment, the School of Nursing assigns the semester in which students enroll in these courses and all course prerequisites must be successfully completed.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-05-061

Review Date: 02/23/2010

UCA Revision #1: 8/9/06

HH

Updated contact info for ACEN accrediting agency: 7/31/13

## Nursing

*Penn State Altoona (General Nursing and Second Degree)*

*Penn State Erie, Behrend Campus (General Nursing)*

*Penn State Harrisburg (Second Degree)*

*University Park (General Nursing)*

*University College: Penn State Fayette, Penn State Mont Alto, Penn State Worthington Scranton (General Nursing)*

PROFESSOR PAULA MILONE-NUZZO, *Dean, School of Nursing*

The Bachelor of Science Degree in Nursing prepares students to become professional practitioners in areas of health promotion and maintenance, illness care, and rehabilitation. After earning this degree in Nursing, students are qualified to take the registered nurse examination for licensure by the State Board of Nursing. The Nursing major is accredited by the Accreditation Commission for Education in Nursing (ACEN), 3343 Peachtree Road NE, Suite 850, Atlanta, GA 30326 (404-975-5000); [www.acenursing.org](http://www.acenursing.org); the Commission on Collegiate Nursing Education (CCNE), One DuPont Circle, NW Suite 530, Washington, DC 20036 (202-463-6930); and approved by the Pennsylvania State Board of Nursing.

### B.S. Nursing majors will choose one of the following options:

**General Nursing Option (NURS GNURS):** This option admits students directly to the major as first year students and at the time of admission only. Nursing students will start and remain at the campus of admission all 4 years. Non-nursing students may not transfer or change major into the 4-year nursing program at University Park, but will be considered through a competitive review process for admission (beginning fall 2015) at the 5 other campuses offering the General Nursing program. Clinical experiences occur at clinical facilities within a 50-mile radius of campus; University Park students will spend 1-2 years at Penn State Hershey Medical Center, which requires students to reside at that location.

**Second or Additional Degree Option (NURS SCND):** This option admits students, who have successfully completed a bachelor's degree in another discipline, to the major through a review process. All students must have met all general education and prerequisite course requirements. This option is available at Penn State Altoona and Penn State Harrisburg. Clinical experiences occur at facilities surrounding Altoona and Harrisburg.

**For Both Options:** All transportation and expenses related to clinical are the responsibility of the student. All students must carry professional liability insurance; complete an annual health examination, criminal background and child abuse history clearance; maintain CPR certification and adhere to any additional requirements of the clinical facilities.

### Undergraduate Academic Progression Policy

The Academic Progression policy delineates the academic standards for pre-licensure students (students without an RN license). Failure of two nursing courses results in dismissal from the Nursing major. Details of the academic progression policy are available in the student handbook. ([www.hhdev.psu.edu/nurs/Handbooks/index/html](http://www.hhdev.psu.edu/nurs/Handbooks/index/html)).

For the B.S. degree in Nursing, a minimum of 120 credits is required. The Second or Additional Degree Option requires the completion of 60 credits of general education and prerequisite courses in the first degree program (prior to admission) and 60 credits of nursing courses completed after admission.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

#### GENERAL EDUCATION: 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of *Bulletin*.)

#### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

(Second or Additional Degree Option: First-Year Seminar not required since students accepted into this program are required to have earned a bachelor's degree in another discipline)

#### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

#### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

#### ELECTIVES: 4-9 credits

#### REQUIREMENTS FOR THE MAJOR: 87-92 credits<sup>[1][2]</sup>

(This includes 21 credits of General Education courses: 3 credits of GHA courses; 9 credits of GN courses; 3 credits of GQ courses; 6 credits of GS courses.)

#### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 30-32 credits

##### PRESCRIBED COURSES (21 credits)

BIOL 129 GN(4), BIOL 141 GN(3), BIOL 142(1), HD FS 129 GS(3), MICRB 106 GN(3), MICRB 107 GN(1), NUTR 251 GHA(3), PSYCH 100 GS(3) (Sem: 1-4)

##### ADDITIONAL COURSES (9-11 credits)

CHEM 101(3); or CHEM 110 GN(3) and CHEM 111 GN(1) (Sem: 1-4)

SOC 001 GS(3) or SOC 005 GS(3) (Sem: 1-4)

STAT 200 GQ(4) or STAT 250 GQ(3) (Sem: 1-4)

#### REQUIREMENTS FOR THE OPTION: 57-60 credits

##### GENERAL NURSING OPTION: (57 credits)

##### PRESCRIBED COURSES (54 credits)

NURS 225(3)<sup>[38]</sup>, NURS 230(4)<sup>[38]</sup>, NURS 250 US(2)<sup>[38]</sup>, NURS 251(3)<sup>[38]</sup> (Sem: 3-4)

NURS 200W(3)<sup>[38]</sup>, NURS 301(4)<sup>[38]</sup>, NURS 305(3)<sup>[38]</sup>, NURS 306(3)<sup>[38]</sup>, NURS 310(3)<sup>[38]</sup>, NURS 320(3)<sup>[38]</sup>, NURS 350(2)<sup>[38]</sup> (Sem: 5-6)

NURS 405A(4)<sup>[38]</sup>, NURS 405B(4)<sup>[38]</sup>, NURS 415 US;IL(4)<sup>[38]</sup>, NURS 420(4)<sup>[38]</sup>, NURS 450A(2)<sup>[38]</sup>, NURS 450B(3)<sup>[38]</sup> (Sem: 7-8)

##### SUPPORTING COURSES AND RELATED AREAS (3 credits)

Select 3 credits at the 400 level from School-approved list in consultation with adviser (Sem: 7-8)

#### SECOND OR ADDITIONAL DEGREE OPTION: (60 credits)

##### PRESCRIBED COURSES (60 credits)

NURS 225(3)<sup>[38]</sup>, NURS 230(4)<sup>[38]</sup>, NURS 250 US(2)<sup>[38]</sup>, NURS 251(3)<sup>[38]</sup> (Sem: 1)

NURS 200W(3)<sup>[38]</sup>, NURS 301(4)<sup>[38]</sup>, NURS 305(3)<sup>[38]</sup>, NURS 310(3)<sup>[38]</sup>, NURS 350(2)<sup>[38]</sup> (Sem: 2)

NURS 306(3)<sup>[38]</sup>, NURS 320(3)<sup>[38]</sup>, NURS 415 US;IL(4)<sup>[38]</sup>, NURS 420(4)<sup>[38]</sup> (Sem: 3)

NURS 405A(4)<sup>[38]</sup>, NURS 405B(4)<sup>[38]</sup>, NURS 450A(2)<sup>[38]</sup>, NURS 450B(3)<sup>[38]</sup>, NURS 495(6)<sup>[38]</sup> (Sem: 4)

<sup>[1]</sup>A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

<sup>[2]</sup> Completed prior to admission for students taking the Second or Additional Degree Option.

<sup>[38]</sup> Due to restricted enrollment, the School of Nursing assigns the semester in which students enroll in these courses and all course prerequisites must be successfully completed.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-05-062



Review Date: 02/23/2010

(R&T 2/28/06)

UCA Revision #1: 8/9/06

Update to accrediting agency contact info: 7/31/13

[Comments](#)

HH

## Nutritional Sciences

University Park, College of Health and Human Development (NUTR)

PROFESSOR GORDON JENSEN, *Head of the Department*

The study of nutrition is a dynamic science that incorporates knowledge of human biology and biochemistry to understand how the body utilizes nutrients and related substances for optimal health throughout the lifecycle. Students gain an understanding of how the interplay of nutrition and lifestyle relate to current public health issues as well as the development and nutrition management of chronic and acute diseases. Students learn the scientific rationale and practice methodology to assess nutritional status for individuals in the clinical setting and for population analysis. They will use these skills to implement medical nutrition therapy or understand nutrition guidelines, standards, and policies.

Students may select one or more Options: Applied Sciences, Basic Sciences, and Dietetics. Students in any option can choose from one or more of four Emphases: Public Health Nutrition and Policy; Nutrition and Foods in Business; Community Nutrition and Food Security; or Nutrition Education and Communications.

Students must submit a letter of application for admission into the Dietetics Option following the completion of prerequisite courses. The earliest students can apply to the Dietetics Option is after their third semester.

**APPLIED SCIENCES OPTION:** This Option integrates knowledge of social and behavioral sciences with human physiology and nutrition. Students learn to apply knowledge of nutrition to improve health and well-being of individuals and populations by applying nutrition principles in different practice settings. Graduates of this Option can seek employment in public health and policy, business including the food industry, community and international agencies, schools, or continue to graduate study in nutrition or related fields.

**BASIC SCIENCES OPTION:** This option incorporates knowledge from biology, chemistry, physiology, and physics with nutrition. This Option is recommended for students preparing for careers in medicine and other health related fields such as dentistry, optometry, physician assistant, physical therapy, and chiropractic, including graduate school. Also, this option prepares students for careers in laboratory research in the pharmaceutical or food industries, government, or academia.

**DIETETICS OPTION:** This Option links nutrition and human behavior to improve the nutritional status of individuals and communities or apply nutrition principles and counseling skills to medical problems in clinical dietetics. It also prepares students for management positions in nutrition and food systems. Graduates satisfy the current requirements for application to an accredited post-baccalaureate dietetic internship. Upon satisfactory completion of a Dietetic Internship, graduates are eligible to take the registration examination to become a Registered Dietitian.

**Admission to the Dietetics Option:** C or better in NUTR 251, BIOL 141, and CHEM 110

For the B.S. degree in Nutritional Sciences, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(17-22 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 5-8 credits

**REQUIREMENTS FOR THE MAJOR:** 86-87 credits

(This includes 16-20 credits of General Education courses: Applied Sciences Option: 7-9 credits of GN courses; 3-4 credits of GQ courses; 6 credits of GS courses; 3 credits of GHA courses; or Basic Sciences Option: 7-9 credits of GN courses; 6 credits of GQ courses; 3 credits of GHA courses; or Dietetics Option: 7-9 credits of GN courses; 3-4 credits of GQ courses; 3 credits of GS courses; 3 credits of GHA courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 29-30 credits

**PRESCRIBED COURSES** (23 credits)

NUTR 251 GHA(3) [11], NUTR 358(2) (Sem: 1-3)

B M B 211(3) [11], NUTR 445(3) [11], NUTR 446(3) [11], NUTR 451(3) [11] (Sem: 5-7)

NUTR 452(3), NUTR 490W(3) (Sem: 7-8)

**ADDITIONAL COURSES** (6-7 credits)

STAT 200 GQ(4) or STAT 250(3) (Sem: 1-3)

CHEM 202(3) or CHEM 210(3) (Sem: 2-4)

**REQUIREMENTS FOR THE OPTION:** 57 credits

**APPLIED SCIENCES OPTION:** (57 credits)

**PRESCRIBED COURSES** (30 credits)

BIOL 141 GN(3), CHEM 110 GN(3) (Sem: 1-3)

MICRB 106 GN(3), MICRB 107 GN(1), NUTR 120(3), NUTR 360(3) (Sem: 4-6)

HRIM 228(1), HRIM 329(3), HRIM 330(2), NUTR 456 US(3) (Sem: 5-6)

NUTR 370(1), NUTR 400(1), NUTR 453(3) (Sem: 7-8)

**ADDITIONAL COURSES** (6 credits)

AG BM 101 GS(3), ECON 102 GS(3), or ECON 104 GS(3) (Sem: 1-4)

HD FS 129 GS(3) or PSYCH 100 GS(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Select 21 credits, in consultation with an adviser, from University-wide offerings that provide relevance to this option. See program list of recommended courses. (At least 6 credits must be at the 400 level and, of those, no more than 3 credits may be NUTR 496.) (Sem: 3-8). Students are encouraged to select one (or more) of four Emphases: Public Health Nutrition and Policy; Nutrition and Foods in Business; Community Nutrition and Food Security; and Nutrition Education and Communications. A minimum of 15 credits is recommended for an Emphasis.

**BASIC SCIENCES OPTION:** (57 credits)

**PRESCRIBED COURSES** (38 credits)

BIOL 110 GN(4), BIOL 141 GN(3), BIOL 142(1), BIOL 230W GN(4), CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4) (Sem: 1-3)

B M B 212(1), MICRB 201(3), MICRB 202(2), PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 3-4)

**ADDITIONAL COURSES** (3 credits)

CHEM 203(3) or CHEM 212(3) (Sem: 4-6)

**SUPPORTING COURSES AND RELATED AREAS** (16 credits)

Select 16 credits, in consultation with an adviser, from University-wide offerings that provide relevance to this option. See program list of recommended courses. (At least 9 credits must be at the 400 level and, of those, no more than 6 credits may be NUTR 496.) (Sem: 3-8)

**DIETETICS OPTION:** (57 credits)

**PRESCRIBED COURSES** (38 credits)

BIOL 141 GN(3) [\[1\]](#), CHEM 110 GN(3) [\[1\]](#) (Sem: 1-3)  
MICRB 106 GN(3), MICRB 107 GN(1), NUTR 120(3), NUTR 360(3) (Sem: 4-6)  
HRIM 228(1), HRIM 329(3), NUTR 456 US(3), NUTR 391(1), (Sem: 5-6)  
HRIM 330(2), NUTR 370(1), NUTR 386(3) (Sem: 6-8 )  
NUTR 371(1), NUTR 400(1), NUTR 453(3), NUTR 495(3) (Sem: 7-8)

**ADDITIONAL COURSES** (3 credits)

HD FS 129 GS(3) or PSYCH 100 GS(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (16 credits)

Select 16 credits, in consultation with an adviser, from University-wide offerings that provide relevance to this option. See program list of recommended courses. (At least 6 credits must be at the 400 level and, of those, no more than 3 credits may be NUTR 496.) (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-135

Review Date: 04/10/2012

UCA Revision #1: 8/9/06

HH

## Organizational Leadership

*University Park, College of the Liberal Arts (OL BA): offered via World Campus*

*This program is restricted to adult learners, as defined by the University*

PROFESSOR DENNIS GOURAN, Professor-in-charge

The degree draws on many of the disciplines of the liberal arts, as well as business and science, to illuminate the issues that all leaders face regarding work and employment issues in the 21st Century, as well as in other aspects of organizational life more generally. Students select courses in crime, law, and justice, political science, sociology, labor and employment relations, communication arts and sciences, management, and psychology. The goal is to provide a broad education that introduces methods of analysis used in the disciplines of the liberal arts and prepares students to understand the complex social, cultural, and organizational issues that they will confront in leadership positions in the modern world. Upon successful completion of the B.A. degree in Organizational Leadership, students should be better able to:

1. Understand the roles and the major functions of leadership in contemporary organizations;
2. Articulate the theoretical and empirical foundations for different approaches to the exercise of leadership;
3. Detect, accurately frame, and select appropriate strategies for overcoming obstacles to effective organizational performance that leaders face;
4. Exhibit intellectual and behavioral competencies useful in the successful execution of critical organizational tasks and the management of relationships;
5. Recognize the internal structures of organizations and their impact on members' performance;
6. Appreciate the social processes operative in the exercise of influence, as well as how to improve them;
7. Draw on their knowledge of leadership in transitioning from lower-level to higher-level positions of responsibility and authority in organizations;
8. Bring a global perspective to the exercise of leadership; and
9. Grasp the importance of enacting leadership responsibly and in an ethically defensible manner.

For the B.A. degree in Organizational Leadership, a minimum of 123 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(0-6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 21-24 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36-37 credits [1]  
(This includes 0-6 credits of General Education courses: 0-6 credits of GS; 0-3 credits of GH.)

**PRESCRIBED COURSES** (12 credits)  
OLEAD 100 GS(3), OLEAD 409(3), OLEAD 464(3), OLEAD 465(3) (Sem: 1-5)

**ADDITIONAL COURSES** (12-13 credits)  
Select one course from each area  
a) Conflict Management  
CAS 404(3) or LER 437(3) (Sem: 5-8)  
b) Research Methods  
LER 312(4) or SOC 207(3) (Sem: 5-8)  
c) Motivation  
MGMT 321(3) or PSYCH 484(3) (Sem: 5-8)  
d) Ethics  
LER 460(3) or PHIL 119(3) (Sem: 5-8)

**SUPPORTING COURSES** (12 credits)  
(Courses that are used in the Additional Courses category may not be double-counted to satisfy this requirement)  
Select 12 credits from the following with at least 6 credits at the 400-level:  
CAS 404(3), CAS 452(3), CAS 475(3), CRIM 100 GS(3), CRIM 113 US(3), CRIM 482(3), LER 100 GS(3), LER 136 US(3), LER 201 GS(3), LER 312(4), LER 400 IL(3), LER 434(3), LER 435(3), LER 437(3), LER 458Y US(3), LER 460(3), MGMT 321(3), PHIL 103 GH(3), PHIL 119(3), PL SC 001 GS(3), PL SC 490(3), PSYCH 484(3), PSYCH 485(3), SOC 207(3), SOC 404(3), SOC 455(3), SOC 456(3) (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2013

Blue Sheet Item #: 41-04-064

Review Date: 01/15/2013

## Organizational Leadership

Altoona College

Berks College

University College: Penn State New Kensington

University Park, College of the Liberal Arts (OL BS): offered via World Campus and Continuing Education

*This program is restricted to adult learners, as defined by the University*

PROFESSOR DENNIS GOURAN, *Professor-in-charge*

The degree draws on many of the disciplines of the liberal arts, as well as business and science, to illuminate the issues that all leaders face regarding work and employment issues in the 21st Century, as well as in other aspects of organizational life more generally. Students select courses in crime, law, and justice, economics, political science, sociology, labor and employment relations, communication arts and sciences, statistics, management, and psychology. The goal is to provide a broad education that introduces methods of analysis used in the disciplines of the liberal arts and prepares students to understand the complex social, cultural, and organizational issues that they will confront in leadership positions in the modern world. Upon successful completion of the B.S. degree in Organizational Leadership, students should be better able to:

1. Understand the roles and the major functions of leadership in contemporary organizations;
2. Articulate the theoretical and empirical foundations for different approaches to the exercise of leadership;
3. Detect, accurately frame, and select appropriate strategies for overcoming obstacles to effective organizational performance that leaders face;
4. Exhibit intellectual and behavioral competencies useful in the successful execution of critical organizational tasks and the management of relationships;
5. Recognize the internal structures of organizations and their impact on members' performance;
6. Appreciate the social processes operative in the exercise of influence, as well as how to improve them;
7. Draw on their knowledge of leadership in transitioning from lower-level to higher-level positions of responsibility and authority in organizations;
8. Bring a global perspective to the exercise of leadership; and
9. Grasp the importance of enacting leadership responsibly and in an ethically defensible manner.

For the B.S. degree in Organizational Leadership, a minimum of 123 credits is required.

**GENERAL EDUCATION:** 45 credits

(4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selections, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits

**REQUIREMENTS FOR THE MAJOR:** 64-66 credits<sup>[1]</sup>

(This includes 4 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (34 credits)

CAS 352(3), ECON 102 GS(3), ECON 104 GS(3), OLEAD 100 GS(3), OLEAD 409(3), OLEAD 464(3), OLEAD 465(3), PHIL 010 GH(3), PSYCH 100 GH(3), PSYCH 281 GS(3), STAT 200 GQ(4) (Sem: 1-5)

**ADDITIONAL COURSES** (12-13 credits)

Choose one course from each area.

1. Conflict Management  
CAS 404(3) or LER 437(3) (Sem: 5-8)
2. Research Methods  
LER 312(4) or SOC 207(3) (Sem: 5-8)
3. Motivation  
MGMT 321(3) or PSYCH 484(3) (Sem: 5-8)
4. Ethics  
LER 460(3) or PHIL 119 GH(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (18-19 credits)

At least 15 credits must be at the 400-level.

(Courses that are used in the Additional Courses category may not be double-counted to satisfy this requirement.)

CAS 404(3), CAS 452(3), CAS 475(3), CRIM 100 GS(3), CRIM 113 US(3), CRIM 482(3), LER 100 GS(3), LER 136 US(3), LER 201 GS(3), LER 312(4), LER 400 IL(3), LER 434(3), LER 435(3), LER 437(3), LER 458Y US(3), LER 460(3), MGMT 321(3), PHIL 103 GH(3), PHIL 119(3), PL SC 001 GS(3), PL SC 490(3), PSYCH 484(3), PSYCH 485(3), SOC 207(3), SOC 404(3), SOC 455(3), SOC 456(3) (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-04-065

Review Date: 01/15/2013

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

LA

## Premedicine

University Park, Eberly College of Science (P M)

PROFESSOR RONALD A. MARKLE, *in charge*

This major provides a broad foundation necessary to the understanding of the basic subjects of modern medical studies. The curriculum, which offers a good balance between science and nonscience courses, constitutes an excellent preparation for admission to medical school. It also gives students the freedom to tailor the program to meet their individual needs by permitting a generous number of supporting courses. Specific admission requirements or recommendations of a particular medical school, not already in the required courses of the major, may be included among the supporting courses. Many students also use their supporting courses to pursue a minor.

In order to be eligible for entrance to the Premedicine major, a student must have: 1) attained at least a 2.00 cumulative grade-point average; and 2) completed BIOL 110 GN(4), CHEM 110 GN(3), and MATH 140 GQ(4), and earned a grade of C or better in each of these courses.

**THREE-YEAR ALTERNATIVE:** A student may also become eligible for the Bachelor of Science degree in this major upon satisfactory completion of:  
 a. A total of 96 credits, including General Education credits in Writing/Speaking, Health Sciences and Physical Education, and Arts, Humanities, and Social and Behavioral Sciences; 8 credits in a single foreign language; BIOL 110 GN(4), BIOL 230W GN(4); CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 210(3) [1], CHEM 212(3) [1], CHEM 213(2) [1]; MATH 140 GQ(4), MATH 141 GQ(4); PHYS 211 GN(4) [1], PHYS 212 GN(4) [1], PHYS 213 GN(2) [1] and PHYS 214 GN(2) [1].  
 b. The first year of an accredited medical or dental postgraduate program.

For the B.S. degree in Premedicine, a minimum of 126 credits is required, with at least 18 credits at the 400 level.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
 (See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 99 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GHA courses.)

**PRESCRIBED COURSES** (53 credits)

BIOL 110 GN(4) [1], BIOL 110 230W GN(4) [1], CHEM 110 GN(3) [1], CHEM 111 GN(1) [1], CHEM 112 GN(3) [1], CHEM 113 GN(1) [1], MATH 140 GQ(4) [1], MATH 141 GQ(4) [1], NUTR 251(3) [1] (Sem: 1-2)  
 H P A 101(3), PHIL 432(3) (Sem: 1-6)  
 CHEM 210(3) [1], CHEM 212(3) [1], CHEM 213(2) [1] (Sem: 3-4)  
 PHYS 211 GN(4) [1], PHYS 212 GN(4) [1], PHYS 213 GN(2) [1], and PHYS 214 GN(2) [1] (Sem: 3-6)

**ADDITIONAL COURSES** (16-20 credits)

Select 4-5 credits from BIOL 220W GN(4), BIOL 240W GN(4), MICRB 201(3)/MICRB 202(2) (Sem: 3-8)  
 Select 3-4 credits from CMPSC 101 GQ(3), CMPSC 121 GQ(3), STAT 250 GQ(3) (Sem: 3-8)  
 Select 4-5 credits [1] from BIOL 421(4), BIOL 437(4), BIOL 472(3)/BIOL 473(2), MICRB 412(3)/422(2) (Sem: 5-8)  
 Select 5-6 credits [1] from B M B 400(2-3), B M B 401(3), B M B 402(3); or CHEM 450(3), CHEM 452(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (26-30 credits)

Select 0-8 credits in a foreign language (proficiency demonstrated by examination or course work to the level of the second semester; if fewer than 8 credits are needed to reach the required proficiency, students choose selections from program list to total 8 credits) (Sem: 1-8)  
 Select 18-30 credits from program list (A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation. Students may apply 6 credits of ROTC.) (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-07-147

Review Date: 4/10/01

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

SC

Publications updated faculty in charge: 7/17/09

## Premedical-Medical

University Park, Eberly College of Science (P M M)

PROFESSOR RONALD A. MARKLE, *in charge*

This is a special accelerated program in cooperation with the College of Medicine at Thomas Jefferson University in Philadelphia whereby exceptional students have the opportunity to earn both the B.S. and M.D. degrees in six years. Students are selected for this program while they are seniors in high school and must begin their undergraduate studies the summer immediately following their graduation. The first two years of the program are completed at University Park and the next four at Jefferson. The Penn State B.S. degree in Science is awarded after completion of 82 Penn State credits and the first two years of the standard curriculum at Jefferson Medical College.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in GENERAL EDUCATION course selection)

### ELECTIVES: 0-1 credit

### REQUIREMENTS FOR THE MAJOR: 51-53 credits

(This includes 15 credits of General Education courses; 9 credits of GN courses; 6 credits of GQ courses.)

### PRESCRIBED COURSES (41 credits)

BIOL 110 GN(4) [\[1\]](#), CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1) [\[1\]](#), CHEM 112 GN(3) [\[1\]](#), CHEM 113 GN(1) [\[1\]](#), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) [\[1\]](#) (Sem: 1-2)  
CHEM 210(4), CHEM 212(3), CHEM 213(2), PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214GN(2) (Sem: 3-4)

### ADDITIONAL COURSES (at Jefferson Medical)

Anatomy (Sem: 5-6)  
Physiology (Sem: 5-6)  
Histology (Sem: 5-6)  
Biochemistry (Sem: 5-6)  
Biostatistics (Sem: 5-6)  
Neuroscience (Sem: 5-6)  
Mechanisms of Disease (Sem: 5-6)  
Introduction to Clinical Medicine (Sem: 5-8)  
Medicine and Society (Sem: 5-8)  
Microbiology/Immunology (Sem: 7-8)  
Pathology (Sem: 7-8)  
Pharmacology (Sem: 7-8)

### SUPPORTING COURSES AND RELATED AREAS (10-12 credits)

Select 4-5 credits of life science with lab (Sem: 1-4)  
Select 3 credits from program list (Sem: 1-4)  
Select 3-4 credits of life science (Sem: 3-4)

*Note:* Students must take at least 9 of the Penn State credits listed above during the summer session prior to the first semester. Depending on advanced placement credit and schedule load, it might also be necessary to enroll during one of the other summer sessions before entering Jefferson Medical College at semester five.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 1995

Blue Sheet Item #: 23-03-107

Review Date: 01/19/00 (General Education information updated)

UCA Revision #1: 8/9/06

SC

Publications updated faculty in charge: 7/17/09

## Planetary Science and Astronomy

University Park, Eberly College of Science (PASTR)

Professor Donald Schneider, Chair

Planetary Science and Astronomy majors will study the Earth system in the context of the Solar System and the universe as a whole. Students will apply methods and knowledge from mathematics, geosciences, chemistry, biology, astronomy and physics, and through laboratory experiences and coursework they will both learn to explore the Earth and to use telescopes to obtain astronomical data. They will study planetary systems around other stars and explore the possibility of their harboring life. Communication of these topics, both oral and written, to the public and to their peers will be emphasized, as will logic and general problem-solving skills. Upon graduation students will be prepared to enter a graduate program in education to obtain teaching certification, to work in an informal science venue or planetarium, or to enter a variety of industry, environmental, or defense professions.

In order to be eligible for entrance to the Planetary Science and Astronomy major, a student must have: 1) Attained at least a 2.00 cumulative grade-point average; 2) Completed Math 140 with a grade of C or better; 3) Completed at least four of the following courses with a grade of C or better: ASTRO 120, ASTRO130, ASTRO 140, BIOL 110, CHEM 110, EARTH 002, GEOSC 001, GEOSC 020, or STAT 200.

A minimum of 122 credits is required to earn the degree.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### **GENERAL EDUCATION: 45 credits**

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of the Bulletin)

### **FIRST-YEAR SEMINAR:**

(Included in General Education course selection)

### **UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in General Education course selection)

### **WRITING ACROSS THE CURRICULUM:**

(Included in General Education course selection or REQUIREMENTS FOR THE MAJOR)

### **REQUIREMENTS FOR THE MAJOR: 95-99 credits**

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses)

### **PRESCRIBED COURSES: 37 credits**

BIOL 110 GN(4)[1], CHEM 110 GN(3)[1], CHEM 111 GN(1), CHEM 112 GN(3)[1], CHEM 113 GN(1), ENGL 202C GWS(3), MATH 140 GQ(4)[1], MATH 141 GQ(4) (Sem: 1-4)

ASTRO 401(4)[1], ASTRO 402(3)[1], BIOL/GEOSCL 474(3)[1], STAT 200 GQ(4)[1] (Sem: 5-8)

### **ADDITIONAL COURSES: 38-39 credits**

Select 3 credits from ASTRO 001 GN(3), ASTRO 005 GN(3), ASTRO 006 GN(3), ASTRO 291 GN(3) (Sem: 1-4)

Select 3-4 credits from CMPSC 101 GQ(3), CMPSC 121 GQ(3), CMPSC 201 GQ(3), CMPSC 202 GQ(3), CMPSC 203 GQ(4) (Sem: 1-6)

Select 9 credits from ASTRO 120 GN(3), ASTRO 130 GN(3), ASTRO 140 GN(3), ASTRO 292 GN(3) (Sem: 1-6)

Select 3 credits from EARTH 002 GN(3), GEOSC 001(3), GEOSC 020 GN(3) (Sem: 1-4)

PHYS 211 GN(4) or PHYS 250 GN(4) (Sem: 3-6)

PHYS 212 GN(4) or PHYS 251 GN(4) (Sem: 3-6)

Select 12 credits from EARTH 100 GN(3), EARTH 103 GN(3), EARTH 106 GN(3), EARTH 150 GN(3), EARTH 202(3), GEOG 160 GS(3), GEOSC 201(4), GEOSC 202(4), GEOSC 203(4), GEOSC 204(4), METEO 101 GN(3), METEO 201(3) (Sem: 3-8)

### **SUPPORTING COURSES AND RELATED AREAS: 20-23 credits**

At least 6 credits from the below categories must be at the 400 level

Select 11 credits in consultation with adviser from department list (Sem: 1-8)

Select 9-12 credits from program list of advanced electives (Sem: 3-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-146

Review Date: 02/19/2013



## Philosophy

University Park, College of the Liberal Arts (PHIL)

PROFESSOR SHANNON SULLIVAN, *Head of the Department*

This major provides in-depth study of fundamental issues that inescapably confront all persons. Topics include ethics, social and political philosophy, and esthetics--study of the good life, justice, and beauty; metaphysics, philosophy of mind, and philosophy of religion--study of the nature of reality, mind, body, and the meaning of life and death; epistemology, philosophy of science, and logic--study of the nature of knowledge, truth, objectivity, and principles of sound reasoning; and subjects such as comparative philosophies and world cultures, feminist theory, and philosophical issues in technology, language, education, and the professions of law, business, medicine, communications, engineering, and agriculture. These studies enhance imaginative, interpretive, analytical, critical, and communicative capacities. Majors thus may acquire intellectual abilities crucial for self-fulfillment, responsible participation in public life, and success in a wide range of careers--including law, business, education, journalism, medicine, and public service.

Majors pursued concentration in history of philosophy; humanities and arts; philosophy of science and mathematics; social sciences; the professions; or justice, law, and values. This is combined easily with minors, area studies, and concurrent majors. Qualified students participate in honors study and internships.

For the B.A. degree in Philosophy, a minimum of 124 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

**GENERAL PHILOSOPHY OPTION:** This option provides students with a concentration in the history of western philosophy and the historical development and impact of philosophical ideas and issues--from the ancient to the contemporary period. It is designed for all students who seek a broad liberal education, including students interested in graduate study in philosophy.

**HUMANITIES AND ARTS OPTION:** This option provides students with a concentration in philosophical issues in the arts, art history, literature, languages, history and religion. It is designed for all students primarily interested in the philosophical dimensions of the arts, humanities, and cultural studies, including students with career or further educational goals in these fields.

**PHILOSOPHY OF SCIENCE AND MATHEMATICS OPTION:** This option provides students with a concentration in philosophical issues in the life sciences, the physical sciences, mathematics, engineering, and technology. It is designed for all students primarily interested in the philosophical dimensions of the natural sciences, technology, and mathematics, including students with career or further educational goals in these fields.

**SOCIAL SCIENCES OPTION:** This option provides students with a concentration in philosophical issues in the social sciences, social and political theory, and education. It is designed for all students primarily interested in the philosophical dimensions of social thought and methodological and normative issues in the social sciences, educational theory, and public policy, including students with career or further educational goals in these fields.

**PROFESSIONAL STUDIES OPTION:** This option provides students with a concentration in philosophical issues and dimensions in the theory and practice of the professions of agriculture, business, engineering, journalism, law, and medicine and health care. It is designed for all students seeking a foundation in the philosophical dimensions of these professions, including students who wish to combine humanistic study with career or further educational goals in these fields.

**JUSTICE, LAW, AND VALUES OPTION:** This option provides students with a concentration in philosophical issues in aesthetics, ethics, jurisprudence, and social and political theory, and everyday life. It is designed for students primarily interested in moral, social, political, and legal questions concerning value and is especially appropriate for those anticipating future educational work in law school.

TO VIEW THE [Philosophy Minor \(PHIL\)](#)

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES :**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 25 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 30 credits [\[1\]](#)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 9 credits

**ADDITIONAL COURSES:** (9 credits)  
Select 9 credits in philosophy at the 200 level (Sem: 3-6)

**REQUIREMENTS FOR THE OPTION:** 21 credits

**GENERAL PHILOSOPHY OPTION:** 21 credits

**PRESCRIBED COURSES** (3 credits)  
PHIL 012 GQ(3) (Sem: 1-6)

**ADDITIONAL COURSES** (9 credits)  
Select 6 credits in philosophy at the 00 or 100 level (Sem: 1-6)  
Select 3 credits from PHIL 200 GH(3), PHIL 201 GH(3), PHIL 202 GH(3), PHIL 203 GH(3), PHIL 204 GH(3) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)  
Select 9 credits in philosophy at the 400 level, in consultation with adviser (Sem: 5-8)

**HUMANITIES AND ARTS OPTION:** 21 credits

**ADDITIONAL COURSES** (12 credits)  
Select 3 credits from PHIL 010 GH(3), PHIL 012 GQ(3) (Sem: 1-6)  
Select 6 credits in philosophy at the 00 or 100 level (Sem: 1-6)  
Select 3 credits from PHIL 401(3), PHIL 402(3-6), PHIL 409(3), PHIL 413(3), PHIL 424(3), PHIL 429(3), PHIL 435(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)  
Select 6 additional credits in philosophy at the 400 level and 3 credits at the 400 level in a related arts or humanities discipline, in consultation with adviser (Sem: 5-8)

**PHILOSOPHY OF SCIENCE AND MATHEMATICS OPTION: 21 credits**

**PRESCRIBED COURSE** (3 credits)  
 PHIL 012 GQ(3) (Sem: 1-6)

**ADDITIONAL COURSES** (9 credits)

Select 6 credits in philosophy at the 00 or 100 level (Sem: 1-6)  
 Select 3 credits from PHIL 407(3), PHIL 410(3), PHIL 412(3), PHIL 417(3), PHIL 425(3), PHIL 426(3-6), PHIL 427(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 6 additional credits in philosophy at the 400 level and 3 credits at the 400 level in a mathematics or natural science discipline, in consultation with adviser (Sem: 5-8)

**SOCIAL SCIENCES OPTION: 21 credits**

**PRESCRIBED COURSE** (3 credits)  
 PHIL 012 GQ(3) (Sem: 1-6)

**ADDITIONAL COURSES** (9 credits)

Select 6 credits in philosophy at the 00 or 100 level (Sem: 1-6)  
 Select 3 credits from PHIL 401(3), PHIL 408(3), PHIL 415(3), PHIL 416(3), PHIL 425(3), PHIL 438(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 6 additional credits in philosophy at the 400 level and 3 credits at the 400 level in social science, in consultation with adviser (Sem: 5-8)

**PROFESSIONAL STUDIES OPTION: 21 credits****ADDITIONAL COURSES** (12 credits)

Select 3 credits from PHIL 010 GH(3), PHIL 012 GQ(3) (Sem: 1-6)  
 Select 3 credits from PHIL 405(3), PHIL 406(3), PHIL 418(3), PHIL 423(3), PHIL 431(3), PHIL 432(3), PHIL 433(3), PHIL 435(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits at the 400 level in a professional area outside philosophy, in consultation with adviser (Sem: 5-8)

**JUSTICE, LAW, AND VALUES OPTION: 21 credits**

**PRESCRIBED COURSE** (3 credits)  
 PHIL 105 GH(3) (Sem: 1-6)

**ADDITIONAL COURSES** (18 credits)

Select 3 credits from PHIL 010 GH(3), PHIL 012 GQ(3) (Sem: 1-6)  
 Select 3 credits in philosophy at the 00 or 100 level (Sem: 1-6)  
 Select 3 credits in philosophy at the 400 level (Sem: 5-8)  
 Select 3 credits from PHIL 403(3), PHIL 405(3), PHIL 406(3), PHIL 407(3), PHIL 408(3), PHIL 418(3), PHIL 420(3), PHIL 425(3), PHIL 432(3), PHIL 433(3), PHIL 438(3) (Sem: 5-8)  
 Select 6 credits from AF AM 409 US(3), AF AM 465 US(3), CAS 321(3), COMM 403(3), HIST 449 US(3), HIST 450 US(3), L ST 370(3), PL SC 403(3), PL SC 412(3), PL SC 415(3), PL SC 424(3), PL SC 431(3), PL SC 432(3), PL SC 470W(3), PL SC 471(3), PL SC 472(3), PL SC 474(3), WMNST 423 US(3), WMNST 453 US(3) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2005

Blue Sheet Item #: 33-06-154

Review Date: 04/12/05

UCA Revision #2: 7/30/07

LA

## Physics

*Penn State Erie, The Behrend College (PHYBD)*

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

The major provides education in the fundamentals of physics and selected advanced topics to prepare graduates for graduate education or for careers in industry. Students have opportunities to participate in research with faculty. In addition to the traditional physics education offered in the General physics option, the option in applied physics, Computational Physics, provides preparation for careers in technological fields.

To be eligible for entrance to the Physics major, a student must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), PHYS 211 GN(4), and PHYS 212 GN(4), and earned a grade of C or better in each of these courses.

For the B.S. degree in Physics, a minimum of 122 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in GENERAL EDUCATION course selections)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 1 credit

**REQUIREMENTS FOR THE MAJOR:** 94 credits  
(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 66 credits

**PRESCRIBED COURSES** (66 credits)

CHEM 110 GN(3)[1], CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4)[1], MATH 141 GQ(4)[1] (Sem: 1-2)

PHYS 211 GN(4)[1], PHYS 212 GN(4)[1], PHYS 213 GN(2)[1], PHYS 214 GN(2)[1], PHYS 237(3)[1] (Sem: 1-4)

CMPSC 121 GQ(3), ENGL 202C GWS(3) (Sem: 3-4)

MATH 220 GQ(2-3), MATH 230(4), MATH 251(4), PHYS 400(3), PHYS 419(3), PHYS 420(3), PHYS 421W(3), PHYS 458(4), PHYS 494(3) (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 28 credits

**COMPUTATIONAL PHYSICS OPTION:** (28 credits)

**PRESCRIBED COURSES** (10 credits)

CMPSC 122(3) (Sem: 1-8)

MATH 455(3), PHYS 402(4) (Sem: 5-8)

**ADDITIONAL COURSES** (15 credits)

Select 3 credits from CMPSC 459(3), CMPSC 465(3), or CMPSC 474(3) (Sem: 5-8)

Select 12 credits from E E 352(4), E E 450(3), E E 453(3), MATH 456(3), M E 410(3), M E 428(3), PHYS 410(3), PHYS 414(3), PHYS 446(I), PHYS 494(1-3), and/or PHYS 495(1-3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)

Select 3 credits from a school-approved list (Sem: 1-8)

**GENERAL PHYSICS OPTION:** (28 credits)

**PRESCRIBED COURSES** (3 credits)

PHYS 410(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 12 credits from MATH 421(3), MATH 455(3), MATH 456(3), PHYS 402(4), PHYS 414(3), PHYS 446(I), PHYS 494(1-3), and/or PHYS 495(1-3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (13 credits)

Select one of the following two sequences:

a. Select 8 credits of a foreign language (Proficiency demo by examination or course work to the level of the second semester in a foreign language is required. If fewer than 8 credits are needed to reach the required proficiency, students choose selections from a school-approved list to make a total of 8 credits.) (Sem: 1-8)

Select 5 credits from a school-approved list (Sem: 1-8)

b. CMPSC 122(3) (Sem: 1-8)

Select 3 credits from CMPSC 459(3), CMPSC 465(3), or CMPSC 474(3) (Sem: 1-8)

Select 7 credits from a school-approved list (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-04-003

Review Date: 01/12/2010

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

BD

## Physics

University Park, Eberly College of Science (PHYS)

PROFESSOR NITIN SAMARTH, George A. and Margaret M. Downsbrough Department Head

This major provides a sound program of technical and general education for students planning a career in physics and related fields. The General option provides broad coverage with the most physics and mathematics course requirements and is useful for students intending to pursue graduate study in Physics or similar disciplines. The Medical and Electronics options incorporate coursework in support of the application of physics and mathematics in various life-science or engineering related fields. A Computation option provides background in the application of physical principles and mathematical methods in the solution of scientific problems, simulations, or visualizations using computer and numerical techniques. The Nanotechnology/Material Science option provides students with background in the understanding of condensed matter physics at either the nano- or micro/macro- levels.

In order to be eligible for entrance to the Physics major, a student must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), PHYS 211 GN(4), and PHYS 212 GN(4), and earned a grade of C or better in each of these courses.

### TO VIEW THE [Physics Minor \(PHYS\)](#)

For the B.S. degree in Physics, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 93-96 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 69 credits

#### PRESCRIBED COURSES (59 credits)

CHEM 110 GN(3)[\[1\]](#), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4)[\[1\]](#), MATH 141 GQ(4)[\[1\]](#) (Sem: 1-2)  
PHYS 211 GN(4)[\[1\]](#), PHYS 212 GN(4)[\[1\]](#), PHYS 213 GN(2)[\[1\]](#), PHYS 214 GN(2)[\[1\]](#), PHYS 237(3)[\[1\]](#) (Sem: 1-4)  
ENGL 202C GWS(3), MATH 220 GQ(2), MATH 251(4)[\[1\]](#) (Sem: 3-4)  
PHYS 400(4)[\[1\]](#), PHYS 410(4)[\[1\]](#), PHYS 419(3)[\[1\]](#), PHYS 420(3)[\[1\]](#), PHYS 444(2)[\[1\]](#), PHYS 457W(3)[\[1\]](#) (Sem: 5-8)

#### ADDITIONAL COURSES (7 credits)

MATH 230(4)[\[1\]](#), or MATH 231(2)[\[1\]](#) and MATH 232(2)[\[1\]](#) (Sem: 3-4)  
CMPSC 101 GQ(3) or CMPSC 121 GQ(3) or CMPSC 200 GQ(3) or CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 3-4)

#### SUPPORTING COURSES AND RELATED AREAS (3 credits)

Take 3 credits of 400-level MATH from departmental list (Sem: 7-8)

### REQUIREMENTS FOR THE OPTION: 24-27 credits

#### COMPUTATION OPTION: (24 credits)

#### PRESCRIBED COURSES (9 credits)

CMPSC 122(3) (Sem: 3-4) (Note: CMPSC 122 has CMPSC 121 as a pre-requisite, so care should be taken when choosing the 'programming requirement' under the Common Requirements for the major.)  
MATH 455(3), MATH 456(3) (Sem: 5-6)

#### SUPPORTING COURSES AND RELATED AREAS (15 credits)

Select 6 credits from program list (Sem: 3-6)  
Select 3 credits of natural science (GN) courses that are not listed in the major (Sem: 5-6)  
Take a total of 6 credits from AERSP 424(3), 300-400-level CMPSC, 400-level MATH from departmental list or 400-level STAT (Sem: 5-8)

#### ELECTRONICS OPTION: (27 credits)

#### PRESCRIBED COURSES (4 credits)

E E 210(4) (Sem: 3-6)

#### ADDITIONAL COURSES (8 credits)

Select 2 of the following 3: E E 310(4), E E 350(4), CMPEN 270(4) (Sem: 4-6)

#### SUPPORTING COURSES AND RELATED AREAS (15 credits)

Select 6 credits from program list (Sem: 3-6)  
Select 3 credits of natural science (GN) courses that are not listed in the major (Sem: 5-6)  
Take 6 credits of E E 3XX or 4XX level courses (Sem: 5-8)

### GENERAL PHYSICS OPTION: (25-26 credits)

#### ADDITIONAL COURSES (10-11 credits)

Select 6-7 credits from items a, b, and/or c (Sem: 7-8)  
a. PHYS 406(3), PHYS 411(3), PHYS 412(3), PHYS 413(3), PHYS 443(3), PHYS 461(3), PHYS 479(3), PHYS 496(3) or PHYS 497(3)  
b. PHYS 402(4) or PHYS 458(4) (the course not selected below may be used)  
c. ASTRO 410(3), ASTRO 440(3), or ASTRO 485(3) (only 3 credits of ASTRO courses may be used)  
Select 4 credits from PHYS 402(4) or PHYS 458(4) (Sem: 7-8)

#### SUPPORTING COURSES AND RELATED AREAS (15 credits)

Select 3 credits of natural science (GN) courses that are not listed in the major (Sem: 3-8)  
Select 9 credits from program list; a maximum of 6 of the 12 credits may be from PHYS 496(1-18), SC 295(1-9), SC 395(1-9), or SC 495(1-9) (Sem: 3-8)  
Select 3 credits of 4XX-level MATH from program list (Sem: 7-8)

### MEDICAL PHYSICS OPTION: (24-25 credits)

This option prepares students for graduate study in medical physics, medical school, or bioengineering. The courses in option (b) below help satisfy the requirements for a minor in Bioengineering. Application for the BIOE minor must be made to the Department of Bioengineering.

#### ADDITIONAL COURSES (15-16 credits)

Select from the following two sets of courses:

- (a) BIOL 110 GN(4), and BIOL 240W GN(4), CHEM 210(2), CHEM 212(3), CHEM 213(3) (Sem: 3-8)  
(b) B M B 251(3) or BIOL 230W GN(4) or BME 201(3); BIOL 141 GN(3) or BIOL 472(3); 9 credits of BIOE at the 300 or 400 level (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits from program list; a maximum of 6 of the 9 credits may be from PHYS 496(1-18), SC 295(1-9), SC 395(1-9) or SC 495(1-9) (Sem: 5-8)

**NANOTECHNOLOGY/MATERIAL SCIENCE OPTION:** (24-25 credits)**PRESCRIBED COURSES** (3 credits)

PHYS 412(3) (Sem: 7)

**ADDITIONAL COURSES** (12-13 credits)

The courses in option (a) help satisfy the requirements for the Nanotechnology minor.

Select from the following two sets of courses:

- (a) E SC 312(3), E SC 313(3) and select 6 credits from E SC 400-level courses  
(b) MATSE 201(3), MATSE 430(3), MATSE 460(1); MATSE 402(3) or MATSE 436(3); select 3 credits from MATSE 400-level courses (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 6 credits from program list (Sem: 3-6)

Select 3 credits of natural science (GN) courses that are not listed in the major (Sem: 5-6)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-096

Review Date: 04/09/2013

[Comments](#)

SC

## Political Science

Altoona College (PLSAL)  
 Capital College (PLSCA)  
 University Park, College of the Liberal Arts (PL SC)  
 World Campus

PROFESSOR SCOTT BENNETT, *Head*

The Political Science major offers the student an opportunity to understand not only American federal, state, and local governments, but also the political systems of other nations and the philosophies that underlie them. Courses are offered in American, comparative, and international politics, and in political theory and methodology. Internship opportunities are available.

For the B.A. degree in Political Science, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selections)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selections, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selections, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits [\[1\]](#)

**SUPPORTING COURSES AND RELATED AREAS** (36 credits)

(In meeting these requirements, students must take at least one course at any level from the four fields offered in the department: Political Theory/Methodology, American Politics/Public Administration, Comparative Politics, and International Relations)

Select 12 credits from below the 400 level (Sem: 1-6)

Select 15 credits from the 400 level and above in political science (Sem: 3-8)

Select 9 credits in political science or in related disciplines from departmental list of approved courses. Substitutions may be made with the written permission of the faculty adviser. (Sem: 3-8)

## Integrated Undergraduate/Graduate (IUG) Degree Program B.A. in Political Science and Master's in International Affairs (M.I.A.)

The integrated undergraduate-graduate (IUG) degree program (B.A. in Political Science/M.I.A. in International Affairs) will provide an opportunity for strong students in Political Science to complete a Master's degree with 5 total years of study.

An increasingly globalized economy is likely to escalate the demand for graduate training in international affairs. The career choices for graduates with this training will also expand sharply. The integrated degree program would prepare students for a variety of careers requiring an interdisciplinary background in politics and international affairs. Examples of types of entities hiring in these areas are federal, state, and local governments, international organizations, multinational corporations, international banking and financial institutions, media organizations and journalism, consulting firms, policy research centers, and development assistance programs and foundations. The School of International Affairs (SIA) Master's in International Affairs (M.I.A.) represents a professional degree designed to prepare students to thrive in these increasingly global career paths.

The IUG degree in International Affairs and Political Science is both timely and consistent with the tradition of interdisciplinary studies at other schools of international affairs. It will also strengthen the School of International Affairs' existing collaborations and interactions with the College of the Liberal Arts.

### Admission Requirements

The number of openings in the integrated B.A./M.I.A. program is limited. Admission will be selective based on specific criteria set by the School of International Affairs. Students shall be admitted to an IUG program no earlier than the beginning of the third semester of undergraduate study at Penn State (regardless of transfer or AP credits accumulated prior to enrollment) and no later than the end of the second week of the semester preceding the semester of expected conferral of the undergraduate degree, as specified in the proposed IUG plan of study. Specific requirements:

1. Must be enrolled in the Political Science B.A. program.
2. Must apply to and be accepted into The Graduate School and the M.I.A. program in the School of International Affairs. Students must complete the [Graduate School application](#). All applicants will submit GRE scores, two letters of recommendation and a personal statement addressing their reasons for pursuing a graduate degree in international affairs and discussing their plans and goals.
3. Although the program has no fixed minimum grade-point average, an applicant is generally expected to have a minimum overall GPA of 3.5 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
4. Must include a plan of study identifying undergraduate credits to be applied to the M.I.A. degree elective requirements.
5. Must provide written endorsement from the head of Political Science.

### M.I.A. Requirements for the Integrated B.A./M.I.A.

M.I.A. portion of the integrated B.A./M.I.A. will require the completion of a **minimum of 42 credits at the 400 level or higher**, at least 18 of which are from six core courses consisting of INTAF 801(3), 802(3), 803(3), 804(3), 805(3) and INTAF 590(3). The remaining credits are attained through completion of the approved elective courses.

In addition to the core curriculum and elective courses, M.I.A. degree candidates must complete either: (i) a master's paper; or (ii) a supervised internship placement. If the first option is chosen and the candidate opts to complete a paper, he/she must complete 3 credits of INTAF 594. The master's paper will involve integrating and showing mastery of the subject matter of the student's curricular emphasis, and may also involve original research. If the second option is chosen, the candidate will complete 3 credits of INTAF 595. The student will participate in a supervised internship of sufficient depth and professionalism that will allow the student to experience the integration of his/her curricular studies in an actual professional environment. A reflective paper will be submitted as a part of this credit requirement.

In order to graduate, M.I.A. degree students also will need to demonstrate proficiency in a language other than English. Proficiency will be defined as follows: (i) four semesters of a Penn State language sequence or its equivalent (15 credits with a quality grade of C or better using a 4.0 scale); (ii) native acquisition, as shown by the candidate's personal history and approved by the SIA faculty; or (iii) performance on a proficiency evaluation sufficient to equal four semesters of language learning; for this purpose, either Penn State's proficiency certification process or another pre-approved proficiency assessment may be used. Language study does not provide credits towards the degree.

M.I.A Degree	Integrated B.A./M.I.A. Degree
Core Courses (18)	Core Courses (18)
INTAF 801(3), INTAF 802(3), INTAF 803(3), INTAF 804(3), INTAF 805(3), INTAF 590(3)	INTAF 801(3), INTAF 802(3), INTAF 803(3), INTAF 804(3), INTAF 805(3), INTAF 590(3)
Electives (21)	Electives (21)
Course choices are from a pre-approved list in the SIA, or by SIA faculty approved substitution	The following 12 credits may be double counted toward the B.A. and the M.I.A.: PL SC 415(3), PL SC 441(3), PL SC 550(3), PL SC 554(3).
Capstone (3)	Capstone (3)
Master's Paper (INTAF 594) or Internship (INTAF 595)	Master's Paper (INTAF 594) or Internship (INTAF 595)
Total Degree Credits (42)	Total Degree Credits (42)

**Sample Program of Study**

A typical sequence of coursework for a student in the IUG program would appear as follows:

<b>Year One:</b>	Political Science	PL SC 001; PL SC 014 or PL SC 003
<b>Year Two:</b>	Political Science	PL SC 003 or PL SC 020; 400-level course
<b>Year Three:</b>	Political Science	400 level PL SC class; PL SC 007 or PL SC 017; related course
<b>Year Four:</b>	Fall Semester	INTAF 801, INTAF 802 and INTAF 803 are required. Additional 400-level PL SC, related course(s), or HIST/GEOG/Economics course(s) may be taken.
	Spring Semester	INTAF 804, INTAF 805 and INTAF 590 are required. Additional 400-level PL SC, related course(s), or HIST/GEOG/Economics course(s) may also be taken.
<b>Year Five:</b>	24 credits	The following 12 credits may be double counted toward the B.A. and the M.I.A.: PL SC 415(3), PL SC 441(3), PL SC 550(3), PL SC 554(3).

**Tuition Charges, Grant-in-Aid and Assistantships**

Students admitted to the School of International Affairs through the IUG with Political Science may be considered to receive financial assistance.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-079

Review Date: 11/19/2013

LA

Date department head updated by Publications: 4/20/10



## Plant Sciences

University Park, College of Agricultural Sciences (PLANT)

PROFESSOR RICH MARINI, Head, *Department of Horticulture*

The Plant Sciences Major is an applied biological science program designed for students seeking careers in agronomic and horticultural crop production systems and enterprise management, agroecology, sustainable and organic managed and natural ecosystems, crop protection, applied plant physiology, plant science research, and plant biotechnology. Students will secure: (1) a working knowledge of basic plant biology, soils, pests, and pathogens with emphasis on growth, development, and physiology in an ecological and agricultural context, (2) the scientific, technical, and computational approaches to problem solving in an ecological and agricultural context, individually and in teams, (3) the ability to analyze ethical issues regarding ecosystem sustainability, business practices and plant science, and critically evaluate and respect different viewpoints in making management decisions, and (4) a high level of proficiency in written and oral communication, particularly with regard to critical evaluation of scientific issues.

There are four options in the major, providing flexibility for concentrations in areas including production and management systems related to agronomic and horticultural crops, plant biotechnology and breeding, crop physiology, ecology, agroecology, and other aspects of general plant science. Students can choose from diverse course offerings in designing a program of study suited to their needs and professional goals.

### AGROECOLOGY OPTION:

This option applies an ecological approach to understanding and managing cropping systems to meet societies' needs while enhancing environmental protection and resource conservation. Students will develop skills to manage agroecosystems for sustainable productivity, profitability and environmental protection by studying plant and soil sciences, ecology, and pest management from a systems perspective. The curriculum prepares students for a wide range of careers in agricultural and ecological fields, sustainable food production, and for graduate studies.

### CROP PRODUCTION OPTION:

This option provides students with practical and field-related skills in Agronomy (field crop production and soil management). Students will focus on techniques and knowledge necessary to efficiently and economically manage soils, crops and other farm resources with additional emphasis on pest management and commodity marketing. Courses stress the skills and information needed to work with current production technologies such as seed traits, crop protection chemicals, and fertilizers to improve yield and productivity.

### HORTICULTURE OPTION:

This option prepares students to enter the horticultural industry by providing a broad background in courses related to production and physiology of horticultural crops. Additional courses in pest management and business are required. Graduates may work as orchard, greenhouse, garden center, nursery or farm managers, with horticultural and landscape service providers, suppliers, and brokers, with cooperative extension and other government and non-governmental agencies and public and private gardens, or continue with graduate studies.

### PLANT SCIENCE OPTION:

This option emphasizes the application of the biological sciences to problem-solving in agronomic and horticultural ecosystems. Topic areas include plant biology, plant pathology, plant microbiology, plant biotechnology, plant-insect interactions, horticulture, crop science, plant ecology, and bioenergy. Graduates may find employment in industry, government and academic research programs as technicians and research assistants, or pursue graduate degrees.

For the B.S. Degree in Plant Sciences, a minimum of 120 credits are required.

### GENERAL EDUCATION: 45 credits

(21-24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE OPTIONS)

### ELECTIVES: 0-13 credits

### REQUIREMENTS FOR THE MAJOR: 83-99 credits

(This includes 21-24 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses and 3 credits of GWS courses; plus 3 GH in Crop Production.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 33-36 credits

#### PRESCRIBED COURSES (19 credits)

BIOL 110 GN(4), CHEM 110 GN(3), CHEM 111 GN(1) (Sem: 1-4)

SOILS 101 GN(3) [\[1\]](#), ENT 313(2) (Sem: 5-6)

AGECO 457(3) [\[1\]](#), AGECO 461(3) [\[1\]](#) (Sem: 5-8)

#### ADDITIONAL COURSES (14-17 credits)

Select 3-5 credits from MATH 022 GQ(3), MATH 026 GQ(3), MATH 040 GQ(5), MATH 041 GQ(3-4), MATH 110 GQ(4), MATH 111 GQ(2), MATH 140 GQ(4), MATH 141 GQ(4), or MATH 141B GQ(4) (Sem: 1-2)

Select 3-4 Credits from STAT 200 GQ(4), STAT 240 GQ(3) or STAT 250 GQ(3) (Sem: 1-2)

Select 3 credits from ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 1-4)

Select 3 credits from AG BM 101 GS(3), ECON 014 GS(3), ECON 102 GS(3), or ECON 104 GS(3) (Sem: 3-4)

Select 1 credit from ENT 314(1) or ENT 316(1) (Sem: 5-7)

Select 1 credit from AGECO 495(1-18), AGRO 495(1-5), HORT 495(1-13), or HORT 496(1-18) Sem: 5-8)

### REQUIREMENTS FOR THE OPTION: 50-63 credits

#### AGROECOLOGY OPTION: (60-61 credits)

#### PRESCRIBED COURSES: (18 credits)

SOILS 102(1) (Sem: 1-5)

AGECO 201(3) [\[1\]](#) (Sem: 2-6)

AGECO 295(1) (Sem: 2-8)

AGECO/AGRO 438(4) (Sem: 5-7)

PPATH 405(3) (Sem: 5-8)

SOILS 401(3), SOILS 402(3) (Sem: 6-8)

#### ADDITIONAL COURSES (24-25 credits)

Select 3 credits from AGECO/METEO 122 GN(3), AGECO/R SOC 134 GN(3), AGECO 144 GN(3), AGECO 154(2) or AGECO 496(1) (Sem: 1-4)

Select 3 credits from AG 160 GH(3), GEOG 030 GS:IL(3), PHIL 013 GH(3), PHIL 103 GH(3), or PHIL 132 GH(3) (Sem: 1-4)

Select 3 credits from AGRO 028(3) [\[1\]](#) or HORT 101 GN(3) [\[1\]](#) (Sem: 1-5)

Select 3 credits from AGECO 121 GN(3) OR BIOL 127 GN(3) (Sem: 3-5)

Select 6 credits from AGRO 423(3), AGRO 425(3), HORT 202(3), HORT 315(3), HORT 431(3), HORT 432(3), HORT 433(3), HORT 450(3), or SOILS 418(3) (Sem: 5-6)

Select 3 credits from BIOL 222(3) or HORT 407(3) (Sem: 5-6)

Select 3-4 credits from AGRO 410W(4), HORT 412W(3), or SOILS 412W(3) (Sem: 6)



**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 18 credits of supporting courses in consultation with adviser. (Sem: 5-8)

**CROP PRODUCTION OPTION:** (61-63 credits)**PRESCRIBED COURSES** (29 credits)

SOILS 102(1) (Sem: 2-5)  
 AGECECO 201(3)[11](#), AGECECO 295(1) (Sem: 2-6)  
 PPEM 405(3) (Sem: 3-7)  
 AGECECO 429(2), AGRO 423(3), AGRO 425(3) (Sem: 3-8)  
 AGECECO/AGRO 438(4) (Sem: 5)  
 HORT 407(3) (Sem: 5-7)  
 SOILS 401(3), SOILS 402(3) (Sem: 6-8)

**ADDITIONAL COURSES** (23-25 credits)

Select 3 credits from AGRO 028(3)[11](#) or HORT 101 GN(3)[11](#) (Sem: 1-3)  
 Select 3 credits from AG 160 GH(3), PHIL 013 GH(3), PHIL 103 GH(3), or PHIL 132 GH(3) (Sem: 2-7)  
 Select 3 credits from AGECECO 121 GN(3) or BIOL 127 GN(3) (Sem: 3-5)  
 Select 3 credits from AG BM 102(3), AG BM 106(3), AG BM 200(3) or AG BM 407(3) (Sem: 3-7)  
 Select 3 credits from AEE 201 GS(3), AEE 360(3), AEE 460(3), or AEE 465(3) (Sem: 3-7)  
 Select 2 credits from AGECECO 154(2) or SOILS 403(2) (Sem: 3-8)  
 Select 3-4 credits from AGECECO/AN SC/SOILS 418(3), AN SC 201(4), GEOG 160 GS(3), or SOILS 450(3) (Sem: 3-8)  
 Select 3-4 credits from AGRO 410W(4), HORT 412W(3), or SOILS 412W(3) (Sem: 6)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits of supporting courses in consultation with adviser (Sem: 4-8)

**HORTICULTURE OPTION:** (54-57 credits)**PRESCRIBED COURSES** (30 credits)

HORT 101 GN(3)[11](#), HORT 202(3)[11](#), HORT 232(3), HORT 315(3)[11](#), HORT 402W(3), HORT 407(3), HORT 412W(3)[11](#), HORT 420(3), HORT 445(3), HORT 455(3) (Sem: 1-8)

**ADDITIONAL COURSES** (24-27 credits)

Select 3 credits from HORT 131(3), HORT 137(3), HORT 138(3), HORT 431(3)\*, HORT 432(3)\*, or HORT 433(3)\* (Sem: 3-8)  
 Select 3 credits from PPEM 300(3) or PPEM 405(3) (Sem: 4-8)  
 Select 6-7 credits from HORT 408(4), HORT 431(3), HORT 432(3), HORT 433(3), HORT 450(3), or HORT 453(3) (Sem: 5-8)  
 Select 3-4 credits from AGRO 438(4) or HORT 238(3) (Sem: 5-8)  
 Select 9-10 credits from AG 301W(3), AG BM 200(3), AG BM 407(3), B LAW 243(3), FIN 100(3), MKTG 221(3), SPAN 001(4), SPAN 002(4), SPAN 003(4) or SPAN 105(4) (Sem: 5-8)

**PLANT SCIENCE OPTION:** (50-56 credits)**PRESCRIBED COURSES** (24 credits)

CHEM 112(3) (Sem: 2-3)  
 BIOL 127 GN(3)[11](#), PHYS 250(4) (Sem: 3-6)  
 CHEM 210(3), CHEM 212(3), CHEM 213B(2) (Sem: 4-5)  
 BIOL 222(3) (Sem: 5-6)  
 PPEM 405(3)[11](#) (Sem: 5-8)

**ADDITIONAL COURSES** (26-32 credits)

Select 3 credits from AGRO 028(3) or HORT 101 GN(3) (Sem: 1-4)  
 Select 1 credit from CHEM 113(1) or CHEM 113B(1) (Sem: 2-3)  
 Select 4-6 credits from B M B 211(3) and B M B 212(1), or BIOL 230W GN(4), or BIOL 240W GN(4), or MICRB 201(3) and MICRB 202(2), or MICRB 251(3), or MICRB 252(3) (Sem: 3-6)  
 Select 3-4 credits from BIOL 439\*(3), ENT 402W(3), ENT 410(3), PPEM 416(3), PPEM 417\*(3), or PPEM 425\*(4) (Sem: 5-8)  
 Select 3-4 credits from BIOL 412(3), BIOL 414(3), BIOL 427(3), BIOL 428(3), BIOL 436(3), BIOL 448(3), ENT/VB SC 402W(3), ENT 420(3), HORT 445(3), or PPEM 425\*(4) (Sem: 5-8)  
 Select 3 credits from AGRO 460(3), BIOL 439(3), HORT 407\*(3), or HORT 459(3) (Sem: 5-8)  
 Select 6-7 credits from AGRO 410W(4), AGRO 460(3), BIOL 407(3), BIOL 441(3), BIOL 424(3), HORT 402W(3), HORT 407\*(3), HORT 412W(3), HORT 420(3), PPEM 417\*(3), or PPEM/E R M 430(3) (Sem: 5-8)  
 Select 3-4 credits from AGRO 410W(4), HORT 412W(3), or SOILS 412W(3) (Sem: 6)

\*Students cannot use the same course more than once as an additional course

[11](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-01-003

Review Date: 08/14/2012

## Plastics Engineering Technology

*Penn State Erie, The Behrend College (PLTBD)*

This major prepares graduates with the knowledge and skills needed to provide high level engineering technology support to a wide variety of industrial, developmental, commercial, consulting, and sales organizations dealing with the development, manufacture and/or distribution of plastics related products, materials and technologies. The program emphasizes the integration of engineering and scientific principles, practical hands-on experience, application of state-of-the-art computer technologies, and management methods.

### Entrance to Major Requirements:

To be eligible for entrance to the Plastics Engineering Technology major, a student must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed MATH 081 or MATH 026, and MATH 082 or MATH 022, and MATH 083 or MATH 140, and PHYS 250, and earned a grade of C or better in each of these courses.

Graduates are qualified for positions in product development, part design, tooling design, R&D, processing, plant engineering, production control, technical sales and marketing in the plastics industry, and are provided a path to a wide variety of graduate degrees in engineering, science or business.

The four-year baccalaureate program is accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org). Graduates of the Penn State University associate degree program in Mechanical Engineering Technology may complete this degree in five semesters of full-time study.

For the B.S. degree in Plastics Engineering Technology, a minimum of 134 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 1 credit

### REQUIREMENTS FOR THE MAJOR: 106 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

### PRESCRIBED COURSES (82 credits)

CHEM 110 GN(3)[\[1\]](#), CHEM 111 GN(1)[\[1\]](#), EG T 120(3), EG T 121(3), PHYS 250 GN(4)[\[1\]](#), PL ET 050(2)[\[1\]](#) (Sem: 1-2)  
MCH T 111(3)[\[1\]](#), MCH T 213(3)[\[1\]](#), PL ET 205(3)[\[1\]](#), PL ET 206W(3)[\[1\]](#), PL ET 222(4)[\[1\]](#), PL ET 227(4)[\[1\]](#), PL ET 232(3)[\[1\]](#), PL ET 235(2)[\[1\]](#) (Sem: 3-4)  
ENGL 202C GWS(3)[\[1\]](#), MATH 211 GQ(3), MET 418(3)[\[1\]](#), MGMT 409(3)[\[1\]](#), PL ET 304(3)[\[1\]](#), PL ET 323(3)[\[1\]](#), PL ET 330(4)[\[1\]](#), PL ET 345(2)[\[1\]](#), PL ET 350(4)[\[1\]](#),  
PL ET 366(3)[\[1\]](#), PL ET 494A(3)[\[1\]](#) (Sem: 5-6)  
PL ET 425(2)[\[1\]](#), PL ET 477(2)[\[1\]](#), PL ET 481(3)[\[1\]](#) (Sem: 7-8)

### ADDITIONAL COURSES (15 credits)

MATH 026 GQ(3)[\[1\]](#) or MATH 081 GQ(3)[\[1\]](#), MATH 022 GQ(3)[\[1\]](#) or MATH 082 GQ(3)[\[1\]](#), MATH 083 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#), MATH 210 GQ(3)[\[1\]](#) and two credits of GN electives; or MATH 140 GQ(4)[\[1\]](#), MATH 141 GQ(4)[\[1\]](#), 2 credits of GN electives, and 5 credits of general electives (Sem: 1-4)

### SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select a total of 9 credits of technical electives from School-approved list. (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-006

Review Date: 11/19/2013

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

BD

## Petroleum and Natural Gas Engineering

University Park, College of Earth and Mineral Sciences (PNG E)

PROFESSOR TURGAY ERTEKIN, Undergraduate Program Chair

The B.S. program in Petroleum and Natural Gas Engineering is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone: 410-347-7700.

The undergraduate curriculum in petroleum and natural gas engineering has been designed to equip the student with the fundamentals necessary to achieve lifelong professional growth. Graduates are prepared to enter both the private and public sectors as petroleum and natural gas engineers or to pursue further education at the graduate level.

The courses are structured to serve as a melting pot for theory, application to case studies and engineering project design. This enables the student to appreciate and understand that a successful engineering design project requires a sound theoretical foundation, experimentation and engineering judgment. The thrust of the program structure emphasizes the fundamentals of mathematics and earth and engineering sciences and integrates them in application to traditional petroleum and natural gas engineering topics. Design projects are required throughout the curriculum. Execution of these projects requires an amalgamation of problem formulation strategies, testing of alternative design methodologies, feasibility studies, and economic and environmental considerations. Graduates of the program are expected to perform in various facets of the petroleum industry including drilling, production, evaluation, transportation and storage. The petroleum and natural gas engineering faculty and staff are committed to an interactive teaching and learning environment to ensure that the student is an active participant in the learning process. General education opportunities are sufficiently broad and diverse in scope to enable the student to tailor the educational experience to particular interests, background and expected role in society.

Petroleum and Natural Gas Engineering Student Outcomes:

1. Our students, at the time of their graduation, will have a working knowledge of basic math, science skills and engineering skills.
2. Our students, at the time of their graduation, will be equipped with ability to design and conduct experiments as well as to analyze and interpret data.
3. Our students, at the time of their graduation, will be ready to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
4. Our students, at the time of their graduation, will be able to function in multi-disciplinary teams.
5. Our students, at the time of their graduation, will be equipped with the necessary skills to identify, formulate and solve engineering problems.
6. Our students, at the time of their graduation, will have a thorough understanding of professional and ethical responsibilities.
7. Our students, at the time of their graduation, will be equipped with the necessary communication skills to communicate effectively.
8. Our students, at the time of their graduation, will have a broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.
9. Our students, at the time of their graduation, will be instilled with the recognition of the need for, and an ability to engage in life-long learning.
10. Our students, at the time of their graduation, will attain knowledge on contemporary issues.
11. Our students, at the time of their graduation, will have an ability to use the techniques, skills and modern engineering tools that are necessary for engineering practice.

Petroleum and Natural Gas Engineering Program Educational Objectives:

1. Our graduates will integrate key science and engineering principles to address the technological challenges of the petroleum and natural gas industry.
2. Our graduates will practice in a broad range of petroleum engineering fields working on teams that create innovative solutions to the most pressing problems of the petroleum and natural gas industry by implementing the ideals of ethical behavior, professionalism, and environmental sensitivity and social awareness.
3. Our graduates will be recognized as critical and independent thinkers and will assume positions of leadership in defining the social, intellectual, business and technical dimensions of the professional organizations they belong to.
4. Our graduates will continue their life-long learning process and participate in graduate education to remain as effective professionals in the workplace of the future.

**ENTRANCE TO MAJOR--** (Effective for students admitted beginning Summer 2013) -- In the event that the major is under enrollment control, a higher minimum cumulative grade-point average (GPA) than the minimum described by University Policies is likely to be needed. In addition to this minimum grade point average requirement, the following entrance to major requirements must also be completed with a minimum grade of C: CHEM 110 (GN)(3) [1], CHEM 112 (GN)(3)[1], MATH 140 (GQ)(4)[1], MATH 141 (GQ)(4)[1], and PHYS 211 (GN)(4)[1]. These courses must be completed by the end of the semester during which the entrance to major process is carried out. To be eligible for consideration for entrance to this major, students must be enrolled in the College of Earth and Mineral Sciences or Division of Undergraduate Studies at the time that they confirm their major choice.

### Integrated B.S. in Petroleum and Natural Gas Engineering (PNG E) and M.S. in Energy and Mineral Engineering (EME)

The integrated undergraduate-graduate (IUG) program between the Petroleum and Natural Gas Engineering undergraduate program and the Energy and Mineral Engineering graduate program enables academically superior and research-focused PNG E undergraduate students to also obtain an M.S. degree in Energy and Mineral Engineering in five years of study. Students should refer to the Energy and Mineral Engineering graduate program in the Graduate Program Bulletin for the IUG admission and degree requirements.

([http://bulletins.psu.edu/bulletins/whitebook/graduate\\_degree\\_programs.cfm?letter=E&program=grad\\_eme.htm](http://bulletins.psu.edu/bulletins/whitebook/graduate_degree_programs.cfm?letter=E&program=grad_eme.htm))

For the B.S. degree in Petroleum and Natural Gas Engineering, a minimum of 129 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(30 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 114 credits

(This includes 30 credits of General Education courses: 3 credits of GH courses; 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

**PRESCRIBED COURSES** (99 credits)

CHEM 110 GN(3) [1], CHEM 111 GN(1), CHEM 112 GN(3) [1], ECON 102 GS(3), EM SC 100S GWS(3) [88] (Sem: 1-2)  
MATH 140 GQ(4) [1], MATH 141 GQ(4) [1], MATH 230(4), MATH 251(4), PHYS 211 GN(4) [1], PHYS 212 GN(4) [1], PHYS 213 GN(2) (Sem: 1-4)  
E MCH 210(5) [77], E MCH 212(3), GEOSC 001(3) (Sem: 3-4)  
EME 301(3) [1], EME 303(3) [1], EME 460(3), GEOSC 454(3), P N G 405(3) [1], P N G 406(1) [1], P N G 410(3) [1], P N G 450(3) [1], P N G 451(1) [1], P N G 475(3) [1], P N G 490(1) (Sem: 5-6)  
ENGL 202C GWS(3), P N G 420(4), P N G 425(3), P N G 430(3), P N G 440W(3), P N G 480(3), P N G 482(1), P N G 491(1), P N G 492(1) (Sem: 7-8)

**ADDITIONAL COURSES** (9 credits)

Select 9 credits: one course from categories a, b, and c.

a. ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)

b. PHIL 103 GH(3), PHIL 106 GH(3), PHIL 107 GH(3), or PHIL 233 GH(3) (Sem: 3-4)

c. CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits in consultation with adviser (Students may apply 6 credits of ROTC.) (Sem: 7-8)

**Course Substitutions for the Integrated B.S. in Petroleum and Natural Gas Engineering (PNG E) and M.S. in Energy and Mineral Engineering (EME)**

As many as twelve of the credits required for the master's degree may be applied to both the B.S. and M.S. degrees. A minimum of six credits counted for both the B.S. and M.S. degrees must be at the 500-level. Thesis and culminating/capstone experience credits may not be double counted. The undergraduate degree program officer will determine the specific undergraduate required courses for which the 500-level courses may be used to substitute to meet institutional and accreditation requirements.

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[77]** Students at commonwealth campuses and/or transfer students can substitute the combination of E MCH 211 and E MCH 213.

**[88]** The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 GWS can be substituted for EM SC 100S GWS.

R & T: Approved 5/24/2013

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-029

Review Date: 08/20/13

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

EM

## Political Science

*Penn State Erie, The Behrend College (POLSC)*

The discipline of political science consists of different related subfields such as American government, international relations, public policy and administration, the study of how governments accomplish objectives, and comparative politics, the study of foreign government. The major offers students the opportunity to take course work in most subfields as well as seek practical experience through an internship. All students are encouraged to develop research and writing and statistical skills. Many students have continued their education in law or graduate school.

For the B.A. degree in Political Science, a minimum of 120 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 15 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits

**PRESCRIBED COURSES** (6 credits)

PL SC 001 GS(3), PL SC 003 GS;IL(3) (Sem: 1-4)

**ADDITIONAL COURSES** (6 credits)

INTST 100 GS;IL(3) or PL SC 014 GS;IL(3) (Sem: 1-4)

PL SC 017 GS(3) or PL SC 017W GS(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (24 credits)

( In meeting this requirement, select at least one course beyond the prescribed and additional courses listed above from each of the four fields offered in the program: American Government, Comparative Politics, International Politics, and Government in Theory and Practice.)

Select 12 credits at any level from a program-approved list (Sem: 1-8)

Select 12 credits at the 400 level from a program-approved list (Sem: 3-8)

Last Revised by the Department: Summer Session 2006

Blue Sheet Item #: 34-04-004

Review Date: 1/17/06

BD

## Psychology

Altoona College (PSCBA)

University College (PYACC) - Penn State Beaver, Penn State Brandywine, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State New Kensington

The Psychology major will combine the knowledge, skills, and values of psychology with a liberal arts foundation. Students should develop a knowledge base consisting of concepts, theory, empirical findings, and trends within psychology; understand and apply basic research methods in psychology; use critical thinking and the scientific approach to solve problems related to behavior and mental processes; apply psychological principles to personal and social issues; and be able to understand the gender, sexual orientation, race, ethnicity, culture, and class issues in psychological theory, research, and practice. Students should also develop information and computer competence, communication skills, and develop realistic ideas about how to implement their psychology education in occupational pursuits in a variety of settings. The major may lead to either a Bachelor of Arts or a Bachelor of Science degree. The B.A. degree incorporates a broad exposure to the many facets of the field of psychology, in addition to the B.A. requirements. The B.S. degree provides the same exposure to the field of psychology and adds options in Science and Business to prepare students for more specific career directions. Students in both degree programs may also prepare for graduate school; research experience with faculty members is encouraged for such students.

For the B.A. degree in Psychology, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(0-4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 14-18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 41 credits [\[1\]](#)

(This includes 0-4 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (7 credits)

PSYCH 100 GS(3) (Sem: 1-4)

PSYCH 301W(4) (Sem: 3-6)

**ADDITIONAL COURSES** (34 credits)

(Must include 15 credits at 400-level.)

Select 4 credits from PSYCH 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

Select 18 credits--a minimum of 3 credits from each of the following six categories

1. Learning and Cognition: PSYCH 256 GS(3), PSYCH 261 GS(3), PSYCH 268(3), PSYCH 426(3), PSYCH 427(3), PSYCH 452(3), PSYCH 456(3), PSYCH 457(3), PSYCH 458(3), PSYCH 459(3), PSYCH 461(3) (Sem: 2-8)
2. Social and Personality Psychology: PSYCH 221 GS(3), PSYCH 231 GS;US(3), PSYCH 232 GS;US;IL(3), PSYCH 238 GS(3), PSYCH 419(3), PSYCH 420(3), PSYCH 421(3), PSYCH 423(3), PSYCH 424(3), PSYCH 432 US(3), PSYCH 438(3), PSYCH 479 US(3) (Sem: 2-8)
3. Biological Bases of Behavior: PSYCH 253 GS(3), PSYCH 260(3), PSYCH 269(3), PSYCH 441(3), PSYCH 460(3), PSYCH 462(3), PSYCH 463(3), PSYCH 464(3), PSYCH 475(3), PSYCH 478(3) (Sem: 2-8)
4. Developmental Psychology: PSYCH 212 GS(3), PSYCH 410(3), PSYCH 412(3), PSYCH 413(3), PSYCH 414(3), PSYCH 415(3), PSYCH 416(3)/HD FS 445(3), PSYCH 474(3) (Sem: 2-8)
5. Applied and Clinical Psychology: PSYCH 243 GS(3), PSYCH 244 GS(3), PSYCH 270(3), PSYCH 281 GS(3), PSYCH 370 US(3), PSYCH 404(3), PSYCH 408(3), PSYCH 443(3), PSYCH 444(3), PSYCH 445(3), PSYCH 470(3), PSYCH 471(3), PSYCH 473(3), PSYCH 476(3), PSYCH 477(3), PSYCH 481(3), PSYCH 482(3), PSYCH 484(3), PSYCH 485(3) (Sem: 2-8)
6. Capstone Experience: PSYCH 439(3), PSYCH 490(3), PSYCH 493(3-6), PSYCH 494(3-18), PSYCH 495(6-15), PSYCH 496(3-18) (Sem: 7-8)

Select 12 credits of additional Psychology courses from any offered for a total of 30 credits of Psychology courses beyond PSYCH 100 and PSYCH 301W (Sem: 2-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-05-071

Review Date: 02/21/2012

UCA Revision #1: 9/1/06

AL

## Psychology

Altoona College (PSCBS)

University College (PYSCC) - Penn State Beaver, Penn State Brandywine, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State New Kensington

The Psychology major will combine the knowledge, skills, and values of psychology with a liberal arts foundation. Students should develop a knowledge base consisting of concepts, theory, empirical findings, and trends within psychology; understand and apply basic research methods in psychology; use critical thinking and the scientific approach to solve problems related to behavior and mental processes; apply psychological principles to personal and social issues; and be able to understand the gender, sexual orientation, race, ethnicity, culture, and class issues in psychological theory, research, and practice. Students should also develop information and computer competence, communication skills, and develop realistic ideas about how to implement their psychology education in occupational pursuits in a variety of settings. The major may lead to either a Bachelor of Arts or a Bachelor of Science degree. The B.A. degree incorporates a broad exposure to the many facets of the field of psychology, in addition to the B.A. requirements. The B.S. degree provides the same exposure to the field of psychology and adds options in Science and Business to prepare students for more specific career directions. Students in both degree programs may also prepare for graduate school; research experience with faculty members is encouraged for such students.

For the B.S. degree in Psychology, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(0-4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 14-18 credits

**REQUIREMENTS FOR THE MAJOR:** 65 credits [\[1\]](#)

(This includes 0-4 credits of General Education GQ courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 41 credits

**PRESCRIBED COURSES** (7 credits)

PSYCH 100 GS(3) (Sem: 1-4)

PSYCH 301W(4) (Sem: 3-6)

**ADDITIONAL COURSES** (34 credits)

(Must include 15 credits at the 400-level.)

Select 4 credits from PSYCH 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

Select 18 credits--a minimum of 3 credits from each of the following six categories:

1. Learning and Cognition: PSYCH 256 GS(3), PSYCH 261 GS(3), PSYCH 268(3), PSYCH 426(3), PSYCH 427(3), PSYCH 452(3), PSYCH 456(3), PSYCH 457(3), PSYCH 458(3), PSYCH 459(3), PSYCH 461(3) (Sem: 2-8)
2. Social and Personality Psychology: PSYCH 221 GS(3), PSYCH 231 GS:US(3), PSYCH 232 GS:US:IL(3), PSYCH 238 GS(3), PSYCH 419(3), PSYCH 420(3), PSYCH 421(3), PSYCH 423(3), PSYCH 424(3), PSYCH 432 US(3), PSYCH 438(3), PSYCH 479 US(3) (Sem: 2-8)
3. Biological Bases of Behavior: PSYCH 253 GS(3), PSYCH 260(3), PSYCH 269(3), PSYCH 441(3), PSYCH 460(3), PSYCH 462(3), PSYCH 463(3), PSYCH 464(3), PSYCH 475(3), PSYCH 478(3) (Sem: 2-8)
4. Developmental Psychology: PSYCH 212 GS(3), PSYCH 410(3), PSYCH 412(3), PSYCH 413(3), PSYCH 414(3), PSYCH 415(3), PSYCH 416(3)/HD FS 445(3), PSYCH 474(3) (Sem: 2-8)
5. Applied and Clinical Psychology: PSYCH 243 GS(3), PSYCH 244 GS(3), PSYCH 270(3), PSYCH 281 GS(3), PSYCH 370 US(3), PSYCH 404(3), PSYCH 408(3), PSYCH 443(3), PSYCH 444(3), PSYCH 445(3), PSYCH 470(3), PSYCH 471(3), PSYCH 473(3), PSYCH 476(3), PSYCH 477(3), PSYCH 481(3), PSYCH 482(3), PSYCH 484(3), PSYCH 485(3) (Sem: 2-8)
6. Capstone Experience: PSYCH 439(3), PSYCH 490(3), PSYCH 493(3-6), PSYCH 494(3-18), PSYCH 495(6-15), PSYCH 496(3-18) (Sem: 7-8)

Select 12 credits of additional Psychology courses from any offered for a total of 30 credits of Psychology courses beyond PSYCH 100 and PSYCH 301W (Sem: 2-8)

**REQUIREMENTS FOR THE OPTION:** 24 credits

**SCIENCE OPTION:** (24 credits)

**ADDITIONAL COURSES** (15 credits)

Select 15 credits from: ANTH 021 GN(3); ANTH 022 GN(3); BB H 101 GHA(3) any BIOL course; any CHEM course; any MICRB course; any PHYS course (Sem: 2-8)

**SUPPORTING COURSES** (9 credits)

Select 6 credits in natural sciences/quantification from department list (Sem: 2-8)

Select 3 credits in social and behavioral sciences from department list (Sem: 2-8)

**BUSINESS OPTION:** (24 credits)

**ADDITIONAL COURSES** (15 credits)

Select 15 credits from: Any ACCTG course; B A 100 GS(3); B A 241(2), B A 242(2) or B A 243(4); Any ECON course; any FIN course; any H P A courses; any I B course; any MGMT course; any MKTG course; any SCM except 200 (Sem: 2-8)

**SUPPORTING COURSES** (9 credits)

Select 6 credits in natural sciences/quantification from department list (MATH 022 or MATH 110 recommended) (Sem: 2-8)

Select 3 credits in social and behavioral sciences from department list (Sem: 2-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-05-072

Review Date: 02/21/2012

UCA Revision #1: 8/31/06

AL



## Psychology

*Penn State Erie, The Behrend College (PSHBA)*

Psychology is both a scientific discipline and a profession. Its overall focus is the study of behavior, cognition, and affect, and their associated physiological processes. Research is vital to the discipline of psychology. Investigators collect, quantify, analyze, and interpret data in order to understand the principles and theories of human thought and behavior. As a profession, psychology involves the application of knowledge, skills, and techniques for the solution and prevention of individual and social problems. Bachelor-level graduates in psychology are equipped for various positions in human service agencies, industrial settings, and laboratories. However, many students continue their training, working towards a master's or a doctoral degree in psychology, while still others go on to school in other disciplines, e.g., medical school or law school.

Students may select either the Bachelor of Arts or Bachelor of Science program. The Bachelor of Arts degree requires more credits in the arts, humanities, and social sciences and proficiency in a second language. The Bachelor of Science program, in turn, offers two options. The General option is intended for students with a strong interest in science and requires more course work in the biological, physical, and mathematical sciences than does the Bachelor of Arts program. The Business option is designed for students who wish to combine their interests in business and psychology.

For the B.A. degree in Psychology, a minimum of 124 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(0-4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 12-16 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 43 credits

(This includes 0-4 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (12 credits)

CMPSC 100(1) (students may test out of this course) (Sem: 1-4)

PSYCH 100 GS(3) [\[1\]](#) (Sem: 1-4)

PSYCH 301W(4) [\[1\]](#) (Sem: 1-4)

PSYCH 406W(4) (Sem: 5-8)

**ADDITIONAL COURSES** (16 credits)

PSYCH 200 GQ(4) [\[1\]](#) or STAT 200 GQ(4) [\[1\]](#) (Sem: 1-4)

Select 12 credits, including one course from at least four of the following five categories:

1. Foundations of Behavior: PSYCH 260(3), PSYCH 261 GS(3), PSYCH 439(3), PSYCH 461(3), PSYCH 462(3) (Sem: 1-6)
2. Social/Developmental: PSYCH 212 GS(3), PSYCH 221 GS(3), PSYCH 412(3), PSYCH 413(3), PSYCH 414(3), PSYCH 416(3), PSYCH 420(3) (Sem: 1-6)
3. Cognitive/Experimental: PSYCH 253(3), PSYCH 256(3), PSYCH 456(3), PSYCH 452(3), PSYCH 413(3), PSYCH 453(3) (Sem: 1-6)
4. Clinical/Personality: PSYCH 238 GS(3), PSYCH 140(3), PSYCH 414(3), PSYCH 471(3), PSYCH 470(3), PSYCH 481(3) (Sem: 1-6)
5. Diversity: PSYCH 231 GS;US(3), PSYCH 232 GS(3), PSYCH 479(3) (Sem: 3-8)

*Note: PSYCH 414 may be counted in either Social/Developmental or Clinical/Personality, but not both.*

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 6 additional credits of psychology courses at any level as interest dictates (3 credits of either PSYCH 495 or 496 may be applied to this requirement) (Sem: 3-8)

Select 9 credits of 400-level psychology courses from any combination of categories in consultation with adviser (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-07-017

Review Date: 03/11/05

UCA Revision #1: 9/1/06

UCA Revision #2: 7/30/07

BD



## Psychology

*Penn State Erie, The Behrend College (PSHBS)*

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

Psychology is both a scientific discipline and a profession. Its overall focus is the study of behavior, cognition, and affect, and their associated physiological processes. Research is vital to the discipline of psychology. Investigators collect, quantify, analyze, and interpret data in order to understand the principles and theories of human thought and behavior. As a profession, psychology involves the application of knowledge, skills, and techniques for the solution and prevention of individual and social problems. Bachelor-level graduates in psychology are equipped for various positions in human service agencies, industrial settings, and laboratories. However, many students continue their training, working towards a master's or a doctoral degree in psychology, while still others go on to school in other disciplines, e.g., medical school or law school.

Students may select either the Bachelor of Arts or Bachelor of Science program. The Bachelor of Arts degree requires more credits in the arts, humanities, and social sciences and proficiency in a second language. The Bachelor of Science program, in turn, offers two options. The General option is intended for students with a strong interest in science and requires more course work in the biological, physical, and mathematical sciences than does the Bachelor of Arts program. The Business option is designed for students who wish to combine their interests in business and psychology.

For the B.S. degree in Psychology, a minimum of 124 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(4-8 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 15-19 credits

**REQUIREMENTS FOR THE MAJOR:** 68 credits

(This includes 4-8 credits of General Education GQ courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 47 credits

**PRESCRIBED COURSES** (12 credits)

CMPSC 100(1), PSYCH 100 GS(3) [\[1\]](#) (Sem: 1-4)

PSYCH 301W(4) [\[1\]](#) (Sem: 3-6)

PSYCH 406W(4) (Sem: 5-8)

**ADDITIONAL COURSES** (20 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

PSYCH 200(4) [\[1\]](#) or STAT 200 GQ(4) [\[1\]](#) (Sem: 1-4)

Select 12 credits, including one course from at least four of the following five categories:

1. Foundations of Behavior: PSYCH 260(3), PSYCH 261 GS(3), PSYCH 439(3), PSYCH 461(3), PSYCH 462 (3) (Sem: 3-8)

2. Social/Developmental: PSYCH 212 GS(3), PSYCH 221 GS(3), PSYCH 412(3), PSYCH 413(3), PSYCH 414(3), PSYCH 416(3), PSYCH 420(3) (Sem: 3-8)

3. Cognitive/Experimental: PSYCH 253 GS(3), PSYCH 256 GS(3), PSYCH 413(3), PSYCH 452(3), PSYCH 453(3), PSYCH 456(3) (Sem: 3-8)

4. Clinical/Personality: PSYCH 140(3), PSYCH 238 GS(3), PSYCH 414(3), PSYCH 470(3), PSYCH 471(3), PSYCH 481(3) (Sem: 3-8)

5. Diversity: PSYCH 231 GS;US(3), PSYCH 232 GS;US;IL(3), PSYCH 479(3) (Sem: 3-8)

*Note: PSYCH 414 may be counted in either Social/Developmental or Clinical/Personality, but not both.*

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 6 additional credits of psychology courses at any level as interest dictates (3 credits of either PSYCH 495 or PSYCH 496 may be applied to this requirement) (Sem: 3-8)

Select 9 credits of 400-level psychology courses from any combination of categories in consultation with adviser (Sem: 3-8)

**REQUIREMENTS FOR THE OPTION:** 21 credits

**BUSINESS OPTION:** (21 credits)

**SUPPORTING COURSES AND RELATED AREAS:** 21 credits

Select 21 credits in business courses in consultation with adviser (Sem: 3-8)

**GENERAL PSYCHOLOGY OPTION:** (21 credits)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Select 21 credits in science courses in consultation with adviser (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-07-018

Review Date: 03/11/05

UCA Revision #1: 9/1/06

UCA Revision #2: 7/30/07

BD

## Psychological and Social Sciences

Abington College (PSSBA)

PROFESSOR DAVID RUTH, Head, Division of Social Sciences

Building on the interdisciplinary and cross-disciplinary strengths of Penn State Abington, the Psychological and Social Sciences B.A. is designed to respond to the demand for a program emphasizing the social and behavioral sciences leading to an understanding of human behavior and its influence upon society as well as the influence of social forces on individuals. The program is distinguished by its interdisciplinary and cross-disciplinary course work and required field experience. The B.A. provides a broad theoretical foundation in social and psychological theory as well as the opportunity to engage in supervised field experience. The major offers students a choice of course clusters focused on specialized areas such as social psychology, developmental studies, organizational behavior and leadership, bio-behavior and diversity, and counseling. The major is designed to prepare students for a variety of career fields including human resources, business administration, mental health, and social work as well as for continued study in graduate or professional school.

For the B. A. degree in Psychological and Social Sciences, a minimum of 121 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 5-6 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 46-47 credits [\[1\]](#)

**PRESCRIBED COURSES** (10 credits)

PSYCH 100 GS(3) (Sem: 1-2)

ANTH 045 GS:US:IL(3) (Sem: 1-4)

PSYCH 200 GQ(4) (Sem: 3-4)

**ADDITIONAL COURSES** (15-16 credits)

SOC 001 GS(3) or SOC 005 GS(3) (Sem: 1-4)

HD FS 129 GS(3) or PSYCH 212 GS(3) (Sem: 1-4)

HD FS 312W(3) or PSYCH 301W(4) (Sem: 3-4)

BB H 301(3) or HD FS 301(3) (Sem: 3-6)

Select 3 credits of ANTH 495(1-18), HD FS 495C(3-8), PSYCH 495(1-15), or SOC 495(1-18) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Select 6-15 credits from the following HD FS and PSYCH courses:

HD FS 229 GS(3), HD FS 239 GS(3), HD FS 249 GS(3), HD FS 250 US(3), HD FS 315 US(3), HD FS 432(3), HD FS 433(3), HD FS 445(3), HD FS 468(3), PSYCH 221 GS(3), PSYCH 281 GS(3), PSYCH 407(3), PSYCH 412(3), PSYCH 415(3), PSYCH 416(3), PSYCH 420(3), PSYCH 422(3), PSYCH 423(3), PSYCH 424(3), PSYCH 426(3), PSYCH 438(3), PSYCH 441(3), PSYCH 470(3), PSYCH 478(3), PSYCH 479 US(3), PSYCH 481(3), PSYCH 484(3), PSYCH 485(3), PSYCH 496B(3), PSYCH 497(1-9) (Sem: 5-8)

Select 6-15 credits from the following SOC and ANTH courses:

ANTH 002 GS(3), ANTH 011 GS:IL(3), ANTH 022 GN(3), ANTH 040(3), ANTH 146 GS:US(3), ANTH 197(1-9), ANTH 199 IL(1-12), ANTH 216 GN:GS(3), ANTH 321W(3), ANTH 380(3), ANTH 395(1-18), ANTH 448(3), ANTH 464(3), SOC 003 GS(3), SOC 030 GS(3), SOC 035(3), SOC 103 US(3), SOC 109(3), SOC 110 GS:US(3), SOC 309(3), SOC 403(3), SOC 405(3), SOC 406(3), SOC 409 US(3), SOC 416 US(3), SOC 429(3), SOC 430(3), SOC 455(3), SOC 456(3), SOC 462(3), SOC 471(3), SOC 497(1-9) (Sem: 5-8)

Select 0-9 credits from the following other social sciences courses:

BB H 302 US(3), BB H 315 US(3), CAS 352(3), CAS 415(3), CAS 455 US(3), CN ED 404(3), CN ED 407(3), COMM 100 GS(3), COMM 120(3), COMM 411(3), EDPSY 014(3), WMNST 471 US(3) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Lasted Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-001

Review Date: 04/08/2014

UCA Revision #1: 9/1/06

Dept head revised by Publications: 4/23/07

AB

## Psychological and Social Sciences

Abington College (PSSBS)

PROFESSOR DAVID RUTH, *Head, Division of Social Sciences*

Building on the interdisciplinary and cross-disciplinary strengths of Penn State Abington, the Psychological and Social Sciences B.S. is designed to respond to the demand for a program emphasizing the social and behavioral sciences leading to an understanding of human behavior and its influence upon society as well as the influence of social forces on individuals. The program is distinguished by its interdisciplinary and cross-disciplinary course work and required field experience. The degree program offers students a choice of course clusters focused on specialized areas such as social psychology, developmental studies, organizational behavior and leadership, bio-behavior and diversity, and counseling. The B.S. provides a broad theoretical foundation in social and psychological theory as well as the opportunity to engage in supervised field experience. In addition, the B.S. degree emphasizes quantitative research skills and requires the completion of a senior thesis. The major is designed to prepare students for a variety of career fields including human resources, business administration, mental health, and social work as well as for continued study in graduate or professional school.

For the B.S. degree in Psychological and Social Sciences, a minimum of 121 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(7-8 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 12-17 credits

**REQUIREMENTS FOR THE MAJOR:** 66-70 credits<sup>[1]</sup>

(This includes 7-8 credits of General Education courses: 3-4 credits of GN courses; 4 credits of GQ courses.)

**PRESCRIBED COURSES** (17 credits)

MATH 110 GQ(4), PSYCH 100 GS(3) (Sem: 1-2)

ANTH 045 GS:US:IL(3) (Sem: 1-4)

PSYCH 200 GQ(4) (Sem: 3-4)

SOC 471(3) (Sem: 7-8)

**ADDITIONAL COURSES** (29 credits)

BIOL 110 GN(4) or BIOL 141 GN(3) and BIOL 142(1) (Sem: 1-4)

SOC 001 GS(3) or SOC 005 GS(3) (Sem: 1-4)

HD FS 129 GS(3) or PSYCH 212 GS(3) (Sem: 1-4)

PSYCH 301W(4) or HD FS 312W(3) (Sem: 3-4)

BB H 301(3) or HD FS 301(3) (Sem: 3-6)

CAS 352(3) or CAS 455 US(3) (Sem: 5-8)

Select 3 credits of ANTH 495(1-18), HD FS 495C(3-8), PSYCH 495(1-15), or SOC 495(1-18) (Sem: 7-8)

Select 3 credits of ANTH 494(1-12), HD FS 494(1-12), PSYCH 494(3-6), or SOC 494(1-12) (Sem: 7)

Select 4 credits of ANTH 494(1-12), HD FS 494(1-12), PSYCH 494(3-6), or SOC 494(1-12) (Sem: 8)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

(at least 12 credits must be at the 400 level)

Select 6-15 credits from the following HD FS and PSYCH courses:

HD FS 229 GS(3), HD FS 239 GS(3), HD FS 249 GS(3), HD FS 250 US(3), HD FS 315 US(3), HD FS 432(3), HD FS 433(3), HD FS 445(3), HD FS 468(3), PSYCH 221 GS(3), PSYCH 281 GS(3), PSYCH 407(3), PSYCH 412(3), PSYCH 415(3), PSYCH 416(3), PSYCH 420(3), PSYCH 422(3), PSYCH 423(3), PSYCH 424(3), PSYCH 426(3), PSYCH 438(3), PSYCH 441(3), PSYCH 470(3), PSYCH 478(3), PSYCH 479 US(3), PSYCH 481(3), PSYCH 484(3), PSYCH 485(3), PSYCH 496B(3), PSYCH 497(1-9) (Sem: 5-8)

Select 6-15 credits from the following SOC and ANTH courses:

ANTH 002 GS(3), ANTH 011 GS:IL(3), ANTH 022 GN(3), ANTH 040(3), ANTH 146 GS:US(3), ANTH 197(1-9), ANTH 199 IL(1-12), ANTH 216 GN:GS(3), ANTH 321W(3), ANTH 380(3), ANTH 395(1-18), ANTH 448(3), ANTH 464(3), SOC 003 GS(3), SOC 030 GS(3), SOC 035(3), SOC 103 US(3), SOC 109(3), SOC 110 GS:US(3), SOC 309(3), SOC 403(3), SOC 405(3), SOC 406(3), SOC 409 US(3), SOC 416 US(3), SOC 429(3), SOC 430(3), SOC 455(3), SOC 456(3), SOC 462(3), SOC 471(3), SOC 497(1-9) (Sem: 5-8)

Select 0-9 credits from the following other social sciences courses:

BB H 302 US(3), BB H 315 US(3), CAS 352(3), CAS 415(3), CAS 455 US(3), CN ED 404(3), CN ED 407(3), COMM 100 GS(3), COMM 120(3), COMM 411(3), EDPSY 014(3), WMNST 471 US(3) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Lasted Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-002

Review Date: 04/08/2014

UCA Revision #1: 8/31/06

Dept head revised by Publications: 4/23/07

AB

## Psychology

University Park, College of the Liberal Arts (PSYBA)  
World Campus

PROFESSOR MELVIN MARK, *Head*

This major is designed for students who want to learn about behavior, normal and abnormal, how it is studied, and its relation to applied areas. Students are encouraged to conduct research with members of the faculty and/or take a practicum in an applied setting. Graduates are equipped for various positions in human service agencies, industrial settings, or laboratories. Others go on to professional school, e.g., medical school, law school, or to continue their training in psychology working toward a master's or a doctoral degree. Majors may elect either a Bachelor of Arts or a Bachelor of Science program.

In order to be eligible for entrance to the PSYBA major, a student at any location must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed PSYCH 100 GS(3) with a grade of C or better; 3) completed STAT 200 GQ(4) or PSYCH 200 GQ(4), at least 3 credits of GQ courses (not including STAT 200), and at least 3 credits of GS courses (not including PSYCH 100) with a grade of C or better.

For the B.A. degree in Psychology, a minimum of 123 credits is required

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 13 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 47 credits<sup>[1]</sup>

(This includes 6 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (13 credits)

PSYCH 100 GS(3) (Sem: 1-4)

PSYCH 105(3) (Sem: 2-5)

PSYCH 301W(4) (Sem: 3-6)

PSYCH 490(3) (Sem: 7-8)

**ADDITIONAL COURSES** (34 credits)

Select 6 credits of GQ courses (Sem: 1-4)

PSYCH 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

Select 12 credits of 200-level PSY courses (not to include PSYCH 294, PSYCH 296, or PSYCH 297). At least 3 credits must be from each group a, b, and c:

a. PSYCH 253 GS(3), PSYCH 256 GS(3), PSYCH 260(3), PSYCH 261 GS(3) (Sem: 3-8)

b. PSYCH 212 GS(3), PSYCH 221 GS(3), PSYCH 231 GS;US(3), PSYCH 238 GS(3) (Sem: 3-8)

c. PSYCH 243 GS(3), PSYCH 269(3), PSYCH 270(3), PSYCH 281 GS(3) (Sem: 3-8)

Select 12 credits of PSY courses at the 400 level (not to include PSYCH 490, and including no more than 3 credits of PSYCH 493, PSYCH 494, PSYCH 495, or PSYCH 496) (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2004

Blue Sheet Item #: 32-06-181

Review Date: 4/13/04

UCA Revision #1: 8/14/06

LA

## Psychology

University Park, College of the Liberal Arts (PSYBS)  
World Campus

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR MELVIN MARK, *Head*

This major is designed for students who want to learn about behavior, normal and abnormal, how it is studied, and its relation to applied areas. Students are encouraged to conduct research with members of the faculty and/or take a practicum in an applied setting. Graduates are equipped for various positions in human service agencies, industrial settings, or laboratories. Others go on to professional school, e.g., medical school, law school, or to continue their training in psychology working toward a master's or a doctoral degree. Majors may elect either a Bachelor of Arts or a Bachelor of Science program.

The B.S. degree program requires more course work in the sciences than the B.A. program, and students may select courses from one of four areas--mathematics/computer science, statistics, business, or biology--which may be taken instead of a foreign language.

In order to be eligible for entrance to the PSYBS major, a student at any location must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed PSYCH 100 GS(3) with a grade of C or better; 3) completed STAT 200 GQ(4) or PSYCH 200 GQ(4), at least 3 credits of GQ courses (not including STAT 200), and at least 3 credits of GS courses (not including PSYCH 100) with a grade of C or better.

For the B.S. degree in Psychology, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(9 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 10-13 credits

**REQUIREMENTS FOR THE MAJOR:** 74-77 credits<sup>[1]</sup>  
(This includes 9 credits of General Education courses: 3 credits of GWS courses and 6 credits of GQ courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 50 credits

**PRESCRIBED COURSES** (16 credits)  
PSYCH 100 GS(3) (Sem: 1-4)  
PSYCH 105(3) (Sem: 2-5)  
ENGL 202A GWS(3) (Sem: 3-4)  
PSYCH 301W(4) (Sem: 3-6)  
PSYCH 490(3) (Sem: 7-8)

**ADDITIONAL COURSES** (34 credits)  
Select 6 credits of GQ courses (Sem: 1-4)  
PSYCH 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)  
Select 12 credits of 200-level PSY courses (not to include PSYCH 294, PSYCH 296, or PSYCH 297). At least 3 credits must be from each group a, b, and c:  
a. PSYCH 253 GS(3), PSYCH 256 GS(3), PSYCH 260(3), PSYCH 261 GS(3) (Sem: 3-8)  
b. PSYCH 212 GS(3), PSYCH 221 GS(3), PSYCH 231 GS:US(3), PSYCH 238 GS(3) (Sem: 3-8)  
c. PSYCH 243 GS(3), PSYCH 269(3), PSYCH 270(3), PSYCH 281 GS(3) (Sem: 3-8)  
Select 12 credits of PSYCH courses at the 400 level (not including PSYCH 490, and including no more than 3 credits of PSYCH 493, PSYCH 494, PSYCH 495, or PSYCH 496) (Sem: 3-8)

**REQUIREMENTS FOR THE OPTION:** 24-27 credits

**LIFE SCIENCES OPTION:** (24 credits)

**ADDITIONAL COURSES** (15 credits)  
Select 15 credits from groups a, b, c, and d, including at least 3 credits from each of three different groups:  
--a. Genetics: ANTH 218 GN(3), ANTH 460(3), ANTH 473(3), ANTH 473W(3); BIOL 133 GN(3) or BIOL 222(3) (Sem: 3-6)  
--b. Biological Anthropology: ANTH 021 GN(3), ANTH 022 GN(3), ANTH 040(3), ANTH 401(3), BB H 410(3), H P A 310(3), NUTR 251(3) (Sem: 3-6)  
--c. Biobehavioral Implications: BB H 101 GHA(3) or any higher-numbered BB H course, except BB H 310(3); HD FS 417(3), HD FS 468(3) (Sem: 3-6)  
--d. Biology and Chemistry: BIOL 110 GN(3), BIOL 141 GN(3), BIOL 155 GN(3), BIOL 177 GN(3), BIOL 409(3), BIOL 421(4), BIOL 427(3), BIOL 472(3); CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)  
Select 3 credits in natural sciences from department list (Sem: 1-8)  
Select 6 credits in social and behavioral sciences from department list (Sem: 1-8)

**BUSINESS OPTION:** (24 credits)

**ADDITIONAL COURSES** (15 credits)  
Select 15 credits from at least two different groups. Three (3) credits in any category can be replaced by internship (L A 495), but internship credits alone cannot be used to complete a category.

1.
  - a. ECON 102 GS(3), ECON 104 GS(3), ECON 014 GS(3), ECON 302 GS(3) or higher-numbered ECON course; PHIL 420(3), PL SC 412(3), PL SC 444(3), PL SC 481(3), PL SC 490(3) (Sem: 3-6)
  - b. FIN 100(3), FIN 301(3) or any higher-numbered FIN course (Sem: 3-6)
  - c. MKTG 221(3), MKTG 301(3) or any higher-numbered MKTG course (Sem: 3-6)
  - d. ACCTG 211(4) (Sem: 3-6)
2.
  - a. Management: H P A 101(3), H P A 301(3) or any higher-numbered H P A course, MGMT 100(3), MGMT 301(3) or any higher-numbered MGMT course (Sem: 3-6)
  - b. Law and ethics: B LAW 243(3), LER 460(3), PHIL 119 GH(3), PHIL 406(3), PHIL /S T S 407(3), PHIL 418(3), PHIL /S T S 432(3), SCM 301(3) (Sem: 3-6)
  - c. Labor relations: LER 100 GS(3), LER 400 IL(3), LER 401(3), LER 411(3), LER 414W(3), LER 437(3), LER 444(3), LER 465(3), LER 470(3) (Sem: 3-6)
  - d. Communication: CAS 352(3), CAS 450W(3), CAS 452(3), ENGL 419(3), LER 464(3) (Sem: 3-6)

3.  
 a. Global view: ANTH 451(3), ANTH 455(3), GEOG 424(3), GEOG 439(3), H P A 401(3), PL SC 487(3), PL SC 441(3) (Sem: 3-6)  
 b. Gender and race: AAA S/LER /PL SC 445Y(3), SOC 455(3), SOC /WMNST 456(3), CED/R SOC/WMNST 420(3), SOC/WMNST 456(3), LER/WMNST 472(3) (Sem: 3-6)  
 c. History: HIST 423 IL(3), HIST 425 IL(3), HIST/LER 458Y US(3) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS (9 credits)**

Select 3 credits in arts/humanities from department list (Sem: 1-8)

Select 3 credits in natural sciences from department list (Sem: 1-8)

Select 3 credits in social and behavioral sciences from department list (Sem: 1-8)

**NEUROSCIENCE OPTION: (24-27 credits)****ADDITIONAL COURSES (15-18 credits)**

PSYCH 260(3) (also counts in category a of COMMON REQUIREMENTS FOR THE MAJOR) (Sem: 3-6)

Select 15 credits from groups a, b, c, d, and e, including at least 3 credits from each of four different groups:

--a. Genetics: BIOL 133 GN(3), BIOL 110 GN(4), or BIOL 222(3) (Sem: 3-6)

--b. Physiology: BIOL 141 GN(3) or BIOL 472(3) (Sem: 3-6)

--c. Organic Chemistry: CHEM 202(3), CHEM 210(3), or CHEM 212(3) (Sem: 3-6)

--d. Cell Biology: BIOL 230W GN(4), BIOL 469(3), MICRB 106 GN(3), MICRB 201(3), MICRB 251(3) (Sem: 3-6)

--e. Other Topics: BIOL 240W GN(4), BIOL 177 GN(3), BIOL 409(3), BB H 470(3) (Sem: 3-6)

*NOTE:* Students planning to apply to medical school should select this option and choose courses to meet the following minimal requirements for most medical schools: BIOL 110 GN(4) and BIOL 230W GN(4) or BIOL 240W GN(4); CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 210(3), CHEM 212(3), and CHEM 213(2); PHYS 211 GN(4) and PHYS 212 GN(4), or PHYS 250 GN(4) and PHYS 251 GN(4).

**SUPPORTING COURSES AND RELATED AREAS (9 credits)**

Select 6 credits in natural sciences from department list (Sem: 1-8)

Select 3 credits in social and behavioral sciences from department list (Sem: 1-8)

**QUANTITATIVE SKILLS OPTION: (24 credits)****ADDITIONAL COURSES (15 credits)**

Select a total of 15 credits from groups a, b, c, and d:

--a. Select at least 3 credits from MATH 018 GQ(3), MATH 110 GQ(4), MATH 111 GQ(2), MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 3-6)

--b. (Optional) Select 3 credits from CMPSC 101 GQ(3), CMPSC 121 GQ(3), CMPSC 201 GQ(3), CMPSC 202 GQ(3), CMPSC 203 GQ(4) (*NOTE: Students may take only one of the courses in category b for credit.*) (Sem: 3-6)--c.1. Select 3 credits from STAT 318(3), STAT 414(3), STAT 418(3) (*NOTE: Students may take only one of the courses in category c.1. for credit.*) (Sem: 5-6)

--c.2. Select at least 3 credits from STAT 319(3), STAT 415(3), STAT 416(3), STAT 460(3), STAT 462(3), STAT 464(3) (Sem: 5-6)

--d. CAS 483(3), CMPSC 122(3), PSYCH 404(3), PSYCH 405(3) (Sem: 3-6)

*NOTE:* Students may fulfill the requirements of the Quantitative Skills option by completing a minor in either Statistics or Computer Science and Engineering in lieu of the course requirements listed above. Students choosing this option are encouraged to consult with an adviser designated by the Department of Psychology to determine the suitability of particular courses given their quantitative backgrounds. Other courses with advanced quantitative content may be substituted in category d with adviser's approval.

**SUPPORTING COURSES AND RELATED AREAS (9 credits)**

Select 3 credits in arts/humanities from department list (Sem: 1-8)

Select 6 credits in natural sciences from department list (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-04-037

Review Date: 01/14/2014

UCA Revision #1: 8/14/06

UCA Revision #2: 7/30/07

LA

## Psychology

Capital College (PSYC)  
University College: Penn State Schuylkill

COBI MICHAEL, Program Coordinator, School of Behavioral Science and Education

The Psychology major emphasizes the scientific study of human behavior in areas such as cognition, development, learning, physiology, personality, and social processes. The curriculum is designed to provide students with a broad background in psychological theory and research and to develop the analytical and critical thinking skills necessary to be good consumers of scientific information.

The Psychology program exposes students to a number of areas of psychology but allows flexibility in the specific courses that are taken in each sub-area. Students are also required to obtain applied experience by completing an internship or by assisting faculty with their research. Elective credits can be used for additional internship or research experience.

The Psychology program prepares students for careers in local, state, and federal government and for entry-level psychological services positions in human service, applied behavior, human resources, and related fields. The Psychology program also provides a strong background for graduate education at both the master's and the doctoral level in counseling, social work, and many areas of psychology.

For a B.S. degree in Psychology, a minimum of 122 credits is required.

### Entry to Major Requirements:

Entry to the Psychology major requires a 2.00 cumulative grade-point average and an average of C (2.00) or better in any courses already taken in the major.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education Course Requirements in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES :

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 9 credits

### REQUIREMENTS FOR THE MAJOR: 74 credits

(This includes 6 credits of General Education courses; 3 credits of GWS courses; 3 credits of GN courses.)

### PRESCRIBED COURSES (10 credits)<sup>[1]</sup>

ENGL 202A GWS(3), PSYCH 100 GS(3) (Sem: 1-4)

PSYCH 301W(4) (Sem: 4-5)

### ADDITIONAL COURSES (46 credits)<sup>[1]</sup>

Select BI SC 004 GN(3) or BIOL 141 GN(3) (Sem: 1-4)

(At least 15 credits of the following courses must be at the 400 level.)

#### Select 4 credits from: (Sem: 3-4)

Category 1 (Statistics) PSYCH 200 GQ(4) or STAT 200 GQ(4)

#### Select 6 credits from two different developmental categories (3 credits each category): (Sem: 2-8)

Category 2a (Lifespan) PSYCH 212 GS(3)

Category 2b (Adult) PSYCH 416(3)

Category 2c (Child) PSYCH 410(3)

Category 2d (Adolescence) PSYCH 412(3)

#### Select 6 credits from two different individual difference categories (3 credits each category) (Sem: 2-8)

Category 3a (Social Psychology) PSYCH 221 GS(3) or PSYCH 420(3)

Category 3b (Personality Psychology) PSYCH 238 GS(3) or PSYCH 438(3)

Category 3c (Personal Adjustment) PSYCH 243 GS(3) or PSYCH 471(3)

Category 3d (Health Psychology) PSYCH 441(3)

#### Select 6 credits from two different clinical categories (3 credits each category) (Sem: 5-8)

Category 4a (Physical Disabilities) PSYCH 370 US(3)

Category 4b (Childhood Disorders) PSYCH 476(3)

Category 4c (Abnormal Psychology) PSYCH 270(3) or PSYCH 470(3)

Category 4d (Behavior Modification) PSYCH 473(3)

Category 4e (Developmental Disabilities) PSYCH 443

#### Select 6 credits from two different experimental categories (3 credits each category) (Sem: 5-8)

Category 5a (Physiological Psychology) PSYCH 260 or PSYCH 462(3)

Category 5b (Cognitive Psychology) PSYCH 256 GS or PSYCH 452 or PSYCH 456(3)

Category 5c (Learning Theory) PSYCH 261 GS(3) or PSYCH 461(3)

#### Select 3 credits from applications in psychology (Sem: 5-8)

Category 6 (Applied Experience) PSYCH 395(1-18) or PSYC 494(1-12)

Select 12 credits of any PSYCH courses not used above, with the exception that only one course selected from any Category 1 through 5 will count for the major (Sem: 2-8)

### SUPPORTING COURSES AND RELATED AREAS (18 credits)

Select 6 credits from AAA S, AM ST, ARAB, ART, ART H, BRASS, C ART, C MUS, CAMS, CAS, CHNS, CMLIT, COMM, DANCE, ELISH, ENGL, ENLSH, FR, GER, GREEK, HCOMM, HEBR, HIST, HUM, I HUM, INART, IT, J ST, JAPNS, KOR, LATIN, LING, LIT, MEDVL, MUSIC, PHIL, PHILO, PHLOS, PORT, RL ST, RUS, SP ST, SPAN, STS, THEA, THRE, WMNST 106 GH;US;IL(3), WMNST 101 GH;US(3), WMNST 102 GH;IL(3), WMNST 104 GH;US(3), WMNST 117 GH;US;IL(3), WMNST 130 IL(3), WMNST 137 GH;US;IL(3), WMNST 194 GH;US;IL(3), WMNST 205 US(3), WMNST 270(3), WMNST 407 US(3), WMNST 410(3), WMNST 419 US;IL(3), WMNST 421 IL(3), WMNST 430 US(3), WMNST 438(3), WMNST 455 US(3), WMNST 457 US;IL(3), WMNST 462 US(3), WMNST 466 US;IL(3), WMNST 489(3), WMNST 490 US;IL(3), WMNST 491(3) (Sem: 1-8)

Select 12 credits from AAA S, AFRAS, ANTH, BE SC (except BE SC 302), CRIMJ, ECON, HCM, HD FS, PL SC, PUBPL, R SOC, SCLSC, SO SC, SOC, WMNST 100 GS;US;IL(3), WMNST 103 US(3), WMNST 110 GS;US(3), WMNST 116 GS;US;IL(3), WMNST 136 US(3), WMNST 202 GS;IL(3), WMNST 250 US(3), WMNST 415W GI(3), WMNST 423 US(3), WMNST 424 US(3), WMNST 428 US;IL(3), WMNST 432 US(3), WMNST 452(3), WMNST 453 US(3), WMNST 456(3), WMNST 464 US(3), WMNST 471 US(3), WMNST 476W(3) (Sem: 1-8)

<sup>[1]</sup> A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 34-01-020

Review Date: 8/30/05

UCA Revision #1: 9/1/06

UCA Revision #2: 7/30/07

Publications updated department head: 4/28/08

CL



## Public Policy

*Capital College (PUBPL): Penn State Harrisburg*

PROFESSOR STEVEN A. PETERSON, *Interim Program Coordinator, School of Public Affairs*

The Public Policy major is designed for students interested in policy issues, politics, public administration, and related areas like policy analysis and policy advocacy. The program explores a myriad of critical issues facing our communities, the nation, and the world. Students receive the educational foundation for careers in the public sector, in government-related businesses, and in non-profit organizations, as well as for graduate work in the fields of law, public administration, criminal justice, public policy, political science, and health care administration. Building on the program core, students may choose electives from a broad array of courses in public policy and other areas. Students may wish but are not required to pursue a concentration within the Public Policy major. The following concentrations are available: U.S. Public Policy; Law and Justice; and International Policy. Students should consult their adviser for a complete listing of courses in each of these concentrations. Overall, the Public Policy program seeks to advance the ideals of an active, informed citizenry and a commitment to public service.

Our proximity to the state capital at Harrisburg provides students with a rich environment for both study and for internships. In addition to our full-time faculty, Public Policy draws on part-time faculty with particular professional strengths. In recent years students have explored politics and political issues in classes taught by a state senator, a former lieutenant governor, a corrections system administrator, and a governor's press secretary. This integration of academic study with the "real world" of Pennsylvania politics and policy making is further enhanced through quality internships. The Public Policy program prides itself in placing qualified students in internships that facilitate the development of professional skills and promote the prospects for professional employment following graduation. Internship options include the Harrisburg Semester: Public Service Leadership Internships (PSLI). (For more information, see [www.hbg.psu.edu/hbg/hburgsem](http://www.hbg.psu.edu/hbg/hburgsem).) Students are encouraged to complete an internship during their senior year. Additional information regarding internships may be obtained by contacting the Public Policy Internship Coordinator.

### Admission Requirements for Transfer Students:

Transfer students must have a 2.00 or higher cumulative grade-point average. The evaluation of prior college work is done on an individual basis by the Office of Enrollment Services at Penn State Harrisburg.

### Entry to Major Requirements:

Entry to the Public Policy major requires a 2.00 or higher cumulative grade-point average and an average of C (2.00) or better in any course already taken in the major.

For a B.S. degree in Public Policy, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 16 credits

### REQUIREMENTS FOR THE MAJOR: 65 credits

(This includes 6 credits of General Education GS courses.)  
(At least 15 credits must be at the 400 level.)

### PRESCRIBED COURSES (15 credits) [\[1\]](#)

ECON 102 GS(3), ECON 104 GS(3), PL SC 001 GS(3), PL SC 309(3), PUBPL 304W(3) (Sem: 1-6)

### ADDITIONAL COURSES (18 credits)

Select 9 credits from the following: PL SC 300-499(3), PUBPL 241(3), PUBPL 300-499(3) (Sem: 1-8)

Select 6 credits from the following: PL SC 419(3), PL SC 425(3), PL SC 444(3), PL SC 488(3), PL SC 489(3), PUBPL 305(3) (Sem: 5-8)

Select 3 credits from the following: PUBPL 480(3), PUBPL 481(3), PUBPL 482(3), PUBPL 483(3), PUBPL 484(3), PUBPL 485(3), PUBPL 490(3) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (32 credits)

Select 12 credits from the following: ACCTG 200-499(3), AFRAS 300-499(3), AM ST 300-499(3), BE SC 300-499(3), COMMS 300-499(3), CRIMJ 300-499(3), ECON 300-499(3), ENVE 460(3), FIN 300-499(3), HIST 300-499(3), MGMT 300-499(3), MKTG 300-499(3), SCLSC 300-499(3), SO SC 300-499(3), SOC 300-499(3), SRA 211(3), WMNST 300-499(3) (Sem: 5-8)

Select 20 credits in consultation with an academic adviser and in support of the student's interests (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-05-018

Review Date: 2/26/08

UCA Revision: #2: 7/30/07

Coordinator updated: 6/5/12

CL

## Professional Writing

*Berks College (PWRIT)*

The major is intended to prepare students to write effectively in a variety of workplace and academic settings. Methods of instruction draw upon the strategies and techniques of practicing writers outside of the University, including workshops, peer conferencing, collaborative writing, portfolio preparation, and internships. At the same time, theory courses provide the necessary background to help students understand and appreciate the larger issues surrounding the writing and reading of texts.

As a liberal arts degree, the Professional Writing major is appropriate for students who wish to develop a set of applied communication skills to prepare for a wide range of professional positions or for graduate or professional schools. The degree differs from most current English majors in at least three ways: 1) a practical orientation prepares graduates for employment, in addition to post-graduate English studies; 2) a multidisciplinary focus integrates courses from the liberal arts, business, and information technology; and 3) a required internship ensures that students actively apply their skills.

For the B.A. degree in Professional Writing, a minimum of 123 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

### FIRST-YEAR SEMINAR

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**ELECTIVES:** 15 credits

**REQUIREMENTS FOR THE MAJOR:** 39 credits [\[1\]](#)

### PRESCRIBED COURSES (15 credits)

ENGL 211W(3) (Sem: 3-4)

ENGL 417(3), ENGL 471(3), ENGL 491(3), ENGL 495(3) (Sem: 5-8)

### ADDITIONAL COURSES (24 credits)

#### Rhetorical Theory

Select 3 credits from the following:

ENGL 472(3), ENGL 473(3), ENGL 474(3) (Sem: 5-8)

#### Writing for Publication

Select 3 credits from the following:

COMM 260W(3), ENGL 215(3) (Sem: 5-8)

#### Workplace Writing

Select 3 credits from the following:

ENGL 418(3), ENGL 419(3)

#### Visual Design

Select 3 credits from the following:

ENGL 420(3), ENGL 480(3)

#### Advertising and Public Relations

Select 3 credits from the following:

COMM 320(3), COMM 370(3)

#### Creative Writing

Select 3 credits from the following:

ENGL 212(3), ENGL 213(3), ENGL 415(3)

#### Additional Writing Courses

Select 6 credits from the following

CAS 214W(3), COMM 260W(3), COMM 320(3), COMM 370(3), ENGL 110(3), ENGL 212(3), ENGL 213(3), ENGL 215(3), ENGL 250(3), ENGL 415(3), ENGL 416(3), ENGL 418(3), ENGL 419(3), ENGL 420(3), ENGL 421(3), ENGL 472(3), ENGL 473(3), ENGL 474(3), ENGL 480(3) (Sem: 3-4)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 39-01-065

Review Date: 08/24/2010

BK

## Rehabilitation and Human Services

*Penn State Lehigh Valley (RHSCC)  
University Park, College of Education (RHS)*

PROFESSOR JAMES HERBERT, *Undergraduate Program Coordinator*

This major helps prepare students for entry-level positions in a variety of human service settings, particularly settings that provide services to persons with physical, emotional, or mental disabilities. Graduates pursue employment in a variety of settings including rehabilitation centers, drug and alcohol programs, senior citizens centers, community mental health programs, mental retardation programs, corrections systems, and hospitals. Increasing opportunities are available in private for-profit insurance programs for the industrially injured, and in employee assistance programs within business and industry. Well-planned use of electives and internships allows for specialization. The full-semester (15-credit) internship is provided under the supervision of professionals in human service agencies. These intensive "hands-on" experiences are frequently avenues for employment since the internship is completed during the senior year. Students may not go on internship until they have successfully completed all other course work. Students are encouraged to participate in volunteer experiences that provide opportunities to work with people with disabilities. Students are encouraged to declare a minor in a related area and should be discussed with the student's adviser. The major also helps prepare students for graduate study in many human service professional disciplines such as rehabilitation counseling, school counseling, occupational therapy, physical therapy and social work.

Baccalaureate degree candidates must have a minimum 2.0 GPA to be admitted to the Rehabilitation and Human Services (RHS) major; thereafter, students must earn a C or better in all RHS required courses.

For the B.S. degree in Rehabilitation and Human Services, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12-14 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 17-20 credits

**REQUIREMENTS FOR THE MAJOR:** 70-72 credits

(This includes 12-14 credits of General Education courses: 6 credits of GS courses; 3-4 credits of GQ courses; 3-4 credits of GN courses.)

**PRESCRIBED COURSES** (55 credits)

PSYCH 100 GS(3), RHS 100 GS:US(3) (Sem: 1-4)

PSYCH 270(3), SOC 001 GS(3), SOC 119(4) (Sem: 1-6)

RHS 300(3)[\[1\]](#), RHS 301(3)[\[1\]](#), RHS 302(3)[\[1\]](#), RHS 303(3)[\[1\]](#), RHS 400W(3)[\[1\]](#), RHS 401(3)[\[1\]](#), RHS 402(3)[\[1\]](#), RHS 403(3)[\[1\]](#), RHS 495A(15) (Sem: 5-8)

**ADDITIONAL COURSES** (9-11 credits)

EDPSY 010 GS(3), HD FS 239 GS(3), or PSYCH 212 GS(3) (Sem: 1-2)

Select 3-4 credits from ANTH 021 GN(3), BI SC 001 GN(3), BI SC 002 GN(3), BI SC 003 GN(3), BI SC 004 GN(3), BIOL 133 GN(3), BIOL 110 GN(4), or BIOL 141 GN(3) (Sem: 1-6)

STAT 100 GQ(3) or STAT 200 GQ(4) or EDPSY 101 GQ(3) (Sem: 1-6)

**SUPPORTING AND RELATED COURSES** (6 credits)

Select 6 credits from CRIM, BB H, HD FS, KINES, PSYCH, or SOC (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better in this course, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-082

Review Date: 02/19/2013

UCA Revision #1: 9/1/06

PIC updated: 2/13/12

ED

## Risk Management

University Park, Smeal College of Business (R M)

PROFESSOR Austin J. Jaffe, Chair, Department of Risk Management

The Risk Management major prepares students for careers in a wide range of private industries and public service agencies involving such areas as operations, property development, financial strategy, and government. The major is integrative in nature by crossing traditional business boundaries while offering specific areas of study in actuarial science, enterprise risk management, and real estate. High profile risks are faced by leaders and managers up and down the corporate ladder and require specialized skills, knowledge and preparation. The Risk Management major prepares students for this along with a chance to study risk from three different perspectives by offering specialty courses along with a common pool of risk management courses. This structure assures that the students in the risk management major are equipped with the common tools of risk analysis while at the same time permitting the students to tailor the specifics of their training through the selection of a particular option.

**ACTUARIAL SCIENCE OPTION:** The courses in the Actuarial Science option stress the application of mathematical and statistical concepts to the measurement of life and other contingencies, while at the same time giving the student a broad understanding of the business environment. Students in the Actuarial Science option are encouraged to begin the series of professional examinations leading to Associateship and Fellowship in either the Society of Actuaries (A.S.A./F.S.A.) or the Casualty Actuarial Society (A.C.A.S./F.C.A.S.).

**Entrance requirements to the Actuarial Science Option --** To be eligible for entrance into the Actuarial Science option, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy the following requirements for entrance:

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin, including approximately 60 credits of course work.
2. Complete the following entrance to major requirements: ACCTG 211(4)[\[1\]](#); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); FIN 301(3)[\[1\]](#); MATH 140 GQ(4)[\[1\]](#); MATH 141(4)[\[1\]](#); MGMT 301(3)[\[1\]](#); and MKTG 301(3)[\[1\]](#); SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#). These courses must be completed by the end of the semester during which the entrance to major process is carried out.
3. A minimum cumulative grade point average of 3.20 prior to and through to the end of the semester during which the entrance to major process is carried out.

**ENTERPRISE RISK MANAGEMENT OPTION:** The Enterprise Risk Management Option prepares students to identify, quantify and qualify the regulatory, legal, financial and contractual aspects of enterprise risk; the management of such risks; and the application of risk financing techniques to control risk exposures in organizations. Emphasis is also placed on the understanding of the principles and risks underlying complex business contracts.

**Entrance requirements to the Enterprise Risk Management Option --** To be eligible for entrance into the Risk Management major and the Enterprise Risk Management Option, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy the following requirements for entrance:

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin, including approximately 60 credits of course work.
2. Complete the following entrance to major requirements: ACCTG 211(4)[\[1\]](#); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); FIN 301(3)[\[1\]](#); MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#); MGMT 301(3)[\[1\]](#); and MKTG 301(3)[\[1\]](#); SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#). These courses must be completed by the end of the semester during which the entrance to major process is carried out.
3. In addition to the above requirements, the Executive Vice President and Provost of the University may approve administrative enrollment controls that limit the number of students who are admitted to majors in the Smeal College of Business. In each case, however, academic requirements are established for admission. For information on enrollment controls, consult the Smeal College of Business Web site (<http://www.smeal.psu.edu>).

**REAL ESTATE OPTION:** This option is designed to prepare the student for a wide range of professional opportunities in corporate real estate management, real estate brokerage, appraisal, property management, mortgage lending and banking, development, and governmental service.

**Entrance requirements to the Real Estate Option --** To be eligible for entrance into the Risk Management major and the General or Real Estate Options, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy the following requirements for entrance:

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin, including approximately 60 credits of course work.
2. Complete the following entrance to major requirements: ACCTG 211(4)[\[1\]](#); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); FIN 301(3)[\[1\]](#); MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#); MGMT 301(3)[\[1\]](#); and MKTG 301(3)[\[1\]](#); SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#). These courses must be completed by the end of the semester during which the entrance to major process is carried out.
3. In addition to the above requirements, the Executive Vice President and Provost of the University may approve administrative enrollment controls that limit the number of students who are admitted to majors in the Smeal College of Business. In each case, however, academic requirements are established for admission. For information on enrollment controls, consult the Smeal College of Business Web site (<http://www.smeal.psu.edu>).

For the B.S. degree in Risk Management, a minimum of 120 credits is required (at least 15 credits must be taken at the 400 level).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of Bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection.)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 11-14 credits

**REQUIREMENTS FOR THE MAJOR:** 73-76 credits  
(This includes 12 credits of General Education courses: 3 credits of GWS courses; 6 credits of GQ courses; and 3 credits of GS.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 48 credits

**PRESCRIBED COURSES** (37 credits)  
ACCTG 211(4)[\[1\]](#); ECON 102 GS(3); FIN 301(3)[\[1\]](#); MGMT 301(3)[\[1\]](#); MKTG 301(3)[\[1\]](#) (Sem: 1-4)  
B A 342(3); B A 411(3); B LAW 341(3); ECON 104 GS(3); ENGL 202D GWS(3); MIS 204(3); R M 301(3)[\[1\]](#) (Sem: 5-8)

**ADDITIONAL COURSES** (7 credits)  
SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#) (Sem: 1-2)  
R M 320W(3)[\[1\]](#) or R M 330W(3)[\[1\]](#) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (4 credits)  
Select 4 credits: Attainment of 12th credit level proficiency in a single foreign language (4 credits). Proficiency must be demonstrated by either examination or course work. (Sem: 1-4)

**REQUIREMENTS FOR THE OPTION: 25-28 credits****ACTUARIAL SCIENCE OPTION: (28 credits)****PRESCRIBED COURSES (25 credits)**MATH 140 GQ(4) [11](#), MATH 141(4) [11](#) (Sem: 1-2)MATH 231(2) [11](#), STAT 414(3) [11](#) (Sem: 3-5)R M 410(3) [11](#), R M 411(3) [11](#) (Sem: 5-6)R M 412(3) [11](#), R M 430(3) [11](#) (Sem: 7-8)**ADDITIONAL COURSES (3 credits)**R M 401(3) [11](#) or R M 420(3) [11](#) (Sem: 7-8)**ENTERPRISE RISK MANAGEMENT OPTION: (25 credits)****PRESCRIBED COURSES (15 credits)**B LAW 441(3) [11](#), FIN 406(3) [11](#), I B 403(3) [11](#), SCM 301(3) [11](#) (Sem: 5-8)R M 405(3) [11](#) (Sem: 6-8)**ADDITIONAL COURSES (4 credits)**MATH 110 GQ(4) [11](#) or MATH 140 GQ(4) [11](#) (Sem: 1-2)**SUPPORTING COURSES AND RELATED AREAS (6 credits)**

Select six credits of supporting coursework from an approved department list. (Sem: 5-8)

**REAL ESTATE OPTION: (25 credits)****PRESCRIBED COURSES (12 credits)**R M 450(3) [11](#), R M/FIN 460(3) [11](#), R M/FIN 470(3) [11](#), SCM 301(3) [11](#) (Sem: 6-8)**ADDITIONAL COURSES (7 credits)**MATH 110 GQ(4) [11](#) or MATH 140 GQ(4) [11](#) (Sem: 1-2)Select 3 credits [11](#) from FIN 406(3), R M 420(3), R M/B LAW 424(3), R M/B LAW 425(3), R M 480(3) (Sem: 5-8)**SUPPORTING COURSES AND RELATED AREAS (6 credits)**

Select six credits of supporting coursework from an approved department list. (Sem: 5-8)

[11](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-05-015

Review Date: 02/22/2011

## Recreation, Park, and Tourism Management

*University Park, College of Health and Human Development (RPTM)*

PROFESSOR PETER NEWMAN, *Head of the Department*

Through this program, students can prepare for supervisory and administrative positions in public or private agencies at the federal, state, and local levels. These include, but are not limited to, park systems, environmental centers, resorts, university intramural and sport club programs, event management businesses, recreation services for the armed forces, and therapeutic recreation programs in hospitals and health care facilities. Three options are offered: (1) Commercial and Community Recreation Management, (2) Golf Management, (3) Outdoor Recreation.

Students who have completed 28 credits with a 2.00 cumulative grade-point average are eligible for entrance into the major after filing a written application. First-year students are admitted directly into the Golf Management option at the University Park campus only. In addition to the University's academic requirements, each student admitted to the Golf Management option must have a playing proficiency represented by a minimum golf handicap of 12 or lower. This must be certified in writing by a PGA member or golf coach.

**COMMERCIAL AND COMMUNITY RECREATION MANAGEMENT OPTION:** This option focuses on management in the private/commercial, non-profit, and public sectors of recreation/leisure services. The private/commercial focus will be of interest to students seeking careers in a variety of commercial settings such as resorts; theme parks, convention centers; sports and fitness facilities, including arenas and stadiums; tourism promotion/planning agencies; and employee recreation departments within corporations. This focus will also appeal to students wishing to become entrepreneurs. For those interested in the community, public, or non-profit sectors, this option prepares students for positions within municipal, state, and federal government agencies; recreation divisions of the armed services; YMCA agencies; United Way agencies; scouting organizations; university-affiliated units such as student unions, intramural and alumni services; and other non-profit organizations.

**GOLF MANAGEMENT OPTION:** This option helps prepare students to manage golf facilities within the municipal, military, public, and private sectors. In addition to the core curriculum in Recreation, Park, and Tourism Management, this option includes a strong basic education in business coupled with course work in turf management and hospitality. Each student completes sixteen months of Co-op education under the supervision of a Class A member of the Professional Golfers' Association of America.

**OUTDOOR RECREATION OPTION:** This option helps prepare students for careers in environmental interpretation, adventure-based programming, or facilities and resource management. One track focuses upon natural and cultural history interpretation, including environmental education. Another track emphasizes adventure-based program leadership, including team-building facilitation. The third track focuses on the management of park and recreation facilities and resources. The outdoor recreation option would be of interest to students seeking employment in a variety of recreation and park venues (local, state, and national) offering outdoor activities to the public.

For the B.S. degree in Recreation, Park, and Tourism Management, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(3-7 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 8-13 credits

**REQUIREMENTS FOR THE MAJOR:** 65-70 credits  
(This includes 3-7 credits of General Education courses; 3-4 credits of GQ courses; 0-3 credits of GN courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 26-27 credits

**PRESCRIBED COURSES** (23 credits) [\[1\]](#)  
RPTM 101(2), RPTM 120 GS(3), RPTM 236(3) (Sem: 1-4)  
RPTM 277 US(3), RPTM 356(3) (Sem: 3-6)  
RPTM 410(3), RPTM 460(3) (Sem: 5-8)  
RPTM 433W(3) (Sem: 7-8)

**ADDITIONAL COURSES** (3-4 credits)  
EDPSY 101 GQ(3) or STAT 100 GQ(3) or STAT 200 GQ(4) (Sem: 3-6)

**REQUIREMENTS FOR THE OPTION:** 39-43 credits

**COMMERCIAL AND COMMUNITY RECREATION MANAGEMENT OPTION:** (39-40 credits)

**PRESCRIBED COURSES** (21 credits) [\[1\]](#)  
RPTM 210(2), RPTM 300Y(3), RPTM 394(1) (Sem: 3-6)  
RPTM 415(3), RPTM 495A(12) (Sem: 5-8)

**ADDITIONAL COURSES** (6-7 credits)  
Select 6-7 credits from ACCTG 211(4) or HRIM 335(3), B A 250(3), FIN 100(3), HRIM 201(3), MGMT 100(3), MKTG 150(3), MKTG 221(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)  
Select 12 credits from department list in consultation with faculty adviser (Sem: 3-8)

**GOLF MANAGEMENT OPTION:** (42-43 credits)

**PRESCRIBED COURSES** (25 credits)  
B LAW 243(3), MGMT 100(3), RPTM 210(2) [\[1\]](#) (Sem: 3-6)  
HRIM 336(3), RPTM 360(3) [\[1\]](#) (Sem: 5-6)  
HRIM 318(2), TURF 100(3) (Sem: 5-10)  
HRIM 466(3), RPTM 415(3) [\[1\]](#) (Sem: 9-10)

**ADDITIONAL COURSES** (17-18 credits)  
Select 3-4 credits from ACCTG 211(4) or HRIM 335(3) (Sem: 3-6)  
Select 14 credits from RPTM 295A(1-4) [\[1\]](#), RPTM 395B(1-4) [\[1\]](#), RPTM 495B(1-4) [\[1\]](#), RPTM 495C(1-4) [\[1\]](#), RPTM 495D(1-4) [\[1\]](#) (Sem: 3-8)

**OUTDOOR RECREATION OPTION:** (41-42 credits)

**PRESCRIBED COURSES** (20 credits) [\[1\]](#)  
RPTM 320(3), RPTM 394(1) (Sem: 3-4)  
RPTM 470(3), RPTM 480(1), RPTM 495A(12) (Sem: 5-8)

**ADDITIONAL COURSES** (21-22 credits)  
Select 6 credits from courses with the following abbreviations: E R M, FOR, GEOSC, W F S (Sem: 3-6)

Select among: a, b, or c (15-16 credits)

**a. Environmental Interpretation Emphasis:**

Select 12 credits from RPTM 325(3) [\[1\]](#), RPTM 326(3) [\[1\]](#), RPTM 327(3) [\[1\]](#), RPTM 425(3) [\[1\]](#), RPTM 430(3) [\[1\]](#) (Sem: 5-8)  
Select 3 credits from department list, in consultation with faculty adviser (Sem: 3-8)

**b. Adventure-based Programming Emphasis:**

Select 6-9 credits from RPTM 230(3) [\[1\]](#), RPTM 330(3) [\[1\]](#), RPTM 440(3) [\[1\]](#) (Sem: 3-8)  
Select 0-3 credits from RPTM 325(3) [\[1\]](#), RPTM 334(3) [\[1\]](#), RPTM 430(3) [\[1\]](#) (Sem: 3-8)  
Select 6 credits from department list, in consultation with faculty adviser (Sem: 3-8)

**c. Park Management Emphasis:**

RPTM 334(3) [\[1\]](#), RPTM 435(3) [\[1\]](#) (Sem: 6-8)  
Select 6-7 credits from ACCTG 211(4) or HRIM 335(3), HRIM 201(3), MGMT 100(3), MGMT 341(3), MKTG 221(3) (Sem: 3-6)  
Select 3 credits from department list, in consultation with faculty adviser (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 39-01-103

Review Date: 08/24/2010

UCA Revision #1: 9/1/06

HH

## Rail Transportation Engineering

Altoona College (RTEAL)

The Bachelor of Science in Rail Transportation Engineering (RTEAL) will provide students with the necessary skills for careers in the rail freight and passenger transportation industries. The RTEAL degree provides a solid background in engineering design, but also focuses on the maintenance and management skills required by the rail industry. The program provides a breadth of knowledge in the major areas associated with the design, operation, and maintenance of rail systems, including the engineering of rail and track structures, basic rail operating practices and safety, wheel/track dynamics, construction and maintenance of railroad infrastructure, and basic railroad communications and signals. Laboratories are used throughout the RTEAL curriculum to provide students with experiences in the field with actual rail equipment, and extensive team-based laboratory activities are used to develop the leadership qualities that are essential of rail professionals. In order to prepare students for the occupational challenges associated with careers in the rail industry, careful and candid discussions of career possibilities and working environments typical of railway professionals are provided throughout the RTEAL program.

### Entrance to Major Requirements:

All students applying for entrance to the RTEAL major must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), and PHYS 211 GN(4). These courses must be completed by the end of the semester during which the admission to major process is carried out.

For the B.S. degree in Rail Transportation Engineering, a minimum of 130 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

### GENERAL EDUCATION: 45 credits

(27 of these credits are included in the REQUIREMENTS FOR THE MAJOR) (See description of General Education in this bulletin.)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 112 credits

(This includes 27 credits of General Education courses: 9 credits of GWS, 6 credits of GQ, 9 credits of GN, 3 credits of GS.)

### PRESCRIBED COURSES (100 credits)

CHEM 110 GN(3)[1], ECON 102 GS(3), EDGN 100(3), MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], PHYS 211 GN(4)[1](Sem: 1-2)  
 C E 310(3), E MCH 211(3)[1], E MCH 212(3)[1], E MCH 213(3)[1], ENGL 202C GWS(3), GEOSC 001(3), MATH 220(2), MATH 251(4), PHYS 212 GN(4), STAT 401(3) (Sem: 3-4)  
 C E 335(3)[1], C E 336(4)[1], C E 360(3), RTE 301(3), RTE 302(3)[1], RTE 303(3)[1], RTE 305(3)[1], RTE 402(3) (Sem: 5-6)  
 ACCTG 211(4), C E 332(3)[1], C E 333W(3)[1], C E 340(3)[1], RTE 403(3), RTE 404(3), RTE 406(4) (Sem: 7-8)

### ADDITIONAL COURSES (12 credits)

ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
 CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 1-2)  
 Select 3 credits from CMPSC 201(3) or CMPSC 202(3) (Sem: 3-4)  
 Select 3 credits of technical electives from departmental list in consultation with advisor (Sem: 7-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-03-002

Review Date: 11/9/2010



## Russian

*University Park, College of the Liberal Arts (RUS)*

PROFESSOR LINDA IVANITS, *Director*

The B.A. in Russian provides the student with a command of spoken and written Russian and a general knowledge of the literature and culture of the Russian people. No previous study of Russian is required for admission to the major. Study in Russia under the University's Education Abroad Program is available for qualified students. Students are advised to combine their study of Russian with another foreign language, English, history, political science, the Russian Area Studies minor, the Business/Liberal Arts minor, or the Linguistics minor. Graduates of this program have found employment in international business, the U.S. government, in the educational and publishing fields, and in the travel industry.

For the B.A. degree in Russian, a minimum of 120 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 23 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 28 credits [\[1\]](#)

**PRESCRIBED COURSE** (13 credits)

RUS 100 GH;IL(3) (Sem: 1-4)

RUS 200 IL(4) (Sem: 4-5)

RUS 400 IL(3), RUS 405 IL(3) (Sem: 6-8)

**ADDITIONAL COURSES** (15 credits)

Select 3 credits from RUS 401(3), RUS 402(3), or RUS 403(3) (Sem: 4-7)

Select 9 credits at the 400-level (Sem: 4-8)

Select 3 credits from RUS 141Y IL(3) or RUS 142Y IL(3) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-02-029

Review Date: 10/08/2013

LA

**PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS**  
Begin Date of Enrollment Hold: April 8, 2011

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## Russian Translation

*University Park, College of the Liberal Arts (RUS T)*

PROFESSOR LINDA IVANITS, *Director*

This major is designed to offer, within the context of a liberal education, specialized skills in translation from the Russian language. The curriculum is career-oriented and requires competence in a field or fields in addition to the language skill. Students will select such a field or fields in accordance with their special interests and in consultation both with the adviser and with persons directly involved with the field chosen.

For the B.S. degree in Russian Translation, a minimum of 124 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 20 credits

**REQUIREMENTS FOR THE MAJOR:** 59-71 credits<sup>[1]</sup>

**PRESCRIBED COURSES** (17 credits)  
RUS 204 IL(4), RUS 214 IL(4), RUS 304 IL(3), RUS 400 IL(3), RUS 412 IL(3) (Sem: 3-8)

**ADDITIONAL COURSES** (18 credits)  
Select 3 credits from each category:  
a. ENGL 415(3), ENGL 416(3), ENGL 417(3), ENGL 418(3), ENGL 419(3), ENGL 421(3), or CMLIT 410(3) (Sem: 5-8)  
b. HIST 141 GH(3), or HIST 434 IL(3) (Sem: 3-8)  
c. RUS 100 GH;IL(3), RUS 110 GH;IL(3), RUS 120 GH;IL(3), RUS 141W IL(3), or RUS 142Y IL(3) (Sem: 5-8)  
d. PL SC 413(3) (Sem: 7-8)  
e. RUS 426 IL(3) or RUS 427 IL(3) (Sem: 7-8)  
f. RUS 450 IL(3) or RUS 460 IL(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (24-36 credits)  
Proficiency in Russian must be demonstrated by either course work or examination equivalent to the completion of 12 credits of course work (0-12) (Sem: 3-6)  
Select a minimum of 24 credits in a field (or fields) in which the student plans to specialize as a translator (Sem: 3-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2002

Blue Sheet Item #: 30-01-036

Review Date: 1/20/04

UCA Revision #2: 7/30/07

LA

## Science

Abington College (SCIAB)  
 Altoona College (SCIAL)  
 Berks College (SCIBL)  
 Capital College (SCICA)  
 University College (SCICC): Penn State Worthington-Scranton, Penn State York  
 University Park, Eberly College of Science (SC BS)  
 Integrated Five-Year Science/Business M.B.A. Program (SCBUS)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR RONALD MARKLE, *in charge*

The Science major is an interdisciplinary degree that aims to provide a broad, general education in science. The bachelor of science (B.S.) curriculum is designed specifically for students who have education goals relating to scientific theory and practice and who require a high degree of flexibility to obtain their educational objectives. After completing foundation courses in calculus, chemistry, physics, and the life sciences, students will select additional science courses from designated areas. A large number of supporting credits permit students to readily include significant breadth or specialization into their undergraduate curriculum. Some examples include minors in business, computer and information science, education, kinesiology, or other fields. The degree allows students throughout the Commonwealth to become familiar with both the theory and the practice of science. It can help prepare students for various careers in pharmaceutical, biotechnical, chemical, medical, and agricultural industries. The degree can also be tailored to meet the specific requirements of professional programs such as medical, dental, or pharmacy schools. The General Science option of the B.S. Science degree allows for the most flexibility. Achievement in a more specialized set of goals can be met by selecting one of the other B.S. options offered: the Biological Sciences and Health Professions option, the Legal Studies, Government Service, Public Policy option, the Life Sciences option, the Mathematical Sciences option, or the Physical Sciences option. Not all of these options are available at all locations, and there are minor distinctions of the core curriculum at some locations, so see the Science program director at your College for further details.

In order to be eligible for entrance to the Science major, a student at any location must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed MATH 140 GQ(4) with a grade of C or better; 3) completed at least two of the following courses, BIOL 110 GN(4); CHEM 110 GN(3); PHYS 211 GN(4) or PHYS 250 GN(4), with a grade of C or better.

For the B.S. degree in Science, a minimum of 124 credits is required, with at least 15 credits at the 400 level.

**TWO-YEAR PREPROFESSIONAL PREPARATION:** The first two years of the Science major (62 credits) can meet the pre professional needs of those interested in admission to some schools of pharmacy, physical therapy, optometry, nursing, and physician assistant training. Successful students can then transfer after two years of undergraduate study to the professional school to which they are admitted. Note, however, that no Penn State degree can be awarded after only two years (62 credits) of study in the Science major. Also, note that the abbreviated two-year curriculum alone does not prepare students for admission to professional schools of general medicine, veterinary medicine, or dental medicine. Consult with your college's health sciences professional adviser for additional information.

**ACCELERATED SCIENCE B.S./M.B.A. PROGRAM:** Students admitted to this special cooperative program between the Eberly College of Science and The Smeal College of Business will be able to combine a Bachelor of Science degree in the Science major, with a Master of Business Administration degree. Highly motivated students, who enter the University with a sufficient number and proper distribution of AP credits, will have the opportunity to complete the requirements for both programs within five years. The B.S. degree in the Science major General Science option, will be conferred upon satisfactory completion of:

1. A minimum of 112 acceptable undergraduate credits, which must include:

- (30 credits) The University's General Education requirements in the areas of Writing and Speaking (9), Health and Physical Activity (3), Arts (6), Humanities (6), and Social and Behavioral Sciences (6). (Note: Students will be required to take ECON 102 GS(3) and ECON 104 GS(3) in order to satisfy the Social and Behavioral Sciences requirement. The University's General Education requirements in the areas of Quantification and Natural Sciences will be satisfied by course work listed under heading "c".)
- The University's First-Year Seminar, United States Cultures, International Cultures, and Writing Across the Curriculum requirements. (Note: These requirements may be double counted in order to satisfy other requirements in the program.)
- (53-57 credits) BIOL 110 GN(4), CHEM 110 GN(3), CHEM 111(1), CHEM 112 GN(3), CHEM 113 GN(1), CMPSC 203 GQ(4), MATH 140 GQ(4), MATH 141 GQ(4), PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2), or PHYS 250 GN(4), PHYS 251 GN(4), STAT 200 GQ(4); an additional life science course selected from B M B 211(3), B M B 251(3), or MICRB 201(3); and 14 additional credits of course work from the Eberly College of Science, with at least nine credits at the 400 level.
- (0-8 credits) Demonstration of second semester proficiency in a single foreign language.
- (3-9 credits) SC 295(1-3), SC 395(1-3), SC 495(1-3) (Note: Students must complete three Eberly College of Science Cooperative Education experiences, including at least one experience which is a full semester in length.)
- (4 credits) ACCTG 211(4)
- (4-22 credits) Supporting courses and related areas selected from the program list.

2. The first semester of course work in The Smeal College of Business M.B.A. program (i.e., a minimum of 12 graduate credits).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
 (15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
 (See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
 (Included in GENERAL EDUCATION course selection or SUPPORTING COURSES AND RELATED AREAS)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
 (Included in GENERAL EDUCATION course selection or SUPPORTING COURSES AND RELATED AREAS)

**WRITING ACROSS THE CURRICULUM:**  
 (Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR or SUPPORTING COURSES AND RELATED AREAS)

**REQUIREMENTS FOR THE MAJOR:** 94 credits  
 (This includes 15 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses.)

**COMMON REQUIREMENTS FOR MAJOR (All options)**

**PRESCRIBED COURSES** (20 credits)  
 CHEM 110 GN(3) [\[1\]](#), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4) [\[1\]](#), MATH 141 GQ(4) (Sem: 1-2)  
 BIOL 110 GN(4) [\[1\]](#) (Sem: 1-4)

**REQUIREMENTS FOR THE OPTIONS:** 60-88 credits

**GENERAL SCIENCE OPTION:** (68-79 credits)

**ADDITIONAL COURSES** (15-20 credits)  
 Select 4 credits from BIOL 129 GN(4), BIOL 220W(4), BIOL 230W(4), BIOL 240W(4) or BIOL 141 GN(3) and BIOL 142(1) (Sem: 3-4)  
 Select 3-4 credits from STAT 200 GQ(4), or STAT 250 GQ(3) or STAT 301(3) or STAT 401(3) (Sem: 3-4)  
 Select 8-12 credits from PHYS 211 GN(4) [\[1\]](#), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2); or PHYS 250 GN(4) [\[1\]](#), PHYS 251 GN(4) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS** (53-59 credits)  
 (A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation.)

Select 20-26 credits from program list (Students may apply 6 credits of ROTC.) (Sem: 1-8)  
 Select 3 credits from earth and mineral sciences (Sem: 3-8)  
 Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits [\[11\]](#) at the 400 level [\[60\]](#) (Sem: 3-8)  
 Select 3 credits in Global, Social and Personal Awareness from department approved course list in consultation with adviser (Sem: 3-8)  
 Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser (Sem: 3-8)  
 Select 6 credits of 400-level courses (Sem: 5-8)

**BIOLOGICAL SCIENCES AND HEALTH PROFESSIONS OPTION: (66-80 credits)****PRESCRIBED COURSES (3 credits)**

H P A 101(3) (Sem: 3-6)

**ADDITIONAL COURSES (24-31 credits)**

Select 4 credits from BIOL 129 GN(4), BIOL 220W(4), BIOL 230W(4), BIOL 240W(4) or BIOL 141 GN(3) and BIOL 142(1) (Sem: 3-4)  
 Select 3-4 credits from STAT 200 GQ(4), or STAT 250 GQ(3) or STAT 301(3) or STAT 401(3) (Sem: 3-4)  
 Select 6-8 credits from CHEM 210(3), CHEM 212(3), CHEM 213(2) or CHEM 202(3), CHEM 203(3) (Sem: 3-6)  
 Select 3 credits from B M B 211(3), B M B 251(3), MICRB 201(3), BIOL 222(3), or BIOL 322(3) (Sem: 3-6)  
 Select 8-12 credits from PHYS 211 GN(4) [\[11\]](#), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2); or PHYS 250 GN(4) [\[11\]](#), PHYS 251 GN(4) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS (39-46 credits)**

(A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation.)  
 Select 15 credits from program list for Healthcare/ Medicine/Ethical Competencies; 6 credits must be at the 400-level (Sem: 3-8) Select from department approved course list in consultation with adviser.  
 Select 9-16 credits from program list (Students may apply 6 credits of ROTC. (Sem: 1-8)  
 Select 3 credits in Global, Social and Personal Awareness from department approved course list in consultation with adviser (Sem: 3-8)  
 Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser (Sem: 3-8)  
 Select 9 credits [\[11\]](#) of 400-level B M B, BIOL, BIOTC, or MICRB courses (Sem: 5-8)

**LEGAL STUDIES, GOVERNMENT SERVICE, PUBLIC POLICY OPTION (68-78 credits)****ADDITIONAL COURSES (15-20 credits)**

Select 4 credits from BIOL 129 GN(4), BIOL 220W(4), BIOL 230W(4), BIOL 240W(4) or BIOL 141 GN(3) and BIOL 142(1) (Sem: 3-4)  
 Select 3-4 credits from STAT 200 GQ(4), or STAT 250 GQ(3) or STAT 301(3) or STAT 401(3) (Sem: 3-4)  
 Select 8-12 credits from PHYS 211 GN(4) [\[11\]](#), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2); or PHYS 250 GN(4) [\[11\]](#), PHYS 251 GN(4) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS (53-58)**

Select 11-16 credits from program list (Students may apply 6 credits of ROTC. (Sem: 1-8)  
 Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits [\[11\]](#) at the 400 level [\[60\]](#) (Sem: 3-8)  
 Select 18 credits from program list for Legal Studies, Government Service, Public Policy; 6 credits must be at the 400-level (Sem: 3-8) Select from department approved course list in consultation with adviser.  
 Select 3 credits in Global, Social and Personal Awareness from department approved course list in consultation with adviser (Sem: 3-8)  
 Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser (Sem: 3-8)

**LIFE SCIENCE OPTION: (60-88 credits)****ADDITIONAL COURSES (24-30 credits)**

Select 4 credits from BIOL 220W GN(4), BIOL 230W GN(4), BIOL 240W GN(4) (Sem: 3-4)  
 Select 3 credits from CMPSC 101 GQ(3), MATH 250(3), or STAT 250 GQ(3) (Sem: 3-4)  
 Select 3 credits from B M B 211(3), B M B 251(3), or MICRB 201(3) (Sem: 3-4)  
 CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-6)  
 PHYS 211 GN(4) [\[11\]](#), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2); or PHYS 250 GN(4) [\[11\]](#), PHYS 251 GN(4) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS (36-58 credits)**

(A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation.)  
 Select 21-35 credits from program list (Students may apply 6 credits of ROTC.) (Sem: 1-8)  
 Select 0-8 credits in a foreign language (proficiency demonstrated by examination or course work to the level of the second semester; if fewer than 8 credits are needed to reach the required proficiency, students choose selections from program list to total 8 credits) (Sem: 1-8)  
 Select 6 credits of 400-level courses (Sem: 5-8)  
 Select 9 credits [\[11\]](#) of 400-level B M B, BIOL, BIOTC, or MICRB courses (Sem: 5-8)

**MATHEMATICAL SCIENCE OPTION: (61-88 credits)****PRESCRIBED COURSES (5-6 credits)**

CMPSC 122(3), MATH 220 GQ(2-3) (Sem: 3-6)

**ADDITIONAL COURSES (24-29 credits)**

Select 3 credits from B M B 211(3), B M B 251(3), or MICRB 201(3) (Sem: 3-4)  
 CMPSC 121 GQ(3), CMPSC 201 GQ(3), or CMPSC 202 GQ(3) (Sem: 3-6)  
 MATH 230(4) or MATH 251(4) (Sem: 3-6)  
 CMPSC 360(3) or MATH 311W(3-4); STAT 301 GQ(3) or STAT 318(3) (Sem: 3-8)  
 PHYS 211 GN(4) [\[11\]](#), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2); or PHYS 250 GN(4) [\[11\]](#), PHYS 251 GN(4) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS (32-53 credits)**

(A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation.)  
 Select 17-30 credits from program list (Students may apply 6 credits of ROTC.) (Sem: 1-8)  
 Select 0-8 credits in a foreign language (proficiency demonstrated by examination or course work to the level of the second semester; if fewer than 8 credits are needed to reach the required proficiency, students choose selections from program list to total 8 credits) (Sem: 1-8)  
 Select 9 credits [\[11\]](#) of 400-level CMPSC, CSE, MATH, or STAT courses (Sem: 5-8)  
 Select 6 credits of 400-level courses (Sem: 5-8)

**PHYSICAL SCIENCE OPTION: (63-85 credits)****PRESCRIBED COURSES (15 credits)**

ASTRO 291 GN(3), PHYS 211 GN(4) [\[11\]](#), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 3-6)

**ADDITIONAL COURSES (16-19 credits)**

Select 3 credits from B M B 211(3), B M B 251(3), or MICRB 201(3) (Sem: 3-4)  
 CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-6)  
 MATH 230(4) or MATH 251(4) (Sem: 3-6)  
 Select 3-4 credits from ASTRO 292 GN(3); E MCH 211(3); M E 300(3); or PHYS 237(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS (32-51 credits)**

(A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation.)  
 Select 17-28 credits from program list (Students may apply 6 credits of ROTC.) (Sem: 1-8)  
 Select 0-8 credits in a foreign language (proficiency demonstrated by examination or course work to the level of the second semester; if fewer than 8 credits are needed to reach the required proficiency, students choose selections from program list to total 8 credits) (Sem: 1-8)  
 Select 6 credits of 400-level courses (Sem: 5-8)  
 Select 9 credits [\[11\]](#) of 400-level ASTRO, CHEM, or PHYS courses (Sem: 5-8)

[\[11\]](#) A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[\[60\]](#) Physical sciences include ASTRO, CHEM, PHYS; mathematical sciences include CMPSC, MATH, STAT; life sciences include BIOL, BIOTC, B M B, MICRB.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 39-01-105A

Review Date: 08/24/2010

UCA Revision #1: 9/1/06

UCA Revision #2: 7/730/07

SC

## Supply Chain and Information Systems

University Park, Smeal College of Business (SC&IS)

PROFESSOR JOHN E. TYWORTH, *Chair of the Department of Supply Chain and Information Systems*

The SC&IS major concentrates on the management of value-creating supply chain networks that modern business enterprises use to acquire, produce, and deliver goods and services all over the world and on information technology as the key enabler of supply chain integration. Students learn how to analyze and design supply chains and manage core business processes including (1) sourcing and procuring raw materials, (2) manufacturing and service operations, and (3) planning and fulfilling customer demand. Students also develop knowledge, skills, and abilities in the information systems area, including information processing, databases, information systems design and analysis, and supply chain technologies.

Graduates are well-prepared for careers in the supply chain and information systems area in both industry and government, including manufacturing, service, technology, and merchandising companies, third-party logistics providers, transport system enterprises, consulting firms, and government agencies.

More information about the broad range of career opportunities is available at

<http://www.smeal.psu.edu/scis/recruit>

**Entrance Requirement:** To be eligible for entrance into the Supply Chain and Information Systems (SC&IS) major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

### Specific entrance requirements include:

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin, including approximately 60 credits of course work.
2. Complete the following entrance to major requirements: ACCTG 211(4)[\[1\]](#); ECON 102 GS(3); SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#); ENGL 015 GWS(3) or ENGL 030 GWS(3); and MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#); FIN 301(3)[\[1\]](#); MGMT 301(3)[\[1\]](#); and MKTG 301(3)[\[1\]](#). These courses must be completed by the end of the semester during which the entrance to major process is carried out.
3. In addition to the above requirements, the Executive Vice President and Provost of the University may approve administrative enrollment controls that limit the number of students who are admitted to majors in the Smeal College of Business. In each case, however, academic requirements are established for admission. For information on enrollment controls, consult the Smeal College of Business Web site (<http://www.smeal.psu.edu>).

For the B.S. degree in Supply Chain and Information Systems, a minimum of 120 credits is required (at least 15 credits must be taken at the 400 level).

### GENERAL EDUCATION: 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 14 credits

### REQUIREMENTS FOR THE MAJOR: 73 credits

(This includes 12 credits of General Education courses: 3 credits of GWS courses; 6 credits of GQ courses; 3 credits of GS courses.)

### PRESCRIBED COURSES (52 credits)

ACCTG 211(4)[\[1\]](#), ECON 102 GS(3), FIN 301(3)[\[1\]](#); MGMT 301(3)[\[1\]](#); and MKTG 301(3)[\[1\]](#) (Sem: 1-4)

MIS 204(3), SCM 301(3)[\[1\]](#) (Sem: 3-5)

B A 342(3), B A 411(3), B LAW 341(3), ECON 104 GS(3), ENGL 202D GWS(3), SCM 404(3)[\[1\]](#), SCM 405(3)[\[1\]](#), SCM 406(3)[\[1\]](#), SCM 421(3)[\[1\]](#), SCM 450W(3)[\[1\]](#) (Sem: 5-8)

### ADDITIONAL COURSES (8 credits)

MATH 110 GQ(4)[\[1\]](#) or MATH 140 GQ(4)[\[1\]](#) (Sem: 1-2)

SCM 200 GQ(4)[\[1\]](#) or STAT 200 GQ(4)[\[1\]](#) (Sem: 1-2)

### SUPPORTING COURSES AND RELATED AREAS (13 credits)

Select 4 credits: Attainment of 12th-credit-level proficiency in a single foreign language. (4 credits) Proficiency must be demonstrated by either examination or coursework (Sem: 1-4)

Select 3 credits of related coursework. See department list. (Sem: 5-8)

Select 6 credits of supporting coursework. See department list. (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-046

Review Date: 04/13/2010

UCA Revision #1: 8/14/06

BA

## Science

*Penn State Erie, The Behrend College (SCNBD)*

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

This interdisciplinary major provides a broad, general education in science. The B.S. degree major includes options in General Science and Environmental Studies, and in Earth and Space Science Pre-certification and General Science Pre-certification for teaching. The curriculum is designed for students who have educational goals not readily met by one of the science majors or for those who require a high degree of flexibility to attain their educational objectives. After completing foundation courses in calculus, chemistry, computer science, the life sciences, and physics, students select additional science courses from designated areas. A large number of supporting credits will permit students to include a minor or course sequences in business, education, technical writing, or other fields.

For the B.S. degree in Science, a minimum of 120 credits is required, with at least 15 credits at the 400 level. Each student must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### **GENERAL EDUCATION:** 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### **FIRST YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### **UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

### **WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

### **ELECTIVES** (0-1 credit)

### **REQUIREMENTS FOR THE MAJOR:** 89-90 credits[\[80\]](#)

(This includes 15 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses.)

### **COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 44-46 credits

#### **PRESCRIBED COURSES** (24 credits)

BIOL 110 GN(4)[\[11\]](#) (Sem: 1-4)

CHEM 110 GN(3)[\[11\]](#), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4)[\[11\]](#), MATH 141 GQ(4) (Sem: 1-2)

CMPSC 121(3) (Sem: 1-4)

#### **ADDITIONAL COURSES** (12-14 credits)

PHYS 211 GN(4)[\[11\]](#), PHYS 212 GN(4), PHYS 213 GN(2) or PHYS 214(2); or PHYS 250 GN(4)[\[11\]](#), PHYS 251 GN(4) (Sem: 3-6)

Select 4 credits from BIOL 220W GN(4), BIOL 230W GN(4), BIOL 240W GN(4) (Sem: 3-6)

#### **SUPPORTING COURSES AND RELATED AREAS** (8 credits)

Select 8 credits in a foreign language (proficiency demonstrated by examination or course work to the level of the second semester; if fewer than 8 credits are needed to reach the required proficiency, students choose selections from program list to total 8 credits) (Sem: 1-8)

### **REQUIREMENTS FOR THE OPTION:** 43-46 credits[\[81\]](#)

#### **GENERAL SCIENCE OPTION:** (43-46 credits)

#### **ADDITIONAL COURSES** (3-4 credits)

Select 3-4 credits from CMPSC 122 GQ(3), MATH 230(4), MATH 250(3), or STAT 200 GQ(4) (Sem: 3-6)

#### **SUPPORTING COURSES AND RELATED AREAS** (39-43 credits)

Select 3 credits from geosciences[\[79\]](#) (Sem: 1-8)

Select 18 credits, with at least 9 credits at the 400 level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences[\[79\]](#) (Sem: 3-8)

Select 18-22 credits, with at least 6 credits at the 400 level, from program list (Students may apply 6 credits of basic ROTC.) (Sem: 1-8)

#### **ENVIRONMENTAL STUDIES OPTION:** (43-46 credits)

#### **PRESCRIBED COURSES** (7 credits)

BIOL 402W(3), GEOG 160 GS(3), GEOG 161(1) (Sem: 3-8)

#### **ADDITIONAL COURSES** (9-11 credits)

Select 3-4 credits from BIOL 220W GN(4), BIOL 230W GN(4), BIOL 240W GN(4), or MICRB 201 GN(3) (Sem: 3-6)

CHEM 202(3) or CHEM 221(4) (Sem: 3-6)

STAT 200 GQ(3) or STAT 250 GQ(3) (Sem: 3-8)

#### **SUPPORTING COURSES AND RELATED AREAS** (25-30 credits)

Select 6 credits from geosciences[\[79\]](#)[\[82\]](#) (Sem: 3-8)

Select 6 credits of 400-level courses in computer sciences, life sciences, mathematical sciences, or physical sciences[\[79\]](#) (Sem: 5-8)

Select 9-16 credits from Environmental Studies option program list with at least 6 credits with ECON, ECNS, PL SC, or POLSC designations and at least 5-7 credits at the 400 level (Students may apply 6 credits of basic ROTC.) (Sem: 1-8)

Select 2-4 credits of 400-level research, internship, field school, or studies abroad[\[80\]](#) (Sem: 5-8)

#### **EARTH AND SPACE SCIENCE PRE-CERTIFICATION OPTION:** (43-46 credits)

(This option is designed to prepare students in pre-certification for teaching earth and space science.)

#### **PRESCRIBED COURSES** (15 credits)

ASTRO 010 GN(2), ASTRO 011 GN(1), GEOSC 002 GN(3), GEOSC 020 GN(3), GEOSC 040 GN(3), METEO 003 GN(3) (Sem: 1-4)

#### **ADDITIONAL COURSES** (6 credits)

Select 6 credits from ASTRO 291 GN(3), ASTRO 292 GN(3), GEOG 010 GN(3), or GEOSC 010 GN(3) (Sem: 3-8)

#### **SUPPORTING COURSES AND RELATED AREAS** (22-25 credits)

Select 6 credits from the geosciences[\[79\]](#)[\[82\]](#) (Sem: 5-8)

Select at least 6 credits at the 400 level in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences[\[79\]](#) (Sem: 5-8)

Select 10-13 credits, with at least 6-9 credits at the 400 level, from the program list (Students may apply 6 credits of basic ROTC.)[\[80\]](#) (Sem: 1-8)

#### **GENERAL SCIENCE PRE-CERTIFICATION OPTION:** (43-46 credits)

(This option is designed to prepare students in pre-certification for teaching general science.)

#### **PRESCRIBED COURSES** (19 credits)

ASTRO 010 GN(2), ASTRO 011 GN(1), BIOL 230W GN(4), GEOSC 002 GN(3), GEOSC 020 GN(3), GEOSC 040 GN(3), METEO 003 GN(3) (Sem: 1-4)



**ADDITIONAL COURSES** (7-8 credits)

Select 3-4 credits from CMPSC 122 GQ(3), MATH 230(4), MATH 250(3), or STAT 200 GQ(4) (Sem: 3-6)

Select 4 credits from BIOL 220W GN(4) or BIOL 240W GN(4) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS** (16-20 credits)

Select at least 6 credits at the 400 level in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences<sup>[79]</sup> (Sem: 5-8)

Select 10-14 credits, with 6-9 credits at the 400 level, from the program list (Students may apply 6 credits of basic ROTC.)<sup>[80]</sup> (Sem: 1-8)

<sup>[1]</sup> A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

<sup>[79]</sup> Computer sciences include CENBD and CMPSC; geosciences include GEOG, GEOSC, MATSC, MATSE; life sciences include BIOL, B M B, MICRB; mathematical sciences include MATH and STAT; physical sciences include ASTRO, CHEM, PHYS.

<sup>[80]</sup> A student in this major must complete at least 15 credits of 400-level courses and 3 credits of W courses in prescribed, additional, or supporting courses from one of the areas: computer science, life sciences, mathematical sciences, or physical sciences.

<sup>[81]</sup> A maximum of 8 credits of Research (494), Internship (495), or Independent Study (296, 496) may be applied toward credits for graduation in all options.

<sup>[82]</sup> In addition to courses used to satisfy the prescribed courses requirement.

Last Revised by the Department: Summer Session 2003

Blue Sheet Item #: 31-04-013

Review Date: 1/14/03

UCA Revision #1: 8/14/06

UCA Revision #2: 7/30/07

BD



PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: July 20, 2012

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## Science

*Penn State Erie, The Behrend College (SCNCE)*

This major provides broad, general training with a background in science. It allows students to prepare for graduate studies in their field of interest. Most graduates of the Science major go on to graduate school in order to obtain employment in research. Other students choose this major because of an educational objective more readily obtained by it than by some specific subject matter.

For the B.A. degree in Science, a minimum of 120 credits is required.

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in GENERAL EDUCATION course selections or BACHELOR OF ARTS DEGREE REQUIREMENTS)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 7-11 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in front of *Bulletin*.)

**REQUIREMENTS FOR THE MAJOR:** 58-82 credits  
(At least 6 credits must be at the 400 level.)  
(This includes 18 credits of General Education courses; 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

**PRESCRIBED COURSES** (23 credits)  
CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-2)  
ENGL 202C GWS(3) (Sem: 1-4)  
MATH 230(4) (Sem: 3-4)

**ADDITIONAL COURSES** (8-12 credits)  
PHYS 250 GN(4), PHYS 251 GN(4) or PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (27 credits)  
Select 9 credits of biological sciences from General Education courses (Sem: 1-2)  
Select 3 credits of arts or humanities (Sem: 1-8)  
Select 15 credits: 12 credits in category a, b, c, or d and 3 additional credits in any one of the categories: (Sem: 5-8)  
a. biological sciences  
b. earth and material sciences  
c. mathematical sciences  
d. physical sciences

Last Revised by the Department: Summer Session 2000

Blue Sheet Item #: 28-04-014D

Review Date: 1/30/01

UCA Revision #1: 8/14/06

[Comments](#)

BD

## Structural Design and Construction Engineering Technology

*Capital College (SDCET)*

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR JOSEPH J. CECERE, *Program Chair, School of Science, Engineering, and Technology*

The program in Structural Design and Construction Engineering Technology provides the basic education required for the structural engineer and construction profession. Students learn the basic general engineering concepts needed for this major with emphasis on the fundamentals, structural design principles, and construction techniques through required course work. They are given the opportunity to focus in a discipline of construction management or structural design through a selected option or choose a broad general option. Courses in communication skills, arts, humanities, social and behavioral sciences, and other engineering related areas broaden the program. Students gain experience in working as members of a team and in using interdisciplinary approaches to solve problems. These experiences, as well as those related to design and construction principles, are taught through exercises in the classroom, laboratory, and field. The program culminates with a capstone project course in which the students' knowledge and skills are applied to specific problems.

For the B.S. degree in Structural Design and Construction Engineering Technology, a minimum of 125 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(20-24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES, REQUIREMENTS FOR THE MAJOR or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 2-10 credits

### REQUIREMENTS FOR THE MAJOR: 95-102 credits

(This includes 24 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses; 3 credits of GHA courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 76-80 credits

#### PRESCRIBED COURSES (45 credits)

CHEM 110 GN(3), CHEM 111 GN(1), ENGL 202C GWS(3), MATH 140 GQ(4) (Sem: 1-4)

ET 200(3) (Sem: 2-5)

C E 254 GHA;US(3)[\[1\]](#), SSET 295(1) (Sem: 3)

CET 342(3), CET 343(3) (Sem: 5-6)

C E 333W(3)[\[1\]](#), CET 308(3), CET 430(3)[\[1\]](#), CET 431(3)[\[1\]](#), CET 432(3)[\[1\]](#), CET 434(3), CET 435(3)[\[1\]](#) (Sem: 5-8)

#### ADDITIONAL COURSES (31-35 credits)

Select 2-3 credits from: EG T 101(1) and EG T 102(1) or EDSGN 100(3) (Sem: 1-2)

Select 3-4 credits from: PHYS 150 GN(3), PHYS 211 GN(4), PHYS 250 GN(4) (Sem: 1-3)

Select 3-4 credits from: PHYS 151 GN(3), PHYS 212 GN(4), PHYS 251 GN(4) (Sem: 2-4)

Select 3 credits from: ECON 014 GS(3), ECON 102 GS(3), ECON 104 GS(3) (Sem: 2-4)

Select 4 credits from: MATH 141 GQ(4), STAT 200 GQ(4) (Sem: 2-6)

Select 3 credits from: E MCH 211(3)[\[1\]](#), ET 300(3), MCH T 111(3)[\[1\]](#) (Sem: 2-6)

Select 3 credits from: E MCH 213(3)[\[1\]](#), ET 322(3)[\[1\]](#), MCH T 213(3)[\[1\]](#) (Sem: 2-6)

Select 1 credit from: ET 323(1), MCH T 214(1) (Sem: 2-6)

Select 3 credits from: C E 310(3), SUR 111(3) (Sem: 2-7)

Select 3 credits from: CMPSC 101 GQ(3), CMPSC 121 GQ(3), CMPSC 201 GQ(3), CMPSC 202 GQ(3) (Sem: 3-4)

Select 3-4 credits from: ACCTG 211(4), MGMT 100(3) or MGMT 301(3) (Sem: 3-8)

### REQUIREMENTS FOR THE OPTION: 19-22 credits

#### CONSTRUCTION MANAGEMENT OPTION: (19-21 credits)

##### PRESCRIBED COURSES (10 credits)[\[1\]](#)

C E 456(3), C E 458(3), C E 488C(4) (Sem: 7-8)

##### ADDITIONAL COURSES (6-7 credits)

Select 3-4 credits from ACCTG 211(4) or MGMT 100(3), MGMT 301(3) (Sem: 2-8)

Select 3 credits from A E 310(3) or C E 321(3) or ENVE 430(3) or MET 435(3) (Sem: 7-8)

#### SUPPORTING COURSES AND RELATED AREAS (3-4 credits)

Select 3-4 credits from approved program list (Sem: 7-8)

#### STRUCTURAL DESIGN OPTION: (19-20 credits)

##### PRESCRIBED COURSES (13 credits)

C E 445(3)[\[1\]](#), C E 449(3)[\[1\]](#), C E 488D(4)[\[1\]](#), E MCH 212(3) (Sem: 7-8)

##### ADDITIONAL COURSES (3 credits)

Select 3 credits from CET 361(3) or C E 360(3) (Sem: 7-8)

#### SUPPORTING COURSES AND RELATED AREAS (3-4 credits)

Select 3-4 credits from approved program list (Sem: 7-8)

### GENERAL OPTION: (22 credits)

##### PRESCRIBED COURSES (12 credits)[\[1\]](#)

C E 445(3), C E 449(3), C E 456(3), C E 458(3) (Sem: 7-8)

##### ADDITIONAL COURSES (10 credits)

Select 3 credits from A E 310(3) or MET 435(3) (Sem: 7-8)

Select 3 credits from C E 360(3) or CET 361(3) (Sem: 7-8)

Select 4 credits from C E 488C(4)[\[1\]](#) or C E 488D(4)[\[1\]](#) (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-03-035

Review Date: 11/13/2012

UCA Revision #1: 8/14/06

UCA Revision #2: 7/30/07

CL

## Software Engineering

*Penn State Erie, The Behrend College (SE BD)*

This major provides students with a strong foundation in software engineering through combination of classroom study, software development experience, and design projects. Design, analysis, verification, and maintenance of software systems are stressed. Built upon a core of science and mathematics courses, this major has the objective of educating graduates to be problem solvers. Students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them for work in industry or further study in graduate school. In addition, written and oral communication skills are developed from an early stage, culminating in a senior design project that stresses communication as well as engineering content.

In addition to completing a broad-based science core in mathematics, chemistry, and physics, students pursue their interest in software engineering by studying principles in computer programming, object-oriented design, software design, software verification, information systems, operating systems, and data communications. The program has a capstone software design project that requires students to work together on teams to design, plan, manage, and implement a software design project.

**Entrance Requirement:** In addition to the Carnegie unit and minimum GPA requirements described by University policies, all students applying for entrance to any of the engineering majors at The Behrend College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), and PHYS 211 GN(4). These courses must be completed by the end of the semester during which the admission to major process is carried out.

For the B.S. degree in Software Engineering, a minimum of 127 credits is required. A student enrolled in this major must earn a grade of C or better in each 300- and 400-level course in the major.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(21 of the 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 1 credit

**REQUIREMENTS FOR THE MAJOR:** 102-103 credits

(This includes 21 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses; 3 credits of GS courses.)

**PRESCRIBED COURSES** (87 credits)

CHEM 110 GN(3)[\[1\]](#), CHEM 111 GN(1), CMPSC 121 GQ(4), CMPSC 122(3)[\[1\]](#) (Sem: 1-2)

MATH 140 GQ(4)[\[1\]](#), MATH 141 GQ(4)[\[1\]](#), MATH 220 GQ(2-3), MATH 250(3), PHYS 211 GN(4)[\[1\]](#), PHYS 212 GN(4) (Sem: 1-4)

CMPEN 271(3)[\[1\]](#), CMPEN 275(1), CMPSC 360(3)[\[1\]](#), ENGL 202C GWS(3), MIS 336(3)[\[1\]](#), SWENG 311(3)[\[1\]](#) (Sem: (3-4)

CMPEN 441(3)[\[1\]](#), CMPSC 461(3)[\[1\]](#), CMPSC 465(3)[\[1\]](#), STAT 301 GQ(3)[\[1\]](#), SWENG 452W(3)[\[1\]](#), SWENG 411(3)[\[1\]](#), SWENG 421(3)[\[1\]](#), SWENG 431(3)[\[1\]](#) Sem: (5-6)

CMPEN 351(3)[\[1\]](#), CMPEN 461(3)[\[1\]](#), SWENG 480(3)[\[1\]](#), SWENG 481(3)[\[1\]](#), MGMT 301(3)[\[1\]](#) (Sem: (7-8)

**ADDITIONAL COURSES** (6-7 credits)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 3-4)

E E 210(4) or E E 211(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits of technical elective courses from school-approved list. (Sem: 6-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2008

Blue Sheet Item #: 36-04-012

Review Date: 6/9/08

UCA Revision #1: 8/14/06

UCA Revision #2: 7/30/07

BD

## Secondary Education

Abington College (SECAB)  
Penn State Erie, The Behrend College (SECBC)  
University Park, College of Education (SECED)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR SCOTT METZGER, *Director*

The following teaching options are available for majors in Secondary Education: Biological Science, Chemistry, Earth and Space Science, English/Communication, Environmental Education, General Science, Mathematics, Physics, and Social Studies/Citizenship Education.

The Secondary Education major helps prepare students for middle school and/or high school teaching positions and for other employment in fields related to their content specialties.

**BIOLOGICAL SCIENCE TEACHING OPTION:** This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

**CHEMISTRY TEACHING OPTION:** This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

**EARTH AND SPACE SCIENCE TEACHING OPTION:** This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

**ENGLISH/COMMUNICATION TEACHING OPTION:** This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education. This program has a Language and Literature Core and a Media Literacies Core. This program is open to students outside the College of Education who desire certification.

**ENVIRONMENTAL EDUCATION TEACHING OPTION:** This option enables the graduate to meet all of the academic requirements for a Pennsylvania teacher certification in Environmental Education when completed in conjunction with another secondary education teaching option (i.e., Biological Science Teaching option). The total number of credits required will depend primarily on that other option.

**GENERAL SCIENCE TEACHING OPTION:** This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching General Science at the secondary-school level, which is issued by the Pennsylvania Department of Education. This option may only be completed in conjunction with another secondary education option (e.g., Biology); the total number of credits required will depend primarily on that other option.

**MATHEMATICS TEACHING OPTION:** This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

**PHYSICS TEACHING OPTION:** This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

**SOCIAL STUDIES TEACHING OPTION:** This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching social studies courses in the secondary-school level, which is issued by the Pennsylvania Department of Education. This option has a prescribed component required for all candidates as well as a choice of concentrations that focus on a specific area. All graduates who successfully complete this program are highly qualified to teach history in secondary grades (7-12) and are eligible for PA certification in Social Studies (7-12) and/or Citizenship Education (7-12). Candidates who successfully complete the Civics & Government concentration are highly qualified to be teachers of U.S. government and civics (7-12). Candidates who successfully complete the Economics concentration are highly qualified to be teachers of economics and economic issues (7-12). Candidates who successfully complete the Geography concentration are highly qualified to be teachers of geography and global studies (7-12). Candidates who successfully complete the Social Sciences concentration receive additional content preparation to be highly qualified teachers of anthropology, psychology, or sociology (7-12). Candidates who successfully complete the Citizenship Education concentration receive additional in-depth content preparation in Economics, Geography, History, and Political Science (7-12).

Baccalaureate degree candidates must meet the following requirements 1-3 by the end of their third semester:

1. A minimum cumulative grade point average of 3.00
2. Either qualifying scores from the PECT PAPA for Reading, Writing and Mathematics; or qualifying SAT scores for the combined and individual Critical Reading, Writing, and Mathematics sections; or qualifying American College Test Plus Writing composite and individual English/Writing score and Math score as specified by the Pennsylvania Department of Education.
3. Documentation of at least 80 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach. Candidates for Secondary Education must document 40 of these hours with learners who come from backgrounds that are different from the candidate's.

Requirements 4-9 must be met by the end of the fourth semester when students typically participate in the Entrance to Major process.

4. A grade of "C" or better in all specified courses.
5. Completion of an early field experience specified by the certification program.
6. Completion of a core of Education courses specified by the certification program.
7. Completion of additional credits as specified by the certification program.
8. Completion of at least 48 semester credit hours, including ENGL 015 GWS(3) or ENGL 030 GWS(3), three credits of literature, and six credits of quantification
9. Approval from the professional education adviser or the head of the pertinent certification program.

For the B.S. degree in Secondary Education with an option in *Biological Science Teaching*, a minimum of 129 credits is required; with an option in *Chemistry Teaching*, a minimum of 126 credits is required; with an option in *Earth and Space Science Teaching*, a minimum of 123 credits is required; with an option in *English/Communication Teaching*, a minimum of 126 credits is required; with an option in *Environmental Education Teaching* and a cohort option, a minimum of 123 credits is required; with an option in *General Science Teaching* and a cohort option, a minimum of 121 credits is required; with an option in *Mathematics Teaching*, a minimum of 132 credits is required; with an option in *Physics Teaching*, a minimum of 121 credits is required; with an option in *Social Studies Teaching*, a minimum of 129 credits is required. (See also [Teacher Education Programs](#).)

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(12-24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-4 credits

**REQUIREMENTS FOR THE MAJOR:** 83-105 credits

(This includes 12-27 credits of General Education courses: Biological Science Teaching option, Chemistry Teaching option, Earth and Space Science Teaching option, Environmental Education Teaching option, General Science Teaching option, and Physics Teaching option--6 credits of GH courses; 9 credits of GN courses; 3-6 credits of GS courses; 6 credits of GQ courses. English/Communication Teaching option--3-6 credits of GA courses; 6 credits of GH courses; 3-6 credits of GS courses. Mathematics Teaching option--6 credits of GH courses; 3-6 credits of GS courses; 6 credits of GQ courses. Social Studies Teaching option--6 credits of GH courses; 3 credits of GN courses; 6 credits of GS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 45 credits[\[18\]](#)**PRESCRIBED COURSES** (36 credits)

C I 295(2), EDPSY 014(3), PSYCH 100 GS(3) (Sem: 1-2)  
 C I 280 GH(3) (Sem: 1-6)  
 C I 495C(3), SPLED 400(4), SPLED 403B(3) (Sem: 5-8)  
 C I 495E(15) (Sem: 7-8)

**ADDITIONAL COURSES** (3 credits)

PSYCH 412(3) or HD FS 239 GS(3) (Sem: 4-6)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 3 credits of GH courses from Literature Selection (Sem: 1-4)  
 Select 3 credits EDTHP 115 US(3) or EDTHP 115A GS;US(3) (Sem: 1-2) or 3 credits at the 400 level of any EDTHP course (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:**38-66 credits**BIOLOGICAL SCIENCE TEACHING OPTION** (63-66 credits)[\[18\]](#)**OPTION CURRENTLY ON HOLD at Penn State Abington;****NOT ACCEPTING NEW STUDENTS**

**Begin Date of Enrollment Hold: May 30, 2012**

**The program will continue to be delivered at University Park and Penn State Erie.**

**PRESCRIBED COURSES** (30 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4) (Sem: 1-2)  
 BIOL 110 GN(4), BIOL 220W GN(4), BIOL 240W GN(4) (Sem: 1-4)  
 SCIED 411(3), SCIED 412(3) (Sem: 5-7)

**ADDITIONAL COURSES** (25-28 credits)

MATH 141 GQ(4) or 4 credits of 200-level STAT GQ courses; BIOL 230W GN(4) or B M B 251(3) and B M B 252(3); BIOL 427(3), GEOSC 204(4), GEOSC 424(3), ANTH 021 GN(3) or ANTH 460(3); PHYS 250 GN(4) and PHYS 251 GN(4) or PHYS 211 GN(4) and PHYS 212 GN(4) (Sem: 4-7)  
 Select 6 credits from B M B 211(3), B M B 212(1), B M B 401(3), B M B 402(3), CHEM 202(3), CHEM 203(3), CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 4-7)

**SUPPORTING COURSES AND RELATED AREAS** (8 credits)

Select 8 credits of 300-level or 400-level BIOL or biological fields (Sem: 5-7)

*Note 1:* Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

*Note 2:* Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

**CHEMISTRY TEACHING OPTION:** (60-62 credits)[\[18\]](#)**PRESCRIBED COURSES** (42 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4) (Sem: 1-2)  
 BIOL 110 GN(4), MATH 141 GQ(4), PHYS 211 GN(4), PHYS 212 GN(4) (Sem: 1-4)  
 CHEM 451(3), CHEM 452(3), CHEM 457(1-2), SCIED 411(3), SCIED 412(3) (Sem: 5-7)

**ADDITIONAL COURSES** (12-14 credits)

CHEM 202(3) and CHEM 203(3) or CHEM 210(3), CHEM 212(3), and CHEM 213(2) (Sem: 3-4)  
 Select 6 credits from CH E 435(3), or CHEM 402(3), CHEM 406(3), CHEM 408(3), CHEM 410(3), CHEM 412(3), CHEM 423W(3), CHEM 425(4) (Sem: 5-7)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits in CHEM or chemistry-related fields at the 200 level or higher (e.g., B M B 211 and B M B 212, B M B 251, B M B 252, MICRB 251, MICRB 442, FD SC 400, AN SC 301, NUTR 251, CHEM, CH E) (Sem: 5-7)

*Note 1:* Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

*Note 2:* Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

**EARTH AND SPACE SCIENCE TEACHING OPTION:** (57-62 credits)[\[18\]](#)**PRESCRIBED COURSES** (22 credits)

MATH 140 GQ(4), BIOL 110 GN(4), CHEM 110 GN(3), CHEM 112 GN(3), CHEM 111 GN(1), CHEM 113 GN(1) (Sem: 1-2)  
 SCIED 411(3), SCIED 412(3) (Sem: 5-7)

**ADDITIONAL COURSES** (27-33 credits)

GEOSC 001(3), GEOSC 020 GN(3) or GEOSC 071(3) (Sem: 1-3)  
 MATH 141 GQ(4) or 4 credits of 200-level STAT GQ courses (Sem: 1-4)  
 PHYS 250 GN(4) and PHYS 251 GN(4), or PHYS 211 GN(4) and PHYS 212 GN(4), or PHYS 211 GN(4) and PHYS 213 GN(2) (Sem: 1-4)  
 GEOSC 021 GN(3) or GEOSC 204(4); EARTH 100 GN(3), EARTH 101 GN;US(3), EARTH 103 GN(3) or EARTH 105 GN;IL(3); METEO 003 GN(3), METEO 201(3), or METEO 300(4); ASTRO 010 GN(2) and ASTRO 011 GN(1), or ASTRO 291 GN(3) (Sem: 1-5)  
 GEOSC 040 GN(3), GEOSC 440(3) or GEOSC 445(4); or METEO 022(2); or BIOL 435(3) or BIOL 482(4) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS** (8 credits)

Select 8 credits from EARTH, GEOSC, METEO, ASTRO, other earth science field, or BIOL 427(3) (Sem: 5-7)

*Note 1:* Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

*Note 2:* Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

**ENGLISH/COMMUNICATION TEACHING OPTION:** (54 credits)[\[18\]](#) *Note:* Must complete at least 3 credits of IL and 3 credits of US Cultures selections.**LANGUAGE AND LITERATURE CORE:** (36 credits)**PRESCRIBED COURSES** (12 credits)

ENGL 444(3) (Sem: 5-6)  
 LL ED 411(3), LL ED 412W(3), LL ED 420(3) (Sem: 5-8)

**ADDITIONAL COURSES** (24 credits)

Select 3 credits from each cluster (a-h) below:

(a) 200-level British or U.S. Literature Survey (Sem: 3-6)  
 ENGL 221(3), ENGL 221W(3), ENGL 222(3), ENGL 222W(3), ENGL 231W, ENGL 232(3), ENGL 232W(3)

(b) Elements of Literature (Sem: 3-6)

ENGL 201(3), ENGL 261(3), ENGL 262 GH(3), ENGL 263 GH(3), ENGL 265 GH(3), ENGL 268 GH(3), ENGL 401(3), ENGL 401W(3), COMM 261(3)



(c) 400-level Comparative Literature/Literature of Diverse Cultures (Sem: 5-8)

AM ST 493(3), CMLIT 400Y US;IL(3), CMLIT 401Y IL(3), CMLIT 402Y US;IL(3), CMLIT 403 US(3), CMLIT 404 IL(3), CMLIT 405 US;IL(3), CMLIT 406 IL(3), CMLIT 408 IL(3), CMLIT 422 IL(3), CMLIT 423 IL(3), CMLIT 453 IL(3), CMLIT 470 IL(3), CMLIT 480 IL(3), CMLIT 486 IL(3), CMLIT 487 IL(3), CMLIT 488 IL(3), ENGL 404(3), ENGL 426 US(3), ENGL 431 US(3), ENGL 449(3), ENGL 461 US(3), ENGL 462 US(3), ENGL 463 US(3), ENGL 466 US(3), ENGL 467 US(3), ENGL 468 US(3), ENGL 469 US(3), ENGL 490 US;IL(3); ENGL 401(3), ENGL 402(3), ENGL 404(3) when topic appropriate (with adviser's approval)

(d) 400-level Topics in American Literature (sem: 5-8)

ENGL 430(3), ENGL 432(3), ENGL 433(3), ENGL 434(3), ENGL 435(3), ENGL 436(3), ENGL 437(3), ENGL 438(3), or ENGL 439(3), ENGL 492(3); ENGL 401(3), ENGL 402(3), ENGL 404(3) when topic appropriate (with adviser's approval)

(e) Topics in British Literature (Sem: 5-8)

ENGL 440(3), ENGL 441(3), ENGL 442(3), ENGL 443(3), ENGL 445(3), ENGL 446(3), ENGL 447(3), ENGL 448(3), ENGL 450(3), ENGL 452(3), ENGL 453(3), ENGL 454(3), ENGL 455(3), ENGL 456(3), ENGL 457(3), ENGL 458(3), ENGL 489(3); ENGL 401(3), ENGL 402(3), ENGL 404(3) when topic appropriate (with adviser's approval)

(f) Grammar, Language, and Linguistics (Sem: 5-6)

ENGL 100(3), ENGL 407(3), ENGL 417(3), or LING 100 GS(3)

(g) Creative Writing and/or Advanced Composition (Sem: 5-6)

CAS 214W(3), COMM 260W(3), COMM 460W(3), COMM 461(3), COMM 462(3), COMM 467(3), ENGL 212(3), ENGL 213(3), ENGL 215(3), ENGL 281(3), ENGL 412(3), ENGL 413(3), ENGL 414(3), ENGL 416(3), ENGL 418(3), ENGL 419(3), ENGL 420(3), ENGL 421(3), THEA 440(3)

(h) Rhetoric (Sem: 7-8)

CAS 215(3), CAS 415(3), CAS 475(3), COMM 467(3), ENGL 409(3), ENGL 411(3), ENGL 470(3), ENGL 471(3), ENGL 472(3), ENGL 473(3), ENGL 474(3), ENGL 487W(3)

#### **MEDIA LITERACIES CORE: (18 credits)**

##### **PRESCRIBED COURSES (3 credits)**

LL ED 480(3) (Sem: 5-6)

##### **ADDITIONAL COURSES (15 credits)**

(a) Mass Media. Select 3 credits from:

COMM 100 GS(3), COMM 118 GS(3), COMM 150 GA(3), COMM 205 US(3), COMM 411(3), COMM 413W(3) (Sem: 1-4)

(b) Speech and Oral Performance. Select 3 credits from:

CAS 211(3), CAS 213(3), CAS 215(3), CAS 250(3), CAS 271 US;IL(3), CAS 280W(3) or CAS 480(3), CAS 375(3), CAS 422 US(3), THEA 102 GA(3) (Sem: 4-8)

(c) Media Literacy. Select 9 credits within one, or across several, of the following media literacy areas:

##### **Multimedia**

ART 100 GA(3), ART H 111 GA;IL(3), ART H 112 GA;IL(3), ART H 120 GA;IL(3), ART H 130 GA;US;IL(3), CAS 175 GH(3), CAS 283(3), CAS 415(3), CAS 483(3), COMM 100 GS(3), COMM 118(3), COMM 120(3), COMM 150 GA(3), COMM 180 GS(3), COMM 205 US(3), COMM 242(3), COMM 250 GA(3), COMM 283W(3), COMM 453 IL(3), COMM 454(3), CMLIT 453(3), PHOTO 100 GA(3), WMNST 205 US(3) (Sem: 1-8)

##### **Theatre**

THEA 102 GA(3), THEA 103(3), THEA 104(3), THEA 110(3), THEA 112(3), THEA 120(3), THEA 130(3), THEA 131(3), THEA 189(3), THEA 210(3), THEA 428(3) (Sem: 1-8)

##### **Journalism**

COMM 260W(3), COMM 261 GH(3), COMM 269(3), COMM 409(3), COMM 460W(3), COMM 461(3), COMM 462(3), COMM 467(3), COMM 497 when topic appropriate (with adviser's approval) (Sem: 3-8)

##### **Communication Arts and Sciences**

CAS 201 GH(3), CAS 202 GS(3), CAS 203 GS(3), CAS 211(3), CAS 213(3), CAS 215(3), CAS 250(3), CAS 280W(3), CAS 311(3), CAS 375(3), CAS 383(3), CAS 411(3), CAS 422 US(3), CAS 455 US(3), CAS 470(3), CAS 471 US;IL(3), CAS 475(3) (Sem: 3-8)

##### **Creative Writing**

ENGL 210(3), ENGL 212(3), ENGL 213(3), ENGL 215(3), ENGL 281(3), ENGL 412(3), ENGL 413(3), ENGL 422(3), ENGL 423(3), ENGL 425(3) Sem: (3-8)

##### **Instructional Systems:**

EDTEC 400(1-3), EDTEC 448(3), EDTEC 566(3), INSYS 200(3), INSYS 441(3), INSYS 446(3) (Sem: 3-8)

##### **Bilingual Education and World Languages:**

APLNG 482Y IL(3), APLNG 491(3), APLNG 493 IL(3), CAS 271 US;IL(3), CAS 471 US;IL(3), LL ED 445(3), WL ED 411(3), WL ED 412W(3), WL ED 414(3), WL ED 422(3), or a foreign language credits at the 12th credit level or above (Sem: 3-8)

#### **ENVIRONMENTAL EDUCATION TEACHING OPTION: (55-58 credits)**[\[18\]](#)

##### **PRESCRIBED COURSES (24 credits)**

CHEM 101 GN(3), MATH 140 GQ(4) (Sem: 1-3)

BIOL 110 GN(4), BIOL 220W GN(4) (Sem: 1-4)

SCIED 411(3), SCIED 412(3), SCIED 457(3) (Sem: 5-7)

##### **ADDITIONAL COURSES (7-8 credits)**

CHEM 020(3) and CHEM 021(1); or CHEM 110 GN(3) and CHEM 111 GN(1) (Sem: 1-3)

BIOL 240W GN(4), W F S 407(3) or W F S 408(3) (Sem: 3-5)

##### **SUPPORTING COURSES AND RELATED AREAS (24-26 credits)**

Select two courses (6-8 credits) in environmental law, economics, management and policy (e.g., AG ED 201; ECON 428; E R M 411, E R M 412, E R M 413W; W F S 410, W F S 447W, W F S 463W) (Sem: 4-7)

Select 4 credits of an environmentally related course in Science Technology and Society (e.g., S T S 047, S T S 135 GS, S T S 327, S T S 420, S T S 460, S T S 471) (Sem: 5-7)

Select at least 14 credits from the cohort Teaching option (see Note 1)

*Note 1:* This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.

*Note 2:* Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

*Note 3:* Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

#### **GENERAL SCIENCE TEACHING OPTION: (38 credits)**[\[18\]](#)

##### **PRESCRIBED COURSES (22 credits)**

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4) (Sem: 1-3)

BIOL 110 GN(4) (Sem: 1-4)

SCIED 411(3), SCIED 412(3) (Sem: 5-7)

##### **ADDITIONAL COURSES (16 credits)**

BIOL 220W GN(4), BIOL 230W GN(4), or BIOL 240W GN(4) (Sem: 3-5)

MATH 141 GQ(4) or 4 credits of 200-level STAT GQ courses (Sem: 3-5)

PHYS 250 GN(4) and PHYS 251 GN(4) or PHYS 211 GN(4) and PHYS 212 GN(4) (Sem: 3-5)

*Note 1:* This option may only be completed in conjunction with another secondary teaching option, such as Biology.

*Note 2:* Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

*Note 3:* Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

**MATHEMATICS TEACHING OPTION:** (57-59 credits) [\[18\]](#)

**PRESCRIBED COURSES** (35-37 credits)

MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-2)

MATH 220 GQ(2-3), MATH 311W(3-4) (Sem: 3-6)

MATH 310(3), MATH 312(3), MATH 414(3), MATH 471(4), MTHED 411(3), MTHED 412W(3), MTHED 427(3) (Sem: 5-8)

**ADDITIONAL COURSES** (16 credits)

CMPSC 101 GQ(3) or CMPSC 121 GQ(3); MATH 230(4) or MATH 231(2) and MATH 232(2); STAT 401(3) or MATH 415(3) or 3 credits of MTHED from program list; MATH 435(3) or MATH 470(3); MATH 436(3) or MATH 441(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from 400-level MATH or MTHED courses (Sem: 5-8)

**PHYSICS TEACHING OPTION:** (55-62 credits) [\[18\]](#)

**PRESCRIBED COURSES** (45-46 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-3)

PHYS 211 GN(4), PHYS 212 GN(4) (Sem: 3-4)

MATH 220 GQ(2-3), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 3-6)

PHYS 237(3), PHYS 400(3), PHYS 419(3), SCIED 411(3), SCIED 412(3) (Sem: 5-7)

**ADDITIONAL COURSES** (6-12 credits)

PHYS 457(1-3), or PHYS 402(4) or PHYS 458(4); MATH 230(4) or MATH 231(2); MATH 250(3) or MATH 251(4) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS** (4 credits)

Introductory biological sciences survey courses [e.g., BIOL 110 GN(4)] (Sem: 3-6)

*Note 1:* Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

*Note 2:* Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

**SOCIAL STUDIES TEACHING OPTION:** (57 credits) [\[18\]](#)

**PRESCRIBED COURSES** (24 credits)

ECON 104 GS(3), GEOG 010 GN(3), GEOG 020 GS(3), HIST 020 GH;US(3), HIST 021 GH;US(3), PL SC 001 GS(3) (Sem: 1-6)

SS ED 411(3), SS ED 412W(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 3 credits from HIST 001 GH;IL(3) or HIST 010 GH;IL(3) (Sem: 1-6)

Select 3 credits from HIST 002 GH;IL(3) or HIST 011GH;IL(3) (Sem: 1-6)

Select 3 credits from GEOG 030 GS;IL(3), GEOG 040 GS;IL(3), or GEOG 160 GS(3) (Sem: 1-8)

Select 3 credits from: ANTH 045 GS;US;IL(3), ECON 102 GS(3), PL SC 003 GS;IL(3), PL SC 014 GS;IL(3), SOC 001 GS(3), SS ED 200 US(3) (Sem: 1-8)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Select 6 credits of 400-level History (Sem: 5-8)

Select one concentration (15 credits) below:

**Citizenship Education**

Select 3 credits from: ECON 102 GS(3), ECON 302 GS(3), ECON 304 GS(3), ECON 315 GS(3), ECON 323 GS(3), ECON 333 GS(3), or ECON 342 GS(3) (Sem: 1-8)

Select 3 credits from: GEOG 030 GS;IL(3), GEOG 040 GS;IL(3), GEOG 120 GS;US;IL(3), GEOG 122 GH;US(3), GEOG 123 GS;IL(3), GEOG 124 GS;IL(3), GEOG 126 GS;US;IL(3), GEOG 128 GS;IL(3), GEOG 130 GS(3), or GEOG 160 GS(3) (Sem: 1-8)

Select 3 credits from: PL SC 003 GS;IL(3), PL SC 007 GS(3), PL SC 014 GS;IL(3), PL SC 110 GS;US(3), PL SC 123 GS;US;IL(3), PL SC 125(3), or PL SC 130 GS;US(3) (Sem: 1-8)

Select 6 credits from SS ED 200 US(3) or HIST at the 100-level or above (Sem: 1-8)

**Civics and Government**

PL SC 003 GS;IL(3) (Sem: 1-8)

PL SC 014 GS;IL(3) (Sem: 1-8)

Select 3 credits from: PL SC 007 GS(3), PL SC 110 GS;US(3), PL SC 123 GS;US;IL(3), PL SC 125(3), or PL SC 130 GS;US(3) (Sem: 1-8)

Select 6 credits of 400-level Political Science (Sem: 5-8)

**Economics**

ECON 102 GS(3) (Sem: 1-8)

ECON 302 GS(3) (Sem: 1-8)

ECON 304 GS(3) (Sem: 1-8)

Select 6 credits of 400-level Economics (Sem: 5-8)

**Geography**

GEOG 160 GS(3) (Sem: 1-8)

Select 3 credits from: GEOG 120 GS;US;IL(3), GEOG 122 GH;US(3), GEOG 123 GS;IL(3), GEOG 124 GS;IL(3), GEOG 126 GS;US;IL(3), GEOG 128 GS;IL(3), or GEOG 130 GS(3) (Sem: 1-8)

Select 3 credits from GEOG 110 GN(3), GEOG 111 GN(3), or GEOG 115 GN(3) (Sem: 1-8)

Select 6 credits of 400-level Geography (Sem: 5-8)

**Social Sciences**

Select 9 credits of Anthropology, Psychology, and/or Sociology below the 400 level (Sem: 1-8)

Select 6 credits of 400-level Anthropology, Psychology, and/or Sociology (Sem: 5-8)

*Note 1:* Courses taken to meet Additional Courses and other Supporting Courses and Related Areas requirements cannot also be applied to the concentration. Different courses need to be selected for the concentration and Additional Courses and other Supporting Courses and Related Areas requirements.

**[18]** A grade of C or better per course is required for teacher certification.

*Penn State Erie/Mathematics Option Only (3/7/07)*

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-083

Review Date: 02/19/2013

R & T: 01/14/2014

UCA Revision #1: 9/1/06

UCA Revision #2: 7/30/07



ED

Director updated: 2/13/12

## Secondary Education Social Studies

*Capital College (SESST)*

PROFESSOR J. SCOTT LEWIS, *Program Coordinator, School of Behavioral Sciences and Education*

The Secondary Education Social Studies major prepares students to meet the requirements as established by the Pennsylvania Department of Education, to be certified for the Social Studies Instructional I Certificate. The major prepares students to teach history, government, economics, geography, psychology, sociology, and anthropology.

Students are challenged to prepare for teaching assignments at the middle and high school level, and in diverse settings characterized as rural, urban, and suburban. The art and science of teaching in secondary schools is undergoing significant transformation as new technologies, time allocation for instruction, and new instructional strategies are impacting the delivery of social studies instruction.

Students admitted to the program must have the appropriate clearances. These include FBI fingerprint check, Act 151 child abuse history clearance, and Act 34 criminal record check.

Students thinking seriously about entering the education program should plan their freshman and sophomore years carefully. Semesters 5 through 8 are very structured.

### Entry to Secondary Education Social Studies requires the following:

1. A minimum grade point average of 3.0.
2. Completion of ENGL 015 GWS(3) or ENGL 030 GWS(3) and three credits of literature from approved list with a C or higher grade.
3. Completion of six credits of college-level mathematics (MATH or STAT prefixes) with a C or higher grade.

### Selective Retention:

Following entrance to the major, students will be evaluated for retention in the program based on:

1. maintaining a cumulative GPA of 3.0 or higher;
2. completion of required courses with a C or higher grade;
3. an acceptable or above rating on the Penn State Harrisburg Professional Dispositions for Teacher Education.\*

To be eligible to student teach, students must:

1. maintain a cumulative GPA of 3.0 or higher;
2. complete all required Content and Education Courses with a C or higher grade;
3. satisfaction of any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for entrance to major;
4. be rated acceptable or above on the Penn State Harrisburg Professional Dispositions for Teacher Education.\*

In order to successfully complete the Secondary Education Social Studies Program, students must:

1. complete EDUC 490 with a grade of C or higher;
2. maintain a cumulative GPA of 3.0 or higher;
3. complete all required Content and Education Courses with a C or higher grade;
4. complete a presentation portfolio; and
5. be rated acceptable or above on the Penn State Harrisburg Professional Dispositions for Teacher Education.\*

\*FOR MORE DETAILED INFORMATION SEE THE SECONDARY EDUCATION HANDBOOK.

For a B.SOSC. degree in Secondary Education Social Studies, a minimum of 122 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(21 of these credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES, GENERAL EDUCATION, or REQUIREMENTS FOR THE MAJOR)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 3 credits

### REQUIREMENTS FOR THE MAJOR: 95 credits

(This includes 21 credits of General Education courses: 6 credits of GH courses, 3 credits of GN courses, 6 credits of GS courses, 6 credits of GQ courses.)  
(At least 15 credits must be at the 400 level.)

### PRESCRIBED COURSES (65 credits) [\[1\]](#)

BI SC 003 GN(3), C I 280 GH(3), EDPSY 014(3), HIST 020 GH;US(3), HIST 021 GH;US(3), PSYCH 100 GS(3), SOC 001 GS(3) (Sem: 1-4)  
EDUC 313(2), EDUC 314(3), EDUC 315W US(3), EDUC 415(3), EDUC 458(3), EDUC 459(3), EDUC 490(12) (Sem: 5-8)  
GEOG 040 GS;IL(3), GEOG 128 GS;IL(3), HD FS 239 GS(3), HIST 320(3), PL SC 001 GS(3) (Sem: 5-8)

### ADDITIONAL COURSES (12 credits)

Select 6 credits from the following:

MATH 017 GQ(3), MATH 018 GQ(3), MATH 021 GQ(3), MATH 022 GQ(3), MATH 026 GQ(3), MATH 030 GQ(3), MATH 035 GQ(3), MATH 036 GQ(3), MATH 040 GQ(5), MATH 200 GQ(3) or MATH 220 GQ(2-3), STAT 100 GQ(3), STAT 200 GQ(4) (Sem: 1-4)

Select 3 credits from: ECON 104 GS(3) or ECON 014 GS(3) (Sem: 1-4)

Select 3 credits from: HIST 001 GH;IL(3) or HIST 010 GH;IL(3) (Sem: 1-4)

### SUPPORTING COURSES AND RELATED AREAS (18 credits)

(6 of these 18 credits must be at the 400-level. In addition, 3 of these must be US cultures)

Select 3 credits of literature courses from approved department list (Sem: 1-4)

Select 3 credits of African American studies, American studies, history or minority studies from approved department list (Sem: 5-8)

Select 3 credits of anthropology from approved department list (Sem: 5-8)

Select 3 credits of psychology from approved department list (Sem: 5-8)

Select 3 credits of political science (Sem: 5-8)

Select 3 credits of sociology (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-034A

Review Date: 04/09/2013

Program Coordinator updated: 3/21/11

R & T: 01/14/2014

UCA Revision #1: 9/1/06

UCA Revision #2: 7/30/07

[Comments](#)

CL

## Sociology

University Park, College of the Liberal Arts (SOCBA)

PROFESSOR JOHN ICELAND, *Head*

The major provides graduates with a sociological perspective on human behavior informed by exposure to different substantive areas of the field; an understanding of the structure of American society, its internal diversity, and its international context; an understanding of basic principles of the scientific method, statistics, research design, computer use, logic and critical thinking, and how these apply to the study of human behavior; and experience in posing sociological questions and collecting and analyzing data to bear on those questions. Graduates have the background to seek employment in a variety of public and private sector jobs, to pursue graduate study in sociology or related areas, or to enter professional schools in social work, law, business, or health fields.

Students may choose either a Bachelor of Arts or a Bachelor of Science degree program. The B.A. degree in Sociology is a classic liberal arts degree. The B.S. degree is intended for students with a strong interest in quantitative skills. Students completing the B.S. degree have additional training in mathematics and other social science disciplines.

Opportunities to work as departmental teaching and research assistants are available. Students are encouraged to participate in study abroad and/or internship experiences while enrolled in either the B.A. or B.S. sociology majors.

Graduates of this program have found positions in social research, social service agencies, government and business research and planning offices, other business positions (especially sales and marketing), or have entered graduate school in sociology, social work, policy analysis or law school.

For the B.A. and B.S. degrees in Sociology, a minimum of 123 credits is required. Either degree may be combined with a minor such as Business/Liberal Arts, Human Development and Family Studies, or Information Systems and Statistical Analysis, among others.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 20 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 38 credits<sup>[1]</sup>

(This includes 4 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (23 credits)

SOC 001 GS(3), STAT 200 GQ(4), CAS 283(3) (Sem: 1-6)

SOC 207(3) (Sem: 3-6)

SOC 405(3), SOC 470(4) (Sem: 5-8)

SOC 400W(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits in sociology, at least 9 credits at the 400 level (Sem: 1-8)

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-04-042

Review Date: 01/12/2010

Dept head updated: 11/30/07

LA

## Sociology

*University Park, College of the Liberal Arts (SOCBS)*

PROFESSOR JOHN ICELAND, *Head*

Students may choose either a Bachelor of Arts or a Bachelor of Science degree program. The B.A. degree program provides a basic orientation to the field as a whole, study of its development and principles, training in methodology and study in depth of a major area of the discipline. It provides knowledge that is useful in a career in varied work settings as well as providing the foundation needed for graduate study in sociology of related fields.

For the B.S. degree in Sociology, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**INTERCULTURAL AND INTERNATIONAL COMPETENCE:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 21-23 credits

**REQUIREMENTS FOR THE MAJOR:** 61-63 credits<sup>[1]</sup>

(This includes 6 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (13 credits)

SOC 001 GS(3), SOC 207(3) (Sem: 1-8)

SOC 405(3), STAT 480(1) (Sem: 5-8)

SOC 400W(3) (Sem: 7-8)

**ADDITIONAL COURSES** (9-11 credits)

MATH 110 GQ(4), MATH 111 GQ(2); or MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-4)

CAS 283(3) or MATH 441(3) (Sem: 1-8)

**SUPPORTING COURSES AND RELATED AREAS** (39 credits)

Select 18 credits in sociology, 15 credits of which must be in an area of specialization chosen in consultation with a faculty adviser (9 credits must be at the 400 level) (Sem: 1-8)

Select 18 credits in social sciences, 9 credits in each of two fields of the social sciences other than sociology (at least 9 credits must be at the 400 level) (Sem: 3-8)

Select 3 credits in statistics at the 300 level or above (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-104

Review Date: 04/12/2011

Dept head updated: 12/2/11

## Sociology

*Capital College (SOCIO)*

PROFESSOR KENNETH B. CUNNINGHAM, *Program Coordinator*

This major provides students with a sociological perspective on human behavior, social organization and social relations. Using a variety of methods, sociologists study social interaction and relationships, large scale institutions and small groups, communities and societies. The discipline is broad in scope and helps students develop the analytic and critical thinking skills needed to make sense of the growing complexity of the modern world. Students will gain an understanding of various substantive areas of the field including social structure and institutions, social and cultural change, social class, gender, sexuality, and race and ethnicity. The major is excellent preparation for work in government, social service agencies, the non-profit sector or business and industry. Sociologists are employed in such diverse fields as social and human services, non-profit and advocacy organizations, research and policy work, telecommunications, human resource management, and college teaching. This major is valuable preparation for students planning careers in law, advocacy, social welfare, urban planning, and business as well as for graduate work in sociology, community psychology, social work and related fields.

### Entry to Major Requirements:

Entry to the Sociology major requires 2.00 or higher cumulative grade-point average.

For a B.S. degree in Sociology, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(3 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES, GENERAL EDUCATION, or MAJOR REQUIREMENTS)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 16 credits

### REQUIREMENTS FOR THE MAJOR: 62 credits<sup>[1]</sup>

(This includes 3 credits of General Education course requirements: 3 credits of GWS courses.)

### PRESCRIBED COURSES (17 credits)

ENGL 202A GWS(3) (Sem: 1-4)

SO SC 480W(4), SO SC 481(4), SO SC 492(3), SOC 405(3) (Sem: 5-8)

### ADDITIONAL COURSES (27 credits)

Select 3 credits from SOC 001 GS(3), R SOC 011 GS(3) (Sem: 1-4)

Select 9 credits from SOC 030(3), SOC 411 US(3) or HD FS 416 US(3), SOC 416(3), SOC 429(3), SOC 430(3), SOC 444(3), SOC 446(3), SOC 448(3), SOC 455(3), SOC 456/WMNST 456(3) (Sem: 5-8)

Select 9 credits from SOC 015(3), SOC 424(3), SOC 425(3), SOC 432(3), SOC 449(3), SOC 450(3), SOC 454 US(3), SOCIO 476(3) (Sem: 5-8)

Select 6 credits from AF AM 212 US(3), BE SC 464 US(3), R SOC/WMNST/CED 420 US;IL(3), SOC/AF AM 409 US(3), SOC 428(3), SOC 435 or HD FS 434 (3) (Sem: 5-8)

### SUPPORTING COURSES AND RELATED AREAS (18 credits)

Select 12 credits (minimum of 3 credits at the 400-level) in consultation with adviser from AAA S, BE SC, SOC (Sem: 5-8)

Select 6 credits (minimum of 3 credits at the 400-level) in consultation with adviser from AM ST, ART, ART H, COMM, CRIMJ, ENGL, I HUM, MUSIC, PSYCH, PL SC, PUBPL, THEA, WMNST (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 39-01-074

Review Date: 08/24/2010

Program coordinator updated by Publications: 4/30/09

UCA Revision #2: 7/30/07

CL

## Special Education

*University Park, College of Education (SPLED)*

PROFESSOR KATHLEEN MCKINNON, *Coordinator of Teacher Education in Special Education*

The emphasis throughout the Special Education program is upon a broad clinical teaching model. Course work and practicum experiences focus upon the diagnosis and management of a wide range and degree of educational and behavioral problems of students with disabilities between the ages of 3 and 21. A core of Special Education courses aimed at general skill development in the areas of diagnosis, prescription, development of materials and teaching strategies, implementation, and evaluation is required of all students.

This major focuses on teaching principles and methodologies, classroom and behavioral management, and the development of teaching materials for children and youths with mild, moderate, and severe disabilities. This program helps prepare special education teachers to meet the needs of students enrolled in elementary and secondary public school special education programs.

Baccalaureate degree candidates must meet the following requirements 1-3 by the end of their third semester:

1. A minimum cumulative grade point average of 3.00
2. Either qualifying scores from the PECT PAPA for Reading, Writing and Mathematics; or qualifying SAT scores for the combined and individual Critical Reading, Writing, and Mathematics sections; or qualifying American College Test Plus Writing composite and individual English/Writing score and Math score as specified by the Pennsylvania Department of Education.
3. Documentation of at least 80 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach. Candidates for Special Education must document two separate 40-hour experiences in two different settings, with learners who have special needs. One experience should include learners with a different level of severity or functioning (e.g., mild/severe, young/adult) from those learners in the other experience. One experience should also include learners with cultural, social, or ethnic backgrounds different from the candidates own.

Requirements 4-9 must be met by the end of the fourth semester when students typically participate in the Entrance to Major process.

4. A grade of "C" or better in all specified courses.
5. Completion of an early field experience specified by the certification program.
6. Completion of a core of Education courses specified by the certification program.
7. Completion of additional credits as specified by the certification program.
8. Completion of at least 48 semester credit hours, including ENGL 015 GWS(3) or ENGL 030 GWS(3), three credits of literature, and six credits of quantification.
9. Approval from the professional education adviser or the head of the pertinent certification program.

For the B.S. degree in Special Education, 121 credits are required. (See also [Teacher Education Programs](#).)

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(12-15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selections)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selections)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 3 credits [\[19\]](#)

**REQUIREMENTS FOR THE MAJOR:** 85 credits [\[21\]](#)

(This includes 12 credits of General Education courses; 6 credits of GQ courses; 6 credits of GS courses.)

**PRESCRIBED COURSES** (85 credits)

EDPSY 010 GS(3), EDPSY 014(3), EDPSY 101 GQ(3), EDTHP 115 US(3), MATH 200 GQ(3), PSYCH 100 GS(3), PSYCH 212 GS(3) (Sem: 1-4)

Red Cross Certification in First Aid and CPR(0) (Sem: 1-8)

EDPSY 421(3), SPLED 395W(3), SPLED 401(4), SPLED 404(3), SPLED 408(3), SPLED 411(3), SPLED 412(4), SPLED 454(4), SPLED 425(4), SPLED 495E(3) (Sem: 5-6)

SPLED 409A(3), SPLED 409B(3), SPLED 409C(3), SPLED 418(2), SPLED 495F(15), SPLED 495G(4) (Sem: 7-8)

### Integrated B.S. in Special Education - M.Ed. in Curriculum and Instruction

The Special Education and Curriculum and Instruction with Emphasis in Language and Literacy Education Integrated Undergraduate-Graduate (SE/CI-LL ED IUG) Degree Program consists of integration of required courses for a B.S. in Special Education with courses required for certification as a Reading Specialist and a M.Ed. in Curriculum and Instruction with emphasis in Language and Literacy Education. The five-year, SE/CI-LLED IUG is an option for highly qualified students seeking certification to teach Special Education in Pennsylvania in grades K-12. Completion of the IUG (along with earning a passing score on PDE required PRAXIS tests) leads to a B.S. in Special Education, certification in Special Education and as a Reading Specialist in the state of Pennsylvania, and a M.Ed. in Curriculum and Instruction. Students are expected to complete courses required for the graduate level K-12 reading specialist concurrent with their undergraduate experiences and coursework in Special Education and will complete a capstone Special Education teaching experience in their final semester.

#### Time of Admission to SE/CI-LLED IUG

Students wishing to apply for admission to the SE/CI-LLED IUG initiate application during the semester in which they complete SPLED 495E. They finalize the application process at the end of the semester with a grade of B or better in SPLED 412. While this is typically the end of the junior year of study, it may fall sooner or later.

#### Joint Admission Process

Special Education and Curriculum and Instruction are located in the College of Education, with Reading Specialist certification offered through the Department of Curriculum and Instruction's emphasis area in Language and Literacy Education. Admission to the SE/CI-LLED IUG will be based upon having attained a minimum GPA of 3.5 or higher, with a grade of B or better in SPLED 412.

Admission will be based on a recommendation by the Reading Specialist Program Coordinator in consultation with the Coordinator of Teacher Education in Special Education.

Students will be expected to maintain a minimum GPA of 3.0 throughout the IUG program of study. Failure to do so will result in the student being placed on academic probation for one semester; after which time, if the GPA is not 3.0 or higher, the student will be dropped from the IUG.

If the student decides not to continue enrollment in the joint SE/CI-LLED IUG, the student may, contingent upon fulfilling all other requirements for the B.S. in SPLED, complete SPLED 495 (the traditional capstone field experience) in their final semester and graduate with a B.S. in Special Education.

#### Advising

Beginning during the application process, as well as subsequent to admission, students should communicate with both their SPLED program adviser and the program adviser for the C I Reading Specialist program to ensure requirements of both programs are met.

#### Reduced Course Load

EDPSY 421 and LL ED 595A may be double counted for the M.Ed. as well as the B.S. degree.

**Tuition Charges**

Undergraduate tuition rates will apply as long as the student is an undergraduate, unless the student receives financial support, for example, an assistantship requiring payment of graduate tuition (from "Information and Guidelines for Establishing Integrated Undergraduate-Graduate Degree Programs" - approved by the Graduate Council, May 8, 1996).

**[19]** Students may apply 3 credits of ROTC.

**[21]** A grade of C or better per course is required for all Special Education prerequisites and teacher certification.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-04-231

Review Date: 01/11/2011

R & T: 01/14/2014

UCA Revision #1: 8/14/06

ED

Coordinator updated: 8/21/08



## Spanish

University Park, College of the Liberal Arts (SPNBA)

PROFESSOR PAOLA (GUILI) DUSSIAS, *Head*

This major is designed to develop basic skills in speaking, understanding, reading, and writing Spanish. In addition, the program aims to acquaint students with the literature and civilization of the Hispanic world and introduce them to the study of Hispanic linguistics. Enough flexibility is provided to permit a degree of concentration in either Hispanic literature or linguistics. Specialized courses are offered in translation techniques and in the use of Spanish for social services. Courses taken in the University's Education Abroad Program in Spain and Mexico may be applied to the major. In conjunction with the College of Education, students may take work leading to certification as Spanish teachers in the secondary or elementary schools.

Combined with course work in business, social welfare, or bilingual education, the B.A. in Spanish can facilitate entry into a number of professional areas. In addition, it provides the traditional foundation for advanced degree work required for such careers as college teaching and government service. Students are eligible to participate in the University's Education Abroad Programs.

For the B.A. degree in Spanish, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selections)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or BACHELOR OF ARTS DEGREE REQUIREMENTS course selections)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits [\[1\]](#)

**PRESCRIBED COURSES** (9 credits)  
SPAN 200(3) (Sem: 2-6)  
SPAN 215(3) (Sem: 3-6)  
SPAN 253W(3) (Sem: 3-8)

**ADDITIONAL COURSES** (18 credits)  
SPAN 100(3) or SPAN 100A(3)\* (Sem: 2-6)  
Select 9 credits from the following course list: SPAN 210(3), SPAN 220(3), SPAN 297(3), SPAN 300(3), SPAN 305(3), SPAN 353(3), SPAN 354(3), SPAN 355(3), SPAN 356(3), SPAN 397(3), SPAN 399 IL(3) (Sem: 3-8)  
Select 3 credits from the following: SPAN 439(3), SPAN 472(3), SPAN 476(3), SPAN 490(3), SPAN 491(3), SPAN 497(1-9) (Sem: 5-8)  
Select 3 credits from the following: SPAN 414(3), SPAN 415(3), SPAN 418(3), SPAN 497(1-9) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)  
Select 9 credits from the following course list: SPAN 410(3), SPAN 412(3), SPAN 413(3), SPAN 414(3), SPAN 415(3), SPAN 418(3), SPAN 420(3), SPAN 439(3), SPAN 472(3), SPAN 476(3), SPAN 490(3), SPAN 491(3), SPAN 497(3), SPAN 499 IL(3) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

\* Heritage speakers (students with Spanish language in family background but not necessarily a native speaker) should take SPAN 100A and SPAN 301 instead of SPAN 100 and SPAN 110.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-147

Review Date: 04/10/2012

LA

## Spanish

University Park, College of the Liberal Arts (SPNBS)

PROFESSOR PAOLA (GIULI) DUSSIAS, *Head*

This major encourages students to prepare for careers in which fluency in Spanish can be combined with training in other academic disciplines.

For the B.S. degree in Spanish, a minimum of 122 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 45 credits  
(0-9 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 17-19 credits

**REQUIREMENTS FOR THE MAJOR:** 60-71 credits<sup>[1]</sup>  
(This includes 0-13 credits of General Education courses: 0-4 credits of GQ courses; 0-6 credits of GS courses, 0-3 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 21 credits

**PRESCRIBED COURSES** (6 credits)  
SPAN 215(3), SPAN 253W(3) (Sem: 2-8)

**ADDITIONAL COURSES** (15 credits)  
SPAN 100(3) or SPAN 100A(3)\* (Sem: 2-6)  
SPAN 200(3) or SPAN 301(3)\* (Sem: 2-6)  
Select 9 credits from SPAN 210(3), SPAN 220(3); SPAN 300(3), SPAN 305(3), SPAN 353(3), SPAN 354(3), SPAN 355(3), SPAN 356(3), SPAN 399 IL(1-12) (Sem: 1-8)

**REQUIREMENTS FOR THE OPTION:** 39-50 credits

**APPLIED SPANISH OPTION:** (39 credits)  
This option is designed to develop basic skills in Spanish (speaking, understanding, reading, writing) and to provide Spanish majors with concentration in a professional area where a command of Spanish can be particularly relevant and useful. Students are eligible to participate in the University's Education Abroad Programs.

**ADDITIONAL COURSES** (18 credits)  
Select 3 credits from the following: SPAN 439(3), SPAN 472(3), SPAN 476(3), SPAN 490(3), SPAN 491(3), SPAN 497(1-9) (Sem: 5-8)  
Select 3 credits from the following: SPAN 414(3), SPAN 415(3), SPAN 418(3), SPAN 497(1-9) (Sem: 5-8)  
Select 12 credits from SPAN 410(3), SPAN 412(3), SPAN 413(3), SPAN 414(3), SPAN 415(3), SPAN 418(3), SPAN 420(3), SPAN 439(3), SPAN 440(3), SPAN 472(3), SPAN 476(3), SPAN 490(3), SPAN 491(3), SPAN 497(1-9), SPAN 499 IL(1-12) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)  
Select 21 credits in consultation with the adviser in any related area of study such as social services, the teaching of English as a second language, or in any other professional area in which competency in Spanish is desirable. At least 6 credits of such courses must be at the 400 level. (Sem: 1-8)

**BUSINESS OPTION:** (50 credits)  
This option is designed to develop basic skills in Spanish (speaking, understanding, reading, writing) and to acquaint students with a number of fields essential to business, especially in the international area. Courses in translation techniques, Spanish civilization, and Ibero-American civilization are an integral part of the option. Students are eligible to participate in the University's Education Abroad Programs.

**PRESCRIBED COURSES** (34 credits)  
ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ECON 333 GS(3), ENGL 202D GWS(3), FIN 100(3), I B 303 IL(3), I B 403(3), MGMT 100W(3); MKTG 221(3), SPAN 420(3) (Sem: 1-8)

**ADDITIONAL COURSES** (16 credits)  
Select 4 credits from SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 1-8)  
Select 12 credits from SPAN 410(3), SPAN 412(3), SPAN 413(3), SPAN 414(3), SPAN 415(3), SPAN 418(3), SPAN 439(3), SPAN 472(3), SPAN 476(3), SPAN 490(3), SPAN 491(3), SPAN 497(1-9), SPAN 499 IL(1-12) (Sem: 5-8)

\* Heritage speakers (students with Spanish language in family background) and native speakers of Spanish should take SPAN 100A and SPAN 301 instead of SPAN 100 and SPAN 200. May not take SPAN 410.

### Integrated Spanish B.S. and Human Resources and Employment Relations M.S. Degree Programs (SPHRER)

PROFESSOR MARK WARDELL, *in charge*

The integrated Spanish B.S. and HRER M.S. is a five-year program designed for highly qualified and motivated students seeking employment within a culturally diverse workplace. Students will develop basic skills in speaking, understanding, reading, and writing Spanish. Students will gain familiarity with Hispanic cultures through literature and the University's Education Abroad Program, if they choose to have that experience. Students also will learn about (1) the roles of employers, employees, employee organizations, and public policy makers play in the employment relationship, (2) the complex personal and organizational issues inherent in the employment relationship, and (3) how to systematically analyze those complex issues and evaluate research relevant to those analyses.

For the B. S./M. S. degree in Integrated Spanish B.S. and Human Resources and Employment Relations M.S., a minimum of 154 credits is required. Twelve graduate level credits can apply to both undergraduate and graduate degrees; six of these must be at the 500 level. Students can complete the B.S. in Spanish and not advance to the M.S. HRER degree if they desire.

Scheduling Recommendation by Semester Standing given like (Sem:1-2)

### BACHELOR OF SCIENCE

**GENERAL EDUCATION:** 45 credits  
(10 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits

**REQUIREMENTS FOR THE MAJOR:** 101 credits

(This includes 10 credits of General Education courses; 6 credits of GS courses; 4 credits of GQ courses.)

**PRESCRIBED COURSES** (27 credits)

[Some courses in this category have prerequisites that are not included in the major]

SPAN 100(3), SPAN 120(3), SPAN 200(3), SPAN 253W(3), SPAN 305(3) (Sem: 1-6)

SPAN 400(3), SPAN 410(3), SPAN 412(3), SPAN 414(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

SPAN 210(3) or SPAN 220(3), SPAN 353(3) or SPAN 354(3) (Sem: 3-6)

SPAN 472(3) or SPAN 476(3) (Sem: 5-8)

Select 3 credits of SPAN 413(3), SPAN 415(3), SPAN 418(3), SPAN 420(3), SPAN 439(3), SPAN 490(3), SPAN 491(3), or SPAN 497(1-9) (Sem: 5-8)

**LABOR AND EMPLOYMENT RELATIONS:** (32 credits)

[Prescribed undergraduate credits in Labor and Employment Relations option]

ECON 102 GS(3), LER 100 GS(3), LER 201(3), LER 312(4), LER 400 IL(3), LER 414W(3), LER 458Y US(3), STAT 200 GQ(4) (Sem: 1-6)

HRER 501(3), HRER 512(3) (Sem: 7-8)

**Master of Science**

EMPLOYMENT RELATIONS/HUMAN RESOURCES M.S.: (30 credits)

[HRER credits to be selected from the following in consultation with an HRER adviser]

HRER 500, HRER 502, HRER 504, HRER 505, HRER 513, HRER 516, HRER 535, HRER 536, HRER 595\*, HRER 596\*, HRER 597, HRER 599

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

\* Heritage speakers (students with Spanish language in family background but not necessarily a native speaker) should take SPAN 100A and SPAN 301W instead of SPAN 100 and SPAN 300W.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-148 (SPNBS); 35-06-466 (Integrated)

Review Date: 04/10/2012

[Comments](#)

LA

## Security and Risk Analysis

Penn State Altoona (SRAAL)  
 Penn State Berks (SRABL)  
 Penn State Harrisburg (SRACA)  
 University Park, College of Information Sciences and Technology (SRA)  
 World Campus

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR FRED FONSECA, Associate Dean for Undergraduate Studies

The Bachelor of Science in Security and Risk Analysis (SRA) in the College of Information Sciences and Technology is intended to familiarize students with the general frameworks and multidisciplinary theories that define the area of security and related risk analyses. Courses in the major will engage students in the challenges and problems associated with assuring information confidentiality and integrity (e.g., social, economic, technology-related, and policy issues), as well as the strengths and weaknesses of various methods for assessing and mitigating associated risk.

The major provides a grounding in the analysis and modeling efforts used in information search, visualization, and creative problem solving. This knowledge is supplemented through an examination of the legal, ethical, and regulatory issues related to security that includes analyzing privacy laws, internal control and regulatory policies, as well as basic investigative processes and principles. Such understanding is applied to venues that include transnational terrorism, cyber crimes, financial fraud, risk mitigation, and security and crisis management. It also includes overviews of the information technology that plays a critical role in identifying, preventing and responding to security-related events.

Advisory groups from within and outside the University involved in the design of the major have agreed that graduates who can understand the cognitive, social, economic, and policy issues involved in security and risk management as well as the basics of the information technology and analytics that are included in the security/risk arena will be very successful. These observations drove the design and objectives of the SRA major.

SRA majors will choose one of the following options:

**INTELLIGENCE ANALYSIS AND MODELING OPTION.** This option focuses on developing a more thorough knowledge of the strategic and tactical levels of intelligence collection, analysis, and decision-making. This includes examining the foundations of decision analysis, economic theory, statistics, data mining, and knowledge management, as well as the security-specific contexts in which such knowledge is applied.

**INFORMATION AND CYBER SECURITY OPTION.** This option includes a set of courses that provides an understanding of the theories, skills, and technologies associated with network security, cyber threat defense, information warfare, and critical infrastructure protection across multiple venues.

**SOCIAL FACTORS AND RISK.** This option includes the legal, regulatory, ethical, and other theories associated with security and risk. Such an examination is focused on understanding the social factors and causes that are linked to transnational terrorism, investigations and litigation involved in business, and other security-related environments.

**Entrance Requirements:** To be eligible for entrance to the Security and Risk Analysis (SRA) major, students must:

1. be taking, or have taken, a program appropriate for entry to the major as shown in the *Bulletin*, including approximately 60 credits of course work.
2. have completed the following entrance-to-major requirements with grades of C or better in each: IST 110(3); SRA 111(3); and SRA 211(3). These courses must be completed by the end of the semester during which the entrance-to-major procedure is carried out.
3. have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance-to-major procedure is carried out.

For the B.S. degree in Security and Risk Analysis, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
 (22 credits are included in the REQUIREMENTS FOR THE MAJOR)  
 (See description of General Education in front of the *Bulletin*.)

**FIRST-YEAR SEMINAR:**  
 (Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
 (Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
 (Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 3 credits

**REQUIREMENTS FOR THE MAJOR:** 94 credits  
 (This includes 22 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses, 3 credits of GH, and 4 credits of GN courses)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 73 credits

**PRESCRIBED COURSES** (39 credits)  
 CMPSC 101 GQ(3) [11](#), SRA 111 GS(3) [11](#) (Sem: 1-2)  
 IST 110 GS(3) [11](#) (Sem: 1-3)  
 IST 210(4) [11](#) (Sem: 1-4)  
 SRA 211(3) [11](#), SRA 221(3) [11](#), SRA 231(3) [11](#) (Sem: 2-4)  
 STAT 200 GQ(4) (Sem: 3-6)  
 IST 495(1) [11](#) (Sem: 3-8)  
 IST 432(3) [11](#), SRA 311(3) [11](#), STAT 460(3) (Sem: 5-6)  
 IST 440W(3) [11](#) (Sem: 7-8)

**ADDITIONAL COURSES** (12 credits)  
 AG BM 101 GS(3) or ECON 102 GS(3) (Sem: 1-4)  
 PL SC 001 GS(3), PL SC 014 GS;IL(3), or GEOG 040 GS;IL(3) (Sem: 1-4)  
 PSYCH 100 GS(3) or SOC 005 GS(3) (Sem: 1-6)  
 ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (22 credits)  
 Attainment of third-level proficiency in a single foreign language (12 credits). Proficiency must be demonstrated by either examination or course work. See the admission section of the general information in this *Bulletin* for the placement policy for Penn State foreign language courses. (Sem: 1-4)  
 Select 4 credits of lab lecture series (GN) in consultation with adviser (Sem: 1-6)  
 Select 6 credits of international courses from College-approved list or other courses approved by adviser. (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 21 credits

**INTELLIGENCE ANALYSIS AND MODELING OPTION:** (21 credits)

**PRESCRIBED COURSES** (12 credits) [11](#)  
 ECON 302 GS(3), SRA 321(3) (Sem: 3-6)

SRA 433(3), SRA 468(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits from College-approved list (Sem: 5-8)

**INFORMATION AND CYBER SECURITY OPTION:** (21 credits)

**PRESCRIBED COURSES** (12 credits)[\[1\]](#)

IST 220(3) (Sem: 1-6)

IST 451(3), IST 454(3), IST 456(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits from College-approved list (Sem: 5-8)

**SOCIAL FACTORS AND RISK OPTION:** (21 credits)

**PRESCRIBED COURSES** (9 credits)[\[1\]](#)

IST 452(3), SRA 471(3), SRA 472(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits from College-approved list (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-096

Review Date: 04/12/2011

UCA Revision #1: 8/14/06

UCA Revision #2: 7/30/07

[Comments](#)

IS

## Statistics

University Park, Eberly College of Science (STAT)

PROFESSOR DAVID HUNTER, *Head, Department of Statistics*

This major helps prepare students with interests in mathematics, computation, and the quantitative aspects of science for careers in industry and government as statistical analysts, or for further graduate training in statistics. The major includes five options: An Actuarial Statistics Option for students interested in working as actuaries in the insurance or business fields; an Applied Statistics Option for students interested in a cross-disciplinary program, such as econometrics, or psychometrics; a Biostatistics Option for students interested in pursuing careers with pharmaceutical companies, research hospitals or other fields in which biological data is analyzed; a Graduate Study Option for students planning to go to graduate school in a statistics-related field; and a Statistics and Computing Option for students wishing to combine statistical expertise with programming skills.

In order to be eligible for entrance into the Statistics major, a student must have: 1) Attained at least a 2.00 cumulative grade point average. 2) Completed MATH 140 GQ(4) and MATH 141 GQ(4); and earned a grade of C or better in each of these courses.

For the B.S. degree in Statistics a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(6-15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of *Bulletin*.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 80-95 credits

(This includes 6-15 credits of General Education: 0-9 credits of GN courses; 6 credits of GQ courses, 0-6 credits of GS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 34 credits

#### PRESCRIBED COURSES (34 credits)

MATH 140 GQ(4)[\[1\]](#), MATH 141 GQ(4)[\[1\]](#) (Sem: 1-2)  
MATH 220 GQ(2-3)[\[1\]](#), MATH 230(4)[\[1\]](#), STAT 200(4)[\[1\]](#) (Sem: 3-4)  
STAT 414(3)[\[1\]](#), STAT 415(3)[\[1\]](#), STAT 461(3)[\[1\]](#), STAT 462(3)[\[1\]](#), STAT 470W(3)[\[1\]](#), STAT 480(1)[\[1\]](#) (Sem: 5-8)

#### REQUIREMENTS FOR THE OPTION: 47-57 credits

#### ACTUARIAL STATISTICS OPTION: 53 credits

*Students who major in statistics with the actuarial statistics option and who wish to complete a concurrent major in mathematics may not choose the actuarial mathematics option in mathematics. Any other option in mathematics is acceptable.*

#### PRESCRIBED COURSES (28 credits)

ECON 102 GS(3), ECON 104 GS(3) (Sem: 1-4)  
ACCTG 211(4)[\[1\]](#) (Sem: 3-4)  
FIN 301(3)[\[1\]](#), R M 302(3)[\[1\]](#), R M 410(3)[\[1\]](#), R M 411(3)[\[1\]](#), R M 412(3)[\[1\]](#), STAT 463(3)[\[1\]](#) (Sem: 4-8)

#### ADDITIONAL COURSES (12 credits)

Select 3 credits from: CMPSC 101 GQ(3)[\[1\]](#), CMPSC 102(3)[\[1\]](#), CMPSC 121 GQ(3)[\[1\]](#), CMPSC 200 GQ(3)[\[1\]](#), CMPSC 201 GQ(3)[\[1\]](#), or CMPSC 202 GQ(3)[\[1\]](#) (Sem: 1-4)

Select 9 credits from I E 434(3)[\[1\]](#); I E 436(3)[\[1\]](#); MATH 436(3)[\[1\]](#) or MATH 441(3)[\[1\]](#); MATH 451(3)[\[1\]](#) or MATH 455(3)[\[1\]](#); STAT 416(3)[\[1\]](#), STAT 440(3)[\[1\]](#), STAT 464(3)[\[1\]](#), STAT 466(3)[\[1\]](#) (Sem: 5-8)

#### SUPPORTING COURSES AND RELATED AREAS (13 credits)

Select 13 credits from department list (Sem: 1-8)

#### APPLIED STATISTICS OPTION: (47 credits)

#### ADDITIONAL COURSES (15 credits)

Select 3 credits from: CMPSC 101 GQ(3)[\[1\]](#), CMPSC 121 GQ(3)[\[1\]](#), CMPSC 201 GQ(3)[\[1\]](#), or CMPSC 202 GQ(3)[\[1\]](#) (Sem: 1-4)

Select 12 credits from I E 434(3)[\[1\]](#); I E 436(3)[\[1\]](#); MATH 436(3)[\[1\]](#) or MATH 441(3)[\[1\]](#); MATH 451(3)[\[1\]](#) or MATH 455(3)[\[1\]](#); STAT 416(3)[\[1\]](#), STAT 440(3)[\[1\]](#), STAT 463(3)[\[1\]](#), STAT 464(3)[\[1\]](#), STAT 466(3)[\[1\]](#) (Sem: 5-8)

#### SUPPORTING COURSES AND RELATED AREAS (32 credits)

Select 32 credits from department list, including a minor in a supporting field other than Mathematics. (Sem: 1-8)

(Neither the mathematics major nor the six sigma minor, nor the risk management major with the actuarial science option may be used to satisfy the minor/concurrent major requirement. If a student wants to work in a supporting field that does not have a minor, he or she can propose a list of six appropriate courses and petition the Statistics Department for approval. It is the student's responsibility to justify the appropriateness of the proposed list. Students must receive a grade of C or better in each of these six courses.)

#### BIOSTATISTICS OPTION: (56-57 credits)

#### PRESCRIBED COURSES (8 credits)

BIOL 110 GN(4)[\[1\]](#), CHEM 110 GN(3)[\[1\]](#), CHEM 111 GN(1)[\[1\]](#) (Sem: 1-3)

#### ADDITIONAL COURSES (28-29 credits)

Select 3 credits from: CMPSC 101 GQ(3)[\[1\]](#), CMPSC 121 GQ(3)[\[1\]](#), CMPSC 201 GQ(3)[\[1\]](#), or CMPSC 202 GQ(3)[\[1\]](#) (Sem: 1-4)

Select 7-8 credits from BIOL 220W GN(4)[\[1\]](#), BIOL 222(3)[\[1\]](#), BIOL 230W GN(4)[\[1\]](#), BIOL 240W GN(4)[\[1\]](#) (Sem: 5-8)

Select 6 credits from 400-level BIOL courses[\[1\]](#) (Sem: 5-8)

Select 12 credits from I E 434(3)[\[1\]](#); I E 436(3)[\[1\]](#); MATH 436(3)[\[1\]](#) or MATH 441(3)[\[1\]](#); MATH 451(3)[\[1\]](#) or MATH 455(3)[\[1\]](#); STAT 416(3)[\[1\]](#), STAT 440(3)[\[1\]](#), STAT 463(3)[\[1\]](#), STAT 464(3)[\[1\]](#), STAT 466(3)[\[1\]](#) (Sem: 5-8)

#### SUPPORTING COURSES AND RELATED AREAS (19-20 credits)

Select 19-20 credits from department list (Sem: 1-8)

#### GRADUATE STUDY OPTION: (47 credits)

*A student completing the Graduate Study option will have earned a minor in mathematics in addition to a B.S. in Statistics. However, a student must fill out and submit the appropriate paperwork to the Mathematics Department in order for this minor to be officially recognized.*

#### PRESCRIBED COURSES (9 credits)

MATH 312(3)[\[1\]](#), MATH 403(3)[\[1\]](#), MATH 404(3)[\[1\]](#) (Sem: 5-8)

#### ADDITIONAL COURSES (24 credits)

Select 3 credits from: CMPSC 101 GQ(3)[1], CMPSC 121 GQ(3)[1], CMPSC 201 GQ(3)[1], or CMPSC 202 GQ(3)[1] (Sem: 1-4)

Select 9 credits from MATH 310(3)[1], MATH 311W(3-4)[1], MATH 421(3), MATH 422(3)[1], MATH 426(3), MATH 429(3), MATH 456(3)[1], MATH 468(3)[1], MATH 469(3)[1] (Sem: 7-8)

Select 12 credits from I E 434(3)[1], I E 436(3)[1], MATH 436(3)[1] or MATH 441(3)[1], MATH 451(3)[1] or MATH 455(3)[1], STAT 416(3)[1], STAT 440(3)[1], STAT 463(3)[1], STAT 464(3)[1], STAT 466(3)[1] (Sem: 5-8)

#### **SUPPORTING COURSES AND RELATED AREAS (14 credits)**

Select 14 credits from department list (Sem: 1-8)

#### **STATISTICS AND COMPUTING OPTION: (47 credits)**

##### **PRESCRIBED COURSES (9 credits)**

CMPSC 121 GQ(3)[1], CMPSC 122(3)[1], CMPSC 465(3)[1] (Sem: 1-6)

##### **ADDITIONAL COURSES (24 credits)**

Select 3 credits from: CMPSC 360(3)[1] or MATH 311W(3-4)[1] (Sem: 3-6)

Select 9 credits from CMPSC 221(3)[1], 400-level CMPSC [1] other than CMPSC/MATH 451 or CMPSC/MATH 455 (Sem: 5-8)

Select 12 credits from I E 434(3)[1], I E 436(3)[1], MATH 436(3)[1] or MATH 441(3)[1], MATH 451(3)[1] or MATH 455(3)[1], STAT 416(3)[1], STAT 440(3)[1], STAT 463(3)[1], STAT 464(3)[1], STAT 466(3)[1] (Sem: 5-8)

#### **SUPPORTING COURSES AND RELATED AREAS (14 credits)**

Select 14 credits from department list (Sem: 1-8)

### **Integrated B.S. in Statistics and Master of Applied Statistics (M.A.S.)**

The Integrated Undergraduate-Graduate (IUG) degree with B.S. in Statistics and Master of Applied Statistics (M.A.S.) is designed to be completed in five years. This integrated degree will enable a select number of highly qualified and career-oriented students to obtain training in statistics focused on developing data analysis skills and exploration of core areas of applied statistics at the undergraduate and graduate levels. The M.A.S. degree is a professional master's degree that emphasizes applications and does not provide as much training in the mathematical and statistical theory. The degree prepares students with interests in mathematics, computation, and the quantitative aspects of science for careers in industry and government as statistical analyst. Research divisions in the pharmaceutical industry, quality control and quality engineering divisions in manufacturing companies, clinical research units, corporate planning and research units, and other data-intensive positions require persons with training in mathematics, computation, database management, and statistical analysis, which this program will provide.

### **Application Process**

The number of openings in the integrated B.S./M.A.S. program is limited. Admission will be based on specific criteria and the recommendation of faculty. Applicants to the integrated program:

1. Must be enrolled in the Statistics B.S. program.
2. Must have completed at least 60 credits of the undergraduate degree program including the two courses: STAT 414 and STAT 415, and the students must apply to the program prior to completing 110 credits.
3. Must submit a transcript and a statement of purpose.
4. Must present a departmental-approved plan of study in the application process in consultation with the M.A.S. program director.
5. Must be recommended by the chair of the department's undergraduate program committee.
6. Must be accepted into the M.A.S. program in Statistics.

For the IUG B.S./M.A.S. degree, 120 credits are required for the B.S. and 30 credits for the M.A.S. The following twelve graduate-level credits (number of credits in parentheses) can apply to both B.S. and M.A.S. degrees; six of these are at the 500 level:

STAT 414 (3) Introduction to Probability Theory  
 STAT 415 (3) Introduction to Mathematical Statistics  
 STAT 501 (3) Regression Methods  
 STAT 502 (3) Analysis of Variance and Design of Experiments

Assuming all requirements for the B.S. are completed, students in the program can complete the B.S. degree and not advance to the M.A.S. Degree if they desire.

### **Degree Requirements**

IUG Statistics B.S. prescribed Statistics courses: See above, but note that students in IUG Statistics B.S. take STAT 501 and 502 instead of STAT 460 and 462.

IUG Statistics M.A.S. requirement (30 credits)

STAT 414 (3) Introduction to Probability Theory  
 STAT 415 (3) Introduction to Mathematical Statistics  
 STAT 501 (3) Regression Methods  
 STAT 502 (3) Analysis of Variance and Design of Experiments  
 STAT 580 (2) Statistical Consulting Practicum I  
 STAT 581\*\* (1) Statistical Consulting Practicum II  
 Electives (15) Choose from STAT 503-510 and the departmental list of additional courses for the M.A.S. program with the approval of the adviser.

\*\*For all students in the M.A.S. program, the STAT 581 course will have a comprehensive written project report required as part of the course, which serves as the culminating experience.

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012(STAT); Summer Session 2003 (Integrated B.S./M.A.S.)

Blue Sheet Item #: 40-06-237A (STAT); 31-01-123 (Integrated B.S./M.A.S.)

Review Date: 04/10/2012

UCA Revision #1: 9/1/06

UCA Revision #2: 7/30/07

SC



## Surveying Engineering

University College, Penn State Wilkes-Barre (SUR E)

PROFESSOR WESLEY PARKS, Program Coordinator, Penn State Wilkes-Barre

PROFESSOR IVAN M. ESPARRAGOZA, Director of Engineering Technology and Commonwealth Engineering, Penn State Brandywine

PROFESSOR SVEN BILÉN, Head, School of Engineering Design, Technology, and Professional Programs, Penn State University Park

The Surveying Engineering major provides a basic undergraduate education required for private and public service in the profession of surveying. Particular emphasis is placed on fundamental surveying principles required in all areas of surveying. Instruction is provided in the main divisions of surveying, including land surveying, mapping, photogrammetry, data analysis and adjustment, geodesy and map projection coordinate systems, remote sensing, geographic information systems, and land development. Students study various data collection techniques using surveying tools including total stations, levels, softcopy photogrammetry, satellite imagery, and the global navigation satellite system (GNSS). They also study legal principles related to land surveying, professional ethics, applications for Geographic Information Systems (GIS) in surveying, and data management techniques. Through the use of projects and capstone courses students will design measurement systems, alignments, land information systems, and land development.

### Program Educational Objectives:

1. Proficiently use mathematics, science, measurement methods, and modern surveying tools to collect, analyze, and reduce spatial data in professional applications or advanced study in surveying engineering or a related field.
2. Proficiently apply basic principles of land surveying, professional practice, and professional ethics to design and conduct surveys, and to analyze and interpret data in surveying engineering applications.
3. Effectively convey technical and professional information in written, verbal, and graphic forms, as an individual and as a member of a professional team.
4. Demonstrate their recognition of the importance of professional organizations for advancement toward professional licensure, development of leadership skills, and maintaining a broad understanding of contemporary societal issues by participating in activities of professional organizations in capacities ultimately leading to leadership positions.
5. Demonstrate their recognition of the need for continuous, life-long learning by participating in continuing education as students or as instructors.

### Program Outcomes (Student Outcomes):

The SUR E program has adopted for its program student outcomes the following outcomes as listed in the general criteria of the EAC of ABET "Criteria for Accrediting Engineering Programs, 2012-2013." Engineering programs must demonstrate that their students attain:

- a) an ability to apply knowledge of mathematics, science, and engineering,
- b) an ability to design and conduct experiments, as well as to analyze and interpret data,
- c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability,
- d) an ability to function on multidisciplinary teams,
- e) an ability to identify, formulate, and solve engineering problems,
- f) an understanding of professional and ethical responsibility,
- g) an ability to communicate effectively,
- h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context,
- i) a recognition of the need for, and an ability to engage in life-long learning,
- j) a knowledge of contemporary issues
- k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

For the B. S. degree a minimum of 132 credits is required. The baccalaureate program in Surveying Engineering is accredited by the Engineering Accreditation Commission of ABET, Inc., [www.abet.org](http://www.abet.org).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included as part of the First-Year Experience as specified by individual campus or college)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### REQUIREMENTS FOR THE MAJOR: 114 credits

(This includes 27 credits of General Education courses: 9 credits of GWS courses; 6 credits of GQ courses; 9 credits of GN courses; 3 credits of GS courses.)

### PRESCRIBED COURSES (93 credits)

EDSGN 100(3), MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], MATH 220 GQ(2-3), PHYS 211 GN(4), SUR 111(4)[1], SUR 162(3)[1] (Sem: 1-2)  
CMPSC 201 GQ(3), MATH 230(4), MATH 251(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2), STAT 401(3), SUR 212(4), SUR 222(3), SUR 241(3)[1], SUR 262(2) (Sem: 3-4)  
IE 302(3), SUR 272(3)[1], SUR 341(3), SUR 351(3), SUR 362(3), SUR 372W(3)[1], SUR 381(4) (Sem: 5-6)  
SUR 441(3), SUR 455(3), SUR 462(3), SUR 471(3), SUR 490(1) (Sem: 7-8)

### ADDITIONAL COURSES (15 credits)

CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 1-2)  
ENGL 015 GWS(3) or ENGL 030 GWS(3) (Sem: 1-2)  
ECON 102 GS(3), ECON 104 GS(3), or ECON 014 GS(3) (Sem: 3-6)  
ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 5-6)  
CE 410W(3) or SUR 482(3) (Sem: 7-10)

### SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from CE 300-level courses [2], CE 400-level courses [2], SUR 313(3), SUR 422(3), SUR 496(1-6) or SUR 497(1-6) (Sem: 7-10)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[2] These courses are not offered at Wilkes-Barre campus. They are provided to accommodate concurrent degree students in CE and SUR E.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-069

Review Date: 04/12/2011

UCA Revision #1: 8/14/06

UCA Revision #2: 7/30/07

EN





## Telecommunications

University Park, College of Communications (TELCM)

PROFESSOR MATTHEW JACKSON, *Head, Department of Telecommunications*

The Telecommunications program seeks to prepare informed, responsible professionals for leadership roles in the electronic communication and information industries. The program stresses the social, cultural and economic impact of electronic media, including radio, television, videogames, telephones and the Internet.

Students can choose an emphasis in programming and production, promotion and sales, management, law and policy, international telecommunications and society.

Graduates go on to careers at local radio and television stations; broadcast, cable and satellite networks; Internet content and service providers; wired and wireless telephone companies; and other related industries. The major emphasizes the business and legal parameters of telecommunications, making it an excellent preparation for law school or graduate school and careers in government policy and the entertainment field.

Students must select at least 80 credits in courses outside the College of Communications, including at least 65 in the liberal arts and sciences.

For the B.A. degree in Telecommunications, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(3 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 20 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 34 credits<sup>[1]</sup>

(This includes 3 credits of General Education GS courses.)

**PRESCRIBED COURSES** (10 credits)

COMM 160(1) (Sem: 1-4)

COMM 180(3) (Sem: 3-4)

COMM 387(3), COMM 381(3) (Sem: 5-6)

**ADDITIONAL COURSES** (18 credits)

ECON 102 GS(3) or ECON 014 GS(3) (Sem: 3-4)

*Students must meet with a faculty advisor to approve their course selections from the following areas:*

Select 15 credits from COMM 282(3), COMM 283W(3), COMM 374(3), COMM 383(1-3), COMM 383A(1.5), COMM 384(3), COMM 385(3), COMM 386(3), COMM 479(3), COMM 483(3), COMM 484(3), COMM 485(3), COMM 486(3), COMM 487(3), COMM 489W(3), COMM 490(3), COMM 491(3), COMM 492(3), COMM 493(3), COMM 495(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits in social aspects of communication from COMM 205 US(3), COMM 304(3), COMM 403(3), COMM 405(3), COMM 409(3), COMM 410 IL(3), COMM 411(3), COMM 413W(3), COMM 417(3), COMM 418(3), COMM 419 US;IL(3), COMM 496(1-3) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-079

Review Date: 04/10/2012

CM

Publications: 2/16/05

## Theatre

*Berks College (THABL)*  
*University Park, College of Arts and Architecture (THRBA)*

PROFESSOR RADHICA GANAPATHY, *Penn State Berks*  
 PROFESSOR ANNETTE MCGREGOR, *Penn State University Park*

This program offers the theatre student a general background in the various facets of theatre. A broad liberal education is provided and complemented with advanced courses to best serve student interests, talents, and career objectives. Though a strong emphasis is given to the areas of production and performance, majors may also wish to emphasize an area of special interest such as literature, design, dance, playwriting, directing or acting. All B.A. students spend a semester in study abroad studying at the Theatre Academy of London (TAL), a program that balances academic courses with advance studio work.

Students who pursue the B.A. in Theatre learn to research, analyze and synthesize information. Majors develop strong oral and written skills and many go on to postgraduate study not only in theatre but also in areas such as law, business and education.

The B.A. in Theatre degree program includes a Theatre Studies Option and three additional options, Theatre Performance, Dance Performance and Multicultural Performance. Entrance criteria to this major will include an interview with members of the Theatre faculty. Entrance to the three performance options will also include an audition or portfolio review. All four options are available at University Park; the Theatre Studies and Theatre Performance options only are available at Penn State Berks.

For the B.A. degree in Theatre, a minimum of 120 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
 (1.5-7.5 credits are included in the REQUIREMENTS FOR THE MAJOR)  
 (See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
 (Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
 (Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
 (Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 10-11 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits  
 (3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
 (See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 44.5-51.5 credits [\[1\]](#)  
 (This includes 1.5-7.5 credits in General Education courses: 1.5 credits GHA courses; 0-6 credits of GH courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 29.5-30.5 credits

**PRESCRIBED COURSES** (6.5 credits)  
 DANCE 170 GHA(1.5), THEA 289(1) (Sem: 1-2)  
 THEA 001S(1) (Sem: 1-4)  
 THEA 401Y IL(3) (Sem: 3-6)

**ADDITIONAL COURSES** (11-12 credits)  
 Select 3 credits from THEA 102 GA(3) or THEA 120(3) (Sem: 1)  
 Select 2-3 credits from THEA 107 GA(3) or THEA 200(2) (Sem: 1-2)  
 Select 3 credits from THEA 100 GA;US;IL(3) or THEA 105 GA(3) (Sem: 1-2)  
 Select 3 credits from THEA 130(3) or THEA 131(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)  
 Select 12 credits THEA 499 or DANCE 499 (Sem: 6-8)

**REQUIREMENTS FOR THE OPTION:** 15-21 credits

**THEATRE STUDIES OPTION:** (15 credits) [\[1\]](#)

**PRESCRIBED COURSES** (9 credits) [\[1\]](#)  
 THEA 150(3) (Sem: 1-4)  
 THEA 402(3), THEA 434(3) (Sem: 5-8)

**ADDITIONAL COURSES** (6 credits) [\[1\]](#)  
 Select 6 credits from THEA 405 US(3), THEA 407 US(3), THEA 408 US(3), THEA 412 US;IL(3), or THEA 464(3) (Sem: 5-8)

**THEATRE PERFORMANCE OPTION** (21 credits) [\[1\]](#)

**PRESCRIBED COURSES** (9 credits)  
 THEA 150(3) (Sem: 1-2)  
 THEA 402(3), THEA 434(3) (Sem: 3-6)

**ADDITIONAL COURSES** (12 credits):  
 Select 3 credits from THEA 121(3) or THEA 289(3) (Sem: 1-4)  
 Select 3 credits from THEA 405 US(3), THEA 407 US(3), THEA 408 US(3), THEA 412 US;IL(3), THEA 464(3) (Sem: 5-8)  
 Select 6 credits (with permission of adviser/instructor) from:  
 THEA 220(3), THEA 221(3), THEA 322(2), THEA 324(2) (Sem: 3-8)  
 OR  
 THEA 410(3), THEA 436(3), THEA 437(1-6) (Sem: 5-8)  
 OR  
 THEA 440(3-6) (Sem: 5-8)  
 OR  
 THEA 250(3), THEA 251(2), THEA 252(1), THEA 260(3), THEA 270(3), THEA 350(3) (Sem: 3-8)

**DANCE PERFORMANCE OPTION:** (18 credits)

**PRESCRIBED COURSES** (3 credits) [\[1\]](#)  
 DANCE 410 US;IL(3) (Sem: 5-6)

**ADDITIONAL COURSES** (15 credits) [\[1\]](#)  
 Select 9 credits from DANCE 361(1.5), DANCE 362(1.5), DANCE 461(1.5), DANCE 462(1.5) (Sem: 1-7)  
 Select 6 credits from THEA 146(2), THEA 402(3), THEA 405(3), THEA 407(3), THEA 408(3), THEA 412(3), THEA 440(3), DANCE 411(3) (Sem: 2-8)

**MULTICULTURAL PERFORMANCE OPTION** (21 credits)

**PRESCRIBED COURSES** (9 credits) [\[1\]](#)

DANCE 411 GH(3), THEA 412 US;IL(3), THEA 495(3) (Sem: 4-8)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from CMLIT 010 GH;IL(3), CMLIT 012 GH;IL(3), CMLIT 101 GH;US;IL(3) (Sem: 3-6)

Select 6 credits from CAS 271 US;IL(3), CMLIT 013 GH;IL(3), CMLIT 140 GH;IL(3), CMLIT 189 GH;IL(3), CMLIT 422 IL(3), CMLIT 435 IL(3), CMLIT 438 IL(3), CMLIT 453 IL(3), CMLIT 455 IL(3), CMLIT 486 IL(3), CMLIT 487 IL(3), CMLIT 488 IL(3), CMLIT 491 IL(3), DANCE 221(1.5), DANCE 320(1.5), ENGL 135 GH;US(3), ENGL 226 GH;US;IL(3), ENGL 235 US(3), ENGL 245 GH;US(3), ENGL 426 US(3), ENGL 431 US(3), INART 005 GA(3), INART 062 GA;US;IL(3), MUSIC 007 GA;US(3), MUSIC 009(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)

Select 3 credits in consultation with adviser (Sem 5-8)

[\[1\]](#)A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-04-001

Review Date: 01/14/2014

AA

## Theatre

University Park, College of Arts and Architecture (THRFA)

PROFESSOR WILLIAM KENYON, B.F.A. Program Coordinator, Design and Technology Option  
PROFESSOR TRAVIS DeCASTRO, B.F.A. Program Coordinator, Stage Management Option

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

The Bachelor of Fine Arts in Theatre offers two options: Design and Technology, and Stage Management.

The B.F.A. degree in Theatre with the Design and Technology option is intended to develop a level of competence that will enable students who wish to pursue professional careers in theatre design, theatre technology and related entertainment fields to prepare themselves for specialized graduate studies, specialized professional training and/or immediate participation in creative work. The prescribed core curriculum introduces students to each of the theatre design areas and provides them with a basic skill level in technology. The curriculum also features acting, directing, script analysis, theatre history and criticism. Students choose an emphasis area after their third semester to focus their awareness, their capabilities and their critical faculties or abilities in their area of interest.

For the B.F.A. degree in Theatre with the Stage Management option is intended to provide students with specialized training leading to a high level of competence in the stage management field. Graduates should be able to begin professional work or pursue further training at the graduate level. The Stage Management option is intended to educate students for a career in stage management for theatre.

Acceptance into the Design and Technology option is based on a faculty interview and portfolio review. Acceptance into the Stage Management option is based on a faculty interview and production book review. Both options require a minimum of 120 credits.

**GENERAL EDUCATION:** 45 credits  
(0-6 credits included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin)

**FIRST-YEAR SEMINAR:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 3-11 credits

**REQUIREMENTS FOR THE MAJOR:** 70-78 credits  
(This includes 0-6 credits of General Education courses: Sound Design emphasis--3 credits of GN courses and 3 credits of GA courses. Scene Design emphasis--3 credits of GA courses)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 42 credits

**PRESCRIBED COURSES** (42 credits)<sup>[1]</sup>  
THEA 100 GA;US;IL(3), THEA 001S(1), THEA 120(3), THEA 130(3), THEA 131(3), THEA 150(3), THEA 200(2) (Sem: 1-2)  
THEA 250(3), THEA 251(2), THEA 260(3), THEA 270(3), THEA 280(3), THEA 285(3), THEA 289(1) (Sem: 3-6)  
THEA 401Y(3), THEA 481(3) (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 28-36 credits

**DESIGN AND TECHNOLOGY OPTION:** (33-36 credits)

**PRESCRIBED COURSES** (9 credits)<sup>[1]</sup>  
THEA 252(1) (Sem: 3-6)  
THEA 434(3), THEA 454(3), THEA 459(2) (Sem: 5-8)

**ADDITIONAL COURSES** (9 credits)<sup>[1]</sup>  
Select 6 credits from THEA 456(1), THEA 457(1), THEA 466(1), THEA 467(1), THEA 477(1), THEA 487(1), THEA 489(1) (Sem: 3-8)  
Select 3 credits from THEA 464(3) or THEA 465(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (15-18 credits)<sup>[1]</sup>  
Select 15-18 credits from one of the following emphases a, b, c, d, or e  
**a. Costume Design/Technology:** THEA 146(2), THEA 253(1), THEA 261(3), THEA 460(3-6), THEA 461(3-6), THEA 464(3), or THEA 465(3) (Sem: 3-8)  
**b. Scene Design:** THEA 253(1), THEA 450(6), THEA 453(2) (Sem: 3-8)  
Select 3 credits from: THEA 460(3), THEA 470(3), THEA 480(3) (Sem: 6-8)  
Select 3 credits from: ART H 111 GA(3), ART H 112 GA(3), THEA 451(1), THEA 458(1), THEA 460(3), THEA 470(3), THEA 480(3), THEA 485(3-6) (Sem: 3-8)  
**c. Lighting Design:** THEA 253(1), THEA 381(3), THEA 485(3-6), THEA 470(6), THEA 472(2) (Sem: 3-8)  
**d. Sound Design:** INART 050 GN(3), INART 258A GA(3), THEA 381(3), THEA 484(3), THEA 485(3-6) (Sem: 3-8)  
**e. Scenic Technology:** THEA 253(1), THEA 381(3), THEA 470(3), THEA 480(6), THEA 485(3-6) (Sem: 3-8)

**STAGE MANAGEMENT OPTION:** (28 credits)

**PRESCRIBED COURSES** (25 credits)<sup>[1]</sup>  
THEA 146(2) (Sem: 1-2)  
THEA 220(3), THEA 289(1), THEA 322(2), THEA 324(2) (Sem: 3-4)  
THEA 486(9) (Sem: 5-8)  
THEA 496(6) (Sem: 6-8)

**ADDITIONAL COURSES** (3 credits)<sup>[1]</sup>  
Select 3 credits from: THEA 405(3), THEA 406(3), THEA 407 US(3), THEA 408(3), THEA 412 US(3), THEA 455(3), THEA 464(3), THEA 465(3) (Sem: 4-8)

<sup>[1]</sup> A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

<sup>[5]</sup> Students may apply 6 credits of ROTC.

Last Revised by the Department: Fall Semester 2005

Blue Sheet Item #: 33-04-017

Review Date: 1/18/05

AA

## Musical Theatre

University Park, College of Arts and Architecture (THRMT)

PROFESSOR CARY LIBKIN, *in charge, Musical Theatre*

The major is intended to provide students with specialized training leading to a high level of competence in musical theatre. Graduates should be able to begin professional work or pursue further training at the graduate level. This major is intended for those students who wish to pursue a career as a musical theatre professional. Acceptance into the major is based on an evaluative audition.

For the B.F.A. degree in Musical theatre, a minimum of 127 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(6 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in REQUIREMENTS FOR THE MAJOR)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**REQUIREMENTS FOR THE MAJOR:** 88 credits

(This includes 6 credits of General Education GA courses)

**PRESCRIBED COURSES** (78 credits)

**Theatre courses** (29 credits) [\[1\]](#)

THEA 001S(1), THEA 100 GA;US:IL(3), THEA 115(2), THEA 150(3), THEA 200(2), THEA 225A(2), THEA 225B(2), THEA 225C(2) (Sem: 1-2)

THEA 289(1), THEA 425A(2), THEA 425C(2), THEA 427A(2), THEA 427C(2) (Sem: 3-4)

THEA 401Y IL(3) (Sem: 5-8)

**Music courses** (21 credits)

THEA 113(3) (Sem: 1-2)

THEA 212(3), THEA 214(3), VOICE 110J GA(4) (Sem: 3-4)

VOICE 110J GA(4) (Sem: 5-6)

VOICE 412J(2), VOICE 462J(2) (Sem: 7-8)

**Dance courses** (12 credits) [\[1\]](#)

DANCE 231(1.5), DANCE 232(1.5) (Sem: 1-2)

DANCE 241(1.5), DANCE 242(1.5) (Sem: 3-4)

DANCE 251(1.5), DANCE 252(1.5), DANCE 371(1.5), DANCE 372(1.5) (Sem: 5-6)

**Musical Theatre courses** (16 credits)

MUSIC 113(1), MUSIC 114(1), THEA 114(3) [\[1\]](#) (Sem: 1-2)

THEA 223(2) [\[1\]](#), THEA 224(2) [\[1\]](#) (Sem: 3-4)

THEA 408 US(3) [\[1\]](#) (Sem: 5-6)

THEA 423(2) [\[1\]](#), THEA 424(2) [\[1\]](#) (Sem: 7-8)

**ADDITIONAL COURSES** (10 credits)

Select 3 credits from either THEA 130(3) or THEA 131(3) (Sem: 3-4)

Select 2 credits from either MUSIC 050 GA(1), MUSIC 051 GA(1), or MUSIC 110(1), MUSIC 170(1) (Sem: 1-2)

Select 2 credits from MUSIC 085 GA(1), MUSIC 089 GA(1), MUSIC 090 GA(1), MUSIC 091 GA(1), MUSIC 092 GA(1), MUSIC 093 GA;US:IL(1), MUSIC 094 GA(1), MUSIC 103 GA(1), MUSIC 104 GA(1), MUSIC 467(1), THEA 326(1 per semester, maximum of 3) (Sem: 3-6)

Select 3 credits, one from each of the following groups:

a. DANCE 431(1.5), DANCE 441(1.5), DANCE 451(1.5) (Sem: 7-8)

b. DANCE 432(1.5), DANCE 442(1.5), DANCE 452(1.5) (Sem: 7-8)

(Students may apply 6 credits of ROTC)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2005

Blue Sheet Item #: 33-04-015

Review Date: 1/18/05

AA

## Toxicology

University Park, College of Agricultural Sciences (TOX)

PROFESSOR JOHN VANDEN HEUVEL, Program Coordinator

Toxicology addresses adverse effects of chemicals on animals and humans and includes exposure assessment, hazard identification, dose-response analysis, and risk characterization. This discipline relies on cutting-edge biotechnological approaches to gain insight into drug and toxicant action at the molecular level. Students enrolled in the Toxicology program will develop an understanding of the principles by which chemicals affect the health of humans and animals either adversely, as toxic agents, or beneficially, as therapeutic agents. Students will learn about: 1) mechanisms of action of drugs and toxicants on organ systems of the body; 2) general principles for assessing the safety of chemicals and therapeutic efficacy of drugs; and 3) state-of-the-art molecular, biological, and genetic approaches to understanding drugs, toxicants, and disease through a combination of laboratory and lecture experiences. The B.S. degree in Toxicology provides a strong foundation for graduate work leading to a Ph.D. in most biomedical fields. Students may choose to pursue a Ph.D. degree in Pharmacology, Toxicology, Biochemistry, Physiology, Pathobiology, Oncology, or Molecular Biology. Alternatively, students prepare for employment as research technicians, drug/toxicant specialists, or pharmaceutical sales representatives.

### Entrance to Major Requirements:

In order to be eligible for entrance to the Toxicology major, a student must have (1) attained at least a 2.00 cumulative grade point average and (2) earned a C grade or better in: BIOL 110, BIOL 230W, CHEM 110, CHEM 111, CHEM 112, CHEM 113, MATH 140 and MATH 141.

For the B.S. degree in Toxicology, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 0-2 credits

### REQUIREMENTS FOR THE MAJOR: 92-94 credits

(This includes 15 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses.)

### PRESCRIBED COURSES (78 credits)

BIOL 110 GN(4)[\[1\]](#), CHEM 110 GN(3)[\[1\]](#), CHEM 111 GN(1)[\[1\]](#), CHEM 112 GN(3)[\[1\]](#), CHEM 113 GN(1)[\[1\]](#), MATH 140 GQ(4)[\[1\]](#), MATH 141 GQ(4)[\[1\]](#) (Sem: 1-2)

BB H/H P A 440 US:IL(3), CHEM 210(3), CHEM 212(3), CHEM 213(2), VB SC 230(3) (Sem: 3-4)

PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 3-6)

BIOL 220W GN(4), BIOL 230W GN(4), BIOL 240W GN(4) (Sem: 3-6)

B M B 211(3), B M B 212(1), B M B 221(2), BIOL 472(3)[\[1\]](#), VB SC 330(3)[\[1\]](#) (Sem: 5-6)

E R M 431(3)[\[1\]](#), VB SC 430(3)[\[1\]](#), VB SC 433(3)[\[1\]](#), VB SC 451(3)[\[1\]](#) (Sem 7-8)

### ADDITIONAL COURSES (5-7 credits)

Select 3-4 credits from STAT 200 GQ(4) or STAT 250 GQ(3) (Sem: 3-4)

Select 2-3 credits from VB SC 395(1-10) or VB SC 496(1-18) (Sem: 6-8)

### SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits of 400-level courses from department list [\[1\]](#) (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-02-002

Review Date: 10/02/2012

UCA Revision #1: 8/14/06

AG

Program Coordinator updated: 6/19/12

## Turfgrass Science

University Park, College of Agricultural Sciences (TURF)  
World Campus

PROFESSOR ANDREW McNITT, Program Coordinator

This major provides an integrated program of study that includes basic and applied sciences, business management courses and an internship to prepare students for careers in turfgrass management and related areas. By carefully selecting supporting courses and electives, students can adapt the program to meet a variety of professional interests and educational needs.

Employment opportunities include golf course maintenance, professional lawn care, grounds maintenance, sod production, sales and service, athletic field maintenance, and research technician.

With appropriate selection of science courses, students can prepare for graduate study leading to careers in teaching, research, and extension.

**Entrance Requirement:** A student wishing to transfer into the Turfgrass Science program must have completed CHEM 101 GN(3) or CHEM 110 GN(3) and received a grade of C or better in each course prior to declaring the major.

For the B.S. degree in Turfgrass Science, a minimum of 120 credits is required.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

**GENERAL EDUCATION:** 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in SUPPORTING COURSES AND RELATED AREAS course selections)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selections)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 4 credits

**REQUIREMENTS FOR THE MAJOR:** 89 credits

(This includes 18 credits of General Education courses; 3 credits of GWS courses; 6 credits of GQ courses; 9 credits of GN courses.)

**PRESCRIBED COURSES** (49 credits)

BIOL 127 GN(3), CHEM 202(3) [\[1\]](#), CMPSC 203 GQ(4), MATH 021 GQ(3) (Sem: 1-4)

SOILS 101 GN(3) [\[1\]](#), TURF 230(1) [\[1\]](#), TURF 235(3) [\[1\]](#), TURF 495(3) [\[1\]](#) (Sem: 3-4)

ENT 317(3) [\[1\]](#), PPEN 412(3) [\[1\]](#), TURF 238(3) [\[1\]](#), TURF 434(3) [\[1\]](#) (Sem: 5-6)

A S M 307(3), TURF 425(3) [\[1\]](#), TURF 435(4) [\[1\]](#), TURF 436W(3) [\[1\]](#), TURF 490(1) [\[1\]](#) (Sem: 6-8)

**ADDITIONAL COURSES** (13 credits)

BIOL 011 GN(3), BIOL 012 GN(1); or BIOL 110 GN(4) (Sem: 1-4)

CHEM 101 GN(3) [\[1\]](#) or CHEM 110 GN(3) [\[1\]](#) (Sem: 1-4)

METEO 003 GN(3) or METEO 101 GN(3) (Sem: 1-4)

ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (27 credits)

Select 12 credits from department professional agriculture list (Sem: 1-8)

Select 15 credits from department professional management and economics list (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-02-003

Review Date: 10/02/2012

UCA Revision #1: 8/14/06

[Comments](#)

AG



## Visual Art Studies

*Altoona College (VAST)*

The Bachelor of Arts degree in Visual Art Studies offers students the opportunity to explore studio work in Art within the context of a broader liberal arts education. Students can learn fundamental techniques and concepts common to the Visual Arts. Emphasis is also put on creative problem solving through advanced investigations of artistic themes and issues. Course work includes requirements (classes) related to the portfolio preparation necessary for employment in creative fields or for education at the graduate level.

Entry into the Visual Art Studies major requires a third semester standing (27.1 credits), the completion of 6 credits in ART with a C or better, an entrance interview, and a 2.00 or higher cumulative grade-point average. The entrance interview will be based on a review of the student's work in the 6 credits of ART, and any other work the student wishes to include.

For the B.A. degree in Visual Art Studies, a minimum of 121 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**GENERAL EDUCATION:** 45 credits

(6 of these credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 7-13 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)  
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 45 credits [\[1\]](#)

(This includes 6 credits of General Education courses: 6 credits of GA courses.)

**PRESCRIBED COURSES** (42 credits)

ART H 111 GA;IL(3), ART H 112 GA;IL(3) (Sem: 1-2)

ART 165 GA(3), ART 166 GA(3), ART 168 GA(3), ART 265(3), ART 266(3), ART 269(3) (Sem: 1-4)

ART 468(3) (Sem: 4-8)

ART 365(3), ART 366(3), ART 465(3), ART 466W(3), ART 469(3) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)

Select 3 credits of 400-level ART H courses (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-03-101

Review Date: 1/31/08

AA

## Veterinary and Biomedical Sciences

University Park, College of Agricultural Sciences (VBSC)

PROFESSOR LESTER C. GRIEL Jr., Program Coordinator

This major provides a strong background in those biological and physical sciences underlying contemporary veterinary science and establishes a sound foundation for graduate-level study in veterinary and related biomedical disciplines. The student has the option to focus their area of study by selecting supporting courses in a variety of areas.

The mission of the Veterinary and Biomedical Sciences major is to prepare students for admission to veterinary school and/or entry into graduate programs or employment in veterinary and biomedical research and development. Students may prepare for graduate programs in disciplines such as genetics, nutrition, microbiology, animal sciences, physiology, biochemistry, or others.

In order to be eligible for entrance to the Veterinary and Biomedical Sciences major a student must have: (1) attained a cumulative grade point average of at least a 2.0 and (2) completed BIOL 110 GN(4), CHEM 110 GN(3), CHEM 111 GN(1) and earned a grade of C or better in each of these courses.

For the B.S. degree in Veterinary and Biomedical Sciences, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 7-10 credits

**REQUIREMENTS FOR THE MAJOR:** 87-90 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses.)

**PRESCRIBED COURSES** (53 credits)

BIOL 110 GN(4) [1], CHEM 110 GN(3) [1], CHEM 111 GN(1) [1], CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-4)

AN SC 201(4) [1], PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 3-4)

AN SC 301(3) [1], BIOL 222(3) [1], MICRB 201(3), MICRB 202(2) (Sem: 5-6)

VB SC 211 GN(3), VB SC 403(3) [1], VB SC 421(4) (Sem: 4-8)

**ADDITIONAL COURSES** (25-28 credits)

Select 3 credits from AG BM 101 GS(3), ECON 102 GS(3), or ECON 104 GS(3) (Sem: 1-3)

Select 4 credits from B M B 251(3), BIOL 220W GN(4), BIOL 230W GN(4), BIOL 240W GN(4) (Sem: 3-4)

Select 6-8 credits from CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

Select 3 credits from AN SC 423(3) or BIOL 472(3) (Sem: 5-6)

Select 3-4 credits from STAT 200 GQ(4) or STAT 250 GQ(3) (Sem: 5-6)

Select 6 credits from B M B 211(3), B M B 212(1), B M B 221(2); or B M B 401(3), B M B 402(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits) [1]

Select 9 credits of 400-level courses from department list (Sem: 7-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-008

Review Date: 04/08/2014

UCA Revision #1: 8/2/06

AG

## Wildlife and Fisheries Science

University Park, College of Agricultural Sciences (W F S)

PROFESSOR ELLEN MANNO, Program Coordinator

The purpose of the Wildlife and Fisheries Science major is to develop the knowledge, skills, and professional ethics of undergraduates interested in the conservation and management of fish and wildlife and their environments. The curriculum is designed to provide a broad-based science background that incorporates natural resource management principles that prepare our students for a diverse array of opportunities such as graduate school, natural resource management agencies, consulting firms, non-profits, etc. Students can choose from two options: Wildlife option and Fisheries option. Each option enables students to gain greater depth of knowledge in one area of the discipline. Coursework required for the Wildlife option meets The Wildlife Society's requirements for professional certification, and coursework required for the Fisheries option meets the American Fisheries Society's requirements for professional certification.

For the B.S. in Wildlife and Fisheries Science, a minimum of 120 credits is required for the Wildlife option and a minimum of 122 credits is required for the Fisheries option.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### GENERAL EDUCATION: 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

### FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

### WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

### ELECTIVES: 3-9 credits

### REQUIREMENTS FOR THE MAJOR: 87-95 credits

(This includes 21 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses.)

### COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 69-72 credits

#### PRESCRIBED COURSES (45 credits)

BIOL 110 GN(4), BIOL 220W GN(4) [\[1\]](#), CHEM 110 GN(3), CHEM 111 GN(1) (Sem: 1-4)  
BIOL 240W GN(4), CHEM 202(3), PHYS 250 GN(4), SOILS 101 GN(3), W F S 209 GN(3) [\[1\]](#) (Sem: 3-4)  
ECON 104 GS(3), W F S 300(2) [\[1\]](#), W F S 301(2) [\[1\]](#), W F S 310(3) [\[1\]](#) (Sem: 5-6)  
W F S 446(3), ENGL 202C GWS(3) (Sem: 7-8)

#### ADDITIONAL COURSES (18-21 credits)

MATH 110 GQ(4) [\[1\]](#) or MATH 140 GQ(4) [\[1\]](#); MATH 111 GQ(2) or MATH 141 GQ(4) (Sem: 1-2)  
AN SC 322(3), BIOL 133 GN(3), BIOL 222(3), or BIOL 230W GN(4) (Sem: 3-4)  
STAT 240 GQ(3) or STAT 301 GQ(3) (Sem: 3-4)  
FOR 350(3) or STAT 460(3) (Sem: 5-6)  
AEE 440(3), CAS 211(3), ENGL 416(3), or ENGL 418(3) (Sem: 7-8)

#### SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits in natural resource economics, policy, planning, law, administration, or human dimensions from departmental list (Sem: 5-8)

### REQUIREMENTS FOR THE OPTION: 18-23 credits

#### FISHERIES OPTION: (22-23 credits)

##### PRESCRIBED COURSES (10 credits)

W F S 452(2), W F S 453(2) (Sem: 5-6)  
W F S 410(3), W F S 463W(3) (Sem: 5-8)

##### ADDITIONAL COURSES (12-13 credits)

BIOL 141 GN(3), BIOL 142(1); or BIOL 446(3), or AN SC 201(4) (Sem: 5-6)  
W F S 407(3), W F S 408(3), or W F S 447W(3) (Sem: 5-8)  
ENT 425(3), FOR 470(3), W F S 422(3); W F S 435(3)/E R M 435(3) (Sem: 5-8)  
GEOG 160 GS(3), GEOG 363(3), GEOSC 303(3), GEOSC 340(3), GEOSC 412(3), GEOSC 440(3), or GEOSC 452(3) (Sem: 7-8)

#### WILDLIFE OPTION: (18-19 credits)

##### PRESCRIBED COURSES (12 credits)

FOR 203(3) (Sem: 3-4)  
W F S 407(3), W F S 408(3) (Sem: 5-6)  
W F S 447W(3) (Sem: 7-8)

##### ADDITIONAL COURSES (6-7 credits)

W F S 406(2) or W F S 409(2) (Sem: 5-6)  
W F S 410(3), W F S 422(3), W F S 452(2), W F S 453(2), or W F S 463W(3) (Sem: 5-8)  
BIOL 414(3), FOR 308(3), HORT 101 GN(3), HORT 138(3), or HORT 445(3) (Sem: 7-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-04-004

Review Date: 1/15/08

UCA Revision #1: 8/14/06

AG

## Workforce Education and Development

University Park, College of Education (WF ED)

PROFESSOR MARK THREETON, *Undergraduate Coordinator*

This major leads to the B.S. degree and may also lead to certification as a career and technical education teacher, and/or a coordinator of cooperative education, provided other requirements of the Pennsylvania Department of Education are met. The Industrial Training option does not lead to teacher certification.

To be certified by the Pennsylvania Department of Education as a career and technical education teacher, a person must have sufficient employment experience beyond the learning period to establish competency in the occupation to be taught. Further interpretation of this requirement may be secured by contacting the Department of Learning and Performance Systems. (See also [Teacher Education Programs](#).)

Baccalaureate degree candidates must meet the following requirements by the end of their fourth semester to be admitted to the Workforce Education (WF ED) major:

1. Complete ECON 102 GS(3) or ECON 104 GS(3); EDPSY 014(3), EDTHP 115(3), ENGL 015 GWS(3) or ENGL 030 GWS(3), WF ED 101(1)
2. Complete 3 credits in literature (GH)
3. Complete 6 credits in Quantification (GQ)
4. Minimum 3.00 cumulative GPA
5. Meet PRAXIS PPST-READING current qualifying scores
6. Meet PRAXIS PPST-WRITING current qualifying scores
7. Meet PRAXIS PPST-MATHEMATICS current qualifying scores
8. Complete and document a minimum of 80 hours of experience

For the B.S. degree in Workforce Education and Development, a minimum of 124 credits is required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits  
(3 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**  
(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**  
(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**  
(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 0-1 credits

**REQUIREMENTS FOR THE MAJOR:** 81-82 credits  
(This includes 3 credits of General Education GS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 38 credits [\[18\]](#)

**PRESCRIBED COURSES** (35 credits)  
ECON 102 GS(3) or ECON 104 GS(3); EDPSY 014(3), EDTHP 115(3), WF ED 001(3), WF ED 101(1), WF ED 105(3), WF ED 323(3) (Sem: 3-6)  
WF ED 445(3) (Sem: 3-8)  
WF ED 106(3), WF ED 207W(3), WF ED 413(3), WF ED 441(2) (Sem: 5-8)  
WF ED 442(2) (Sem: 7-8)

**ADDITIONAL COURSES** (3 credits)  
WF ED 450 US:IL(3), INSYS 100 GS:IL(3), or S T S 245 GS:IL(3) (Sem: 3-6)

**REQUIREMENTS FOR THE OPTION:** 43-44 credits

**HEALTH OCCUPATIONS EDUCATION OPTION:** (43 credits) [\[18\]](#)

**PRESCRIBED COURSES** (34 credits)  
WF ED 395C(24) (Sem: 5-8)  
WF ED 495C(10) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)  
Select 9 credits in course work related to the student's field of study (Sem: 3-8)  
(Students may apply 6 credits of ROTC.)

**INDUSTRIAL EDUCATION OPTION:** (43 credits) [\[18\]](#)

**PRESCRIBED COURSES** (34 credits)  
WF ED 395A(24) (Sem: 5-8)  
WF ED 495C(10) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)  
Select 9 credits of course work related to the student's field of study (Sem: 3-8)  
(Students may apply 6 credits of ROTC.)

**INDUSTRIAL TRAINING OPTION:** (44 credits) [\[18\]](#)

**PRESCRIBED COURSES** (35 credits)  
WF ED 270(3) (Sem: 3-6)  
WF ED 471(3) (Sem: 5-6)  
WF ED 395D(24) (Sem: 5-8)  
WF ED 495D(5) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)  
Select 9 credits in course work related to the student's field of study (Sem: 3-8)  
(Students may apply 6 credits of ROTC.)

**OCCUPATIONAL HOME ECONOMICS EDUCATION OPTION:** (43 credits) [\[18\]](#)

**PRESCRIBED COURSES** (34 credits)  
WF ED 395B(24) (Sem: 5-8)  
WF ED 495C(10) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)  
Select 9 credits in course work related to the student's field of study (Sem: 3-8)

**[18]** A grade of C or better per course is required for teacher certification.

Last Revised by the Department: Summer Session 2009

Blue Sheet Item #: 37-04-013

Review Date: 1/13/09

ED

## World Languages (K-12) Education

University Park, College of Education (WL ED)

PROFESSOR MATTHEW POEHNER, *Undergraduate Coordinator*

The World Languages Education major helps prepare students for kindergarten through high school teaching positions and for other employment in fields related to their content language areas.

The following teaching options are available for majors in World Languages Education: Bilingual Education, English as a Second Language, French, German, Latin, Russian, and Spanish. Pennsylvania does not issue a teacher certificate in Bilingual Education; many other states do. Completers of the English as a Second Language (ESL) option may qualify for the Pennsylvania Program Specialist: ESL credential if they hold a Pennsylvania teacher certificate.

**BILINGUAL EDUCATION TEACHING OPTION:** Although Pennsylvania does not issue a teacher certificate in Bilingual Education, other states do. Thus, completion of this option as well as any tests or requirements stipulated by the pertinent state department of education (other than Pennsylvania) should lead to a teacher certificate in Bilingual Education. In addition to the Common Requirements of the World Languages Education major, candidates select one of the language emphases, i.e., French, German, Latin, Russian, or Spanish, complete the courses associated with that emphasis and also the Common Requirements for all Emphases. Consequently, candidates also become eligible for teacher certification in the language selected as their language emphasis. Further, completers of this B.S. degree and option may also become eligible for the English as a Second Language (ESL) credential by completing six additional credits, i.e., APLNG 410 or APLNG 484, and APLNG 493.

Candidates are expected to have taken their choice of language coursework beyond the intermediate level to be eligible for enrollment in FR 201, or GER 201, or LATIN 400, or RUS 204, or SPAN 200. In general, students are encouraged to take at least one course in the chosen language each semester without interruption. Participation in an approved Education Abroad Study Program is required, typically during semester six.

**ENGLISH AS A SECOND LANGUAGE (ESL) TEACHING OPTION:** This option will lead to a baccalaureate degree only in conjunction with one of the other companion World Language Education Teaching options.

The ESL Teaching option is a joint offering of the Department of Curriculum and Instruction in the College of Education and the Department of Linguistics and Applied Language Studies in the College of the Liberal Arts. Dr. Youb Kim, Assistant Professor of Education and Applied Linguistics, and Joan Kelly Hall, Professor of Linguistics and Applied Linguistics, are co-directors of the program.

This option prepares candidates for advanced work in ESL and for the Pennsylvania teacher credential Program Specialist: English as a Second Language (ESL). However, the Pennsylvania Department of Education only issues the Program Specialist: ESL credential to holders of Pennsylvania Instructional I or II certificates. Thus, completers of another World Languages Education Teaching option may first seek the Pennsylvania Instructional certificate in that language and may then add the Program Specialist: ESL credential, subsequently.

**FRENCH TEACHING OPTION:** Completion of this option and pertinent tests required by the Pennsylvania Department of Education lead to the Pennsylvania Instructional I teacher certificate in French. Candidates are expected to have taken French coursework beyond the intermediate level to be eligible for enrollment in FR 201. In general, students are encouraged to take at least one course in French each semester without interruption. Participation in an approved Education Abroad Study Program is required, typically during semester six.

**GERMAN TEACHING OPTION:** Completion of this option and pertinent tests required by the Pennsylvania Department of Education lead to the Pennsylvania Instructional I teacher certificate in German. Candidates are expected to have taken German coursework beyond the intermediate level to be eligible for enrollment in GER 201. In general, students are encouraged to take at least one course in German each semester without interruption. Participation in an approved Education Abroad Study Program is required, typically during semester six.

**LATIN TEACHING OPTION:** Completion of this option and pertinent tests required by the Pennsylvania Department of Education lead to the Pennsylvania Instructional I teacher certificate in Latin. Candidates are expected to have taken Latin coursework beyond the intermediate level to be eligible for enrollment in LATIN 400. In general, students are encouraged to take at least one course in Latin each semester without interruption. Participation in an approved Education Abroad Study Program is highly recommended, typically during semester six.

**RUSSIAN TEACHING OPTION:** Completion of this option and pertinent tests required by the Pennsylvania Department of Education lead to the Pennsylvania Instructional I teacher certificate in Russian. Candidates are expected to have taken Russian coursework beyond the intermediate level to be eligible for enrollment in RUS 204. In general, students are encouraged to take at least one course in Russian each semester without interruption. Participation in an approved Education Abroad Study Program is required, typically during semester six.

**SPANISH TEACHING OPTION:** Completion of this option and pertinent tests required by the Pennsylvania Department of Education lead to the Pennsylvania Instructional I teacher certificate in Spanish. Candidates are expected to have taken Spanish coursework beyond the intermediate level to be eligible for enrollment in SPAN 110. In general, students are encouraged to take at least one course in Spanish each semester without interruption. Participation in an approved Education Abroad Study Program is required, typically during semester six.

Baccalaureate degree candidates must meet the following requirements 1-3 by the end of their third semester:

1. A minimum cumulative grade point average of 3.00
2. Either qualifying scores from the PECT PAPA for Reading, Writing and Mathematics; or qualifying SAT scores for the combined and individual Critical Reading, Writing, and Mathematics sections; or qualifying American College Test Plus Writing composite and individual English/Writing score and Math score as specified by the Pennsylvania Department of Education.
3. Documentation of at least 80 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach. Candidates for World Languages Education must document 40 of these hours with learners who come from backgrounds that are different from the candidate's.

Requirements 4-9 must be met by the end of the fourth semester when students typically participate in the Entrance to Major process.

4. A grade of "C" or better in all specified courses.
5. Completion of an early field experience specified by the certification program.
6. Completion of a core of Education courses specified by the certification program.
7. Completion of additional credits as specified by the certification program.
8. Completion of at least 48 semester credit hours, including ENGL 015 GWS(3) or ENGL 030 GWS(3), three credits of literature, and six credits of quantification
9. Language proficiency as described below.
10. Approval from the professional education adviser or the head of the pertinent certification program.

French Option:

Proficiency equivalent through FR 003

Literature selection options in language: FR 351 or 352

FR 201 and 202

Spanish Option:

Proficiency equivalent through SPAN 003

Literature selection options in language: SPAN 210, 220, or 253

SPAN 215

German Option:

Proficiency equivalent through GER 003

Literature selection options in language: GER 310

GER 201

Russian Option:

Proficiency equivalent through: RUS 003

Literature selection options in language: RUS 304

## RUS 204

Latin Option:

Proficiency equivalent through: LATIN 003

Literature selection options in language: CAMS 045, LATIN 404

For the B.S. degree in World Languages Education with a dual certification option in *Bilingual Education Teaching*, a minimum of 140 credits is required; with an option in *English as a Second Language (ESL) Teaching*, a minimum of 136 credits is required, i.e., a minimum of 123 credits for the companion World Languages Education Teaching option selected, plus 12 credits to meet eligibility for the Program Specialist: ESL credential; with an option in *French Teaching*, a minimum of 128 credits is required; with an option in *German Teaching*, a minimum of 126 credits is required; with an option in *Latin Teaching*, a minimum of 125 credits is required; with an option in *Russian Teaching*, a minimum of 124 credits is required; with an option in *Spanish Teaching*, a minimum of 128 credits is required. (See also [Teacher Education Programs](#).)

*Scheduling Recommendations by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(9-12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 1 credit**REQUIREMENTS FOR THE MAJOR:** 88-106 credits

(This includes 9-12 credits of General Education GS and GH courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 55 credits [\[18\]](#)**PRESCRIBED COURSES** (52 credits)

EDPSY 014(3), EDTHP 115(3), HD FS 229 GS(3), C I 295(3), WL ED 300(3) (Sem: 1-4)

C I 280 GH(3), C I 495E(15), SPLED 400(4), SPLED 403B(3), WL ED 411(3), WL ED 412W(3), WL ED 495B(3), WL ED 495C(3) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)

PSYCH 412(3) or HD FS 239 GS(3) (Sem: 3-6)

**REQUIREMENTS FOR THE OPTION:** 33-51 credits**BILINGUAL EDUCATION TEACHING OPTION:** (48-51 credits)**PRESCRIBED COURSES** (9 credits)

WL ED 414(3), WL ED 422(3), WL ED 444(3) (Sem 5-7)

**ADDITIONAL COURSES** (39-42 credits)

Select 6 credits of 300- or 400-level option-related courses, with departmental recommendation (Sem: 5-7)

Select 33-36 credits from one of the following emphases areas (proficiency in the language of choice must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in FR 201 or GER 201 or LATIN 400 or RUS 204 or SPAN 110):

**a. French Emphasis** (36 credits)**Prescribed Courses** (24 credits)

FR 201 IL(3), FR 202(3), FR 331(3), FR 332(3) (Sem: 3-5)

FR 316(3), FR 401(3), FR 402Y(3), FR 440(3) (Sem: 5-8)

**Additional Courses** (12 credits)

Select 3 credits from FR 137 GH;IL(3), FR 138 GH(3), FR 139 GH;IL(3) (Sem: 1-4)

Select 3 credits from FR 351(3), FR 352(3), FR 460(3) (Sem: 4-7)

Select 3 credits from FR 417(3), FR 418(3) (Sem: 4-7)

Select 3 credits from FR 430(3), FR 458 IL(3), FR 470 IL(3), FR 471 IL(3), FR 489(3) (Sem: 5-7)

**b. German Emphasis** (34 credits)**Prescribed Courses** (19 credits)

GER 201 IL(4), GER 301 IL(3), GER 310 IL(3), GER 344 IL(3), GER 401Y IL(3), GER 411(3) (Sem: 3-7)

**Additional Courses** (15 credits)

Select 3 credits from GER 157 GH;US(3), GER 200 GH;IL(3) (Sem: 1-4)

Select 3 credits from GER 412 IL(3), GER 430 IL(3) (Sem: 4-6)

Select 3 credits from GER 431 IL(3), GER 432 IL(3) (Sem: 4-6)

Select 3 credits from GER 480 IL(3), GER 481 IL(3), GER 482 IL(3) (Sem: 4-6)

Select 3 credits from GER 399 IL(3), GER 440 IL(3), GER 482 IL(3), GER 497(1-9), GER 499 IL(3) (Sem: 5-8)

**c. Latin Emphasis** (33 credits)**Prescribed Courses** (24 credits)

CAMS 005 GH;IL(3), CAMS 050 GH(3), CAMS 400W(3), LATIN 404(3), LING 102 GH(3) (Sem: 3-5)

LATIN 402(3), LATIN 403(3), LATIN 450W(3) (Sem: 5-8)

**Additional Courses** (9 credits)

Select 3 credits from ANTH 045 GS;US;IL(3), CAMS 033 GH;IL(3), CAMS 045 GH;IL(3) (Sem: 1-4)

Select 3 credits from CAMS 101 GH;IL(3), CAMS 150 GH;IL(3) (Sem 3-5)

Select 3 credits from CAMS 440W(3), CAMS 497(1-9), LATIN 400(3), LATIN 420(3), LATIN 497(1-9) (Sem: 5-8)

**d. Russian Emphasis** (35 credits)**Prescribed Courses** (23 credits)

RUS 204 IL(4), RUS 214 IL(4) (Sem: 3-5)

RUS 304 IL(3), RUS 305 IL(3), RUS 400 IL(3), RUS 412 IL(3), RUS 450 IL(3) (Sem: 5-8)

**Additional Courses** (12 credits)

Select 3 credits from RUS 100 GH;IL(3), RUS 110 GH;IL(3), RUS 120 GH;IL(3) (Sem: 1-4)

Select 3 credits from RUS 130 IL(3), RUS 141Y(3), RUS 142Y(3), RUS 143 GH;IL(3) (Sem: 1-4)

Select 3 credits from RUS 450 IL(3), RUS 497(1-9) (Sem: 1-4)

Select 3 credits from RUS 426 IL(3), RUS 427 IL(3), RUS 494(3), RUS 497(1-9), RUS 499 IL(3) (Sem: 5-8)

**e. Spanish Emphasis** (33 credits)**Prescribed Courses** (21 credits)

SPAN 110(3), SPAN 215(3), SPAN 253W(3), (Sem: 3-5)

SPAN 410(3), SPAN 412(3), SPAN 414(3), SPAN 440(3) (Sem: 5-8)

**Additional Courses** (12 credits)

Select 3 credits from SPAN 210(3), SPAN 220(3) (Sem: 1-4)

Select 3 credits from SPAN 415(3), SPAN 418(3) (Sem: 5-8)

Select 3 credits from SPAN 305(3), SPAN 353(3), SPAN 354(3), SPAN 355(3), SPAN 356(3), SPAN 399 IL(3) (Sem: 4-6)

Select 3 credits from SPAN 399 IL(3), SPAN 472(3), SPAN 476(3), SPAN 490(3), SPAN 491(3), SPAN 497(1-9) (Sem: 5-8)

**ENGLISH AS A SECOND LANGUAGE (ESL) TEACHING OPTION:** (45-49 credits)

Select 33-37 credits: This option must be taken in conjunction with one of the other World Languages Education Teaching Options.

**PRESCRIBED COURSES** (9 credits)

APLNG 493(3), WL ED 444(3), WL ED 483(3) (Sem: 4-7)

**ADDITIONAL COURSES** (3 credits)

APLNG 410(3) or APLNG 484(3) (Sem: 5-7)

Holders of a baccalaureate degree and a valid Pennsylvania Instructional certificate, who seek only the Program Specialist: English as a Second Language credential, must complete the 15 credits of Prescribed and Additional Courses listed below. Typically, they do so in connection with other post-baccalaureate studies.

**PRESCRIBED COURSES** (12 credits)

APLNG 493 IL(3), WL ED 300(3), WL ED 444(3), WL ED 483(3) (Sem: 4-7)

**ADDITIONAL COURSES** (3 credits)

APLNG 410(3) or APLNG 484(3) (Sem: 5-7)

**FRENCH TEACHING OPTION:** (36 credits)**PRESCRIBED COURSES** (24 credits)

(Proficiency in French must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in FR 201.)

FR 201 IL(3), FR 202 IL(3), FR 331 IL(3), FR 332 IL(3) (Sem: 3-5)

FR 316(3), FR 401 IL(3), FR 402Y IL(3), FR 440 IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

FR 137 GH;IL(3) or FR 138 GH(3) or FR 139 GH;IL(3) (Sem: 1-4)

FR 351 IL(3) or FR 352 IL(3) or FR 460 IL(3); FR 417 IL(3) or FR 418 IL(3) (Sem: 4-6)

Select 3 credits from FR 430 IL(3), FR 458 IL(3), FR 470 IL(3), FR 471 IL(3), FR 489 IL(3) (Sem: 6-7)

**GERMAN TEACHING OPTION:** (34 credits)**PRESCRIBED COURSES** (19 credits)

(Proficiency in German must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in GER 201.)

GER 201 IL(4), GER 301 IL(3), GER 310 IL(3), GER 344 IL(3) (Sem: 3-5)

GER 401Y IL(3), GER 411(3) (Sem: 4-7)

**ADDITIONAL COURSES** (15 credits)

GER 157 GH;US(3) or GER 200 GH;IL(3) (Sem: 1-4)

GER 412 IL(3) or GER 430 IL(3); GER 431 IL(3) or GER 432 IL(3); GER 480 IL(3) or GER 481 IL(3) or GER 482 IL(3) (Sem: 4-6)

Select 3 credits from GER 399 IL(3), GER 440 IL(3), GER 482 IL(3), GER 497(1-9), GER 499 IL(3) (Sem: 5-8)

**LATIN TEACHING OPTION:** (33 credits)**PRESCRIBED COURSES** (24 credits)

(Proficiency in Latin must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in LATIN 400 or other 400-level Latin courses.)

CAMS 050 GH(3), CAMS 400W(3), LATIN 404(3), LING 102 GH(3) (Sem: 3-5)

CAMS 005 GH;IL(3), LATIN 402(3), LATIN 403(3), LATIN 450W(3) (Sem: 5-8)

**ADDITIONAL COURSES** (9 credits)

CAMS 033 GH;IL(3) or CAMS 045 GH;IL(3) (Sem: 1-4)

CAMS 101 GH(3) or CAMS 150 GH;IL(3) (Sem 3-5)

Select 3 credits from CAMS 440W(3), CAMS 497(1-9), LATIN 400(3), LATIN 420(3), LATIN 497(1-9) (Sem: 5-8)

**RUSSIAN TEACHING OPTION:** (35 credits)**PRESCRIBED COURSES** (23 credits)

(Proficiency in Russian must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in RUS 204.)

RUS 204 IL(4), RUS 214 IL(4), RUS 304 IL(3), RUS 305 IL(3) (Sem: 3-5)

RUS 400 IL(3), RUS 412 IL(3), RUS 450 IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

RUS 100 GH;IL(3) or RUS 110 GH;IL(3) or RUS 120 GH;IL(3); RUS 130 IL(3) or RUS 141Y(3) or RUS 142Y(3) or RUS 143 GH;IL(3) (Sem: 1-4)

Select 3 credits from RUS 450 IL(3) or RUS 497(1-9) (Sem: 4-6)

Select 3 credits from RUS 426 IL(3), RUS 427 IL(3), RUS 494(3), RUS 497(1-9), RUS 499 IL(3) (Sem: 6-8)

**SPANISH TEACHING OPTION:** (33 credits)**PRESCRIBED COURSES** (21 credits)

(Proficiency in Spanish must be demonstrated by either examination or coursework equivalent to enroll in SPAN 110.)

SPAN 110(3), SPAN 215(3), SPAN 253W(3) (Sem: 3-5)

SPAN 410(3), SPAN 412(3), SPAN 414(3), SPAN 440(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

SPAN 210(3) or SPAN 220(3) (Sem: 1-4)

SPAN 415(3) or SPAN 418(3) (Sem: 5-8)

Select 3 credits from SPAN 305(3), SPAN 353(3), SPAN 354(3), SPAN 355(3), SPAN 356(3), SPAN 399 IL(3) (Sem: 4-6)

Select 3 credits from SPAN 399 IL(3), SPAN 472(3), SPAN 476(3), SPAN 490(3), SPAN 491(3), SPAN 497(1-9) (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

**[18]** A grade of C or better per course is required for teacher certification.

Last Revised by the Department: Summer Session 2009

Blue Sheet Item #: 37-06-035

Review Date: 4/14/09

R & T: 01/14/2014

UCA Revision #1: 9/1/06

ED

Director updated: 2/13/12



## Women's Studies

*University Park, College of the Liberal Arts (WS BA)*

PROFESSOR CAROLYN SACHS, *Department Head*

This interdisciplinary major is designed to develop a broad understanding of the study of women and women's perspectives in all areas of academic scholarship. The focus is on feminist analyses of women's lives, of women's social, cultural, and scientific contributions, and of the structure of sex/gender systems. The interdisciplinary and inclusive nature of the field is reflected in a curricular structure that includes courses cross-listed with a wide variety of departments, courses that deal with aspects of women's lives throughout history, and courses that recognize the diversities of culture, race, religion, ethnicity, age, disability, and sexual orientation.

For the B.A. degree in Women's Studies, a minimum of 123 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 18 credits

**BACHELOR OF ARTS DEGREE REQUIREMENTS:** 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

**REQUIREMENTS FOR THE MAJOR:** 36 credits [\[1\]](#)

**PRESCRIBED COURSES** (9 credits)

WMNST 301 GH(3) (Sem: 1-4)

WMNST 400 US;IL(3) (Sem: 6-7)

WMNST 492W(3) (Sem: 7-8)

**ADDITIONAL COURSES** (6 credits)

Select 3 credits from WMNST 083S GH(3), WMNST 100 GS;US;IL(3) or WMNST 106 GS;US;IL(3) (Sem: 1-4)

Select 3 credits from WMNST 494(3), WMNST 495(3), WMNST 496(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Select 6 credits from the program-approved list at the 100-200 level (Sem: 1-4)

Select 15 credits in Women's Studies from the program-approved list and in consultation with an adviser; at least 3 credits must be at the 400 level (Sem: 1-8):

- a. 3 credits of arts and humanities courses
- b. 6 credits of natural or social sciences courses
- c. 3 credits that focus on non-Western women
- d. 3 credits that focus on women of color in the United States

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-072

Review Date: 02/19/2013

LA

## Women's Studies

University Park, College of the Liberal Arts (WS BS)

PROFESSOR CAROLYN SACHS, Department Head

This interdisciplinary major is designed to develop a broad understanding of the study of women and women's perspectives in all areas of academic scholarship. The focus is on feminist analyses of women's lives, of women's social, cultural, and scientific contributions, and of the structure of sex/gender systems. The interdisciplinary and inclusive nature of the field is reflected in a curricular structure that includes courses cross-listed with a wide variety of departments, courses that deal with aspects of women's lives throughout history, and courses that recognize the diversities of culture, race, religion, ethnicity, age, disability, and sexual orientation.

Students may choose either a Bachelor of Arts or a Bachelor of Science Program. The B.A. degree in Women's Studies is a traditional Women's Studies degree. The B.S. degree is intended for students with strong interest in quantitative skills, women's health and sexuality, and/or women and science, or who wish to pursue a multiple major program with other B.S. degree programs.

For the B.S. degree in Women's Studies, a minimum of 120 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**GENERAL EDUCATION:** 45 credits

(3-12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in this bulletin.)

**FIRST-YEAR SEMINAR:**

(Included in ELECTIVES or GENERAL EDUCATION course selection)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 21-30 credits

**REQUIREMENTS FOR THE MAJOR:** 57 credits [\[1\]](#)

(This includes 3-12 credits of General Education courses: 3-6 credits of GQ courses, 0-3 credits of GH courses, and 0-3 credits of GS courses.)

**PRESCRIBED COURSES** (6 credits)

WMNST 301 GH(3) (Sem: 1-4)

WMNST 492W(3) (Sem: 7-8)

**ADDITIONAL COURSES** (36 credits)

Select 3 credits from WMNST 100 GS;US;IL(3) or WMNST 106 GS;US;IL(3) (Sem: 1-4)

Select 3 credits from WMNST 400 US;IL(3) or WMNST 401(3) (Sem: 5-8)

Select 3 credits from WMNST 494(3), WMNST 495(3), or WMNST 496(3) (Sem: 5-8)

Select 27 credits in Women's Studies from the program-approved lists. At least 9 credits must be at the 400 level. The same course may be used to fulfill more than one requirement within Additional Courses. (Sem: 1-8).

a. 6 credits of arts and humanities courses: WMNST 083S GH(3), WMNST 101 GH(3), WMNST 102 GH(3), WMNST 104(3), WMNST 106 GH(3), WMNST 117 GH(3), WMNST 137 GH;US;IL(3), WMNST 194 GH(3), WMNST 407(3), WMNST 419 US;IL(3), WMNST 421 IL(3), WMNST 438(3), WMNST 457(3), WMNST 462(3), WMNST 466(3), WMNST 490(3) (Sem: 1-8)

b. 9 credits of natural or social sciences courses: WMNST 100 GS(3), WMNST 103(3), WMNST 110 GS(3), WMNST 116 GS(3), WMNST 136 GS(3), WMNST 157(3), WMNST 202 GS(3), WMNST 205(3), WMNST 410(3), WMNST 412(3), WMNST 415W(3), WMNST 420(3), WMNST 423(3), WMNST 424 US(3), WMNST 428(3), WMNST 452(3), WMNST 453(3), WMNST 455(3), WMNST 456(3), WMNST 458 GS(3), WMNST 471(3), WMNST 476W(3) (Sem: 1-8)

c. at least 6 credits that focus on women's health and sexuality or women in science and technology: WMNST 005(3), WMNST 205(3), WMNST 452(3), WMNST 457(3), WMNST 458(3) (Sem: 1-8)

d. at least 3 credits that focus on non-Western women: WMNST 102 GH(3), WMNST 202 GS(3), WMNST 420(3), WMNST 476W(3) (Sem: 1-8)

e. at least 3 credits that focus on women of color in the United States: WMNST 101 GH(3), WMNST 103(3), WMNST 136 GS(3), WMNST 205(3), WMNST 410(3) (Sem: 1-8)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits total from groups a, b, and c, with at least 3 credits from each group.

a. Quantification (GQ) and Research Methods (Sem: 1-8)

b. Values, Ethics, and Scientific Inquiry (Sem: 1-8)

c. Social and behavioral sciences, health sciences, or natural sciences (Sem: 1-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2004

Blue Sheet Item #: 32-01-081

Review Date: 9/2/03

LA

## **MINORS FOR BACCALAUREATE CANDIDATES**

A minor is defined as an academic program of at least 18 credits that supplements a major. A minor program may consist of course work in a single area or from several disciplines, with at least 6 but ordinarily not more than half of the credits at the 400-course level. Total requirements are to be specified and generally limited to 18 to 21 credits. Entrance to some minors may require the completion of a number of prerequisites, including courses, portfolios, auditions, or other forms of documentation that are not included in the total requirements for the minor. All courses for the minor require a grade of C or higher.

### **IMPACT ON A STUDENT'S RECORD**

When a student graduates, completion of a minor is recorded on his/her transcript by the Registrar, and the student receives an official certificate certifying completion of the minor. (The certificate is given with the diploma.)

## Agricultural Systems Management Minor

*University Park, College of Agricultural Sciences (A S M)*

The Agricultural System Management minor covers the mechanical, structural, natural resource, processing, and electronic technologies applied in agriculture systems. Students who graduate with this minor will have a solid understanding of how physical sciences and biological principles apply to real world problems in food and fiber industries. With industry teams often formed purposefully with many disciplines represented, this background of applied engineering basics and the focus on quantitative analysis has proven helpful to past graduates.

Integration of the applied technologies is addressed using a systems approach in each required course. Technologies addressed by courses in this minor include combustion engines, electric motors, mechanical and hydraulic power transmission systems, mobile equipment functions and operations, sensor and control systems, building structures, ventilation, drying, irrigation, drainage, food processing. The minor is targeted to students who will use these technologies or manage others who are responsible for systems utilizing these technologies. Most courses required for the minor are taught by engineering faculty, and nearly every course has a laboratory period.

Admission to the minor requires introductory calculus (MATH 110 or MATH 140) and introductory physics (PHYS 211 or PHYS 250).

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**ADDITIONAL COURSES** (18 credits)

Students must select from the following to account for 18 or more credits: A S M 307(3), A S M 310(3), A S M 320(3), A S M 327(3), A S M 420(3), A S M 424(3), A S M 425(3), BRS 221(3), BRS 422(3), BRS 426(3), BRS 428(3), BRS 429W(3). A total of 3 credits in A S M 495(1-3), A S M 496(1-3) and/or A S M 497(1-3) may also be used.

Last Revised by the Department: Fall Semester 2005

Blue Sheet Item #: 33-04-002

Review Date: 1/18/05

AG

## Biological Engineering Minor

University Park, College of Agricultural Sciences  
University Park, College of Engineering (B E)

This minor provides students with an opportunity to apply engineering principles to agricultural and biological production and processing systems and to the management of our natural resources. Courses may be selected by students to gain a better understanding of soil conservation and water quality, food and biological process engineering, structures and their environments, power and machinery, or microbiological engineering.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-19 credits

**PRESCRIBED COURSES** (3 credits)

B E 300(3) (Sem: 5-6)

**ADDITIONAL COURSES** (15-16 credits)

Select 6 credits from B E 301(3), B E 302(3), B E 303(3), B E 304(3), B E 305(3), B E 306(3), B E 307(3), B E 308(3) (Sem: 5-8)

Select 9-10 credits from one of the following areas; one course marked with \* must be selected (Sem: 5-8)

(a) Power and Machinery Systems: A S M 420(3), A S M 424(3), B E 461(3)\*, M E 431(3), M E 480(3)

(b) Biological Systems: B E 468(3)\*, CH E 340(3), CH E 438(3), CH E 449(3), E SC 484(3)

(c) Natural Resource Systems: A S M 309(3), B E 467(3)\*, B E 477(3), B E 487(3), C E 370(3), C E 371(3), C E 461(3)

(d) Food Process Systems: B E 465(3)\*, B E 468(3), CH E 410(3), FD SC 430(3), I E 312(3)

(e) Structural Systems: A E 308(4), B E 462(3)\*, C E 340(3), C E 341(3), C E 342(3)

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-03-046

Review Date: 11/13/2012

UCA Revision #2: 7/26/07

EN

## Astrobiology Minor

*Intercollege Program (ABIOL)*

Astrobiology is the study of life in the universe. Astrobiology has become a major focus of scientific research in the United States and a topic often discussed in popular science literature and the general media. The Astrobiology Minor is designed to educate students in this interdisciplinary field covering the varied scientific disciplines that contribute to our general understanding of life, the origin of life, the past history of life on Earth, possible futures for life on Earth, and the possible existence of life on other planetary environments. The principle goal of the minor is to develop student's literacy in astrobiology so that they can critically evaluate claims related to this field that they encounter well after their college education has ended.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENT FOR THE MINOR:** 18 credits with at least 6 credits at the 400 level

**PRESCRIBED COURSES** (3 credits)

BIOL/GEOSC 474(3) (Sem: 5-8)

**ADDITIONAL COURSES** (9-10 credits)

EARTH 002 GN(3) or GEOSC 021 GN(3) (Sem: 1-6)

ASTRO 140 GN(3) or ASTRO 291 GN(3)(Sem: 5-8)

GEOSC 204(4) or BIOL 427(3)(Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (5-6 credits)

Select 5-6 credits from ASTRO 475W(3), BIOL 405(3), B M B 401(3), B M B 402(3), GEOSC 416(3), GEOSC 419(3), METEO 466(3), or MICRB 201(3) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2000

Blue Sheet Item #: 28-07-084A

Review Date: 7/27/05

## Accounting Minor

*Penn State Erie, The Behrend College (ACNTG)*

The accounting minor requires students to complete 16 additional credits in accounting beyond the 4 credits required in ACCTG 211. It is designed to introduce students to advanced topics in financial and cost accounting, as well to the basics of income tax accounting for individuals. This minor can provide an enhanced understanding of accounting information flows, costing systems, and the general tax environment to students majoring in other business areas, and it is a particularly good complement to the finance and management information systems majors. On its own, it will not generally enable students to meet the requirements for professional licensing in accounting.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 20 credits

**PRESCRIBED COURSES** (14 credits)

ACCTG 211(4) (Sem: 3-4)

ACCTG 310(3), ACCTG 371(4), ACCTG 472(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits of additional ACCTG courses, at least 3 credits at the 400-level (Sem: 3-8)

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-053

Review Date: 08/24/2010

UCA Revision #2: 7/26/07

BD

**PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: December 18, 2013**

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## **Agricultural Economics and Rural Sociology Minor**

*University Park, College of Agricultural Sciences (AE RS)*

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS:** (18 credits)

Select 12 credits of Agricultural Economics and Rural Sociology courses (Sem: 1-6)

Select 6 credits of 400-level Agricultural Economics and Rural Sociology courses (Sem: 7-8)

Last Revised by the Department: Fall Semester 2001

AG



## African American Studies Minor (AFAMR)

Contacts: Abington College, Tom Smith, [trs8@psu.edu](mailto:trs8@psu.edu); College of the Liberal Arts, Darryl Thomas, [dct10@psu.edu](mailto:dct10@psu.edu)

The Department of African and African American Studies awards a certificate to students who, in addition to meeting the requirements for a major, complete 18 credits in the African American Studies minor. This minor is designed for students interested in African American culture and the educational, social, political, and economic development of people of African descent in the United States. In particular, it provides students with the opportunity to explore the experiences of African Americans using theories and methods originating in the field. Students are made aware of the potential to apply such knowledge to the solution of social, political, and economic problems. The minor also promotes greater understanding of the relationship between African Americans and other ethnic groups.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

AF AM 100 GS;US(3), AF AM/WMNST 101 GH;US(3), AFR 110 GS;IL(3) (Sem: 1-4)

**ADDITIONAL COURSES** (9 credits)

Select 9 credits; at least 6 credits of AAA S courses must be at the 400 level

AF AM/WMNST 102 GH;IL(3), AF AM/SOC/WMNST 103 US(3), AF AM/RL ST 145 GH;US;IL(3), AF AM 146 GH;US(3), AAA S/RL ST 147 GH;US(3), AAA S/HIST 191 GH;IL(3), AAA S/THEA 208 GA;US;IL(3), AF AM/HIST 210 GH;US(3), AAA S/HIST 240 GH;US(3) COMM/WMNST 205 US(3), ENGL 235 US;IL(3), SOC 119 GS;US(4) (Sem: 1-4)

AF AM 401(3), AF AM/SOC 409 GS;US(3), AF AM/WMNST 410(3), AAA S/THEA 412 US;IL(3), AAA S/HIST 415 US;IL(3), AF AM/CAS 422 US;IL(3), AF AM/HIST 431 US;IL(3), CRIMJ 451 US(3), ECON 436W US(3), EDTHP 411(3), ENGL 463 US(3), AF AM/HIST 465 US(3), AAF AM/ENGL 469 US(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 33-01-132

Review Date: 8/31/04

UCA Revision #2: 7/26/07

LA

## African Studies Minor

*University Park, College of the Liberal Arts (AFRST)*

The minor in African Studies is designed for students interested in exploring the political, historical, socioeconomic, and cultural aspects of Africa. The minor provides students with the opportunity to examine both the totality of Africa and/or specific geographical and cultural regions from several disciplinary perspectives.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

AFR 110 GS;IL(3), AFR 191 GH;IL(3), AFR 192 GH;IL(3) (Sem: 1-2)

**ADDITIONAL COURSES** (9 credits, 6 of which must be AFR courses at the 400 level)

AFR 105 GN;IL(3), AFR/WMNST 202 GS;IL(3), AFR 209 GS;IL(3), AFR 403(3), AFR 405(3), CMLIT 003(3), HIST 415(3) (Sem: 1-4)  
AFR/PL SC 434(3), AFR 440 US;IL(3), AFR 443 IL(3), AFR/PL SC 454 IL(3), AFR/PL SC 459(3), AFR/PL SC 464(3), AFR 495(3), AFR 496(3), AFR 499 IL(3), CMLIT 422 IL(3), CMLIT 423 IL(3), ECON 413W(3), ECON 475W(3), FR 458 IL(3), GEOG 429 US;IL(3), GEOG 444(3), PL SC 481(3) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-04-062

Review Date: 01/15/2013

LA

## **Agribusiness Management Minor**

*University Park, College of Agricultural Sciences (AG BM)*

The Agribusiness Management minor is offered for students who wish to add business and management principles to their undergraduate major.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

AG BM 102(3), AG BM 106(3), AG BM 200(3) (Sem: 2-6)

**ADDITIONAL COURSES** (9 credits)

Select 9 credits (6 of which must be from 400-level AG BM) from AG 301W(3), AG BM 302(3), AG BM 308W(3), AG BM 320(3), AG BM 338(3), AG BM 407(3), AG BM 408(3), AG BM 420(3), AG BM 440(3), AG BM 460(3), and AG BM 495A(1-3) or AG BM 495B(1-3) (Sem: 5-8)

Lasted Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-003

Review Date: 04/08/2014

AG

## Agricultural Communications Minor

*University Park, College of Agricultural Sciences (AGCOM)*

Through the Department of Agricultural Economics, Sociology, and Education, this interdisciplinary program of study is designed to introduce majors in the College of Agricultural Sciences to the skills and professional practices in communications and to the interdependence between communications and society. A grade of C or better is required in every course used to satisfy the requirements for the minor.

Students are required to complete a total of 19 credits, including 6 credits at the 400 level.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (7 credits)

COMM 160(1) (Sem: 1-2)

COMM 260W(3) (Sem: 3-4)

AGCOM 462W(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 3-6 credits from AEE 330W(3), AEE 440(3), or AGCOM 495(1-3) (Sem: 3-8)

Select 3-6 credits from COMM 180 GS(3), COMM 283W(3), COMM 401(3), COMM 403(3), COMM 405(3), COMM 409(3), COMM 411(3), COMM 413W(3), or COMM 460W(3) (Sem: 3-8)

Select 3 credits from COMM 401(3), COMM 403(3), COMM 405(3), COMM 409(3), or COMM 413W(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-02-001

Review Date: 03/12/08

AG

## Agronomy Minor

*University Park, College of Agricultural Sciences (AGRO)*

Agronomy is concerned with the principles and practices of field crop production and the conservation of soils and land resources. Areas of emphasis include crop production and protection, plant breeding, forage management, nutrient management, and soil conservation and fertility. Education in this minor emphasizes the principles of plant and soil management and the basic sciences upon which these principles are grounded. A minor in agronomy can complement several majors, and will enhance career opportunities in farm management and the agricultural industry. Employment possibilities include farm chemical and fertilizer store managers, sales representatives, field and laboratory technicians, crop management consultants, extension agents, soil and water conservationists, and inspectors for various state and federal regulatory agencies.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES:** (6 credits)

AGRO 028(3), SOILS 101 GN(3) (Sem: 3-4)

**ADDITIONAL COURSES:** (6-7 credits)

Select 6 credits from AGRO 410W(4), AGRO 423(3), AGRO 425(3), AGRO 438(4), or SOILS 402(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS:** (5-6 credits)

Select 5-6 credits in consultation with an adviser (Sem: 5-8)

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-02-001

Review Date: 10/08/2013

AG

## American Studies Minor

Abington College (AMSAB)

University College (AMSCC): Penn State Brandywine, Penn State Fayette, Penn State York

Contacts: Abington College, Tom Smith, [trs8@psu.edu](mailto:trs8@psu.edu); Penn State Brandywine, Phyllis Cole, [pbcc2@psu.edu](mailto:pbcc2@psu.edu); Penn State Fayette, Jay Precht, [jhp21@psu.edu](mailto:jhp21@psu.edu)

This interdisciplinary minor is designed for students who want to complement their major program. With the approval of the American Studies Program committee, appropriate courses other than those below may be selected, including those from the 200, 496, and 497 series. To complete the minor successfully, a candidate must complete all courses with at least a C or above. The minor consists of 18 credits.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

AM ST 491W(3) (Sem: 5-8)

**ADDITIONAL COURSES** (15 credits)

AM ST 100 GH(3), AM ST 100W(3), or AM ST 105 GH;US(3) (Sem: 1-4)

Select 12 credits from the following list, including at least 6 credits at the 400 level:

CRIMJ 100(3), CRIMJ 221(3), ART H 307 GA(3), COMM 100 GS(3), COMM 120(3), COMM 180 GS(3), COMM 205 US(3), COMM 250 GA(3), ENGL 133 GH(3), ENGL 134 GH(3), ENGL 139 GH;US(3), ENGL 140 GH(3), ENGL 194 GH;US;IL(3), ENGL 231W(3), ENGL 232W(3), HIST 020 GH;US(3), HIST 021 GH;US(3), HIST 150 US(3), HIST 151 GS(3), HIST 152 GH;US;IL(3), HIST 155 GH;US(3), HIST 156(3), HIST 158 US;IL(3), LER 156(3), MUSIC 007 GA;US(3), PL SC 001 GS(3), RL ST 140W GH;US(3), RL ST 145 GH;US;IL(3), WMNST 100 GS;US;IL(3) (Sem: 1-8)

AM ST 410(3), AM ST 415(3), AM ST 432(3), ART H 404(3), ART H 415(3), ART H 416(3), CAS 415(3), CAS 478(3), COMM 407(3), COMM 408(3), COMM 409(3), COMM 411(3), COMM 413W(3), COMM 426(3), CRIMJ 210(3), CRIMJ 421(3), CRIMJ 451 US(3), ENGL 430(3), ENGL 432(3), ENGL 433(3), ENGL 435(3), ENGL 436(3), ENGL 437(3), ENGL 438(3), ENGL 439(3), ENGL 458(3), ENGL 490 US;IL(3), ENGL 493(3), KINES 441 US(3), KINES 444(3), HIST 441 US(3), HIST 442 US(3), HIST 444 US(3), HIST 445 US(3), HIST 446 US(3), HIST 447 US(3), HIST 449 US(3), HIST 450 US(3), HIST 452 US;IL(3), HIST 454 US(3), HIST 458W(3), HIST 459Y US(3), HIST 460 US;IL(3), LER 411(3), LER 414W(3), LER 458W(3), MUSIC 464W(3), PHIL 401(3), PHIL 403(3), PHIL 432(3), PL SC 417(3), PL SC 419(3), PL SC 425(3), PL SC 426(3), PL SC 427(3), PL SC 435(3), PL SC 436(3), PL SC 472(3), PL SC 474(3), RL ST 422(3), SOC 409 GS;US(3), SOC 412(3), SOC 454(3), SOC 461(3), SOC 462(3), THEA 405(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 1995

Blue Sheet Item #: 23-05-121

Review Date: 04/12/05

UCA Revision #2: 7/26/07

AB

## American Studies Minor

*Capital College (AMSTD)*

Capital College - Simon Bronner, [sib2@psu.edu](mailto:sib2@psu.edu)  
Abington College - Thomas Smith, [trs8@psu.edu](mailto:trs8@psu.edu)  
Penn State Brandywine - Julie Gallagher, [jag63@psu.edu](mailto:jag63@psu.edu)  
Penn State Fayette - Jay Precht, [jhp21@psu.edu](mailto:jhp21@psu.edu)  
Penn State York - Robert Farrell, [rfr10@psu.edu](mailto:rfr10@psu.edu)

This interdisciplinary minor is designed for students who want to complement their major program. American Studies is an interdisciplinary field that explores the patterns of life and thought of the American peoples, past and present. American Studies helps students prepare for further study or careers in education, government, business, science, communication, law, museums, historical and cultural agencies, and archives. Internships are available for qualified students in American Studies. The internship is an extension of the student's academic studies and is an opportunity to gain practical experience.

A student seeking admission to the American Studies Minor must first be admitted to a major at Penn State. Upon admission, a Minor Adviser will be appointed from within the American Studies faculty to guide the student. For the American Studies Minor, a total of 18 credits is required. At least 6 credits must be at the 400 level.

A grade of C or better is required for all courses in the minor.

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

AM ST 491W(3) (Sem: 5-8)

**ADDITIONAL COURSES** (15 credits)

AM ST 100 GH;US(3) or AM ST 100W GH(3) (Sem: 1-4)

Select 12 credits from any American Studies offerings (AM ST) or from courses related to American Studies chosen from a list provided by the college. At least six of those credits must be at the 400 level. Substitutions must be approved by the American Studies Program head at the appropriate college. (Sem: 5-8)

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-02-019

Review Date: 10/08/2013

UCA Revision #2: 7/26/07

CL

## Animal Science Minor

*University Park, College of Agricultural Sciences (AN SC)*

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 20 credits

**PRESCRIBED COURSES** (8 credits)

AN SC 201(4), AN SC 290W(1), AN SC 301(3) (Sem: 3-4)

**ADDITIONAL COURSES** (6 credits)

Select 3 credits from AN SC 207(2) and AN SC 208(1); or AN SC 300 GN(3) (Sem: 3-4)

Select 3-4 credits from AN SC 305(3), AN SC 306(3), AN SC 308(4), AN SC 309(4), AN SC 310(3), AN SC 311(4), AN SC 327(3) (Sem:3-6)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits of 400-level AN SC courses (Sem: 7-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-001

Review Date: 02/19/2013

AG



## Anthropology Minor (**ANTH**)

*Contacts: Abington College, Gary Calore, [gcs1@psu.edu](mailto:gcs1@psu.edu); College of the Liberal Arts, Pat Johnson, [plj2@psu.edu](mailto:plj2@psu.edu)*

The Anthropology minor is designed to provide undergraduate students with exposure to the range of human variation across time and space. Our minors enroll in courses that explore that variation through the subdisciplines of archaeological, biological, and cultural anthropology. We maintain laboratory facilities in all three subdisciplines and the Matson Museum of Anthropology, all excellent learning facilities for our students. In addition, the department offers summer field school opportunities in cultural anthropology and archaeology. A Minor in Anthropology is excellent preparation for further study in any discipline that requires ability to understand and deal with other cultures, for example, teaching, counseling, business, medicine, law, or communications.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### **REQUIREMENTS FOR THE MINOR:** 18 credits

#### **PRESCRIBED COURSES** (9 credits)

ANTH 002 GS(3), ANTH 021 GN(3), ANTH 045 GS;US;IL(3) (Sem: 1-6)

#### **SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 3 credits from any ANTH course except ANTH 001 GS;US;IL(3) (Sem: 1-8)

Select 6 credits from the ANTH 400-489 range (Sem: 3-6)

Last Revised by the Department: Fall Semester 2001

Review Date: 4/9/02

LA

## Arabic Language Minor

*University Park, College of the Liberal Arts (ARAB)*

Modern Arabic is a crucially important world language. The minor in Arabic is intended to provide students with a good working knowledge of modern Arabic language, cultures, and societies, in order to broaden students' horizons and sharpen their awareness and abilities in internationalism and globalization. Students undertake three years of language study (or equivalent); education abroad can be included.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**PRESCRIBED COURSES** (12 credits)

ARAB 001(4), ARAB 002(4), ARAB 003(4) (Sem: 1-4)

**ADDITIONAL COURSES\*** (9 credits)

Select 3 credits from ARAB 110 IL(3), ARAB 197(1-9), ARAB 199 IL(1 -12), ARAB 296(1-18), ARAB 297(1 -9), ARAB 299 IL(1-12), ARAB 397(1-9), or ARAB 399 IL(1-12) (Sem: 1-8)

Select 6 credits from ARAB 401 IL(3), ARAB 402 IL(3), ARAB 494(1-12), ARAB 496(1-18), ARAB 497(1-9), or ARAB 499 IL(1-12) (Sem: 5-8)

\* Because this minor focuses on developing language proficiency in modern Arabic, special topics courses in English or other courses taught in English do not satisfy this requirement.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-05-115

Review Date: 02/22/2011

## Arboriculture Minor

*College of Agricultural Sciences (ARBOR)*

The Arboriculture minor has been designed to provide students with a comprehensive introduction to the principles and practices of the arboriculture profession. Combined with a major in Horticulture or Forestry, this minor will help prepare students for a career in arboriculture. The courses in the minor include arboriculture, disease and insect control, the planting and maintenance of plants in the landscape, and management of trees in urban environments. HORT 201, and many of the introductory positions available to graduates with an arboriculture minor, require physical strength and conditioning. The profession of arboriculture has many opportunities available in the application of arboricultural practices, sales, consulting, management of companies, and management of urban trees.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**REQUIREMENTS FOR THE MINOR:** 20-21 credits

**PRESCRIBED COURSES:** (15 Credits )

HORT 201(2), HORT/FOR 301(3) (Sem: 3-4)

ENT 313(2), ENT 314(1) (Sem: 5-6)

FOR 401(3), HORT 408(4) (Sem 7-8)

**ADDITIONAL COURSES** (5-6 credits)

Select 3 credits from FOR 203(3), HORT 137(3) (Sem: 3-4)

Select 2-3 credits from PPEM 300(3) or PPEM 318(2) (Sem:5-6)

Last Revised by the Department: Fall Semester 2008

Blue Sheet Item #: 36-06-002

Review Date: 4/15/08

AG

## Architectural History Minor

*University Park, College of Arts and Architecture (ARC H)*

This interdisciplinary minor administered by the Department of Art History is designed for students interested in exploring architectural history from a variety of disciplines.

This minor is open to students in all majors. Majors in Art History, Anthropology, Architecture, Landscape Architecture, Classics and Ancient Mediterranean Studies, and Geography may only double count 6 credits taken in their major field towards this minor. A grade of C or better is required in all course requirements for the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**PRESCRIBED COURSES** (6 credits) (Sem: 1-4)  
ART H 201(3), ART H 202(3)

**ADDITIONAL COURSES** (15 credits)

Select 3 credits from the following: ARCH 210 GA(3) or LARCH 060 GA;US;IL(3)

Select 12 credits from the following list, including at least 6 at the 400 level. No more than 9 credits may be taken from any one department. (Sem: 1-8)

AM ST/ART H 307 GA;US(3), AM ST/INART 410(3), AM ST 460(3), AM ST 461(3), AM ST 462(3), AM ST 481(3)

ANTH 008 GS;IL(3), ANTH 009 GS;IL(3), ANTH 420(3), ANTH 422(3), ANTH 423(3)

ARCH 312(3), ARCH 316(3), ARCH 317(3), ARCH 417(3), ARCH 499C(3), ART H 120 GA;IL(3), ART H/AM ST 307 GA;US(3), ART H 315 GA;IL(3), ART H 330 GA;

IL(3), ART H 401(3), ART H 404(3), ART H 405(3-6), ART H 411(3-9), ART H 412(3), ART H 415(3), ART H 420(3), ART H 440 IL(3), ART H 456 IL(3), ART H 458

IL(3), ART H 497(1-9) (if topic is architecture)

CAMS 012 GH;IL(3), CAMS 015 GH(3), CAMS 020 GH(3), CAMS 090 GH;IL(3), CAMS 140 GH(3), CAMS 150 GH(3)

FR 137 GH;IL(3), GEOG 120 GS;US;IL(3), GEOG 122 GH;US(3), GEOG 423Y US(3), GEOG 427(3), HIST 456Y IL(3), INART/AM ST 410(3), INART 415(3), LARCH

361W(3), LARCH 497(1-9) (if topic is history)

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-05-022

Review Date: 02/23/2010

AA

## Architecture Studies Minor

*University Park, College of Arts and Architecture (ARCST)*

The Architecture Studies Minor will permit students in other majors the opportunity to gain insight into the discipline of Architecture. To enroll, students must receive approval from their Academic Adviser and the Professor-in-Charge of the Minor in Architecture Studies. Students enrolled in the Bachelor of Architecture or Bachelor of Science in Architecture degree programs are not eligible to enter the Minor in Architecture Studies. However, students transferring out of Architecture may opt to receive recognition for their efforts and time spent in the major by completing requirements for the minor. The minor is intended to augment study in allied design majors, but graduates may not pursue licensure to practice Architecture. Coursework includes credits in art history, architectural theory, architectural design as well as courses from interest areas in architecture, architectural engineering, art or architectural history, and landscape architecture.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**ADDITIONAL COURSES:** (15 credits)

Select 3 credits from ARCH 100 GA(3) or ARCH 210 GA(3) (Sem: 1-2)

Select 3 credits from ARCH 211 GA(3), ART H 201 GA;IL(3), or ART H 202 GA;US;IL(3) (Sem: 1-2)

Select 3 credits from ARCH 130A(3-6) [3], ARCH 231(6) [4], ARCH 232(6) [4], ARCH 441(3) [3], ARCH 442(3) [3] (Sem: 1-8)

Select 6 credits from 400 level (or above) ARCH courses: ARCH 443(1), ARCH 481(3), ARCH 496(1-18), ARCH 497(1-9), ARCH 499C IL(3), but excluding ARCH 441 and ARCH 442 (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS:** (6 credits)

Select 6 credits within Architecture, Art History, Landscape Architecture or Architecture Engineering in consultation with an adviser and the discretion of the Architecture Department Head (Sem: 7-8)

[2] Students will not be permitted to take ARCH 101 after a 6-credit studio experience in order to increase credits contributing to fulfilling the minor.

[3] Courses available to Architectural Engineering majors only.

[4] Courses available to Architecture majors only.

Last Reviewed by the Department: Summer Session 2011

Blue Sheet Item #:40-01-014

Review Date: 8/16/2011

AA

## Art History Minor

*University Park, College of Arts and Architecture (ART H)*

The minor in Art History provides students with a broad introduction to the history of art, as well as the opportunity for more specialized study in one or two fields. Specialized study may concentrate upon one region of the world (e.g. India) or one period (e.g. Renaissance). A student should seek the advice of her/his minor adviser on course selections. The study of art history develops a student's visual acuity by providing a critical understanding of visual culture in a diversity of societies around the world. Students learn to understand art within the contexts of religion, politics, philosophy, culture, technology, society, and gender. A minor in Art History can be of particular interest for students pursuing careers in art, art education, history, anthropology, archaeology, classics, English, foreign language/literature, cultural studies, international business, and arts administration. Students majoring in Art History cannot take this minor.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**PRESCRIBED COURSES:** (6 credits)

ART H 111 GA;IL(3), ART H 112 GA;IL(3) (Sem: 1-4)

**ADDITIONAL COURSES:** (3 credits)

Select 3 credits from: ART H 120 GA;IL(3), ART H 130 GA;US;IL(3), ART H 301 GA;IL(3), ART H 315 GA;IL(3), ART H 320 GA;IL(3), ART H 330 GA;IL(3), or ART H 335 GA;IL(3) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS:** (12 credits)

Select 6 credits of 001 to 400-level ART H courses, except ART H 100 GA(3) (Sem: 3-8)

Select 6 credits of 400-level ART H courses (Sem: 3-8)

(Note: Students are encouraged to use these supporting courses to focus their studies in one or two areas of art history and should discuss these course selections with an Art History faculty member.)

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-05-021

Review Date: 02/23/2010

AA

## Asian Studies Minor

*University Park, College of the Liberal Arts (ASIA)*

This is an interdisciplinary minor designed for students with special interests in the Asian area. In addition to the requirements of the student's major department, the minor consists of 21 credits selected from such disciplines as anthropology, art history, economics, geography, history, linguistics, literature, philosophy, political science, religious studies, speech, theatre arts, and appropriate Asian languages.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**PRESCRIBED COURSES** (3 credits)

ASIA 100 GH;IL(3) (Sem: 1-4)

**ADDITIONAL COURSES** (3 credits)

HIST 174 GH;IL(3), HIST 175 GH;IL(3), HIST 176 GH;IL(3), or RL ST 003 GH;US;IL(3) (Sem:3-6)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits from a departmental list, at least 6 at the 400 level; independent study credits selected in consultation with adviser; additional further credits in language studies may be permitted up to 6 credits. (Sem: 1-8)

Courses not on the list that deal substantially with some aspect of Asia in any discipline may also count, pending approval of an adviser.

Last Revised by the Department: Fall Semester 2009

Blue Sheet Item #: 37-06-051

Review Date: 4/14/09

LA

## Astronomy and Astrophysics Minor

*University Park, Eberly College of Science (ASTRO)*

The minor in Astronomy and Astrophysics, available at the University Park campus, provides educational options to students with interest in astronomy but with principal commitments to an allied field. It is designed principally for majors in Aerospace Engineering, Electrical Engineering, Engineering Sciences, Geosciences, Meteorology, and Physics. The educational objectives are to provide students with a profound understanding of the large-scale properties and processes in our Universe including planets and solar systems, our Sun and other stars, our Galaxy and other galaxies; and cosmology. Students in the minor survey the field in the 200-level sequence and then select from a choice of advanced astronomy and allied courses. Minors will be encouraged to take advantage of the many undergraduate research opportunities in the department, often using space-based observatories.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-19 credits

**PRESCRIBED COURSES** (6 credits)

ASTRO 291 GN(3), ASTRO 292 GN(3) (Sem: 3-4)

**ADDITIONAL COURSES** (6-7 credits)

Select 6-7 credits from additional ASTRO 400-level courses, AERSP 308(3), AERSP 312(3), E E 472(3), GEOSC 474(3), GEOSC 481(3), METEO 466(3), or PHYS 458(4) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from 400-level ASTRO courses, except ASTRO 496 (Sem: 5-8)

Last Revised by the Department: Spring Semester 2002

Blue Sheet Item #: 30-03-111

Review Date: 05/22/02

UCA Revision #2: 7/26/07

SC



## Business Logistics Minor

*University Park, Smeal College of Business (B LOG)*

The Business Logistics minor is structured to provide the student with a working knowledge of the discipline and to complement a student's major field of study. Because Business Logistics crosses both functional and organizational boundaries in business, it is an appropriate minor for non-logistics majors within The Smeal College as well as for students in other majors.

The B LOG minor provides exposure to basic business principles along with logistics and supply chain concepts. Because of the importance of transportation links in supply chains, the minor also requires a course on domestic and international freight transportation systems. Students within the minor may pursue supporting courses in Business Logistics, covering topics such as e-fulfillment and operations, strategic procurement, transportation management and policy, urban transportation, and international logistics. To be successful in the B LOG minor, the student must, at a minimum, possess a working knowledge of quantitative techniques and an understanding of basic economic principles.

Because Business Logistics is common to many industries, students graduating with a minor in Business Logistics can apply their expanded knowledge in areas such as agriculture, health care, manufacturing, wholesaling, retailing, minerals and petroleum production, civilian and military government agencies, consulting, and food and hotel services.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES:** (6 credits)

ECON 102 GS(3), SCM 320(3) (Sem: 5-6)

**ADDITIONAL COURSES:** (12 credits)

Select 6 credits from a or b:

a) Business Majors: BA 303(3)

b) Non-Business Majors: B LAW 243(3), SCM 301(3)

Select 6 credits from B LOG 410(3), SCM 416(3), SCM 430(3) or SCM 435(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2000

Blue Sheet Item #: 28-04-015

Review Date: 11/01

UCA Revision #1: 8/14/06

BA

## Biochemistry and Molecular Biology Minor

*University Park, Eberly College of Science (B M B)*

The Biochemistry and Molecular Biology minor provides a foundation in traditional biochemistry and an exploration of the current understanding of molecular biology. The fields of biochemistry and molecular biology are extensively interconnected and are taught in the context of the biology of the cell. Stated another way, the B M B minor is a substantial treatment of life processes at the molecular and cellular levels. The minor requires coursework in general biochemistry, cell biology, and molecular biology. A required laboratory course exposes students to the basic techniques and instrumentation used in modern biochemistry and molecular biology laboratories. Students considering this minor should be comfortable with the study of chemistry.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-21 credits

**PRESCRIBED COURSES:** (17-18 credits)

B M B 251(3), B M B 252(3), B M B 442(3) (Sem: 3-4)

B M B 400(2-3), B M B 401(3), B M B 402(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS:** (0-3 credits)

Select 0-3 credits of B M B courses at the 400-level (Sem: 7-8)

*Note:* B M B 408(1-2) and B M B 496(1-18) may not be used to fulfill requirements for the minor.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-05-142

Review Date: 02/23/2010

SC

**Business Administration Minor***Capital College (BADMN)*

This interdisciplinary minor provides students in all majors with a business-oriented supplement to their major fields of study. It is intended to provide a set of basic skills that complement the unique competencies gained in their non-business disciplines. It is strongly recommended that students taking this minor elect at least one course in mathematics through college calculus, and a second course in descriptive and inferential statistics, as part of their General Education requirements or electives for the major. Students taking this minor may not have more than 25 percent of their total credits for graduation in business courses, and must receive a grade of C or better in all courses required for the minor. Students pursuing the Business Administration minor should apply to the School of Business Administration and select business courses in consultation with a business adviser.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR: 22 credits****PRESCRIBED COURSES (7 credits)**

ACCTG 211(4), MGMT 301(3) (Sem: 3-4)

**ADDITIONAL COURSES (9 credits)**

Select 3 credits from ECON 102 GS(3) or ECON 104 GS(3) (Sem: 3-4)

Select 6 credits from B A 243(4) or B LAW 243(3), B A 100 GS(3), B LAW 340(3), B A 364Y US:IL(3), ECON 342(3), ECON 351(3), FIN 100(3) or FIN 301(3), MGMT 321(3), MIS 390(3), MRKT 221(3) or MKTG 301(3), SCM 320(3) (course prerequisites must be met)(Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS (6 credits)**

Select 6 credits at the 400 level in ACCTG, B A, ECNMS, FIN, HCM, MIS, IST, MGMT, MRKT, or BE SC 408(3), BE SC 410(3), BE SC 468(3), COMM 414(3), PSYCH 473(3), or other School-approved courses (course prerequisites must be met) (Sem: 5-8)

Last Revised by the Department: Summer Session 2002

Blue Sheet Item #: 30-06-054

Review Date: 1/14/03

UCA Revision #1: 8/3/06

UCA Revision #2: 7/26/07

CL

## Biology Minor

*Penn State Erie, The Behrend College (BIOBD)*

Contact: Paul Barney, [peb3@psu.edu](mailto:peb3@psu.edu)

The minor in Biology gives students opportunities to combine a background in the biological sciences with other majors. The minor can provide valuable expertise in cross-disciplinary areas, such as mathematical biology, biochemistry, and biophysics; or a biological grounding in fields like psychology or ecology.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (4 credits)

BIOL 110 GN(4) (Sem: 1-4)

**ADDITIONAL COURSES** (8 credits)

Select 8 credits from BIOL 220W GN(4), BIOL 230W GN(4), or BIOL 240W GN(4) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits of additional 400-level BIOBD courses, excluding BIOL 492(1), BIOL 496(1-12), BIOL 495(1-12) and BIOL 496(1-18) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

UCA Revision #2: 7/26/07

BD

## Biomedical Engineering Minor

*University Park, College of Engineering (BME)*

This interdisciplinary minor is designed for students interested in the application of engineering principles to medical and biological problems. The minor is particularly suitable for students pursuing an undergraduate degree in a different engineering major, physics, or other applied science who are seeking careers in health-related professions. PHYS 211 GN(4), PHYS 212 GN(4), and calculus through differential equations (MATH 250 or 251) are required for entrance to the minor. Additional prerequisites for prescribed and supporting courses may be required and should be researched prior to applying for the minor (e.g. CHEM 112 GN(3) and CMPSC 200 GQ(3)). Students interested in pursuing this minor should contact the Department of Biomedical Engineering with any questions or for more information.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-20 credits

**ADDITIONAL COURSES** (6-8 credits)

Select 3-4 credits of physiology from BIOL 141 GN(3), BIOL 240W GN(4) or BIOL 472(3) (Sem: 3-6)

Select 3-4 credits of molecular/cell biology from B M B 251(3), BME 201(3), or BIOL 230W GN(4) (Sem: 4-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 9-12 credits of Biomedical Engineering (BME) coursework from 3-credit courses at the 400, or 500 level 300-level courses will be considered by petition and only 3 credits of research or independent study credit (BME 494H or 496) may be used. (Sem: 5-8)

Select 0-3 credits of electives from Biomedical Engineering-related courses (department list) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-039

Review Date: 11/19/2013

UCA Revision #1: 8/2/06

EN

## Biology Minor (BIOL)

Contacts: Altoona College, Edward Levri, [ep11@psu.edu](mailto:ep11@psu.edu); Eberly College of Science, Richard Cyr, [ric8@psu.edu](mailto:ric8@psu.edu)

This minor is designed for students in non-Life Science majors, who desire to obtain an in-depth and well-rounded knowledge of Biology -- the science of life and living organisms. This minor is not intended for "Life Science" oriented majors, including Biological Anthropology, Premedicine, and Science, Life Science option. After taking an introductory survey course which exposes students to the basics of Biology, including the chemistry of life, cell structure, genetics, mechanisms of evolution and evolutionary history of biological diversity, plant and animal form and function, and ecology, students select additional courses based on their biological emphasis to account for a total of 18-20 credits. In conjunction with the student's major, the minor prepares students for entry to graduate school or professional school programs, as well as for technical or research careers with governmental agencies or industry. Majors complemented by this minor would include but not be limited to other life and physical sciences, engineering, and business.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-20 credits

**PRESCRIBED COURSES** (4 credits)

BIOL 110 GN(4) (Sem. 5-6)

**ADDITIONAL COURSES** (7-8 credits)

Select 7-8 credits from BIOL 129 GN(4), BIOL 141 GN(3), BIOL 142(1), BIOL 222(3), BIOL 220W GN(4), BIOL 230W GN(4), BIOL 240W GN(4), BIOL 322(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6-9 credits)

Select 6-9 credits from 400-level Biology courses (BIOL 400, BIOL 496, and SC 495 credits may not be used to fulfill this requirement.) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2007

Blue Sheet Item #: 35-06-521

Review Date: 4/10/07

## Black Diaspora Studies Minor

*University Park, College of the Liberal Arts (BLDSP)*

The minor in Black Diaspora Studies is designed to broaden the perspectives of students through an examination of the international/transnational dimensions of the experiences of African and African-descent populations, particularly those in the Western Hemisphere. Since the early sixteenth century, when Europe, the Americas, and Africa were brought into a pattern of sustained interaction following the onset of the Age of European Discovery, the African slave trade and other forms of migration and exchange have been critical to the formative experience of Africans and African-descent populations linked by the Atlantic. The intensity and impact of those exchanges have varied over time, but the presence of Africans and African-descent populations in the evolution of Atlantic civilization constitutes the core of the study of the African Diaspora.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**A. PRESCRIBED COURSES** (9 credits)

AAA S 110 GS;IL(3), AAA S/HIST 211 GH;US;IL(3), AF AM 100 GS;US(3) (Sem: 1-4)

**B. ADDITIONAL REQUIREMENTS** (9 credits, 6 of which must be at the 400 level)

AAA S/SPAN 132 IL(3), AAA S/HIST 191 GH;IL(3), AAA S/HIST 250 GH;IL(3) (Sem: 1-4)

AAA S/HIST 431 US;IL(3), AAA S/HIST 432 IL(3), AFR 440 US;IL(3), PL SC 453 IL(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 33-01-134

Review Date: 8/31/04

LA

## Bioethics and Medical Humanities Minor

### *Intercollege Program (BMH)*

The tremendous current activity in the biomedical sciences affects both the public and private sectors, including medical care, the pharmaceutical industry, genetics, environmental epidemiology, agricultural science, the insurance industry, occupational health, forensic sciences, and behavioral variation. All these areas go beyond the science itself, with varied impact on people in different age, sex, ethnic, geographic, or economic segments of society. For that reason, life and health sciences research has major social implications that bear on humanities disciplines ranging from ethics and history to religious studies and literature, affecting clinical practice, agricultural practice and research, public policy and private investment. Understanding these issues is important for an informed citizenry. Students electing the BMH minor will start with a basic background of biology coursework, and will take a curriculum that includes 18 credit hours, beginning with an introductory course on basic ideas of bioethics, followed by a choice of other relevant humanities courses, and capped with an integrative course involving original research by the student. The minor will be suitable for students in almost any major, especially students going on to further academic work or careers in health, the life sciences, informatics, forensic or legal professions.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

#### **PRESCRIBED COURSES** (6 credits)

BMH 490(3), PHIL 132 GH(3)/RL ST 131 GH(3) (Sem: 5-8)

#### **ADDITIONAL COURSES** (12 credits)

Select 12 credits, at least 3 credits must be at the 400 level, and one course must be selected from the list of Ethics courses:

**Ethics** (select at least one course from this group) BB H 301(3), BIOL 461(3), NURS 464 US;IL(3), PHIL 432(3) or S T S 432(3), PHIL 498(1-9), WMNST 458 GS(3) (Sem: 5-8)

**Humanities** CAS 253(3), CAS 453(3), HIST 103 GH;IL(3) (Sem: 5-8)

**Other** ANTH 470H(3), ANTH 471H(3), CSD 269 US;IL(3), FD SC 280H GH(3), H P A 301W(3), KINES 345(3), NUTR 430 IL(3), WMNST 250 US(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-01-182

Review Date: 8/29/06

Co-chairs added by Publications: 06/06/07

LA



## Business Minor

Contacts: Abington College, Gary Calore, [gsc1@psu.edu](mailto:gsc1@psu.edu); Berks College, John Guiseppe, [jag52@psu.edu](mailto:jag52@psu.edu)

This interdisciplinary minor provides students with a business-oriented supplement to their academic major. It is designed to introduce students to a variety of fundamental business skills and knowledge. The minor consists of 22-23 credits, at least 6 credits of which must be at the 400 level. Only courses in which students earn a grade of C or better may be counted toward fulfillment of the requirements for the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 22-23 credits

**PRESCRIBED COURSES:** (10 credits)

ACCTG 211(4) (Sem: 1-5)

MGMT 301(3), MKTG 301(3) (Sem: 5-8)

**ADDITIONAL COURSES:** (6-7 credits)

Select 3 credits from ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-5)

Select 3-4 credits from B A 241(2) and B A 242(2) or B A 243(4); MIS 204(3), SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 1-5)

FIN 301(3), I B 303(3), SCM 301(3) (Sem: 5-8)

**Note:** A student who receives credits for B A 243 may not receive credit for either B A 241 or B A 242.

**SUPPORTING COURSES AND RELATED AREAS:** (6 credits)

Select 6 credits at the 400 level in consultation with your adviser and the approval of the director of the business minor (Sem: 5-8)

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-01-057

Review Date: 8/28/07

UCA Revision #1: 8/3/06

[Comments](#)

AB/BK/UC

## Business and the Liberal Arts Minor (BUSLA)

Contact: College of the Liberal Arts, Michael Berkman, mbb1@psu.edu

This minor offers fundamental courses in business, the opportunity for more advanced business courses, and Liberal Arts coursework emphasizing various perspectives on business.

Only courses in which the student earns a grade of C or better may be counted toward fulfillment of the requirements for the minor.

Students pursuing the Minor in Business and the Liberal Arts are encouraged to use ENGL 202D to satisfy their English 202 requirement.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 24-25 credits

**PRESCRIBED COURSES** (4 credits)

ACCTG 211(4) (Sem: 3-8)

**ADDITIONAL COURSES** (20-21 credits)

*At least 6 credits in additional courses must be at the 400 level.*

ECON 102 GS(3) or ECON 014 GS(3) (Sem: 3-8)

FIN 100(3) or FIN 301(3) (Sem: 3-8)

Select 2-3 credits from PHIL 119 GH(3) or B E 392 GWS(2); COMM 427(3), COMM 475(3), COMM 487(3), ENGR 407(3), RPTM 230(3) (Sem: 3-8)

Select 6 credits from the following course list:

B A 250(3), B A 321(1-3), COMM 385(3), COMM 424(3), COMM 473(3), COMM 493(3), ECON 390(3), ECON 490(3), LER 100 GS(3); MGMT 100(3) or MGMT 301(3); MGMT 425(3), MGMT 426(3); MKTG 221(3) or MKTG 301(3); MKTG 302(3), MKTG 310(3), MKTG 327(3), MKTG 330(3), MKTG 342(3), SCM 301(3), STAT 220(3), or 3 credits of appropriate internship selected in consultation with adviser.

Select 6 credits from the following course list:

AF AM 445Y US(3), AG EC 430(3), CED 450 IL(3), ANTH 451(3), ANTH 455(3), CAS 352(3), CAS 426W(3), CAS 450W(3), CAS 452(3), CAS 452W(3), CAS 471 US;IL(3), COMM 405(3), COMM 410 IL(3), COMM 419 US;IL(3), COMM 489W(3), COMM 490(3), COMM 491(3), COMM 492(3), CRIM 467(3), CRIMJ 460(3), CRIMJ 467(3), ECON 315 GS(3), ECON 333 GS(3), ECON 342 GS(3), ECON 402(3), ECON 412(3), ECON 428(3), ECON 432(3), ECON 433(3), ECON 434(3), ECON 436W US(3), ECON 443(3), ECON 444(3), ECON 445(3), ECON 447W(3), ECON 463 IL(3), ECON 471(3), ECON 472(3), ENGL 419(3), E B F 473(3), ENNEC 482(3), ENNEC 483(3), FR 407 IL(3), FR 408 IL(3), GEOG 424 US;IL(3), GEOG 439(3), GEOG 475H(3), GER 308Y IL(3), GER 408 IL(3), H P A 420(3), H P A 445(3), HD FS 424 US(3), HD FS 425 US(3), HIST 423 IL(3), HIST 425 IL(3), HIST 430 IL(3), HIST 445 US(3), HIST 446 US(3), HIST 447 US(3), HIST 451 US(3), HIST 458Y US(3), HIST 468 IL(3), HIST 475Y IL(3), HIST 481 IL(3), IST 431(3), IST 432(3), IST 445H(3), IST 452(3), JAPNS 403Y IL(4), JAPNS 404 IL(4), LER 400 IL(3), LER 401(3), LER 411(3), LER 414W(3), LER 425(3), LER 434(3), LER 437(3), LER 444(3), LER 445Y US(3), LER 458Y US(3), LER 460(3), LER 464(3), LER 465(3), LER 470(3), PHIL 406(3), PHIL 407(3), PHIL 418(3), PHIL 418W(3), PHIL 420(3), PHIL 431(3), PHIL 432(3), PL SC 412(3), PL SC 419(3), PL SC 490(3), PL SC 426(3), PL SC 440 US;IL(3), PL SC 441(3), PL SC 444(3), PL SC 445Y US(3), PL SC 474(3), PL SC 481(3), PL SC 487(3), PL SC 490(3), PSYCH 482(3), PSYCH 484(3), PSYCH 485(3), SOC 420(3), SOC 422(3), SOC 444(3), SOC 447(3), SOC 455(3), SOC 456(3), SPAN 420(3), STAT 470W(3), WMNST 426Y US;IL(3), WMNST 420 US;IL(3), WMNST 456(3), WMNST 472(3) (Sem: 3-8)

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-038

Review Date: 01/10/2012

UCA Revision #1: 8/3/06

UCA Revision #2: 7/26/07

## **Classics and Ancient Mediterranean Studies Minor**

*University Park, College of the Liberal Arts (CAMS)*

The CAMS minor recognizes the completion of a broadly interdisciplinary study of the cultures of the ancient Mediterranean world through 18 credits of course work, including 6 credits at the 400-level. The courses offered are concerned with the cultures of the ancient Near East, Egypt, and Mesopotamia, Greece, and Rome in such fields as civilization, archaeology, history, philosophy, religion, and mythologies. Students who complete the Penn State Athens Education Abroad Program and its prerequisite course may apply to receive the minor. Students in the minor may also receive credit for participating in approved archaeological fieldwork in the Mediterranean region. While the study of language is not required, students are encouraged to study the appropriate ancient languages. The minor is especially suitable for students in such fields as history, medieval studies, anthropology, literature, philosophy, and education.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS:** (18 credits)

Select 12 credits from CAMS courses (Sem: 1-8)

Select 6 credits of 400-level CAMS courses (Sem: 5-8)

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-05-036

Review Date: 11/01

LA

## Communication Arts and Sciences Minor (CAS)

Contact: College of the Liberal Arts, Peter Miraldi, [pnm10@psu.edu](mailto:pnm10@psu.edu)

This minor provides understanding and practice in the ways humans achieve their personal and career goals by means of communication. Students may choose any of the department's pathways of specialization, such as Interpersonal, Family, Intercultural, Organizational, Legal, Political Communication and Presentation Skills, Communication and Technology, or Rhetoric. For example, Legal Communication focuses on communication within the legal system, and provides students with the theory and skills to understand the uses, evaluation, and structure of public policy and legal disputes. Students learn how perception, meaning, and conflict function in human communication if they choose to specialize in Interpersonal Communication, while Organizational Communication critically examines leadership, decision-making, interviewing, and teamwork in formal organizations. In coordination with an adviser, a student of any major may tailor this minor to complement his or her educational and career goals by pursuing a particular pathway.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**ADDITIONAL COURSES** (6 credits)

Select 3 credits from CAS 203(3), CAS 205(3), CAS 211(3), CAS 213(3), CAS 214W(3), CAS 215(3), CAS 250(3), CAS 252(3), CAS 271 US;IL(3), CAS 280W(3), or CAS 283(3) (Sem: 3-6)

Select 3 credits from CAS 200(3), CAS 201 GH(3), or CAS 202(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 6 credits of Communication Arts and Sciences courses (Sem: 1-8)

Select 6 credits of Communication Arts and Sciences courses at the 400 level (Sem: 1-8)

*Note:* CAS 100 GWS(3), CAS 126(3), or CAS 195(1) may not be counted as part of the minor.

Last Revised by the Department: Fall Semester 2002

Blue Sheet Item #: 30-07-104

Review Date: 2/25/05

LA

## Computer Engineering Minor

*Penn State Erie, The Behrend College (CENBD)*

This program of study provides graduates with a strong background in computer engineering. Upon completion of the minor, graduates will have developed an understanding of the operation and design of computers. This objective is accomplished through a combination of classroom study, computer-related projects, and laboratory experience. Analysis and design of computer hardware and software systems are stressed. The program requires completion of mandatory courses in analog and digital circuits, microprocessors, transistor logic, and computer programming. Students complete the minor by selecting technical electives in computer hardware and software engineering.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 24 credits

**PRESCRIBED COURSES:** (11 credits)

E E 210(4) (Sem: 1-4)

E E 310(4), E E 316(3) (Sem: 5-6)

**ADDITIONAL COURSES:** (13 credits)

Select 3 credits from CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 1-4)

Select 4 credits from CMPEN 271(3) and CMPEN 275(1) (Sem: 5-6)

Select 6 credits from CMPEN 352W(3), CMPEN 411(3), CMPEN 431(3), CMPEN 441(3), CMPEN 461(3), CMPSC 450(3), CMPSC 479(3), or SWENG 411(3)

Last Revised by the Department: Fall Semester 2001

Reviewed by Publications: 06/23/06

UCA Revision #2: 7/27/07

BD

## Chemistry Minor

University Park, Eberly College of Science (CHEM)

Contact: Mark Maroncelli, [mxm11@psu.edu](mailto:mxm11@psu.edu)

The Chemistry minor specifies a series of courses that together provide a broad introduction to the main thrusts of modern chemistry: general, organic, and physical. The Chemistry minor includes substantial laboratory work including general chemistry and either organic or physical chemistry. In addition, several advanced courses chosen by the student from a list of options are required.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 27-29 credits

**PRESCRIBED COURSES:** (17 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 210(3), CHEM 212(3) (Sem: 1-4)

CHEM 452(3) (Sem: 5-8)

**ADDITIONAL COURSES:** (10-12 credits)

*CHEM 457 and CHEM 466 can only be used to satisfy the requirements of one category below.*

Select 2 credits from CHEM 213(2) or CHEM 457(2) (Sem: 3-8)

Select 3 credits from CHEM 450(3) or CHEM 466(3) (Sem: 5-8)

Select 5-7 credits from CHEM 402(3), CHEM 406(3), CHEM 408(3), CHEM 410(3), CHEM 412(3), CHEM 423W(3), CHEM 425(4), CHEM 427W(4), CHEM 430(3), CHEM 431W(3), CHEM 448(3), CHEM 457(1-2), CHEM 464(3), CHEM 466(3), or CHEM 476(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-05-087

Review Date: 2/26/08

UCA Revision #1: 9/20/06

SC

## Chemistry Minor

*Altoona College (CHMAL)  
Penn State Erie, The Behrend College (CHMBD)*

*Contacts: Altoona College, Richard Bell, [rcb155@psu.edu](mailto:rcb155@psu.edu); The Behrend College, Tracy Halmi, [tao104@psu.edu](mailto:tao104@psu.edu)*

The minor in Chemistry (CHMBD) complements degrees in other areas of physical science and introduces students to fundamental principles of chemistry through general chemistry, organic chemistry, analytical chemistry, and selected 400-level courses of their choice.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-20 credits

**PRESCRIBED COURSES:** (12 credits)  
CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-6)  
CHEM 221(4) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS:** (6-8 credits)  
Select at least 6-8 credits of 400-level CHEM, excluding CHEM 494(1-12), CHEM 495(1-18), and CHEM 496(1-18) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

UCA Revision #1: 8/3/06

BD

## Chinese Language Minor

*University Park, College of the Liberal Arts (CHNS)*

The Chinese Language minor is intended to provide students with a good working knowledge of the Chinese language, taught in a context that emphasizes the characteristics and diversity of Chinese culture and society. Students undertake three years of language study (or equivalent); education abroad can be included.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES:** (8 credits)

CHNS 002(4), CHNS 003(4) (Sem: 1-4)

**ADDITIONAL COURSES:** (11 credits)

Select 4 credits from CHNS 110 IL(4) or CHNS 296(1-18), CHNS 297(1-9), CHNS 299 IL(1-12) (Sem: 1-8)

Select 4 credits from CHNS 401 IL(4) or CHNS 499 IL(1-12) (Sem: 5-8)

Select 3 credits from CHNS 452 IL(3), CHNS 453 IL(3), CHNS 496(1-18), CHNS 497(1-9) or CHNS 499 IL(1-12)

Last Revised by the Department: Summer Session 2009

Blue Sheet Item #: 37-06-053

Review Date: 4/14/09

LA



## Civic and Community Engagement Minor

### *Intercollege Program (CIVCM)*

Administered by a program faculty drawn from across the University, the Intercollege Minor in Civic and Community Engagement is appropriate to undergraduate students seeking to apply domains of knowledge from their majors or General Education programs to issues of consequence beyond the classroom. In the minor students integrate democratic, professional, and creative development. In particular, the minor serves to encourage, recognize, and systematize student participation in public service or problem-based fieldwork and research that:

- is substantial, sustained, and includes structured opportunities for student reflection and critical assessment; and
- is integrated with and supported by traditional, classroom-based course work.

Specifically, the minor consists of a balanced program of fieldwork experience and supporting course work that is selected with the advice and consent of a minor adviser and approved on behalf of the minor by a program faculty. Fieldwork experiences are selected from a list of eligible courses (or approved comparable alternatives), and supporting course work includes a conceptual foundations course that provides students with a critical orientation to contemporary issues and themes in public scholarship. The minor culminates with an approved capstone project, which may be a significant paper, or annotated portfolio, or other demonstration of substantial assessment and integration of the minor experience and the broader issue of application of academic theory and practice in the civic community.

The Civic and Community Engagement Minor Committee is authorized to award a minor certificate to any undergraduate who, in addition to satisfying the degree requirements of his or her baccalaureate major, satisfies the requirements for the Civic and Community Engagement Minor. The completion of the minor is reflected by a formal notation of the student's official record at the time of graduation. To enter the program, a student must submit an application to the committee. Applicants to the minor in Civic and Community Engagement:

- Must have a minimum overall GPA of 2.0.
- Must present a proposed plan of study in the application process. The plan of study should include student's contact information and GPA, a brief statement of student's learning objectives in connection with the major or other proposed curricular concentration, such as minor or general education, proposed supporting courses (include description of course and syllabus if available), proposed fieldwork courses (include information about fieldwork, supervision, and reflection and assessment), and minor adviser endorsement of the plan. Minor proposals must be approved by the student's minor adviser and the committee.
- May apply no more than 9 credits toward the minor that also count toward the major. Students with multiple majors may have some additional flexibility. Past fieldwork experiences and completed courses may be retroactively included in the plan of study, but must be approved by the minor adviser and the committee.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

CIVCM 211 GS(3) (Sem: 5)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

*at least 6 credits must be taken at the 400 level*

Select 6-9 credits from Program List of public scholarship courses, of which at least 3 credits involve supervised field experience and of which 3-6 credits are public issues and democracy courses, or equivalents chosen in consultation with minor adviser (Sem: 5-8)

Select 3-6 credits in related areas in consultation with minor adviser (Sem: 5-8)

Select 3 credits of public scholarship capstone work at the 400 level in consultation with minor adviser (Sem: 7-8)

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-04-233

Review Date: 1/16/07

UE

## Criminal Justice Minor

*Altoona College (CJ)  
Penn State Fayette (CJCC)*

The Criminal Justice minor provides an overview of the criminal justice system and a thorough grounding in criminological theory. Students receive an in-depth look at the three main system components: policing, courts, and corrections, as well as the opportunity to delve into two or more specialized topics relating to criminal justice. The minor is designed not only for students who have a professional interest in criminal justice, but also for those who want to be informed members of the voting citizenry. A functional understanding of crime and the criminal justice system is useful in many careers, including law, social work, education, and journalism.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES:** (12 credits)

CRIMJ 100(3) (Sem:1-4)

CRIMJ 210(3), CRIMJ 220(3), CRIMJ 230(3) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS:** (6 credits)

Select 6 credits of 400-level CRIMJ courses, excluding CRIMJ 495(1-18) (Sem: 7-8)

Last Revised by the Department: Fall Semester 2001

UCA Revision #2: 7/27/07

AL

## Climatology Minor

*University Park, College of Earth and Mineral Sciences (CLIMA)*

Climate is a central component of the physical environment, playing an important role in a wide range of human activities. The ability to force changes in the global climate system may be one of the more significant ways in which human society will impact Earth's physical environment in the near future. The climatology minor in the College of Earth and Mineral Sciences is an interdisciplinary program drawing from the fields of meteorology, geography, and geosciences. The minor provides an overview of the physical processes that control present-day climate. It also provides an introduction to the history of climate change through geologic time, and presents some of the causes and consequences of potential future climate change and variability.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**ADDITIONAL COURSES** (18 credits)

Select 18 credits from:

EARTH 103 GN(3) (Sem: 1-8)

GEOG 438W(3), GEOG 412W(3), GEOG 310W(3), GEOG 417(3), GEOSC 320(3), METEO 300(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2000

Blue Sheet Item #: 28-05-015

Review Date: 8/5/03

EM

## Communications Minor

*Altoona College (COMAL)*

The Communications minor provides students an academic program of media studies that introduces them to approaches used to understand the mass media. These include aesthetic, cultural, humanistic, social-behavioral, and legal approaches. Students in the minor will have an opportunity to examine the theory and principles of communications systems and processes as well as learn in the advanced courses the research methods used for their systematic analysis. The minor emphasizes the liberal arts core of the Communications program and will equip students with well-developed language and analytical skills.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

COMM 100 GS(3), COMM 150 GA(3) (Sem: 1-2)

**ADDITIONAL COURSES** (12 credits)

(At least 6 credits must be at the 400 level.)

COMM 180 GS(3), COMM 205 US(3), COMM 250 GA(3), COMM 261 GH(3), COMM 320(3), COMM 370(3) (Sem: 3-4)

COMM 401(3), COMM 403(3), COMM 408(3), COMM 409(3), COMM 411(3), COMM 413W(3) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2002

Blue Sheet Item #: 30-07-022

Review Date: 1/14/03

AL

## Communications Minor

*Capital College (COMCL)*

The Communications minor provides students with an introduction to the tool skills needed to function as a professional communicator, as well as a basic understanding of communication processes and theory. Students seeking careers in fields such as public administration, business, criminal justice, law, information technology, and the medical, social and behavioral professions will find this minor provides instruction in a valuable additional knowledge and skill area important in today's information society.

Students must apply for entrance to the minor after achieving fifth semester classification.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

COMM 251(3) (Sem: 3-6)

**ADDITIONAL COURSES** (3 credits)

COMM 230W(3) (Sem: 3-6)

**SUPPORTING COURSES** (12 credits)

Select 12 credits from approved department list. At least 6 of these credits must be at the 400-level (Sem: 2-8)

Last Revised by the Department: Fall Semester 2005

Blue Sheet Item #: 33-06-043

Review Date: 04/12/05

UCA Revision #2: 7/27/07

CL

## Communication Arts and Mass Media Minor

*Penn State Erie, The Behrend College (CASCM)*

The CASCM minor offers students the opportunity to balance a liberal arts foundation and orientation to communication with the media and production theory and skills necessary for supplementing career fields requiring effective oral, written and media production skills. This minor would complement majors in management, marketing, education, sales, training and development, government, human resources, and development.

Students must apply for entrance to the minor after achieving fifth semester classification. This minor is not available to students enrolled in any of the majors in the College of Communications or any other communication major including: CAS, CASBL, CASCC, CCBA, CCCC, COMAL, COMBA, COMCC, or COMCL.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**ADDITIONAL COURSES** (6 credits)

Select 3 credits from COMM 100 GS(3), COMM 110 GH(3), COMM 118 GS(3), COMM 150 GA(3), or COMM 251(3) (Sem: 1-2)

Select 3 credits from CAS 101 GS(3), CAS 201GH(3), CAS 202 GS(3), or CAS 252(3) (Sem: 1-2)

**SUPPORTING COURSES AND RELATED AREAS:** (12 credits)

Select 6 select credits from any CAS or COMM 200-300 level courses. (Sem: 3-6)

Select 6 credits from any CAS or COMM 400 level courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-02-009

Review Date: 10/08/2013

UCA Revision #2: 7/27/07

BD

## Computer Science Minor

Computing has become an essential component of many disciplines, and it is driving innovation in fields far beyond computer science. The minor in Computer Science at Penn State Harrisburg provides basic proficiency in computer science, with an emphasis on building both a theoretical framework for computer science and providing practical skills needed to apply computer science to other fields of study. The knowledge and skills gained in the minor expands opportunities for students seeking careers in the growing number of fields that require a strong foundation in computer science. In addition, for students seeking to pursue graduate study, the minor provides background knowledge for the computing intensive aspects of their chosen discipline.

The minor begins with the second-level course in computer programming (CMPSC 122), a course in object-oriented programming with web applications (CMPSC 221), a course in discrete math for computer science (CMPSC 360), and a course in data structures (CMPSC 463). These twelve credits are followed with an additional six credits of 400-level work in computer science (CMPSC). Note that CMPSC 121 and MATH 140 are prerequisites for CMPSC 122.

*Capital College (COMP)*

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (12 credits)

CMPSC 122(3) (Sem: 1-3)

CMPSC 221(3) (Sem: 4-5)

CMPSC 360(3), CMPSC 462(3) (Sem:4-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits of 400-level CMPSC courses from the department list of approved Additional Courses (Sem: 5-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-051

Review Date: 02/19/2013

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

CL

## Computer Science Minor

*Penn State Erie, The Behrend College (CSCBD)*

The computer science minor at Behrend establishes a strong conceptual framework in computer science for students in other majors, so they can apply computer science methods and techniques to their primary field of study. The minor begins with the second level course in computer programming (CMPSC 122), the choice of a course in Object-Oriented Web based programming or design (CMPSC 221 or SWENG 311), a course in discrete math for computer science (CMPSC 360), and a course in Data Structures and Algorithms (CMPSC 465). These twelve credits are followed with an additional six credits of 400-level work in computer science (CMPSC). (Please note that CMPSC 121 and MATH 140 are prerequisites for CMPSC 122.)

Computing has become a critical aspect of most disciplines. This minor provides students with the opportunity to develop computing expertise which can then be applied to their field of study, thus enhancing job placement opportunities after graduation or better preparing the student to pursue graduate work in computing intensive sub-disciplines of their major. The emphasis is on building a conceptual framework which will allow the student to continue to learn new computing techniques beyond graduation in this rapidly evolving discipline.

A grade of C or better is required for all courses in the minor.

*Scheduling recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

CMPSC 122(3) (Sem: 2-4)

CMPSC 360(3), CMPSC 465(3) (Sem: 3-6)

**ADDITIONAL COURSES** (3 credits)

Select 3 credits from CMPSC 221(3), CMPSC 312 (3), or SWENG 311(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits of 400-level (below 490) CMPSC courses (Sem: 7-8)

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-03-012

Review Date: 11/08/2011

UCA Revision #2: 7/27/07

BD



## Dispute Management and Resolution Minor

*University Park, College of the Liberal Arts (D M R)*

This interdisciplinary minor, administered by the Departments of Communication Arts and Sciences, and Labor Studies and Employment Relations, provides students with the opportunity to learn about and develop skills appropriate to the management and resolution of problems created by difference in attitudes, beliefs, values, and behavioral preferences of individuals primarily in interpersonal, group, and organizational contexts, and, to a lesser extent, international contexts. The minor is supportive of, and complementary to, work emphasizing conflict and means for dealing with it in such majors as Administration of Justice, Communication Arts and Sciences, Human Development and Family Studies, Labor and Employment Relations, Political Science, Psychology, and Sociology. Students pursuing the minor must complete 9 credits of prescribed course work and 9 credits of additional course work distributed across at least two of the eight areas identified below. Of the 18 credits selected, at least 9 must be at the 400 level, 6 must be from Communication Arts and Sciences, and 6 must be from Labor and Employment Relations. A maximum of 6 credits earned in the minor, if appropriate, can be used to satisfy requirements in the Communication Arts and Sciences or Labor and Employment Relations majors. Only courses in which the student earns a grade of C or better may be counted toward fulfillment of requirements for the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

CAS 203(3), LER 100 GS(3) (Sem: 3-6)

**ADDITIONAL COURSES** (12 credits)

(Select 12 credits of which 9 credits must be taken at the 400 level)

Select 3 credits from LER 404(3) or SPCOM 404(3) (Sem: 5-8)

Select 9 credits from ADM J/WMNST 423 US(3), CAS 250(3), CAS 403(3), CAS 452(3), CAS 471 US;IL(3), HD FS 311(3), HD FS 414(3), LER/WMNST 136 US(3), LER 411(3), LER 414W(3), LER 434(3), PL SC 014 GS;IL(3), PL SC 090(3), PL SC 418(3), PL SC 437(3), PSYCH 281 GS(3), PSYCH 423(3), PSYCH 484(3), SOC 119 GS;US(4), SOC 403(3), SOC 432(3), SOC 455(3), S T S 390(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2000

Blue Sheet Item #: 27-07-064

Review Date: 11/4/03

UCA Revision #1: 8/3/06

LA

## Dance Minor

*University Park, College of Arts and Architecture (DANCE)*

This minor is a rigorous program designed to help students who wish to further their skills in this art form. This modern-based program focuses on technique, choreography, and performance. Students choose from a variety of options to create their own dance minor that will give them the tools and the knowledge to further their individual interest in the field. Students have the opportunity to perform in pieces created by faculty, be a member of the University Dance Company, create their own pieces for performance, and attend national conferences. Upon completion of this minor, the student will be able to pick from a variety of career opportunities such as performance, teaching, choreography, production, and studio or have it apply to their major. Twenty-one credits are required for completion of the dance minor with a minimum of 6 credits at the 400 level.

Entrance into the Dance minor will be based on an audition. The audition will consist of a Ballet Barre, Jazz combo, and Modern combo. Ability to pick up and execute technique and combinations is essential. A grade of C or better is required in all courses required in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### **REQUIREMENTS FOR THE MINOR: 21 credits**

#### **PRESCRIBED COURSES (5 credits)**

DANCE 301(2) (Sem: 2-8)

DANCE 484 US;IL(3) (Sem: 3-8)

#### **ADDITIONAL COURSES (13 credits)**

Select 3 credits from DANCE 261(1.5), DANCE 262(1.5), DANCE 361 GA(1.5), DANCE 362(1.5), DANCE 461(1.5), DANCE 462(1.5) (Sem: 1-8)

(These courses may not double count for other dance minor requirements.)

Select 6 credits from the following courses (3 credits at the 400-level):

DANCE 231(1.5), DANCE 232(1.5), DANCE 241(1.5), DANCE 242(1.5) (Sem: 1-4)

DANCE 251(1.5), DANCE 252(1.5), DANCE 261(1.5), DANCE 262(1.5), DANCE 361 GA(1.5), DANCE 362(1.5) (Sem: 1-4)

DANCE 431(1.5), DANCE 432(1.5), DANCE 441(1.5), DANCE 442(1.5), DANCE 451(1.5), DANCE 452(1.5), DANCE 461(1.5), DANCE 462(1.5) (Sem: 5-8)

(All dance minors are required to demonstrate proficiency at beginning level technique courses before selecting the advanced level courses.)

Select 4 credits from:

DANCE 381(2) (Sem: 3-8)

DANCE 480(2) (Sem: 5-8)

DANCE 485(1-2) (Sem: 1-8)

#### **SUPPORTING COURSES AND RELATED AREAS (3 credits)**

Select 3 credits from:

DANCE 280(1), DANCE 281(1), DANCE 296(1-18), DANCE 297(1-9), DANCE 385(2) (Sem: 3-8)

THEA 100 GA;US;IL(3), THEA 102 GA(3), THEA 146(2), THEA 150(3), THEA 189 GA(1-6) (Sem: 1-6)

THEA 208 GA;US;IL(3) (Sem: 1-8)

DANCE 482(3), DANCE 496(1-18), DANCE 497(1-9), THEA 408 US(3) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2005

Blue Sheet Item #: 33-04-014

Review Date: 01/18/05

AA

## Disability Studies Minor

### *Intercollege Program (DBLTY)*

This is an intercollege minor, offered jointly by the College of Engineering and the College of the Liberal Arts, and overseen by the Science, Technology, and Society (STS) Program. It is designed for students with special interests in the social systems, environmental factors, and cultural history of disability. In addition to the requirements of the student's major department, the minor consists of 18 credits selected from several colleges and departments. For those majoring in disability-driven disciplines (e.g. nursing, speech and communication disorders, psychology, special education, rehabilitation and human services, health administration), a Disability Studies minor provides relevant interdisciplinary links that broaden the understanding of disability beyond the clinical realm. For students in the humanities (e.g. history, philosophy, political science, and literature), Disability Studies offers important new dimensions and challenges to traditional accounts of human value and political agency. For students with personal experience of disability, the minor provides an academic grounding and community for disability advocacy on personal, community, and national levels.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

RHS 100(3), ENGL 228 GH;IL(3) (Sem: 1-6)

**ADDITIONAL COURSES** (3 credits)

Select 3 credits from LA 495(1-12), or an equivalent independent research course or internship approved by the faculty member in charge.

**SUPPORTING COURSES AND RELATED AREAS:** (9 credits)

Select at least three courses for at least 9 credits from an approved department list in consultation with adviser.

Last Revised by the Department: Fall Semester 2008

Blue Sheet Item #: 36-06-085

Review Date: 4/15/08

EN/LA

## Deafness and Hearing Studies Minor

University Park, College of Health and Human Development (DHS)

Contact: Gordon W. Blood, f2x@psu.edu

This interdisciplinary minor is designed for students who want to learn about individuals with hearing disabilities, audition, and deafness within an individual and societal context. Core courses include knowledge and skills in preventing hearing loss, basic communication skills and disabilities, history, thought and culture of individuals who are deaf, and principles of human behavior and their applications. The minor will assist students in recognizing relationships among hearing disability, deafness, cultural differences and their impact on the individual in educational, social and vocational settings. Specializations include, but are not limited to, health-related fields, communications, societal and social life, cultural impact, educational experiences, prejudice and discrimination, and rehabilitation. Students will be able to place deaf culture and hearing disabilities in the proper perspective necessary for life-long learners engaged in fostering climates which embrace individuals from diverse backgrounds, especially disabilities.

The minor is most appropriate for students interested in clinical and health-related fields (e.g., nursing, biobehavioral health, or medicine), professional fields (e.g., business, pre-law, or communications), social sciences (e.g., human development and family studies, sociology, or psychology), and education (e.g., early childhood education, special education, rehabilitation counseling), as it will provide students with exposure to the range of variation in persons with hearing disabilities and deafness across the lifespan.

Students from any major (except Communication Sciences and Disorders) can declare a minor in Deafness and Hearing Studies. A grade of C or better is required for all courses in the minor. Students seeking advising for this minor should contact the Department of Communication Sciences and Disorders.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19.5 credits

**PRESCRIBED COURSES** (10.5 credits)

CSD 101 GHA(1.5), CSD 146(3), CSD 269 US;IL(3), PSYCH 100 GS(3) (Sem: 1-6)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

(Some courses in this category have prerequisites that are not required in the minor.)

(At least 6 credits must be at the 400 level.)

ACS 402(3), COMM 408(3), COMM 411(3), CSD 218(3), CSD 230(3), CSD 296(3), CSD 301(3), CSD 331(3), CSD 433(3), CSD 451(3), CSD 495B(3), CSD 496(3), EDPSY 010 GS(3), HD FS 129 GS(3), HD FS 417(3), KINES 400(3), NURS 401(3), NURS 452(3), PSYCH 253 GS(3), PSYCH 453(3), PSYCH 420(3), PSYCH 432 US(3), PSYCH 476(3), PSYCH 441(3), RPTM 277 US(3), RHS 300(3), RHS 403(3), SOC 001 GS(3), SOC 003 GS(3), SOC 429(3), SOC 430(3), SPLED 400(3), SPLED 425(4) (Sem: 1-8)

Last Revised by the Department: Summer Session 2004

Blue Sheet Item #: 32-05-051

Review Date: 3/2/04

UCA Revision #1: 8/20/06

HH

## Dance Studies Minor

*Altoona College (DNCAL)*

The Dance Studies Minor is designed for students interested in furthering their study and exploration of the many areas of dance. Students will explore the creative process of dance as it relates directly to technique and performance. Students have the opportunity to perform with the Ivyside Dance Ensemble, perform in faculty choreography, choreograph for productions, and attend national festivals. The Dance Studies Minor allows students to further enhance their dance study and prepares them for graduate study and a variety of career options. Twenty-one credits are required for completion of the minor with a minimum of 9 credits at the 400 level.

A grade of C or better is required in all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**PRESCRIBED COURSES** (18 credits)

DANCE 270 GHA(3)

DANCE 365(3), DANCE 366(3) (Sem: 3-6)

DANCE 466(3), DANCE 482(3), DANCE 484 US;IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)

DANCE 230 GA(1.5), DANCE 240 GA(1.5), DANCE 250 GA(1.5), DANCE 261 GA(1.5) (Sem: 1-4)

(All Dance Studies minor students are required to demonstrate proficiency at beginning level technique courses before placement in the intermediate or advanced courses.)

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-007

Review Date: 01/10/2012

AL

## Engineering Mechanics Minor

*University Park, College of Engineering (E MCH)*

The Engineering Mechanics minor helps students prepare to analyze and/or design simple structures that are efficient and safe under foreseen loading conditions.

Contemporary engineering design of mechanical components requires precise information and modern analysis techniques to determine material response to anticipated loading. Designers must have the analytical and experimental tools to accurately define deformation under load to characterize dynamic response and to prevent mechanical failure. In the event of failure the cause(s) must be ascertained to prevent future failure through redesign and/or material substitution. Thus, industry has a real need for those with a sound foundation in Engineering Mechanics, the engineering science that deals with the effects of forces and torques on rigid and deformable bodies. Engineering Mechanics consists of Statics (bodies in equilibrium), Dynamics (bodies in unsteady motion such as vibration, moving on curvilinear paths) and the Mechanics of Deformable Media. The latter topic covers the change in dimensions of bodies of various shapes under the influence of forces, torques, temperature, and dynamic motion. Further failure criteria under such loadings are introduced and utilized in examples of engineering design. Some twenty undergraduate courses covering the above topics are available at two levels, i.e. sophomore introductory and senior (400) courses.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS:** (18 credits)

Select 12 credits of E MCH courses, which may include: E MCH 211(3), E MCH 212(3), E MCH 213(3), E MCH 315(2), E MCH 316(1) (Sem: 1-4)

Select 6 credits from 400-level E MCH courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

Review Date: 8/29/02

EN

## Electronic and Photonic Materials Minor

*University Park, College of Earth and Mineral Sciences (EPM)*

Electronic and photonic materials have greatly changed modern life. Without them, computers, telecommunication systems, compact disc players, video cameras, and all the electronics with which we have become accustomed would not be possible. The study of electronic and photonic materials is a natural bridge between the fields of electrical engineering and material science. Students in electrical engineering will benefit from this minor because they will better understand the materials with which they will design electronic and photonic devices, such as transistors on a computer chip or semiconductor lasers in a compact disc player. Training in the field of electronic and photonic materials requires study of the processing and characterization of these materials to help engineers develop ways to lower cost and improve performance. This knowledge will help prepare students to enter the semiconductor industry or pursue graduate studies.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

MATSE 201(3) (Sem: 1-4)

E E 441(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 3 credits from E SC 314(3) or an approved E E course (Sem: 1-4)

Select 3 credits from MATSE 450(3) or MATSE 455(3) (Sem: 5-8)

Select 6 credits from E E 442(3), E SC 445(3), MATSE 400(3), MATSE 401(3), MATSE 402(3), MATSE 413(3), MATSE 417(3), MATSE 430(3), MATSE 435(3), MATSE 450(3), MATSE 455(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2002

Blue Sheet Item #: 29-07-049

Review Date: 01/15/02

UCA Revision #2: 7/27/07

EM

## Environmental Resource Management Minor

*University Park, College of Agricultural Sciences (E R M)*

The Environmental Resource Management (E R M) minor is designed to provide nonmajors with an overview of the principles and practices of managing resources prudently and economically.

The minor was developed to permit students of other majors to have their environmental interests and training formally documented on their academic records. Because so many of society's activities have an impact on environmental quality, the minor should appeal to students with majors from a wide variety of disciplines, including journalism and education majors who want to write and teach in the environmental field.

The E R M minor includes an introduction to modern resource systems analysis and environmental impact assessment. Students may also elect to take courses in environmental law and resource allocation and economics. Individual programs are determined jointly by the student and the E R M Program Coordinator.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (10 credits)

E R M 151(1) (Sem: 1-2)

E R M 300(3), E R M 412(3), E R M 413W(3) (Sem:5-8)

**ADDITIONAL COURSES** (8 credits)

Select 8 credits from A S M 327(3), SOILS 101 GN(3), or any E R M course (Sem: 3-8)

Last Revised by the Department: Fall Semester 2001

Review Date: 1/20/04

AG



## Environmental and Renewable Resource Economics Minor

*University Park, College of Agricultural Sciences (E RRE)*

This minor introduces students to how fundamental economic principles can be used to explain and seek solutions for problems related to the degradation of the environment and unsustainable use of natural resources. This program complements majors that provide a natural science-based approach to environmental issues and provides social-science majors interested in the environment with additional tools for the analysis of social decision-making, and policy objectives. A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

CED 201(3), CED 429(3), ECON 302 GS(3) (Sem: 5-6)

**ADDITIONAL COURSES** (9 credits)

Select 9 credits from CED 431W(3), ECON 428(3), CED 450 IL(3), E R M 411 (3), R SOC 327(3), 300- or 400-level internship or independent study (3 credit max.) (Sem:5-8)

Last Revised by the Department: Summer Session 2004

Blue Sheet Item #: 30-04-001

Review Date: 01/15/02

AG

## Engineering Entrepreneurship Minor

*Berks College  
University Park, College of Engineering (ESHIP)*

This interdisciplinary minor supports technology entrepreneurship development for all students, especially those majoring in engineering, business, and IST (Information Sciences and Technology). All segments of the U.S. and world economy are integrated with technology. The Engineering Entrepreneurship Minor addresses this new reality. Engineering graduates should have more business finance, marketing, and intellectual property knowledge, and business and IST students interested in technology enterprises should have a working knowledge of the engineering design process, basic engineering principles, graphics, and computer-aided design. All students should have solid skills in teamwork, leadership, and innovation in order to conceive, produce and promote creative product designs and solutions. Courses in the minor use problem-based learning, including business case studies and new product concept prototyping. Core courses include business plan presentations and competitions and open-ended design problems. The minor consists of 18 semester hours.

A grade of C or better is required in all classes used to meet the requirements of the minor. For admission to the minor, students must have completed ENGR 310(3) Entrepreneurial Leadership.

*Scheduling Recommendation by Semester Standing given as (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

ENGR 310(3) (Sem: 4-6)

ENGR 407(3) (Sem: 5-7)

ENR 430(3) (Sem: 6-8)

**ADDITIONAL COURSES** (3 credits)

Select one course from the list below:

ENGR 411(3) for non-business students (Sem: 5-7)

QMM 492(3) for non-engineering students (Sem: 5-7)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from approved department list or in consultation with the coordinator of the Engineering Entrepreneurship Minor (Sem: 5-8)

Last Revised by the Department: Summer Session 2002

Blue Sheet Item #: 30-04-082

Review Date: 01/15/02

EN

## Earth Systems Minor

*University Park, College of Earth and Mineral Sciences (EASYS)*

The recognition that environmental problems are global in extent, and impact on many different components of the Earth System simultaneously, requires that we adopt a large-scale and interdisciplinary approach to questions of global change and the interactions of the physical and human environments. The Earth Systems minor follows such an approach and offers undergraduates the opportunity to study the Earth as an integrated system. The Earth Systems minor is a science minor offered through the College of Earth and Mineral Sciences. It provides a wider interdisciplinary perspective for majors in the traditional Earth Science disciplines (geography, geoscience, and meteorology), and provides an introduction to Earth Sciences and a broad exposure to Earth Systems/Environmental Studies for other science and engineering majors. Students may apply up to 6 credits from courses in the major department to satisfy the minor requirements.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENT FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

EARTH 002 GN(3) (Sem: 3-6)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from EARTH 103 GN(3), EM SC 470W(1-6), GEOG 430(3), GEOSC 310(4), or METEO 300(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits from the Earth Systems Committee's approved list of courses (Sem: 5-8)

Last Revised by the Department: Spring Semester 2000

Blue Sheet Item #: 28-05-018

Review Date: 2/15/00

EM

## Energy Business and Finance Minor

*University Park: College of Earth and Mineral Sciences (EBF)*

The minor in Energy, Business and Finance is an offering of the College of Earth and Mineral Sciences. The minor introduces students to financial, investment, and management concepts applied to private sector organizations whose operation emphasizes the Earth and its environment, the energy and mineral industries, or the development of new and enhanced materials. The minor focuses on the leadership and information strategies characteristic of enterprises that are succeeding in a rapidly integrating global economy.

The minor provides science and engineering students an introduction to basic entrepreneurial and business concepts to help prepare them for success in a changing professional environment. It also provides other Penn State students an opportunity to focus on business strategies in the Earth resources, environmental, and materials industries. A minimum of 18 credits is required for the minor. A student enrolled in this minor must receive a grade C or better in all courses in the minor. Advising is available through the EMS Student Center (25 Deike Building) or the professor in charge.

*Scheduling Recommendations by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

E B F 200 GS(3) (Sem: 3-4)

E B F 301(3), EME 460(3) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)

EGEE 101 GN(3) or EGEE 102 GN(3) or EGEE 120 GS;US;IL(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from the approved list of EMS courses. Approved courses are: E B F 401, E B F 473(3), E B F 484(3), EGEE 401(3), EME 444(3), GEOG 424 US;IL(3), GEOG 430(3), GEOG 431(3), GEOG/EME 432(3), GEOG 444(3), GEOG 469(3), GEOSC 402Y IL(3), GEOSC 454(3), and METEO 473(3) (Sem: 7-8).

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-05-021

Review Date: 02/21/2012

EM/BA

## Applied Economics Minor

*Penn State Erie, The Behrend College (APECN)*

The minor in economics requires completion of 18 credit hours of coursework in economics. In addition to the introductory courses (ECON 102 and ECON 104), economics minors must complete 12 semester hours in economics elective courses at the 300/400 level. Note that at least 6 of those credit hours must be at the 400 level. The economics minor is a strong complement to virtually any major, including those within, and outside of, the School of Business. Since most School of Business majors will, as part of their major, already have earned 6 to 9 credits toward the economics minor, earning a minor in economics is particularly attractive for these students. The economics minor provides a general introduction to economic thought helping students better understand a variety of contemporary economic issues. The minor can enhance the market value of a major and can provide students with options and opportunities beyond those offered by the major program of study.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

ECON 102 GS(3), ECON 104 GS(3) (Sem: 1-6)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 6 credits from ECON courses (Sem: 3-6)

Select 6 credits of 400-level ECON courses (Sem: 3-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-021

Review Date: 08/20/13

BD

## **Economics Minor**

*University Park, College of the Liberal Arts (ECON)  
World Campus*

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (12 credits)

ECON 102 GS(3), ECON 104 GS(3) (Sem: 3-4)

ECON 302 GS(3), ECON 304 GS(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits of additional ECON courses at the 400-level (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

Review Date: 9/2/03

LA

## Environmental Engineering Minor

*University Park, College of Engineering (ENV E)*

This minor is designed to provide students in engineering, science, and other majors with a comprehensive study of environmental issues and the skills necessary to solve problems associated with environmental pollution.

For entrance into the minor, students must be at least fifth-semester standing and have completed CHEM 110 GN(3), MATH 141 GQ(4), and PHYS 211 GN(4).

The minor consists of 18 credits, at least 6 of which must be at the 400 level. A grade of C or better is required for all courses in the minor.

An online application is available at: [http://www.engr.psu.edu/CE/env\\_minor.html](http://www.engr.psu.edu/CE/env_minor.html).

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits (2 credits of engineering design are included)

**PRESCRIBED COURSE** (3 credits)

C E 370(3) (Sem: 3-6)

**ADDITIONAL COURSES** (15 credits)

Select 3 credits from Chemistry and Biological Sciences: B E 308, C E 479(3), CHEM 202(3), CHEM 210(3) (Sem: 3-8)

Select 0-3 credits from Process Engineering: B E 302(3), CH E 210(3), EGEE 302(3), MN PR 301(3), NUC E 430(3) (Sem: 5-8)

Select 3 credits from Applied Fluid Mechanics: AERSP 308(3), B E 467(4), C E 371(3), C E 462(3), CH E 330(3), EME 303(3), M E 320(3), METEO 454(3), or NUC E 431W(4) (Sem: 5-8)

Select 6-9 credits from Environmental Sciences and Design: B E 468(3), B E 477(3), C E 472W(3), C E 475(4), C E 476(3), CHEM 402(3), E R M 411(3), E R M 412(3), E R M 413W(3), E R M 447(3), E R M 450(3), EGEE/M E 430(3), EGEE 470(3), ENVSE 408(3), ENVSE 427(3), F SC 431(3), GEOSC 452(3), M E 405(3), M E 433(3), NUC E 405(3), NUC E 420(3), NUC E 428(3), SOILS 420(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-067A

Review Date: 04/12/2011

UCA Revision #1: 8/4/06

UCA Revision #2: 7/27/07

EN

## Engineering Leadership Development Minor

*University Park, College of Engineering (E L D)*

This interdisciplinary minor is designed to provide engineering students with critical principles and skills. Engineering graduates must demonstrate the ability to assume leadership roles in a competitive technologically complex global society. There are increasing demands for engineers to be able to deal effectively with other people, including the ability to work in teams and to interact with customers and other organizations on both national and international levels. Students will employ engineering case studies in active and collaborative classroom settings to develop these skills. The minor consists of 18 semester hours. A grade of C or better is required in all minor courses. Students in all engineering majors are eligible. For admission to the minor, students must have completed ENGR 408(2). Students should apply during their sophomore year.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

ENGR 409(3) (Sem: 5-6)

ENGR 408(2) (Sem: 5-8)

ENGR 493(1), S T S 460(3) (Sem: 7-8)

**ADDITIONAL COURSE** (3 credits)

B A 250(3) or ENGR 407(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits in consultation with the coordinator of the Engineering Leadership Development Minor (Sem: 5-8)

Last Revised by the Department: Spring Semester 2002

Blue Sheet Item #: 30-03-100C

Review Date: 11/20/01

EN



## Electrochemical Engineering Minor

*University Park, College of Earth and Mineral Sciences (ELCHE)*

The electrochemical engineering minor is designed to equip students with the knowledge necessary to achieve the following educational objectives: become valuable contributors in addressing society's clean energy needs and demands especially in the electrochemical power generation sector; and educators, practicing engineers, and national leaders in electrochemical energy conversion and storage. The minor integrates skill sets in fundamentals of electrochemistry (e.g. chemistry, physics, mathematics, thermodynamics, and chemical kinetics) and electrochemical engineering applications (batteries, solar, flow and fuel cells, electrochemical synthesis and corrosion) to ensure successful career opportunities and growth within electrochemical power generation industries, government agencies, and academia. The curriculum should allow students in energy related programs such as chemical, civil, electrical, environmental, mechanical, and materials science and engineering to readily take advantage of the minor and be better prepared for careers in clean power generation and future green technologies.

The integration of knowledge and skills acquired through the inquiry-based teaching methods should enable students of the program to achieve the following student educational outcomes:

- solve problems relating to the production, storage, distribution and utilization of electrochemical energy and the associated environmental issues
- design and conduct experiments, acquire data, define, analyze, and interpret data, and solve practical, complex problems on a variety of electrochemical technologies such as batteries, solar cells, flow and fuel cells, electrolyzers, and supercapacitors
- integrate professional, ethical, social and environmental factors in electrochemical engineering design and problem solving and understand the impact of these factors on global energy issues
- develop the ability to communicate effectively in writing and orally and build teamwork
- acquire the desire for lifelong learning to maintain technical competence and keep abreast of new developments in the field.

A grade of C or better is required for all courses in the minor.

For the minor in Electrochemical Engineering, a minimum of 18 credits is required.

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

E SC 455 (3), EGEE 441(3), MATSE 421 (3) (Sem: 7-8)

**ADDITIONAL COURSES** (9 Credits)

Select 9 credits from EGEE 420(3), EGEE 437(3), EGEE 436(3), EME 407(3), M E 403(3) (Sem: 7-8)

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-02-002

Review Date: 09/27/2011

## English Minor

*Penn State Erie, The Behrend College (ELISH)*

Contact: Craig Warren, [caw43@psu.edu](mailto:caw43@psu.edu)

For the English minor at Penn State Erie, the student must take (beyond the basic General Education) 18 credits of courses in ENGL or ELISH; 6 of these credits must be at the 400 level. The student is encouraged to take courses from each of the areas within the major (The Canon and Its Critics, Globality and Literature, Cultural Studies), as well courses in creative writing. By doing so, students will develop skills in writing and critical thinking that will prove valuable in their later work experiences.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select at least 12 credits from ENGL or ELISH 200-289 [Students may not count courses used to satisfy General Education Writing/Speaking Skills] (Sem: 1-6)

Select at least 6 credits from ENGL or ELISH 400-493

Last Revised by the Department: Fall Semester 2001

## Energy Engineering Minor

*University Park, College of Earth and Mineral Sciences (ENENG)*

The minor in Energy Engineering is designed to provide students in engineering, science, and energy business and finance (EBF) with additional courses, exposure, and experiences to the principles and applications of energy engineering. Courses available to students include thermal sciences; petroleum and natural gas processing; renewable/sustainable energy; chemistry of fuels; electrochemical, chemical and nuclear energy conversion processes; physical processes in energy engineering; air pollution; and green engineering and environmental compliance. As a result, the selection of this minor can provide additional career options for students in a wide range of offerings at Penn State.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**ADDITIONAL COURSES** (18 credits)

Select 9 credits from the following courses: EGEE 302(3), EGEE 304(3), EGEE 411(3), EGEE 420(3), EGEE 430(3), EME 301(3) (Sem: 5-6)

Select 9 credits from the following courses: EGEE 433(3), EGEE 437(3), EGEE 438(3), EGEE 441(3), EGEE 451(3), EGEE 464W(3), EGEE 470(3), F SC 431(3), F SC 432(3) (Sem: 7-8)

Last Revised by the Department: Fall Semester 2007

Blue Sheet Item #: 35-05-074

Review Date: 3/4/09

EM

## English Minor (ENGL)

Contact: Abington College, Tom Smith, [trs8@psu.edu](mailto:trs8@psu.edu); Altoona College, Erin Murphy, [ecm14@psu.edu](mailto:ecm14@psu.edu); Penn State Brandywine, Adam Sorkin, [ais2@psu.edu](mailto:ais2@psu.edu); Penn State Fayette, Danielle Mitchell, [dmm52@psu.edu](mailto:dmm52@psu.edu); Penn State Greater Allegheny, Mildred Mickle, [mrm33@psu.edu](mailto:mrm33@psu.edu); Penn State Mont Alto, Kevin Boon, [kab25@psu.edu](mailto:kab25@psu.edu); Penn State Wilkes-Barre, Steven Putzel, [sdp4@psu.edu](mailto:sdp4@psu.edu); College of the Liberal Arts, Tracey Melnick, [tam2@psu.edu](mailto:tam2@psu.edu)

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS:** (18 credits)

*Students may not count courses used to satisfy General Education Writing/Speaking Skills*

Select 6 credits from ENGL 200-289 (Sem: 3-8)

Select 6 credits from ENGL 400-493 (Sem: 3-8)

Select 6 additional credits in English (Sem: 3-8)

Last Revised by the Department: Fall Semester 2001

Review Date: 6/28/05

**CURRENTLY ON HOLD**  
**NOT ACCEPTING NEW STUDENTS**  
**Begin Date of Enrollment Hold: February 24, 2014**

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## **Energy, Environmental, and Mineral Economics Minor**

*University Park, College of Earth and Mineral Sciences (ENNEC)*

This minor has a set of courses focusing on economic issues in energy, risk management, and the environment. The field helps prepare students for careers in industry, government, financial institutions, and non-profit organizations dealing with energy and resource issues. The curriculum provides a strong base for further study in business, economics, law, and social science.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (15 credits)

E B F 200 GS(3) (Sem: 1-2)

ECON 302(3), E B F 301(3) (Sem: 3-6)

E B F 473(3), E B F 484(3) (Sem: 6-8)

**ADDITIONAL COURSES** (3 credits)

Select 3 credits from GEOG 430(3), GEOG 431(3), GEOG 424(3) (Sem: 6-8)

Last Revised by the Department: Fall Semester 2003

Blue Sheet Item #: 31-04-062

Review Date: 1/14/03

EM

## Entrepreneurship and Innovation Minor

### *Intercollege Program (ENTI)*

Skills attributed to entrepreneurial behavior and innovative thinking are beneficial for students in most if not all majors, and are critical to career success in established companies and new organizations to address pressing needs around the globe. This interdisciplinary minor uses problem-based learning pedagogy to prepare students to create value and be agents of positive change in their discipline and their careers. The courses develop skills in problem solving, opportunity recognition, self-efficacy, leadership, communications and learning from failure. To meet the students' broad range of entrepreneurship and innovation interests, core courses (9 credits) establish foundational knowledge, and then students select a concentration cluster aligned to specific contexts such as entrepreneurship in food, technology, art, journalism, or internet. Students who complete the ENTI minor will be better prepared to be innovation leaders in their chosen career path, such as being entrepreneurial in an existing company (intrapreneurship), engaging in a start-up venture full or part-time, finding avenues to leverage their art or craft, or creating alliances to meet social or business needs.

Advising for students in this minor and approval of curriculum exceptions will be available through the Entrepreneurship and Innovation (ENTI) Adviser for each cluster.

### **Digital Entrepreneurship and Innovation Cluster** *[College of Information Sciences and Technology]*

This specialization prepares a student to harness digital technologies and digital business models to develop their own concepts into commercial concerns or to contribute to the innovation activities of existing organizations (i.e., intrapreneurship). The IST Digital Entrepreneurship & Innovation cluster focuses on the impact of Information Technology (IT)-driven innovation across multiple industry sectors including for-profit, non-profit and governmental organizations. IT-driven innovation has created new business opportunities for both entrepreneurs and intrapreneurs and is key to increasing efficiencies and expanding the linkage between user-centric products and services. Students who complete this cluster will gain a foundational understanding of emerging information technologies, the components of digital business models, and implementation and design techniques that meet or exceed user-centric requirements.

### **Food and Bio-innovation Cluster** *[College of Agricultural Sciences]*

This specialization will develop future entrepreneurs and innovators to address opportunities and challenges in the agriculture and life sciences space. The cluster focuses on the cornerstone challenge for agriculture: producing food for the world with entrepreneurial activity and innovation to develop, convert and use biological materials and natural resources (plants, animals, ecosystems and organisms, etc.) to meet the material and energy needs of society. Students are encouraged to take a series of courses in the cluster that complement their personal venture interests and engage in a series of immersive venturing experiences that can range from creating new ventures to mentoring with seasoned entrepreneurs or working within entrepreneurial organizations.

### **Hospitality Management Cluster** *[College of Health and Human Development]*

This specialization prepares a student to create and develop novel but sound entrepreneurial concepts related to the hospitality industry in such businesses as lodging and food service. For example, through this cluster, students could develop and refine entrepreneurial concepts related to hotels, motels, bed & breakfasts, quick-service restaurants, upscale restaurants, mobile dining such as food trucks, on-line travel agencies, and other on-line ventures. The minor is also designed to prepare students to be innovators within existing organizations. Students who complete this cluster develop skills in creating business plans, feasibility studies, competitive analysis, supply and demand analysis, market analysis and financial forecasting. Students in this concentration are expected to include a mix of majors, not only students majoring in hospitality management.

### **New Media Cluster** *[College of Communications]*

This specialization examines opportunities and challenges in the creation and distribution of news, entertainment and information. The same technological innovations that make it easy to start a media enterprise have introduced a host of editorial and business complexities. Media production and distribution skills and knowledge of media business, technologies, law and ethics are critical.

### **New Ventures Cluster** *[Smeal College of Business]*

This specialization helps students develop the skills and ways of thinking required to create, develop, innovate and manage entrepreneurial companies. Students learn about acquiring and balancing limited resources, changing business direction quickly, building a coherent team, managing intellectual property, and creating new markets. This cluster develops a wide range of managerial skills not usually demanded in one person within a larger organization.

### **Social Entrepreneurship Cluster** *[College of Engineering]*

This specialization focuses on creating sustainable social impact within marginalized communities. The cluster grounds students in social business, user-centered design for extreme affordability, systems thinking and scholarly research to develop innovative and appropriate technology-based solutions to address compelling global challenges. Travel and fieldwork in which students work in multidisciplinary teams to research, design, test, and commercialize ventures are required.

### **Technology Based Entrepreneurship Cluster** *[College of Engineering]*

This specialization develops skills and knowledge through a practical entrepreneurial experience in a technology based environment. Technology and engineering design topics form the practical content of the cluster. General entrepreneurial business topics and tracking current and emerging technologies provide additional foundation structure for this cluster. Students understand and apply fundamental engineering design skills, product feasibility analysis and marketing techniques to move innovative products toward commercialization.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing is given as (Sem:1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-19 credits, depending on cluster

### **REQUIRED COURSES** (9 credits)

MGMT 215(3) (Sem: 1-5)  
ENGR 310(3) (Sem: 2-6)  
ENGR/IST/MGMT 425(3) (Sem: 4-8)

### **ADDITIONAL COURSES**

**Select 9 or more credits from one of the following clusters.**

Students may not use a required course from their major in their chosen cluster. Other courses, such as technical electives, out-of-college electives, and general education courses may be able to be used to meet requirements in major as well as the ENTI Minor. In all clusters, students may substitute up to 3 credits of research topics, internship or independent studies courses focused on relevant entrepreneurship or innovation topics in consultation with an adviser. Each cluster is structured to provide a clear course "path" so any student from any major can complete the cluster and therefore the ENTI minor.

### **Digital Entrepreneurship and Innovation Cluster**

**Required courses:** IST 237(3), IST 337(3), and IST 437(3). (IST 237 is prerequisite for IST 437) (Sem:1-8)

### **Food and Bio-innovation Cluster**

**Select up to 6 credits of the following 200-300 courses in the College of Agricultural Sciences:** A S M 391(2), A S M 392(2), AEE 201(3), AG BM 200(3), AG BM 220(3), AG BM 302(3), AG BM 308W(3), AG BM 338(3), AN SC 207(3), AN SC 306(4), AN SC 308(4), AN SC 309(4), AN SC 310(3), AN SC 311(4), AN SC 324(3), AN SC 327(3), AN SC 350(2), CED 375H(3), E R M 300(3), FD SC 200(3), FD SC 206(3), FD SC 208H(3), FOR 201(3), HORT 250(3) (Sem:1-8)

**Select at least 3 credits of the following 400 level courses in the College of Agricultural Sciences:** AG BM 407(3), AG BM 408(3), AG BM 440(3), AG BM 460(3), AN SC 410(4), AN SC 429(3), AN SC 450(3), CED 417(3), E R M 411(3), E R M 412(3), E R M 413W(3), FD SC 411(2), FD SC 417(2), FD SC 430(3), FOR 440(3), HORT 410W(3), HORT 450(3), HORT 453(3), HORT 455(3), R SOC 452(3), TURF 436W(3), W P 416(3), W P 435(3), W P 437W(4) (Sem:1-8)

### **Hospitality Management Cluster**

Select 3 credits from HM 482(3) or HM 484(3) (Sem: 1-8)  
Select 6 credits from the following: HM 413(3), HM 432(3), HM 483(3), HM 496(3) (Sem:1-8)

### **New Media Cluster**

**Select 9 credits from the following area. The course marked with \* must be selected.** COMM 271(3)\*, COMM 461(3), COMM 481(3), COMM 483(3), COMM 484(3), COMM 490(3), COMM 491(3), COMM 492(3), COMM 493(3) (Sem:1-8)

**New Ventures Cluster**

**Select 9-10 credits from the following area.** (students may only count one of the following course options B A 241 and B A 242; B A 243, B LAW 243, or B LAW 341 towards the minor): B A 250(3), B A 241(2) and B A 242(2), B A 243(4), B LAW 243(3), B LAW 341(3), MGMT 420(3), MGMT 426(3), MGMT 427(3) (Sem:1-8)

**Social Entrepreneurship Cluster**

**Required courses to be taken in the following order:** ENGR 451(3), EDSGN 452(2) and EDSGN 453(1) concurrent, EDSGN 454(0.5), and ENGR 455(3) (Sem:1-8)

**Technology Based Entrepreneurship Cluster**

**Required courses:** ENGR 411(3), ENGR 407(3) in sequence or concurrent, and ENGR 415(3) (Sem:1-8)

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-05-059

Review Date: 02/25/2014

## Entomology Minor

*College of Agriculture Sciences (ENT)*

Through the Department of Entomology, the minor in Entomology is primarily designed for (but not restricted to) students in the Agroecology major seeking additional studies in the entomological sciences. Successful completion of this minor area of study will help prepare students for graduate studies in entomology and related fields.

A minor in Entomology requires 18 credits in approved courses in addition to the major requirements of the student's choice. Appropriate course substitutions may be considered with minor adviser approval.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (5 credits)

ENT 313(2), ENT 457(3) (Sem: 2-4)

**ADDITIONAL COURSES** (13 credits)

Select 1 credit from ENT 314(1) or ENT 316(1) (Sem: 2-4)

Select 3 credits from AGECO 201(3), BIOL 222(3), BIOL 427(3), PPEM 405(3) (Sem: 3-8)

Select 6 credits from ENT 410(3), ENT 412(3), ENT 420(3) (Sem: 4-8)

Select 3 credits of ENT 496(1-18) (Sem: 4-8)

Last Revised by the Department: Fall Semester 2008

Blue Sheet Item #: 36-06-003

Review Date: 4/15/08

AG



## Entrepreneurship Minor

*Altoona College (ENTRP)*

Entrepreneurship plays a crucial role in the way new ideas, opportunities, inventions, and technologies are created and introduced into the global marketplace. Students in this minor first develop an understanding of financial forces that affect business ventures. The minor then provides them with a core of courses that enhance their major field of study and that provide a background sufficient for them to take advantage of many entrepreneurial opportunities.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

A grade of C or better is required for all courses in the minor.

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (13 credits)

ACCTG 211(4), ECON 102 GS(3) (Sem: 1-4)

ENTR 300(3), ENTR 320(3) (Sem: 5-7)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 3 credits at the 400-level from entrepreneurship (Sem: 7-8)

Select 3 credits of ENGL 419(3) or any 400-level Business or Economics course (Sem: 7-8)

Last Revised by the Department: Fall Semester 2000

Blue Sheet Item #: 28-06-008A

Review Date: 5/9/02

AL

## Environmental Inquiry Minor

### Intercollege Program (ENV I)

This intercollege minor is designed for students across the disciplines who wish to prepare for addressing environmental issues or problems as professionals or citizens. The minor is available to all undergraduates regularly enrolled in a degree program at the University. The objectives are to allow students to gain the multiple perspectives necessary for understanding environmental issues as well as to increase skills in collaborating with those from very different disciplinary backgrounds to find acceptable solutions. Students will be challenged to move beyond the channels of thinking characteristic of their own discipline to new ways of knowing, new sensitivities, and new analytical approaches. The program will engage students actively in learning experiences outside their major course of study. This minor is intended not to replace existing minors but to be a true intercollege, interdisciplinary minor. A grade of C or better is required for all courses in the minor.

Advising for students in this minor and approval of curriculum exceptions will be available through the Environmental Inquiry Adviser designated within each participating college.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-19 credits

**ADDITIONAL COURSES** (15-16 credits)

**Introductory course:** The introductory course offers a broad overview of a topic that relates to an environmental theme. It is designed as a preface to learn about the many disciplines and approaches used to study the environment.

**Select one course (3-4 credits) from the following list:**

AGECO 121 GN(3), ANTH 045 GS;US;IL(3), BI SC 003 GN(3), BIOL 120A GN;US;IL(3), BIOL 120B GN;US(3), BIOL 120C GN;IL(3), BIOL 110 GN(4), CED 152(3), E R M 210 GN(3), EARTH 002 GN(3), EARTH 100 GN(3), EARTH 101 GN;US(3), EARTH 111 GN;US(3), EGEE/MATSE 101 GN(3), EGEE 102 GN(3), EM SC/S T S150 GN;IL(3), ENGL 180 GH(3), ENT 202 GN(3), ENVST 100 GS(3), FD SC/S T S 105 GHA(3), GEOG 030 GS;IL(3), GEOG 110 GN(3), GEOG 123 GS;IL(3), GEOSC 021 GN(3), GEOSC 040 GN(3), HIST/S T S 151 GS;US(3), HORT 101 GN(3), HORT 150 GN(3), INTAG 100 GS;IL(3), MATSE 081 GN;IL(3), PHIL 118 GH(3), PL SC/S T S 135 GS(3), R SOC/AGECO 134 GN(3), SOC 023 GS(3), SOILS 071 GN;IL(3), SOILS 101 GN(3), W F S 209 GN(3) (Sem: 1-4)

**Cluster course selections: Select 9 credits from one of the following clusters.** (Students may not use a course from their major in their chosen cluster). In all cases/clusters, students may substitute up to 3 credits of research topics, internship, or independent studies courses focused on a relevant environmental topic in consultation with an adviser. (Sem: 1-8)

#### A. Biodiversity and Ecosystems

This specialization prepares a student to learn about the importance of biodiversity in ecosystems. Over the last 100 years, humans have dramatically reduced the biodiversity on the earth primarily through loss of habitat. To reduce the pressure on the world's biological resources will take political will, scientific research and creativity in planning. A central focus is on developing effective understanding of land management practices that can enhance the prospects for biological diversity.

BIOL 127(3), BIOL 220W GN(4), BIOL 417(4), BIOL 435(3), BIOL 448(3), BIOL 482(3-4), BIOL 499A(3), C E 370(3), CHEM 020(3), CHEM 301(3), CHEM 402(3), ENT 202 GN(3), FOR 308(3), FOR 401(3), FORT 100S(1), GEOG 110 GN(3), GEOG 111 GN(3), GEOG 123 GS;IL(3), GEOG 310W(3), GEOSC 021 GN(3), HORT 101 GN(3), INTAG 100 GS;IL(3), LARCH 341(3), METEO 451(3), PPEM 120 GN(3), S T S 201 GN(3), S T S/BIOL 424(3), SOILS 101 GN(3), SOILS 412W(3), W F S 430(3)/FOR 430(3)

#### B. Environment and Society

This specialization provides insights into the debates and challenges about the distribution and utilization of the world's environmental resources. All people deserve to live in a safe environment regardless of their income, skin color, religion or gender. Yet, many of the poorest people in the world live in unsafe environmental contexts. Research in many different fields of social science, as well as ethical research, is required to understand how to promote and achieve environmental justice.

AG EC/CEDEV 430(3), ANTH 456(3), CED 152(3), CED 230(3), CED 309(3), CED 410(3), E R M 411(3), CED 201(3), CED 429(3), E RRE/AG EC 431W(3), EARTH 101 GN;US(3), EM SC 101 US;IL(3), ECON 428(3), GEOG 124 GS;IL(3), GEOG 438W(3), GEOSC 109H GN(3), GEOSC 310(4), GEOSC 402Y IL(3), HIST 453(3), INTAG 100 GS;IL(3), MNG 400 IL(3), NUTR/S T S 497G(3), PHIL 132 GH(3), R SOC 011 GS;US(3), R SOC/AGECO 134 GN(3), S T S 201 GN(3), S T S 420(3), SOC 423(3), SOC 450(3), SOILS 071 GN;IL(3)

#### C. Environmental Explorations

This specialization scrutinizes the range of debates, practices and possibilities guiding discussions of how to achieve equitable and sustain able development. Global and national discussions are beginning to probe how we can move toward a future where resources are more effectively utilized and the environment is maintained while achieving well being for the whole world. A cross-disciplinary approach is necessary to promote an understanding of these broad discussions.

**Students must take 3 credits each of social science, natural science, and arts and humanities courses:**

Social Science	Natural Science	Arts and Humanities
CED 201(3)	BIOL 220W GN(4),	AM ST 050 GH(3)
CED 429(3)	BIOL 427(3) or GEOSC 427(3)	COMM 408(3) or S T S 408 (3)
AG EC 431W(3) or CED 431W(3)	BIOL 435(3), BIOL 436(3), BIOL 444(3), BIOL 446(3)	COMM 411(3), COMM 459(3)
ANTH 040(3), ANTH 146 GS;US(3)	BIOL 450W(3-5), BIOL 461(3), BIOL 499A IL(3)	CED 410(3)
ANTH 152(3), ANTH 451(3), ANTH 456(3)	CHEM 020(3), CHEM 301(3), CHEM 402(3)	EM SC 150 GN;IL(3) or S T S 150 GN;IL(3)
CED 410(3)	EM SC 121 GN(3)	ENGL 088 GH(3), ENGL 233 GH;GN(3)
ECON 428(3)	EARTH 106 GN(3)	ENGL 402(3), ENGL 404(3),
FD SC 280H GH(3) or PHIL 280H GH(3)	E R M 300(3)	ENGL 430(3)

GEOG 020 GS;US;IL(3), GEOG 333(3), GEOG 430(3)	FOR 308(3)	FD SC 280H GH(3) or PHIL 280H GH(3)
GEOSC 451(3)	GEOG 110 GN(3), GEOG 115 GN(3)	GEOG 434(3), GEOSC 310(4)
LARCH 065 GA;US;IL(3)	GEOSC 010 GN(3), GEOSC 020 GN(3), GEOSC 303(3)	HIST 428(3) or S T S 428(3)
NUTR 497G(3) or S T S 497G(3)	GEOSC 320(3), GEOSC 340(3)	HIST 453(3)
PL SC 412(3), PL SC 420(3)	METEO 004 GN(3)	LARCH 060 GA;US;IL(3)
R SOC 134 GN(3) or AGECO 134 GN(3)	MNG 400 IL(3)	PHIL 013 GH(3), PHIL 132 GH(3), PHIL 403(3)
S T S 430 IL(3) or NUTR 430 IL(3)	PPATH 120 GN(3)	R SOC 134 GN(3) or AGECO 134 GN(3)
SOC 422(3)	R SOC 134 GN(3) or AGECO 134 GN(3)	SOC 449(3)
TURF 425(3)	W F S 408(3), W F S 430(3) or FOR 430(3)	W F S 440(3)

**D. Ideas About the Environment**

This specialization engages the philosophical and political challenges underpinning concerns of modern environmentalism. People have always contemplated the meaning of the world around them and the ways in which their reality is shaped by the environment. The meaning and value of the "environment" therefore depends on a person's range of understandings, ideas, and representations about the physical world. To operate effectively, civil society must be based on open discussions including environmental concerns, and this requires basic levels of ecological literacy.

AG 160 GH(3), CED 450 IL(3), BIOL 419 (3), BIOL 438(3), BIOL 461(3), ECON 428(3), EM SC/S T S 150 GN;IL(3), ENGL 088 GH(3), ENGL 430(3), ENVE 460(3), FD SC/PHIL 280H GH(3), GEOG 123 GS;IL(3), GEOG 434(3), HIST 110 GH;IL(3), HIST/S T S 428 IL(3), HIST 453(3), LARCH 060 GA;US;IL(3), NUTR/S T S 497G(3), PHIL 403(3), S T S 100 GH(3), S T S 101 GH(3), SOC 449(3), SOC 450(3), SOILS 071 GN;IL(3)

**E. Water Resources**

This specialization emphasizes basic literacy required to understand the debates surrounding water as a resource and offers insights into what people can do to protect and maintain its integrity on a worldwide basis. Water and water resources are central to human life, and yet modern industrialization and human settlement patterns are creating untenable competition for water between humans, and other flora and fauna. Basic science is required to ascertain problems of supply. Social science understanding is required to understand challenges facing water supply and utilization and the search for wise utilization of the world's water resources.

A S M 217(3), A S M 327(3), B E 307(3), BIOL 220W GN(4), BIOL 435(3), C E 370(3), C E 371(3), C E 461(3), C E 475(4), E R M/W F S 450(3), EARTH 111 GN;US(3), EM SC 440(3), ENVE 411(3), ENVE 415(3), FOR 470(3), GEOG 431(3), GEOSC 040(3), GEOSC 440(3), GEOSC 445(4), GEOSC 452(3), METEO 451(3), W F S 422(3), W F S 424(2), W F S/E R M 435(3)

**F. Human Settlements**

This specialization examines human settlement patterns and their interaction with the environment. Particular emphasis is placed on patterns of development, human movement and migration patterns, as well as environmental impacts. As population increases worldwide, land is increasingly taxed beyond proper capacity. Zoning regulations, suburban sprawl, and uneven settlement that replaces fertile agricultural land have all become major issues within the policy spectrum that must be dealt with to ensure a positive future for the entire world population.

CED 431W(3), AM ST 050 GH(3), ANTH 045 GS;US;IL(3), ANTH 285 GS;IL(3), ANTH 451(3), ARCH 316 GA(3), BIOL 120A GN;US;IL(3), BIOL 120B GN;US(3), BIOL 120C GN;IL(3), COMM/S T S 408(3), COMM 411(3), CED 230(3), CED 309(3), CED 409(3), EARTH 101 GN;US(3), EARTH 106 GN(3), ENGL 088(3), ENGL 402 GH(3), FD SC/PHIL 280H GH(3), GEOG 020 GS;US;IL(3), GEOG 333(3), GEOG 436(3), GEOSC 109H GN(3), LARCH 060 GA;US;IL(3), LARCH 065 GA;US;IL(3), METEO 004 GN(3), MNG 400 IL(3), NUTR/S T S 497G(3), SOC 449(3), SOILS 071 GN;IL(3), W F S/E R M 450(3), TURF 425(3)

**G. Energy Resources**

This specialization offers a glimpse into the emerging technology that exists in the energy sector. As the worldwide supply of fossil fuels diminishes, and the demand for those fuels increases, new energy technology must be developed to power our planet. In recent years, energy sustainability and the use of infinite resources have been considered serious options for the first time. Thus, this cluster option employs an interdisciplinary strategy with the goal of educating individuals on a broad-range of emerging technologies in relation to energy resources.

CED 450 IL(3), AG EC/E RRE 201(3), CED 429(3), CED 431W(3), EGEE/MATSE 101 GN(3), EGEE 102 GN(3), EGEE 401(3), EGEE 464W(3), EM SC 101 US;IL(3), EM SC/S T S 150 GN;IL(3), GEOSC 451(3), MATSE 081 GN;IL(3)

**Final course:** This is the capstone course of the minor which allows students to explore more deeply and recap their study within the minor's curriculum. (Sem: 5-8)

**Select one course (3 credits) from the following list:**

BIOL 419(3), BIOL 461(3), CED 410(3), E R M 430(3), GEOG 412W(3), GEOG 430(3), GEOG 436(3), GEOSC 451(3), MNG 400 IL(3), NUTR/S T S 497G(3), SOC 422(3), S T S 420(3), SOILS 422(3), W F S/FOR 430(3)

**SUPPORTING COURSES AND RELATED AREAS (3 credits)**

Select one 400-level course (3 credits) from a cluster option other than the one you have chosen. Field experience courses are encouraged. (Sem: 1-8)

Last Revised by the Department: Spring Semester 2009

Blue Sheet Item #: 37-01-043

Review Date: 8/26/08

UCA Revision #1: 8/4/06

UCA Revision #2: 7/27/07

UE



## Environmental Systems Engineering Minor

*University Park, College of Earth and Mineral Sciences (ENVSE)*

PROFESSOR M. THADDEUS ITYOKUMBUL, *Program Officer*

The minor in environmental systems engineering is for students interested in environmental issues associated with the extraction, processing and utilization of mineral and energy resources and their solutions. It provides an opportunity for students to understand and appreciate the interrelationship between energy and the environment, be exposed to the basic courses in environmental systems engineering, and to appreciate and evaluate the impact of environmental pollution control on viability of the profitability and feasibility of operations associated with the safe extraction, processing and utilization of mineral and energy resources. A minimum of 18 credits is required for the minor. A student enrolled in this minor must receive a grade C or better in all courses in the minor. Advising is available through the professor in charge.

*Scheduling Recommendations by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (15 credits)

EME 460(3), ENVSE 406(3), ENVSE 427(3), I H S 450(3), MN PR 301(3) (Sem: 5-7)

**ADDITIONAL COURSES** (3 credits)

EGEE 470(3), I H S 400(3), or MN PR 426(3) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-02-012

Review Date: 09/28/2010

## Environmental Studies Minor

*Altoona College (ENVST)*

The interdisciplinary minor in Environmental Studies gives students a broad-based introduction to the natural environment and human interactions with it. Students gain awareness and understanding of environmental issues from the perspectives of several disciplines in relevant natural sciences (ecology, biology, geology, and/or environmental chemistry, for instance), the social sciences (environmental economics and/or public policy), and the arts and humanities (environmental history, ethics, and/or literature). Core courses in environmental studies, emphasizing applied and experiential learning, serve to integrate and synthesize knowledge from the natural sciences, social sciences, and arts and humanities. The goal of the program is "ecological literacy." Students completing the minor gain sufficient awareness and understanding of environmental issues to put environmental problems in a variety of contexts and to apply pertinent skills and knowledge (from studies in both their major and the minor) in addressing those problems. The minor helps prepare students for employment in the private sector or with government agencies and environmental advocacy groups, or for postgraduate study in environmental science, public policy, the humanities, or law.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES:** (3 credits)

ENVST 100(3) (Sem: 1-2)

**ADDITIONAL COURSES:** (6 credits)

Select 3 credits from ENVST 200(3) or ENVST 400W(3) (Sem: 3-8)

Select 3 credits from BIOL 110 GN(4), BIOL 220W GN(4), ENGL 180 GH(3), GEOSC 020 GN(3), CHEM 020(3), CHEM 021(1), GEOG 115 GN(3), STAT 250 GQ(3), ECON 429(3), HIST 453(3), GEOG 407(3), PHIL 403(3) (Sem: 1-6)

**SUPPORTING COURSES AND RELATED AREAS:** (9 credits)

Select 9 credits (3 in each area listed below) in consultation with an academic adviser. At least six credits must be at the 400-level.

a. Natural Sciences: BIOL 240W(4), BIOL 417(3), BIOL 427(3), BIOL 435(3), BIOL 446(3), BIOL 450W(3-5), ENVST 497(3), FOR 308(3), FOR 430/WFS 430(3), GEOSC 303(3), GEOSC 340(3), GEOSC 462(3), MICRB 400(3), WFS 408(3) (Sem: 3-8).

b. Social Sciences: ANTH 040(3), ANTH 146 GS:US(3), ANTH 152(3), ANTH 456(3), ANTH/BIO 464(3), ENVST 497(3), GEOG 401(3), GEOG 430(3), PL SC 444(3), PL SC 490(3), S T S 047(3) (Sem: 3-8)

c. Arts and Humanities: ENGL 404(3), ENGL 412(3), ENGL 415(3), ENGL 416(3), ENGL 421(3), ENGL 430(3), ENVST 497(3), HIST/S T S 151(3), HIST 428/S T S(3); When topic appropriate and with program approval: ENGL 400(3), ENGL 401(3), ENGL 483(3), HIST 200 US(3), HIST 497(3) (Sem: 3-8)

Other courses may be substituted with program approval.

Last Revised by the Department: Fall Semester 2001

Review Date: 4/9/02

UCA Revision #1: 8/4/06

UCA Revision #2: 7/27/07

AL

## Education Policy Studies Minor

*University Park, College of Education (E P S)*

This minor is designed to introduce students to the fundamental tenets of education policy development and analysis in both the U.S. and other countries. Students pursuing the minor may choose from courses on educational policy in the areas of higher education, educational administration, educational theory and policy, Native American education leadership and comparative/international education. The minor consists of a multidisciplinary program of study in areas of education related to numerous policy issues including social sciences, history, management sciences, and/or humanities. It is anticipated that students completing the minor will find these studies can enrich any major degree program and potentially provide opportunities for employment and/or graduate studies in state departments of education, ministries of education, federal and international education agencies, academic institutions, and various professional associations.

This 18-credit minor may be combined with any undergraduate major at Penn State.

A grade of C or better is required for all courses taken in fulfillment of the minor. No prerequisites are required for the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

EDTHP 115 US(3), EDPSY 014(3) (Sem: 1-4)

**ADDITIONAL COURSES** (12 credits)

Select 12 credits from: CI ED 470(3), EDLDR 405(3), EDLDR 409(3), EDLDR 476(3), EDLDR 480(3), EDLDR 481(3), EDLDR 485(3), EDLDR 496(1-18), EDTHP 401 IL(3), EDTHP 411 US(3), EDTHP 416 US(3), EDTHP 420(3), EDTHP 427(3), EDTHP 430(3), EDTHP 440(3), EDTHP 441(3), EDTHP 496(1-18) (Sem: 5-8)

Last Revised by the Department: Summer Session 2006

Blue Sheet Item #: 34-06-261

Review Date: 4/11/06

ED

## Equine Science Minor

*University Park, College of Agricultural Sciences (EQ SC)*

The Equine Science minor is designed for students who wish to supplement their academic major with studies in equine science. Students are required to complete a minimum of 20 credits. The core prescribed courses develop a foundation in the basic disciplines of animal science and equine science. Additional courses may be selected by the student to allow further specialization and expertise in exercise physiology and training principles, selection and judging, business/farm management, animal genetics and breeding, nutrition, and physiology. With completion of this minor, students will have a foundation of theoretical and practical knowledge along with learning skills for adapting to changes in equine industry. Courses that make up the minor are appropriate for students with and without prior academic or practical experience with horses. The University Horse Farms and the Agricultural Arena are used extensively for supplementing classroom work with hands-on laboratories. Completion of this minor will enhance a student's ability to work directly in horse production and management and allied industries, or continue academic studies in graduate or professional school.

A grade of C or better must be obtained in each course in order to complete the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 20-22 credits  
(At least 6 credits must be at the 400 level.)

**PRESCRIBED COURSES** (12 credits)

AN SC 201(4), AN SC 217(2) (Sem: 1-4)  
AN SC 327(3) (Sem: 5-8)  
AN SC 407(3) (Sem: 7-8)

**ADDITIONAL COURSES** (8-10 credits)

Select 2 credits from: AN SC 037(2) or AN SC 107(2) (Sem: 1-4)  
Select 3-4 credits from: AN SC 300 GN(3), AN SC 301(3), AN SC 317(3), AN SC 322(3), B A 250(3), KINES 180(3), KINES 202(4), or VB SC 403(3) (Sem: 5-8)  
Select 3-4 credits from: AGRO 423(3), AN SC 419W(3), AN SC 420(4), AN SC 423(3), AN SC 431W(4), AN SC 437(3), AN SC 457(3) or AN SC 467W(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-003

Review Date: 02/19/2013

AG



## Environmental Soil Science Minor

*University Park, College of Agricultural Sciences (ESOL)*

The Environmental Soil Science minor enables students to acquire scientific and field-related skills in preparation for environmental careers. Students learn to understand and apply soils and land use information in a wide variety of professional settings. The Environmental Soil Science minor will prepare students for jobs as professional soil scientists or for graduate studies in Soil Science and other interdisciplinary environmental sciences.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-19 credits

**PRESCRIBED COURSES** (6 credits)

SOILS 101 GN(3), SOILS 102(1), SOILS 403(2) (Sem: 1-5)

**ADDITIONAL COURSES** (12-13 credits)

Select 12-13 credits from SOILS courses, or A S M 327(3), C E 335(3), E R M 433(3), E R M 440(3), FOR 475(3), TURF 434(3), TURF 435(4) in consultation with an Environmental Soil Science adviser, including at least 6 credits at the 400 level. (Sem: 2-8)

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-02-001

Review Date: 10/02/2012

AG

## Ethics Minor

*University Park, College of the Liberal Arts (ETHCS)*

This interdisciplinary minor, housed in the Department of Philosophy, is designed to provide students with training in ethical frameworks and methods, as well as offer the opportunity to work in various fields of applied ethics. In addition to the requirements for the student's major department the minor consists of 18 credits selected from a wide range of disciplines (including philosophy, communication, engineering, law, psychology, sociology, anthropology, public policy, international studies, and environmental studies). Courses deal with ethics from various perspectives including research ethics, media ethics, environmental ethics, bioethics, and business ethics.

Students in the minor will begin with two core courses. The first will cover basic ethical approaches and the application of ethical analysis. The second will provide a grounding in ethical leadership. The core courses will be followed by a choice of other relevant ethics courses. The minor will be suitable for students in almost any major, especially students going on to further academic work or careers in medicine, communication, business, law, the health or life sciences, health administration, informatics or engineering.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

PHIL 103 GH(3), PHIL 119 GH(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits from an approved list in consultation with the undergraduate adviser for the ethics minor. At least 6 credits must be at the 400 level. Courses must be selected from at least two different departments. (Sem: 5-8)

Last Revised by the Department: Summer Session 2009

Blue Sheet Item #: 37-04-023

Review Date: 1/13/09

LA

## Film Studies Minor

*University Park: College of Communications and College of the Liberal Arts (FLMST)*

The joint minor in Film Studies sponsored by the College of Communications and the College of the Liberal Arts offers students in a variety of disciplines outside of the College of Communications an opportunity to learn more about a visual medium that relates in many ways to other fields such as theatre, literature, history, and art. The focus of this minor is on critical, aesthetic, and historical studies of film, not on the art of filmmaking. The minor enables students to see how the medium influences--and is influenced by--disciplines outside their specialization. Courses listed for the minor give students a deeper appreciation of the historical development of film during the 20th century. Offerings on cinema from a variety of countries allow students to frame the medium in a global context.

The minor is housed in and administered by the College of Communications but is jointly managed by the Film/Video and Media Studies Department and the French Department. The heads of these units or their designated representatives will chair on a rotating basis the Interdepartmental Film Studies Committee that will make decisions concerning requirements for the minor, including prescribed and supporting courses. The minor is not available to students enrolled in any of the majors in the College of Communications.

Students will choose an adviser from a list of committee members drawn from all participating areas--French, English, German, Italian, Comparative Literature, and Film/Video and Media Studies. In addition to two basic required courses (6 credits), students enrolled in the minor will take an additional 12 credits from a list approved by the Interdepartmental Film Studies Committee. Six of those credits must be at the 400 level. All required and most supporting courses are taught in English. Courses taught in a foreign language are indicated with a footnote.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

COMM 150 GA(3), COMM 250 GA(3) (Sem: 1-6)

**SUPPORTING COURSES** (12 credits)

Select 12 credits from an approved department list in consultation with an adviser (6 credits must be at the 400 level) (Sem: 5-8)

Last Revised by the Department: Summer Session 2004

Blue Sheet Item #: 32-05-044

Review Date: 3/2/04

CM/LA

## Finance Minor

*Penn State Erie, The Behrend College (FNC)*

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES:** (6 credits)  
FIN 301(3) and FIN 420(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS:** (12 credits)

Select 12 credits in consultation with an adviser from ACCTG 426 or 300- or 400-level FIN courses. (At least 6 credits must be at the 400 level.) (Sem: 7-8 )

Last Revised by the Department: Fall Semester 2001

UCA Revision #2: 7/27/07

BD

## Forest Science Minor

*University Park, College of Agricultural Sciences (FORSC)*

The Forest Science minor is offered for students who wish to achieve a basic competency in forestry without qualifying as professional foresters. This minor is particularly compatible with the Wildlife and Fisheries Science and Wood Products majors.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-19 credits

**PRESCRIBED COURSES:** (13 credits)

FOR 203(3), FOR 308(3), FOR 366(4), and FOR 421(3) (Sem: 3-4)

**ADDITIONAL COURSES:** (5-6 credits)

Select 0-3 credits from FOR 320(2), FOR 350(3), or FOR 439(2) (Sem: 3-4)

Select 3-5 credits from FOR 401(3), FOR 409(2), FOR 410(3), FOR 416(3), FOR 418(3), FOR 430(3), FOR 440(3), FOR 455(3), FOR 466W(3), FOR 470(3), FOR 471(3), FOR 475(3), FOR 480(3), FOR 488Y(3), W P 203(1) (Sem: 5-8)

Other FOR courses may be used in lieu of these additional courses by petitioning the Forest Science faculty --at least 3 credits must be taken at the 400-level

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-05-000

Review Date: 02/23/2010

AG

## French and Francophone Studies Minor

*University Park, College of the Liberal Arts (FR)*

The French and Francophone Studies minor is designed to give students the opportunity to improve their knowledge of French language and culture (literature, civilization, film). Courses taken for the minor may also be counted for Basic Degree and major requirements.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)  
FR 201 IL(3), FR 202 IL(3) (Sem: 1-6)

**ADDITIONAL COURSES** (6 credits)  
Select 6 credits from a and b, or b and c, or a and c:  
a) FR 316(3) (Sem: 1-6)  
b) FR 331 IL(3) or FR 332(3) (Sem: 1-6)  
c) FR 351 IL(3) or FR 352 IL(3) (Sem: 1-6)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)  
Select 6 credits of 400-level French courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2006

Blue Sheet Item #: 34-06-319

Review Date: 4/11/06

LA

## Geographic Information Science Minor

*University Park, College of Earth and Mineral Sciences (G I S)*

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

GEOG 160 GS(3) (Sem: 3-6)

**ADDITIONAL COURSES** (15 credits)

Select 6 credits from GEOG 361(3), GEOG 362(3), or GEOG 363(3) (Sem: 3-6)

Select 9 credits (at least 6 credits at the 400-level) from GEOG 323(3), GEOG 485(3), GEOG 461W(3), GEOG 467(3), GEOG 417(3), GEOG 459(3), GEOG 463(3), or GEOG 468(3) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2006

Blue Sheet Item #: 34-06-195

Review Date: 4/11/06

EM

## Game Development Minor

*Penn State Erie, The Behrend College (GAMBD)*

Game Development is the craft of transforming a concept into an engaging interactive form. This craft is highly interdisciplinary, requiring students to answer questions about the human condition (what makes a game fun), about psychology (what makes an interface engaging), about aesthetics (what makes something pleasing), and about technical considerations (how to implement a game). Students pursuing the Game Development minor are required to explore a variety of disciplines in the breadth component. Often these classes will also be qualified as general education. Disciplinary depth in selected areas is achieved in the depth component. Finally, student teams complete a capstone design class, working in teams to complete a project from concept to implementation.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES:** (3 credits)

GAME 480(3) (Sem: 7-8)

**ADDITIONAL COURSES:** (15 credits)

Select 9 credits of 100 or 200-level GAME courses; OR PSYCH 244(3) and 6 credits of 100 or 200-level GAME courses (Sem: 1-4)

Select 6 credits of 400-level (excluding GAME 480) GAME courses (Sem: 5-6)

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-05-016

Review Date: 02/25/2014



## Geography Minor

*University Park, College of Earth and Mineral Sciences (GEOG)*

The Geography minor can complement most majors in the social sciences, physical sciences, biological sciences, and technical disciplines. The geography minor is flexible so that students can tailor their course choices to accommodate individual interests. A broadly based approach to selecting minor courses can be appropriate for students whose majors are highly specialized or narrowly focused. Alternatively, students may choose to fulfill geography minor requirements with a particular content emphasis, such as an interest in environmental issues or urban and regional planning. Looking through course choices and talking with geography staff can make earning the geography minor an important enhancement to one's academic program.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

In consultation with a geography adviser:

- Select 3 credits in physical geography (Sem: 3-6)
- Select 3 credits in human geography (Sem: 3-6)
- Select 6 credits of additional geography courses (Sem: 3-6)
- Select 6 credits of 400-level geography courses (Sem: 5-8)

Last Revised by the Department: Summer Session 2000

Blue Sheet Item #: 28-04-090

Review Date: 11/01

EM

## Geophysics Minor

*University Park, College of Earth and Mineral Sciences (GPHYS)*

The Geophysics minor provides the opportunity for students from outside the Geosciences to apply the physics, quantitative, and technical skills they are developing in their major program to the geophysical aspects of Earth Science, including seismology, volcanology, natural hazards, environmental geophysics, and petroleum and mineral exploration. For students majoring in Geosciences, the completion of the minor will strengthen their physics/quantitative background and develop links between theory and application for these technical and quantitative skills. The minor will prepare students for graduate programs in geophysics, and/or employment opportunities in the environmental and exploration industries. The minor consists of 18-20 credits satisfying the requirements below.

A grade of C or better is required for each course in the minor.

*Recommended Scheduling by Semester Standing (e.g., Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-21 credits

**PRESCRIBED COURSES** (4 credits)

Non-Geoscience Majors (i.e., Math, Physics, Engineering)

GEOSC 203(4) (Sem: 3-7)

Geoscience Majors:

PHYS 212(4) (Sem: 3-6)

**ADDITIONAL COURSES** (14-17 credits)

Non-Geoscience Majors (i.e., Math, Physics, Engineering):

Select 3 credits from: GEOSC 001(3), GEOSC 010(3), GEOSC 040(3), GEOSC 109H(3), EARTH 002(3), EARTH 101(3), EARTH 105(3), EARTH 106(3) (Sem: 1-4)

Select 11-13 credits from: GEOSC 402Y(3), GEOSC 434(3), GEOSC 452(3), GEOSC 483(3), GEOSC 487(3), GEOSC 488(4), GEOSC 489(4) (Sem: 5-8)

Geoscience Majors: (Geoscience majors may not double-count these courses in their major)

Select 3-4 credits from: MATH 220(3), MATH 230(4); MATH 231(2) and MATH 232(2); MATH 250(3), MATH 251(4) (Sem: 3-6)

Select 11-13 credits from: GEOSC 402Y(3), GEOSC 434(3), GEOSC 452(3), GEOSC 483(3), GEOSC 487(3), GEOSC 488(4), GEOSC 489(4) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-05-065A

Review Date: 02/22/2011

## Geosciences Minor

*University Park, College of Earth and Mineral Sciences (GEOSC)*

The Geosciences minor provides a foundation in the physical and material aspects of the solid Earth, as well as an introduction to field techniques and technical writing. Advanced course work should reflect the students' individual interests. Areas of focus include, but are not limited to: earth materials, evolution of the Earth and life, hydrogeology, environmental geology, natural hazards, plate tectonics, geophysics, climate change. The minor consists of 18 credits of course work, some of which are filled through specific courses as indicated below.

A grade of C or better is required in each course in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (7 credits)

GEOSC 021 GN(3) (Sem: 1-6)

GEOSC 201(4) (Sem: 3-8)

**ADDITIONAL COURSES** (6 credits)

Select 3 credits from GEOSC 001(3), GEOSC 020 GN(3), or GEOSC 071(3) (Sem: 1-6)

Select 3 credits from GEOSC 470W(3), EM SC 470W(3-6) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (5 credits)

Select 5 credits from a number of courses covering a variety of disciplines and fields of interest. Consult with your adviser. At least 3 credits in this category must be taken at the 400 level; the remaining 2 credits may be at the 200 level or above. (Sem: 5-8)

Last Revised by the Department: Summer Session 2002

Blue Sheet Item #: 30-07-082

Review Date: 4/9/02

EM

## German Minor

*University Park, College of the Liberal Arts (GER)*

The German minor is designed for students who want to study the language, literature, and culture of German-speaking countries in order to broaden their horizons and meet an increasing demand for people with foreign language skills and international expertise. German is one of the most important languages in Western Europe, being the mother tongue of approximately 100 million Europeans, and in the countries of Eastern Europe it is the most important foreign language of business and commerce.

The Department of Germanic and Slavic Languages and Literatures offers a wide array of courses in German language, literature and culture as well as in professional and business German, allowing students great independence in shaping their own academic program. Students are encouraged to take advantage of Penn State's study abroad opportunities, which include semester and year programs in Freiburg, Berlin, and Vienna plus summer and year programs in Marburg.

The German minor opens employment opportunities for its graduates in fields and professions where proficiency in one or more foreign languages is desirable or required, i.e., secondary and higher education, government, business, the media, and public relations.

All courses in the minor must be taught in German and the students must receive a grade of C or better.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES:** (6 credits)

GER 301 IL(3), GER 302W IL(3) (Sem: 3-5)

**ADDITIONAL COURSES:** (7 credits)

GER 201 IL(4) or GER 208Y IL(4) (Sem: 3-5)

Select 3 credits from GER 308Y IL(3), GER 310 IL(3) and GER 344 IL(3) (Sem: 4-6)

**SUPPORTING COURSES AND RELATED AREAS:** (6 credits)

Select 6 credits of 400-level GER courses (Sem: 5-8)

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-05-119

Review Date: 02/22/2011

LA

## Gerontology Minor

*Intercollege Program (GERON)*

*University College: Penn State Brandywine, Penn State DuBois, Penn State Shenango*

*Contact: College of Health and Human Development, Devon M. Thomas, [dmc233@psu.edu](mailto:dmc233@psu.edu)*

The intercollege minor in Gerontology is designed for students to gain an in-depth understanding of the aging process and old age. With the growth of the number of older people in the population, increased need has arisen for people with knowledge of the aging process in a variety of professional and occupational roles. In conjunction with the student's major, the minor prepares students for entry-level human service positions working with the elderly, or for graduate or professional school programs including communication disorders, counseling, health planning and administration, medicine, psychology, recreation and park management, and social work where knowledge of the aging process and problems of older people is relevant. Eighteen credits are required for the minor, including at least 6 credits at the 400 level. Advising is available through Mrs. Devon M. Thomas, 315 Health and Human Development Building, University Park, PA 16802 (814-863-8000, [dmc233@psu.edu](mailto:dmc233@psu.edu)).

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

HD FS 249 GS(3) (Sem: 3-8)

**ADDITIONAL COURSES** (15 credits)

BIOL 155 GN(3) or BIOL 409(3) (Sem: 1-7)

SOC 435 (HD FS 434)(3) or HD FS 445 (PSYCH 416)(3) (Sem: 5-8)

Select 9 credits, at least 6 at the 400 level, from ADTED 460(3), ANTH 473(3), BB H 302 US(3), BB H 316(3), BB H 410(3), BB H 440 US;IL(3), CN ED 415(3), H P A 101(3), H P A 440 US;IL(3), H P A 442(3), HD FS 413(3), HD FS 445 (PSYCH 416)(3), HD FS 446(3), HD FS 447(3), KINES 481W(3), NURS 464(3), NUTR 451(3), NUTR 456(3), R P M 462(3), R SOC 497(3), SOC 023 GS(3), SOC 174(3), SOC 423(3), SOC 435(3) (Sem: 3-8)

*Note:* Students may enroll in special topics courses (297, 497) that focus on aging or old age, with faculty permission. With faculty approval, students may also enroll for independent studies in their major department to write a senior thesis focused on an issue of aging.

Last Revised by the Department: Summer Session 1998

Blue Sheet Item #: 26-03-068

Review Date: 6/14/07

UCA Revision #1: 8/16/06

UE

## Global Health Minor (GLBHL)

Contact: Melina Czymoniewicz-Klippel, [mtc16@psu.edu](mailto:mtc16@psu.edu)

The Global Health Minor (GLBHL) is designed to provide undergraduate students with a multidisciplinary exposure to the theoretical and practical issues affecting the health of populations in various countries and regions of the world. This minor is appropriate for students whose career goals incorporate public health interventions, education, policy or research related to global health. Course work and supervised field work will draw on the diversity and abundance of the Penn State faculty's international resources and networks. The minor consists of 21 credits, of which 15 credits are prescribed courses including a supervised fieldwork experience and 6 additional credits from the list of approved courses.

Students desiring to enter the minor must submit an application to the Coordinator. Applicants to the Global Health Minor:

- must have declared a major field of study
- must include with the application a proposed plan of study. This plan should include the student's contact information and GPA, a brief statement about the relationship of this minor to the student's major plan of study and career goals, a list of proposed supporting courses, and a proposed supervised fieldwork experience. The student's application to the minor must be signed by the student's academic/faculty adviser.
- previously completed coursework and/or supervised fieldwork experience may be retroactively included in the plan of study if approved by the Coordinator of the minor.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1 - 2)*

### REQUIREMENTS FOR THE MINOR: 21 credits

#### **PRESCRIBED COURSES** (15 credits)

BB H 305 IL(3), BB H 390A(3), BB H 390B(6), and BB H/H P A 440 US:IL(3) (Sem: 4-6)

#### **SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from the list of approved supporting courses in consultation with the Coordinator, with at least 3 credits at the 400 level. Other courses (e.g. special topics courses, independent study) that are not on the list of approved supporting courses may also be used to meet the credit requirements for the GLBHL minor. However, all course substitutions require approval of the Coordinator. (Sem 5-8)

#### **SUPERVISED FIELDWORK EXPERIENCE**

An approved, supervised fieldwork experience dealing with a global health issue is a requirement of this minor (BB H 390B). BB H 390A must be taken prior to this field experience. Global health field sites may be international or domestic, but must be approved by the Coordinator. (Sem: 6)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-103

Review Date: 02/19/2013

## Global Security Minor

*University Park, College of Information Sciences and Technology  
University Park, College of the Liberal Arts (GLBSC)*

The Global Security Minor will be jointly offered by the College of Information Sciences and Technology and the College of the Liberal Arts and overseen by the Department of Political Science. This joint minor is intended to provide students with a background of the theoretical frameworks and skill sets needed to understand the concepts essential to security and related analyses; the challenges and problems faced when dealing with threats to security (e.g., technology, policies, and regulations); and the strengths and weaknesses of various methods of analyzing and responding to challenges to security. The minor includes a grounding in social, historical, and cultural factors that underlie both conflict between states and conflicts between state and nonstate actors, as well as the legal, ethical, and regulatory issues related to security.

A grade of C or better is required for all courses in the minor.

*Scheduling recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-33 credits [11](#)

**PRESCRIBED COURSES:** (9 credits)

SRA 111 GS(3), SRA 211(3), PL SC 007 GS(3) (Sem: 1-8)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from PL SC 410(3), PL SC 415(3), PL SC 416(3), PL SC 418(3), PL SC 437(3), PL SC 438(3), PL SC 439(3), PL SC 442(3) (Sem: 4-8)

**SUPPORTING COURSES AND RELATED AREAS** (3-18 credits)

Select 0-13 credits: 12th-credit-level proficiency in one foreign language demonstrated by course work or examination.

Select 3 credits from COMM 490(3), COMM 491(3), COMM 492(3), GEOG 424 US;IL(3), GEOG 428 US(3), GEOG 463(3), GEOG 464(3), HIST 420 IL(3), HIST 434 IL(3), HIST 452 US;IL(3), HIST 467 US;IL(3), HIST 473 IL(3), HIST 475Y IL(3), HIST 479 IL(3), HIST 486 IL(3), or 3 credits of appropriate internship work in consultation with adviser (Sem: 4-8)

Last Revised by the Department: Fall Semester 2007

Blue Sheet Item #: 35-06-459

Review Date: 4/10/07

LA

## Global Studies Minor

*Berks College (GLBST)*

The minor in Global Studies is intended to prepare students from all degree programs within the Berks College (with the exception of the major in Global Studies) to gain a global perspective, which would be useful in a variety of workplace and academic settings. HIST 320W, PL SC 014, and CAS 271 provide the necessary background to help students understand and appreciate broad issues of international concern. A combination of more specific option courses will deepen students' experience of the world and enhance analytical and interpersonal skills. Eighteen credits are required for the minor in Global Studies. All students taking this minor will be required to show a 12-credit-level proficiency in a foreign language.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-30 credits

**ADDITIONAL COURSES** (18-30 credits)

**Select 6 credits** from CAS 271 US;IL(3), HIST 320W(3), PL SC 014 GS(3) (Sem: 1-6)

**Select 12 credits** from the following list; at least 6 credits must be at the 400 level:

FR 139 GH;IL(3), GER 100 GH;IL(3), RUS 100 GH;IL(3), SPAN 100(3), SPAN 130 GH;IL(3), SPAN 131 GH;IL(3) or SPAN 131W GH;US;IL(3), SPAN 132 IL(3), UKR 100 GH;IL(3) (Sem: 1-4)

HIST 179 GH;IL(3), HIST 181 GH;IL(3), HIST 192 GH;IL(3), HIST 467(3), HIST 468(3) (Sem: 1-6)

ENGL 403(3), HIST 488(3), PL SC 412(3) (Sem: 3-6)

HIST 120 GS(3), HIST 175 GH;IL(3), PL SC 413(3), PL SC 454 IL(3) (Sem: 3-8)

HIST 435(3), PL SC 424(3), PL SC 487(3), SPAN 200(3), SPAN 220(3), SPAN 253(3), SPAN 300(3), SPAN 420(3), SPAN 476(3) (Sem: 5-8)

**Foreign Language Requirement:** Proficiency in a single foreign language must be demonstrated by either examination or coursework equivalent to completion of 12 credits of coursework. See the ADMISSION section of the General Information in this Bulletin for the Placement Policy for Penn State Foreign Language Courses (under Opportunities for Credit by Acquisition) (0-12) (Sem: 1-8)

Last Revised by the Department: Fall Semester 2004

Blue Sheet Item #: 32-05-011

Review Date: 10/11/04

UCA Revision #2: 7/27/07

BK



## Greek Minor

*University Park, College of the Liberal Arts (GREEK)*

The Greek minor focuses on establishing proficiency in reading and interpreting classical Greek literature. After completing an introductory course sequence (elementary classical Greek) that teaches students the vocabulary, morphology and syntax of classical Greek, students complete at least six credits in Greek language and literature at the 400-level for a total of 18 credits for the minor. In advanced courses in Greek language and literature, students gain analytical and interpretive skills by reading a wide range of classical Greek literature, including Greek drama, history, and philosophy, as well as the Greek New Testament. Students minoring in Greek will find their studies mesh well with a number of majors and graduate fields, including anthropology, archaeology, history, English, comparative literature, philosophy, and law.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS:** (18 credits)

Select 12 credits of GREEK courses (Sem: 1-8)

Select 6 credits of 400-level GREEK courses (Sem: 5-8)

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-05-036

Review Date: 11/01

LA

## Health Policy and Administration Minor

*University Park, College of Health and Human Development (H P A)*

*Contact: Caroline Condon-Lewis, cxc29@psu.edu*

The minor in Health Policy and Administration (H PA) is designed to allow students to learn more about the health care system, health policy, and health administration. The minor is most appropriate for students interested in clinical and health-related fields (e.g., nursing, nutrition, biobehavioral health, or medicine), professional fields (e.g. business administration or law), or the social sciences (e.g., economics, sociology, political science, psychology), giving these students an understanding of the health care industry and the impact of business and government on that industry. Students must take 6 credits of prescribed courses including H P A 101(3), which introduces the organization of the health care system, and H P A 057 GHA(3), which considers the role of the health care consumer in the health care system. Students then focus their study on either health policy or health administration, choosing among courses at the 300 and 400 level. Students select 3-6 credits from H P A 301(3), H P A 310(3), and H P A 332(3) and 6-9 credits from 400-level H P A courses.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

H P A 057 GHA(3) and H P A 101(3) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 3-6 credits from H P A 301W(3), H P A 310(3), H P A 332(3) (Sem: 3-6)

Select 6-9 credits from 400-level H P A courses (Sem: 5-8)

*Note: Some courses have additional prerequisites that must be met.*

Last Revised by the Department: Fall Semester 2002

Blue Sheet Item #: 30-07-092A

Review Date: 01/21/05

HH

## Human Development and Family Studies Minor (HD FS)

Contact: Altoona College, Margaret Benson, [enz@psu.edu](mailto:enz@psu.edu); College of Health and Human Development, Devon M. Thomas, [dmc233@psu.edu](mailto:dmc233@psu.edu)

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

HD FS 129 GS(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 9 credits of HD FS courses (Sem: 1-6)

Select 6 credits of 400-level HD FS courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

## Hebrew Minor

*University Park, College of the Liberal Arts (HEBR)*

The minor in Hebrew is intended to provide students with a good working knowledge of the Hebrew language, taught in a context that emphasizes the characteristics of Jewish tradition and Israeli culture and society. Students undertake three years of language study (or equivalent); education abroad can be included.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**PRESCRIBED COURSES** (12 credits)

HEBR 001(4), HEBR 002(4), HEBR 003(4) (Sem:1-4)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from HEBR 110(3), HEBR 111(3), HEBR 199 IL(1-12) HEBR 296(1-18), HEBR 297(1-9), HEBR 399 IL (1-12) (Sem: 1-8)

Select 6 credits from HEBR 401(3-6), HEBR 402(3-6), HEBR 496(1-18), HEBR 497(1-9), HEBR 499 IL(1-12) (Sem: 5-8)

Last Revised by the Department: Spring Semester 1994

Blue Sheet Item #: 21-04-014

Review Date: 11/01

LA

## History Minor (*HIST*)

Contact: Abington College, Tom Smith, [trs8@psu.edu](mailto:trs8@psu.edu); Altoona College, Marc Harris, [mlh6@psu.edu](mailto:mlh6@psu.edu); College of the Liberal Arts, Mike Milligan, [mim61@psu.edu](mailto:mim61@psu.edu)

The minor in history is designed to complement a wide range of social studies and humanities majors by affording students the opportunity to examine change and development in human societies over time. Students are free to select courses in the topics (military history, social history, cultural history, etc.), geographical areas (the United States, Latin America, Europe, Asia, and Africa), and time periods that most suit their needs and interests. The requirements for entering the minor are fifth semester standing (eligible courses taken previously will count toward the minor) and having already declared a major.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS:** (18 credits)

Select 12 credits of HIST courses (Sem: 1-8)

Select 6 credits of 400-level HIST courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

## Homeland Security Minor (HLS)

*Penn State Harrisburg  
Penn State World Campus*

The Homeland Security minor provides for development of familiarity with homeland security and defense issues, including emergency management, homeland security policy, and the structure of homeland security operations. Students will come to understand the "all hazards" approach to homeland security and defense. Students will be able to develop familiarity with such aspects of homeland security and defense as emergency management, security administration, border security, and critical infrastructure through taking elective courses. Recipients of the minor would be positioned to enter the work force in entry level positions or to prepare for transition to graduate school.

A grade of C or better is required in all courses for the minor. At least six credits must be at the 400 level.

*Scheduling recommendation by semester standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES:** (9 credits)

PUBPL 201(3) (Sem 2-5)

PL SC/CRIMJ 439(3), PUBPL 483(3) (Sem 5-8)

**SUPPORTING COURSES AND RELATED AREAS:** (9 credits)

Select 9 credits from among the following: CRIMJ 304(3), CRIMJ 435(3), PUBPL 306(3), PUBPL 475(3) (Course substitution possible with permission of advisor) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-041

Review Date: 04/12/2011

## Horticulture Minor

*University Park, College of Agricultural Sciences (HORT)*

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-19 credits

**PRESCRIBED COURSES** (9 credits)

HORT 101(3), HORT 202(3), and HORT 315(3) (Sem: 1-6)

**ADDITIONAL COURSES** (9-10 credits)

Select 3 credits in systematics from HORT 131(3), HORT 137(3), HORT 138(3), or HORT 232(3) (Sem: 3-4)

Select 6-7 credits in foundation and production courses from HORT 402W(3), HORT 407(3), HORT 412W(3), HORT 420(3), HORT 431(3), HORT 432(3), HORT 433(3), HORT 450(3), HORT 453(3), HORT 455(3), or HORT 459(3) (Sem: 7-8)

Last Revised by the Department: Fall Semester 2001

AG

## Human Resource Management Minor

*Capital College, School of Business Administration (HRMGT)*

The Human Resource Management minor prepares students for professional certification (Assurance of Learning, Professionals in Human Resources (PHR) or Senior Professionals in Human Resources (SPHR)) and/or a career in human resource management by developing skills and competencies in managing diversity and equal opportunity, ethical and fair treatment of employees, human resource planning and staffing, employee training and development, compensation and benefits, performance management, labor relations, and protecting employee safety and health.

No more than 15 credits from the minor may be utilized to fulfill the Management major requirements.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 20-22 credits

**PRESCRIBED COURSES** (9 credits)

Organizational Behavior and Structure (3 credits)

MGMT 301(3) (Sem: 1-2)

Basic and Advanced Human Resource Management (6 credits)

MGMT 341(3) (Sem: 5-6)

MGMT 440(3) (Sem: 6-8)

**ADDITIONAL COURSES** (2-4 credits)

Legal Environment (2-4 credits)

B A 241(2), B A 243(4), B LAW 243(3), B LAW 341(3), LER 201 GS(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits from the following list. At least 3 credits must be taken at the 400-level.

LER 424(3), LER 425(3), MGMT 321(3), MGMT 400(3), MGMT 402(3), MGMT 420(3), MGMT 424(3), MGMT 441(3), MGMT 443(3), MGMT 445 US(3), MGMT 450(3), MGMT 483(3) (Sem: 6-8)

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-02-020

Review Date: 10/08/2013



## History Minor

*Penn State Erie, The Behrend College (HSTRY)*

Contact: Leigh-Ann Bedal, [lyb41@psu.edu](mailto:lyb41@psu.edu)

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 12 credits of HIST or HSTRY courses (Sem: 1-8)

Select 6 credits of 400-level HIST or HSTRY courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

BD

## International Business Minor

*University Park, Austin Jaffe, [ajj@psu.edu](mailto:ajj@psu.edu), Smeal College of Business (I B)*

The International Business minor provides students with knowledge, skills, and experiences that prepare them for a business career that might include international responsibilities. Mastery of fundamental business concepts, coursework in international business or economics, foreign language skills, and an approved study abroad experience each contribute to build perspectives about the challenges and opportunities of commercial activity in a global business environment.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 33-37 credits

**PRESCRIBED COURSES** (7 credits)

ACCTG 211(4) (Sem: 1-4)

B A 411(3) (Sem: 5-8)

**ADDITIONAL COURSES** (14 -18 credits)

MGMT 301(3) or B A 304(3) (Sem: 2-5)

MKTG 301(3) or B A 303(3) (Sem: 3-5)

FIN 301(3) or B A 301(3) (Sem: 4-5)

SCM 301 (3) or B A 302(3) (Sem: 4-5)

Select 6 credits from the following with at least 3 credits at the 400 level: I B 303(3), I B 403(3), I B 404(3), I B/PL SC/AFR 440(3), I B 450(3), or I B 460(3)(Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 6 credits from an education abroad program with prior approval by the Smeal College International Programs Office. (Sem: 4-7)

Select 6 credits of supporting coursework in consultation with the Smeal College International Programs Office. See Program List. (Sem: 5-8)

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-05-012

Review Date: 02/22/2011

UCA Revision #1: 8/8/06

BA

## International Arts Minor

*University Park, College of Arts and Architecture (IARTS)*

This interdisciplinary minor is designed for students in any major of the University who wish to supplement their knowledge of the arts of a country or countries other than the United States.

Students enrolled in the minor shall begin by taking the International Arts course and complete the minor with a project pertaining to topics studied for the minor.

Credits applied toward the minor shall represent at least two disciplines and should consist of a coherent selection of courses relating to a geographic, chronological, or thematic concentration.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19-33 credits

**PRESCRIBED COURSES** (4-6 credits)

A&A 100 GA;IL(3) (Sem: 3-6)

A&A 401(1-3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (15-27 credits)

Select 0-12 credits: 12th-credit-level proficiency in one foreign language demonstrated by course work or examination (Sem: 1-4)

Select 15 credits of international arts courses (Only 9 credits in a single discipline may apply toward the minor. A minimum of 9 credits must be taken in the College of Arts and Architecture. At least 6 credits must be at the 400 level. At least 3 of these 15 credits must be in a study abroad experience of at least 4 weeks in duration approved by the person in charge of the minor; any arts courses taken while abroad may count toward the minor.) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2004

Blue Sheet Item #: 32-06-014

Review Date: 4/13/04

AA

## International Engineering Minor

*College of Engineering (IENGR)*

The International Engineering Minor is paired with any engineering baccalaureate major at any campus in order to provide students with an opportunity to learn about, and understand their profession in a global context. It is designed to provide students with knowledge, language skills, and experiences to help prepare them for a professional career that is likely to include collaborations with professionals from various parts of the world. The minor will help students understand the cross-cultural communications challenges and the global arena in which their profession is practiced. Students completing this minor will gain a competitive advantage because they will be able to demonstrate a broader understanding of the role of their profession and will have demonstrated their ability to communicate across cultural lines.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

REQUIREMENTS FOR THE MINOR: 18 credits

**PRESCRIBED COURSES** (3 credits)

ECON 333 GS(3) (Sem: 2-8)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Demonstrate language skills in a currently spoken world language other than English. Students must take a minimum of 6 credits in the same language, at a level determined by the Language Placement Policy, and achieve a minimum of 12th-credit proficiency in that language. Transfer credits for language courses taken prior to enrollment at Penn State may not be used. (Sem: 1-6)

Select 3 credits of Engineering/computer science courses with significant international content from a program list or as approved by the director of the program. (Sem: 2-8)

Select 6 credits of 400-level engineering or computer science courses, in consultation with departmental undergraduate coordinator, to be taken abroad at an international institution and taught by faculty at that institution. (Sem: 5-8)

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-05-045

Review Date: 02/25/2014

## International Studies Minor (INSTD)

Contact: Abington College, Gary Calore, [gsc1@psu.edu](mailto:gsc1@psu.edu); Penn State Brandywine, Paul Greene, [pdg4@psu.edu](mailto:pdg4@psu.edu); Worthington Scranton, John Dolis, [jjd3@psu.edu](mailto:jjd3@psu.edu); College of the Liberal Arts, Henry Morello, [hum1@psu.edu](mailto:hum1@psu.edu)

The International Studies minor is intended to recognize, for undergraduate students in any major, the completion of an education abroad program, foreign language competency, and related advanced course work. Ideally, the language, international, and advanced study should be integrated around some thematic or geographical focus.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-30 credits

**SUPPORTING COURSES AND RELATED AREAS** (18-30 credits)

12th-credit-level proficiency in one foreign language demonstrated by course work or examination (Sem: 1-4)

Students must complete 12 credits as participants in an approved Penn State Education Abroad Program, no more than 6 credits of which may be foreign language study beyond the 12-credit level (Sem: 5-6)

Select 6 credits (400 level) related to the education abroad experience, or the student's major, or to complete a thematic concentration. Courses must be selected from the approved list of courses with international focus or in consultation with the International Studies Minor adviser (Sem: 5-8)

Last Revised by the Department: Fall Semester 1994

Blue Sheet Item #: 22-06-021

Review Date: 1/30/00

## International Agriculture Minor

University Park, College of Agricultural Sciences (INTAG)

This minor is an interdisciplinary program of study designed to enable students to (1) gain an awareness and appreciation for the interrelationship and interdependency of the nations of the world for their food and fiber systems worldwide; (2) gain awareness of problems in international agriculture and sustainability of alternative solutions; (3) understand global impacts of technology, and (4) understand systems of learning across cultures.

This minor requires 18 credits and may be combined with any undergraduate major in the University. Some courses require prerequisites not included in the minor. Foreign language competence is highly recommended.

Students may apply for admission to the minor by completing and submitting an application for admission to Dr. Tom Gill, Office of International Programs, College of Agricultural Sciences, 106 Administration Building, University Park campus. A signature from the student's major program adviser is required. For more information, contact Dr. Tom Gill, Assistant Director of International Programs, at 814-865-8309 or [tbg12@psu.edu](mailto:tbg12@psu.edu); or Dr. Leif Jensen, Distinguished Professor of Rural Sociology and Sociology, at [lj1@psu.edu](mailto:lj1@psu.edu).

A grade of C or better is required for all courses in the minor. Students must have six credits of 400-level course work for the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

INTAG 100 GS;IL(3), INTAG 490(3) (Sem: 6-8)

**ADDITIONAL COURSES** (12 credits)

Select courses from three of the first four categories (9 credits) and one internationally-oriented experience from Category 5 (3 credits):

**Category 1: Socioeconomic and Communication Systems** (3 credits)

AEE 400(3), AEE 440(3), AG BM 102(3), AG BM 338 IL(3), AYFCE 438 US(1-3), CED 230(3), CED 410(3), CED 417(3), CED 425(3), GEOG 020 GS;US;IL(3), GEOG 040 GS;IL(3), GEOG 123 GS;IL(3), GEOG 126 GS;US;IL(3), GEOG 428 US(3), R SOC/WMNST/CED 420 US;IL(3), any university language skill development course (Sem: 1-8)

**Category 2: Food, Health, and Nutrition** (3 credits)

BB H 305 IL(3), BB H 402 IL(3), BB H 407 IL(3), FD SC 105(3), FD SC 200(3), NUTR 421 US;IL(3), NUTR 430 IL(3) (Sem: 1-8)

**Category 3: Plant and Animal Sciences** (3 credits)

AGECO 134 GN(3), AGECO/ENT 457(3), AGRO 028(3), AN SC 201(4), INTAG 300 IL(3), SOILS 071 GN;IL(3), SOILS 101 GN(3) (Sem: 1-8)

**Category 4: Natural Resources and the Environment** (3 credits)

A S M 327(3), B E 300(3), BIOL 436(3), CED 427W(3), CED 450 IL(3), E R M 210 GN(3), EARTH 002 GN(3), FOR 418 US;IL(3), FOR 488W(3), GEOG 030 GS;IL(3), GEOG 110 GN(3), GEOG 310W(3), GEOG 430(3), GEOG 444(3) (Sem: 1-8)

**Category 5: Select one internationally-oriented experience** (3 credits)

INTAG 296(3), INTAG 297(3), INTAG 298(3), INTAG 397(3), INTAG 398(3), INTAG 399(3), INTAG 495(3), INTAG 496(3), INTAG 497(3), INTAG 498(3), INTAG 499 IL(3), or other international embedded course with agricultural content with approval of INTAG minor coordinator, including but not limited to: AGECO 499(3), CED 499(3), E R M 499(3) and EDSGN 497C(1) (Sem: 1-8)

Students are given the option of participating in a semester study abroad program that would be discussed and approved by the INTAG coordinator and the student's academic advisor. Twelve credits maximum can count toward the minor, and should normally only fulfill elective and internationally-oriented experience credits, and not replace prescribed credits for the minor. The semester study abroad program needs to focus on courses within the food, agriculture or natural resources areas.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-001

Review Date: 04/10/2012

AG

Contact information updated: 1/5/12

## International Business Administration Minor

*Capital College (IBADM)*

*Contact: Jane Kochanov, [jxs21@psu.edu](mailto:jxs21@psu.edu)*

This minor provides undergraduate students in all business administration majors with further studies in such areas as international accounting, finance, information systems, comparative management, international marketing, or economics. The objective of the minor is to provide students who are interested in careers in international business with an understanding of problems and problem-solving methods that transcend national boundaries. Proficiency in a foreign language and study abroad provide an understanding of the social, political, and cultural context of the global marketplace. Except for Accounting, the minor can be included in the major with no additional courses being required. Professional Accountancy students may have to take 12 additional credits.

Students must receive a grade of C or better in all courses required for the minor.

*Scheduling Recommendation by Semester Standing given like (1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-24 credits

(A minimum of 3 credits in the minor must be taken in an approved study abroad program.)

**PRESCRIBED COURSES** (3 credits)

B A 364Y US;IL(3) (Sem. 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (15-21 credits)

Select 3-12 credits in a single foreign language equivalent to the 12th credit level (Sem: 1-6)

Select 9-12 credits from ACCTG 461 IL(3), ECON 333 GS(3), FIN 407(3), FIN 456 IL(3) or I B 299 IL(3), MGMT 461 IL(3), MIS 446(3), MKTG 445 IL(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-027

Review Date: 08/20/13

UCA Revision #1: 8/8/06

UCA Revision #2: 7/27/07

CL

## Transnational Perspectives Minor

*Penn State Erie, The Behrend College (TNTLP)*

Contact: *Dr. Zachary Irwin (zti1@psu.edu)*

This interdisciplinary minor is designed for students who wish to supplement their major field of study with international understanding and study. It introduces students to global concerns and multicultural issues and broadens students' understanding of the critical forces molding their nation and their lives in the twenty-first century. The Transnational Perspectives Minor is proposed for students planning international careers in their professional fields, careers in organizations engaged in international activity, and those with a general interest in global studies. The minor consists of 18 to 30 credits, at least 6 of which must be at the 400 level. Twelve credits or evidence of third-semester proficiency of a foreign language is required. The program of study is to be developed by the student in conjunction with an International Studies adviser. A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### **PRESCRIBED COURSES** (18 credits)

INTST 100 GS;IL(3) (Sem: 1-4)

Select 12 credits of a foreign language or evidence of third-semester proficiency (Sem: 1-4)

INTST 400 IL(3) (Sem: 5-8)

### **SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Students may select 12 credits of internationally oriented courses in consultation with adviser. A list of recommended courses is maintained by Penn State-Behrend's Transnational Perspectives Committee. At least 3 credits must be at the 400 level (outside the student's major). Credits earned through approved academic study abroad may be counted in this category. (Sem: 1-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-022

Review Date: 08/20/13

BD



## Information Sciences and Technology for Accounting Minor

*Capital College (ISACC): Penn State Harrisburg*

Accounting remains a vital organizational function which, in today's business environment, impacts the strategic direction of the firm. Technology has changed the manner in which business organizations are supported by accounting. Thus, accounting professionals with technology skills and technology professionals with accounting skills are extremely valuable in today's modern organization. This new minor will provide students with this integration of knowledge in these two fields.

Students must apply for entrance to the minor no later than the beginning of their sixth semester.

A grade of C or better is required for all courses in the minor.

**REQUIREMENTS FOR THE MINOR:** 22 credits

**PRESCRIBED COURSES** (19 credits)

IST 110 GS(3), IST 210(4), IST 220(3) (Sem. 1-8)

ACCTG 403(3), ACCTG 432(3), ACCTG 471(3) (Sem. 5-8)

**ADDITIONAL COURSES** (3 credits)

Select 3 credits from ACCTG 310(3), ACCTG 340(3), ACCTG 472(3) (Sem. 6-8)

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 39-01-073

Review Date: 08/24/2010

UCA Revision #2: 7/27/07

CL

## Information Sciences and Technology for Aerospace Engineering Minor

*University Park, College of Engineering*

*University Park, College of Information Sciences and Technology (ISASP)*

The role of Information Sciences and Technology in the practice of Aerospace Engineering is very important. Aerospace systems rely heavily on computers, software, and digital information; for control, sensors, and other onboard systems. The Boeing 777 has more than 1000 processors and roughly 20 million lines of software onboard, and F-16 and F-117As cannot fly without their onboard computers. In addition, many future aerospace vehicles will be unmanned, and the software challenges will be even greater. The onboard memory has also increased exponentially, the F-106 had 20 KBytes of memory and the new Joint Strike Fighter might have 2 GBytes of memory. The hardware and software must be carefully designed and thoroughly tested, since most aerospace systems are mission- or safety-critical systems. Computers and software are heavily used in the design, development, and manufacturing of aerospace systems. Large supercomputers are often used in the design process. The IST minor will enrich their educational achievements and increase their chances in obtaining employment or entering graduate school. The NSF and the DOD are encouraging universities to enhance their educational programs so that we have well-qualified engineers for future systems, and our IPAC members have stressed the importance of IT for our students.

Student must apply for entrance to the minor no later than their 7th semester.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (13 credits)

CMPSC 201C(3), IST 110 GS(3) (Sem: 1-4)

IST 210(4), IST 220(3) (Sem: 5-6)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from: AERSP 423(3), AERSP 424(3), AERSP 440(3), or AERSP 460(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2008

Blue Sheet Item #: 36-01-038

Review Date: 8/28/07

UCA Revision #2: 7/26/07

[Comments](#)

EN

**Information Sciences and Technology for Communication Arts and Sciences Minor**

*University Park: College of Information Sciences and Technology and College of the Liberal Arts (ISCAS)*

The Internet and other technologies are emerging as important communication channels. People establish personal relations online, develop language skills, conduct business, and make arguments online. Web sites have become important sites of public discourse and are playing an encompassing role in political campaigns. Students who pursue careers as communication consultants, in management or human resources, as political speech writers, and as independent business operators need information management skills. As a result, it is essential for Communication Arts and Sciences students to be fully versed in information sciences and technology for both personal and professional advancement.

A grade of C or better is required for all courses in this minor.

*Scheduling Recommendations by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR: 19 credits****PRESCRIBED COURSES** (10 credits)

IST 110 GS(3) (Sem: 1-2)

IST 210(4) (Sem: 3-4)

IST 220(3) (Sem: 5-6)

**ADDITIONAL COURSES** (9 credits)

Select 9 credits of CAS courses from a department-approved list with at least 6 credits at the 400 level. (Sem: 5-8)

Last Revised by the Department: Spring Semester 2007

Blue Sheet Item #: 35-01-183

Review Date: 8/29/06

IST/LA

## Information Sciences and Technology for Earth and Mineral Sciences Minor

*University Park, College of Earth and Mineral Sciences*

*University Park, College of Information Sciences and Technology (ISEMS)*

Information Systems are a core component of any research, educational or industrial enterprise in the Earth and Materials Sciences. In addition, the science and engineering disciplines represented in the College have a particular focus on numerical modeling and simulation systems, and on the analysis and management of very large data sets. The EMS - IST minor provides students a basic introduction to information sciences and information technology through courses in the core curriculum of the School of Information Sciences and Technology. Students then select from a group of interdisciplinary EMS courses that focus on the particular interests of the College.

Students must apply for entrance to the minor no later than the beginning of their seventh semester. A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (13 credits)

IST 110 GS(3) (Sem: 1-2)

IST 210(4) (Sem: 3-4)

IST 220(3), GEOG 463(3) (Sem: 5-6)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from P N G 430(3), EM SC 468(3), ECEEM 425(3), or METEO 473(3) (Sem:5-8)

Last Revised by the Department: Fall Semester 2000

Blue Sheet Item #: 28-07-048

Review Date: 10/06/05

## Information Sciences and Technology/Finance Minor

*Capital College (ISFIN)*

PROFESSOR ORANEE TAWATNUNTACHAI  
PROFESSOR GAYLE J. YAVERBAUM

The Information Sciences and Technology/Finance Minor is to enhance skills of students in the information sciences and finance. More organizations are integrating technology as part of their business operations, including finance. Finance is a key function of every business organization. Therefore, technology professionals with finance skills, and finance professionals with technology skills are highly valuable in any organization.

Students must apply for entrance to the minor no later than the beginning of their seventh semester.

A grade of C or better is required for all courses to successfully complete the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 22 credits

**PRESCRIBED COURSES** (19 credits)

IST 110 GS(3), IST 210(4), IST 220(3) (Sem: 1-8)

ECON 351(3), FIN 301(3), FIN 420(3) (Semester 5-8)

**ADDITIONAL COURSES** (3 credits)

Select 3 credits from FIN 302(3), FIN 406(3), FIN 407 IL(3), FIN 408(3), FIN 409(3), FIN 427(3), FIN 456 IL(3), FIN 496(3), FIN 497(3) (Semester 6-8)

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 33-02-004

Review Date: 10/06/05

UCA Revision #2: 7/27/07

CL

## Information Sciences and Technology in Health Policy and Administration Minor

University Park, College of Health and Human Development (ISHPA)  
University Park, College of Information Sciences and Technology

Contacts: Health and Human Development -Caroline Condon-Lewis, [cxc29@psu.edu](mailto:cxc29@psu.edu); Information Sciences and Technology - Jean Peritz, [jperits@ist.psu.edu](mailto:jperits@ist.psu.edu)

The learning objectives of the minor in Information Sciences and Technology in Health Policy and Administration (ISHPA) are to equip students with the skills and knowledge to meet the critical need for persons with expertise in health care information technology. Specialists in this field assist health care organizations develop and apply the information technologies needed to develop Web-based systems for patient education, physician-patient interaction and physician-physician consultation, securely transmit sensitive medical information electronically, and even pioneer efforts for advanced technologies like remote robotic surgery. The ISHPA minor provides students with a solid base in the information sciences and technology through courses in IST's core curriculum. This core is then supported by selections from a group of HPA courses studying the application of information technology in health planning, financing, or marketing. Students must apply for entrance to the minor no later than the beginning of their seventh semesters.

A grade of C or better is required for all courses in this minor.

*Scheduling Recommendations by Semester Standing given like (Sem: 1-2)*

**REQUIREMENT FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (13 credits)

IST 110 GS(3) (Sem: 1-2)

IST 210(4) (Sem: 3-4)

IST 220(3) (Sem: 5-6)

H P A 470(3) (Sem: 7-8)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from H P A 431(3), H P A/BB H 440 US;IL(3), H P A 447(3), or H P A 455(3) (Sem: 5-8)

*Note: The H P A courses have additional prerequisites that must be met.*

Last Revised by the Department: Fall Semester 2002

Blue Sheet Item #: 30-07-92B

Review Date: 10/06/05

HH

## Information Sciences and Technology for Labor Studies and Employment Relations Minor

*University Park, College of the Liberal Arts  
University Park, College of Information Sciences and Technology (ISLER)*

The joint minor in Information Sciences and Technology for Labor and Employment Relations (ISLER) is designed to provide students with the opportunity to develop working knowledge of information technology, labor and employment relations, and their interdisciplinary synergies. The joint minor is designed to prepare students for professional careers in human resource management, labor relations, information systems, software development, consulting, and government.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits [11](#)

**PRESCRIBED COURSES:** (13 credits)

LER 100 GS(3) (Sem: 1-6)

IST 110 GS(3), IST 210(4), IST 220(3) (Sem: 1-7)

**ADDITIONAL COURSES:** (6 credits)

Select 6 credits from: LER 400 IL(3), LER 401(3), LER 404(3), LER 411(3), LER 424(3), LER 434(3), LER 435(3), LER 437(3), LER 444(3), LER 460(3), LER 464(3), LER 465(3), LER 470(3), LER 497(3) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2007

Blue Sheet Item #: 35-06-460

Review Date: 4/10/07

IS/LA

## Information Systems Management Minor

*University Park, Smeal College of Business (ISM)*

The Information Systems Management minor focuses on IT supported techniques for exploring, analyzing, integrating, and reporting business data for fact-based decisions. The coursework enables students to study basic concepts, principles, and methods for information analysis, design and management, and to gain an understanding of the best practices for aligning IT-supported analytics with business strategy.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (15 credits)

MIS 301(3), MIS 431(3), SCM 301(3) (Sem: 4-6)

MIS 441(3), MIS 446(3) (Sem: 5-8)

**ADDITIONAL COURSES** (4 credits)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 1-4)

Lastest Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-023

Review Date: 04/08/2014

UCA Revision #1: 8/9/06

BA



## Information Sciences and Technology for Mathematics Minor

*University Park, Eberly College of Science (ISMTH)*

*University Park, College of Information Sciences and Technology*

The interaction between Information Sciences and Mathematics will continue developing in remarkable new directions. Mathematical scientists enormously benefit from information technology in the performance of research, in communicating and disseminating scientific information and results, as well as in career environments involving data analysis and management. Mathematicians also contribute to making inroads toward the development of new information technologies. Information sciences and technology are already playing a very important role in mathematical education, at all levels, and will experience an overwhelming increase in the near future. Giving undergraduate mathematics students the opportunity to minor in IST will not only enrich their educational achievements but it will also help them succeed in the employment searches.

Students must apply for entrance to the minor no later than the beginning of their senior year.

A grade of C or better is required in all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (10 credits)

IST 110 GS(3) (Sem: 1-2)

IST 210(4) Sem: 3-4

IST 220(3) (Sem: 5-6)

**ADDITIONAL COURSES** (9 credits)

Select 9 credits from the following 400-level mathematics courses: MATH 451(3), MATH 457(3), MATH 459(3), MATH 465(3), MATH 467(3), MATH 468(3), MATH 469(3) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

Blue Sheet Item #: 29-01-084

Review Date: 10/06/05

SC

PIC updated by Publications: 3/26/09

## Information Systems and Statistical Analysis Minor

*University Park, College of the Liberal Arts (ISSA)*

This minor focuses on the use of information systems and statistical methods for solution of human problems. This minor is applicable to any major throughout the University and enhances the student's preparedness for graduate, research, and career opportunities. A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (10 credits)

CAS 283(3), STAT 200 GQ(4) (Sem: 3-4)

CAS 483(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Students must select 9 credits in consultation with the adviser from courses focusing in information systems or computer science with at least 3 credits at the 400 level. No more than 6 credits may be selected in computer science. (Contact person in charge of the minor for list of appropriate courses.) (Sem: 1-8)

Last Revised by the Department: Fall Semester 1996

Blue Sheet Item #: 24-06-048

Review Date: 10/4/02

LA

## Information Sciences and Technology for Industrial Engineering Minor

*University Park, College of Engineering*

*University Park, College of Information Sciences and Technology (ISTIE)*

Collection and processing of information have increased in all sectors for solving engineering problems, including manufacturing and service related problems. Efficient and timely analysis of data is critical for the survival of companies. There is a need for industrial engineers with a strong background in information technology and systems. The minor in Information Sciences and Technology for Industrial Engineering will augment the skills of students in the Department of Industrial and Manufacturing Engineering in the information systems area. All students pursuing a baccalaureate degree in Industrial Engineering are eligible for this minor.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 22 credits

**PRESCRIBED COURSES** (13 credits)

IST 110 GS(3) (Sem: 1-4)

I E 330(3), IST 210(4), IST 220(3) (Sem: 5-6)

**ADDITIONAL COURSES:** (9 credits)

Select 6-9 credits from I E 418(3), I E 462(3) and I E 433(3) (Sem: 7-8)

Select 0-3 credits from MATH 451(3), MATH 455(3), MATH 456(3), IST 441(3) (Sem: 7-8)

Last Revised by the Department: Spring Semester 2006

Blue Sheet Item #: 34-02-092

Review Date: 3/28/06

EN/IS

## Information Sciences and Technology for Telecommunications Minor

*University Park, College of Communications*

*University Park, College of Information Sciences and Technology (ISTLC)*

This minor offers students an opportunity to examine the opportunities and challenges presented by convergence of telecommunications and information processing. Internet-mediated services have the potential of fundamentally changing how we communicate and engage in commerce. This convergence offers faster, better, cheaper, smarter, and more convenient services, but also raises a variety of legal, regulatory, political, social, economic, and technology management issues. The IST/Telecommunications minor offers students enrolled in majors outside the College of Communications and the College of Information Sciences and Technology an opportunity to examine how telecommunications and information processing technologies and services will impact society as well as their individual circumstances.

The Telecommunications requirements of this minor constitute three courses (nine credit hours). Students can fulfill this requirement by completing COMM 180 offered by the Telecommunications Department in the College of Communications and by completing two additional courses from the following list: COMM 479(3), COMM 484(3), COMM 490(3), COMM 491(3) and COMM 492(3). Three IST courses (ten credit hours) constitute the other part of this minor.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendations by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (13 credits)

IST 110 GS(3) (Sem: 1-2)

IST 210(4) (Sem: 3-4)

IST 220(3), COMM 180(3) (Sem: 5-6)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from the following: COMM 479(3), COMM 484(3), COMM 490(3), COMM 491(3) and COMM 492(3) (Sem: 7-8)

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 33-01-099

Review Date: 10/06/05

CM, IS

Publications 10/06/05

## Information Sciences and Technology Minor

Abington College

Berks College

Capital College

University College: Penn State Beaver, Penn State Brandywine, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State New Kensington, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, World Campus

University Park, College of Information Sciences and Technology (IST)

This minor is structured to provide students with the theoretical frameworks and skill sets necessary to compete and be productive in the information technology-intensive global context that defines the new "Information Age." Specifically, the minor will be focused on a program that will build an understanding of core information technologies and related areas of study; will prepare students for the practical application of various information sciences and related technologies; and engage students in sharpening their abilities to think critically and to work in teams. All this will be done with the intent to expose students to the cognitive, social, institutional, and global environments of Information Sciences and Technology and to then apply that knowledge as a supplement to their major.

A grade of C or better is required for all courses in this minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (10 credits)

IST 110 GS(3), IST 210(4), IST 220(3) (Sem 1-6)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from IST 250(3), IST 301(3), or IST 302(3) (Sem 5-8)

Select 6 credits from IST 402(3), IST 431(3), or IST 432(3) (Sem 5-8)

Last Revised by the Department: Spring Semester 2004

Blue Sheet Item #: 32-01-075

Review Date: 10/6/05

IS

## Italian Minor

*University Park, College of the Liberal Arts (IT)*

The Italian minor offers training in the skills required for fluency in Italian and knowledge in Italian culture, civilization, and literature. Its aim is to open to the student both the traditions of one of the major formative components of the Western world and the continuing vitality of modern Italian and Italian-American life.

As one of the humanistic programs of the College of the Liberal Arts, the Italian minor is not designed to be directly vocational. Nevertheless, rigorous training in this minor can prepare students for rewarding and unique careers in business, travel, ministry, banking, and education. In addition, the federal government employs liberal arts graduates with foreign-language skills in organizations including the National Security Agency, the Central Intelligence Agency, the U.S. Information Agency, and the Department of Labor. The Italian minor can be preparatory for the major and for study abroad, as well as graduate work directed to the Ph.D. degree required for teaching and research in colleges and universities. Students with backgrounds in the humanities are particularly successful applicants to professional schools, such as law and medicine.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 12 credits of Italian courses (Sem: 3-6)

Select 6 credits of 400-level Italian courses (Sem: 5-8)

*Note:* Elementary Italian Language courses (IT 001, 002, and 010) and lower-division Culture and Civilization (IT 130 and 131) or lower division Literature in Translation (IT 230) courses may not be credited toward the minor.

Last Revised by the Department: Spring Semester 2009

Blue Sheet Item #: 37-03-028

Review Date: 11/18/08

LA

## **Jewish Studies Minor**

*University Park, College of the Liberal Arts (J ST)*

This is an interdisciplinary minor for students interested in the study of Jewish history, thought, and culture. Time periods and geographical areas covered range from ancient Israel and its environs to much of the modern world. Specializations include, but are not limited to, archaeology and history, Biblical studies, history of religions and intellectual history, anti-Semitism, Zionism and modern Israel, and Hebrew language and modern literature.

For the Jewish Studies minor, a minimum of 18 credits is required, with at least 6 credits at the 400 level. Up to 9 credits of study abroad may be substituted for supporting course requirements.

All required course work must be completed with a grade of C or higher.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

J ST 010 GH;IL(3)/HEBR 010 GH;IL(3) (Sem: 1-6)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits in Jewish Studies from approved department list; 6 credits must be at the 400 level (Sem: 5-8)

(Up to 9 credits of education abroad courses selected in consultation with the adviser may be applied to the requirements for the minor.)

Last Revised by the Department: Summer Session 2004

Blue Sheet Item #: 32-06-180

Review Date: 4/13/04

LA

## Japanese Language Minor

*University Park, College of the Liberal Arts (JAPNS)*

The minor in Japanese is intended to provide students with a good working knowledge of the Japanese language, culture, and society in order to broaden their horizons and sharpen their awareness in internationalism and globalization. Students undertake three years of language and culture/film/literature study (or equivalent); education abroad can be included.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (8 credits)

JAPNS 002(4), JAPNS 003(4) (Sem: 1-4)

**ADDITIONAL COURSES\*** (11 credits)

Select 4 credits from JAPNS 110 IL(4), JAPNS 296(1-9), JAPNS 297(1-9), or JAPNS 299 IL(1-12) (Sem: 1-8)

Select 7 credits from JAPNS 401 IL(4), JAPNS 402 IL(4), JAPNS 452 IL(3), JAPNS 453 IL(3-6), JAPNS 454 IL(3-6), JAPNS 496(1-18), JAPNS 497(1-9), or JAPNS 499 IL(1-15) (Sem: 5-8)

\* Special topics courses in English or other courses in English do not satisfy this requirement.

Last Revised by the Department: Summer Session 2009

Blue Sheet Item #: 37-06-056

Review Date: 4/14/09

LA



## Kinesiology Minor

*University Park, College of Health and Human Development (KINES)*

*Contact: Mark Dyreson, mxd52@psu.edu*

A grade of C or better is required for all courses in the minor.

Students in the Athletic Training Major are not permitted to obtain a Kinesiology Minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-19 credits

**ADDITIONAL COURSES** (6-7 credits)

Select 6-7 credits from KINES 141 US;IL(3), KINES 180(3), and KINES 202(4) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 6 credits of 100-level or higher Kinesiology courses (Sem: 3-6)

Select 6 credits of 400-level Kinesiology courses (Sem: 7-8)

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-05-114

RT: 41-02 231

Review Date: 3/6/07

HH

## **Leadership Development Minor**

*University Park, College of Agricultural Sciences (L DEV)*

This minor is designed for students in any major of the University wanting to supplement their program with studies in leadership development. The minor consists of 18 credits, at least 3 of which are an internship experience. This minor provides students with a fundamental concept of leadership development and expands in three related dimensions. A grade of C or better is required in all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (12 credits)

AEE 311(3), AEE 360(3) (Sem: 5-6)

AEE 460(3), AEE 495(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits in consultation with an adviser from courses on the Department approved list that focus in one of three support areas: leadership styles, ethical and moral dimensions of leadership, or global leadership (Sem: 1-8)

Last Revised by the Department: Fall Semester 2000

Blue Sheet Item #: 28-03-005

Review Date: 1/11/00

AG

## Latin American Studies Minor

*University Park, College of the Liberal Arts (LATAM)*

This interdisciplinary minor is designed for students in any college or program of the University who want to supplement their knowledge and skills with the study of Latin America. A certificate is awarded to students who complete the requirements of the minor.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-19 credits

**PRESCRIBED COURSES** (3 credits)

PL SC 456(3) (Sem: 1-4)

**ADDITIONAL COURSES** (6-7 credits)

HIST 178 GH;IL(3) or HIST 179 GH;IL(3) (Sem: 1-4)

PORT 001(4) or SPAN 100(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits (at least 3 credits at the 400 level) from an approved list in consultation with the adviser. (Sem: 1-4)

Last Revised by the Department: Summer Session 2009

Blue Sheet Item #: 37-06-057

Review Date: 4/14/09

LA

## Latin Minor

*University Park, College of the Liberal Arts (LATIN)*

The Latin minor emphasizes the development of skills in the linguistic and literary aspects of the Latin language. Through 18 credits of course work, including 6 at the 400-level, students develop mastery of the grammatical structures essential to the ability to read Latin; a vocabulary adequate to the sight recognition of a large number of Latin vocabulary items; and a thorough understanding of the formal system of word inflection and derivation which forms the grammatical core of the language. Once students have completed the basic 12 credits in LATIN 001, LATIN 002 and LATIN 003, they have the opportunity to pursue their studies in a wide variety of 400-level courses, which include prose authors such as historians, poets who wrote in epic and elegiac styles, playwrights, and other literary stylists who round out the vast body of Latin literature. In addition, 400-level courses are available on such topics as Latin prose composition, in which students learn to write Latin, and Latin linguistic history. The minor is appropriate for a wide number of majors, including history, medieval studies, archaeology, medicine, philosophy, and law.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 12 credits of LATIN courses (Sem: 1-8)

Select 6 credits of 400-level LATIN courses (Sem: 5-8)

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-05-036

Review Date: 11/01

LA

## Legal Environment of Business Minor

*University Park, Jeff Sharp, jms16@psu.edu, Smeal College of Business (LEBUS)*

This minor presents students with a structured study of the statutory and common law governing the business environment. Students in this program have the opportunity to learn advanced legal subject matter, including business organization structures, employment law, property law, commercial transactions, intellectual property, environmental law, and government regulation. Content is framed around the organization and support of complex business enterprises from a legal perspective. This includes complex legal transactions, litigation support and avoidance, and the development of enterprises. The emphasis on the complex nature of legal organization formation, transactions, and litigation support is provided through a rigorous selection of business law and core business courses.

A grade of C or better is required in all courses used to meet the requirements of the LEBUS minor. For admission to the minor, students must have completed ACCTG 211(4) and ECON 102(3) with grades of C or better.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits  
(At least 6 credits must be at the 400 level)

**PRESCRIBED COURSES** (12 credits)

ECON 104 GS(3) (Sem: 1-4)

FIN 301(3), B LAW 341(3), B LAW 441(3) (Sem: 6-8)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from the following:

B LAW/R M 424(3), B LAW/R M 425(3), B LAW 444(3), B LAW 445(3), B LAW 446(3) (Sem: 6-8)

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-052A

Review Date: 04/10/2012

BA

## **Labor Studies and Employment Relations Minor**

*University Park, College of the Liberal Arts (LER)  
World Campus*

This interdisciplinary minor is designed for students in any major of the University who wish to supplement their knowledge in the areas of labor studies and industrial relations. The minor consists of 18 credits, at least 6 of which must be at the 400 level. A certificate is awarded to students who complete the requirements of the minor.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits  
(at least 6 credits at the 400 level)

**PRESCRIBED COURSES** (3 credits)  
LER 100 GS(3) (Sem: 1-6)

**ADDITIONAL COURSES** (3 credits)  
LER 201 GS(3) or LER 401(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 3-6 credits in Labor and Industrial Relations (Sem: 5-8)

Students may select, in consultation with their Labor Studies and Employment Relations adviser, 6-9 credits from courses in business administration, economics, management, political science, psychology, and sociology (Sem: 1-8)

Last Revised by the Department: Fall Semester 2007

Blue Sheet Item #: 35-06-465

Review Date: 4/10/07

LA

## Linguistics Minor

*University Park, College of the Liberal Arts (LING)*

This minor is designed for students in any major of the University who wish to supplement their knowledge in the area of linguistics. The minor consists of 18 credits. A certificate is awarded to students who complete the requirements of the minor.

For more information on the Linguistics Program, visit our Web site: <http://linguistics.la.psu.edu>.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)  
LING 402(3), LING 404(3) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)  
LING 001 GS(3) or LING 100 GS(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)  
Select 9 credits from LING offerings (Sem: 5-8)

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-03-060

Review Date: 11/21/00

LA

## Latina and Latino Studies Minor

*University Park, College of the Liberal Arts (LTNST)*

This minor in Latina and Latino Studies offers students across the University an opportunity to learn about the diverse histories, cultures, politics, migration patterns, and other aspects of Latina/o populations in the United States. Classes will be offered on Latino history; the artistic achievements of Latinas/os in popular culture, literature, theatre, film, and television; the migratory flows of Latina/o populations; education; other issues related to language and identity; and family issues. These courses demonstrate that studying Latina/o social formations is a critical component of understanding the social fabric of the U.S. as well as the U.S. presence in Latin America and the complex phenomenon of globalization. Although the emphasis of Latina/o Studies is on the U.S., the role of Latina/o immigration within wider shifts related to globalization requires an understanding of Mexico, Central and South America, and the Spanish-speaking Caribbean.

The minor consists of 18 credits, at least 6 of which must be at the 400 level.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

LTNST 100 GH;US(3) (Sem: 1-6)

**ADDITIONAL COURSES** (9 credits)

Select 9 credits from LTNST 226(3) or ENGL 226 GH;US;IL(3), LTNST 300 US(3) or WMNST 300 US(3), LTNST 315 GH;US(3) or SPAN 315 GH;US(3), LTNST 326 GH;US(3) or SPAN 326 GH;US(3), LTNST 403(3) or CMLIT 403(3), LTNST 426(3) or ENGL 426 US(3), and 3 credits of SPAN 003(4) or above. (Sem: 1-8)

**SUPPORTING COURSES AND RELATED AREAS:** (6 credits)

Select 6 credits from approved list in consultation with an academic adviser.

Last Revised by the Department: Fall Semester 2006

Blue Sheet Item #: 34-06-321

Review Date: 4/11/06

EN



## Mushroom Science and Technology Minor

*University Park, College of Agricultural Sciences (M S T)*

This interdisciplinary minor is designed to prepare students for a career in the mushroom industry. The minor offers practical work experience at the University's Mushroom Research Center and Mushroom Test Demonstration Facility.

Students are required to complete a minimum of 18 credits. The core of prescribed courses provides a foundation in the basic fundamentals of mushroom science and technology. Independent study courses may be selected by the student to emphasize various aspects of *Agarics* or specialty mushroom production. A period of internship or a field experience is required.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-19 credits

**PRESCRIBED COURSES** (13 credits)

AG 495(4), PPEM 405(3), PPEM 425(4), PPEM 496(2)[7] (Sem: 5-8)

**ADDITIONAL COURSES** (2-3 credits)

Select 2-3 credits from AG 200A(2), AG 200B(2), MGMT 100(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)

Select 3 credits at the 400 level from department list (Sem: 5-8)

**[7]** Students must select, in consultation with the Mushroom Science and Technology adviser, at least 2 credits of independent study courses with the University's Mushroom Research Center or Mushroom Test Demonstration Facility.

Last Revised by the Department: Summer Session 2006

Blue Sheet Item #: 34-02-001

Review Date: 10/11/05

AG

## Management Minor

*Penn State Erie, The Behrend College (MANGT)*

The management minor requires students to complete 6 additional credits in management beyond the 12 credits required in MGMT 301, MGMT 331, MGMT 341 and SCM 301. It is designed to introduce students to advanced topics in management, such as Human Resources management, as well to basics of organizations and interpersonal skills. This minor can provide an enhanced understanding of management challenges found in all organizations, regardless of the function or activities being undertaken. As a result, the management minor is uniquely qualified to work well as a supporting area with most other business majors.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (12 credits)

MGMT 301(3), SCM 301(3) (Sem: 4-5)

MGMT 331(3), MGMT 341(3) (Sem: 6-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits of 400-level MGMT courses from the following list:

MGMT 409(3), MGMT 410(3), MGMT 420(3), MGMT 432(3), MGMT 440(3), or MGMT 461 IL(3) (Sem: 6-8)

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-045

Review Date: 04/10/2012

UCA Revision #1: 8/9/06

UCA Revision #2: 7/27/07

BD

## Mathematics Applications Minor

*Altoona College (MAPAL)*

The minor in mathematics and its applications is designed to provide students with an interest in applied mathematics, and an opportunity to use mathematical tools and ways of thinking in their own major or area of concentration. The minor requires students to complete 26-28 credits in Mathematics with 6 credits from the 400-level MATH courses and 6 credits from the 400-level Mathematics Applications courses. The latter are selected in consultation with the coordinator of the minor and are from areas that directly incorporate or support the use of mathematics. Typical selections include computer science, engineering, physics, and statistics.

A grade of C or better is required for all courses in the minor.

*Scheduling recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 26-28 credits

**PRESCRIBED COURSES** (8 credits)

MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-4)

**ADDITIONAL COURSES** (6-8 credits)

Select 6-8 credits from MATH 220 GQ(2-3), MATH 230(4), MATH 231(2), MATH 232(2), MATH 250(3), MATH 251(4), MATH 310(3), MATH 311W(3-4), or MATH 312(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 6 credits of 400-level MATH courses (Sem: 5-8)

Select 6 credits from 400-level Mathematics Applications\* courses (Sem: 5-8)

\*Mathematics Applications Courses: Through consultation with the coordinator of the minor, courses from areas that directly incorporate or support the use of mathematics will be selected. Typical areas include computer science, engineering, physics, and statistics. See divisional list of acceptable courses.

Last Revised by the Department: Spring Semester 2005

Blue Sheet Item #: 33-02-000

Review Date: 11/23/04

UCA Revision #1: 8/9/06

AA

## Marine Sciences Minor

Contact: Dr. Iliana Baums, [ibb3@psu.edu](mailto:ibb3@psu.edu)

This program provides an excellent opportunity for undergraduates to pursue their interests in the study of the oceans and make more informed decisions about future graduate studies in marine sciences. Although Penn State does not award degrees in this field, a number of faculty pursue research interests in the marine sciences, and a varied selection of undergraduate courses in the marine sciences is available. The student can either complete the requirements for the minor at University Park (UP) or participate in an intensive semester-long oceanography experience at the Southampton, UK, Oceanography Centre (SOC) through education abroad:

The latter option may be of particular interest to students from non-UP locations. SOC has designed a program for PSU students that provides abundant opportunity to participate in shipboard oceanographic research, including a week of day-cruises in the spring and a 2-week series of cruises in June. Students who elect to pursue that minor at UP have the opportunity to receive training as scientific scuba divers through Penn State's Science Diving Program and participate in a number of other field experiences in the marine sciences.

**MARINE SCIENCES MINOR:** The Marine Sciences Committee is authorized to award a minor certificate to any undergraduate student regularly enrolled in a degree program at the University who, in addition to satisfying the degree requirements of his or her baccalaureate major, satisfies the requirements for the Marine Sciences minor. The completion of the minor is reflected by a formal notation on the student's official record at the time of graduation.

To enter the program, a student must have attained at least fourth-semester standing, completed CHEM 112, MATH 111 or MATH 141, and BIOL 110 or their equivalents, and have earned a cumulative grade-point average of at least 2.50. To ensure adequate advising and record keeping, the student must apply for the minor in the Marine Sciences program office and must then complete the requirements shown below.

Courses offered by other institutions may be substituted for any of the required courses listed below, if accepted for transfer by the student's major department and approved by the Marine Sciences Committee. This includes up to 16 transfer credits from SOC. Upon completion of the requirements and no later than the tenth week of the semester in which the student is to graduate, he or she must verify in the Marine Sciences program office that the requirements have been met.

In addition to the entrance requirements shown above, there are prerequisite credits required for courses listed under Supporting Courses and Related Areas.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (3 credits)

GEOSC 040 GN(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (16 credits)

At least 6 credits of field studies from the following list: EARTH 240(3), EM SC 440(3), BIOL 499A IL(3), BIOL 450W(3-5) or BIOL 496(1-6), ERM 496(1-6), GEOSC 496(1-6), METEO 496(1-6) with consent of instructor and Marine Science Minor (Sem: 5-8)

Students may also wish to transfer 6 credits of field-oriented course work from another institution with prior approval of the chair of the Marine Sciences minor.

Select 10 credits from the following list: BIOL 417(4), GEOSC 410(3), GEOSC 419(3), GEOSC 440(3), METEO 022(2), METEO 451(3), W F S 435/E R M 435(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 33-06-151

Review Date: 04/12/05

UCA Revision #1: 8/9/06

UCA Revision #1: 7/27/07

## Mathematics Minor (MATH)

Contact: Altoona College, Dan DiLeo, [dx22@psu.edu](mailto:dx22@psu.edu); Eberly College of Science, James Sellers, [jxs23@psu.edu](mailto:jxs23@psu.edu)

The minor is designed to provide students with an interest in mathematics an opportunity to study a broad range of mathematical topics. The requirements allow students a great deal of flexibility in choosing courses of interest.

A grade of C or better is required for all courses in the minor.

*Scheduling recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 26-28 credits

**PRESCRIBED COURSES** (8 credits)

MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-4)

**ADDITIONAL COURSES** (6-8 credits)

Select 6-8 credits from MATH 220 GQ(2-3), MATH 230(4), MATH 231(2), MATH 232(2), MATH 250(3), MATH 251(4), MATH 310(3), MATH 311W(3-4), or MATH 312(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits of 400-level MATH courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

Review Date: 5/10/04

UCA Revision #1: 8/9/06

## Media Studies Minor

*University Park, College of Communications (MEDIA)*

The Media Studies minor is designed for students who want to develop their knowledge of the mass media from a variety of approaches, including aesthetic, humanistic, social-behavioral, and legal-policy. This minor is a theory-based rather than a professional program. In fact, students in the minor may not take professional skills communications courses as part of this program. The minor consists of 18 credits, at least 6 of which must be at the 400 level. The minor is not available to students enrolled in any of the majors in the College of Communications.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

COMM 100 GS(3) (Sem: 1-2)

**ADDITIONAL COURSES** (15 credits)

Select 3 credits from COMM 110 GH(3), COMM 150 GA(3), COMM 118 GS(3) or COMM 180 GS(3) (Sem: 3-6)

Select 12 credits from COMM 205 US(3), COMM 250 GA(3), COMM 261 GH(3), COMM 304(3), COMM 381(3), COMM 401(3), COMM 403(3), COMM 405(3), COMM 408(3), COMM 409(3), COMM 410 IL(3), COMM 411(3), COMM 413W(3), COMM 418(3), COMM 419 US:IL(3), COMM 450(3), COMM 451(3), COMM 452(3), COMM 453 IL(3), COMM 454(3), COMM 455(3), COMM 484(3), COMM 485(3), COMM 496(3), or COMM 499(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-05-022

Review Date: 2/26/08

Department head updated by Publications: 1/16/07

CM

Publications: 02/17/05

## Middle East Studies Minor

*University Park, College of the Liberal Arts (MESTU)*

This interdisciplinary program is designed for students having special interest in the geographical area that includes Afghanistan, Iran, Turkey, and the Arabic-speaking countries of southwestern Asia and northern Africa. In addition to the requirements for the minor, students may select other courses dealing with the Middle East, subject to the approval of the Middle East Studies Committee. A certificate is awarded to students who complete the requirements of the minor.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits  
(Some courses in this minor have prerequisites that are not required by the minor.)

**ADDITIONAL COURSES** (3 credits)  
Select 3 credits from HIST 165(3) HIST 181 GH;IL(3), HIST 471W(3), HIST 472 IL(3), HIST 473 IL(3), RL ST 107 GH;US;IL(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)  
Select 15 credits, at least 6 at the 400-level, from approved program list in consultation with the professor in charge of the minor. (Sem: 5-8)

Last Revised by the Department: Summer Session 2004

Blue Sheet Item #: 32-01-080

Review Date: 9/2/03

LA

## Meteorology Minor

*University Park, College of Earth and Mineral Sciences (METEO)*

Students pursuing the 20-credit Meteorology minor seek to broaden their education by specializing in an applied science. As for Meteorology majors, students minoring in Meteorology must have a strong background in Mathematics and Physics. Eleven of the 20 credits come from the three required courses of METEO 300, METEO 421, and METEO 431. The remaining nine credits come from 100-, 200-, 300-, or 400-level METEO courses, at least one of which must be at the 400 level. Completion of the three required courses ensures that students will have the foundational atmospheric science material that they need to register for the remaining nine Meteorology credits. In consultation with a Meteorology adviser, students may choose these elective courses from a variety of sub-specialties, including Air Quality Studies, Atmospheric Dynamics, Atmospheric Physics, Climatology, Computer Applications, and Weather Analysis and Forecasting.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 20 credits

**PRESCRIBED COURSES** (11 credits)

METEO 300(4), METEO 421(4), METEO 431(3) (Sem. 5-6)

**ADDITIONAL COURSES** (9 credits)

Select 9 credits of 100-, 200-, 300-, or 400-level Meteorology; at least 3 credits must be at the 400 level. (Sem. 5-8)

Last Revised by the Department: Summer Session 2009

Blue Sheet Item #: 37-04-006A

Review Date: 1/13/09

EM



## Microbiology Minor

*University Park, Eberly College of Science (MICRB)*

The minor in Microbiology is a collection of required and elective courses that (1) provides a limited but sound foundation in the discipline, (2) requires students to develop reasonable expertise in handling and characterizing microorganisms, and (3) permits students to emphasize some subdiscipline of microbiology in which they may have a particular interest. The minor specifies the introductory lecture and laboratory courses in microbiology and one course each in immunology and cell biology. A minimum of two laboratory courses exposes students to basic and experimental/applied techniques. Sufficient room exists within the minor for selection of two or three elective courses at the advanced level that may emphasize a specialty area of the discipline such as virology or microbial genetics. Students who complete the minor have a sufficient background to pursue positions in industry that require an appreciable expertise in microbiology.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (11 credits)

MICRB 201(3), MICRB 202(2), MICRB 251(3) (Sem: 3-4)

MICRB 410(3) (Sem: 5-6)

**ADDITIONAL COURSES** (2-3 credits)

Select 2-3 credits from MICRB 421W(3) or MICRB 422(2) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (4-5 credits)

Select 4-5 credits of 400-level MICRB courses (Sem: 5-8)

*Note:* B M B/MICRB 442(3), MICRB 400(2), MICRB 408(1-2), MICRB 496(1-18) and MICRB 497(1-9) may not be used to fulfill the requirements for the minor.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-03-101

Review Date: 11/17/09

SC

## Management Information Systems Minor

*Penn State Erie, The Behrend College (MISBD)*

The Management Information Systems minor can open new career options for the student, increase the student's market value, and improve the student's chances for advancement.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES:** (9 credits)

MIS 204(3) (Sem: 3-4)

MIS 336(3), MIS 430(3) (Sem: 5-7)

**SUPPORTING COURSES AND RELATED:** (9 credits)

Select 6 credits from CMPSC or MIS courses (Sem: 5-6)

Select 3 credits from 400-level CMPSC or MIS (Sem: 7-8)

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-04-010

Review Date: 1/15/08

UCA Revision #1: 8/9/06

BD

## Military Studies Minor (MLTRY)

CHAIR, MILITARY STUDIES INTERDISCIPLINARY COMMITTEE, *in charge*

This interdisciplinary minor is designed for all students with special interests in military and national security affairs. Military emphasis is provided in one of three areas--Aerospace Studies, Military Science, or Naval Science. American military forces have played an important role in our domestic and international history and will continue to have significant involvement in policy arenas relating to national security and international relations. Students elect one military service branch for their prescribed courses and select two additional courses from appropriate history and political science courses emphasizing national security policy. At least 6 credits must be taken at the 400 level.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**REQUIREMENTS FOR THE MINOR:** 19-26 credits

**PRESCRIBED COURSES** (Choose one service branch--13-20 credits)

**AIR FORCE** (20 credits)

AIR 151(2), AIR 152(2), AIR 251(2), AIR 252(2), AIR 351(3), AIR 352(3), AIR 451(3), AIR 452(3) (Sem: 1-4)

**ARMY** (20 credits)

ARMY 101(2), ARMY 102(2), ARMY 203(2), ARMY 204(2), ARMY 301(3), ARMY 302(3), ARMY 401(3), ARMY 402(3) (Sem: 1-7)

**MARINES** (13 credits)

NAVSC 101(2), NAVSC 204(2), NAVSC 205(3), NAVSC 311(2), NAVSC 313(2), NAVSC 411(2) (Sem: 1-7)

**NAVY** (18 credits)

NAVSC 101(2), NAVSC 204(2), NAVSC 205(3), NAVSC 322(3), NAVSC 323(3), NAVSC 401(3), NAVSC 402(2) (Sem: 1-7)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from the following courses:

HIST 108 GH;IL(3), HIST 120 GS;IL(3), HIST 130 GH;US(3), HIST 142 GS;IL(3), HIST 143 GH;IL(3), HIST 144 US;IL(3), HIST 151 GS;US(3), HIST 160 US(3), HIST 161 US(3), HIST 165 IL(3), HIST 173 GH;IL(3), HIST 175 GH;IL(3), HIST 178 GH;IL(3), HIST 181 GH;IL(3), HIST 192 GH;IL(3), HIST 420 IL(3), HIST 430 IL(3), HIST 434 IL(3), HIST 441 US(3), HIST 444 US(3), HIST 452 US;IL(3), HIST 454 US(3), HIST 473 IL(3) (Sem: 1-2, 7-8)  
PL SC 003 GS;IL(3), PL SC 014 GS;IL(3), PL SC 020 GS;IL(3), PL SC 022 GH;IL(3), PL SC 137(3), PL SC 150(3), PL SC 413(3), PL SC 415(3), PL SC 416(3), PL SC 437(3), PL SC 438(3), PL SC 439(3), PL SC 442(3), PL SC 452(3), PL SC 453 IL(3), PL SC 454 IL(3), PL SC 455(3), PL SC 456(3), PL SC 457(3-6), PL SC 458(3-6), PL SC 467(3) (Sem: 1-2, 7-8)

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-05-081

Review Date: 2/26/08

UCA Revision #2: 7/30/07

## Mining Engineering Minor

*University Park, College of Earth and Mineral Sciences (MNG E)*

The minor in Mining Engineering offers a specialized program for students in many other broad-based, technical majors, such as those in engineering or science. The demand for professionals with the training and skills for a career in the minerals- and energy-recovery profession far exceeds the supply. Mineral exploration and evaluation, mine development, marketing, health and safety, environmental protection, and mine management are all areas of industry employment. It is recommended that students wishing to pursue this minor come from an engineering or science major. As a result, the selection of this minor can provide additional career options for students in a wide range of offerings at Penn State.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (18 credits)

MNG 030(3), MNG 331(3), MNG 404(2), MNG 410(2), MNG 412(3), MNG 422(3), and MNG 441(3) (Sem: 3-8)

Review Date: Fall Semester 1997

EM

## Marketing Minor

*Penn State Erie, The Behrend College (MRKTG)*

A grade of C or better is required for all courses in the minor.

*Scheduling recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

MKTG 301(3), MKTG 330(3), and MKTG 342(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits of MKTG courses (at least 6 credits at the 400 level) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

UCA Revision #2: 7/30/07

BD

## Mathematics Minor

*Penn State Erie, The Behrend College (MTHBD)*

The minor in mathematics (MTHBD) shows students how to use mathematical tools and ways of thinking in many fields. The choice of several upper-level courses allows students to focus on specific areas of interest. Business majors might choose linear programming and operations research. Engineering students could enroll in numerical methods. Chemistry students might choose numerical methods and linear programming, while biology majors could enroll in mathematical modeling and differential equations. A solid mathematical background can be a strong asset in fields of education, neurobiology and behavior, plant biology and agriculture, immune system studies and pathology, medical sciences, marketing and management science, engineering, national security, ecology, and ecosystems.

A grade of C or better is required for all courses in the minor.

*Scheduling recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (4 credits)

MATH 311W(4) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (14 credits)

Select 8 credits of MATH courses at the level of MATH 140 GQ(4) or above (Sem: 1-6)

Select 6 credits of 400-level MATH courses (Sem: 7-8)

(No more than three credits from MATH 495 courses can be used to satisfy this requirement.)

Last Revised by the Department: Fall Semester 2008

Blue Sheet Item #: 36-07-003

Review Date: 6/17/08

UCA Revision #1: 8/9/06

BD

## Music Performance Minor

*University Park, College of Arts and Architecture (MUSIC)*

PROFESSOR SUE HAUG, *Director, School of Music*

The minor in music performance serves a wide variety of needs among the students who elect it. Those who have studied voice or an instrument through their high school years may pursue that study at a more advanced level. Participants in bands, orchestras, and choirs want to continue that activity at a higher level. Some find the minor an important adjunct to other studies such as speech pathology and audiology, speech communication, or broadcasting. This minor provides students in very demanding majors to build music performance into their lives as a balancing influence. Admission to the minor depends upon a successful performance audition.

A grade of C or better is required for all courses in the minor.

*Scheduling recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Select 8 credits in applied music through Level IV: Primary (Sem: 1-8)

Select 4 credits in ensembles (Sem: 1-8)

Select 3 credits of electives in MUSIC (Sem: 1-8)

Select 6 credits at the 400 level in MUSIC (Sem: 5-8)

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-009

Review Date: 04/13/2010

AA

## Music Studies Minor

*University Park, College of Arts and Architecture (MUSST)*

PROFESSOR SUE HAUG, *Director, School of Music*

The minor in music studies provides students the opportunity to conduct focused study on music theory, history and literature. The minor may also serve as an important adjunct to other studies such as speech pathology and audiology, speech communication, or broadcasting. Some students choose to add the music studies minor as a balancing influence to coursework in their majors; others relate music studies directly to their major. For example, a recent Schreyer Honors College history major did her thesis on song during the Civil War. Admission to the minor depends upon the ability to read musical notation, which is assessed by a music theory assessment test offered during the annual audition days. Each student registers for core courses in music theory, history and literature. Students usually opt to focus on one of the three areas in their upper-level courses.

A grade of C or better is required for all courses in the minor.

*Scheduling recommendations by Semester Standing given like (Sem:1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**PRESCRIBED COURSES** (8 credits)

MUSIC 131(2), MUSIC 132(2), MUSIC 231(2), MUSIC 331(2) (Sem: 1-4)

**ADDITIONAL COURSES:** (3 credits)

MUSIC 261(3) or MUSIC 262(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS:** (10 credits)

Select 4 credits in ensembles (Sem: 1-8)

Select 6 credits at the 400-level in MUSIC (Sem: 5-8)

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-011

Review Date: 04/13/2010



## Music Technology Minor

*University Park, College of Arts and Architecture (MUTEC)*

Administered by faculty from the College of Arts & Architecture's School of Music, School of Theatre, and Department of Integrative Arts, the minor in Music Technology is appropriate for undergraduate students seeking to apply domains of knowledge from their majors or General Education programs to issues of audio production and digital technology in music.

The program consists of prescribed foundation courses in musical acoustics, digital audio, sound design and audio recording. Supporting course work allows students to focus in advanced topics such as music software programming, multi-media, or entertainment systems.

The Music Technology Minor Committee is authorized to award a minor certificate to any undergraduate who, in addition to satisfying the degree requirements of his or her baccalaureate major, satisfies the requirements for the Music Technology minor. The completion of the minor is reflected by a formal notation in the student's official record at the time of graduation.

Students must declare a major before they may request admission to a minor. However, those interested in the music technology minor are encouraged to begin taking applicable courses as early as possible. Students must apply to the minor no later than the beginning of their 6th semester. Students who have earned at least a grade of C in INART 050, INART 258A and THEA 285 may apply for admission to the program by submitting an application to the Committee.

For more information about the music technology minor, check the School of Music website at <http://music.psu.edu/prospective/mustechminor.html>.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**PRESCRIBED COURSES** (15 credits)

INART 050 GN(3), INART 258A GA(3), MUSIC 008 GA(3) (Sem: 1-4)

THEA 285(3), THEA 484(3) (Sem: 4-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits in consultation with the minor advisor with at least 3 credits at the 400 level. (Sem: 5-8)

Last Revised by the Department: Summer Session 2006

Blue Sheet Item #: 34-05-002; 40-02 RT-222; 41-02 RT230

Review Date: 2/28/06; 09/27/11

AA

## Nanotechnology Minor

*University Park, College of Engineering (NANO)*

The Nanotechnology minor is designed to help prepare students from diverse disciplines for careers in a broad range of industries innovating with nanotechnology. The minor builds on the singular strengths of Penn State's nanofabrication facilities including its class 1 and class 10 clean rooms, its faculty, and existing academic programs. The minor provides students with fundamental knowledge and skills in simulation, design, modeling, syntheses, characterization, properties, processing, manufacturing, and applications at the nano scale.

As nanotechnology increasingly bridges across disciplines, a basic understanding of mathematics, physics, biology, and chemistry is recommended. To complete the 18 credit nanotechnology minor, students will take two prescribed courses (6 credits) in nanoscience fundamentals, and then select four additional courses (12 credits) from a growing list of courses that address the areas described in the previous paragraph. A grade of C or better is required for all courses in the minor.

In addition to nanotechnology career opportunities in microelectronics, information storage, optoelectronics, bioelectronics, pharmaceuticals, agriculture, medicine, life sciences and the sciences, the minor prepares undergraduate students to support major new nanotechnology research programs as graduate students. Interested 3rd and 4th year students from related fields in engineering, the chemical, physical, and the biological sciences, medicine, life, and agricultural sciences are encouraged to enroll.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES:** (6 credits)

E SC 312(3), E SC 313(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS:** (12 credits)

Select 12 credits from an approved list, at least 6 credits must be at the 400 level. (Sem: 5-8)

Last Revised by the Department: Summer Session 2006

Blue Sheet Item #: 34-04-029

Review Date: 1/17/06

EN

## Natural Resources Minor

*University College, Penn State DuBois (NAT R)*

The natural resources minor can complement majors in the earth sciences and life sciences, and provides an introduction to field techniques and technical writing. Areas of specialized study can include, but are not limited to, environmental assessment, forest and wetland evaluation and management, and wildlife management. Professional opportunities include work in environmental monitoring, such as endangered species and wetland delineation, restoration of disturbed land, and management of forested lands and wildlife areas.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

In consultation with a natural resources adviser:

Select 3 credits in 100-level forest technology (Sem: 1-2)

Select 3 credits in 100-level wildlife technology (Sem: 1-2)

Select 6 credits of 200-level forest technology or wildlife technology (Sem: 3-4)

Select 6 credits of 400-level geography or geosciences courses (Sem: 5-8)

Last Revised by the Department: Summer Session 2006

Blue Sheet Item #: 34-04-068

Review Date: 1/17/06

UC

## Natural Science Minor (NATSC)

Contacts: Altoona College, David Hurtubise, [dxh40@psu.edu](mailto:dxh40@psu.edu); Berks College, Ike Shibley, [jas1@psu.edu](mailto:jas1@psu.edu); Eberly College of Science, Ron Markle, [ram29@psu.edu](mailto:ram29@psu.edu).

This interdepartmental minor in Natural Science is designed for nonscience students who wish to gain a better appreciation for science and the scientific method. The courses required in the minor include 3 to 4 credits of general education science designed for nonscience students, 3 to 4 credits of mathematical science, 8 to 9 credits of life or physical science, including some laboratory work, and 6 credits of 400-level science courses. Certain combinations of courses are disallowed (as listed in the curriculum description), and higher-level courses are generally accepted as substitutes for lower-level courses if both are offered by the same department. Any substitutes for laboratory courses must also be laboratory courses. Advising for students in this minor will be available through the Eberly College of Science Academic Advising Center and approval of curriculum exceptions will be through the faculty committee and professor in charge of the program.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

### REQUIREMENTS FOR THE MINOR: 20-23 credits

**PRESCRIBED COURSE** (1 credit)  
SC 400(1) (Sem: 5-8)

### ADDITIONAL COURSES (14-17 credits) [\[62\]](#)

Select 3-4 credits from ASTRO 001 GN(3), ASTRO 010 GN(2) and ASTRO 011 GN(1), B M B 001 GN(3), BI SC 001 GN(3), BI SC 002 GN(3), BI SC 003 GN(3), BI SC 004 GN(4), CHEM 001 GN(3), CHEM 003 GN(3), MICRB 106 GN(3) and MICRB 107 GN(1), PHYS 001 GN(3) (Sem: 1-4)

Select 3-4 credits from CMPSC 101 GQ(3), CMPSC 121 GQ(3), CMPSC 201 GQ(3) or CMPSC 202 GQ(3), CMPSC 203 GQ(4), MATH 110 GQ(4), MATH 140 GQ(4), STAT 200 GQ(4), STAT 250 GQ(3) (Sem: 3-6)

Select 8-9 credits from BIOL 011 GN(3) and BIOL 012 GN(1), BIOL 110 GN(4), CHEM 110 GN(3) and CHEM 111 GN(1), CHEM 112 GN(3) and CHEM 113 GN(1), MICRB 201(3) and MICRB 202(2), PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 3-8)

### SUPPORTING COURSES AND RELATED AREAS (5 credits)

Select 0-2 credits of 496 (independent studies) courses from the Eberly College of Science course offerings (Sem: 5-8)

Select 3-5 credits of 400-level courses (other than independent studies) from the Eberly College of Science course offerings (Sem: 5-8)

**[62]** A student may not use credit for BI SC 001 GN(3) or BI SC 002 GN(3) along with credit for BIOL 011 GN(3) and BIOL 012 GN(1), or BIOL 110 GN(4); CHEM 001 GN(3) or CHEM 003 GN(3) along with credit for CHEM 110 GN(3) and CHEM 111 GN(1) or CHEM 112 GN(3) and CHEM 113 GN(1); PHYS 001 GN(3) along with credit for PHYS 250 GN(4) or PHYS 251 GN(4); MICRB 106 GN(3) and MICRB 107 GN(1) along with credit for MICRB 201(3) and MICRB 202(2).

Last Revised by the Department: Summer Session 1995

Blue Sheet Item #: 23-04-042

Review Date: 9/13/02

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

## Neuroscience Minor

*Intercollege Program (NEURO)*

Contact: Byron C. Jones, [bcj1@psu.edu](mailto:bcj1@psu.edu)

The intercollege minor in neuroscience is designed for the student desiring an in-depth knowledge about the basic and functional aspects of the nervous system. Students in several disciplines ranging from nutrition to psychology to molecular biology could benefit from comprehensive study of the neurosciences in preparation for technical, professional, or research careers. The neurosciences as envisioned here are broadly based, and instruction available spans the levels of investigation from molecular to behavioral and cognitive. Majors complemented by this minor would include, but not be limited to, psychology, biology, biochemistry, nutrition, human development and family studies, genetics, biobehavioral health, kinesiology, animal and poultry science, and veterinary science.

Only courses in which the student earns a grade of C or better may be counted toward fulfillment of the requirements for the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

PSYCH 260(3) (Sem: 3-4)

BIOL 469(3), BIOL 470(3) (Sem: 5-6)

**ADDITIONAL COURSES** (9 credits)

Select 9 credits from BB H 410(3), BB H 432(3), BB H 451(3), BB H 497(1-9) (lab), BIOL 471(3), BIOL 472(3), BIOL 473(2), BIOL 479(3), KINES 451(3), KINES 483(3), KINES 484(3), PSYCH 453(3), PSYCH 462(3), PSYCH 475(3), PSYCH 478(3), PTYSC 455(2) (Sem: 5-8)

Last Revised by the Department: Fall Semester 1997

Blue Sheet Item #: 26-01-082

Review Date: 1/30/00

UCA Revision #1: 11/6/06

## **Nutritional Sciences Minor**

*University Park, College of Health and Human Development (NUTR)*

*Contact: Brenda Eissenstat, bre2@psu.edu*

A grade of C or better is required for all courses in the minor.

*Scheduling recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (11 credits)

NUTR 251 GHA(3) (Sem: 1-4)

NUTR 358(2) (Sem: 3-6)

NUTR 445(3), NUTR 446(3) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (7 credits)

Select 7 credits from NUTR courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2002

Blue Sheet Item #: 30-07-094

Review Date: 4/8/03

HH

## Off-Road Equipment Minor

*University Park, College of Agricultural Sciences (OFFRD)*

This interdisciplinary minor complements several engineering, agricultural, and mining degrees, helping students understand some specific technological aspects of mobile equipment (from lawn tractors to large excavators). The minor would strengthen the program for students with machinery interests by exposing them to several of the technical aspects of off-road equipment such as electronics, power generation, power transmission, traction, ergonomics, and safety.

The minor in Off-Road Equipment requires 18-21 credits from the approved courses. Courses in the minor have prerequisites including calculus, physics, and, depending on the student's major, at least one engineering or engineering technology type course (e.g., BRS 221). These courses should be completed prior to entering the minor.

A grade of C or better is required for all courses taken to satisfy the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-21 credits

**PRESCRIBED COURSES** (3 credits)

A S M 420(3) (Sem: 6-8)

**ADDITIONAL COURSES** (15-18 credits)

Select 3 credits from A S M 320(3) or M E 431(3) (Sem: 5-8)

Select 3-4 credits from B E 303(3) and B E 306(3), or A S M 310(3) or M E 360(3) (Sem: 5-8)

Select 3-4 credits from B E 305(3), BRS 428(3), or M E 345(4) (Sem: 5-8)

Select 3-4 credits from A S M 424(3), AGRO 425(3), HORT 408(4), or TURF 425(3) (Sem: 5-8)

Select 3 credits from B E 461(3) or BRS 426(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-01-002

Review Date: 8/25/09

UCA Revision #2: 7/30/07

AG

## Organizational Leadership Minor

*University Park, College of the Liberal Arts (OLEAD): offered via World Campus*

*PROFESSOR DENNIS GOURAN, Professor-in-charge*

This interdisciplinary online minor is designed for World Campus students in any major who wish to supplement their knowledge in the areas related to leadership in organizations. The OLEAD minor focuses on the development of: (1) understanding of the role, functions, and enactment of leadership as an instrument of influence in the modern organization; (2) familiarity with pertinent scholarly inquiry; and (3) competencies essential to success in leadership. Leadership is of interest in numerous disciplines. The curriculum in Organizational Leadership provides the opportunity to select from them on the basis of specialized interests relating to: business administration, communication arts and sciences, criminal justice, economics, history, labor studies and employment relations, philosophy, political science, psychology, sociology, and women's studies. The OLEAD minor is of value to anyone pursuing a baccalaureate degree who envisions being, or is, in a position of authority (manager, supervisor, executive, officer, and the like) in an organization.

The minor consists of 18 credits, at least 9 of which must be at the 400 level.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits  
(at least 9 credits at the 400 level)

**PRESCRIBED COURSES (12 credits)**

OLEAD 100 GS(3) (Sem: 1-6)

OLEAD 409(3), OLEAD/LER 464(3), OLEAD/LER 465(3) (Sem: 4-8)

**SUPPORTING COURSES AND RELATED AREAS (6 credits)**

Select 6 credits in the approved list of courses in the OLEAD Curriculum (Sem: 4-8)

Last Revised by the Department: Fall Semester 2012

Blue Sheet Item #: 41-04-063

Review Date: 01/15/2013



## Operations & Supply Chain Management Minor

*Penn State Erie, The Behrend College (OPSCM)*

This minor is designed primarily for students enrolled in non-business majors, especially those in engineering and engineering technology, who wish to augment their majors with further studies in operations and supply chain management. The objective of the minor is to acquaint these students with the issues and methods associated with managing operations within manufacturing or service industries. Relevant studies include principles of management, operations management, logistics systems, procurement, planning and control, enterprise resource planning (ERP), and project management.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES:** (6 credits)

MGMT 301(3), SCM 301(3) (Sem: 5)

**ADDITIONAL COURSES:** (13 credits)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 5)

Select 9 credits from the following list:

- SCM 465(3) (Sem: 6)

- SCM 455(3) or SCM 460(3) (Sem: 7)

- SCM 445(3), MGMT 409(3) (Sem: 8)

Last Reviewed by the Department: Summer Session 2011

Blue Sheet Item #:40-01-038

Review Date: 8/16/2011

BD

## Poultry and Avian Science Minor

*University Park: College of Agricultural Sciences (P A S)*

The Poultry and Avian Science minor is designed for students who wish to supplement their academic major with studies focused on the biology, and management, of avian species, with an emphasis on domestic fowl. In recognition of the diverse career opportunities in the modern poultry and game bird industries, the minor is designed to also accommodate students with primary interests in agribusiness management, food science, and wildlife science. Students are required to complete a minimum of 19 credits (9 credits at the 400 level). The three prescribed courses provide a foundation of knowledge pertaining to both avian sciences and the commercial poultry industry, while additional courses selected by the student will allow for further specialization in the foundation animal science disciplines, agribusiness management, food science, and wildlife and fisheries science. In addition, credits from poultry or avian internship experiences and/or independent study projects may also be applied towards meeting the requirements of the minor.

The University's Poultry Education and Research Center is used extensively for supplementing classroom work with hands-on laboratories. The flexibility of the minor permits program planning commensurate with an individual's interests and professional goals, and should enhance the student's ability to compete for related positions in industry, government, or academia (graduate or professional school).

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

AN SC 211(3) (Sem: 1-4)

AN SC 311(3) (Sem: 5-7)

AN SC 425(3) (Sem: 6-8)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from: AG BM 302(3), AG BM 338(3), AN SC 207(2), AN SC 208(1) (Sem: 3-6)

AN SC 300 GN(3), AN SC 301(3), AN SC 322(3), AN SC 395(1-3)[\[\\*\]](#), W F S 300(2), W F S 301(2) (Sem: 5-8)

Select 6 credits from: AG BM 407(3), AG BM 408(3), AG BM 420(3), AG BM 460(3), AN SC 418(3), AN SC 420(4), AN SC 421(2), AN SC 423(3), AN SC 496(3)[\[\\*\]](#), FD SC 408(2), FD SC 409W(3), FD SC 411(2), FD SC 415(3), VB SC 420(3), W F S 406(2), W F S 407(3), W F S 447W(3) (Sem: 7-8)

**[\*]** AN SC 395 and AN SC 496 must have a poultry or avian biology emphasis.

Lasted Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-007

Review Date: 04/08/2014

AG

## Planetary Science and Astronomy Minor

*University Park, Eberly College of Science (PASTR)*

Planetary Science and Astronomy minors will study the Solar System, stars, galaxies and the universe as a whole. Students will survey a wide variety of topics in astronomy and will learn to solve problems to see how this general knowledge has been obtained. Students will use telescopes to obtain astronomical data, and will learn to analyze these data to constrain astronomical theories. Communication of these topics, both oral and written, to the public and to their peers will be emphasized, as will logic and general problem-solving skills. It will serve students who want to acquire a significant knowledge of the universe as they pursue majors in unrelated fields of study. For example, this minor will serve students who are seeking careers in science education at the 6-12 level, in elementary education, in science journalism, and in geoscience.

A grade of C or better is required for all courses in the minor.

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (7 credits)

ASTRO 401(4), ASTRO 402(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 3 credits from ASTRO 001 GN(3), ASTRO 005 GN(3), ASTRO 006 GN(3), ASTRO 010 GN(2) and ASTRO 011GN(1), ASTRO 291 GN(3) (Sem: 1-4)

Select 9 credits from ASTRO 120 GN(3), ASTRO 130 GN(3), ASTRO 140 GN(3), ASTRO 292 GN(3) (Sem: 2-6)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-145

Review Date: 02/19/2013

## **Pennsylvania Studies Minor**

*University Park, College of the Liberal Arts (PASTU)*

This minor is for students who want to emphasize the history, culture, politics, and other important features of Pennsylvania in their academic programs. The minor consists of 18 credits, at least 6 of which must be at the 400 level. A certificate is awarded to students who complete the requirements of the minor.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

HIST 012 GH;US(3) (Sem: 1-4)

**ADDITIONAL COURSES** (6-9 credits)

Select 6-9 credits from GER 157 GH;US(3), HIST 150 US(3), HIST 200 US(3), AM ST 050 GH(3), or PL SC 125(3) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS** (6-9 credits)

Students may select, in consultation with their Pennsylvania Studies adviser, 6-9 credits from among courses that focus substantially on Pennsylvania. At least 6 credits must be at the 400 level. A partial list of such courses includes LER 100 GS(3), LER 433(3), L A 496(1-18), PL SC 130 GS;US(3), PL SC 426(3), SOC 454(3). With the approval of the Pennsylvania Studies adviser, students may count up to 3 credits for internships in Pennsylvania. Students may enroll in the College of the Liberal Arts internship program or a departmental internship program. (Sem: 3-8)

Last Revised by the Department: Summer Session 1988

Review Date: 3/12/02

LA

## Peace and Conflict Studies Minor

*University College: Penn State Brandywine (PEACE)*

This minor may be pursued by students in any major. It is designed to help students take a coherent set of courses organized around the study of the sources of international conflict, peace movements, and peace building. The minor requires 18 credits, of which at least nine must be upper division, including six credits at the 400 level. Students will be required to take two prescribed courses, one introductory and one capstone. They also will take three credits of additional courses with an international focus and nine credits from a list of supporting courses, which includes the study of conflict in race relations, family, community, and the development of personal peace as a precursor to peace building. The full requirements with the lists of additional and supporting courses are available in the Peace and Conflict Studies program office. Substitutions for requirements require the permission of the Peace and Conflict Studies minor adviser at Penn State Brandywine.

See this minor list for Brandywine at [www.brandywine.psu.edu/Academics](http://www.brandywine.psu.edu/Academics) for additional information.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

PL SC 091(3) (Sem: 1-4)

PL SC 491(3) (Sem: 7-8)

**ADDITIONAL COURSES** (3 credits)

INT U 200 GS(3) or PL SC 014 GS;IL(3) (Sem: 3-8)

(INT U 200 GS(3) and PL SC 014 GS;IL(3) cannot both be taken for credit)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 3 credits from the additional course list in the Peace and Conflict Studies program office (Sem: 3-8)

Select 6 credits from the supporting course list in the Peace and Conflict Studies program office (Sem: 3-8)

Last Revised by the Department: Spring Semester 1995

Blue Sheet Item #: 22-06-013

Review Date: 1/30/00

College change 9/17/2012

Effective: Spring 2013

## Philosophy Minor (PHIL)

Contact: Abington College, Tom Smith, [trs8@psu.edu](mailto:trs8@psu.edu); Penn State Fayette, Evelyn Pluhar-Adams, [exp5@psu.edu](mailto:exp5@psu.edu); College of the Liberal Arts, Emily Grosholz, [erq2@psu.edu](mailto:erq2@psu.edu)

Many students find that their studies in their major field can be profitably supplemented by pursuing their studies in philosophy. The Philosophy minor is designed for students who desire a significant background in philosophy while majoring in a different field. Students from many disciplines pursue the Philosophy minor, including English, History, Physics, Mathematics, Management Studies, and so on. Declaring a minor in Philosophy will allow you to continue your philosophy studies throughout your degree, and you will receive a certificate in Philosophy when you graduate.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

In consultation with a faculty adviser:

Select 6 credits of Philosophy courses (Sem: 1-6)

Select 6 credits of Philosophy courses at the 200 level (Sem: 3-6)

Select 6 credits of Philosophy courses at the 400 level (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

## Physics Minor

*Penn State Erie, The Behrend College (PHYBD)*

Physics is the fundamental science from which many fields of engineering and science developed. With the increasing pace of technological change, solid understanding of basic physics can make the student adaptable and competitive in a rapidly changing workforce. The minor in physics (PHYBD) can be valuable to students seeking careers in engineering, chemistry, medicine, teaching, or computing. Many science or engineering majors can earn a physics minor with as few as ten additional credits. The minor can be tailored to specific interests with courses such as optics, quantum mechanics, solid-state physics, or electronics.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 22 credits

**PRESCRIBED COURSES** (15 credits)

PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2), PHYS 237(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (7 credits)

Select 7 credits from 400-level PHYS courses, excluding PHYS 494, PHYS 495, PHYS 496, and PHYS 497 courses (Sem: 5-8)

Lastest Revised by the Department: Fall Semester 2001

UCA Revision #1: 8/9/06

BD

## Physics Minor

University Park, Eberly College of Science (PHYS)

Contact: Eberly College of Science, Richard Robinett, [rr9@psu.edu](mailto:rr9@psu.edu)

Contact: Behrend College, William Baxter, [gwb6@psu.edu](mailto:gwb6@psu.edu)

The Department of Physics offers a minor for students who wish to expand upon their study in this fundamental discipline, beyond the introductory courses (PHYS 211, PHYS 212, PHYS 213, PHYS 214). In addition to an additional course in modern physics (PHYS 237, which includes introductions to relativity and quantum theory, as well as applications), students take two 400-level PHYS courses for a total of 6-8 credits. The Physics minor is useful for students in many STEM disciplines who wish to extend their studies in this fundamental field, as a background for graduate study or work in a variety of technical fields.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21-23 credits

**PRESCRIBED COURSES** (15 credits)

PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2), PHYS 237(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (6-8 credits)

Select two 400-level PHYS courses, except PHYS 444, 445, 446, 457, 457W, 494, 494H, 495, 496, 496H or 499 (Sem: 5-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-113

Review Date: 08/20/13

UCA Revision #1: 8/31/06

SC



## Political Science Minor (PL SC)

Contact: Altoona College, Dan DiLeo, [dxd22@psu.edu](mailto:dxd22@psu.edu); Capital College, Steve Peterson, [sap12@psu.edu](mailto:sap12@psu.edu); Penn State Fayette, Brad Whitsel, [bcw4@psu.edu](mailto:bcw4@psu.edu); College of the Liberal Arts, James Piazza, [jap45@psu.edu](mailto:jap45@psu.edu)

The Political Science minor consists of 18 credits with at least one course in each of the following Political Science areas: American, theory/methodology, comparative, and international relations. Six (6) of these 18 credits must be at the 400 level.

When electing this minor, the student should have junior (fifth-semester) standing. Special attention should be given to the fact that courses used to satisfy general education, degree requirements, electives, and major requirements may also be used to satisfy minor requirements.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**ADDITIONAL COURSES** (18 credits)

Select 18 credits in Political Science (at least 6 credits at the 400 level) (Sem: 3-8)

Include at least one course in each of the following areas: American, Comparative, International Relations, and Theory

Last Revised by the Department: Fall Semester 1999

Blue Sheet Item #: 28-01-056

Review Date: 11/10/03

LA

## Politics and Government Minor

*Penn State Erie, The Behrend College (POGO)*

The study of politics consists of several related subfields, such as American Government, public policy and administration, comparative politics or the study of foreign governments, international relations, and political theory. Students who pursue this minor are expected to develop research and writing skills, in addition to critical analytical skills. Because the policy making process and the processes of globalization affect us in virtually all areas of our lives, the minor is appropriate for supporting the study of any of the majors offered at the College. Similarly, the minor provides an invaluable understanding of the political world that is useful in any career that has an impact on or is affected by public life. Students who study politics at Behrend also often pursue graduate professional studies in law or in other fields in graduate schools.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

PL SC 001 GS(3), PL SC 003 GS;IL(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits (at least 6 credits at the 400 level) from PL SC courses (Sem: 5-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-024

Review Date: 08/20/13

BD

## Polymer Science Minor

*University Park, College of Earth and Mineral Sciences (PLMSC)*

The goal of the polymer science minor is to produce graduates who have a first-hand knowledge of the relationships between the synthesis, structure, properties and processing of polymer materials. Students are required to take MATSE 443 (3 credits), which provides a broad overview of the subject, then select 15 credits chosen from a suite of courses that deal with polymer synthesis, microstructure and morphology, properties and processing.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

MATSE 443(3) (Sem: 5-8)

**ADDITIONAL COURSES** (15 credits)

Select 12 credits from MATSE 441(3), MATSE 442(3), MATSE 444(3), MATSE 445(3), and MATSE 446(3) (Sem: 5-8)

Select 3 credits from B M B 474(3), CH E 441(3), E MCH 446(3), MATSE 473(1), MATSE 474(1), MATSE 447(3), MATSE 494W(3), or MATSE 496(1-3) (Sem: 5-8)

Lasted Revised by the Department: Spring Semester 2002

UCA Revision #1: 9/1/06

EM

## **Petroleum and Natural Gas Engineering Minor**

*University Park, College of Earth and Mineral Sciences (PNG E)*

PROFESSOR TURGAY ERTEKIN, *Program Officer*

The minor in petroleum and natural gas engineering is for students interested in the drilling and production of oil and gas. It provides an opportunity for students to understand and appreciate the relationship between petroleum and natural gas demand, production and their environment impact. Students are exposed to the basic courses in petroleum and natural gas extraction, particularly as they relate to drilling, production and characterization. A minimum of 18 credits is required for the minor. A student enrolled in this minor must receive a grade C or better in all courses in the minor. Advising is available through the professor in charge.

*Scheduling Recommendations by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

P N G 405(3), P N G 410(3), P N G 440W(3) (Sem: 5-7)

**ADDITIONAL COURSES** (9 credits)

**Select 9** credits from the following list:

P N G 406(1), P N G 411(1), P N G 420(4), P N G 425(3), P N G 430(3), P N G 450(3), P N G 451(1), P N G 475(3), P N G 480(3), P N G 482(1), P N G 489(3), P N G 496(1) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-02-014

Review Date: 09/28/2010

## Plant Pathology Minor

*University Park, College of Agricultural Sciences (PPATH)*

The Plant Pathology minor is designed for students who wish to learn more about the causes and control of plant diseases. These students may pursue careers in commercial crop production, industrial sales, private consulting, extension, or research. Increasing emphasis on biological control, integrated pest management, and sustainable agricultural practices requires knowledge of plant pathogen biology, host-parasite interactions, and environmental parameters influencing disease development. The Plant Pathology Minor focuses on these areas and gives students the background necessary to develop or utilize environmentally sound disease management strategies. This program is designed to supplement majors in any field of the biological sciences and also can be used to prepare students for graduate studies in Plant Pathology.

The minor in Plant Pathology requires 18 credits in approved courses in addition to the major requirements of the student's choice.

Students must receive a grade of C or better in all courses required for the minor.

*Scheduling Recommendation by Semester Standing given like (Sem:1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

\*3 credits of PPEM 496 (1-18) (Sem: 5-8)

**ADDITIONAL COURSES** (15 credits)

\*\*Select 3 credits from: PPEM 300(GN)(3), PPEM 405(3) (Sem: 5-6)

Select a minimum of 12 credits from: AGECE 121(GN)(3), AGECE/ENT 457(3), PPEM 120 GN(3), PPEM 300 GN(3), PPEM 318(2), PPEM 405(3), PPEM 412(3), PPEM 416(3), PPEM 417(3), PPEM 425(4), PPEM 430(3), \*PPEM 496(1-3), PPEM 497(1-3), and the departmental list of additional courses for the Plant Pathology Minor with the approval of the minor adviser.(Sem: 3-8)

\*Students must select, in consultation with the Plant Pathology Minor adviser, at least 3 credits of PPEM 496 (Independent Study) working with one or more faculty in the department of Plant Pathology and Environmental Microbiology. An additional three Independent Study credits may be applied to the Minor requirements as Additional Courses.

\*\* Students may select one of these two courses for the second list of Additional Courses, but the same course cannot be counted toward both lists.

Last Revised by the Department: Summer Session 2013

Blue Sheet Item #: 42-01-002

Review Date: 08/20/13

AG

## Product Realization Minor

*University Park, College of Engineering (PRODR)*

This 21-credit interdisciplinary minor is designed for any engineering student who is interested in state-of-the-art practice in integrated product/process design and manufacturing. The program culminates with a one-semester project involving the design and manufacture of a new product.

The purpose of the minor is to offer students state-of-the-art practice in integrated product/process design and manufacturing. Students completing the minor should:

- understand the interaction of design and manufacturing through practical examples;
- be familiar with the entrepreneurial skills needed to transfer a new product from initial idea to market;
- understand the technical and management aspects of concurrent engineering and total quality management; and
- have hands-on experience in designing and manufacturing a product, organizing and managing the effort, and interacting with the customer.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**PRESCRIBED COURSES** (9 credits)

M E 240(3) (Sem: 1-4)

ENGR 407(3) (Sem: 5-6)

I E 466(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 9 credits in Product Design, Quality Engineering, and Manufacturing Processes courses approved by the professor in charge of the minor (Dr. Simpson).

Example courses include: E E 310, E E 441, I E 305, I E 306, I E 310, I E 311, I E 312, I E 424, I E 428, I E 464, M E 340, M E 445 (Sem: 5-8)

Select a 3-credit senior project: team-based design or industrial projects course, as approved by the coordinator (Sem: 7-8)

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-01-138

Review Date: 8/29/06

UCA Revision #2: 7/30/07

EN

## Psychology Minor (PSY)

Contact: Abington College, Gary Calore, [gsc1@psu.edu](mailto:gsc1@psu.edu); Altoona College, Brad Pinter, [tbp1@psu.edu](mailto:tbp1@psu.edu); Capital College, Catherine Surra, [cas87@psu.edu](mailto:cas87@psu.edu); Penn State Beaver, Kevin Bennett, [klb48@psu.edu](mailto:klb48@psu.edu); Penn State Fayette, Russ Filburn, [frf1@psu.edu](mailto:frf1@psu.edu); Penn State Greater Allegheny, Elizabeth Mazur, [exm32@psu.edu](mailto:exm32@psu.edu); Penn State New Kensington, K. R. Bridges, [krb3@psu.edu](mailto:krb3@psu.edu); Penn State Schuylkill, Helen Hendy, [hl4@psu.edu](mailto:hl4@psu.edu); College of the Liberal Arts, Richard Carlson, [cvv@psu.edu](mailto:cvv@psu.edu)

The Psychology minor is designed to provide undergraduate students with a broad overview of topics and domains within psychology, knowledge and skills related to research methods in psychology, and deeper knowledge of research, theory, and application in one or two specific content domains. Students completing this minor will find a flexible selection of coursework in psychology. The content domains from which students may select courses include biological, clinical, cognitive, developmental, industrial-organizational, and social psychology. Students may choose courses that emphasize theory or application of psychological principles. A number of these courses examine the application of psychological research to societal issues.

The required research methods course, PSYCH 301W, carries a statistics prerequisite that can be met by either PSYCH 200 or STAT 200. STAT 200 does not count toward the minimum 18 credits required for the minor. Students minoring in Psychology at University Park are encouraged to consult the Psychology Advising Center early in the process of planning their minor.

The Psychology minor may be appropriate for students pursuing graduate training or professional careers in fields such as health, business, education, and human services, as well as in psychology.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (7 credits)

PSYCH 100 GS(3), PSYCH 301W(4) (Sem: 1-4)

**ADDITIONAL COURSES** (11 credits)

Select 11 credits (at least 6 credits at the 400 level) in PSYCH (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

Review Date: 12/20/02

UCA Revision #1: 8/14/06

## Psychological Science Minor

*Penn State Erie, The Behrend College (PSYSC)*

Contact: Charisse Nixon, [cln5@psu.edu](mailto:cln5@psu.edu)

The Psychology minor is designed to provide undergraduate students with a broad overview of topics and domains within psychology, knowledge and skills related to research methods in psychology, and deeper knowledge of research, theory, and application in one or two specific content domains. Students completing this minor will find a flexible selection of coursework in psychology.

A grade of C or better is required for all courses in the minor.

*Scheduling recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

PSYCH 100 GS(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits (at least 6 credits at the 400-level) from PSYCH courses (Sem: 5-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-025

Review Date: 08/20/13

UCA Revision #1: 8/14/06

BD



## Professional Writing Minor

*Berks College (PWRIT)  
University College, Penn State Hazleton*

The minor in Professional Writing is intended to prepare students from all degree programs within the Berks College (with the exception of the major in Professional Writing) to write effectively in a variety of workplace and academic settings. Theory courses provide the necessary background to help students understand and appreciate the larger issues surrounding the writing and reading of texts. At the same time, practice-oriented courses draw upon the strategies and techniques of practicing writers outside and inside of the University, including workshops, peer conferencing, collaborative writing, portfolio preparation, and internships.

Students may not count courses used to satisfy General Education Writing/Speaking Skills.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

ENGL 211W(3) (Sem: 3-6)

**ADDITIONAL COURSES** (15 credits)

Select 15 credits from the following:

CAS 214W(3), COMM 260W(3), COMM 320(3), COMM 370(3), ENGL 110(2-6), ENGL 212(3), ENGL 213(3), ENGL 215(3), ENGL 250(3), ENGL 415(3), ENGL 416(3), ENGL 417(3), ENGL 418(3), ENGL 419(3), ENGL 420(3), ENGL 421(3), ENGL 471(3), ENGL 472(3), ENGL 473(3), ENGL 474(3), ENGL 480(3), ENGL 491(3), ENGL 495(3), ENGL 497(3) (Sem: 3-8)

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-021

Review Date: 01/10/2012

BK

## Rhetoric Minor

*University Park, College of the Liberal Arts (RHET)*

The Rhetoric Minor provides undergraduate students an opportunity to acquire special competence in the history, theory, and criticism of civic discourse and cultural practices. It brings together courses from both the Department of English and the Department of Communication Arts and Sciences, from which students may learn about the nature and function of rhetoric in politics, the professions, the classroom, and the media. The list of course offerings is designed to feature applied as well as theoretical approaches, and allows students to explore the subject in breadth as well as depth. Students completing the minor will command a greater knowledge of an appreciation for the significance of rhetoric as a central component of civic life.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

A minimum of 6 credits at the 400 level; maximum of 6 credits may be double-counted.

**PRESCRIBED COURSES** (6 credits)

CAS 201(3), ENGL 471(3) (Sem: 3-8)

**ADDITIONAL COURSES** (9 credits)

Select 9 credits from the following course list:

CAS 175 GH(3), CAS 311(3), CAS 321(3), CAS 375(3), CAS 411(3), CAS 415(3), CAS 420(3), CAS 426W(3), CAS 475(3), CAS 478(3), ENGL 415(3), ENGL 416(3), ENGL 417(3), ENGL 420(3), ENGL 472(3), ENGL 473(3), ENGL 474(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)

Select 3 credits from the following course list in consultation with adviser.

CAS 499 IL(3) or ENGL 499 IL(3), L A 495(3), CAS 494H(3) or ENGL 310H(3), ENGL 487W(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-05-117

Review Date: 3/6/07

LA

## Rehabilitation and Human Services Minor

*University Park, College of Education (RHS)*

PROFESSOR JAMES HERBERT, *Program Coordinator*  
PROFESSOR JAMES HERBERT, *in charge of major*  
PROFESSOR DEIRDRE O'SULLIVAN, *in charge of minor*

The minor in Rehabilitation and Human Services supplements the educational needs of students across disciplines who wish to gain advanced knowledge and skills related to health, disability, and interpersonal interactions. In today's society, due to medical advances and an aging population, more people are living longer with chronic illnesses and disabilities and many jobs require advanced interpersonal skills and knowledge of health, disability, and human service skills. The minor in RHS is responding to this growing need by providing students with specific applied knowledge about living and working with a disability or chronic illness, as well as adjusting to a variety of social needs and problems, such as poverty, addiction, family violence, and homelessness. The minor is appropriate for any student interested in learning how to effectively work with people, particularly as they adapt and adjust to life with a disability. The minor enhances the education of students majoring in social and behavioral sciences, as well as business majors who work in settings that hire and maintain work environments for persons with chronic illnesses and disabilities. The minor will also enhance graduate study preparation for many students interested in working with people in applied settings. For the minor in Rehabilitation and Human Services, a minimum of 18 credits is required, 15 in RHS, including 6 of which must be at the 400 level.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits  
(15 credits in RHS, including 6 which must be at the 400 level)

**PRESCRIBED COURSES:** (9 credits)  
RHS 100 GS;US;IL(3), RHS 300(3), RHS 403(3) (Sem: 4-8)

**ADDITIONAL COURSES:** (9 credits)  
Select 6 credits from RHS 301(3), RHS 302(3), RHS 303(3), RHS 401(3), RHS 402(3) (Sem: 4-8)  
Select 3 credits from department approved list in consultation with adviser (Sem: 4-8)

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-112

Review Date: 04/10/2012

## Religious Studies Minor

*University Park, College of the Liberal Arts (RL ST)*

The minor in Religious Studies requires 18 hours of course work in RL ST. It (1) acquaints the student with the methods for studying religion (how one studies a religion), (2) provides an elementary introduction to the world's main religious traditions (names, dates, ideas, similarities and differences), and (3) offers the opportunity to investigate a particular topic or religion in greater detail. Students are required to take one survey course (either RL ST 001, RL ST 003, or RL ST 004), which provides a broad historical overview of several religions, from their foundation to the present day.

The interaction between religions and their cultural contexts is emphasized, as is the evolution of an individual religion. After this introduction, the student is free to choose from a broad array of courses on the psychological, sociological, historical, and textual aspects of religions, both living and dead, both familiar and foreign. For example, a student may study Hinduism, Islam, Christianity, Norse religion, Greco-Roman religion, or the sociological aspects of religions. Reading skills and critical thinking skills are important and will be further developed in the courses.

The minor is excellent preparation for a career in the professions (law, medicine), and many students use this classical humanities topic to augment a major in the pure sciences.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**ADDITIONAL COURSES** (3 credits)

Select 3 credits from RL ST 001 GH;US;IL(3), RL ST 003 GH;US;IL(3), or RL ST 004 GH;US;IL(3) (Sem: 1-6)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits (at least 6 credits at the 400-level) in Religious Studies (Sem: 3-8)

Last Revised by the Department: Summer Session 1995

Blue Sheet Item #: 23-06-147

Review Date: 3/11/03

LA

## **Recreation, Park, and Tourism Management Minor**

*University Park, College of Health and Human Development (RPTM)*

*Contact: Angela Rothrock, arb184@psu.edu*

The minor in Recreation, Park, and Tourism Management provides an introduction to recreation/leisure services, and emphasizes professional skills essential for successful delivery of these services. Examples of settings offering recreation/leisure services include resorts, theme parks, convention centers, sports and fitness facilities, private corporations, nonprofit agencies, governmental agencies (municipal, state, and federal levels), armed services, colleges and universities, correctional facilities, camps, public parks, nature centers, hospitals and other health care agencies.

Students who minor in Recreation, Park, and Tourism Management gain knowledge and competencies in recreation leadership, program development and implementation, and administration of recreation services. In addition, students explore the relevance of recreation and leisure in their own lives. Support courses enable the student to focus on specialized services, such as commercial recreation and tourism, community recreation, park management, environmental interpretation, or therapeutic recreation.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 20 credits

**PRESCRIBED COURSES** (14 credits)

RPTM 101(2), RPTM 120 GS(3) (Sem: 1-4)

RPTM 236(3), RPTM 356(3), RPTM 410(3) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits three of which must be from 400-level RPTM courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2004

Blue Sheet Item #: 32-06-123A

Review Date: 02/25/05

HH

**PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: July 10, 2013**

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## **Russian Translation Minor**

*University Park, College of the Liberal Arts (RUS T)*

The Russian Translation minor is designed to offer, within the context of a liberal education, specialized skills in technical translation from the Russian language. The curriculum is career-oriented and requires competence in a technical field or fields in addition to the language skill. The student will select such a field or fields in accordance with his or her special interests and in consultation both with an adviser and with persons directly involved with the field chosen.

The Department of Germanic and Slavic Languages and Literatures offers an array of courses in Russian language, literature, and culture. Study abroad in Russia at St. Petersburg University under the University's study abroad program is available. For the Russian Translation minor, students must take RUS 400, RUS 412, and an additional 12 credits of Russian, 3 at the 400 level and 9 at the 200 level or higher, for a total of 18 credits.

The Russian Translation minor opens employment opportunities for its graduates in fields and professions where proficiency in one or more foreign languages is desirable or required.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

RUS 400 IL(3), RUS 412 IL(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 9 credits of Russian courses at the 200 level or higher (Sem: 5-8)

Select 3 credits of 400-level Russian courses (Sem: 5-8)

Last Revised by the Department: Summer Session 2002

Blue Sheet Item #: 30-01-037

Review Date: 08/28/01

LA

## Russian Minor

*University Park, College of the Liberal Arts (RUS)*

The Russian minor is designed for students who want to study the language, literature, and culture of Russia in order to broaden their horizons and meet an increasing demand for people with foreign language skills and international expertise. Russian is a major world language with a rich cultural and scientific heritage. It is spoken throughout the former Soviet Union and widely understood in the countries of Eastern Europe.

The Department of Germanic and Slavic Languages and Literatures offers an array of courses in Russian language, literature, and culture. Study abroad in Russia at St. Petersburg University under the University's study abroad program is available. For the Russian minor, students must select courses (at least 6 credits at the 400 level) in Russian to account for 18 credits.

The Russian minor opens employment opportunities for its graduates in fields and professions where proficiency in one or more foreign languages is desirable or required. Graduates of this program have found employment with businesses having contact with the former Soviet Union, with various agencies of the U.S. government, in the educational and publishing fields, and in the travel industry.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**SUPPORTING COURSES AND RELATED AREAS** (18 credits)

Select 12 credits of Russian courses (Sem: 3-6)

Select 6 credits of 400-level Russian courses (Sem: 5-8)

Last Revised by the Department: Summer Session 2002

Blue Sheet Item #: 30-01-035

Review Date: 08/28/01

LA

**Russian Area Studies Minor***University Park, College of the Liberal Arts (RUSSA)*

The Russian Area Studies minor is an interdisciplinary program supervised by the Center for Russian and East European Studies and the Department of Slavic and East European Languages designed to combine a regional specialization with an academic disciplinary major. The minor may be combined with any undergraduate major in the University. It requires 15 credits in approved Area Studies courses (6 must be at the 400 level or above), 12 credits in beginning Russian language or the equivalent, and 6 credits of Russian language at the 200 level or above, as well as the baccalaureate degree and departmental major requirements of the student's choice.

The minor helps prepare students for further academic work in the Russian area at the graduate level or to pursue careers as area specialists in commerce, industry, journalism, education, and various governmental and international agencies.

Only courses in which the student earns a grade of C or better may be counted toward fulfillment of the requirements of the minor. The Center for Russian and East European Studies awards a certificate in Russian Area Studies to students successfully completing all the requirements of the program.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21-33 credits

**ADDITIONAL COURSES** (15-27 credits)

RUS 001(4), RUS 002(4), RUS 003(4) or RUS 011(6), RUS 012(6) (Sem: 1-6)

Select 6-9 credits in humanities from HIST 142 GS:IL(3), HIST 434 IL(3), RUS 141W IL(3), or RUS 142Y IL(3) (Sem: 1-8)

Select 6-9 credits in the social sciences from ECON 472 GS(3), PL SC 413(3), or PL SC 452(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits of RUS 200-level courses or above (Sem: 3-8)

Last Revised by the Department: Fall Semester 1993

Blue Sheet Item #: 21-05-022

Review Date: 10/11/04

UCA Revision #2: 7/30/07

LA



**PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS**  
**Begin Date of Enrollment Hold: March 24, 2011**

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## **Science, Technology, and Society Minor**

*Intercollege Program (S T S)*

This interdisciplinary minor, administered jointly by the College of Engineering and the College of the Liberal Arts, is designed for students in every curriculum at the University. The S T S courses help students integrate their other courses within the framework of the relationships of science, technology, and society. This minor enables students to examine critically the impact of scientific investigation and technological development on society's values, priorities, and institutions, and alternatively the influence human needs have upon scientific and technological activities.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**PRESCRIBED COURSE** (3-6 credits)

S T S 496(3-6) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (15-18 credits)

Select 9-12 credits from S T S courses (at least 6 credits must be at the 400 level) (Sem: 1-8)

Select 6 credits in consultation with an adviser. These courses may be courses that are also used to fulfill either major or college requirements. (Sem: 1-8)

Last Revised by the Department: Summer Session 1986

Review Date: 6/20/07

EN/LA

## Supply Chain and Information Sciences and Technology Minor

*University Park: Smeal College of Business and College of Information Sciences and Technology (SCIST)*

The minor in SCIST is structured to provide students not majoring in Supply Chain & Information Systems (SC&IS) or Management Information Systems (M I S) with the opportunity to develop working knowledge of information technology, supply chain management, and their interdisciplinary synergies. The joint minor is designed for professional careers in business, information systems, software development, consulting, and government. The successful minor must, at a minimum, possess basic knowledge of quantitative techniques, computer applications, and microeconomics.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

**PRESCRIBED COURSES** (13 credits)

IST 110 GS(3), IST 210(4), IST 220(3) (Sem 1-7)

SCM 301(3) (Sem: 5-6)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from SCM 404(3), SCM 405(3), SCM 406(3) (Sem: 6-8)

Last Revised by the Department: Spring Semester 2010

Blue Sheet Item #: 38-06-045

Review Date: 04/13/2010

UCA Revision #1: 8/14/06

BA/IS

## Sexuality and Gender Studies Minor

*University Park, College of the Liberal Arts (SGS)*

The minor in Sexuality and Gender Studies addresses human sexuality and gender as they have been conceptualized and investigated by diverse disciplines: humanities (including history and cultural studies), behavioral and social sciences, biological sciences, and visual and performance arts. Courses in the minor require students to explore scholarship and research on sexuality, sexual orientation, and gender across the lifespan, across cultures, and throughout history. Developing students' critical skills in a variety of disciplines, courses in the minor cover theories of sexuality and gender; sexual orientation; lesbian, gay, bisexual, and transgender movements; the history of sexual norms; queer theory; gender identity; and impact of gender identities and erotic orientations on the arts; etc.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

ENGL 245 GH;US(3) and HD FS/WMNST 250 US(3) (Sem: 1-4)

**ADDITIONAL COURSES** (12 credits)

In order to fulfill the interdisciplinary nature of the minor, students must study both in arts and humanities and in sciences. Students are required to complete a total of at least 12 credits from the two categories below: a minimum of 3 credits from humanities and the arts and a minimum of 3 credits from the sciences. Completion of the minor also requires at least 6 credits at the 400 level in either humanities and the arts or in the sciences (Sem: 1-8). With the permission of the person in charge of the minor, "Special Topics" courses may be substituted for courses listed below.

### **A. Sexuality studies in humanities and the arts:**

ENGL 225 GA;GH(3), ENGL 227 GH;US(3), HIST/WMNST 116 GS;US;IL(3), HIST/WMNST 166 GH;IL(3), HIST/WMNST 466 US;IL(3), PHIL 014 GH;US(3), WMNST 301 GH(3), WMNST 400 US;IL(3) (Sem: 1-8)

### **B. Sexuality studies in the sciences:**

AAA S/SOC/WMNST 103 US(3), AAA S/WMNST 364 GS;US(3), AAA S/HIST 415 US;IL(3), AAA S/S T S 416 US;IL(3), ANTH 216 GN;GS(3), ANTH 474(3), ANTH/WMNST 476W(3), BB H 146 GHA(3), BB H 251 US(3), BB H 315(3), BB H 446(3), BIOL 177 GN(3), CRIM/CRIMJ/WMNST 423 US(3), CRIM/CRIMJ/WMNST 453 US(3), GEOG/WMNST 426Y US;IL(3), HD FS 405 US(3), LER/WMNST 136 US(3), PSYCH 231 GS;US(3), PSYCH 422(3), PSYCH 479/WMNST 471 US(3), OR SOC/WMNST 110 GS;US(3) (Sem: 1-8)

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-078

Review Date: 11/19/2013

LA

## Six Sigma Minor

*University Park, College of Engineering (SIGMA)*

Six Sigma has been increasingly internalized by companies involved in manufacturing, health care, and service industries. The Six Sigma process has also been used to address environmental concerns such as water quality and energy conservation. Thus, this minor is designed for students who are interested in the Six Sigma statistical methodology for increasing productivity and enhancing quality. The minor will provide students with an understanding of how business models are changing in response to globalization and how the Six Sigma process and product improvement methodology is thus a vehicle for industry prosperity in this climate. Students completing the minor will develop their analytical and statistical skills, and gain a competitive advantage in the work place.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (18 credits)

I E 305 (3), I E 322 (3), I E 323 (3) (Sem: 5-6)

I E 433 (3), I E 434 (3), I E 436 (3) (Sem: 7-8)

Last Revised by the Department: Summer Session 2009

Blue Sheet Item #: 37-06-042

Review Date: 4/14/09

EN

## Sociology Minor (SOC)

Contact: Abington College, Gary Calore, [gsc1@psu.edu](mailto:gsc1@psu.edu); Altoona College, Karyn McKinney, [kdm12@psu.edu](mailto:kdm12@psu.edu); Capital College, Catherine Surra, [cas87@psu.edu](mailto:cas87@psu.edu); Penn State Fayette, Russ Filburn, [frf1@psu.edu](mailto:frf1@psu.edu); Penn State Schuylkill, Salih Hakan Can, [shc11@psu.edu](mailto:shc11@psu.edu); College of the Liberal Arts, Sal Oropesa, [rso1@psu.edu](mailto:rso1@psu.edu)

The sociology minor allows students to explore the wide range of topics, social groups, and social interactions studied by sociologists. From social inequalities and social problems to the familiar institutions of family, school, religion, and government, the diversity of courses available allows sociology minors to explore courses relevant to their interests. The courses also provide multiple viewpoints, studying the intimate interactions of families and small groups and the complex interactions of global economies and political alliances. Requiring a minimum of 18 credits in sociology, including Introductory Sociology (SOC 001) and two courses at the 400 level, students have flexibility in choosing a set of courses for their sociology minor.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

SOC 001 GS(3) (Sem: 1-6)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits in sociology; at least 6 of those credits must be at the 400 level (Sem: 1-8)

Last Revised by the Department: Fall Semester 2001

Editorial: 3/23/07

## Spanish Minor (SPAN)

Contact: Altoona College, Roselyn Costantino, [rx19@psu.edu](mailto:rx19@psu.edu); Berks College, Rosario Torres, [rzt1@psu.edu](mailto:rzt1@psu.edu); College of the Liberal Arts, Margaret (Peggy) Blue, [mmb21@psu.edu](mailto:mmb21@psu.edu)

A grade of C or better is required for all courses in the minor. Courses that do not require knowledge of Spanish may not be counted toward the minor.

*Scheduling recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

SPAN 100(3)\*, SPAN 200(3)\* (Sem: 2-8)

**ADDITIONAL COURSES** (3 credits)

SPAN 215(3) or SPAN 253W(3) (Sem: 2-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 3 credits from the following: SPAN 210(3), SPAN 220(3), SPAN 300(3), SPAN 305(3), SPAN 353(3), SPAN 354(3), SPAN 355(3), SPAN 356(3) (Sem: 2-8)

Select 6 credits from the following: SPAN 410(3), SPAN 412(3), SPAN 413(3), SPAN 414(3), SPAN 415(3), SPAN 418(3), SPAN 420(3), SPAN 439(3), SPAN 440(3), SPAN 472(3), SPAN 476(3), SPAN 490(3), SPAN 491(3), SPAN 497(3) (Sem: 5-8)

SPAN 199, 299, 399, and 499 (Study Abroad - Spanish) and SPAN 197, 297, 397, 497 (Special Topics Courses) may also be applied to the Spanish minor and will be substituted for the appropriate course by the Spanish minor advisor. All courses taken abroad must be taught in Spanish.

NOTE: SPAN 130, 131, 230, 231 and any course that does not require a knowledge of Spanish. DO NOT count toward the Spanish minor.

\* Heritage speakers (students with Spanish language in family background) and native speakers of Spanish should take SPAN 100A and SPAN 301 instead of SPAN 100 and SPAN 200. May not take SPAN 410.

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-146

Review Date: 04/10/2012

LA

## Special Education Minor

*University Park, College of Education (SPLED)*

PROFESSOR RICHARD M. KUBINA, Jr., *Program Coordinator*  
PROFESSOR RICHARD M. KUBINA, Jr., *in charge of major*  
PROFESSOR DAVID McNAUGTON, *in charge of minor*

This minor provides undergraduate students with the opportunity for concentrated work in instructional practices to support the achievement of students with special education needs in general education classrooms. Students will observe effective teachers at work, and learn strategies for creating a positive classroom environment that will promote student growth and achievement, effective instructional practices for students with special education needs, and techniques for assessing the academic progress of students. The targeted instructional practices have been demonstrated to be effective both with students with and those without special education needs. The targeted instructional practices have been demonstrated to be effective both with and without students with special education needs.

The minor in Special Education responds to the growing need to provide appropriate instructional services to students with special education needs in general education classrooms.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 24 credits

**PRESCRIBED COURSES** (12 credits)

EDPSY 014(3) (Sem: 1-4)  
SPLED 400(4), SPLED 419(2), SPLED 461(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

EDPSY 010 GS(3), HD FS 229 GS(3) or HD FS 239 GS(3) (Sem: 1-4)  
SPLED 403A(3) or SPLED 403B(3) (Sem: 5-8)  
Select 6 credits from CSD 146 US;IL(3), CSD 218(3), CSD 269 GS;US;IL(3), CSD 300 US;IL(3), RHS 100 GS;US;IL(3), RHS 402(3), or RPTM 277 US(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-084

Review Date: 02/19/2013

ED

## Security and Risk Analysis Minor

*Penn State Berks*

*University College: Penn State Beaver, Penn State Mont Alto, Penn State New Kensington, Penn State Worthington Scranton, World Campus  
University Park, College of Information Sciences and Technology (SRA)*

The minor in Security and Risk Analysis (SRA) is intended to familiarize students with the general frameworks and multidisciplinary theories that define security and related risk analysis. Course work will engage students in the challenges and problems of assuring information confidentiality and integrity (e.g., social, economic, technology, and policy issues) as well as the strengths and weaknesses of various methods for assessing and mitigating associated risk in the students' major field.

The minor provides a grounding in analysis and modeling used in information search, visualization and creative problem solving. This knowledge is set in the context of legal, ethical and regulatory issues of security including analysis of privacy and security law, internal control standards, regulatory policies and basic investigative processes and principles. Such understanding overviews the information technology that plays a critical role in identifying, preventing and responding to security-related events in the student's major field.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits [\[1\]](#)  
(At least 6 credits must be at the 400 level.)

**PRESCRIBED COURSES** (15 credits)

IST 110 GS(3), SRA 111 GS(3), SRA 211(3), SRA 221(3) (Sem: 1-6)

IST 452(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits in consultation with the SRA Minor adviser from the following areas: Risk Management, Network Security, or Cyber Forensics. At least 3 credits must be at the 400 level. (Sem: 5-8)

**[1]** A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2007

Blue Sheet Item #: 35-06-457

Review Date: 4/10/07

S



**PROGRAM CURRENTLY ON HOLD  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: December 19, 2013**

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## Science, Society and the Environment of Africa Minor

*University Park: College of Earth and Mineral Sciences (SSEA)*

The continent of Africa has the greatest accumulation of natural resource wealth of any region of the world, yet its people and societies are among the poorest and least integrated with the global economy. This interdisciplinary minor enables students to integrate fundamental aspects of the social, physical, and technical sciences that have contributed to this paradox. It provides a complement to elective and required coursework in both the humanities and the sciences, including degree programs in Political Sciences, Earth Sciences, Environmental Resource Management, Engineering, and/or African and African-American Studies. Students in this program will learn to apply fundamental concepts from diverse disciplines towards an integrated understanding of African resource management. This minor provides excellent preparation for students planning careers in development, law, international relations, international business, resource management, engineering and the physical sciences. Learning objectives for the minor include excellence in written and oral expression, the ability to collect and interpret data from a diversity of dynamic natural systems, and rigor in scientific thought.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**ADDITIONAL COURSES** (18 credits)

Select 6 credits of Introductory Coursework: AAA S 110 GS;IL(3), AFR 105 GN;IL(3), AFR 192 GH;IL(3), EARTH 105 GN;IL(3), E B F 200 GS(3), GEOG 030 GS;IL(3), GEOG 126 GS(3), GEOG 123 GS(3), GEOG 120 GS(3) (Sem: 1-4)

Select 6 credits of Advanced Topical Coursework I: AFR 403(3), AFR 440 USI(3), AFR 443 IL(3), AFR 454 IL(3), PL SC 454 IL(3) (Sem: 5-8)

Select 6 credits of Advanced Topical Coursework II: EM SC 470W(1-6), F SC 401(3), GEOG 438W(3), GEOG 420W(3), GEOG 444(3), GEOG 424(3) (Sem 5-8)

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 33-02-009

Review Date: 10/12/04

EM

## Statistics Minor

*Penn State Erie, The Behrend College (STABD)*

The minor in Statistics (STABD) provides students with a strong statistical background for careers in biology, actuarial science, engineering, mathematics; or for graduate studies in many fields. The minor is designed to make students proficient in the collection, interpretation and analysis of data.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 28-30 credits

**PRESCRIBED COURSES** (20 credits)

MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-2)

STAT 301 GQ(3), STAT 401(3), STAT 461(3), STAT 462(3) (Sem: 3-8)

**ADDITIONAL COURSES** (2-4 credits)

Select 2-4 credits from MATH 230(4) or MATH 231(2) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits of 400-level STAT or related MATH courses (Sem: 5-8)

(No more than three credits from 495 courses can be used to satisfy this requirement.)

Last Revised by the Department: Fall Semester 2008

Blue Sheet Item #: 36-07-004

Review Date: 6/17/08

UCA Revision #2: 7/30/07

BD

## Statistics Minor

*University Park, Eberly College of Science (STAT)*

The Statistics minor introduces students to the quantitative aspects of research. Understanding statistics is useful for research in many areas including agriculture, business, education, social science and sciences as well as many jobs in industry and government.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 21 credits

**PRESCRIBED COURSES** (9 credits)

MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-2)

STAT 480(1) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

Select 6 credits from STAT 318(3) and STAT 319(3) or STAT 414(3) and STAT 415(3) (Sem: 3-8)

Select 6 credits from STAT 416(3), STAT 440(3), STAT 461(3), STAT 462(3), STAT 463(3), STAT 464(3), or STAT 466(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-237B

Review Date: 04/10/2012

SC

## Sustainability Leadership

### *Intercollege Program (SUSLD)*

Administered by a committee of faculty drawn from across the colleges and campuses of the University, and by a coordinator of the minor, the Intercollege Minor in Sustainability Leadership is appropriate for students who wish to build upon the domains of knowledge in their undergraduate curricula in order to advance social, economic, and environmental sustainability in their personal and professional lives. Specifically, the minor serves to encourage, recognize, and systematize the development of cross-disciplinary knowledge, skills, and attitudes that will provide students with a foundation for their growth into sustainability leaders in their respective fields.

Learning outcomes for the minor include: knowledge of environmental, economic, and social metrics of sustainability; the development of action skills, self-awareness, and self-confidence; and the cultivation of ethical values and personal responsibility.

Applicants to the minor must have declared a major field of study and present a proposed plan of study. The proposed plan of study must be approved by the student's major faculty adviser and the coordinator of the minor. Students may apply toward the minor no more than nine credits from their major requirements. A grade of C or higher is required for all courses in the minor.

**REQUIREMENTS FOR THE MINOR:** 18 credits

### **PRESCRIBED COURSES** (3 credits)

SUST 200(3) (Sem: 3-6)

### **SUPPORTING AND RELATED COURSE AREA** (12-18 credits)

Select 6-9 credits from a program list of sustainability-focused courses (or approved substitution) that concentrate on the environmental, economic, and social aspects of sustainability or examine an issue or topics using sustainability as a lens. (Sem 3-8)

Select 0-3 credits from a program list of sustainability-related courses (or approved substitution) that provide distinct modules on sustainability or concentrate on a single sustainability principle. (Sem 3-8)

Select 3 credits from a program list of courses (or approved substitution) that provide an immersive sustainability experience through opportunities to engage, witness and learn in depth about sustainability challenges and solutions in a memorable way. At least one course from the above list must be a leadership-focused course that addresses the specific goal of enriching student understanding of leadership. (For example, depending on the sustainability content in the course during the semester in question, Public Policy 305 - Leadership Studies, Philosophy 119 - Ethical Leadership, Rural Sociology 305W - Leadership for Social Change, or Biology 251 - Peer Leadership in Biology might all be appropriate.)

At least one course from the above list must be at the 400 level. (The leadership-focused course may also serve as the required 400-level course.)

Select 3 credits at the 400 level, selected in consultation with the student's academic advisor and approved by the minor committee; this course must have a reflective capstone project or independent study that includes an applied or research experience in sustainability leadership. (Sem 7-8)

*At least three credits from the Additional Courses or the Supporting Courses must be from outside the student's major department.*

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-06-103

Review Date: 04/12/2011

## Technical Sales Minor

*Penn State Erie, The Behrend College (TCHSL)*

This minor is designed to accommodate undergraduates enrolled in engineering and engineering technology who wish to augment their majors with further studies in industrial or technical sales. This minor is designed for non-business majors. The objective of the minor is to acquaint the technical students of these majors with the issues and methods associated with industrial or technical sales. Relevant studies include principles of management, operations management, supply chain management, marketing, logistics systems, procurement, personal selling or business-to-business marketing, and project management. Students who complete the minor will be positioned for career opportunities as direct sales engineers who play a key role in selection, purchase, installation and maintenance of technical products by selling technology and engineering solutions, or as manufacturing representatives who independently form contracts in exclusive marketing territories for multiple small manufacturers of compatible but not competing technical products.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 19 credits

Students are required to have a technically-oriented major (i.e. engineering, engineering technology, physical sciences, or other major as approved).

**PRESCRIBED COURSES:** (9 credits)

MGMT 301(3) (Sem: 5)

MKTG 301(3), SCM 301(3) (Sem: 6)

**ADDITIONAL COURSES:** (10 credits)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 5)

MKTG 410(3) or marketing elective as approved (Sem: 7-8)

Select 3 credits from the following list: MGMT 409(3), MGMT 410(3), SCM 455(3), SCM 460(3) (Sem: 7-8)

Last Reviewed by the Department: Summer Session 2011

Blue Sheet Item #:40-01-039

Review Date: 8/16/2011

UCA Revision #2: 7/30/07

BD

## Teaching English to Speakers of Other Languages Minor

*University Park, College of the Liberal Arts (TESOL)*

The minor in Teaching English to Speakers of Other Languages (TESOL) provides students, regardless of academic major, with basic professional knowledge and skills in the teaching of English as a second language (ESL) in adult programs in the United States and English-as-a-foreign-language (EFL) in settings abroad. It is also excellent preparation for graduate work in TESOL and Applied Linguistics.

The program of study includes an introduction to the study of language use, culture, and social interaction from a variety of perspectives, to the role of English in globalization processes and to how globalization changes the structure, norms, and usage of English. It also provides students with an overview of current theories and practices in the teaching of English language and culture, and practical experiences in and basic tools for planning, delivering, and evaluating instruction.

Individuals who obtain a minor in TESOL may participate in one of the teaching exchanges sponsored by the Department of Applied Linguistics upon graduation. They may also find teaching positions in private language institutes or as private language tutors in the United States and abroad and well as through organizations such as the Peace Corps and the Fulbright Exchange.

This minor does not duplicate other undergraduate degree programs within the department, college or university. It may be pursued concurrently with any undergraduate major.

The minor consists of 18 credit hours. All students are required to take four three-credit courses, for a total of 12 credits in the study of language use, culture and interaction, English as a global language, functional grammar and teaching methods.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** ( 12 credits)

APLNG 200 GH;IL(3), APLNG 210(3), APLNG 484(3), APLNG 493 IL(3) (Sem: 2-8)

**ADDITIONAL COURSES** (6 credits)

Select 6 credits from the following:

APLNG 083S GS;US;IL(3), APLNG 410(3), APLNG 412(3), APLNG 482Y IL(3), APLNG 491 (3) (Sem 1-8)

Last Revised by the Department: Summer Session 2009

Blue Sheet Item #: 37-03-029

Review Date: 11/18/08

LA

## Theatre Minor

*University College, Penn State Schuylkill, Penn State York  
University Park, College of Arts and Architecture (THEA)*

The Theatre minor is designed to be an enhancement to a major area of study and/or personal enrichment. The minor should be particularly attractive to students in the humanities (English), communication (Film, Journalism), and the arts (Music, Architecture). The minor may also be attractive to students who need to demonstrate a wide range of interests.

The Theatre minor requirements total 18 credits. Theatre 100 GA;US;IL, a required course in the minor, is an experiential survey of all aspects of the living theatre, as presented by a resident company of theatre artists. Theatre 410, an advanced script analysis course, is also required. Students choose one course from the approved list of theatre history courses and one course from the approved list of design/technical courses. These supporting courses place the literature and aesthetic in historical, social, and political perspective. Students elect 6 theatre credits as additional courses. Typical supporting courses include: Theatre 102 GA, fundamentals of acting; THEA 208 GA;US;IL, Workshop: Theatre in Diverse Cultures; and advanced design or theatre history classes.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

THEA 410(3) (Sem: 5-8)

**ADDITIONAL COURSES** (9 credits)

THEA 100 GA;US;IL(3) or THEA 105 GA(3) (Sem: 1-2)

Select 3 credits from THEA 130(3), THEA 131(3), or THEA 150(3) (Sem: 1-4)

Select 3 credits from THEA 401Y IL(3), THEA 405 US(3), THEA 408 US(3), THEA 412 US(3), THEA 454(3), THEA 464(3), or THEA 465(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits of THEA courses (Sem: 3-8)

Last Revised by the Department: Fall Semester 2005

Blue Sheet Item #: 33-04-018

Review Date: 5/2/07

AA

## Teaching and Learning Online Minor

*University Park, College of Education (TLO)*

This minor is designed for students who are interested in a thorough understanding of online teaching and learning—that is teaching and learning experiences with primary delivery of content through the Internet with use of a variety of advanced technological tools to include but not limited to course management systems, social networking, podcasts, discussion forums, blogs, tablets, mlearning, and other advanced instructional tools. This minor is intended for all education majors and is particularly focused on those interested in opportunities in the future to teach online courses, blended courses, or within an entirely online cybercharter or similar institution. The minor includes two introductory survey courses, one on the impact of online learning globally and one on educational communications. The four remaining courses are focused on distance education broadly construed, design skills, working with course management systems, and special attention to K-12 cybercharter and online delivery. In conjunction with the student's major in Education, the minor prepares the student for entry to a professional position as a teacher in online and blended educational settings at all levels. Majors complemented by this minor would include but not be limited to Agricultural Education, Art Education, Childhood and Early Adolescent Education, Education and Public Policy, Kinesiology (Teacher Education Option), Music Education, Rehabilitation and Human Services, Secondary Education, Special Education, Workforce Education, and World Languages Education.

A grade of C or better is required for all courses in the minor.

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (15 credits)

ADTED 470(3), INSYS 100 GS/IL(3), INSYS 101(3), INSYS 415B(3), INSYS 432(3), INSYS 433(3) (Sem: 3-6)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-06-039

Review Date: 04/09/2013



## Technical Writing Minor (TEHWR)

Contact: College of the Liberal Arts, Tracey Melnick, [tam2@psu.edu](mailto:tam2@psu.edu)

The Department of English offers an 18-credit minor leading to a Technical Writing certificate to all students, regardless of major or college, who want to do concentrated work in technical writing.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

ENGL 418(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12-15 credits)

(Some courses in this category may have prerequisites that are not required in the minor.)

Select 3-6 credits from CAS 452(3), ENGL 470(3), ENGL 471(3), ENGL 472(3), ENGL 473(3), ENGL 474(3), S T S 407(3) (Sem: 3-8)

Select 6-9 credits from ENGL 415(3), ENGL 416(3), ENGL 417(3), ENGL 421(3), ENGL 495(3) (Sem: 3-8)

Select 3-6 credits from GD 201(3), INSYS 412(3), INSYS 413(3), INSYS 441(3), PSYCH 444(3), PSYCH 456(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (0-3 credits)

(Some courses in this category may have prerequisites that are not required in the minor.)

Last Revised by the Department: Fall Semester 1996

Blue Sheet Item #: 25-01-033

Review Date: 4/9/02

UCA Revision #1: 9/1/06

LA

## Wildlife and Fisheries Science Minor

*University Park, College of Agricultural Sciences (W F S)*

The Wildlife and Fisheries Science minor provides non-majors with an introduction to the principles and practices of wildlife and fisheries conservation, research, and management. Although the minor includes both wildlife and fisheries course offerings, courses may be selected to provide a focus in one area or the other.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

W F S 209(3), W F S 430(3) (Sem: 5-6)

**ADDITIONAL COURSES** (12 credits)

Select 12 credits from W F S 300(2), W F S 407(3), W F S 408(3), W F S 410(3), W F S 422(3), W F S/E R M 435(3), W F S 440(3), W F S 447W(3), W F S 450(3), W F S 452(2), W F S 460(3), W F S 462(3), W F S 463W(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2009

Blue Sheet Item #: 37-06-003

Review Date: 4/14/09

AG

## World Literature Minor

*University Park, College of the Liberal Arts (W LIT)*

The minor in World Literature enables students to create a package of literature courses tailored to their interests. It offers an international approach to the study of literatures and cultures around the globe. A Senior Seminar is the culminating course. Education abroad can be included in this minor.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

CMLIT 400Y IL(3) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)

CMLIT 010 GH;IL(3) or CMLIT 100 GH;IL(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits in Comparative Literature (at least 3 of these credits at the 400 level), unified by topic, theme, period, or a similar principle, subject to approval of a faculty adviser (Sem:1-8)

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-04-043

Review Date: 01/12/2010

LA

**Watersheds & Water Resources Minor***University Park, College of Earth and Mineral Sciences (W W R)*

Watersheds are important landscape features that control the biogeochemistry of natural waters. This interdisciplinary minor enables students to learn the fundamental processes governing the transport and chemical evolution of surface and subsurface waters. It provides a complement to elective and required coursework in earth sciences, resource management, wastewater treatment, and/or environmental planning. Students in this program will learn to apply fundamental concepts of chemistry, biology, geoscience, and landscape evolution to processes operating at the watershed scale. Learning objectives for the minor include excellence in written and oral expression, the ability to collect and interpret data from dynamic natural systems, and rigor in scientific thought.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**ADDITIONAL COURSES** (18 credits)

Select 18 credits from the WWR committee's approved list of courses, which includes but is not limited to courses listed below (at least 6 credits must be taken at the 400 level):

B E 307(3), B E 467(4), A S M 217(3), A S M 327(3), C E 370(3), C E 371(3), C E 461(3), C E 473(3), C E 475(4), CHEM 202(3), CHEM 402(3), E R M 411(3), E R M 435(3), E R M 450(3), ENVE 411(3), ENVE 415(3), ENVSE 408(3), FOR 470(3), FOR 471(1), GEOG 431(3), GEOSC 201(4), GEOSC 340(3), GEOSC 412(3), GEOSC 413W(3), GEOSC 419(3), GEOSC 445(4), GEOSC 452(3), METEO 417(3), METEO 448(3), SOILS 405(3), SOILS 418(3), W F S 410(3), W F S 422(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-04-027

Review Date: 1/15/08

UCA Revision #1: 8/14/06

EM

## Women's Studies Minor (WMNST)

Contacts: Abington College, Tom Smith, [trs8@psu.edu](mailto:trs8@psu.edu); Altoona College, Le Ann De Reus, [lad12@psu.edu](mailto:lad12@psu.edu); Berks College, Laurie Grobman, [leg8@psu.edu](mailto:leg8@psu.edu); Penn State Brandywine, Phyllis Cole, [pbc2@psu.edu](mailto:pbc2@psu.edu); Penn State DuBois, Jacquelyn Atkins, [jka1@psu.edu](mailto:jka1@psu.edu); Penn State Mont Alto, Alice Royer, [axr24@psu.edu](mailto:axr24@psu.edu); College of the Liberal Arts, Mindy Boffemmyer, [mub21@psu.edu](mailto:mub21@psu.edu)

This interdisciplinary minor is designed to develop a broad understanding of the study of women and women's perspectives in all areas of academic scholarship. The primary focus is on feminist analyses of women's lives, women's social, cultural, and scientific contributions, and the structure of sex/gender systems. The interdisciplinary and inclusive nature of the field is reflected in a curriculum that includes courses cross-listed with a wide variety of departments, courses that deal with aspects of women's lives throughout history, and courses that recognize the diversities of culture, race, religion, ethnicity, age, disability, and sexual orientation. The Women's Studies minor emphasizes the development of critical and analytical skills, creative approaches to problem solving, and the ability to articulate productive alternatives.

Women's Studies minors have a definite career advantage, and can be successful in a wide variety of career paths. Some of these include legal advocacy, counseling, journalism, public relations, management, nonprofit administration, teaching, medicine, politics, or art. In addition, many alumnae/i are currently studying in professional, law, or graduate schools.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (3 credits)

WMNST 301 GH(3) (Sem: 1-4)

**ADDITIONAL COURSES** (3 credits)

WMNST 100 GS;US;IL(3) or WMNST 106 GS;US;IL (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits in Women's Studies or from the program-approved list; at least 6 credits must be at the 400-level  
--3 credits from each of the following categories: (Sem: 1-8)

- a. arts or humanities
- b. natural or social sciences
- c. focusing on non-Western women or on women of color in the United States

Last Revised by the Department: Spring Semester 2002

Blue Sheet Item #: 30-02-008A

Review Date: 6/29/05

## Women's Studies Minor

*Capital College (WOMST)*

Contact: Katie Robinson, [kdr12@psu.edu](mailto:kdr12@psu.edu)

This interdisciplinary minor provides students with an opportunity to develop a broad understanding of women's perspectives and gender issues and to integrate that understanding into major areas of academic study. A total of 18 credits must be taken as part of the student's program; at least 9 of these credits must be taken at Penn State Harrisburg and 6 must be at the 400 level. Students must receive a grade of C or better in all courses in the minor.

A student seeking admission to the Women's Studies minor must first be admitted to a Division/School major at Penn State Harrisburg. A Program of Study must be completed in consultation with the student's major adviser and submitted to the Women's Studies Coordinating Committee, which will select a Women's Studies adviser for the student. Decisions regarding the appropriateness of courses for the minor will be made by the Women's Studies program. (The major adviser may also serve as adviser to the minor.)

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (6 credits)

WOMST 315(3) [\[76\]](#) (Sem: 1-4)

WOMST 415(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 9 credits of Behavioral Sciences and Education, Humanities or Public Affairs. (Sem: 1-8)

Select 3 credits from approved department list of 400-level courses. (Sem: 5-8)

**[76]** Students who have passed WMNST 100 or equivalent with a grade of C or better may, with the permission of the Women's Studies program, take another Women's Studies course on a more specialized topic instead of WOMST 315.

Last Revised by the Department: Spring Semester 1995

Blue Sheet Item #: 23-06-258

Review Date: 04/14/95

CL

**PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: December 6, 2013**

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## **Wood Products Marketing Minor**

*University Park, College of Agricultural Sciences (WPMKT)*

The Wood Products Marketing minor offers students in other majors, especially those oriented toward business, science, or engineering, an opportunity to develop a basic competency in wood products marketing and processing. Students will obtain knowledge and skills particularly helpful for those who wish to seek employment in sales, as a specifier of wood-based materials for construction and design, or in other related fields in the wood products industries.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (15 credits)

BRS 411(4), BRS 437W(4), W P 417(4), W P 435(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)

Select 3 credits of W P courses (Sem: 3-8)

Last Revised by the Department: Fall Semester 2001

Review Date: 4/24/03

AG

## Writing Minor

*Capital College (WRTNG): Penn State Harrisburg*

Writing is valued as a mode of learning, as a means of expression, and as a skill highly desirable in the workplace. Personal development, interpersonal communication, and professional marketability may all be enhanced by the further study and practice of writing. For these reasons, the Writing minor offers students from virtually every discipline across the University an opportunity to learn more about a wide variety of writing: informative/persuasive, professional, and creative, while improving their own writing skills through hands-on writing experiences. In addition to offering students opportunities to study and practice different types of writing, the minor affords students the opportunity to write for/in different media, producing both print and electronic texts.

For the Writing minor, a total of 18 credits is required. Students may not count courses used to satisfy General Education Writing/Speaking Skills.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES:** 6 credits

ENGL 211(3) (Sem: 3-8)

ENGL 420(3) (Sem: 5-8)

**ADDITIONAL COURSES:** 6-12 credits

*At least 3 credits of Additional/Supporting courses must be taken at the 400 level.*

Select 6-12 credits from ENGL 050 GA(3), ENGL 209(1-6), ENGL 212(3), ENGL 213(3), ENGL 215(3), ENGL 412(3), ENGL 413(3), ENGL 414(3), ENGL 415(3), ENGL 416(3), ENGL 417(3), ENGL 418(3), ENGL 419(3), ENGL 421(3), ENGL 422(3), ENGL 423(3), ENGL 424(3), ENGL 425(3), ENGL 470(3), ENGL 471(3), ENGL 474(3) (Sem: 3-8)

**SUPPORTING COURSES:** 0-6 credits

Select 0-6 credits from a department-approved list (Sem: 5-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-028

Review Date: 08/20/13

Program coordinator updated by Publications: 9/29/06

CL



## Youth and Family Education Minor

*University Park, College of Agricultural Sciences (YFE)*

The Youth and Family Education minor is an interdisciplinary program of study designed to prepare students for work in the Penn State Cooperative Extension or other nonformal education programs.

The minor offers course work from several disciplines and addresses student needs in areas such as nonformal education methods, adult education, leadership, youth programs, and communication methods and media. A period of internship or field experience is required. To complete a bachelor's degree with a minor in Youth and Family Education, a student is required to complete 18 credits from a list of recommended courses. The core program consists of 15 credits. Students are expected to strengthen their expertise by taking at least 3 additional credits from the courses recommended.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing given like (Sem: 1-2)*

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (15 credits)

AEE 450(3), AYFCE 455(3), AYFCE 495(6), R SOC 305W(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)

ADTED 460(3), AEE 440(3), AYFCE 295(1-2), AYFCE 496(1-3), or AYFCE 497(1-9) (Course selection may be influenced by experience and educational background of the student. Individual programs are set jointly by the student and the program committee chair.) (Sem: 1-8)

Last Revised by the Department: Summer Session 1999

Blue Sheet Item #: 27-05-001A

Review Date: 1/30/00

AG

## Certificate Programs

An undergraduate certificate, a formal award showing the satisfactory completion of a postsecondary educational curriculum, is designed primarily for students who are typically beyond the compulsory age for high school.

Certificates are awarded in academic, vocational, and continuing professional education. Penn State does not offer certificates for avocational and adult basic education. Certificates are not certifications. Certifications are awarded by governmental and professional agencies.

Certificates reflect emerging academic areas, necessary professional development requirements, or requirements that do not constitute a degree program. They may be supplements or enhancements to existing degree programs or may be stand-alone. For credit, certificates often provide "step-up" opportunities to degree programs allowing for milestones of progress.

Credit or noncredit certificates are offered. A credit certificate typically consists of between a minimum of 6 and a maximum of 30 credits. Credit courses offered for a certificate require a grade of C or higher. Noncredit courses require satisfactory completion, as defined by the unit offering the certificate.

Requirements for a certificate may be completed at any campus location offering the specified courses for the certificate. All students who enroll in certificates must be defined as Penn State students.

For more information, see policy M-12 at: <http://www.psu.edu/oue/aappm>

6/29/12

## **PRE-MEDICAL/HEALTHCARE CERTIFICATE**

### **Undergraduate Certificate Program**

Nora Shultz  
115 Sutherland Bldg  
Penn State Abington  
Phone: 215-881-7877  
E-mail: nus19@psu.edu

Abington College

### **PRE-MEDICAL/HEALTHCARE CERTIFICATE (ABMED)**

Designed for those who have a Baccalaureate degree in a non-science major and decide, post graduation, to apply to medical school. Applicants must have successfully completed two semesters of college calculus before entering. This program concentrates on science course work in biology, chemistry, and physics and can be completed in one year. Each course is offered over 8-weeks with lectures being offered in a hybrid format, meeting face-to-face one night per week with labs being conducted on weekends. This program distinguishes itself from others through the use of 8-week sessions, lectures offered in a hybrid format with in class meetings in the evenings, and labs on Saturdays. Also offered are MCAT preparation and mock interviews.

To earn an undergraduate certificate in PRE-MEDICAL/HEALTHCARE , a minimum of 39 credits is required.

### **PRESCRIBED COURSES**

CHEM 110  
BIOL 110  
CHEM 111  
CHEM 112  
BIOL 141  
BIOL 142  
CHEM 113  
CHEM 210  
PHYS 250  
BIOL 472  
CHEM 212  
PHYS 251  
CHEM 213  
BIOL 230W

Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 11/07/2011

AB \*A

## **ACTUARIAL MATHEMATICS AND STATISTICS**

### **Undergraduate Certificate Program**

Michael Rutter  
001 Prishcak Bldg  
Penn State Erie  
Phone: 814-898-6272  
E-mail: mar36@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **ACTUARIAL MATHEMATICS AND STATISTICS (ACSCBC)**

DESIGNED TO PREPARE STUDENTS FOR A CAREER AS AN ACTUARY. STUDENTS COMPLETING THE CERTIFICATE ARE PREPARED TO PASS THE P/1 (PROBABILITY), FM/2 (FINANCIAL MATHEMATICS) EXAMINATIONS AND WOULD OBTAIN VEE CREDIT FOR ECONOMIC, CORPORATE FINANCE AND APPLIED STATISTICAL METHODS TOPICS ONCE A SECOND ACTUARIAL EXAMINATION IS PASSED. IT IS DIVIDED WITH MATHEMATICAL AND STATISTICAL PREREQUISITES, UPPER-LEVEL STATISTICS, AND FINANCE/ECONOMICS COURSES. REQUIRES 31 CREDIT HOURS AND CAN BE COMPLETED CONCURRENTLY WITH A PENN STATE DEGREE OR VIA CONTINUING EDUCATION

To earn an undergraduate certificate in ACTUARIAL MATHEMATICS AND STATISTICS, a minimum of 31 credits is required.

### **PRESCRIBED COURSES**

MATH 230  
STAT 301  
STAT 401 OR SCM 200 OR STAT 200  
STAT 414  
STAT 462  
ECON 481 OR ECON 485  
ECON 102  
ECON 104  
FIN 301  
FIN 427

Prerequisites Required.

Effective Date: Spring Semester 2010

Expiration Date:

Last Revised by the Department: 11/07/2011

BC SCIAB

## **ADVANCED SUPERVISORY MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **ADVANCED SUPERVISORY MANAGEMENT (AD SUP)**

This credit certificate is designed for adult students who have completed the Supervisory Management Certificate and want to step up to a bachelors degree.

To earn an undergraduate certificate in ADVANCED SUPERVISORY MANAGEMENT, a minimum of 13 credits is required.

### **PRESCRIBED COURSES**

MGMT 331  
SCM 200  
ENGL 202D  
MGMT 341

mgmt 301 and 60 credits

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## **PROGRAM IN ADULT DEVELOPMENT AND AGING SERVICES**

### **Undergraduate Certificate Program**

Mary Jo Spicer  
211 Henderson South Bldg  
University Park  
Phone: 814-863-8001  
E-mail: mjs6@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park, World Campus

### **PROGRAM IN ADULT DEVELOPMENT AND AGING SERVICES (ADAS)**

This certificate program is designed as a flexible opportunity for gaining knowledge and professional development for people interested in working with older adults in a variety of community settings. The program has been designed in concert with the Penn State Gerontology Center. The courses are divided into a Professional Core (12 credits) and Professional Electives (3 credits).

To earn an undergraduate certificate in PROGRAM IN ADULT DEVELOPMENT AND AGING SERVICES, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

BIOL 155  
HD FS249  
H P A101  
SOC 035  
HD FS129 OR HD FS216 OR HD FS301 OR HD FS311  
OR HD FS315 OR HD FS315Y OR NUTR 251  
OR PSYCH100  
OR SOC 001

Prerequisites Required.

Effective Date: Spring Semester 2006

Expiration Date:

Last Revised by the Department: 11/14/2011

HH HD FS

## **ADVANCED FOUNDATIONS IN BUSINESS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Schuylkill, Penn State Wilkes-Barre, Penn State York

### **ADVANCED FOUNDATIONS IN BUSINESS (ADFNBU)**

This certificate steps up from Foundations in Business.

To earn an undergraduate certificate in ADVANCED FOUNDATIONS IN BUSINESS, a minimum of 16 credits is required.

### **PRESCRIBED COURSES**

PSYCH100  
ACCTG211  
B A 250 OR CAS 252  
MKTG 220  
MATH 021

SUCCESSFUL COMPLETION MATH PLACEMENT EXAM OR MATH 004

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 02/22/2012

CC CCBUS

## **ADVERTISING**

### **Undergraduate Certificate Program**

Rodney Troester  
170 Irvin Kochel Center  
Penn State Erie  
Phone: 814-898-6442  
E-mail: rlt5@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **ADVERTISING (ADVERT)**

The Certificate in Advertising offered at Penn State Behrend is designed for communication and business majors who wish to focus their supporting or non-business supporting coursework in a specific professional communication area. The certificate is also designed for working professionals interested in developing their skill-set in advertising. The foundation of the certificate is developed in the Media Writing, Introduction to Advertising, and Creative Strategies courses. Students are then allowed to choose one additional advanced course to complete the 12 required hours.

To earn an undergraduate certificate in ADVERTISING, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

COMM 315  
COMM 320  
COMM 421W  
COMM 422 OR COMM 424

No Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 11/10/2011

BC H&SS



## Africana Studies

Penn State Greater Allegheny

Mildred R. Mickle  
Penn State Greater Allegheny  
412-675-9135  
mrm33@psu.edu

The 15-credit Africana Studies certificate is intended to provide an interdisciplinary approach to both African and African American studies and to instill students with the type of professional and intellectual flexibility that is of high value in a twenty-first century job market. The certificate could enhance majors such as English, psychology, business, engineering, or communications through adding intercultural and/or global expertise. Students are required to take 9 credits of 200-level (or below) courses and 6 credits of 400-level courses from the approved lists.

### Admission Requirements:

Students should complete first the GWS requirement of one of the following (ENGL 15 or ENGL 30), and either HIST 20 or HIST 21.

### List of Courses Included in the Certificate:

9 credits from the following list:

AF AM 101  
AF AM 103/SOC 103/WMNST 103  
AF AM/HIST 210  
AF AM/HIST 211  
AF AM/HIST 250  
AF AM/RL ST 146  
AF AM/RL ST 147  
AF AM/THEA 208  
AF AM/WMNST 102  
AF AM100  
AFR 110  
AFR 150  
AFR 202  
AFR/HIST 191  
AFR/HIST 192  
CMLIT 003  
ENGL 139  
ENGL/AF AM 235  
INART 062  
SOC 119.

6 credits from the following list:

AF AM 401  
AF AM 410  
AF AM/SOC 409  
AF AM/THEA 412  
AF AM432  
CMLIT 423  
CRIMJ 451  
ENGL 431  
ENGL 461  
ENGL 463  
ENGL 466  
ENGL 467  
ENGL 468  
ENGL 469  
ENGL/WMNST 462  
PSYCH 432  
SOC 409  
SOC 419

**Effective Semester:** Fall 2013

## **ADVANCED INSTRUCTOR DEVELOPMENT FOR PROFESSIONALS**

### **Undergraduate Certificate Program**

Mark Threeton  
301C Keller Building  
University Park, PA 16802  
Phone: 814-863-5361  
Email: mdt177@psu.edu

University Park, World Campus

### **ADVANCED INSTRUCTOR DEVELOPMENT FOR PROFESSIONALS**

This certificate is designed for the adult learner who would like to gain knowledge of essential advanced instructor development concepts. These adult learners may already possess a degree in an occupational discipline, but need to augment their knowledge and resumes to advance their careers with their current employer or transition into a new job. Adult learners taking this certificate may also be taking post-secondary credit courses for the first time.

To earn an undergraduate certificate in ADVANCED INSTRUCTOR DEVELOPMENT FOR PROFESSIONALS, a minimum of 9 credits is required.

#### **Admission Requirements:**

High school diploma and two years of work experience.

#### **REQUIRED COURSES**

WF ED 270  
WF ED 413  
WF ED 471

**Effective Semester:** Fall 2013

## **ADVANCED CRIMINAL JUSTICE**

### **Undergraduate Certificate Program**

Mary Ann Probst  
103 Cypress Bldg  
Penn State Altoona  
Phone: 814-949-5352  
Email: map141@psu.edu

Altoona College, University Park

### **ADVANCED CRIMINAL JUSTICE (ALACJ)**

A continuation of the Criminal Justice (ALBCJ) certificate. Certificate includes six required credits (MIS 103 & SOC 119) and six additional credits (select CRIMJ 210 and CRIMJ 220 or CRIMJ 230). For the additional credits, student must select the two courses not used for the ALBCJ certificate.

To earn an undergraduate certificate in ADVANCED CRIMINAL JUSTICE, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

MIS 103  
SOC 119  
OR CRIMJ210 OR CRIMJ220 OR CRIMJ230

No Prerequisites Required.

Effective Date: Spring Semester 1996

Expiration Date:

Last Revised by the Department: 11/07/2011

AL ALEHS

## **ADVANCED BUSINESS**

### **Undergraduate Certificate Program**

Deborah Hommer  
106 Hawthorn Bldg  
Penn State Altoona  
Phone: 814-949-5265  
Email: dxh41@psu.edu

Altoona College, University Park

### **ADVANCED BUSINESS (ALADBU)**

Penn State's advanced business certificate can help develop a student's skills in spoken communication and quantification. In a very flexible way, students explore functional fields of business. Students who complete the advanced business certificate will have completed almost half of the credits required for Penn State Altoona's associate degree in Business. (2BAAL) Only students who have completed all courses required for the basic business certificate are eligible to earn an Advanced Business Certificate. No course may count toward both the basic certificate and the advanced certificate in business.

To earn an undergraduate certificate in ADVANCED BUSINESS, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

CAS 100  
MATH 021  
ECON 102 OR ECON 104  
OR ACCTG211 OR B A 243 OR B A 250  
OR CMPSC203 OR IST 220 OR IST 250  
OR LER 100 OR LER 136  
OR MIS 204 OR MIS 103  
OR STAT 200 OR SCM 200  
OR SRA 111 OR SRA 211

BA 241 with BA 242 are equivalent to BA 243. Choose 6 credits from the courses listed in the "AND OR" list. Only students who have completed the basic business certificate (ALBUS) are eligible to earn the advanced business certificate (ALADBU). No course may count toward both the basic certificate and the advanced certificate in business.

Prerequisites Required.

Effective Date: Summer 2009

Expiration Date:

Last Revised by the Department: 04/04/2012

AL ALB&E

## **ADVANCED ENTREPRENEURSHIP**

### **Undergraduate Certificate Program**

Donna Bon  
107 Hawthorn Bldg  
Penn State Altoona  
Phone: 814-949-5294  
E-mail: [djb36@psu.edu](mailto:djb36@psu.edu)

Altoona College

### **ADVANCED ENTREPRENEURSHIP (ALAENT)**

The advanced certificate in entrepreneurship develops students' skills in oral communication and quantification, particularly financial quantification. Knowing how to use financial information provided by financial statements and understanding the economic environment in which a business operates is a key to success for small business owners.

To earn an undergraduate certificate in ADVANCED ENTREPRENEURSHIP, a minimum of 13 credits is required.

### **PRESCRIBED COURSES**

MATH 021  
ACCTG211  
CAS 100A  
B A 297

No Prerequisites Required.

Effective Date: Fall Semester 2007

Expiration Date:

Last Revised by the Department: 04/04/2012

AL ALB&E

## **BASIC CRIMINAL JUSTICE**

### **Undergraduate Certificate Program**

Mary Ann Probst  
103 Cypress Bldg  
Penn State Altoona  
Phone: 814-949-5352  
Email: map141@psu.edu

Altoona College, University Park

### **BASIC CRIMINAL JUSTICE (ALBCJ)**

The Criminal Justice certificate will help students prepare for immediate career opportunities. This 18 credit certificate focuses on the understanding of both our justice system and national government. After concentrating on the dilemmas and controversies presented by the problems of administering justice in a complex society, graduates of this certificate program will have the background to be educated, thoughtful, and intelligent citizens.

To earn an undergraduate certificate in BASIC CRIMINAL JUSTICE, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

CAS 100A  
CRIMJ100  
ENGL 015  
SOC 012  
CRIMJ210  
CRIMJ220  
CRIMJ230  
PL SC001 OR PSYCH100 OR SOC 001

No Prerequisites Required.

Effective Date: Spring Semester 1996

Expiration Date:

Last Revised by the Department: 11/07/2011

AL ALEHS

## **BASIC BUSINESS**

### **Undergraduate Certificate Program**

Deborah Hommer  
106 Hawthorn Bldg  
Penn State Altoona  
Phone: 814-949-5265  
Email: dxh41@psu.edu

Altoona College, University Park

### **BASIC BUSINESS (ALBUS)**

Penn State's Basic Business Certificate Program provides you with a solid foundation in essential business concepts and offers a convenient way to "step up" to a degree. The basic certificate program gives you an understanding of management and marketing, and helps you improve your written English. The certificate allows you to customize your learning through a series of business-related electives to meet your specific needs and interests. (Required courses: ENGL 015, MGMT 100 and MKTG 220) Electives nine additional credits select from the following groupings: BA 241 and BA 242 (BA 241 and 242 must be taken together as an elective) or BA 243, LER 100, MIS 103 or MIS 204, IST 110 or SRA 111.

To earn an undergraduate certificate in BASIC BUSINESS, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
MGMT 100  
MKTG 220  
OR MIS 204 OR MIS 103  
OR B A 243 OR B A 241 OR B A 242  
OR IST 110 OR SRA 111  
OR LER 100

B A 241 with B A 242 are equivalent to B A 243. Choose 9 credits from the courses listed after "AND OR"

No Prerequisites Required.

Effective Date: Summer 2009

Expiration Date:

Last Revised by the Department: 11/07/2011

AL ALB&E

## **CHEMICAL DEPENDENCY PREVENTION AND COUNSELING**

### **Undergraduate Certificate Program**

Anna Rose Eckenrode  
200 Devorris Downtown Center  
Penn State Altoona  
Phone: 814-949-5039  
E-mail: are125@psu.edu

Altoona College, Penn State DuBois, Penn State Greater Allegheny

### **CHEMICAL DEPENDENCY PREVENTION AND COUNSELING (ALCDPC)**

The Certificate in Chemical Dependency Prevention and Counseling consists of 18 credits and is offered through Penn State Altoona Education, Human Development and Social Sciences and Penn State Altoona Continuing Education. The certificate introduces students to basic concepts related to chemical dependency, its prevention and treatment, and helping those with problems associated with chemical dependency. This certificate will provide students with the academic background to understand content, models, theories and research relevant to working with chemically dependent persons and their families. Upon completion of a total of 18 credits in the program, students are awarded an academic certificate of achievement from Penn State Altoona.

To earn an undergraduate certificate in CHEMICAL DEPENDENCY PREVENTION AND COUNSELING, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

CN ED401  
BB H 143  
HLHED443 OR CN ED421  
RHS 301  
CN ED404  
HD FS414 OR CN ED416 OR CN ED420 OR CN ED423

Spring &09 - CN ED 403 was replaced by RHS 301

No Prerequisites Required.

Effective Date: Fall Semester 2002

Expiration Date:

Last Revised by the Department: 11/07/2011

AL ALEHS



## **BASIC ENTREPRENEURSHIP**

### **Undergraduate Certificate Program**

Donna Bon  
107 Hawthorn Bldg  
Penn State Altoona  
Phone: 814-949-5294  
E-mail: djb36@psu.edu

Altoona College

### **BASIC ENTREPRENEURSHIP (ALENT)**

The basic certificate in Entrepreneurship provides students with a solid foundation in written communication skills, management, and marketing as well as methods for managing small businesses in entrepreneurial environments.

To earn an undergraduate certificate in BASIC ENTREPRENEURSHIP, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
MKTG 221W  
MGMT 301  
B A 250  
OR ECON 002 OR ECON 014 OR B A 197

No Prerequisites Required.

Effective Date: Fall Semester 2007

Expiration Date:

Last Revised by the Department: 04/04/2012

AL \*A

## **INFORMATION SYSTEMS SECURITY**

### **Undergraduate Certificate Program**

Jungwoo Ryoo  
101 Eiche Library  
Penn State Altoona  
Phone: 814-949-5243  
E-mail: jxr65@psu.edu

Altoona College

### **INFORMATION SYSTEMS SECURITY (ALISS)**

By earning this 18 credit certificate in Information Systems Security, the learner will gain knowledge to identify and resolve potential security problems before they become serious and costly. The successful student will be proficient in computer networking and security for both wired and wireless systems, installation and configuration of firewalls and intrusion detection and prevention, risk analysis and management, security management using policies and access control, fault tolerance, disaster recovery planning, computer forensics and investigations, cryptography, and physical security.

To earn an undergraduate certificate in INFORMATION SYSTEMS SECURITY, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

IST 110 OR CMPSC203 OR CMPSC101 OR MIS 204  
IST 210  
IST 220  
IST 451  
IST 402  
IST 250 OR M I S302

No Prerequisites Required.

Effective Date: Spring Semester 2004

Expiration Date:

Last Revised by the Department: 11/07/2011

AL ALB&E

## **ASIAN STUDIES**

### **Undergraduate Certificate Program**

Brad Lint  
170 Irvin Kochel Center  
Penn State Erie  
Phone: 814-898-6766  
E-mail: brad@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **ASIAN STUDIES (ASIAST)**

The objective of the Asian Studies certificate is to help students acquire specialized knowledge of the art, literature, history, politics, and/or religions of Asia. The interdisciplinary certificate would require 12 credits for completion and be available to all majors. This certificate would help energize the general education curriculum at Penn State Behrend, as all requirements could be met by courses that satisfy general education requirements.

To earn an undergraduate certificate in ASIAN STUDIES, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

12 Credits are required for this certificate. One of the two core 3-credit survey courses, either HIST 174 or HIST 175, must be taken along with 9 credits from an approved list of courses.

Prerequisites Required.

Effective Date: Spring Semester 2010

Expiration Date:

Last Revised by the Department: 11/10/2011

BC H&SS

## **BUSINESS ADMINISTRATION**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Abington College, Altoona College, Penn State Beaver, Behrend College, Berks College, Capital College, King of Prussia, Penn State Brandywine, Penn State Fayette, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, University Park

### **BUSINESS ADMINISTRATION (B ADMN)**

This certificate includes coursework in management principles, communication skills, data processing, financial analysis, human resource management, business law and managerial accounting.

To earn an undergraduate certificate in BUSINESS ADMINISTRATION, a minimum of 32 credits is required.

### **PRESCRIBED COURSES**

ACCTG211  
B LAW243 OR B A 243  
CAS 100A OR CAS 100B  
ECON 102 OR ECON 104  
ENGL 015  
FIN 100 OR FIN 301  
ENGL 202B  
MGMT 100 OR MGMT 301  
MGMT 321 OR MGMT 331 OR MGMT 341  
PSYCH100  
MKTG 221 OR MKTG 301

No Prerequisites Required.

Effective Date: Fall Semester 1998

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## **COMMUNICATION SKILLS FOR BUSINESS PROFESSIONALS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton

### **COMMUNICATION SKILLS FOR BUSINESS PROFESSIONALS (B COMM)**

The ability to write and speak effectively can set you apart. Presenting your thoughts in a systematic and compelling manner makes others want to listen to you and act on your recommendations. This skill can be crucial to your success. If your communications skills are underdeveloped or need to be polished, this program can help you sharpen your speaking and writing skills. Courses can be applied toward a baccalaureate degree in business or communications or related fields. Students can be enrolled as a non-degree, provisional or a degree seeking student. Students are responsible for meeting all required course prerequisites.

To earn an undergraduate certificate in COMMUNICATION SKILLS FOR BUSINESS PROFESSIONALS, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

CAS 100  
ENGL 202D  
CAS 252  
COMM 260W OR CAS 203 OR CAS 213 OR ENGL 419  
OR ENGL 420

No Prerequisites Required.

Effective Date: Fall Semester 2006

Expiration Date:

Last Revised by the Department: 11/14/2011

CC CCBUS

## **BUSINESS LOGISTICS PROGRAM FOR KRAFT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Wilkes-Barre

### **BUSINESS LOGISTICS PROGRAM FOR KRAFT (B LOG)**

The Business Logistics Certificate Program is series of undergraduate courses designed to provide participants with a broad overview of supply chain management functions. Study of the overall supply chain is followed by in depth study of warehousing, transportation, strategic procurement and international logistics. A course on marketing with a special emphasis on customer focus and service complements the series of supply chain management courses.

To earn an undergraduate certificate in BUSINESS LOGISTICS PROGRAM FOR KRAFT, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

SCM 301  
SCM 320  
SCM 416  
SCM 460  
SCM 435  
MKTG 301 OR MKTG 221

No Prerequisites Required.

Effective Date: Spring Semester 1991

Expiration Date:

Last Revised by the Department: 11/18/2011

CC CCBUS

## **BUSINESS MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Abington College, Altoona College, Behrend College, Berks College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Fayette, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **BUSINESS MANAGEMENT (B MGMT)**

This program meets the immediate educational needs of business students. The six component credit courses provide insight into the intricacies of employee behavior, financial accounting, principles of management and the legal aspects of business to those already employed in business.

To earn an undergraduate certificate in BUSINESS MANAGEMENT, a minimum of 20 credits is required.

### **PRESCRIBED COURSES**

ACCTG211  
B LAW243 OR B A 243  
ECON 102 OR ECON 104  
MGMT 100 OR MGMT 100W  
MGMT 321 OR MGMT 331 OR MGMT 341  
PSYCH100 OR SOC 001 OR SOC 003

No Prerequisites Required.

Effective Date: Fall Semester 1986

Expiration Date:

Last Revised by the Department: 01/19/2012

CC

## **Business Administration for Professionals**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park, PA 16802  
Phone: 814-863-0327  
email: sah43@psu.edu

Beaver, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Shenango, University Park, Wilkes-Barre, Worthington Scranton, York

### **Business Administration for Professionals (BA PRO)**

The Business Administration for Professionals certificate is designed as step-up certificate. Having completed the certificate, the student has 15 credits towards the 2BACC or the BSB degree. The Business Essentials for Professionals and Business Administration for Professionals certificates offers the student a clear academic pathway to achieving 27 credits towards degree completion.

The successful completion of the Business Administration for Professionals certificate demonstrates the student's foundational knowledge of business administration including knowledge of the legal and ethical environment in which businesses operate, an introduction to managerial accounting, writing skills, and descriptive statistics for analysis and decision making in business.

### **Admission Requirements:**

Nondegree or degree status undergraduate students

### **PRESCRIBED COURSES**

ACCTG 211  
B A 243  
ENGL 015  
STAT 200

Effective Semester: FALL 2012



## **ACCOUNTING, BUSINESS, AND COMPUTER SKILLS FOR PROFESSIONALS CERTIFICATE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois

### **ACCOUNTING, BUSINESS, AND COMPUTER SKILLS FOR PROFESSIONALS CERTIFICATE (BABCSK)**

This certificate is designed to produce exactly what employers need; employees who are proficient in accounting and other business related practices utilizing current technology. Whether you're a new business manager or a professional seeking a career transition with greater business responsibility, this certificate employs techniques that are consistent with modern principles and best practices, providing knowledge and skills that can be used immediately. Students are responsible for meeting all required course prerequisites: MATH 021 Contact Diana Ricotta at Penn State DuBois, 814-375-4718 or dricotta@psu.edu. <http://www.ds.psu.edu/CE/21385.htm?cn21D>

To earn an undergraduate certificate in ACCOUNTING, BUSINESS, AND COMPUTER SKILLS FOR PROFESSIONALS , a minimum of 10 credits is required.

### **PRESCRIBED COURSES**

ACCTG211  
B A 100  
MIS 204 OR IST 110

No Prerequisites Required.

Effective Date: Fall Semester 2010

Expiration Date:

Last Revised by the Department: 11/14/2011

CC CCBUS

## **BUSINESS ADMINISTRATION**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **BUSINESS ADMINISTRATION (BADMIN)**

The Business Administration Certificate is designed to teach the critical skills and knowledge needed to function effectively in today's workplace. This program may be used as a "step-up" to the associate degree in Business Administration.

To earn an undergraduate certificate in BUSINESS ADMINISTRATION, a minimum of 32 credits is required.

### **PRESCRIBED COURSES**

ACCTG211  
B A 243  
ECON 102 OR ECON 104  
MGMT 301  
MGMT 341 OR MGMT 321 OR MGMT 331  
ENGL 015  
CAS 100 OR ENGL 202D  
MIS 204 OR MIS 103  
FIN 301  
MKTG 301W

No Prerequisites Required.

Effective Date: Fall Semester 2006

Expiration Date:

Last Revised by the Department: 11/14/2011

CC CCBUS

## **BEHAVIORAL HEALTH AND COUNSELING PSYCHOLOGY**

### **Undergraduate Certificate Program**

Charisse Nixon  
170 Irvin Kochel Center  
Penn State Erie  
Phone: 814-898-6041  
E-mail: [cln5@psu.edu](mailto:cln5@psu.edu)

Abington College, Altoona College, Behrend College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Great Valley, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **BEHAVIORAL HEALTH AND COUNSELING PSYCHOLOGY (BH&PSY)**

This 15 credit certificate provides the core information and competencies for students interested in pursuing a position in behavioral health and clinical or counseling psychology. It will be attractive to both psychology majors interested in pursuing clinical psychology and adult students taking courses part time for career advancement. This may also serve as the gateway to a minor or major in psychology. It is consistent with psychology program goals to develop clear career tracks for current students in clinical and counseling psychology.

To earn an undergraduate certificate in BEHAVIORAL HEALTH AND COUNSELING PSYCHOLOGY, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

PSYCH270  
PSYCH481  
PSYCH495

IN ADDITION TO THE 9 CREDITS OF COURSE WORK LISTED, STUDENTS MAY CHOOSE ANY TWO (6 CREDITS) OF THE FOLLOWING COURSES FOR A TOTAL OF 15 CREDITS FOR THE CERTIFICATE: PSYCH 283, PSYCH 243, PSYCH 404/EDPSY 450, PSYCH 423, PSYCH 473, PSYCH 476, PSYCH 478, PSYCH 470, PSYCH 471, PSYCH 477, PSYCH 474

Prerequisites Required.

Effective Date: Spring Semester 2011

Expiration Date:

Last Revised by the Department: 03/05/2012

BC

## **BUSINESS LOGISTICS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Brandywine, Penn State Fayette, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State Schuylkill, Penn State Wilkes-Barre, University Park

### **BUSINESS LOGISTICS (BLOG)**

Courses offer key concept areas as systems analysis, trade-off analysis, transport systems, procurement, inventory management and supply chain integration and strategy. The implications of e-commerce in relation to supply chain management are also explored. The courses provide a broad overview of logistics and supply chain management and address the needs and perspectives of individuals from a wide range of areas, including manufacturers, wholesalers and retailers, merchandisers, transportation and warehousing firms and government agencies. Certificate awarded upon successful completion of three required courses (SCM 301, SCM 320, and MGMT 100 or 100W) and two electives (B LAW 243 or BA 243, MGMT 100W or MIS 204, and MKTG 221)

To earn an undergraduate certificate in BUSINESS LOGISTICS, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

SCM 301  
SCM 320  
MGMT 100 OR MGMT 100W  
B LAW243 OR B A 243  
MGMT 100 OR MGMT 100W OR MIS 204  
MKTG 221

No Prerequisites Required.

Effective Date: Fall Semester 1994

Expiration Date:

Last Revised by the Department: 12/06/2011

CC

## **BUSINESS AND PROFESSIONAL WRITING**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Brandywine, Penn State Fayette

### **BUSINESS AND PROFESSIONAL WRITING (BPWC)**

The certificate program in Business and Professional Writing is designed for adult learners (degreed or non-degree) who seek a competitive edge in the workforce. The program provides an opportunity for practical, professional development for working adults who aspire to improve their creative thinking skills and to become more effective communicators in our information-driven economy.

To earn an undergraduate certificate in BUSINESS AND PROFESSIONAL WRITING, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
ENGL 202C OR ENGL 202D  
ENGL 420  
ENGL 419  
ENGL 479

No Prerequisites Required.

Effective Date: Fall Semester 2009

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## **BUSINESS LEADERSHIP DEVELOPMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Wilkes-Barre

### **BUSINESS LEADERSHIP DEVELOPMENT (BUS LD)**

This 19-credit undergraduate certificate program is designed to teach the critical skills needed by business and industry leaders to function effectively in today's workplace. The program provides an opportunity for entry level and experienced individuals to gain knowledge about current leadership, communication, management, and accounting practices as they apply in the contemporary business environment.

To earn an undergraduate certificate in BUSINESS LEADERSHIP DEVELOPMENT, a minimum of 19 credits is required.

### **PRESCRIBED COURSES**

MGMT 100 OR MGMT 301  
CAS 100A OR CAS 100B  
ENGL 015  
MGMT 150  
MGMT 321  
FIN 100 OR FIN 301 OR ACCTG211

No Prerequisites Required.

Effective Date: Fall Semester 2003

Expiration Date:

Last Revised by the Department: 11/14/2011

CC CCBUS

## **BUSINESS ESSENTIALS FOR PROFESSIONALS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Berks College, Penn State Altoona, Penn State Brandywine, Penn State DuBois, Penn State Erie, Penn State Fayette, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Wilkes-Barre, Penn State York, University Park

### **BUSINESS ESSENTIALS FOR PROFESSIONALS (BUS4PR)**

This certificate is designed for the adult learner who would like to gain a knowledge of essential business concepts. These adult learners may already possess a degree in a non-business discipline, but need to augment their knowledge and resumes to advance their careers with their current employer or transition into a new job. Adult learners taking this certificate may also be taking post-secondary credit courses for the first time.

To earn an undergraduate certificate in BUSINESS ESSENTIALS FOR PROFESSIONALS, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

MIS 204  
CAS 100B  
MKTG 220  
B A 100

No Prerequisites Required.

Effective Date: Fall Semester 2009

Expiration Date:

Last Revised by the Department: 04/05/2012

CC

## **ADVANCED GENERAL BUSINESS**

### **Undergraduate Certificate Program**

Biddy Brooks  
020 Erie Hall  
Penn State Erie  
Phone: 814-898-6700  
E-mail: bab9@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **ADVANCED GENERAL BUSINESS (BUSABC)**

This certificate is a continuation of the General Business Certificate. To pursue this certificate, you must have completed Penn State Behrend's General Business Certificate. Courses can be applied toward an associate or baccalaureate degree in business or related area. Students can be enrolled in non-degree, provisional or in degree status, meet any course prerequisites and must have completed Penn State Behrend's General Business certificate. Students must have overall 2.0 in listed courses to receive certificate. Students must have a C grade or better in MS&IS 200.

To earn an undergraduate certificate in ADVANCED GENERAL BUSINESS, a minimum of 13 credits is required.

### **PRESCRIBED COURSES**

ECON 104  
STAT 200  
MATH 021 OR MATH 022 OR MATH 110  
ENGL 202D

MS&IS will substitute for STAT 200

Prerequisites Required.

Effective Date: Fall Semester 2000

Expiration Date:

Last Revised by the Department: 01/16/2012

BC BSCH



## **BUSINESS ADMINISTRATION**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Beaver, Penn State York

### **BUSINESS ADMINISTRATION (BUSADM)**

This is the third step up certificate to our Associate Degree in Business. It is designed for adult students.

To earn an undergraduate certificate in BUSINESS ADMINISTRATION, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

MATH 021  
MGMT 301  
MKTG 301W or MKTG 301 (Please take MKTG 301W if writing requirement needs fulfilled)  
ENGL 202D

REQUIRES MATH 004 OR SUCCESSFUL COMPLETION OF ENTRANCE EXAM

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/14/2011

CC CCBUS

## **BUSINESS CONCEPTS CERTIFICATE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Hazleton, Penn State Worthington Scranton

### **BUSINESS CONCEPTS CERTIFICATE (BUSCON)**

The Business Concepts Certificate gives participants an overview of management concepts. This certificate was created for Tobyhanna Army Depot. When taken with the Supply Chain and Materials Management Certificate it gives the participant a certificate in Supply Chain Administration.

To earn an undergraduate certificate in BUSINESS CONCEPTS , a minimum of 10 credits is required.

### **PRESCRIBED COURSES**

MGMT 301  
ECON 104  
B A 243

Prerequisites Required.

Effective Date: Fall Semester 2010

Expiration Date:

Last Revised by the Department: 04/05/2012

CC

## **BUSINESS ESSENTIALS**

### **Undergraduate Certificate Program**

Deborah Hommer  
106 Hawthorn Bldg  
Penn State Altoona  
Phone: 814-949-5265  
Email: dxh41@psu.edu

Altoona College, Penn State Lehigh Valley, Penn State Worthington Scranton, University Park

### **BUSINESS ESSENTIALS (BUSESS)**

Business Essentials is a two-part program that gives you a foundation in marketing, management and organizational behavior, accounting, financial analysis, and organizational performance, and an integrated understanding of how these disciplines interact in a multifunctional organization. You will learn to observe an organization from the inside as you analyze its culture, strategy, and performance--and from the outside as you learn how strategy plays out with customers, investors, and other stakeholders. Certificate recipients must be approved for the Business Essentials Program. (MGMT 301 and MKTG 301 must be taken together, and ACCTG 211 and FIN 301 must be taken together)

To earn an undergraduate certificate in BUSINESS ESSENTIALS, a minimum of 13 credits is required.

### **PRESCRIBED COURSES**

MGMT 301  
MKTG 301  
ACCTG211  
FIN 301

No Prerequisites Required.

Effective Date: Spring Semester 2005

Expiration Date:

Last Revised by the Department: 11/07/2011

AL ALB&E

## **FOUNDATIONS OF BUSINESS ADMINISTRATION**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Greater Allegheny

### **FOUNDATIONS OF BUSINESS ADMINISTRATION (BUSFND)**

The primary goal of this program is to provide students an opportunity to learn the foundations of business administration and apply this certificate towards an Associate Degree in Business.

To earn an undergraduate certificate in FOUNDATIONS OF BUSINESS ADMINISTRATION, a minimum of 19 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
B A 100  
MATH 021  
CAS 100  
B A 243  
MIS 204

ENGL 015 prerequisite ENGL 004 or satisfactory performance on english proficiency exam. MATH 021 prerequisite MATH 004 or satisfactory performance on the Math placement exam.

Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 11/17/2011

CC CCADM

## **GENERAL BUSINESS**

### **Undergraduate Certificate Program**

Biddy Brooks  
020 Erie Hall  
Penn State Erie  
Phone: 814-898-6700  
E-mail: bab9@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Great Valley, Penn State Greater Allegheny, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **GENERAL BUSINESS (BUSGBC)**

This certificate is designed to provide a foundation of business principles and concepts. Courses can be applied toward an associate or baccalaureate business degree. Students can be enrolled in Non-Degree, Provisional or Degree status.

To earn an undergraduate certificate in GENERAL BUSINESS, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

ACCTG211  
B A 243 OR B LAW243  
CMPSC203  
ECON 102  
ENGL 015 OR ENGL 030 OR ESL 015

No Prerequisites Required.

Effective Date: Spring Semester 1998

Expiration Date:

Last Revised by the Department: 01/16/2012

BC BSCH

## **BUSINESS MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Beaver, Penn State Fayette, Penn State Shenango, Penn State York

### **BUSINESS MANAGEMENT (BUSMGT)**

This post associate certificate is designed for adult students interested in either a certificate or a Bachelors degree.

To earn an undergraduate certificate in BUSINESS MANAGEMENT, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

MATH 021  
MGMT 301  
MGMT 341

Associates degree or 60 credits

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 12/06/2011

CC CCBUS

## **BUSINESS TECHNOLOGY APPLICATIONS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Beaver, Penn State Brandywine, Penn State Fayette, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York

### **BUSINESS TECHNOLOGY APPLICATIONS (BUSTEC)**

The Business Technology Applications Certificate will provide students with excellent basic workplace skills of an intensive, practical nature. Enhance technical qualifications and broaden employment options. This program incorporates state of the art skill development for small business managers. The combination of accounting and technology will afford students with practical and critical thinking skills that are essential for the successful operation of a business.

To earn an undergraduate certificate in BUSINESS TECHNOLOGY APPLICATIONS, a minimum of 13 credits is required.

### **PRESCRIBED COURSES**

B A 100  
MIS 103  
ACCTG211  
MIS 190

Prerequisites Required.

Effective Date: Fall Semester 1992

Expiration Date:

Last Revised by the Department: 01/19/2012

CC CCBUS

## **FOUNDATIONS IN LETTERS, ARTS, AND SCIENCES I**

### **Undergraduate Certificate Program**

Instructor Name  
Address 1  
Address 2  
Phone:  
Fax:  
E-mail:

Capital College

### **FOUNDATIONS IN LETTERS, ARTS, AND SCIENCES I (CALAS1)**

The new Foundations in Letters, Arts, and Sciences Certificate I is the first certificate in the Associate Degree in Letters, Arts, and Sciences (2LACA) Step-up Certificate Program series administered at Penn State Harrisburg. The Academic Home for the program is the School of Humanities at Penn State Harrisburg. This certificate program provides students with a broad introduction to the Liberal Arts. The program is a great entry certificate that includes 12 general education credits that meet the needs of students planning to pursue the associate degree and desiring milestones along the way. Students are encouraged to work with an adviser from the start of this first certificate program to ensure they meet all University requirements.

To earn an undergraduate certificate in FOUNDATIONS IN LETTERS, ARTS, AND SCIENCES I, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
CAS 100  
PSYCH100

In addition students must select a total of three (3) credits of course work that satisfies the General Arts requirements.

No Prerequisites Required.

Effective Date: Fall Semester 1996

Expiration Date:

Last Revised by the Department: 11/11/2011

CA HUMAN



## **FOUNDATIONS IN LETTERS, ARTS, AND SCIENCES II**

### **Undergraduate Certificate Program**

Instructor Name  
Address 1  
Address 2  
Phone:  
Fax:  
E-mail:

Capital College

### **FOUNDATIONS IN LETTERS, ARTS, AND SCIENCES II (CALAS2)**

The new Foundations in Letters, Arts, and Sciences II Certificate is the second certificate in the Associate Degree in Letters, Arts, and Sciences (2LACA) Step-up Certificate Program series administered at Penn State Harrisburg. The Academic Home for the program is the School of Humanities at Penn State Harrisburg. Students pursuing this certificate complete 24 credits that include 18 general education credits, as well as 6 credits from social and behavioral sciences and arts. This program meets the needs of students planning to pursue the associate degree and desiring milestones along the way. Students are strongly encouraged to work with an adviser as they pursue this certificate to ensure they meet all University requirements.

To earn an undergraduate certificate in FOUNDATIONS IN LETTERS, ARTS, AND SCIENCES II, a minimum of 24 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
CAS 100  
PSYCH100

In addition to the required courses, students must successfully complete 3 credits in the General Arts, and 3 credits from one of the following categories: General Humanities, General Natural Science, Social and Behavioral Science, or from the Arts.

No Prerequisites Required.

Effective Date: Fall Semester 2000

Expiration Date:

Last Revised by the Department: 11/11/2011

CA HUMAN

## **ADVANCED FOUNDATIONS IN LETTERS, ARTS, AND SCIENCES III**

### **Undergraduate Certificate Program**

Instructor Name  
Address 1  
Address 2  
Phone:  
Fax:  
E-mail:

Capital College

### **ADVANCED FOUNDATIONS IN LETTERS, ARTS, AND SCIENCES III (CALAS3)**

The new Advanced Foundations in Letters, Arts, and Sciences Certificate is the final certificate in the Associate Degree in Letters, Arts, and Sciences (2LACA) Step-up Certificate Program series administered at Penn State Harrisburg. The Academic Home for the program is the School of Humanities at Penn State Harrisburg. Students pursuing this certificate complete a total of 42 credits that include general education requirements, as well as selections in specific interest areas. As students enter this certificate, they will be guided through the admission process for entry into the associate degree. Students are strongly encouraged to work with an adviser as they pursue this program.

To earn an undergraduate certificate in ADVANCED FOUNDATIONS IN LETTERS, ARTS, AND SCIENCES III, a minimum of 42 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
CAS 100  
PSYCH100  
ENGL 202A OR ENGL 202B OR ENGL 202C OR ENGL 202D

Students must complete an additional 3 credits in the General Arts selection. In addition select 3 credits from one of the following categories: General Humanities GH (3), General Natural Science GN (3), Social and Behavioral Science Selection (3), Arts Selection (3), General Quantification GQ (3). Students select an additional 6 credits in two of the following two subject areas of their choice: Humanities Selection (6), Science Selection (6), Art Selection (6), Social and Behavioral Science Selection (6). All classes must be selected in consultation with an adviser to ensure the student meets University requirements. These certificates have been specifically designed to align with the 2LACA degree.

No Prerequisites Required.

Effective Date: Fall Semester 2000

Expiration Date:

Last Revised by the Department: 11/11/2011

CA HUMAN

## **COMMUNICATION AND LEADERSHIP CERTIFICATE PROGRAM**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Hazleton, Penn State Wilkes-Barre

### **COMMUNICATION AND LEADERSHIP CERTIFICATE PROGRAM (CASPSY)**

The Communication and Leadership Certificate program is designed for supervisors and leaders to hone their skills in order to deal with complex interpersonal interactions and be effective leaders. A potential student needs to have successfully completed a basic speech and basic psychology course at the undergraduate level to enroll.

To earn an undergraduate certificate in COMMUNICATION AND LEADERSHIP PROGRAM, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

CAS 352  
CAS 404  
PSYCH281  
PSYCH485

Prerequisites Required.

Effective Date: Fall Semester 2010

Expiration Date:

Last Revised by the Department: 11/14/2011

CC

## Child Development

### Undergraduate Certificate Program

Charisse Nixon  
Penn State Behrend  
**Telephone:** 814-898-6041  
**E-Mail:** mln5@psu.edu

Abington College, Altoona College, Berks College, Capital College, Great Valley, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park  
Behrend College is the home college.

### CHILD DEVELOPMENT (CHD DV)

This 15 credit certificate will provide the core information and competencies for students interested in pursuing the field of child development. Students will be provided with a broad overview of the developmental processes underlying child and adolescent development. This certificate will be attractive to both psychology majors as well as adult students taking courses part time for career advancement. The certificate may also serve as the gateway to a minor or major in psychology. It is consistent with psychology program goals to develop clear career tracks for current students interested in the applied fields of psychology.

### PRESCRIBED COURSES

PSYCH 212 or HD FS 129

Select six credits from the following: PSYCH 410, PSYCH 412, PSYCH 476

Select six credits from the following: EDPSY 014, HD FS 229, PSYCH 221, PSYCH 238, PSYCH 256, PSYCH 413, PSYCH 414, PSYCH 473.

**Effective Semester:** Spring 2012

## **EARLY CHILDHOOD AND YOUTH STUDIES**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Lehigh Valley

### **EARLY CHILDHOOD AND YOUTH STUDIES (CHILD)**

The 15-credit certificate in Early Childhood and Youth Studies is intended to supplement and enhance several Penn State majors where there is an interest in early childhood education, early intervention programs, youths services, and developmental and health psychology. Require foundation courses (6 credits): PSYCH 100 and 212. Take 3 credits from the following list: BI SC 004, BIOL 141, or NUTR 251. Professional Electives (6credits) choose 2: BB H 101, EDPSY 014, HD FS 229, or HD FS 239.

To earn an undergraduate certificate in EARLY CHILDHOOD AND YOUTH STUDIES, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

PSYCH100  
PSYCH212  
BI SC004 OR BIOL 141 OR NUTR 251  
BB H 101 OR EDPSY014 OR HD FS229 OR HD FS239

No Prerequisites Required.

Effective Date: Spring Semester 2009

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## **SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette, Penn State York

### **SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH (CHSTEM)**

The objectives of The Chancellor's Honor Certificate in S.T.E.M. is to encourage high school students to pursue degrees and professions in S.T.E.M. and promote the educational opportunities available through Penn State. The credit certificate must be completed before graduation from high school. Students may begin the certificate as early as the fall semester of their junior year in High School. A grade of "C" or better must be earned in all courses.

To earn an undergraduate certificate in SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

MATH 002 OR MATH 026  
CAS 100B  
IST 110  
EDSGN100 OR BIOL 141 OR BIOL 142 OR MATH 140  
OR CMPSC101

No Prerequisites Required.

Effective Date: Fall Semester 2008

Expiration Date:

Last Revised by the Department: 11/14/2011

CC CCBUS

## **HEALTH AND WELLNESS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette

### **HEALTH AND WELLNESS (CHW)**

This certificate is designed for non-degree and degree seeking candidates wishing to pursue a career in promoting health and wellness. Job opportunities are available in fitness clubs, YMCA's, hospitals, corporate health clinics, private clinics, and other venues.

To earn an undergraduate certificate in HEALTH AND WELLNESS, a minimum of 26 credits is required.

### **PRESCRIBED COURSES**

BIOL 129  
BIOL 141  
BIOL 142  
NUTR 251  
KINES060  
KINES061  
KINES303  
KINES397  
KINES398

Prerequisites Required.

Effective Date: Spring Semester 2006

Expiration Date:

Last Revised by the Department: 11/14/2011

CC CCBUS

## **Circuits Basic**

### **Undergraduate Certificate Program**

David Loker  
Penn State Behrend  
Telephone: 814-898-6478  
Fax: (814) 898-6125  
email: [drl3@psu.edu](mailto:drl3@psu.edu)

Abington College, Altoona College, Behrend College, Berks College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **Circuits-Basic (CIRCTS)**

This 16 credit certificate is designed to provide students with a basic knowledge of the analysis of analog electrical circuits (AC and DC), to learn how to use basic test and measurement equipment, and perform mathematical analysis that includes algebra, trigonometry, complex numbers, exponential, and logarithms.

#### **REQUIRED COURSES:**

EET 002S  
EET 101  
EET 109  
EET 114  
EET 118  
MATH 081  
MATH 082

Effective Semester: Fall 2012



## **ADVANCED FOUNDATION IN BUSINESS ADMINISTRATION**

### **Undergraduate Certificate Program**

Erin Mariano  
W000 Educational Activities Bldg  
Penn State Harrisburg  
Phone: 717-948-6344  
E-mail: emh154@psu.edu

Capital College

### **ADVANCED FOUNDATION IN BUSINESS ADMINISTRATION (CLAFBA)**

The final certificate program in the Foundation in Business Administration series provides greater depth in areas of marketing, statistics and arts with an additional three courses required for completion. Courses completed for this program can be used towards any of the five baccalaureate degree programs in the School of Business Administration. Students should work with an advisor to customize their course selection.

To earn an undergraduate certificate in ADVANCED FOUNDATION IN BUSINESS ADMINISTRATION, a minimum of 28 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
ECON 102  
CAS 100  
MGMT 301  
MKTG 301  
STAT 200

An additional 9 credits are required; 3 General Humanities, 3 General Natural Sciences and 3 General Arts. MGMT 301 and MKTG 301 require successful completion of ENGL 015 and ECON 102 as well as MATH 021: College Algebra or higher placement on testing. STAT 200 requires two units of algebra as a prerequisite. Students should contact the program assistant for information about math placement testing.

No Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 12/22/2011

CA 2BACA

## **DIVERSITY IN COMMUNITY**

### **Undergraduate Certificate Program**

Kamini Grahame  
W311 Olmsted Bldg  
Penn State Harrisburg  
Phone: 717-948-6038  
E-mail: kmg16@psu.edu

Capital College

### **DIVERSITY IN COMMUNITY (CLDIV)**

This program is intended to equip students and professionals with knowledge and understanding needed to devise strategies for building good personal, working, and community relations. Should appeal to working professionals, concerned individuals, and students who feel under- or ill- prepared to work in diverse settings and/or who desire to explore a new, more critical approach toward questions of justice, power, and diversity. Specifically, the program will benefit business and government leaders and employees, teachers and administrators, social and human service providers, and health care professionals along with students- both undergraduate and graduate.

To earn an undergraduate certificate in DIVERSITY IN COMMUNITY, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

SOC 409 OR SOC 411  
BE SC464 OR R SOC420 OR SOC 456 OR HD FS250  
SOC 435 OR SOC 428 OR SOC 429

An additional 3 credits is required from each one of the following two groups of courses. Group 1: SOC 408, 416/EDTHP416, 419, 424, 425, 430, 432, 446, 450, 454, 455, 461/RL ST 461, HD FS 405, 424, 425, or 469. Group 2: Any 400-level AAA S course, AM ST 430/WMNST 430, AM ST 475/ENGL 475, AM ST 476/WMNST 476/ENGL 476, BUS 485, COMM 410, COMM 459, CRIMJ 436, EDHTP 401, EDUC406, EDUC 466, ENGL 431, ENGL 492, I HUM 410, MGMT 445, MGMT 461, NURS 415, PHIL 437, PHIL 439, PL SC 428, 440, 453, 456, 457, 458, 467, PSYCH 444, PSYCH 479/WMNST 479, or any additional 400-level WMNST course. At least 3 credits should be international designated. Must maintain a 2.0 average or above in all courses.

No Prerequisites Required.

Effective Date: Fall Semester 1998

Expiration Date:

Last Revised by the Department: 11/11/2011

CABSCED

## **FOUNDATION IN BUSINESS ADMINISTRATION I**

### **Undergraduate Certificate Program**

Erin Mariano  
W000 Educational Activities Bldg  
Penn State Harrisburg  
Phone: 717-948-6344  
E-mail: emh154@psu.edu

Capital College

### **FOUNDATION IN BUSINESS ADMINISTRATION I (CLFBA1)**

Designed as a starting point for new and/or returning students to help them towards any of the five baccalaureate degree programs in the School of Business Administration. Courses completed for the program can also be used towards the other certificates in the series. The courses provide an overview of writing, humanities, and natural science.

To earn an undergraduate certificate in FOUNDATION IN BUSINESS ADMINISTRATION I, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
ECON 102

An additional 6 credits are required; 3 General Humanities and 3 General Natural Science

No Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 12/22/2011

CA 2BACA

## **FOUNDATION IN BUSINESS ADMINISTRATION II**

### **Undergraduate Certificate Program**

Erin Mariano  
W000 Educational Activities Bldg  
Penn State Harrisburg  
Phone: 717-948-6344  
E-mail: emh154@psu.edu

Capital College

### **FOUNDATION IN BUSINESS ADMINISTRATION II (CLFBA2)**

The second certificate program in the Foundation in Business Administration series provides increased exposure to new subject areas by requiring two additional courses in speech and basic management concepts. Courses completed for this program can be used towards any of the five baccalaureate degree programs in the School of Business Administration or towards the Advanced Foundation in Business Administration Certificate. Students should work with an advisor to customize their course selection.

To earn an undergraduate certificate in FOUNDATION IN BUSINESS ADMINISTRATION II, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
ECON 102  
CAS 100  
MGMT 301

An additional 6 credits are required; 3 General Humanities and 3 General Natural Science. MGMT 301 requires successful completion of ENGL 015 and ECON 102 as well as MATH 021: College Algebra or higher placement on testing. Students should contact the program assistant for information about math placement testing.

No Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 12/22/2011

CA 2BACA

## UNDERGRADUATE CERTIFICATE IN GLOBAL STUDIES

### Undergraduate Certificate Program

Patricia Johnson  
E356 Olmsted Bldg  
Penn State Harrisburg  
Phone: 717-948-6329  
E-mail: pej1@psu.edu

Capital College

### UNDERGRADUATE CERTIFICATE IN GLOBAL STUDIES (CLGBST)

Intended for individuals seeking to enhance their awareness of global issues, connections and cultures. Encourages students to develop advanced competence in a foreign language and to consider travel abroad as a part of their university experience. All students should consult with their academic advisers to plan their programs and the inclusion of the certificate within them. Open to full or part-time undergraduate students in any major including DUS and non-degree. All courses must be completed with an average 2.0 GPA.

To earn an undergraduate certificate in UNDERGRADUATE IN GLOBAL STUDIES, a minimum of 15 credits is required.

### PRESCRIBED COURSES

INTST100 OR INTST100S  
CAS 271

9 credits are required from at least two of the following five categories. Ctg A: GEOG 040,128, HIST001,002,010,011,120,141,142,165,173,174,175,176,178,179,181,191,192,320, PL SC 003,014,428,453,456; Ctg B: A&A 100, ARTH111,112, 120,201,423,429,435, COMM 350, IHUM 150, MUSIC 009; Ctg C: BA 364Y,CMLIT 108,110,153, ENGL 221,222,454,486, GER 100, IHUM 410, PHIL 007, RLST001,101,103, RUS 100, SPAN 130,132; Ctg D: AAAS 102, CMLIT 005,101,110,COMM 419, ENGL 182A, GEOG 020,120, HIST 144,211,419, IST 341, LARCH 065, PLSC123,428, PSYCH 232, RLST 001,003,004,103,104,107,110, SPAN 131, THEA 208,WMNST001,003; Ctg E: Advanced foreign language acquisition course, andaninternational travel course or study abroad course

No Prerequisites Required.

Effective Date: Fall Semester 2010

Expiration Date:

Last Revised by the Department: 12/22/2011

CA HUMAN

## **HOMELAND SECURITY AND DEFENSE**

### **Undergraduate Certificate Program**

Instructor Name  
Address 1  
Address 2  
Phone:  
Fax:  
E-mail:

Capital College

### **HOMELAND SECURITY AND DEFENSE (CLHMS)**

Designed for persons who either want to enhance their professional careers in homeland security or enter the profession by learning about: the major legislation shaping homeland security policy, the key actors and their interactions, the planning and organizational imperatives related to homeland security, and specific homeland security issues confronting Pennsylvania.

To earn an undergraduate certificate in HOMELAND SECURITY AND DEFENSE, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

P ADM401  
P ADM404  
P ADM802  
P ADM803

If you are not a resident of Pennsylvania, you may substitute either PL SC439 The Politics of Terrorism or GEOSC 402Y Natural Disasters for P ADM 404. (Substitutions for P ADM 404 are to be approved by the program chair.)

No Prerequisites Required.

Effective Date: Fall Semester 1998

Expiration Date:

Last Revised by the Department: 11/11/2011

CA PUBAF

## **FUNDAMENTALS OF IST**

### **Undergraduate Certificate Program**

Jesse Middaugh  
E355 Olmsted Bldg  
Penn State Harrisburg  
Phone: 717-948-6153  
E-mail: jlm10@psu.edu

Capital College, Penn State Mont Alto

### **FUNDAMENTALS OF IST (CLIST)**

Designed for individuals interested in developing knowledge and skill in the information sciences, but who have work and family commitments that make college full-time difficult. For any degree or non-degree person who is interested in furthering his or her learning. If you have 18 college credits with a grade-point average of 2.0 or better, OR if you've been out of high school for at least five years, you may be eligible. High school trigonometry is also a prerequisite. The curriculum includes courses in areas such as personal productivity tools, databases, software design and development, networking, and Web site development.

To earn an undergraduate certificate in FUNDAMENTALS OF IST, a minimum of 16 credits is required.

### **PRESCRIBED COURSES**

IST 110  
CMPSC101 OR CMPSC201 OR CMPSC202 OR CMPSC121  
IST 210  
IST 220  
IST 250

Prerequisites Required.

Effective Date: Fall Semester 1998

Expiration Date:

Last Revised by the Department: 11/11/2011

CA 2BACA

## **CRIME, LAW AND JUSTICE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois  
Penn State Shenango

### **CRIME, LAW AND JUSTICE (CLJ)**

This certificate provides educational focus on the understanding of both our justice system and national government. Students must complete 9 credits of the core certificate and 1 elective of either PSYCH 100 or PL SC 001. Specialization options available are Spanish Language (8 additional credits): SPAN 001 and SPAN 002 and/or Addictions Prevention and Counseling (9 additional credits): CN ED 401, CN ED 403, and CN ED 421. Spanish Language option available at DuBois and Shenango. Addictions Prevention and Counseling option available at DuBois only.

To earn an undergraduate certificate in CRIME, LAW AND JUSTICE, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

CLJ 012  
CLJ 111  
CRIMJ221  
PSYCH100 OR PL SC001

No Prerequisites Required.

Effective Date: Fall Semester 2005

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS



## **TRAINING AND DEVELOPMENT**

### **Undergraduate Certificate Program**

Instructor Name  
Address 1  
Address 2  
Phone:  
Fax:  
E-mail:

Capital College

### **TRAINING AND DEVELOPMENT (CLTRDV)**

This program will help develop the professional knowledge and skills to: analyze employee performance needs, specify training and non-training solutions to improve employee performance, design career and succession management programs and design, develop and deliver training programs. Individuals who hold a valid associate degree or any higher degree from an accredited college or university may take courses in this certificate program. Participants may also have been enrolled at the junior or senior level in a baccalaureate degree program in any academic field.

To earn an undergraduate certificate in TRAINING AND DEVELOPMENT, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

TRDEV418  
TRDEV460  
TRDEV421 OR TRDEV431 OR TRDEV470 OR TRDEV475  
TRDEV421 OR TRDEV431 OR TRDEV470 OR TRDEV475

Prerequisites Required.

Effective Date: Fall Semester 1998

Expiration Date: Spring Semester 2011

Last Revised by the Department: 02/22/2012

CABSCED

## **Comparative and International Education Certificate (CI ED)**

### **Undergraduate Certificate Program**

Walter Fullam  
Penn State Berks  
wff1@psu.edu  
Phone: 610-396-6223

Penn State Berks

### **Comparative and International Education Certificate (CI ED)**

The undergraduate CI ED Certificate is designed to enhance the degree completion requirements through international field experiences and provide opportunities to investigate multiple education theories, policies and practices. The balance of course and fieldwork is intended to increase students' inquiry, awareness and understanding of the dynamics of working with multi-cultural and diverse students through in-class and field opportunities. The program will facilitate and guide the candidate's inquiry into understanding diverse education systems and encourage sensitivity toward multicultural students to address the increasingly diverse U.S. classroom population.

#### **Admission Requirements:**

Any full time student currently enrolled at Penn State Berks is eligible to earn the certificate of Comparative and International Education.

#### **Requirements for Completion:**

##### **9 Credits:**

1) International Travel course (3 Cr) such as the following:

- a. CI 495 (Internship) (1-18) Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

2) Comparative Education course (3 Cr.) such as one of the following:

- b. EDTHP 401 (3 Cr) or 3 credits of another international culture or global experience course as approved by the department.

3) International culture course (3 Cr.) such as the following\*:

APLNG 493 (Teaching English as a Second Language)  
CMLIT 010 (Introduction to World Literature)  
ENGL 182C (Literature and Empire)  
FR 139 (France and the French Speaking World)  
GEOG 126 (Economic Geography)  
HIST 175 (Modern Asian History)  
INTST 100 (Introduction to International Studies)  
MUSIC 009 (Introduction to World Musics)  
WL ED 400 (Foundations of Language and Second Language Teaching)  
Third level of a world language

\*or international culture course as approved by the faculty.

Effective Semester: Fall 2013

## **Corporate Communication**

### **Undergraduate Certificate Program**

Robert T. Wolfe  
2809 Saucon Valley Road  
Center Valley, PA 18034  
Phone: 610-285-5125  
email: [rtw13@psu.edu](mailto:rtw13@psu.edu)

Penn State Lehigh Valley, Penn State Wilkes Barre

### **Corporate Communication (CORP C)**

The primary goal of the certificate is to assist learners in various disciplines who wish to sharpen their communication skills above and beyond their awarded degree. All candidates are required to take the 15-credit core module.

### **PRESCRIBED COURSES**

CAS 352  
CC 402  
ENGL 420  
MKTG 301  
MKTG 310

Effective Semester: Spring 2013

## **AUTOCAD**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Altoona College, Berks College, Capital College, Penn State Brandywine, Penn State Fayette, Penn State Hazleton, Penn State Wilkes-Barre, University Park

### **AUTOCAD (CR CAD)**

The AutoCAD : Computer-Aided Drafting Certificate is an introduction to AutoCAD , the industry standard for high quality engineering graphics. Knowing AutoCAD will open many doors for you in the workplace. In fact, more and more jobs require a working knowledge of AutoCAD , an industry standard for high-quality engineering graphics. Classes will be "hands on" in the computer lab during convenient evening hours. Students who take the classes in this certificate will: Learn drawing vocabulary used on blueprints-apply that vocabulary to produce drawings; Understand sectional views; Create 2D drawings; Develop computer skills for drafting-learn commands, views, etc.; Create 3 D models.

To earn an undergraduate certificate in AUTOCAD, a minimum of 8 credits is required.

### **PRESCRIBED COURSES**

EDSGN 100 (3)  
EG T 102(1)  
EG T 114(2)  
EG T 201(2)

No Prerequisites Required.

Effective Date: Fall Semester 2001

Expiration Date:

Last Revised by the Department: 12/06/2011

CC CCBUS

## **CRIMINAL JUSTICE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette, Penn State Schuylkill

### **CRIMINAL JUSTICE (CRIMSC)**

This certificate will provide you with courses to pursue employment in the area of security. There are 3 core criminal justice courses and 2 security specialization courses. The prerequisite for CRIMJ 305 is CRIMJ200; the prerequisite for CRIMJ 473 is CRIMJ 100.

To earn an undergraduate certificate in CRIMINAL JUSTICE, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

SOC 012 OR CRIMJ305 OR SOC 013 OR CRIMJ013  
PSYCH100  
CRIMJ200  
CRIMJ201  
CRIMJ473

No Prerequisites Required.

Effective Date: Spring Semester 2006

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## Crime, Psychology, and Public Policy

### Undergraduate Certificate Program

Behrend

Nicole Shoenberger  
107 PARC  
Penn State Erie  
814-898-6768  
Email: nas25@psu.edu

### Crime, Psychology, and Public Policy (CRMPPP)

The 15 credit undergraduate certificate program in Crime, Psychology, and Public Policy (CRMPPP) provides students an overview of the causes of crime and criminal behavior, the legal and criminal justice processes, and public policy toward crime-related issues. Students receive an in-depth understanding of the social and psychological causes of crime, policies to fight and prevent crime, the use of psychology to analyze and investigate criminal behavior, and the legal processes that involve accused and convicted criminals. The certificate program is intended for those who are interested in learning more about the criminal justice system and the causes of crime. Knowledge of the causes of criminal behavior and the criminal justice system are important to careers in the police, security, the correctional system, social work, law, psychology, journalism, and government or politics.

#### List of Courses\* Included in the Certificate:

Take 3 credits in each of the following subject areas from a program list of approved courses

#### Criminology

Approved list of courses:  
SOC 012(GS). Criminology

#### Crime and the Individual

Approved list of courses:  
PSYCH 243(GS). Introduction to Well-being and Positive Psychology  
PSYCH 256(GS). Introduction to Cognitive Psychology  
PSYCH 261(GS). Introduction to Psychology of Learning  
PSYCH 270. Introduction to Abnormal Psychology  
PSYCH 412. Adolescence  
PSYCH 473. Behavior Modification  
PSYCH 476. Child Psychopathology

#### Crime and Society

Approved list of courses:  
CRIMJ 423. Sexual and Domestic Violence  
PSYCH 221(GS). Introduction to Social Psychology  
PSYCH 232(GS;US;IL). Cross-Cultural Psychology  
PSYCH 445. Forensic Psychology  
SOC 013(GS). Juvenile Delinquency

#### Crime and Public Policy

Approved list of courses:  
PL SC 002. American Public Policy  
PL SC 123(GS;US;IL). Ethnic and Racial Politics  
PL SC 177(GS). Politics and Government in Washington, DC  
PL SC 419. The Bureaucratic State  
PL SC 439. The Politics of Terrorism  
PL SC 482. American State and Urban Politics  
PL SC 489. Public Administration

#### Crime and Law\*

Approved list of courses:  
PL SC 178. Organized Crime, Law, and Politics  
PL SC 471. American Constitutional Law  
PL SC 472. The American Legal Process  
PL SC 473. American Judicial Behavior  
PL SC 487. International Law and Organizations

Effective Semester: Summer 2014

## **Creative Writing**

### **Undergraduate Certificate Program**

Mildred R. Mickle  
Penn State Greater Allegheny  
Phone: 412-675-9135  
Email: mrm33@psu.edu

Penn State Greater Allegheny

### **Creative Writing (CRWRIT)**

One of the areas of job growth and sustainability continues to be publishing creative works of fiction and non-fiction. With the advent of e-reading technology individuals have greater opportunities to publish and market their work. Another area of job growth requiring creative writing is in the field of narrative design for gaming applications. The 12-credit creative writing certificate will give students an exposure to both fiction and nonfiction writing plus the opportunity to take the upper-level course in their top area of interest. Students are required to take 9 credits of 200-level courses and 3 credits of 400-level courses from the approved lists.

#### **REQUIRED COURSES:**

9 credits from the following list:

ENGL 209 (1-6)  
ENGL 212 (3)  
ENGL 213 (3)  
ENGL 215 (3)

3 credits from the following list:

ENGL 412 (3)  
ENGL 413 (3)  
ENGL 415 (3)  
ENGL 417 (3)  
ENGL 420 (3)  
ENGL 422 (3)  
ENGL 423 (3)

Effective Semester: Fall 2013

## **CUSTOMER RELATIONS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **CUSTOMER RELATIONS (CS REL)**

The skills associated with customer service are often as vital to business success as accounting, management, and economics. This certificate program introduces you to the skills and concepts needed in customer relations. The two special topics courses are: B A 297 Role of Customer Service in the Context of Business (1 cr), and B A 297 Customer Contact (1 cr)

To earn an undergraduate certificate in CUSTOMER RELATIONS, a minimum of 11 credits is required.

### **PRESCRIBED COURSES**

B A 297  
B A 297  
MKTG 221 OR MRKT 370  
CAS 100A OR CAS 100B  
MIS 204

Prerequisites Required.

Effective Date: Fall Semester 1992

Expiration Date:

Last Revised by the Department: 12/06/2011

CC CCBUS



## **Consumer Psychology**

### **Undergraduate Certificate Program**

Mary Beth Pinto and Eric Corty  
Penn State Behrend

**Telephone:** 814-898-6348 or 814-898-6238

**E-Mail:** mxp49@psu.edu or ewc2@psu.edu

Abington College, Altoona College, Berks College, Capital College, Great Valley, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

The Behrend College is the home College.

### **CONSUMER PSYCHOLOGY (CSMPSY)**

This 15 credit certificate is designed to prepare students for positions in the private sector, government agencies, and colleges and universities that call for an understanding of consumer psychology. This certificate is based on psychological approaches to understanding consumers. Students completing this certificate will be able to describe factors influencing buyer behavior. They will be comfortable working in the domains of marketing and psychology and be able to help predict or explain consumer behavior.

### **PRESCRIBED COURSES**

MKTG 344 and PSYCH 100

Select nine credits from among the following: PSYCH 212, PSYCH 221, PSYCH 231, PSYCH 232, PSYCH 238, PSYCH 244, PSYCH 253, PSYCH 256

**Effective Semester:** Spring 2012

## **INFORMATION AND CYBER SECURITY CREDIT**

### **Undergraduate Certificate Program**

Jerry Bachert  
111 Luerssen Bldg  
Penn State Berks  
Phone: 610-396-6221  
E-mail: jrb57@psu.edu

Berks College

### **INFORMATION AND CYBER SECURITY CREDIT (CYBER)**

This program is designed for working adults who are currently employed in the information technology field or have a strong background in ID and familiarity with computer networking. Course work should be completed within two-three years

To earn an undergraduate certificate in INFORMATION AND CYBER SECURITY CREDIT, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

SRA 111  
SRA 221  
IST 451  
IST 452  
IST 402  
IST 454

Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date: Spring Semester 2015

Last Revised by the Department: 11/29/2011

BL BLHSS

## **CHILDREN, YOUTH AND FAMILY SERVICES**

### **Undergraduate Certificate Program**

Mary Jo Spicer  
211 Henderson South Bldg  
University Park  
Phone: 814-863-8001  
E-mail: mjs6@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park, World Campus

### **CHILDREN, YOUTH AND FAMILY SERVICES (CYF)**

This certificate program is designed to improve the quality of planned programs in a wide variety of community settings. The primary goal of the program is to provide a flexible and convenient opportunity for self-enhancement, further education and professional development for those currently working or considering a career in human service settings. Courses are required in three areas: Foundation Courses (9 credits), Professional Core (15 credits) and Professional Electives (6 credits).

To earn an undergraduate certificate in CHILDREN, YOUTH AND FAMILY SERVICES, a minimum of 30 credits is required.

### **PRESCRIBED COURSES**

ENGL 015 OR CAS 100  
PSYCH100 OR SOC 001  
BIOL 141 OR BI SC004 OR NUTR 251  
HD FS129 OR HD FS229 OR HD FS239 OR HD FS311  
HD FS315 OR HD FS315Y  
FIN 108 OR HD FS395 OR HD FS216 OR HD FS218  
BB H 101 OR KINES060  
PHIL 103 OR PHIL 103W OR HD FS301  
HD FS330

Prerequisites Required.

Effective Date: Spring Semester 2006

Expiration Date:

Last Revised by the Department: 11/14/2011

HH HD FS

## **CHILDREN, YOUTH AND FAMILY SERVICES CERTIFICATE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette, Penn State York

### **CHILDREN, YOUTH AND FAMILY SERVICES CERTIFICATE (CYFSC)**

The certificate program for Children, Youth and Family Services is designed to improve the quality of planned programs in a wide variety of community settings. It prepares participants for service roles in preschools; day care centers; hospitals; institutional and community programs for emotionally disturbed, abused or neglected children and adolescents; as well as a variety of public welfare and family services agencies.

To earn an undergraduate certificate in CHILDREN, YOUTH AND FAMILY SERVICES , a minimum of 30 credits is required.

### **PRESCRIBED COURSES**

ENGL 015 OR CAS 100  
PSYCH100 OR SOC 001  
BIOL 141 OR BI SC004 OR NUTR 251  
HD FS129  
HD FS229  
HD FS239  
HD FS311  
HD FS315  
HD FS330  
HD FS395  
KINES060  
PHIL 103  
HD FS301

No Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/14/2011

CC CCBUS

## **DIGITAL ARTS**

### **Undergraduate Certificate Program**

Graeme Sullivan  
210 Patterson Bldg  
University Park  
Phone: 814-865-0444  
E-mail: gls27@psu.edu

World Campus

### **DIGITAL ARTS (DART)**

This 15-credit course will help you master the powerful combination of artistic knowledge and technical skills necessary to create professional, high-quality digital portfolios. You will learn some of the latest production techniques for generating computer-based graphics, digital photography, and media-rich Web productions.

To earn an undergraduate certificate in DIGITAL ARTS, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

ART 010 OR ART 020 OR ART 100  
ART 201 OR ART 203  
ART 211  
ART 302  
ART 402

No Prerequisites Required.

Effective Date: Spring Semester 2009

Expiration Date:

Last Revised by the Department: 11/07/2011

AA VARTS

## **DIVERSITY STUDIES**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Shenango

### **DIVERSITY STUDIES (DIV)**

This certificate is designed to provide students with an overview of issues concerning diversity. Core certificate is 12 credits. Choose 3 credits from AM ST 105, SOC 005, WMNST 001, WMNST 100Y, or WMNST 003. Choose 3 credits from ENGL 194, PSYCH 479, NURS 452, PSYCH 231, THEA 407, THEA 207, SOC 456, or CRIMJ 453. Choose 3 credits from ENGL 135, ENGL 139, ENGL 245, HIST 153Y, HIST 152, RL ST 001, CMLIT 108, MUSIC 007 or CRIMJ 451. Choose 3 credits at the 400 level. An Independent Study/Research course, or a special topics course, may be used to satisfy the 400-level course requirement, subject to approval by the Coordinator. Students MUST earn a course grade of C or higher for all 12 credits.

To earn an undergraduate certificate in DIVERSITY STUDIES, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

AM ST 105 or SOC 005 OR WMNST001 OR WMNST003  
ENGL 194 OR HD FS405 OR NURS 452 OR PSYCH 479  
OR PSYCH231 OR THEA 407 OR THEA 207 OR SOC 456 OR CRIMJ 453  
ENGL 135 OR ENGL 139 OR ENGL 245 OR HIST 153Y OR HIST 152  
OR RL ST001 OR CMLIT108 OR MUSIC 007 OR CRIMJ 451

No Prerequisites Required.

Effective Date: Fall Semester 2007

Expiration Date:

Last Revised by the Department: 04/05/2012

CC

## **DIGITAL PROCESSOR CONTROL FOR MANUFACTURING PROCESSES**

### **Undergraduate Certificate Program**

Instructor Name  
Address 1  
Address 2  
Phone:  
Fax:  
E-mail:

Penn State Hazleton

### **DIGITAL PROCESSOR CONTROL FOR MANUFACTURING PROCESSES (DPC)**

Knowledge of basic math and basic English are entrance requirements for this certificate program. Program is 16 credits Math 021 (3) - College Algebra EET 105 (3) - Electrical systems Math 026 (3) - Plane Trigonometry CMPET 117 (3) - Digital Electronics CMPET 120 (1) - Digital Electronics Laboratory EET 275 (3) Programmable Logic Controllers

To earn an undergraduate certificate in DIGITAL PROCESSOR CONTROL FOR MANUFACTURING PROCESSES, a minimum of 16 credits is required.

### **PRESCRIBED COURSES**

MATH 021  
EET 105  
MATH 026  
CMPET117  
CMPET120  
EET 275

Students are expected to have knowledge of Basic Math (non-credit) and Engl 004 (non-credit)

Prerequisites Required.

Effective Date: Fall Semester 2008

Expiration Date:

Last Revised by the Department: 11/11/2011

EN EE BD

## **EARLY CHILDHOOD CARE AND EDUCATION (LEVEL 1)**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **EARLY CHILDHOOD CARE AND EDUCATION (LEVEL 1) (ECCEC)**

This step up certificate in the associate degree in Human Development and Family Studies focuses on working adults involved in early childhood care education. This certificate teaches critical skills which will provide theoretical knowledge along with practical hands on skills to use at work

To earn an undergraduate certificate in EARLY CHILDHOOD CARE AND EDUCATION (LEVEL 1), a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

HD FS129  
HD FS229  
HD FS230  
ENGL 015  
OR HD FS233  
OR HD FS231  
OR HD FS232

No Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/14/2011

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## **EARLY CHILDHOOD CARE AND EDUCATION (LEVEL 2)**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **EARLY CHILDHOOD CARE AND EDUCATION (LEVEL 2) (ECCEC2)**

This certificate will step up to an associate degree in Human Development and Family Studies. It is especially designed with the adult student working in early childhood care education. This series of courses will add to the knowledge of the student after taking Certificate I

To earn an undergraduate certificate in EARLY CHILDHOOD CARE AND EDUCATION (LEVEL 2), a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

PSYCH100  
HD FS330  
HD FS234  
OR HD FS233  
OR HD FS231  
OR HD FS232

No Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/15/2011

CC CCBUS

## **EARLY CHILDHOOD CARE AND EDUCATION**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette

### **EARLY CHILDHOOD CARE AND EDUCATION (ECCED)**

The certificate program in Early Childhood Care and Education is designed to allow people interested in the provision of child care to gain pertinent knowledge and professional development. The program emphasizes work with infants, toddlers and young children, as well as parent/family communications. Developmentally appropriate activities in various learning areas and practical guidance techniques will be addressed.

To earn an undergraduate certificate in EARLY CHILDHOOD CARE AND EDUCATION, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

HD FS231 OR HD FS330  
HD FS232  
HD FS233  
HD FS234

No Prerequisites Required.

Effective Date: Fall Semester 2009

Expiration Date:

Last Revised by the Department: 11/15/2011

CC CCBUS

## **E-COMMERCE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Brandywine, Penn State Lehigh Valley, Penn State Mont Alto, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **E-COMMERCE (ECOMM)**

This credit certificate is designed to provide students with an understanding of basic business principles and their application to emerging technologies and the Internet. Courses in business, marketing, and management will be combined with courses directly related to E-Commerce to provide a comprehensive credit certificate for students wanting to explore this emerging business opportunity.

To earn an undergraduate certificate in E-COMMERCE, a minimum of 22 credits is required.

### **PRESCRIBED COURSES**

B A 243  
B A 250  
ECON 102  
MGMT 301  
MIS 297A  
MKTG 297  
MKTG 301

Prerequisites Required.

Effective Date: Fall Semester 1999

Expiration Date:

Last Revised by the Department: 01/16/2012

CC CCBUS

## **DIFFERENTIATED INSTR IN ELEM CLASSROOMS WITH AN EMPHASIS ON READING OR WRITING**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Brandywine

### **DIFFERENTIATED INSTR IN ELEM CLASSROOMS WITH AN EMPHASIS ON READING OR WRITING (EDUC)**

Meeting the needs of all students in your classroom can be challenging. Differentiated instruction in the elementary classroom in reading or writing provides the instructional strategies that you will need to support all learners in your classroom, regardless of their academic abilities, learning styles, interests, personalities, background knowledge, or experiences. This certificate program is designed for beginning or seasoned elementary school educators who are interested in developing or improving skills needed to work more effectively with the diverse population of students in their classrooms. Must take 4 courses from course selection to earn a total of 12 credits.

To earn an undergraduate certificate in DIFFERENTIATED INSTR IN ELEM CLASSROOMS WITH AN EMPHASIS ON READING OR WRITING, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

EDUC 498  
OR EDUC 450  
OR EDUC 436  
OR EDUC 412  
OR EDUC 452  
OR EDUC 497

No Prerequisites Required.

Effective Date: Fall Semester 2007

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## **ELECTRICAL ENGINEERING TECHNOLOGY CERTIFICATE I**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State New Kensington, Penn State York

### **ELECTRICAL ENGINEERING TECHNOLOGY CERTIFICATE I (EETC)**

This series of electrical engineering courses is designed for the working adult who would like to augment their knowledge in the workplace with practical electrical engineering courses. Certificate may be 15-16 credits, depending on courses chosen.

To earn an undergraduate certificate in ELECTRICAL ENGINEERING TECHNOLOGY CERTIFICATE I, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

EET 105  
CMPET117  
CMPET120  
IET 101  
EET 220 OR EET 275  
MATH 004 OR MATH 021 OR MATH 022

No Prerequisites Required.

Effective Date: Fall Semester 2008

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## **Analog and Digital Electronics**

### **Undergraduate Certificate Program**

David Loker  
Penn State Behrend  
Telephone: 814-898-6478  
Fax: (814) 898-6125  
email: [drl3@psu.edu](mailto:drl3@psu.edu)

Abington College, Altoona College, Behrend College, Berks College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **Analog and Digital Electronics (ELCTNC)**

This 12 credit certificate is designed to provide students with an understanding of the analysis and basic design techniques for digital, logic, and integrated circuits (op amps, amplifiers, filters, rectifiers). Students will also have an understanding of basic programming techniques.

#### **REQUIRED COURSES:**

ENGL 015  
CMPET 005  
CMPET 117  
CMPET 120  
EET 212W

Effective Semester: Fall 2012

## **EMERGENCY MEDICAL SERVICES**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette

### **EMERGENCY MEDICAL SERVICES (EMS)**

This certificate program provides students with the knowledge and skills necessary to become Pennsylvania Certified Emergency Technician. Curricula that is specific to the core learning related to emergency care and applies the teaching methods and principles pertinent to adult learning.

To earn an undergraduate certificate in EMERGENCY MEDICAL SERVICES, a minimum of 26 credits is required.

### **PRESCRIBED COURSES**

KINES303  
KINES403  
ENGL 015  
MATH 004 OR MATH 021  
HD FS129  
SOC 001 OR PSYCH100  
BIOL 110 OR BIOL 129 OR BIOL 141  
BIOL 142

Elective...The student will complete a course dependent on their individual interests or educational path

No Prerequisites Required.

Effective Date: Spring Semester 2008

Expiration Date:

Last Revised by the Department: 11/15/2011

CC CCBUS

## **Enterprise Architecture (ENARCH)**

University Park

Mary Beth Rosson  
332G Information Sciences and Technology Building  
University Park, PA  
814-863-3450  
eMail: mur13@psu.edu

This 12 credit certificate applies architecture principles related to the orderly arrangement of parts to analyze the components, structure and connectivity of business, data, application, technology and security architecture and identify their relationships to each other and to the strategy of the organization. The primary purpose of describing the architecture of an enterprise is to improve the effectiveness, efficiency, and agility of the organization. This includes innovating the structure of an organization, centralizing business processes, assuring quality and timeliness of information and ensuring that money spent on information technology can be justified.

### **Required Courses**

IST 422 (3)  
IST 423 (3)  
IST 424 (3)

### **Additional Courses**

3 credits from: SRA 221, IST 412, IST 432, IST 443, IST 452, IST 456 or SRA 468

Effective: Summer Session 2013



## ENGINEERING DESIGN

### Undergraduate Certificate Program

Richard Devon  
213J Hammond Bldg  
University Park  
Phone: 814-865-3163  
E-mail: duf@psu.edu

University Park

### ENGINEERING DESIGN (ENDSN)

The certificate will provide an opportunity to pursue a specialization in engineering design; provide an incentive to take more courses in design, participating in more design projects; and improve their employment prospects. For entrance, students must be at least 4th semester standing. The GPA considered for admission will be consistent with, or equivalent to, the GPA required for entrance to any major in the student's department. Students must earn a B grade or better in each qualifying course or independent study or pursue a replacement option. A minimum of 13 credits is required for completion of the certificate with no fewer than 6 credits at the 400- or 500- level.

To earn an undergraduate certificate in ENGINEERING DESIGN, a minimum of 13 credits is required.

### PRESCRIBED COURSES

EDSGN100 OR MATSE492W  
AERSP403 OR A B E467 OR A E 470 OR BME 419  
OR C E 410W OR E SC 481 OR I E 466  
OR S T S233 OR PHIL 233  
EDSGN496

Students must complete an application and be at least 4th semester standing. No fewer than 6 credits of certificate courses at the 400- or 500-level. Students must earn a "B" or better in each qualifying course.

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/11/2011

ENSETCE

## **ENERGY SYSTEM CERTIFICATE**

### **Undergraduate Certificate Program**

Jerry Bachert  
111 Luerssen Bldg  
Penn State Berks  
Phone: 610-396-6221  
E-mail: jrb57@psu.edu

Berks College

### **ENERGY SYSTEM CERTIFICATE (ENERGY)**

The Energy Systems Certificate at Penn State Berks provides students with detailed knowledge in the fields of power generation and distribution. Students with relevant experience and a strong math aptitude can enroll in courses that are part of the Energy Systems Certificate an non-degree students. Qualified non-degree students will need to complete 21 credits of course work to complete the requirements for the certificate.

To earn an undergraduate certificate in ENERGY SYSTEM , a minimum of 21 credits is required.

### **PRESCRIBED COURSES**

EET 105  
EET 114  
EET 118  
EET 214  
EET 215  
EET 275  
CMPET211  
SRA 221

Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date: Spring Semester 2015

Last Revised by the Department: 11/29/2011

BL BL EB

## **ENGINEERING AND COMMUNITY ENGAGEMENT**

### **Undergraduate Certificate Program**

Tom Colledge  
213P Hammond Bldg  
University Park  
Phone: 814-863-1527  
E-mail: thc100@psu.edu

University Park

### **ENGINEERING AND COMMUNITY ENGAGEMENT (ENGCO)**

A certificate in Engineering and Community Engagement is proposed for students in the College of Engineering. This certificate is intended to acknowledge students who have gained proficiency in design, research and application of appropriate technologies for use in serving communities in the U.S. and abroad while stressing an awareness of the cultural context of such engineering activities. Collaborations with communities are strongly encouraged along with emphasis on the importance of ethical considerations in collaborating/working in community settings. All students in good academic standing are eligible for admission to the program.

To earn an undergraduate certificate in ENGINEERING AND COMMUNITY ENGAGEMENT, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

YFE 211  
EDSGN352  
EDSGN452  
ENGR 496  
ENGR 411 OR ENGR 425 OR ENGR 408 OR ENGR 493  
OR EDSGN395

Core requirements for the certificate program include courses in both: a) Community Engagement, and b) U.S. and International Cultures. These courses may be scheduled to satisfy general education requirements (GS/GH/US/IL) depending on the courses selected. Beyond that, students have various course options available to them to complete the 12 credits requirement for the certificate including project-based courses in: a) design, b) entrepreneurship, and c) leadership. Students will be strongly encouraged to meet with the program director to discuss and formulate their program of study in the certificate program.

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/11/2011

EN SEDTP

## **ENGINEERING LEADERSHIP**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Wilkes-Barre

### **ENGINEERING LEADERSHIP (ENGRLD)**

The Engineering Leadership Certificate program is a series of 8 undergraduate credits designed for engineering professionals who have recently taken on a leadership role or anticipate such a role in the future.

To earn an undergraduate certificate in ENGINEERING LEADERSHIP, a minimum of 8 credits is required.

### **PRESCRIBED COURSES**

ENGR 407  
ENGR 408  
ENGR 409

No Prerequisites Required.

Effective Date: Fall Semester 2012

Expiration Date:

Last Revised by the Department: 01/05/2012

CC CCBUS

## **Entrepreneurship**

### **Undergraduate Certificate Program**

Dr. Greg Filbeck  
David Causgrove  
Penn State Behrend Black School of Business  
mgf11@psu.edu  
814-898-6549

Penn State Erie

### **Entrepreneurship Certificate (ENTRBC)**

The entrepreneurship certificate is designed to provide students with an exposure to entrepreneurship including how to start and build a successful business. Those completing this course sequence will better understand the legal framework of business, how small and private business differ from large corporations, how to determine market potential for new products, and how to construct pro-forma statements for purpose of project decision making. The field study will allow students a hands-on opportunity to gain experience in a start-up organization.

### **PRESCRIBED COURSES**

B A 241  
MGMT 431  
MGMT 432  
MKTG 475  
FIN 451

Effective Semester: Spring Semester 2013

## **Entrepreneur Certificate**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park, PA 16802  
Phone: 814-863-0327  
email: sah43@psu.edu

Beaver, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Wilkes-Barre, Worthington Scranton, York

### **Entrepreneur Certificate (ENTREP)**

The primary goal of the certificate program is to prepare individuals to develop the entrepreneurial skills necessary in today's marketplace. The curriculum integrates a core of twelve credits along with an elective for three credits in the areas of new product development, new ventures or franchising. The course is highly practical with current and live examples. Who should attend: Individuals who wish to own or operate a startup business or franchise. Individuals who wish to run and grow business. Individuals who wish to learn growth strategies. Individuals who wish to learn financing, taxes, money management. Individuals who wish to learn marketing basics, sales, online marketing, finding customers, social media, use of social media and branding. This certificate requires successful completion of fifteen (15) credits.

#### **Admission Requirements:**

- Participants will provide appropriate prior learning experiences for entrance.
- Participants will adhere to prerequisites of courses.
- Participants will satisfy all course completion requirements.
- It is recommended that the certificate be completed within two years.

#### **PRESCRIBED COURSES**

ENTR 300  
ENTR 320  
ENTR 400  
ENTR 410

#### **Electives: (Select one)**

ENTR 420  
ENTR 430  
ENTR 440

Effective Semester: FALL 2012

## **EARLY CHILDHOOD CARE AND EDUCATION**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois, Penn State Mont Alto

### **EARLY CHILDHOOD CARE AND EDUCATION (ERLYCH)**

This certificate is designed to allow people interested in the field of child care to gain pertinent knowledge and professional development. The program emphasizes work with infants, toddlers and young children, as well as parent/family communications. Developmentally appropriate activities in various learning areas and practical guidance techniques will be addressed. Required courses: HD FS 229, HD FS 230 and HD FS 231 Professional Electives (select 6 credits): HD FS 129, HD FS 232, HD FS, 233, HD FS 234, HD FS 301, HD FS 311, or HD FS 330

To earn an undergraduate certificate in EARLY CHILDHOOD CARE AND EDUCATION, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

HD FS229  
HD FS230  
HD FS231  
OR HD FS129  
OR HD FS232  
OR HD FS233  
OR HD FS234  
OR HD FS301  
OR HD FS311  
OR HD FS330

No Prerequisites Required.

Effective Date: Spring Semester 2004

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## **ORACLE EBUSINESS SUITE**

### **Undergraduate Certificate Program**

Janice Tottleben  
281 Jack Burke Res Center  
Penn State Erie  
Phone: 814-898-6109  
E-mail: jat14@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **ORACLE EBUSINESS SUITE (ERPBC)**

The Certificate in Oracle eBusiness Suite will instruct you in Oracle Enterprise Resource Planning software. Oracle ERP is an integrated multi-module application software that supports business processes. Oracle is one of the top ERP vendors and the skills gained by learning this software will allow you to become more valuable in the current marketplace. This program enables students to become proficient in Oracle Supply Chain and prepares them for the Oracle Supply Chain Certified Professional Consultant exams. Students must earn a "C" or better in each of the required courses to earn the Certificate.

To earn an undergraduate certificate in ORACLE EBUSINESS SUITE, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

MIS 405  
MIS 406  
MIS 407

No Prerequisites Required.

Effective Date: Spring Semester 2010

Expiration Date:

Last Revised by the Department: 11/10/2011

BC BSCH



## **EARTH'S MATERIALS AND THE ENVIRONMENT CERTIFICATE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois

### **EARTH'S MATERIALS AND THE ENVIRONMENT CERTIFICATE (ERTHMA)**

This certificate is an in-depth exploration of natural resources with emphasis on either the environmental chemistry of soil, or hydrogeology. (16-17 credits required in addition to completion of Understanding the Earth's Processes Certificate) Required courses (10 credits). Select 2 courses from: Earth Related, GEOSC 201 and GEOSC 418 or Water Related, GEOSC 412 and GEOSC 452. Recommended Courses: Not required to receive the certificate but to receive Natural Sciences General Education (GN) credit for certain chemistry courses requires both lecture and laboratory courses be taken: CHEM 108, CHEM 111, CHEM 113. Contact Diana Ricotta at Penn State DuBois, 814-375-4718 or dricotta@psu.edu <http://www.ds.psu.edu/CE/21385.htm?cn21D>

To earn an undergraduate certificate in EARTH'S MATERIALS AND THE ENVIRONMENT, a minimum of 16 credits is required.

### **PRESCRIBED COURSES**

CHEM 110  
CHEM 112  
MATH 140 OR MATH 110  
GEOSC201 OR GEOSC418 OR GEOSC412 OR GEOSC452

No Prerequisites Required.

Effective Date: Fall Semester 2010

Expiration Date:

Last Revised by the Department: 11/15/2011

CC CCBUS

## **UNDERSTANDING THE EARTH'S PROCESSES CERTIFICATE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois

### **UNDERSTANDING THE EARTH'S PROCESSES CERTIFICATE (ERTHPR)**

This 9 credit certificate is the study of Earth's processes and how they apply to rocks, minerals, soil characteristics, water flow, natural resources and much more. It is the first of 3 certificates offered for students who want to better understand the Earth's surface and subsurface. Contact Diana Ricotta at Penn State DuBois, 814-375-4718 or [dricotta@psu.edu](mailto:dricotta@psu.edu) <http://www.ds.psu.edu/CE/21385.htm?cn21D>

To earn an undergraduate certificate in UNDERSTANDING THE EARTH'S PROCESSES , a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

GEOSC001  
SOILS101  
EARTH111 OR GEOSC303

No Prerequisites Required.

Effective Date: Fall Semester 2010

Expiration Date:

Last Revised by the Department: 01/09/2012

CC CCBUS

## **EXPLORATION OF THE EARTH'S SUB-SURFACE CERTIFICATE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois

### **EXPLORATION OF THE EARTH'S SUB-SURFACE CERTIFICATE (ERTHSB)**

This certificate includes imaging the interior of the Earth to find oil, gas, hydrological flow, earthquakes, and much more. (14-15 credits required in addition to completion of Understanding the Earth's Processes Certificate) Required courses (8 credits). In addition, select 2 courses from: E B F 472, GEOSC 402Y, GEOSC 452, GEOSC 483, GEOSC 488. Contact Diana Ricotta at Penn State DuBois, 814-375-4718 or dricotta@psu.edu  
<http://www.ds.psu.edu/CE/21385.htm?cn21D>

To earn an undergraduate certificate in EXPLORATION OF THE EARTH'S SUB-SURFACE , a minimum of 14 credits is required.

### **PRESCRIBED COURSES**

PHYS 211  
MATH 140 OR MATH 083  
GEOSC402Y OR GEOSC452 OR GEOSC483 OR GEOSC488  
OR E B F472

No Prerequisites Required.

Effective Date: Fall Semester 2010

Expiration Date:

Last Revised by the Department: 11/15/2011

CC CCBUS

## **English as a Second Language Program Specialist Certificate**

### **Undergraduate Certificate Program**

Elizabeth Smolic  
257 Chambers Building  
Telephone: 814-867-3199  
Fax: 814-863-7602  
E-Mail: eas260@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Great Valley, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **English as a Second Language Program Specialist (ESL)**

The undergraduate ESL Program Specialist Certificate is designed to give teachers the essential knowledge and skills to effectively work with English learners, their families and communities in public school (K-12) contexts. Candidates are required to take five three-credit courses which correspond to the ESL Program Specialist K-12 Program Guidelines of the Pennsylvania Department of Education and include 60 hours of integrated field experience. The program will lead to demonstration of knowledge of the fundamental concepts and teaching practices of English as a Second Language instruction and services to the growing numbers of English learners in public schools.

### **ADMISSION REQUIREMENTS**

International candidates must have a TOEFL score of 600 (paper-based), 250 (computer-based), or 100 (internet-based) with a 23 on the oral section.

### **PRESCRIBED COURSES**

APLNG 484 or APLNG 410  
APLNG 493  
WL ED 400  
WL ED 444  
WL ED 483

Effective Semester: Spring 2012

## **FINANACIAL ACCOUNTING**

### **Undergraduate Certificate**

Shirl Henry  
111 Old Main  
University Park, PA 16802  
814-863-0327  
sah43@psu.edu

Penn State Wilkes-Barre; Penn State Worthington Scranton

### **FINANCIAL ACCOUNTING (FINACC)**

This six (6) credit certificate program is perfect for those individuals with exposure to and/or experience in bookkeeping, accounts receivable/payable and other accounting practices with no formal academic education. The program enhances the participant's knowledge in the accounting areas identified in the course descriptions and introduces them to general accounting software.

### **Admission Requirements:**

Nondegree or degree status undergraduate students

### **PRESCRIBED COURSES**

[ACCTG 151](#) Introductory Financial Accounting I (3)

[ACCTG 152](#) Introductory Financial Accounting II (3)

**Effective Semester:** Fall 2012

## **FINANCIAL PLANNING**

### **Undergraduate Certificate Program**

Rick Hedderick  
Penn State Erie  
281 Burke Center  
5101 Jordan Road  
Erie, PA 16563-1400  
814-898-6435  
RPH132@PSU.EDU

Penn State Erie, The Behrend College

### **FINANCIAL PLANNING (FINPLN)**

This certificate provides an introduction to personal financial planning and includes the areas of insurance, taxes, investments, retirement planning and estate planning. 18 credits are required.

#### **PRESCRIBED COURSES**

ACCTG 310  
FIN 330  
FIN 420  
FIN 430  
FIN 450  
FIN 491

#### **Prerequisites Required:**

FIN 301

**Effective Semester:** SPRING 2014

## **FINANCIAL RISK MANAGEMENT**

### **Undergraduate Certificate Program**

Greg Filbeck  
281 Jack Burke Res Center  
Penn State Erie  
Phone: 814-898-6549  
E-mail: [mgf11@psu.edu](mailto:mgf11@psu.edu)

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **FINANCIAL RISK MANAGEMENT (FINRSK)**

This certificate program is designed to prepare students for a career in risk management; and, for those interested, to gain exposure to topic that constitute the first part of the Financial Risk Manager (FRM) exam, sponsored by the Global Association of Risk Professionals (GARP). The FRM exam is the primary industry designation with over 20,000 candidates taking the exam twice a year. Students completing the certificate are prepared to pass the first part of this two-part exam. The certificate requires a total of 21 credit hours and can be completed concurrently with a Penn State Behrend degree or via continuing education. For more information please see <http://psbehrend.psu.edu/Academics/academic-programs/certificate-programs-1>

To earn an undergraduate certificate in FINANCIAL RISK MANAGEMENT, a minimum of 22 credits is required.

### **PRESCRIBED COURSES**

STAT 200 OR SCM 200  
STAT 301  
STAT 462 OR ECON 485  
FIN 301  
FIN 420  
FIN 427  
FIN 461

Prerequisites Required.

Effective Date: Spring Semester 2011

Expiration Date:

Last Revised by the Department: 12/02/2011

BC BSCH

## **FOUNDATIONS IN BUSINESS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, University Park

### **FOUNDATIONS IN BUSINESS (FNDBUS)**

The Foundations in Business Certificate provides students with a solid foundation in economics, accounting, and English. It also provides students with information to broaden their understanding of the legal business environment.

To earn an undergraduate certificate in FOUNDATIONS IN BUSINESS, a minimum of 17 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
CAS 100  
ACCTG211  
ECON 102 OR ECON 104  
B A 243

No Prerequisites Required.

Effective Date: Spring Semester 2002

Expiration Date:

Last Revised by the Department: 01/16/2012

CC CCBUS



## **Financial Services Sales Certificate**

### **Undergraduate Certificate Program**

Greg Filbeck/Mary Beth Pinto  
286 Burke  
Penn State Erie  
814-898-6549  
email: mgf11@psu.edu

Penn State Behrend

### **Financial Services Sales Certificate (FNSRSL)**

This certificate program is designed to prepare both current and returning students for a career in a sales position in the financial services industry. The certificate recognizes the need for a baseline knowledge in financial planning and various financial products, but also the importance of personal marketing and communication skills necessary to be successful within the industry. This certificate program requires a total of 15 credit hours and can be completed concurrently with a Penn State Behrend degree or via continuing education.

#### **Required Courses**

CAS 252: Business and Professional Communications  
FIN 330: Personal Financial Planning  
MKTG 410: Personal Selling

#### **Choose one of the following two courses:**

CAS 203: Interpersonal Communication  
PSYCH 243: Introduction to Well-being and Positive Psychology

#### **Choose one of the following three courses:**

ECON 351: Money and Banking  
FIN 409: Principles of Real Estate  
FIN 420: Investments  
FIN 450: Retirement Planning

**Effective Semester:** Fall 2013

## **FOUNDATIONS OF BUSINESS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Schuylkill, Penn State Wilkes-Barre, Penn State York

### **FOUNDATIONS OF BUSINESS (FONBUS)**

This certificate is designed for adult students who are interested in beginning college courses in business that will "step-up" to an associate degree.

To earn an undergraduate certificate in FOUNDATIONS OF BUSINESS, a minimum of 16 credits is required.

### **PRESCRIBED COURSES**

CAS 100  
ENGL 015  
MIS 204  
ECON 102 OR ECON 104  
B A 243

No Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 02/22/2012

CC CCBUS

## **Honors Globalization: India**

### **Undergraduate Certificate Program**

University Park

Richard Stoller  
10 Schreyer Honors College  
Phone: 814-865-2060  
Email: rjs27@psu.edu

### **Honors Globalization: India**

The certificate represents completion of a six-credit sequence of honors coursework including spring and fall courses and a five-week summer program in India, plus an additional six credits of India-related coursework as verified by the Schreyer Honors College. Students who complete certificate requirements will achieve an integration of classroom and experiential learning about India and will acquire a framework for understanding that can be applied to other countries or regions.

Students must complete a Schreyer Honors College integrated program plus additional relevant coursework, for a minimum of 12 credits. Six credits of core courses include a three-credit interdisciplinary introduction to India, followed by one credit for the in-country experience, and a two-credit follow-up course. Six credits of additional courses may be India-specific courses, Hindi (or other Indian) language courses, or thematic or comparative courses with relevance to the region.

**Effective Semester:** Fall Semester 2013

## **GLOBAL AWARENESS**

### **Undergraduate Certificate Program**

John Gamble  
170 Irvin Kochel Center  
Penn State Erie  
Phone: 814-898-6291  
E-mail: jkg2@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **GLOBAL AWARENESS (GLBLBC)**

The certificate gives students an appreciation of the world in which they will live and work. By introducing students first to the broad contours of the globalizing world and then adding more narrowly focused courses, the certificate will give students a sense of the diversity and complexity of the modern world. All 12 credits must be taken at Penn State; a C or higher is required in each course. Students taking a language can only apply the third level of proficiency when fulfilling the requirement. The third level of proficiency must be demonstrated through class work rather than by testing out of the class. In addition to the six required credits, students must complete six credits that focus on matters outside the United States.

To earn an undergraduate certificate in GLOBAL AWARENESS, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

HIST 011  
PL SC014 OR PL SC003

No Prerequisites Required.

Effective Date: Fall Semester 2010

Expiration Date:

Last Revised by the Department: 11/11/2011

BC H&SS

## **GAME DEVELOPMENT: DIGITAL ARTS AND DESIGN**

### **Undergraduate Certificate Program**

Chris Coulston  
242 Jack Burke Res Center  
Penn State Erie  
Phone: 814-898-6988  
E-mail: [csc104@psu.edu](mailto:csc104@psu.edu)

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **GAME DEVELOPMENT: DIGITAL ARTS AND DESIGN (GMDEVD)**

The U.S. video game industry exceeds both the movie and music industries in revenues, \$20 billion in 2008, employing a range of professionals, including graphic artists, software developers, and marketing specialists. Game development also finds its way into mainstream industries where graduates with gaming and graphic skills are needed to develop virtual worlds and experiences for their customers. Game development requires a multi-disciplinary approach to delivery that includes computing skills, arts, and cinema. This certificate is for the student who is interested in the digital arts and design aspects associated with game development. The URL is: <http://www.behrend.psu.edu/academic/engineering/degrees/se/Game-certificates.htm>

To earn an undergraduate certificate in GAME DEVELOPMENT: DIGITAL ARTS AND DESIGN, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

The following courses are required: Introduction to Gam Design (3 cr), Technical Game Development (3 cr), Advanced Game Design (3 cr) and Game Development Project (3 cr).

Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 11/11/2011

BC SEET

## **GAME DEVELOPMENT: TECHNICAL PROGRAMMING**

### **Undergraduate Certificate Program**

Chris Coulston  
242 Jack Burke Res Center  
Penn State Erie  
Phone: 814-898-6988  
E-mail: [csc104@psu.edu](mailto:csc104@psu.edu)

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **GAME DEVELOPMENT: TECHNICAL PROGRAMMING (GMDEVP)**

The U.S. video game industry exceeds both the movie and music industries in revenues, \$20 billion in 2008, employing a range of professionals, including graphic artists, software developers, and marketing specialists. Game development also finds its way into mainstream industries where graduates with gaming and graphic skills are needed to develop virtual worlds and experiences for their customers. Game development requires a multi-disciplinary approach to delivery that includes computing skills, arts, and cinema. This certificate is for students who are interested with the technical programming associated with game development. The URL is <http://www.behrend.psu.edu/academic/engineering/degrees/se/Game-certificates.htm>

To earn an undergraduate certificate in GAME DEVELOPMENT: TECHNICAL PROGRAMMING, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

The following courses are required: Introduction to Game Design (3 cr), Technical Game Development (3 cr), Advanced Game Production (3), and Game Development Project (3 cr)

Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 11/11/2011

BC SEET

## **HUMAN RESOURCES MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette, Penn State Greater Allegheny

### **HUMAN RESOURCES MANAGEMENT (H R)**

This certificate provides a foundation in management and related disciplines for those interested in human resources issues. Courses can be applied toward a baccalaureate degree in business or related fields. Students can be enrolled as a non-degree, provisional or degree student. Students must meet any course prerequisites.

To earn an undergraduate certificate in HUMAN RESOURCES MANAGEMENT, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

MGMT 301  
MGMT 321  
MGMT 331  
MGMT 341  
CAS 100 OR ECON 102 OR LER 100 OR PSYCH100  
OR PSYCH221

No Prerequisites Required.

Effective Date: Fall Semester 2006

Expiration Date:

Last Revised by the Department: 01/16/2012

CC

## **HEALTH CARE LEADERSHIP**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **HEALTH CARE LEADERSHIP (HC LDR)**

The Health Care Leadership certificate program is designed to meet the immediate educational needs of those currently working full or part-time in a health-care environment who want further information and professional development in health-care management. It is particularly relevant to those trained in professional or technical health-care fields who have been promoted, or seek promotion, into a health-care managerial or supervisory position. Also, it provides a starting point for those who are considering a managerial career in the health-care field, but don't want to commit to an associate or baccalaureate program.

To earn an undergraduate certificate in HEALTH CARE LEADERSHIP, a minimum of 23 credits is required.

### **PRESCRIBED COURSES**

ACCTG211  
B LAW243 OR B A 243  
ECON 102 OR ECON 104  
MGMT 100 OR MGMT 301  
H P A101  
H P A332

No Prerequisites Required.

Effective Date: Fall Semester 1985

Expiration Date:

Last Revised by the Department: 12/06/2011

CC CCBUS



## HEALTH CARE MANAGEMENT

### Undergraduate Certificate Program

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Abington College, Altoona College, Behrend College, Berks College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### HEALTH CARE MANAGEMENT (HC MGM)

The program provides an understanding of the principles of Management; Financial Accounting; the legal aspects of business; the development, organization, and evaluation of Health Care facility or department; and health economics.

To earn an undergraduate certificate in HEALTH CARE MANAGEMENT, a minimum of 22 credits is required.

### PRESCRIBED COURSES

ACCTG211 OR ACCTG201  
B LAW243 OR B A 243  
ECON 102 OR ECON 104  
H P A101  
H P A332  
H P A447  
MGMT 100 OR MGMT 301

Accounting 201 does not count towards graduation for some majors. Studentstaking Accounting 201 would either need to take Accounting 211 or go to thecommunity college and take the 3 credit managerial accounting (please checkwith appropriate personnel).

Prerequisites Required.

Effective Date: Fall Semester 1989

Expiration Date:

Last Revised by the Department: 01/19/2012

CC CCBUS

## **ADVANCED BUSINESS ADMINISTRATION**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **ADVANCED BUSINESS ADMINISTRATION (HCABAC)**

This is a step up to the Intermediate Business Administration Certificate

To earn an undergraduate certificate in ADVANCED BUSINESS ADMINISTRATION, a minimum of 48 credits is required.

### **PRESCRIBED COURSES**

MATH 022  
MGMT 301  
ART 003  
ENGL 202D  
ACCTG211  
ENGL 015  
MKTG 220  
PSYCH100  
MKTG 301  
MATH 022  
MIS 204  
CAS 100B  
B A 250  
ECON 104  
B A 243

No Prerequisites Required.

Effective Date: Fall Semester 2008

Expiration Date: Spring Semester 2011

Last Revised by the Department: 04/05/2012

CC CCBUS

## **FOUNDATION OF BUSINESS IN HEALTH CARE (HANOVER HOSP)**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **FOUNDATION OF BUSINESS IN HEALTH CARE (HANOVER HOSP) (HCFBUS)**

This business step up certificate is designed for employees at Hanover Hospital.

To earn an undergraduate certificate in FOUNDATION OF BUSINESS IN HEALTH CARE (HANOVER HOSP), a minimum of 16 credits is required.

### **PRESCRIBED COURSES**

CAS 100B  
MIS 204  
B A 250  
ECON 104  
B A 243

No Prerequisites Required.

Effective Date: Fall Semester 2008

Expiration Date:

Last Revised by the Department: 01/16/2012

CC CCBUS

## **INTERMEDIATE BUSINESS ADMINISTRATION**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **INTERMEDIATE BUSINESS ADMINISTRATION (HCIBAC)**

A step up from Foundations of Business Administration to Intermediate Business Administration Certificate.

To earn an undergraduate certificate in INTERMEDIATE BUSINESS ADMINISTRATION, a minimum of 33 credits is required.

### **PRESCRIBED COURSES**

MIS 204  
B A 250  
B A 243  
CAS 100B  
ECON 104  
ENGL 015  
MKTG 220  
PSYCH100  
MKTG 301  
MATH 021

No Prerequisites Required.

Effective Date: Fall Semester 2008

Expiration Date:

Last Revised by the Department: 01/16/2012

CC CCBUS

## **HEALTHCARE LEADERSHIP 1 (HANOVER HOSPITAL)**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette, Penn State York

### **HEALTHCARE LEADERSHIP 1 (HANOVER HOSPITAL) (HCLEAD)**

This step up certificate is designed for employees at Hanover Hospital.

To earn an undergraduate certificate in HEALTHCARE LEADERSHIP 1 (HANOVER HOSPITAL), a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

CAS 100B  
H P A101  
ECON 104  
MIS 204  
ENGL 202D  
MGMT 301

No Prerequisites Required.

Effective Date: Fall Semester 2008

Expiration Date:

Last Revised by the Department: 01/16/2012

CC CCBUS

## **HEALTHCARE LEADERSHIP II**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **HEALTHCARE LEADERSHIP II (HCLIC)**

This is a step up program from the Healthcare Leadership I certificate.

To earn an undergraduate certificate in HEALTHCARE LEADERSHIP II, a minimum of 34 credits is required.

### **PRESCRIBED COURSES**

MGMT 321  
FIN 301  
ACCTG211  
MGMT 331  
MGMT 341  
H P A101  
CAS 100B  
ECON 104  
MIS 204  
ENGL 202D  
MGMT 301

No Prerequisites Required.

Effective Date: Fall Semester 2008

Expiration Date:

Last Revised by the Department: 01/16/2012

CC CCBUS

## **HEALTH CARE SUPERVISORY LEADERSHIP**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Shenango, Penn State York

### **HEALTH CARE SUPERVISORY LEADERSHIP (HCSUPL)**

This is a step up certificate to a bachelors degree for adult students. It provides an understanding of business aspects to health care management.

To earn an undergraduate certificate in HEALTH CARE SUPERVISORY LEADERSHIP, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

H P A101  
H P A332 OR MGMT 321  
MGMT 341  
MGMT 301  
MATH 021

Math 004 or successful completion of entrance exam and 60 credits

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/17/2011

CC CCBUS

## HEALTHCARE INFORMATICS CERTIFICATE

### Undergraduate Certificate Program

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois, Penn State Greater Allegheny, Penn State Hazleton, Penn State Wilkes-Barre

### HEALTHCARE INFORMATICS CERTIFICATE (HLTHIF)

The healthcare industry is moving towards the widespread use of digital records and electronic information transfer. This is resulting in a need for healthcare professionals to be knowledgeable in information technology and for information technology professionals at healthcare facilities to be more knowledgeable of the healthcare industry. Professionals in these two areas both need to understand the complexities of medical information being digitally stored and transferred. This 19 credit certificate program provides students with insight into both professional areas. Students may receive credit for previous coursework (up to 3 courses) upon academic review.

To earn an undergraduate certificate in HEALTHCARE INFORMATICS , a minimum of 19 credits is required.

### PRESCRIBED COURSES

IST 110  
IST 210  
IST 220  
H P A101  
H P A332  
H P A470

No Prerequisites Required.

Effective Date: Fall Semester 2010

Expiration Date:

Last Revised by the Department: 11/17/2011

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## **HUMAN FACTORS**

### **Undergraduate Certificate Program**

Dr. Charisse Nixon  
Penn State Behrend School of Humanities and Social Sciences  
cln5@psu.edu  
814-898-6041

Penn State Erie

### **Human Factors (HMFAC)**

This 15 credit interdisciplinary certificate program is designed to prepare students with in-depth knowledge of the capabilities and limitations of people and the application of psychological concepts to the design and safety of products and services; including consumer goods, military products, interactive websites and games, and assistive technologies. This certificate requires that students take introductory psychology as well as the two human factors courses (9 credits). Students will also need to take 1 additional psychology course (3 credits), and one course (3 credits) outside of their major of study in order to foster the interdisciplinary nature of this certificate.

### **Admission Requirements**

Completion of prerequisites for the required courses

### **PRESCRIBED COURSES**

PSYCH 100  
PSYCH 244  
PSYCH 444

### **ADDITIONAL COURSES**

Take one of the following courses:

PSYCH 253  
PSYCH 256

Take one of the following courses (this course must be outside the student's major field of study):

EDSGN 100  
PSYCH 221  
SOC 005  
S T S 200  
S T S/PHIL 233

Effective Semester: Spring Semester 2013

## **Corporate Risk Mitigation and Response**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park, PA 16802  
Phone: 814-863-0327  
email: sah43@psu.edu

Beaver, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Shenango, Wilkes-Barre, Worthington  
Scranton, York

### **Corporate Risk Mitigation and Response (HMLS)**

The primary goal of the certificate is to prepare candidates for management and supervisory positions within this high-growth industry. This certificate provides the core knowledge and skills essential to leaders in today's world of corporate risk planning, security, protection, and operational response. The curriculum is intended for corporate leaders, managers, and human resource professionals. Operations and process professionals dealing with finance, project management, communications, and facilities management. This certificate requires successful completion of eighteen (18) credits.

#### **Admission Requirements:**

Requirements of the certificate including entrance requirements, courses, and time limit for completion of the certificate and/or non-course completion requirements.

- Participants will provide appropriate prior learning experiences for entrance.
- Participants will adhere to prerequisites of courses.
- Participants will satisfy all course completion requirements.
- It is recommended that the certificate be completed within two years.

#### **PRESCRIBED COURSES**

CRIMJ 200  
CRIMJ 304  
R M 302  
SRA 211

#### **Electives: Corporate Track - 6 credits**

R M 405  
SCM 310

OR

#### **Electives: Human Resource Track - 6 credits**

CRIMJ 113  
SRA 111H

Effective Semester: FALL 2012

## **INTRODUCTION TO HORTICULTURE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette

### **INTRODUCTION TO HORTICULTURE (HORT)**

This certificate includes: introduction to horticulture with emphasis on plant domestication, computer applications for landscape contracting, herbaceous perennial and annual identification, ornamental plant materials under fall conditions, ornamental plant materials under spring conditions, turf and ornamental weed control, landscape plant establishment and maintenance.

To earn an undergraduate certificate in INTRODUCTION TO HORTICULTURE, a minimum of 21 credits is required.

### **PRESCRIBED COURSES**

HORT 101  
HORT 120  
HORT 131  
HORT 137  
HORT 138  
HORT 238  
HORT 408

No Prerequisites Required.

Effective Date: Spring Semester 2009

Expiration Date:

Last Revised by the Department: 11/17/2011

CC CCBUS

## HOUSING

### Undergraduate Certificate Program

Andrew Scanlon  
220 Sackett Bldg  
University Park  
Phone: 814-867-0151  
E-mail: axs21@psu.edu

University Park

### HOUSING (HOUSG)

This certificate program is designed to prepare students for a career in the housing industry. Students are required to take a set of complementary courses in the technology of housing, the development process, and the design and the delivery processes for housing. The minimum number of credits required is 12, with no less than six credits at the 400-level. For entrance into the certificate program, students must be at least 5th semester. The cumulative GPA considered for admission will be consistent with, or equivalent to, the GPA minimum of 2.0 for maintaining good academic standing. Students must earn a C grade or better in each of the four courses to continue with the certificate.

To earn an undergraduate certificate in HOUSING, a minimum of 12 credits is required.

### PRESCRIBED COURSES

A E 470  
C E 410W OR C E 542 OR A E 542 OR A E 432  
OR A B E462 OR R EST301 OR R EST409

Students must complete an application and choose an additional three courses from the following list: CE 410W, CE/AE 542, AE 432, ABE 462, R EST 301, R EST 409. With the approval of the Hankin Chair, one housing-related course of at least 3 credits not included in the list of recommended additional courses (e.g., demographics, urban geography, social housing, etc.) can be substituted for one of the three additional courses. Student must be at least fifth semester standing. The cumulative GPA considered for admission will be consistent with, or equivalent to, the GPA minimum of 2.0 for maintaining good academic standing. Students must earn a C grade or better in each of the four courses to continue with the certificate.

Prerequisites Required.

Effective Date: Fall Semester 2004

Expiration Date:

Last Revised by the Department: 11/11/2011

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## **HEALTH POLICY AND ADMINISTRATION**

### **Undergraduate Certificate Program**

Beverly Fahr  
604 Donald H. Ford Bldg  
University Park  
Phone: 814-863-2859  
E-mail: bvf2@psu.edu

University Park

### **HEALTH POLICY AND ADMINISTRATION (HPA)**

This certificate program is designed to allow students switching into health care from another industry to continue their education, if they desire, through a major in Health Policy and Administration or a bachelor's degree in one of several fields at the university combined with a minor in Health Policy and Administration. Required courses: HPA 101, HPA 332 Take an additional 9 credits from: HPA 420, 447, 455, 460. Students taking H P A 447 must already have taken either INS 301 or FIN 100.

To earn an undergraduate certificate in HEALTH POLICY AND ADMINISTRATION, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

H P A101  
H P A332  
H P A420 OR H P A447 OR H P A455 OR H P A460

No Prerequisites Required.

Effective Date: Spring Semester 2008

Expiration Date:

Last Revised by the Department: 11/14/2011

HH H P A

## **HUMAN RESOURCE MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **HUMAN RESOURCE MANAGEMENT (HR MGT)**

This post associate degree step up certificate is designed for adult students who are interested in the skills to manage in the human resource field.

To earn an undergraduate certificate in HUMAN RESOURCE MANAGEMENT, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

MGMT 301  
MGMT 321  
MGMT 331  
MGMT 341  
MATH 021

Math 004 or successful completion of entrance exam and 60 credits

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/17/2011

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## **HUMAN RESOURCES MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York

### **HUMAN RESOURCES MANAGEMENT (HRMGMT)**

The Human Resource Management Certificate program is designed for people interested in learning more about the skills necessary to manage in the human resource field. This program would appeal to employees newly appointed to or supporting the Human Resources Issues, or people who are interested in entering the human resource field. If you are considering returning to school in a business program, but are not ready to commit to an associate or baccalaureate degree program, this certificate program can serve as a starting point.

To earn an undergraduate certificate in HUMAN RESOURCES MANAGEMENT, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

MGMT 301 OR MGMT 100  
MGMT 321  
MGMT 331  
MGMT 341  
OR ECON 102  
OR LER 100  
OR PSYCH100  
OR SOC 003  
OR CAS 100

Required MGMT 301, 321, 331 & 341 Electives, choose 2 from the following: ECON102, LER 100, PSYCH 100, SOC 3, and CAS 100

No Prerequisites Required.

Effective Date: Fall Semester 1990

Expiration Date:

Last Revised by the Department: 04/05/2012

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## **Health Science Professions Certificate I**

### **Undergraduate Certificate Program**

Dr. Norah Shultz  
115A Sutherland Building  
1600 Woodland Road  
Abington, PA 19001  
Telephone: 215-881-7877  
Fax: 215-881-7317  
Fax: 215-881-7317

Penn State Abington

### **Health Science Professions Certificate I (HTHSC1)**

The educational pathway for many health science professions requires prerequisites to gain entry. The Health Science Professions I certificate program contains the courses necessary to meet several local schools' prerequisite requirements. The two-semester program consists of 12 courses (36-38 credits total).

#### **PRESCRIBED COURSES**

BIOL 141  
BIOL 142  
CHEM 110  
CHEM 111 OR CHEM 101  
PSYCH 100  
SOC 001 OR SOC 005  
ENGL 015  
BIOL129  
NUTR 251  
MICRB 106  
MICRB 107  
HD FS 129

Effective Date: Fall Semester 2012



## **INTRODUCTION TO BUSINESS MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Brandywine, Penn State Fayette, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **INTRODUCTION TO BUSINESS MANAGEMENT (IBMG)**

This certificate is designed to provide participants with a strong foundation in core areas of business, and a realistic, short-term goal for earning a certificate in business. For those beginning their study of business, this certificate program provides education in the fundamental business areas of management, accounting, communications, and computers.

To earn an undergraduate certificate in INTRODUCTION TO BUSINESS MANAGEMENT, a minimum of 13 credits is required.

### **PRESCRIBED COURSES**

ACCTG211  
MGMT 100 OR MGMT 301  
MIS 103  
CAS 100B

No Prerequisites Required.

Effective Date: Spring Semester 2001

Expiration Date:

Last Revised by the Department: 12/06/2011

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## **INTRODUCTION TO BUSINESS MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Wilkes-Barre

### **INTRODUCTION TO BUSINESS MANAGEMENT (IBMG2)**

The introduction to business management certificate provides a strong foundation in core business areas (management, accounting, communications and technology).

To earn an undergraduate certificate in INTRODUCTION TO BUSINESS MANAGEMENT, a minimum of 16 credits is required.

### **PRESCRIBED COURSES**

ACCTG211  
CAS 100  
ENGL 015  
MGMT 100  
MIS 103 OR MIS 204

No Prerequisites Required.

Effective Date: Summer 2010

Expiration Date:

Last Revised by the Department: 04/05/2012

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## **INSTRUCTOR DEVELOPMENT FOR PROFESSIONALS**

### **Undergraduate Certificate Program**

Mark Threeton  
301C Keller Building  
University Park, PA 16802  
Phone: 814-863-5361  
Email: mdt177@psu.edu

University Park, World Campus

### **ADVANCED INSTRUCTOR DEVELOPMENT FOR PROFESSIONALS**

This certificate is designed for the adult learner who would like to gain knowledge of essential instructor development concepts. These adult learners may already possess a degree in an occupational discipline, but need to augment their knowledge and resumes to advance their careers with their current employer or transition into a new job. Adult learners taking this certificate may also be taking post-secondary credit courses for the first time.

To earn an undergraduate certificate in INSTRUCTOR DEVELOPMENT FOR PROFESSIONALS, a minimum of 9 credits is required.

#### **Admission Requirements:**

High school diploma and two years of work experience.

#### **REQUIRED COURSES:**

WF ED 105  
WF ED 106  
WF ED 207W

**Effective Semester:** Fall 2013

## INSTRUCTIONAL STRATEGIES FOR K-12 TEACHERS

### Undergraduate Certificate Program

Instructor Name  
Address 1  
Address 2  
Phone:  
Fax:  
E-mail:

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### INSTRUCTIONAL STRATEGIES FOR K-12 TEACHERS (INS ST)

Penn State's Instructional Strategies Certificate for K-12 Teachers program is designed to show teachers how to better serve students better through instructional strategies that emphasize differentiated learning techniques. Participants will learn how to design new lessons, based on cutting-edge instructional strategies addressing the varying levels of students. Using recent theories and models describing how people learn, teachers can also equip teachers to better design lessons and learning activities with student activity in mind. One course, INSYS 415, must be taken online via Penn State's World Campus. Visit [www.worldcampus.psu.edu/INSYS415](http://www.worldcampus.psu.edu/INSYS415) for course availability and registration information.

To earn an undergraduate certificate in INSTRUCTIONAL STRATEGIES FOR K-12 TEACHERS, a minimum of 9 credits is required.

### PRESCRIBED COURSES

EDPSY421  
INSYS415A  
INSYS498A  
INSYS498B

One course, INSYS 415, must be taken online via Penn State's World Campus. Visit [www.worldcampus.psu.edu/INSYS415](http://www.worldcampus.psu.edu/INSYS415) for course availability and registration information.

Prerequisites Required.

Effective Date: Fall Semester 2004

Expiration Date:

Last Revised by the Department: 11/14/2011

ED AIWED

## **INTRODUCTION TO CUSTOMER RELATIONS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette, Penn State Wilkes-Barre

### **INTRODUCTION TO CUSTOMER RELATIONS (INT CR)**

The introductory certificate program in customer relations is a series of three courses designed to provide you with a basic understanding of business functions and help you develop the skills essential for providing high-quality customer service. Topics include the role of customer service in today's business environment, the importance of effective marketing techniques, and improving customer interactions.

To earn an undergraduate certificate in INTRODUCTION TO CUSTOMER RELATIONS, a minimum of 5 credits is required.

### **PRESCRIBED COURSES**

B A 297  
MKTG 221  
B A 297

No Prerequisites Required.

Effective Date: Fall Semester 2002

Expiration Date:

Last Revised by the Department: 11/17/2011

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## **INTRODUCTION TO ADMINISTRATION OF JUSTICE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Hazleton, Penn State Wilkes-Barre

### **INTRODUCTION TO ADMINISTRATION OF JUSTICE (INTAOJ)**

This introductory certificate in Administration of Justice is designed for students interested in a solid foundation in the field of criminal justice. It is composed of four 3 credit courses. Intro to Criminal Justice (CRIMJ 100), Criminology (CRIMJ 012), Policing in America (CRIMJ 210), and Issues in the American Criminal Justice System (CRIMJ 221). Prerequisite for CRIMJ 210 and CRIMJ 221 is CRIMJ 100.

To earn an undergraduate certificate in INTRODUCTION TO ADMINISTRATION OF JUSTICE, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

CRIMJ100  
CRIMJ012  
CRIMJ210  
CRIMJ221

No Prerequisites Required.

Effective Date: Fall Semester 2012

Expiration Date:

Last Revised by the Department: 03/02/2012

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## **INTERNATIONAL ENGINEERING**

### **Undergraduate Certificate Program**

Jean Landa Pytel  
208 Hammond Bldg  
University Park  
Phone: 814-865-7539  
E-mail: jlp8@psu.edu

University Park

### **INTERNATIONAL ENGINEERING (INTEN)**

This certificate program is designed to provide recognition for students who have gained a proficiency in the skills needed by engineers in a global economy. The requirements of the certificate fall into three categories: knowledge of global engineering and its professional and societal context, knowledge of language and culture, and participation in international experiences. All engineering students in good academic standing are eligible for admission to the program.

To earn an undergraduate certificate in INTERNATIONAL ENGINEERING, a minimum of 10 credits is required.

### **PRESCRIBED COURSES**

Students must complete an application and successfully complete 3 credits of study in a second language, while a PSU student, at the 003 (third-semester) level or higher; 6 credits (typically two courses) of study in courses approved to meet the International Cultures requirement (IL) of General Education; and 1-3 credits and/or at least six weeks of approved study or workabroad, consisting of course work, internship, research, etc.

Prerequisites Required.

Effective Date: Fall Semester 2004

Expiration Date:

Last Revised by the Department: 11/11/2011

EN ENADM

## **INTERNATIONAL STUDIES**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State New Kensington, Penn State Shenango

### **INTERNATIONAL STUDIES (INTST)**

Today's students, whatever their career path, will enter a workforce that's increasingly diverse. We need to prepare our students to respect non-American cultures and people so they gain an international outlook. The Certificate in IS is intended to provide students with a broad and deep understanding of this diverse world far beyond the General Ed requirements. Students will be better suited to face the challenges and enjoy the opportunities presented by others, both in and outside the United States, who come from a variety of nations and cultures. Students MUST earn a C or higher for all 12 credits. XXX497 Special topics, or Independent Study/Research 494/496 can be used to satisfy 400 level course, subject to approval by coordinator.

To earn an undergraduate certificate in INTERNATIONAL STUDIES, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

INTST 100 or HIST 011  
HIST 488 or INTST 497 or MGMT 461 or MKTG 445 or NURS 401  
or NURS 464 or THEA 401Y  
ANTH 008 or CMLIT 108 or CMLIT 184 or ENGL 194 or HIST 002 or HIST 121  
or HIST 144 or HIST 173 or I B 303 or LING 001  
or MUSIC 009 or PSYCH 232 or RL ST 001  
or RL ST 004 or RL ST 101 or SPAN 131 or SPAN 131Y  
or PL SC 003 or PL SC 014

No Prerequisites Required.

Effective Date: Spring Semester 2011

Expiration Date:

Last Revised by the Department: 04/05/2012

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## **INFORMATION SCIENCES & TECHNOLOGY BUSINESS INTEGRATION CERTIFICATE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Wilkes-Barre

### **INFORMATION SCIENCES & TECHNOLOGY BUSINESS INTEGRATION CERTIFICATE (IST BI)**

This certificate is designed for graduates of the basic certificate in Information Sciences and Technology (IST UC). It is composed of 4 courses that are 3 credits each. It includes Fundamentals of Web Administration (IST 255), Information and Organizations (IST 301), IT Project Management (IST 302) and Special Topics (IST 297 - 3 cr). Prerequisites are IST 110, IST 210, IST 220 and IST 250.

To earn an undergraduate certificate in INFORMATION SCIENCES & TECHNOLOGY BUSINESS INTEGRATION , a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

IST 255  
IST 301  
IST 302  
IST 297

Prerequisites Required.

Effective Date: Fall Semester 2012

Expiration Date:

Last Revised by the Department: 03/02/2012

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## **INFORMATION SCIENCES AND TECHNOLOGY**

### **Undergraduate Certificate Program**

Mary Beth Rosson, Associate Dean, College of IST  
332G Information Sciences and Technology Building  
University Park, PA 16802  
Phone: 1-814-863-3450  
email: mur13@psu.edu

University Park, World Campus

### **INFORMATION SCIENCES AND TECHNOLOGY (IST)**

To earn an undergraduate certificate in INFORMATION SCIENCES AND TECHNOLOGY, a minimum of 13 credits is required.

#### **PRESCRIBED COURSES**

IST 110  
IST 210  
IST 220  
IST 250

A "C" or higher grade required in all courses for the certificate. No course substitutions are permitted to earn this certificate.

No Prerequisites Required.

Effective Date: Fall Semester 2006

Expiration Date:

Last Revised by the Department: 11/10/2011

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## **IST CERTIFICATE FOR BUSINESS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Brandywine

### **IST CERTIFICATE FOR BUSINESS (ISTBUS)**

This 16 credit certificate program is intended to upgrade knowledge in the areas of development and administration of information systems for business and industry. Students will learn to use a commercial database management system through group assignments and projects, and other performance indicators. Course work includes information processing and analytic perspectives of organizations. There is also an introduction to the role of information systems and technologies in achieving a variety of system goals. Emphasis will be placed on the theories and skills required for planning, developing, implementing, and managing the integration of information technology and different systems.

To earn an undergraduate certificate in IST FOR BUSINESS, a minimum of 16 credits is required.

### **PRESCRIBED COURSES**

IST 110 OR MIS 204  
IST 210  
IST 301  
IST 420  
IST 421

No Prerequisites Required.

Effective Date: Fall Semester 2010

Expiration Date:

Last Revised by the Department: 11/17/2011

CC INFST

## **IST CERTIFICATE FOR COMMUNICATIONS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Brandywine

### **IST CERTIFICATE FOR COMMUNICATIONS (ISTCOM)**

The IST Certificate for Communication Majors is a 16 credit program designed to incorporate the use of technology with that of the media field in Corporate Communications - Public Relations, Corporate Marketing, Internal and External Communications. This certificate builds upon already established and required courses for the major by incorporating web development and design, data base management and query design for web-based systems, Internet Marketing, and Writing for the Internet.

To earn an undergraduate certificate in IST FOR COMMUNICATIONS, a minimum of 16 credits is required.

### **PRESCRIBED COURSES**

IST 110  
IST 210  
IST 250  
MKTG 301  
ENGL 420

No Prerequisites Required.

Effective Date: Fall Semester 2010

Expiration Date:

Last Revised by the Department: 11/17/2011

CC INFST

## **IST SYSTEMS INTEGRATION**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Greater Allegheny

### **IST SYSTEMS INTEGRATION (ISTSYS)**

This certificate provides a foundation in information sciences and technology (IST) plus more advanced study of systems integration. Courses may be applied to a baccalaureate degree in IST. Students can be enrolled as non-degree, provisional or in degree status. Students must meet any course prerequisites.

To earn an undergraduate certificate in IST SYSTEMS INTEGRATION, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

IST 210  
IST 220  
IST 230  
IST 240  
IST 420 OR IST 321  
IST 421

C or higher in all courses

No Prerequisites Required.

Effective Date: Spring Semester 2006

Expiration Date:

Last Revised by the Department: 11/17/2011

CC INFST

## **INFORMATION SCIENCES & TECHNOLOGY -UNIVERSITY COLLEGE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Schuylkill, Penn State Wilkes-Barre

### **INFORMATION SCIENCES & TECHNOLOGY -UNIVERSITY COLLEGE (ISTUC)**

In this certificate program in information sciences & technology, the student will explore critical areas of information technology and information management. The foundation course is IST 110 (prerequisite for all others), and the additional courses are IST 250, IST 220 and IST 210 to compose this 13 credit undergraduate certificate.

To earn an undergraduate certificate in INFORMATION SCIENCES & TECHNOLOGY -UNIVERSITY COLLEGE, a minimum of 13 credits is required.

### **PRESCRIBED COURSES**

IST 110  
IST 250  
IST 210  
IST 220

No Prerequisites Required.

Effective Date: Spring Semester 2009

Expiration Date:

Last Revised by the Department: 04/05/2012

CC INFST

## **INFORMATION TECHNOLOGY CONSULTING THEME TRACK**

### **Undergraduate Certificate Program**

Shelie Waite  
104T Info Sci and Tech Bldg  
University Park  
Phone: 814-865-8947  
E-mail: swaite@ist.psu.edu

University Park

### **INFORMATION TECHNOLOGY CONSULTING THEME TRACK (ITCTT)**

To enhance knowledge and skills in IT consulting theory, methodologies, and best practices. IST has established a unique Information Technology Consulting (ITC) theme track. With a focus on providing real-world IT consulting experiences, this track prepares students for the dynamic and complex world of IT consulting. The ITC track requires students to complete: IST 302, IT Project Management; IST 443, IT Professional Services Theory and Practice; and IST 444, Advanced IT Professional Services.

To earn an undergraduate certificate in INFORMATION TECHNOLOGY CONSULTING THEME TRACK, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

IST 302  
IST 443  
IST 444

No Prerequisites Required.

Effective Date: Fall Semester 2007

Expiration Date:

Last Revised by the Department: 11/10/2011

IS INFST

## **SPORTS JOURNALISM, JOHN CURLEY CENTER, COLLEGE OF COMMUNICATIONS**

### **Undergraduate Certificate Program**

Asst. Dean Jamey Perry  
204 Carnegie Bldg  
University Park  
Phone: 814-865-1503  
E-mail: jrp5@psu.edu

University Park

### **SPORTS JOURNALISM, JOHN CURLEY CENTER, COLLEGE OF COMMUNICATIONS (JCCSJ)**

The program explores issues and trends through instruction, programming and research. The curriculum covers sports writing, sports broadcasting, sports information, sports ethics, sports media and society, sports industry, and sports and public policy. The Center emphasizes media-related internships. Students are encouraged to complete co-curricular work at the student-run newspaper, the campus radio and TV stations, and the Athletic Department. Students must earn a minimum of six credits from COMM 476, 477 and/or 478 and complete an on-campus sports media activity and/or internship.  
<http://comm.psu.edu/about/centers/john-curley-center-for-sports-journalism>

To earn an undergraduate certificate in SPORTS JOURNALISM, JOHN CURLEY CENTER, COLLEGE OF COMMUNICATIONS, a minimum of 6 credits is required.

### **PRESCRIBED COURSES**

COMM 476 OR COMM 477 OR COMM 478

To complete the program, students must earn a minimum of six credits from COMM 476, 477 and/or 478 and complete an on-campus sports media activity (Daily Collegian, ComRado, WKPS-FM "The Lion," Intercollegiate Athletics, etc.) and/or on- or off-campus internships in sports media.

Prerequisites Required.

Effective Date: Fall Semester 2003

Expiration Date:

Last Revised by the Department: 02/16/2012

CM



## **WELLNESS LEADERSHIP CERTIFICATE PROGRAM**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette, Penn State Hazelton, Penn State Wilkes-Barre

### **WELLNESS LEADERSHIP CERTIFICATE PROGRAM (KINNUT)**

This certificate is designed to provide a formal educational experience focused on developing, implementing, and measuring a workplace wellness program. Students will have the opportunity to explore critical topics in wellness including nutrition, exercise for stress management, and lifestyle choices for preventable illnesses.

To earn an undergraduate certificate in WELLNESS LEADERSHIP PROGRAM, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

MGMT 001S  
NUTR 100  
KINES060  
KINES083

No Prerequisites Required.

Effective Date: Spring Semester 2010

Expiration Date:

Last Revised by the Department: 11/17/2011

CC

## **LETTERS, ARTS, AND SCIENCES**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Brandywine, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton

### **LETTERS, ARTS, AND SCIENCES (LAS)**

The Letters, Arts, and Sciences program offers the option in Liberal Studies. Students take 2 required courses (6 credits), and then they will choose 1 course (3 credits) from each of the following areas: Arts, Humanities, Behavioral Sciences, and Natural Sciences (physical, biological, or earth)

To earn an undergraduate certificate in LETTERS, ARTS, AND SCIENCES, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

CAS 100  
ENGL 015

No Prerequisites Required.

Effective Date: Spring Semester 1999

Expiration Date:

Last Revised by the Department: 11/15/2011

CC CCBUS

## LEARN AND ADVANCE CERTIFICATE

### Undergraduate Certificate Program

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois

### LEARN AND ADVANCE CERTIFICATE (LEAD)

The LEAD Certificate provides personalized academic tracks of study for rising junior and senior high school students. All students will take two core courses, ENGL 015 (first panel) and PSYCH 100 or another social science from the second panel (ECON 102, ECON 104, SOC 001, IST 110). Placement scores and student interest will determine the appropriate Natural Science (GN) or MATH (GQ) as the third course (BI SC 004, MATH 021, MATH 022, MATH 026, or MATH 140). Eligibility requirements for entering this program: High school juniors and seniors that are approved to enroll by their school administration and the Director of Enrollment Manager at Penn State DuBois.

To earn an undergraduate certificate in LEARN AND ADVANCE , a minimum of 9 credits is required.

### PRESCRIBED COURSES

ENGL 015  
PSYCH100 OR ECON 102 OR ECON 104 OR IST 110  
OR SOC 001  
BI SC004 OR MATH 021 OR MATH 022 OR MATH 026  
OR MATH 140

Prerequisites Required.

Effective Date: Spring Semester 2011

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## LEGAL STUDIES

### Undergraduate Certificate Program

Robert Speel  
170 Irvin Kochel Center  
Penn State Erie  
Phone: 814-898-206  
E-mail: rws15@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### LEGAL STUDIES (LEGST)

The Legal Studies certificate is intended for students who want to learn about some of the cases and legal processes they will study in law school. It is also intended for students who might wish to work as legal assistants or paralegals and wish to get some background in law and legal processes without attending law school. The certificate requires that students take three political science courses (nine credits) about law or the legal process and two more political science courses (six credits) in which court cases or legal processes are a significant component of course materials. Students can also take 12 credits from the law or legal process courses and 3 credits from the court cases or legal processes courses.

To earn an undergraduate certificate in LEGAL STUDIES, a minimum of 15 credits is required.

### PRESCRIBED COURSES

PL SC471 OR PL SC472 OR PL SC473 OR PL SC487  
PL SC472 OR PL SC473 OR PL SC487  
PL SC473 OR PL SC487  
PL SC487  
PL SC110 OR PL SC123 OR PL SC480W OR PL SC482  
PL SC197 OR PL SC419  
PL SC123 OR PL SC480W OR PL SC482 OR PL SC197  
PL SC419  
PL SC480W OR PL SC482 OR PL SC197 OR PL SC419  
PL SC482 OR PL SC197 OR PL SC419  
PL SC197 OR PL SC419  
PL SC419

PL SC 197 IS ORGANIZED CRIME, LAW AND POLITICS

Prerequisites Required.

Effective Date: Spring Semester 2011

Expiration Date:

Last Revised by the Department: 12/02/2011

BC H&SS

## **LOGISTICS AND SUPPLY CHAIN MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Worthington Scranton  
Penn State Schuylkill

### **LOGISTICS AND SUPPLY CHAIN MANAGEMENT (LOGSUP)**

Courses cover such key concept areas as systems analysis, trade-off analysis, transport systems, procurement, inventory management, and supply chain integration and strategy. The implications of e-commerce in relation to supply chain management are also explored. The courses provide a broad overview of logistics and supply chain management and address the needs and perspectives of individuals from a wide range of areas, including manufacturers, wholesalers and retailers, merchandisers, transportation and warehousing firms, and government agencies.

To earn an undergraduate certificate in LOGISTICS AND SUPPLY CHAIN MANGEMENT, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

SCM 301  
SCM 416  
SCM 460

No Prerequisites Required.

Effective Date: Fall Semester 1990

Expiration Date:

Last Revised by the Department: 01/09/2012

CC CCBUS

## **LABOR STUDIES AND EMPLOYMENT RELATIONS**

### **Undergraduate Certificate Program**

Robin Robinson  
101 Sparks Bldg  
University Park  
Phone: 814-863-3870  
E-mail: rmb3@psu.edu

Abington College, Altoona College, Penn State Brandywine, Penn State DuBois, Penn State Lehigh Valley, University Park, World Campus

### **LABOR STUDIES AND EMPLOYMENT RELATIONS (LSER)**

Penn State's online certificate in labor studies and employment relations can prepare you for a leadership position in trade unions, employer organizations, or government. The program focuses on the relationship between employees and employers, and the many issues that influence their relationship. You will study a range of subjects including employment law, collective bargaining, and workplace diversity.

To earn an undergraduate certificate in LABOR STUDIES AND EMPLOYMENT RELATIONS, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

LER 100  
LER 201  
CRIM 482 OR LER 136 OR LER 434 OR LER 435

Student may take CRIM 482 or LER 136 or LER 434 or LER 435 or PSYCH 485.

No Prerequisites Required.

Effective Date: Fall Semester 2000

Expiration Date:

Last Revised by the Department: 02/16/2012

LA LER

## **Electric Machines and Control**

### **Undergraduate Certificate Program**

David Loker  
Penn State Behrend  
Telephone: 814-898-6478  
Fax: 814-898-6125  
email: [drl3@psu.edu](mailto:drl3@psu.edu)

Abington College, Altoona College, Behrend College, Berks College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **Electric Machines and Control (MACTRL)**

This 14 credit certificate is designed to provide students with an understanding of the fundamentals of microcontroller architectures, electrical machines, and transformers. Students will also be introduced to PLCs with programming in process control applications

#### **REQUIRED COURSES:**

CMPET 211  
EET 214  
EET 215  
EET 275  
MATH 083

Effective Semester: Fall 2012

## **MIDDLE EASTERN STUDIES**

### **Undergraduate Certificate Program**

Elena Corbett  
170 Irvin Kochel Center  
Penn State Erie  
Phone: 814-898-6069  
E-mail: edc14@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **MIDDLE EASTERN STUDIES (MDEAST)**

The Middle Eastern Studies Certificate offers students the opportunity to develop an understanding of the cultural, historical, political, and religious factors that have shaped the region through time, and gain insight into the current issues that are of central importance both to the region and the world.  
Requirements: HIST 181; two courses from the following: ANTH 009, CM LIT 110/J ST 131, J ST 060/ANTH 060/PL SC 060/SOC 060, PL SC 002, RL ST 107; and one course from the following: ANTH 420/J ST 420, HIST 473, PL SC 467, INTST 400, HIST 497 (SPECIAL TOPICS related to Middle Eastern Studies).

To earn an undergraduate certificate in MIDDLE EASTERN STUDIES, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

No Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 11/11/2011

BC H&SS



## **MECHANICAL ENGINEERING TECHNOLOGY**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette

### **MECHANICAL ENGINEERING TECHNOLOGY (ME TEC)**

The certificate program in Mechanical Engineering Technology offered by Penn State Fayette is a 22 credit program that focuses on theory and practical applications through classrooms and laboratory experiences. Students in the program can choose to pursue employment in industry as engineering technicians or to continue their studies. To earn a certificate, students are required to complete 22 credits in both technical and related subjects.

To earn an undergraduate certificate in MECHANICAL ENGINEERING TECHNOLOGY, a minimum of 22 credits is required.

### **PRESCRIBED COURSES**

MATH 081  
ENGL 015  
EG T 101  
EG T 102  
ET 002  
EET 101

No Prerequisites Required.

Effective Date: Fall Semester 2006

Expiration Date:

Last Revised by the Department: 12/05/2011

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## **MEDICAL PLASTICS**

### **Undergraduate Certificate Program**

Jason Williams  
School of Engineering  
Penn State Erie  
Phone: 814-898-6142  
E-mail: jlw109@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **MEDICAL PLASTICS (MEDPLS)**

Plastics play a critical role in a growing medical industry. A significant portion of medical devices, prosthetics, implants, tools and packaging of devices and products are dependent on plastics. Many of products could not exist, or cost would be excessive, without plastics. Medical plastics is a subset of the larger plastics industry and represents a strong growth area. Medical plastics usage is expected to increase approximately 7% per year over at least the next five years. Medical plastics also represents a large opportunity for domestic plastics manufacturers as there is a general resistance to outsourcing this production due to concerns over the quality and safety of third-world suppliers.

To earn an undergraduate certificate in MEDICAL PLASTICS, a minimum of 14 credits is required.

### **PRESCRIBED COURSES**

BECAUSE ECERT WILL NOT TAKE \*97 COURSES UNDER COURSE REQUIREMENTS, THE FOLLOWING ARE THE COURSE REQUIREMENTS FOR THE MEDICAL PLASTICS CERTIFICATE: BI SC 004--HUMAN BODY OR MICRB 106/107/ELEMENTARY MICROBIOLOGY AND PL ET 397 MEDICAL PLASTICS INDUSTRY OVERVIEW (1 CR) PL ET 497 PLASTICS PRODUCT DEVELOPMENT (3 CR) PL ET 497 MEDICAL PRODUCT DEVELOPMENT (1 CR) PL ET 497 ADVANCED MATERIALS IN MEDICAL APPLICATIONS (3 CR) PL ET 497 MEDICAL MANUFACTURING METHODS (3 CR)

Prerequisites Required.

Effective Date: Spring Semester 2010

Expiration Date:

Last Revised by the Department: 11/11/2011

BC SEET

## **MEDICAL SCIENCES**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Brandywine

### **MEDICAL SCIENCES (MEDSCI)**

The medical sciences certificate program is a one-year program designed for a select group of academically talented, highly motivated college graduates who do not have a science background. Courses are offered in a fixed-sequence, and students progress through as a part of a cohort. Students will work in a blended learning environment the majority of coursework will be completed through the Internet and self-study and come to the Penn State Delaware County campus approximately twice a month for laboratory work and exams. Upon completion, students will have the required science coursework to apply for admission to medical, dental, optometry, veterinary science, podiatry, physical therapy, physician

To earn an undergraduate certificate in MEDICAL SCIENCES, a minimum of 39 credits is required.

### **PRESCRIBED COURSES**

BIOL 110  
BIOL 141  
BIOL 142  
BIOL 230W  
CHEM 110  
CHEM 111  
CHEM 112  
CHEM 113  
CHEM 210  
CHEM 212  
CHEM 213  
CHEM 472  
PHYS 250  
PHYS 251

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/15/2011

CC

## **MECHANICAL ENGINEERING TECHNOLOGY BASIC**

### **Undergraduate Certificate Program**

Ed Evans  
242 Jack Burke Res Center  
Penn State Erie  
Phone: 814-898-6138  
E-mail: ere100@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **MECHANICAL ENGINEERING TECHNOLOGY BASIC (METBBC)**

This certificate program is designed for those working in mechanical engineering technology or related fields. It is a sequential three-phase series that will provide a solid foundation in engineering technology and can lead to an Associate or Baccalaureate degree in Mechanical Engineering Technology. Each segment must be completed in its entirety and in order. Once complete, students will have earned three certificates in Mechanical Engineering Technology applications. The basic certificate requires 18 credits.

To earn an undergraduate certificate in MECHANICAL ENGINEERING TECHNOLOGY BASIC, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

MET 107  
EG T 120  
IET 101  
MATH 081  
ENGL 015 OR ENGL 030 OR ESL 015  
CAS 100 OR CAS 100A OR CAS 100B

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/14/2011

BC SEET

## **MANUFACTURING ENGINEERING TECHNOLOGY I**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **MANUFACTURING ENGINEERING TECHNOLOGY I (METCI)**

This series of engineering courses is designed for the working adult who would like to augment their knowledge in the workplace with practical engineering courses. This certificate is designed to teach critical skills and knowledge needed to function effectively in today's manufacturing workplace. It is recommended that participants take the following classes in order.

To earn an undergraduate certificate in MANUFACTURING ENGINEERING TECHNOLOGY I, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

EDSGN100  
EG T 114  
IET 215  
IET 216  
MATH 004 OR MATH 021 OR MATH 022  
IET 101

No Prerequisites Required.

Effective Date: Fall Semester 2008

Expiration Date:

Last Revised by the Department: 11/15/2011

CC CCSSE

## **MECHANICAL ENGINEERING TECHNOLOGY FUNDAMENTAL**

### **Undergraduate Certificate Program**

Ed Evans  
242 Jack Burke Res Center  
Penn State Erie  
Phone: 814-898-6138  
E-mail: ere100@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **MECHANICAL ENGINEERING TECHNOLOGY FUNDAMENTAL (METFBC)**

This certificate program is designed for those working in mechanical engineering technology or related fields. It is a sequential three-phase series that will provide a solid foundation in engineering technology and can lead to an Associate or Baccalaureate Degree in Mechanical Engineering Technology. Each segment must be completed in its entirety and in order. Once complete, students will have earned three certificates in Mechanical Engineering applications. Completion of the basic certificate is required before starting the fundamental certificate. 13 credits are required for the MET fundamental certificate.

To earn an undergraduate certificate in MECHANICAL ENGINEERING TECHNOLOGY FUNDAMENTAL, a minimum of 13 credits is required.

### **PRESCRIBED COURSES**

EG T 121  
IET 215  
IET 216  
MCH T111  
MATH 082

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/14/2011

BC SEET

## **MECHANICAL ENGINEERING TECHNOLOGY MECHANICAL DESIGN**

### **Undergraduate Certificate Program**

Ed Evans  
242 Jack Burke Res Center  
Penn State Erie  
Phone: 814-898-6138  
E-mail: ere100@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **MECHANICAL ENGINEERING TECHNOLOGY MECHANICAL DESIGN (METMBC)**

This certificate program is designed for those working in mechanical engineering technology or related fields. It is a sequential three-phase series that will provide a solid foundation in engineering technology and can lead to an Associate or Baccalaureate degree in Mechanical Engineering Technology. Each segment must be completed in its entirety and in order. Once complete, students will have earned three certificates in Mechanical Engineering Technology applications. The METBBC and METFBC certificates are prerequisites to the METMBC certificate. The Mechanical Design Certificate requires 10 credits.

To earn an undergraduate certificate in MECHANICAL ENGINEERING TECHNOLOGY MECHANICAL DESIGN, a minimum of 10 credits is required.

### **PRESCRIBED COURSES**

MCH T213  
MCH T214  
MET 206  
MET 210W

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/14/2011

BCSEET

## **SUPERVISORY MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Fayette, Penn State Hazelton, Penn State Wilkes-Barre

### **SUPERVISORY MANAGEMENT (MGMT)**

This 24 credit certificate program is designed to provide adult students with the managerial and leadership skills needed to manage effectively in a business environment. Participating students are either front-line supervisors or are those aspiring to move into supervisory positions. The program of study is designed to provide participants with a solid base of writing, speaking, managerial and technology

To earn an undergraduate certificate in SUPERVISORY MANAGEMENT, a minimum of 24 credits is required.

### **PRESCRIBED COURSES**

MIS 103  
ENGL 015  
MGMT 100W  
PSYCH140 OR PSYCH100  
ENGL 202D  
MGMT 150  
CAS 100A OR CAS 100B  
MGMT 001S

No Prerequisites Required.

Effective Date: Fall Semester 2005

Expiration Date:

Last Revised by the Department: 11/15/2011

CC CCBUS



## **MARKETING MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **MARKETING MANAGEMENT (MK MGT)**

This certificate has been designed to provide a basic understanding of marketing management and related areas such as accounting, economics, and speech communication.

To earn an undergraduate certificate in MARKETING MANAGEMENT, a minimum of 19 credits is required.

### **PRESCRIBED COURSES**

MGMT 301  
MKTG 220  
MKTG 301  
MATH 021  
MGMT 341  
SCM 200

Math 004 or successful completion of entrance exam and 60 credits

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/15/2011

CC CCBUS

## **MARKETING MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Brandywine, Penn State Fayette, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **MARKETING MANAGEMENT (MKG MG)**

This certificate deals with fundamental principles of marketing, management, accounting, economics, speech communication, and business ethics. This program offers professional development for those already employed in the field and serves as a starting point for those considering a business career but not wanting to commit to an associate or baccalaureate degree program.

To earn an undergraduate certificate in MARKETING MANAGEMENT, a minimum of 20 credits is required.

### **PRESCRIBED COURSES**

MGMT 100 OR MGMT 100W OR MGMT 301  
MKTG 220  
MKTG 221 OR MKTG 301 OR B A 301

No Prerequisites Required.

Effective Date: Fall Semester 1998

Expiration Date:

Last Revised by the Department: 12/06/2011

CC \*A

## **MARKETING MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **MARKETING MANAGEMENT (MKTMG)**

This post associate certificate is designed to provide basic understanding of marketing today. Adult students can step up to a bachelors degree.

To earn an undergraduate certificate in MARKETING MANAGEMENT, a minimum of 19 credits is required.

### **PRESCRIBED COURSES**

MGMT 301  
MKTG 220  
MKTG 301  
MATH 021  
MGMT 341  
SCM 200

Math 004 or successful completion of entrance exam and 60 credits

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 01/09/2012

CC CCBUS

## **MANAGING TECHNOLOGY FOR PROFESSIONALS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois

### **MANAGING TECHNOLOGY FOR PROFESSIONALS (MNGTEC)**

Designed for professionals whose goal is to become focused on the strategic benefits of effectively and efficiently managing information and technology in their businesses. Core certificate, 10 credits: IST 110, IST 210, and IST 220. Specialization options available are Business (6 additional credits): MIS 204 and SOC 55. Healthcare (6 additional credits): HPA 101 and SOC 055. Networking (6 additional credits): IST 225, IST 226, IST 227, and IST 228. Contact Diana Ricotta at Penn State DuBois, 814-375-4718 or dricotta@psu.edu. <http://www.ds.psu.edu/CE/21385.htm?cn21D>

To earn an undergraduate certificate in MANAGING TECHNOLOGY FOR PROFESSIONALS, a minimum of 10 credits is required.

### **PRESCRIBED COURSES**

IST 110  
IST 210  
IST 220

No Prerequisites Required.

Effective Date: Fall Semester 2009

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## **NANOTECHNOLOGY**

### **Undergraduate Certificate Program**

Stephen Fonash  
112 Lubert Bldg  
University Park  
Phone: 814-865-4931  
E-mail: [sjf2@psu.edu](mailto:sjf2@psu.edu)

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park, World Campus

### **NANOTECHNOLOGY (NANO)**

Stephen Fonash, E S M, [sjf2@psu.edu](mailto:sjf2@psu.edu), 865-4931 The primary goal of the program is to offer students and incumbent workers worldwide the opportunity to earn this 18-credit certificate, which will be available only online. All candidates are required to successfully complete the required courses.

To earn an undergraduate certificate in NANOTECHNOLOGY, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

E SC 211  
E SC 212  
E SC 213  
E SC 214  
E SC 215  
E SC 216

Prerequisites Required.

Effective Date: Fall Semester 2000

Expiration Date:

Last Revised by the Department: 02/15/2012

EN ESC&M

## **.NET PROGRAMMING (MS)**

### **Undergraduate Certificate Program**

Nora Shultz  
115 Sutherland Bldg  
Penn State Abington  
Phone: 215-881-7877  
E-mail: nus19@psu.edu

Abington College

### **.NET PROGRAMMING (MS) (NET)**

This certificate is a 5 credit (3 course) certificate in .NET Programming that meets the needs of programmers who seek to learn to develop .NET applications. This Program also will appeal to those with experience developing .NET applications. The .NET Certificate program covers a variety of areas, from C# application development and aspects of the .NET object hierarchy to database application development with Visual Basic .NET using ADO .NET. Students who take advantage of the program will acquire significant hands-on experience with XML and XSLT. In each course, students will complete between 3-5 individual projects. The last course includes a master group project. Eva B. Klein (ebz1)-215-881-7387

To earn an undergraduate certificate in .NET PROGRAMMING (MS), a minimum of 5 credits is required.

### **PRESCRIBED COURSES**

CMPS297  
CMPS297  
CMPS297

Courses are 3 courses (totally 5 credits) that are all CMPS297 special topics. Suffix alphas will change each semester. Course titles are: Developing.NET Solutions with Visual Basic .NET (1 credit), Developing .NET Solutions with C# (1 credit), ASP.NET MVC & ADO.NET Including LINQ (3 credits)

No Prerequisites Required.

Effective Date: Spring Semester 2011

Expiration Date:

Last Revised by the Department: 12/20/2011

AB ABADM

## **NURSING INFORMATICS**

### **Undergraduate Certificate Program**

Madeline Mattern  
204 HHD East  
University Park  
Phone: 814-865-8469  
E-mail: mfm107@psu.edu

Abington College, Altoona College, Behrend College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Great Valley, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park, World Campus

### **NURSING INFORMATICS (NURINF)**

This 9-credit course series is designed to provide nurses with informatics knowledge and to prepare them to practice in information and technology rich health care environments. Those who complete the certificate will be prepared to assist in the implementation of informatics tools in healthcare environments such as electronic health records, clinical decision support tools, database management and data mining, patient safety technologies such as Bar Code Medication Administration (BCMA), RFID technologies and smart pumps. The ethical management of private health information and legislative aspects such as HIPAA and the HITECH act are also included.

To earn an undergraduate certificate in NURSING INFORMATICS, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

NURS 357  
NURS 458  
NURS 460

Prerequisites Required.

Effective Date: Spring Semester 2011

Expiration Date:

Last Revised by the Department: 02/03/2012

NR 2NURS

## **NURSING MANAGEMENT**

### **Undergraduate Certificate Program**

Madeline Mattern  
204 HHD East  
University Park  
Phone: 814-865-8469  
E-mail: mfm107@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park, World Campus

### **NURSING MANAGEMENT (NURMGT)**

The Nursing Management Certificate Program includes a series of four three-credit courses designed to enhance the career opportunities for currently licensed RNs who are working in nursing. This program is designed for registered nurses who have, or aspire to hold, entry level nurse manager positions. The program will enrich participants' knowledge of basic health care organizations and administration; collection, analysis and management of nursing data; concepts and techniques for managing nursing personnel; and concepts and techniques for enhancing nursing managerial behaviors. Courses are aligned with the core curriculum and competencies for nurse managers, developed by the American Organization of Nurse Executives.

To earn an undergraduate certificate in NURSING MANAGEMENT, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

NURS 430  
NURS 431  
NURS 432  
NURS 433

Prerequisites Required.

Effective Date: Spring Semester 2005

Expiration Date:

Last Revised by the Department: 11/10/2011

NR \*A



## **OPERATIONAL EXCELLENCE FOR PROFESSIONALS**

### **Undergraduate Certificate Program**

Mark Threeton  
301C Keller Building  
University Park, PA 16802  
Phone: 814-863-5361  
Email: mdt177@psu.edu

University Park, World Campus

### **OPERATIONAL EXCELLENCE FOR PROFESSIONALS (OEPF)**

This certificate is designed for the adult learner who would like to gain knowledge of essential supervisory leadership concepts. These adult learners may already possess a degree in an occupational discipline, but need to augment their knowledge and resumes to advance their careers with their current employer or transition into a new job. Adult learners taking this certificate may also be taking post-secondary credit courses for the first time.

To earn an undergraduate certificate in OPERATIONAL EXCELLENCE FOR PROFESSIONALS, a minimum of 9 credits is required.

#### **Admission Requirements:**

High school diploma and two years of work experience.

#### **REQUIRED COURSES:**

WF ED 451  
WF ED 410  
WF ED 405

**Effective Semester:** Fall 2013

## **ORGANIZATIONAL COMMUNICATION**

### **Undergraduate Certificate Program**

Robin Robinson  
101 Sparks Bldg  
University Park  
Phone: 814-863-3870  
E-mail: rmb3@psu.edu

Penn State Lehigh Valley, University Park, World Campus

### **ORGANIZATIONAL COMMUNICATION (ORCOM)**

This program can help you improve internal and external communication in the context of your current position or prepare you to move into a new career as a communications professional. Because the curriculum focuses on research-based skills that go beyond mere technical expertise with presentation software, the practical insights presented in this program will hold their value throughout your career. Required Courses (6 credits) CAS 283 Communication and Information Technology I (3 credits) CAS 352 Organizational Communication (3 credits) Elective Courses (choose 6 credits from the following) CAS 404; CAS 452; CAS 475; ENGL 419 (3 crs. each)

To earn an undergraduate certificate in ORGANIZATIONAL COMMUNICATION, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

CAS 283  
CAS 352  
CAS 404 OR CAS 452 OR CAS 475 OR ENGL 419

No Prerequisites Required.

Effective Date: Spring Semester 2005

Expiration Date:

Last Revised by the Department: 11/07/2011

LA CASBL

## PREMEDICAL BASIC SCIENCES

### Undergraduate Certificate Program

Mildred Rodriguez  
213 Whitmore Lab  
University Park  
Phone: 814-865-7620  
E-mail: mxr22@psu.edu

University Park

### PREMEDICAL BASIC SCIENCES (PHYAST)

The premedical certificate program is a non-degree program for academically talented, highly motivated college graduates who do not have a science background. In 15-24 months, students can complete the undergraduate science course work required to apply for admission to medical, dental, optometry, veterinary science, podiatry, physical therapy, physician assistant, nursing, and other allied health schools. Scheduling courses in the program is flexible and students who need to work may enroll part-time (students may be exempt from completing some credits based on prior undergraduate course work). All courses must be completed with a C grade or better, 24 credits need to be completed to receive the certificate.

To earn an undergraduate certificate in PREMEDICAL BASIC SCIENCES, a minimum of 32 credits is required.

### PRESCRIBED COURSES

BIOL 110  
BIOL 230W OR BIOL 240W  
BIOL 141  
BIOL 142  
BIOL 129  
CHEM 110  
CHEM 111  
CHEM 112  
CHEM 113  
SC 401  
MICRB106 OR MICRB201  
MICRB107 OR MICRB202  
STAT 200 OR STAT 250

#### Admission Requirements:

- 1) a degree in a non-life science major from a U.S. accredited university/college
- 2) GPA >3.0
- 3) min. SAT score of 1100 (Math/Verb, no score being lower than 500), or a min. ACT composite score of 24, or a min. GRE score of 1100 (Verb/Quant, no score being lower than 500, for new GRE the Verb/Quant scores need to be >150 and Analy score needs to be >3)
- 4) volunteer experience in community or health care setting. Students who completed >3 of the required science courses are not eligible (science courses taken at other colleges will be evaluated for content before being accepted towards completion of the program). The program is not for students who have a science background wanting to bolster their science GPA.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 12/19/2011

SC

## **PREMEDICAL BASIC SCIENCES**

### **Undergraduate Certificate Program**

Mildred Rodriguez  
213 Whitmore Lab  
University Park  
Phone: 814-865-7620  
E-mail: mxr22@psu.edu

University Park

### **PREMEDICAL BASIC SCIENCES (PHYTHE)**

The premedical certificate program is a non-degree program for academically talented, highly motivated college graduates who do not have a science background. In 15-24 months, students can complete the undergraduate science course work required to apply for admission to medical, dental, optometry, veterinary science, podiatry, physical therapy, physician assistant, nursing, and other allied health schools. Scheduling courses in the program is flexible and students who need to work may enroll part-time (students may be exempt from completing some credits based on prior undergraduate course work). All courses must be completed with a C grade or better, 24 credits need to be completed to receive the certificate.

To earn an undergraduate certificate in PREMEDICAL BASIC SCIENCES, a minimum of 37 credits is required.

### **PRESCRIBED COURSES**

BIOL 110  
BIOL 230W OR BIOL 240W OR BIOL 220W  
BIOL 141  
BIOL 142  
BIOL 129  
CHEM 110 OR CHEM 210  
CHEM 111 OR CHEM 212  
CHEM 112 OR CHEM 213  
CHEM 113  
PHYS 250R  
PHYS 251R  
SC 201  
SC 401  
STAT 200 OR STAT 250

Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 12/19/2011

SC

## **PROJECT MANAGEMENT CERTIFICATE**

### **Undergraduate Certificate Program**

Nora Shultz  
115 Sutherland Bldg  
Penn State Abington  
Phone: 215-881-7877  
E-mail: nus19@psu.edu

Abington College

### **PROJECT MANAGEMENT CERTIFICATE (PJMGT)**

This 5 credit certificate program covers the essential concepts, skills and techniques necessary in managing projects in the business world. The certificate is set up around a group project that is worked on throughout the program. Students gain real-time experience in the challenges of creating a unified team, solving problems, tracking their projects, and presenting a final paper and presentation on the process. Contact information: Eva Klein, 215-881-7387, ebz1@psu.edu

To earn an undergraduate certificate in PROJECT MANAGEMENT , a minimum of 5 credits is required.

### **PRESCRIBED COURSES**

B A 297  
B A 297  
B A 297  
B A 297  
B A 297

Courses are five (5) one-credit B A 297 special topics. Suffix alphas will change from semester to semester. Course titles are: Project Initiation and Planning, Project Scheduling and Integration, Project Costing and Control, MS Project Overview, Project Risk and Change Management

No Prerequisites Required.

Effective Date: Spring Semester 2011

Expiration Date:

Last Revised by the Department: 12/13/2011

AB ABADM

## **PRESIDENTIAL LEADERSHIP ACADEMY CERTIFICATE PROGRAM**

### **Undergraduate Certificate Program**

Melissa Doberstein  
1 Leadership Academy  
Atherton Hall, University Park  
Phone: 814-863-4589  
E-mail: mts13@psu.edu

University Park

### **PRESIDENTIAL LEADERSHIP ACADEMY CERTIFICATE PROGRAM (PLA)**

The goal of the program is to prepare students to develop leadership fundamentals to thrive in an environment in which multiple dimensions of an issue are explored, diverse viewpoints are heard, and a fully informed and respectful discourse that leads to sound action. The opportunities available will lead to further development of critical thinking abilities necessary for leaders to implement decisions with sensitivity to the circumstances that led them there. Students will develop the ability to rethink decisions and even change course along the way. All students are required to take 10 credits, seven through the Presidential Leadership Academy and three credits outside the academy. Courses must be at the 300 level or above.

To earn an undergraduate certificate in PRESIDENTIAL LEADERSHIP ACADEMY PROGRAM, a minimum of 7 credits is required.

### **PRESCRIBED COURSES**

HONOR201  
HONOR301H  
HONOR401H

Bloggging, Students must blog once a week throughout their time in the Presidential Leadership Academy analyzing an issue using the critical thinking skills developed in the courses. Field Trip Experiences, Students must participate in at least three field experiences. Trips planned annually by the Academy which will give students a broader perspective on social and political issues.

Prerequisites Required.

Effective Date: Fall Semester 2009

Expiration Date:

Last Revised by the Department: 03/30/2012

IC

## **Plastics Processing**

### **Undergraduate Certificate Program**

Brad Johnson  
Penn State Behrend  
Phone: 814-898-6148  
Email: bgj1@psu.edu

Penn State Erie, The Behrend College

### **Plastics Processing (PLSPR)**

This 16-17 credit program is designed to provide students with an understanding of the basics of the materials and processes used to produce plastic parts. Students learn modern processing techniques and testing methods for plastics

PL ET 050(2) or MET 107(3) or EDSGN 100S(3) or EDSGN 100(3)  
PL ET 205(3)  
PL ET 206W(3)  
PL ET 222(4)  
PL ET 227(4)

**Effective Semester:** Spring 2014

## **PROJECT MANAGEMENT COMMUNICATION**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Worthington Scranton

### **PROJECT MANAGEMENT COMMUNICATION (PMCOM)**

This 9 credit certificate allows students to gain skills in business communications including: communications skills and individual effectiveness, diversity management, collaboration and team building skills, problem solving, negotiation skills and project management.

To earn an undergraduate certificate in PROJECT MANAGEMENT COMMUNICATION, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

B A 321  
B A 322  
MGMT 410

Prerequisites Required.

Effective Date: Spring Semester 2011

Expiration Date:

Last Revised by the Department: 01/05/2012

CC



## **PREMEDICAL SCIENCES**

### **Undergraduate Certificate Program**

James Warren  
001 Prischak Bldg  
Penn State Erie  
Phone: 814-898-6986  
E-mail: jtw4@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **PREMEDICAL SCIENCES (PMEDBC)**

Non-degree program designed for academically talented, highly motivated individuals who do not have a science background. In 15-24 months students can complete science coursework required to apply for admission to medical, dental, optometry, veterinary science, podiatry, physical therapy, physician assistant or other allied health schools. Program consists of 40-42 credits of science courses.

To earn an undergraduate certificate in PREMEDICAL SCIENCES, a minimum of 42 credits is required.

### **PRESCRIBED COURSES**

BIOL 110  
BIOL 230W  
BIOL 141  
BIOL 142  
CHEM 110  
CHEM 111  
CHEM 112  
CHEM 113  
CHEM 210  
CHEM 212  
CHEM 213  
PHYS 250

IN ADDITION TO PREVIOUS COURSES HEALTH PROFESSIONS RELATED COURSES SELECTED IN CONSULTATION WITH AN ADVISER (3-5 CREDITS)

Prerequisites Required.

Effective Date: Spring Semester 2010

Expiration Date:

Last Revised by the Department: 11/11/2011

BC SCIAB

## **PUBLIC RELATIONS**

### **Undergraduate Certificate Program**

Rodney Troester  
170 Irvin Kochel Center  
Penn State Erie  
Phone: 814-898-6442  
E-mail: rlt5@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **PUBLIC RELATIONS (PR BC)**

The Certificate in Public Relations offered at Penn State Behrend is designed for communication and business majors who wish to focus their supporting or non-business supporting coursework in a specific professional communication area. The certificate is also designed for working professionals interested in developing their skill-set in public relations. The foundation of the certificate is developed in the Media Writing, Introduction to Public Relations, and Public Relations Media and Methods courses. Students are then allowed to choose one additional advanced course to complete the 12 required hours.

To earn an undergraduate certificate in PUBLIC RELATIONS, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

COMM 315  
COMM 370  
COMM 471  
COMM 472 OR COMM 473

No Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 11/11/2011

BC H&SS

## PREMEDICAL BASIC SCIENCES

### Undergraduate Certificate Program

Mildred Rodriguez  
213 Whitmore Lab  
University Park  
Phone: 814-865-7620  
E-mail: mxr22@psu.edu

University Park

### PREMEDICAL BASIC SCIENCES (PREDEN)

The premedical certificate program is a non-degree program for academically talented, highly motivated college graduates who do not have a science background. In 15-24 months, students can complete the undergraduate science course work required to apply for admission to medical, dental, optometry, veterinary science, podiatry, physical therapy, physician assistant, nursing, and other allied health schools. Scheduling courses in the program is flexible and students who need to work may enroll part-time (students may be exempt from completing some credits based on prior undergraduate course work). All courses must be completed with a C grade or better, 24 credits need to be completed to receive the certificate.

To earn an undergraduate certificate in PREMEDICAL BASIC SCIENCES, a minimum of 37 credits is required.

### PRESCRIBED COURSES

BIOL 110  
BIOL 230W OR BIOL 240W OR BIOL 220W  
BIOL 141  
CHEM 110  
CHEM 111  
CHEM 112  
CHEM 113  
CHEM 210  
CHEM 212  
CHEM 213  
PHYS 250R  
PHYS 251R  
PHYS 250L  
PHYS 251L  
SC 201  
SC 401

#### Admission Requirements:

- 1) a degree in a non-life science major from a U.S. accredited university/college
- 2) GPA >3.0
- 3) min. SAT score of 1100 (Math/Verb, no score being lower than 500), or a min. ACT composite score of 24, or a min. GRE score of 1100 (Verb/Quant, no score being lower than 500, for new GRE the Verb/Quant scores need to be >150 and Analy score needs to be >3)
- 4) volunteer experience in community or health care setting. Students who completed >3 of the required science courses are not eligible (science courses taken at other colleges will be evaluated for content before being accepted towards completion of the program). The program is not for students who have a science background wanting to bolster their science GPA.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 12/19/2011

SC

## PREMEDICAL BASIC SCIENCES

### Undergraduate Certificate Program

Mildred Rodriguez  
213 Whitmore Lab  
University Park  
Phone: 814-865-7620  
E-mail: mxr22@psu.edu

University Park

### PREMEDICAL BASIC SCIENCES (PREMED)

The premedical certificate program is a non-degree program for academically talented, highly motivated college graduates who do not have a science background. In 15-24 months, students can complete the undergraduate science course work required to apply for admission to medical, dental, optometry, veterinary science, podiatry, physical therapy, physician assistant, nursing and other allied health schools. Scheduling courses in the program is flexible and students who need to work may enroll part-time (students may be exempt from completing some credits based on prior undergraduate course work). All courses must be completed with a "C" grade or better, 24 credits need to be completed to receive the certificate.

To earn an undergraduate certificate in PREMEDICAL BASIC SCIENCES, a minimum of 37 credits is required.

### PRESCRIBED COURSES

BIOL 110  
BIOL 141  
BIOL 230W OR BIOL 240W OR BIOL 220W  
CHEM 110  
CHEM 112  
CHEM 111  
CHEM 113  
CHEM 213  
CHEM 210  
CHEM 212  
PHYS 250 OR PHYS 250L  
PHYS 250P OR PHYS 250R  
SC 201  
SC 497A OR SC 401  
PHYS 251 OR PHYS 251L  
PHYS 251P OR PHYS 251R

SC 201 was previously offered as SC 297A in FA2010.

#### Admission Requirements:

- 1) a degree in a non-life science major from a U.S. accredited university/college
- 2) GPA >3.0
- 3) min. SAT score of 1100 (Math/Verb, no score being lower than 500), or a min. ACT composite score of 24, or a min. GRE score of 1100 (Verb/Quant, no score being lower than 500, for new GRE the Verb/Quant scores need to be >150 and Analy score needs to be >3)
- 4) volunteer experience in community or health care setting. Students who completed >3 of the required science courses are not eligible (science courses taken at other colleges will be evaluated for content before being accepted towards completion of the program). The program is not for students who have a science background wanting to bolster their science GPA.

Effective Date: Spring Semester 2005

Expiration Date:

Last Revised by the Department: 11/15/2011

SC

## PREMEDICAL BASIC SCIENCES

### Undergraduate Certificate Program

Mildred Rodriguez  
213 Whitmore Lab  
University Park  
Phone: 814-865-7620  
E-mail: mxr22@psu.edu

University Park

### PREMEDICAL BASIC SCIENCES (PRENUR)

The premedical certificate program is a non-degree program for academically talented, highly motivated college graduates who do not have a science background. In 15-24 months, students can complete the undergraduate science course work required to apply for admission to medical, dental, optometry, veterinary science, podiatry, physical therapy, physician assistant, nursing, and other allied health schools. Scheduling courses in the program is flexible and students who need to work may enroll part-time (students may be exempt from completing some credits based on prior undergraduate course work). All courses must be completed with a C grade or better, 24 credits need to be completed to receive the certificate.

To earn an undergraduate certificate in PREMEDICAL BASIC SCIENCES, a minimum of 29 credits is required.

### PRESCRIBED COURSES

BIOL 129  
BIOL 141  
BIOL 142  
CHEM 110 OR CHEM 101  
CHEM 111  
MICRB106 OR MICRB201  
MICRB107 OR MICRB202  
STAT 200 OR STAT 250  
NUTR 100 OR NUTR 251  
PSYCH100

#### Admission Requirements:

- 1) a degree in a non-life science major from a U.S. accredited university/college
- 2) GPA >3.0
- 3) min. SAT score of 1100 (Math/Verb, no score being lower than 500), or a min. ACT composite score of 24, or a min. GRE score of 1100 (Verb/Quant, no score being lower than 500, for new GRE the Verb/Quant scores need to be >150 and Analy score needs to be >3)
- 4) volunteer experience in community or health care setting. Students who completed >3 of the required science courses are not eligible (science courses taken at other colleges will be evaluated for content before being accepted towards completion of the program). The program is not for students who have a science background wanting to bolster their science GPA.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 04/02/2012

SC

## PREMEDICAL BASIC SCIENCES

### Undergraduate Certificate Program

Mildred Rodriguez  
213 Whitmore Lab  
University Park  
Phone: 814-865-7620  
E-mail: mxr22@psu.edu

University Park

### PREMEDICAL BASIC SCIENCES (PREOPT)

The premedical certificate program is a non-degree program for academically talented, highly motivated college graduates who do not have a science background. In 15-24 months, students can complete the undergraduate science course work required to apply for admission to medical, dental, optometry, veterinary science, podiatry, physical therapy, physician assistant, nursing, and other allied health schools. Scheduling courses in the program is flexible and students who need to work may enroll part-time (students may be exempt from completing some credits based on prior undergraduate course work). All courses must be completed with a C grade or better, 24 credits need to be completed to receive the certificate.

To earn an undergraduate certificate in PREMEDICAL BASIC SCIENCES, a minimum of 41 credits is required.

### PRESCRIBED COURSES

BIOL 110  
BIOL 230W OR BIOL 240W OR BIOL 220W  
BIOL 141  
CHEM 110  
CHEM 111  
CHEM 112  
CHEM 113  
CHEM 210  
CHEM 212  
CHEM 213  
PHYS 250R  
PHYS 250L  
PHYS 251R  
PHYS 251L  
SC 201  
SC 401  
MICRB201  
MICRB202

#### Admission Requirements:

- 1) a degree in a non-life science major from a U.S. accredited university/college
- 2) GPA >3.0
- 3) min. SAT score of 1100 (Math/Verb, no score being lower than 500), or a min. ACT composite score of 24, or a min. GRE score of 1100 (Verb/Quant, no score being lower than 500, for new GRE the Verb/Quant scores need to be >150 and Analy score needs to be >3)
- 4) volunteer experience in community or health care setting. Students who completed >3 of the required science courses are not eligible (science courses taken at other colleges will be evaluated for content before being accepted towards completion of the program). The program is not for students who have a science background wanting to bolster their science GPA.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 12/19/2011

SC

## PREMEDICAL BASIC SCIENCES

### Undergraduate Certificate Program

Milldred Rodriquez  
213 Whitmore Lab  
University Park  
Phone: 814-865-7620  
E-mail: mxr22@psu.edu

University Park

### PREMEDICAL BASIC SCIENCES (PREVET)

The premedical certificate program is a non-degree program for academically talented, highly motivated college graduates who do not have a science background. In 15-24 months, students can complete the undergraduate science course work required to apply for admission to medical, dental, optometry, veterinary science, podiatry, physical therapy, physician assistant, nursing, and other allied health schools. Scheduling courses in the program is flexible and students who need to work may enroll part-time (students may be exempt from completing some credits based on prior undergraduate course work). All courses must be completed with a C grade or better, 24 credits need to be completed to receive the certificate.

To earn an undergraduate certificate in PREMEDICAL BASIC SCIENCES, a minimum of 47 credits is required.

### PRESCRIBED COURSES

BIOL 110  
BIOL 230W OR BIOL 240W OR BIOL 220W  
BIOL 141  
CHEM 110  
CHEM 111  
CHEM 112  
CHEM 113  
CHEM 210  
CHEM 212  
CHEM 213  
PHYS 250R  
PHYS 250L  
PHYS 251R  
PHYS 251L  
SC 201  
SC 401  
MICRB201  
MICRB202  
B M B211 OR B M B401  
STAT 200 OR STAT 250

#### Admission Requirements:

- 1) a degree in a non-life science major from a U.S. accredited university/college
- 2) GPA >3.0
- 3) min. SAT score of 1100 (Math/Verb, no score being lower than 500), or a min. ACT composite score of 24, or a min. GRE score of 1100 (Verb/Quant, no score being lower than 500, for new GRE the Verb/Quant scores need to be >150 and Analy score needs to be >3)
- 4) volunteer experience in community or health care setting. Students who completed >3 of the required science courses are not eligible (science courses taken at other colleges will be evaluated for content before being accepted towards completion of the program). The program is not for students who have a science background wanting to bolster their science GPA.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 12/19/2011

SC

## **PROFESSIONAL SALES**

### **Undergraduate Certificate**

Shirl Henry  
111 Old main  
University Park, PA 16802  
814-863-0327  
sah43@psu.edu

Penn State Wilkes-Barre; Penn State Worthington Scranton

### **PROFESSIONAL SALES (PROSAL)**

This six (6) credit certificate program is perfect for those individuals interested in pursuing an occupation in sales or an existing sales representative that would like to receive a formal education to further their career. The participant will study the role of selling in the total marketing process including the concept of customer service.

#### **Admission Requirements:**

Nondegree or degree status undergraduate students

### **PRESCRIBED COURSES**

COMM 120 **Advertising and Society** (3)  
MKTG 220 **Introduction to Selling Techniques** (3)

**Effective Semester:** Fall 2012



## **SPATIAL ANALYSIS AND ENGINEERING DESIGN PRINCIPLES**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois

### **SPATIAL ANALYSIS AND ENGINEERING DESIGN PRINCIPLES (SAEDSG)**

This certificate provides innovative instruction about the application of new design methods and processes in a variety of engineering disciplines. The certificate emphasizes how to use CAD software to create concise drawings to develop an effective design system to provide solutions for specific products, systems, components, or services. Contact Diana Ricotta at Penn State DuBois, 814-375-4718 or dricotta@psu.edu.  
<http://www.ds.psu.edu/CE/21385.htm?cn21D>

To earn an undergraduate certificate in SPATIAL ANALYSIS AND ENGINEERING DESIGN PRINCIPLES, a minimum of 7 credits is required.

### **PRESCRIBED COURSES**

EDSGN100  
EDSGN 110  
EDSGN210

No Prerequisites Required.

Effective Date: Fall Semester 2009

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## **SYSTEMS, APPLICATIONS, ANDPRODUCTS IN DATA PROCESSING**

### **Undergraduate Certificate Program**

Frank DeWolf  
281 Jack Burke Res Center  
Penn State Erie  
Phone: 814-898-7270  
E-mail: fwd101@psu.edu

World Campus

### **SYSTEMS, APPLICATIONS, ANDPRODUCTS IN DATA PROCESSING (SAP)**

Differentiate yourself in a competitive job market. This 9-credit certificate program will teach you applied business concepts, using SAP as a teaching tool. Knowledge of SAP appeals to professionals seeking to move into, and persons completing a degree in, one of the following fields: business management, operations analysis, computer software, and information systems.

To earn an undergraduate certificate in SYSTEMS, APPLICATIONS, ANDPRODUCTS IN DATA PROCESSING, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

MIS 404 OR SCM 445 OR SCM 460 OR SCM 465

Applicants must have completed 60 credits with a minimum 2.0 GPA and completed the necessary prerequisites for MIS 497C/404, SCM 465 & SCM 497A. Students are to choose 3 courses to fulfill the 9 credit certificate. Past courses - MIS 497C is now MIS 404 and SCM 497A is now SCM 445.

Prerequisites Required.

Effective Date: Fall Semester 2009

Expiration Date:

Last Revised by the Department: 11/14/2011

BC BCCOM

## **ERP CERTIFICATE WITH SAP**

### **Undergraduate Certificate Program**

Frank DeWolf  
281 Jack Burke Res Center  
Penn State Erie  
Phone: 814-898-7270  
E-mail: fwd101@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State Carlisle, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, University Park

### **ERP CERTIFICATE WITH SAP (SAPBC)**

SAP IS RECOGNIZED AS THE WORLD LEADER IN THE DEVELOPMENT OF E-BUSINESS APPLICATION SOFTWARE. THE GOAL IS TO USE SAP TECHNOLOGY AS A TOOL TO HELP TEACH BUSINESS CONCEPTS. COMPLETE THREE OF THE FOUR COURSES LISTED WITH A "C" OR BETTER.

To earn an undergraduate certificate in ERP WITH SAP, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

Take three of the four courses: MIS 304, SCM 460, SCM 445, SCM 465 with a "C" or better.

Prerequisites Required.

Effective Date: Fall Semester 2006

Expiration Date:

Last Revised by the Department: 11/11/2011

BCBSCH

## **INTERNATIONAL SCIENCE**

### **Undergraduate Certificate Program**

Paul W. Shaffner, Director  
108 Whitmore Lab  
University Park  
Phone: 814-865-5000  
E-mail: paul.shaffner@psu.edu

University Park

### **INTERNATIONAL SCIENCE (SCIEN)**

This certificate is intended to recognize the completion of course work during a study abroad experience with a science partner institution, allowing students to acquire a more global perspective on the study of science. Certificate completion will require a one-year (fall/spring) study abroad experience at a science partner institution during which the following course requirements are met: Completion of a minimum of 20 PSU-equivalent credits in science courses that can fulfill requirements for any of the College of Science major or minor degree requirements. Course equivalences have been pre-determined for some majors and some host institutions. Consultation with an academic adviser is recommended to ensure course choices.

To earn an undergraduate certificate in INTERNATIONAL SCIENCE, a minimum of 26 credits is required.

### **PRESCRIBED COURSES**

Study abroad for one academic year at a science partner institution. Completion of at least six credits of courses related to host country and at least 20 credits of science courses that will meet degree requirements.

Prerequisites Required.

Effective Date: Fall Semester 2006

Expiration Date:

Last Revised by the Department: 11/10/2011

SC \*A

## Science Research Distinction (SCIRES)

### Undergraduate Certificate Program

Mary Beth Williams  
Associate Dean for Undergraduate Education  
Eberly College of Science  
0428 Thomas Building  
Phone: 814-863-0284  
Email: mew17@psu.edu

#### University Park

The certificate will provide an incentive for students to write a thesis based on an independent research project. Students may be entered into the certificate program upon identification of a research mentor. Members of the graduate faculty are eligible to be mentors. Emeritus faculty or non-tenure track faculty members may serve as mentors, subject to approval by the Associate Dean for Undergraduate Education. Students must engage in research activities over the course of at least 3 semesters or 2 semesters and a summer. Theses must be approved by the research mentor, a reader who is a faculty member eligible to serve as a research mentor, and the Department Head or Director of Undergraduate Studies of a unit within ECoS unless the department has a specific alternative policy in place for thesis approval. The schedule for submission of theses will be the same as Schreyer Honors Theses. Honors students cannot use a single thesis to earn both the distinction of honors and a Research Distinction Certificate but may earn both distinctions by production of independent theses.

### PRESCRIBED COURSES

6 credits in independent research in Eberly College of Science  
ASTRO 296 or ASTRO 496 or B M B 496 or BMB 488 or BIOL 296 or BIOL 496 or CHEM 294 or CHEM 494 or FRNSC 496 or MATH 296 or MATH 496 or PHYS 296 or PHYS 496 or STAT 496

SC 494 section 002 (1 credit) in semester that thesis is approved

Effective Date: Fall Semester 2013

## **SUPPLY CHAIN MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Worthington Scranton

### **SUPPLY CHAIN MANAGEMENT (SCM)**

The certificate program in logistics and supply chain management introduces you to key concepts in the field, such as systems analysis, trade-off analysis, transport systems, procurement, inventory management, and supply chain integration and strategy. The program provides an overview of logistics and supply chain management and addresses the needs of manufacturers, wholesalers, retailers, merchandisers, transportation and warehousing firms, and government agencies. The implications of e-commerce in relation to supply chain management are also explored.

To earn an undergraduate certificate in SUPPLY CHAIN MANAGEMENT, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

SCM 301  
SCM 320  
SCM 416  
SCM 460

Prerequisites Required.

Effective Date: Spring Semester 1999

Expiration Date:

Last Revised by the Department: 11/14/2011

CC

## **SUPPLY CHAIN MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Wilkes-Barre

### **SUPPLY CHAIN MANAGEMENT (SCM WB)**

The certificate program in logistics and supply chain management introduces you to key concepts in the field, such as systems analysis, trade-off analysis, transport systems, procurement, inventory management, and supply chain integration and strategy. The program provides an overview of logistics and supply chain management and addresses the needs of manufacturers, wholesalers, retailers, merchandisers, transportation and warehousing firms, and government agencies. The implications of e-commerce in relation to supply chain management are also explored.

To earn an undergraduate certificate in SUPPLY CHAIN MANAGEMENT, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

SCM 301  
SCM 320  
SCM 416  
SCM 460

Prerequisites Required.

Effective Date: Fall Semester 2003

Expiration Date:

Last Revised by the Department: 11/14/2011

CC

## **LOGISTICS AND SUPPLY CHAIN MGMT-SANOFI PASTEUR**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Hazleton, Penn State Wilkes-Barre, Penn State Worthington Scranton

### **LOGISTICS AND SUPPLY CHAIN MGMT-SANOFI PASTEUR (SCM WS)**

The certificate in logistics and supply chain management introduces you to key concepts in the field, such as systems analysis, trade off analysis, transports systems, procurement, inventory management and supply chain integration. This program provides an overview of logistics and supply chain management and addresses the needs of manufactures in a specific environment that includes: government and pharmaceuticals.

To earn an undergraduate certificate in LOGISTICS AND SUPPLY CHAIN MGMT-SANOFI PASTEUR, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

SCM 301  
SCM 320  
SCM 460

Prerequisites Required.

Effective Date: Fall Semester 2008

Expiration Date:

Last Revised by the Department: 11/14/2011

CC



## **SUPPY CHAIN AND MATERIALS MGMT-TOBYHANNA ARMY DEPOT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Hazleton, Penn State Wilkes-Barre, Penn State Worthington Scranton

### **SUPPY CHAIN AND MATERIALS MGMT-TOBYHANNA ARMY DEPOT (SCMMM)**

The certificate program in Supply Chain and Materials management introduces key concepts in the field such as systems analysis, trade-off analysis, procurement, inventory management, materials management, and supply chain integration and strategy. The program provides an overview of supply chain and materials management that addresses the needs of army depot operations, manufacturing and repair.

To earn an undergraduate certificate in SUPPY CHAIN AND MATERIALS MGMT-TOBYHANNA ARMY DEPOT, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

SCM 301  
SCM 405  
SCM 460

Prerequisites Required.

Effective Date: Summer 2008

Expiration Date:

Last Revised by the Department: 11/14/2011

CC

## **SUPERVISORY LEADERSHIP FOR PROFESSIONALS**

### **Undergraduate Certificate Program**

Mark Threeton  
301C Keller Building  
University Park, PA 16802  
Phone: 814-863-5361  
Email: mdt177@psu.edu

University Park, World Campus

### **SUPERVISORY LEADERSHIP FOR PROFESSIONALS (SLFP)**

This certificate is designed for the adult learner who would like to gain knowledge of essential supervisory leadership concepts. These adult learners may already possess a degree in an occupational discipline, but need to augment their knowledge and resumes to advance their careers with their current employer or transition into a new job. Adult learners taking this certificate may also be taking post-secondary credit courses for the first time.

To earn an undergraduate certificate in SUPERVISORY LEADERSHIP FOR PROFESSIONALS, a minimum of 9 credits is required.

#### **Admission Requirements:**

High school diploma and two years of work experience.

#### **REQUIRED COURSES:**

WF ED 310  
WF ED 450  
WF ED 411

**Effective Semester:** Fall 2013

## **SMALL BUSINESS MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois, Penn State Fayette, Penn State York

### **SMALL BUSINESS MANAGEMENT (SMBUMT)**

This post associate certificate in small business management offers valuable knowledge for those who work in small business settings. It also provides solid learning experience for someone going into business themselves. This can step up to a bachelor ??s degree in Business.

To earn an undergraduate certificate in SMALL BUSINESS MANAGEMENT, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

MKTG 301W  
MGMT 301  
MGMT 331  
MGMT 341  
MATH 021  
B A 250

Math 004 or successful completion of entrance exam and 60 credits

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 11/14/2011

CC CCBUS

## **SMALL BUSINESS MANAGERS**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State DuBois

### **SMALL BUSINESS MANAGERS (SMBUS)**

The Small Business Managers Certificate provides the opportunity for students to develop a deeper understanding of effective small business practices to give them a competitive edge in the small business world. Acquire the critical skills needed to compete as a small business owner and/or manager: \*Gain comprehensive accounting skills \*Study the obstacles small business faces today and prepare yourself to meet these challenges \*Acquire basic economic skills to understand how supply and demand will effect your business prices \*Enhance your technology skills by learning Microsoft Word, Excel, Access and PowerPoint \*Learn basic management skills that you can apply immediately

To earn an undergraduate certificate in SMALL BUSINESS MANAGERS, a minimum of 19 credits is required.

### **PRESCRIBED COURSES**

ACCTG211  
B A 250  
ECON 102  
FIN 301  
MGMT 301W  
MIS 204

No Prerequisites Required.

Effective Date: Fall Semester 1992

Expiration Date:

Last Revised by the Department: 01/16/2012

CC CCBUS

## **SOCIAL MEDIA**

### **Undergraduate Certificate Program**

Kathleen Noce  
281 Jack Burke Res Center  
Penn State Erie  
Phone: 814-898-6508  
E-mail: kxn9@psu.edu

Abington College, Altoona College, Behrend College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Great Valley, Penn State Greater Allegheny, Penn State Hazelton, Penn State Lehigh Valley, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **SOCIAL MEDIA (SOCMED)**

This certificate prepares students for a career in any field practicing 21st century skills necessary to be successful in an organization today. Students are familiar with the use of social media for social and personal purposes however; they must develop the skills and attitude toward using technology systems, online content development, design, and marketing as well as online strategic planning relative to social media. They will understand how to use social media to promote, sell, and interact with customers to provide efficiency and profitability. Students completing this certificate will be prepared for the ever-growing careers in Social Media as well as the application of social media concepts in the marketplace.

To earn an undergraduate certificate in SOCIAL MEDIA, a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

MIS 204 OR CMPSC203  
MKTG 301  
MIS 387  
GD 100 OR COMM 270  
MKTG 422 OR COMM 320

Prerequisites Required.

Effective Date: Spring Semester 2011

Expiration Date:

Last Revised by the Department: 02/22/2012

BC

## SPACE SYSTEMS ENGINEERING

### Undergraduate Certificate Program

Sven Bilen  
213N Hammond Bldg  
University Park  
Phone: 814-863-1526  
E-mail: sgb100@psu.edu

University Park

### SPACE SYSTEMS ENGINEERING (SPSYS)

This certificate program is designed to prepare students for careers in the space industry and for work on space systems. To achieve this, a minimum program of three space systems engineering related courses, a space systems engineering seminar, and project work is to be completed. For entrance into the Certificate program, students must be at least 5th semester standing. The cumulative GPA considered for admission will be consistent with, or equivalent to, the GPA minimum of 2.0 for maintaining good academic standing. Students must earn a C grade or better in each of the courses to continue with the Certificate.

To earn an undergraduate certificate in SPACE SYSTEMS ENGINEERING, a minimum of 12 credits is required.

### PRESCRIBED COURSES

E E 474  
E E 472 OR AERSP492 OR E E 474 OR S T S497  
OR AERSP401A OR AERSP401B OR AERSP430  
OR AERSP450 OR AERSP497 OR AERSP597  
OR AERSP550 OR AERSP597  
E E 477 OR METEO477 OR E E 439 OR E E 471  
OR AERSP409 OR NUC E490 OR E E 534  
OR E E 576 OR E E 579 OR E E 571  
OR NUC E540 OR AERSP540 OR E E 541  
OR NUC E541 OR E E 580 OR E E 581  
OR AERSP055 OR S T S055 OR AERSP309  
OR EDSGN597 OR GEOSC021 OR GEOSC474

Students must complete an application. A project report must be submitted adhering to SPSYS Certificate formatting and systems content guidelines. Note:

Prerequisites Required.

Effective Date: Spring Semester 2006

Expiration Date:

Last Revised by the Department: 11/11/2011

EN AERSP

## Sports Administration

### Undergraduate Certificate Program

Douglas M. Charles  
Penn State Greater Allegheny  
Telephone: 412 675 9167  
E-Mail: dmc166@psu.edu

Greater Allegheny

### Sports Administration (SPTADM)

This 15-credit interdisciplinary program offers students an introduction to different aspects of sports administration careers, broadly defined. Students who complete this certificate will enhance their portfolios and career opportunities to include working in the fields of sports management, business/retail, media, sporting teams, and recreational programs. Students are required to complete 3 credits of internship (from list A) with a sports administration-related organization; 6 credits from two different subject areas of 100- and/or 200-level courses from list B; and 6 credits from two different subject areas of 300- and/or 400-level courses from list C.

#### Admission Requirements:

Students should be aware of possible course prerequisites for some of the listed courses

#### LIST A

3 credits from the following:

BA 495A (3) Internship  
CAS 495 (3) Internship  
COMM 495 (3) Internship  
PSYCH 495 (3) Internship

#### LIST B

6 credits from the following:

ACCTG 211 (4) Financial & Managerial Acct  
CAS 252 (3) Business & Professional Communication  
CAS 203 (3) Interpersonal Communication  
COMM 100 (3) Mass Media & Society  
COMM 170 (3) Intro to the Sports Industry  
ECON 102 (3) Intro Micro Economics  
FIN 100 (3) Intro to Finance *or* FIN 301(3) Corporate Finance  
HIST 113 (3) Baseball in Comparative History  
HIST 155 (3) American Business History  
KINES 141 (3) The Socio-Cultural Dynamics of Kinesiology  
PHIL 103 (3) Ethics  
STAT 100 (3) Statistics *or* STAT 200 (4) Elementary stats  
TURF 100 (3) Turfgrass Management

#### LIST C

6 credits from the following:

AM ST 441 (3) History of Sports in USA  
COMM 370 (3) Public Relations  
COMM 412 (3) Sports, Media & Society  
COMM 458 (3) Media Law Ethics  
COMM 476 (3) Sports Writing  
COMM 478 (3) Sports Information  
CRIMJ 467 (3) Law & Society  
ECON 460 (3) Issues in Sports Econ  
KINES 395B (1) Leadership Practicum: KINES  
KINES 439W (3) Ethics in Sport and Sport Management  
KINES 486 (3) Legal Issues in Sport  
LER 459 (3) Collective Bargaining in Prof Sports  
MGMT 402 (3) Experiences in Organizational Relations  
MGMT 433 (3) Leadership and Team Building  
MKTG 310 (3) Public Relations & Marketing  
MKTG 443 (3) Sports Marketing

**Effective Semester:** Summer 2014

## **Security and Risk Analysis**

### **Undergraduate Certificate Program**

Mary Beth Rosson, Associate Dean, College of IST  
332G Information Sciences and Technology Building  
University Park, PA 16802  
Phone: 1-814-863-3450  
email: mur13@psu.edu

World Campus

### **Security and Risk Analysis (SRA)**

Our society operates through information and communication technology-based infrastructures from the Internet to cell phones to organization-specific information systems across all sectors of our economy. We use these infrastructures to communicate; to conduct business; to facilitate relationships between governments; to analyze data for trends in business, social, and international settings; and to use the outputs to make decisions in countless venues. These infrastructures hold data which holds clues to how we interact with society, government, and the economy. The SRA certificate provides introductory curriculum that covers information systems, information assurance (both digital and physical security) and intelligence analysis.

#### **PRESCRIBED COURSES**

IST 110  
AND SRA 111  
AND SRA 211  
AND SRA 221

A grade of "C" or higher is required in all courses for the certificate; no course substitutions are permitted. Courses taken more than 10 years ago will not apply automatically towards completion of the certificate but instead will require review by the academic unit.

**Effective Semester:** Spring 2008



## **SUPERVISORY MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State York

### **SUPERVISORY MANAGEMENT (SU MGT)**

This post associate certificate is designed for adults who may be seeking a bachelors degree.

To earn an undergraduate certificate in SUPERVISORY MANAGEMENT, a minimum of 9 credits is required.

### **PRESCRIBED COURSES**

MGMT 301  
MGMT 321  
MATH 021

Math 004 or successful completion of entrance exam and 60 credits

Prerequisites Required.

Effective Date: Spring Semester 2007

Expiration Date:

Last Revised by the Department: 04/05/2012

CC CCBUS

## **SUPPLY CHAIN ADMINISTRATION CERTIFICATE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Hazleton, Penn State Wilkes-Barre, Penn State Worthington Scranton

### **SUPPLY CHAIN ADMINISTRATION CERTIFICATE (SUPAD)**

This 19 credit certificate allows students to see the broad overview of how supply chain and materials management fits into overall business operations. This certificate is a combination of the "Supply Chain and Materials Management" certificate and the "Business Concepts Certificate". Participants are required to take five 3 credit courses and one 4 credit course to complete the full certificate. These credits may be applied toward Associates or Bachelors in Business from Penn State University.

To earn an undergraduate certificate in SUPPLY CHAIN ADMINISTRATION , a minimum of 19 credits is required.

### **PRESCRIBED COURSES**

SCM 301  
SCM 405  
SCM 460  
MGMT 301  
ECON 104  
B A 243

Prerequisites Required.

Effective Date: Summer 2008

Expiration Date:

Last Revised by the Department: 11/14/2011

CC

## **LOGISTICS AND SUPPLY CHAIN MANAGEMENT**

### **Undergraduate Certificate Program**

Instructor Name  
Address 1  
Address 2  
Phone:  
Fax:  
E-mail:

Capital College, Penn State Schuylkill, Penn State Wilkes-Barre

### **LOGISTICS AND SUPPLY CHAIN MANAGEMENT (SUPCHN)**

The certificate program in logistics and supply chain management introduces you to key concepts in the field, such as systems analysis, trade-off analysis, transport systems, procurement, inventory management, and supply chain integration and strategy. The program provides an overview of logistics and supply chain management and addresses the needs of manufacturers, wholesalers, retailers, merchandisers, transportation and warehousing firms, and government agencies. The implications of e-commerce in relation to supply chain management are also explored.

To earn an undergraduate certificate in LOGISTICS AND SUPPLY CHAIN MANAGEMENT, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

SCM 301  
SCM 320  
SCM 416  
SCM 460 OR SCM 406W

Prerequisites Required.

Effective Date: Fall Semester 2000

Expiration Date:

Last Revised by the Department: 11/14/2011

CA

## **SUPERVISORY MANAGEMENT**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Abington College, Altoona College, Behrend College, Berks College, Capital College, King of Prussia, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **SUPERVISORY MANAGEMENT (SUPMGT)**

This program gives adult students the chance to learn more about the intricacies of employee behavior, supervisory skills, the contemporary business environment, and the legal and ethical issues faced by today's managers and employees.

To earn an undergraduate certificate in SUPERVISORY MANAGEMENT, a minimum of 19 credits is required.

### **PRESCRIBED COURSES**

B A 100  
B A 243 OR B LAW243  
MGMT 100 OR MGMT 100W  
MGMT 321 OR MGMT 331 OR MGMT 341 OR PHIL 106  
PSYCH100 OR SOC 001 OR SOC 003  
CAS 100

No Prerequisites Required.

Effective Date: Summer 2005

Expiration Date:

Last Revised by the Department: 04/05/2012

Cc

## **TECHNICAL AND BUSINESS WRITING**

### **Undergraduate Certificate Program**

Nora Shultz  
115 Sutherland Bldg  
Penn State Abington  
Phone: 215-881-7877  
E-mail: nus19@psu.edu

Abington College

### **TECHNICAL AND BUSINESS WRITING (TECHWR)**

Designed for adults learners who seek a competitive edge in the workplace and current undergraduate students preparing for careers. Program provides two tracks: technical (proposals, reports, research strategies, web-based) and business (design, composing in multimedia, web-based). Both include how to create informative, persuasive, web pages and presentations common to business, industry, and government. Students are assigned a faculty mentor, and create and maintain an e-portfolio. The program can be completed for 18 undergraduate credits.

To earn an undergraduate certificate in TECHNICAL AND BUSINESS WRITING, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

ENGL 015  
ENGL 202C OR ENGL 202D  
ENGL 215  
ART 201 OR COMM 241  
ENGL 416 OR ENGL 419 OR ENGL 420 OR ENGL 480  
ENGL 418 OR ENGL 419 OR ENGL 420 OR ENGL 480

No Prerequisites Required.

Effective Date: Fall Semester 2011

Expiration Date:

Last Revised by the Department: 11/14/2011

AB

## **TECHNOLOGY INTEGRATION FOR K-12 EDUCATORS FOR TOMORROW (TICKET)**

### **Undergraduate Certificate Program**

Abington College, Altoona College, Behrend College, Berks College, Capital College, Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Great Valley, Penn State Greater Allegheny, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, University Park

### **TECHNOLOGY INTEGRATION FOR K-12 EDUCATORS FOR TOMORROW (TICKET) (TICKET)**

This program of courses allows you to: integrate technology into teaching, learning, and curricula; use technology as a thinking tool that can transform the way you teach your students; develop the technological skills you need to solve everyday problems; incorporate Internet resources into your classroom; learn how and when to obtain copyright clearances when using materials on your Web sites; use video and hypermedia effectively in your classroom. Core Courses (required 9 credits EDTEC 400; EDTEC 448; INSYS 415B-must be taken through World Campus) Pick 2 additional courses (6 credits) from the remaining courses

To earn an undergraduate certificate in TECHNOLOGY INTEGRATION FOR K-12 EDUCATORS FOR TOMORROW (TICKET), a minimum of 15 credits is required.

### **PRESCRIBED COURSES**

EDTEC440  
EDTEC448  
INSYS415  
EDTEC449  
EDTEC461  
EDTEC462  
INSYS441  
INSYS447

INSYS 415B Systematic Instructional Development -available online only

Prerequisites Required.

Effective Date: Spring Semester 1994

Expiration Date: Spring Semester 2011

Last Revised by the Department: 03/16/2012

ED EDUC

## **Turfgrass Management**

### **Undergraduate Certificate Program**

Andrew McNitt  
116 Ag Sci & Ind Bldg  
University Park, PA  
Phone: 814-863-1368  
Email: [asm4@psu.edu](mailto:asm4@psu.edu)

World Campus

### **TURFGRASS MANAGEMENT, BASIC (TURFB)**

Students in this program will build the knowledge and skill necessary to assess, treat, and manage turf in any climate or terrain. This program addresses pest management, turfgrass cultural systems, and turfgrass edaphology and culminates in a series of case studies in turfgrass management

To earn an undergraduate certificate in TURFGRASS MANAGEMENT, BASIC, a minimum of 15 credits is required.

#### **PRESCRIBED COURSES**

TURF 230 (1)

TURF 235 (3)

TURF 436W (3)

Select 8 credits from TURF 238(3), TURF 434(3), TURF 435(4), ENT 317(3), PPEM 412(3), TURF 425(3)

No Prerequisites Required.

Effective Date: Spring Semester 2014

Last Revised by the Department: 9/18/2014

## **TURFGRASS MANAGEMENT, ADVANCED**

### **Undergraduate Certificate Program**

Andrew McNitt  
116 Ag Sci & Ind Bldg  
University Park, PA  
Phone: 814-863-1368  
Email: asm4@psu.edu

World Campus

### **TURFGRASS MANAGEMENT, ADVANCED (TURF2)**

This 30-credit certificate program is a comprehensive course of study that builds upon the basic turfgrass management certificate program. It's ideal for those who already have a bachelor's degree in another field and for those who are working toward a bachelor's degree in turfgrass.

To earn an undergraduate certificate in TURFGRASS MANAGEMENT, ADVANCED, a minimum of 30 credits is required.

### **PRESCRIBED COURSES**

ENT 317  
PPATH412  
SOILS 101  
TURF 230  
TURF 235  
TURF 238  
TURF 425  
TURF 434  
TURF 435  
TURF 436W  
TURF 490  
TURF 495

No Prerequisites Required.

Effective Date: Spring Semester 2000

Expiration Date:

Last Revised by the Department: 11/17/2011

AGCRPSS



## WEB PROGRAMMING

### Undergraduate Certificate Program

Instructor Name  
Address 1  
Address 2  
Phone:  
Fax:  
E-mail:

University Park

### WEB PROGRAMMING (WEBPRG)

Learn how to build your own database and Web server. This certificate program can show you how to develop advanced Web applications in free open-source software. Learn how to build pages, manipulate data, set up databases, retrieve, display, and modify information. Other topics such as debugging, components, and configuration needed to build complete Web-based applications, are also covered. You will also learn core elements of SQL Server and obtain required programming skills.

To earn an undergraduate certificate in WEB PROGRAMMING, a minimum of 12 credits is required.

### PRESCRIBED COURSES

Creating Web Pages with HTML and JavaScript (3 cr) Creating web pages with HTML and JavaScript. CMPSC 297X Introduction to Web Programming (3 cr) Prereq: Creating Web Pages with HTML and JavaScript. CMPSC 397X Intermediate Programming for the Web (3 cr) this course teaches you the fundamentals of ASP.NET: It also teaches data manipulation techniques. Lastly but not the least, the larger topics, such as debugging, components, and configuration needed to build complete Web-based applications, are also covered. Prerequisite: Introduction to Programming for the Web. CMPSC 397X Advanced Programming for the Web (3 cr) The over goal of this course is designed to teach you all the core elements of SQL Server.

No Prerequisites Required.

Effective Date: Spring Semester 2005

Expiration Date:

Last Revised by the Department: 11/11/2011

ENCSE

## **WEATHER FORECASTING**

### **Undergraduate Certificate Program**

David Babb  
2217 Earth and Engr Sciences  
University Park  
Phone: 814-863-3918:  
E-mail: dbabb@ems.psu.edu

World Campus

### **WEATHER FORECASTING (WFC)**

Students in this program will have an opportunity to become a better-informed, critical consumer of weather-related news. Students will also have a chance to use powerful, Web-based forecasting tools. There are no formal calculus or physics requirements for entrance to the program.

To earn an undergraduate certificate in WEATHER FORECASTING, a minimum of 12 credits is required.

### **PRESCRIBED COURSES**

METEO101  
METEO241  
METEO361  
METEO410

No Prerequisites Required.

Effective Date: Spring Semester 2004

Expiration Date:

Last Revised by the Department: 11/07/2011

EM METEO

## **YOUTH DEVELOPMENT AND SOCIAL JUSTICE**

### **Undergraduate Certificate Program**

Shirl Henry  
111 Old Main  
University Park  
Phone: 814-863-0327  
E-mail: sah43@psu.edu

Penn State Brandywine

### **YOUTH DEVELOPMENT AND SOCIAL JUSTICE (YDSJ)**

The 18-credit certificate program was designed to help understand the unique challenges facing adolescents and young adults. Intended for counselors, educators, family therapists, social workers and other professionals dedicated to serving the developmental needs of youth in contemporary society, the program provides an overview of the major issues that impact youth development from a social justice perspective. To register for the certificate program, participants are required to have previously earned at least 60 credits. Take all the following courses: HD FS 239, CRIMJ 013 & HD FS 397. Choose 9 credits, at least 6 of which must be at the 400-level: SOC 005, HD FS 301, HD FS 410, HD FS 411, HD FS 414, HD FS 432, HD FS 433 & CRIMJ 441.

To earn an undergraduate certificate in YOUTH DEVELOPMENT AND SOCIAL JUSTICE, a minimum of 18 credits is required.

### **PRESCRIBED COURSES**

HD FS239  
CRIMJ013  
HD FS397  
SOC 005 OR HD FS301 OR HD FS410 OR HD FS411  
HD FS414 OR HD FS432 OR HD FS433 OR CRIMJ441

Prerequisites Required.

Effective Date: Fall Semester 2009

Expiration Date:

Last Revised by the Department: 11/14/2011

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